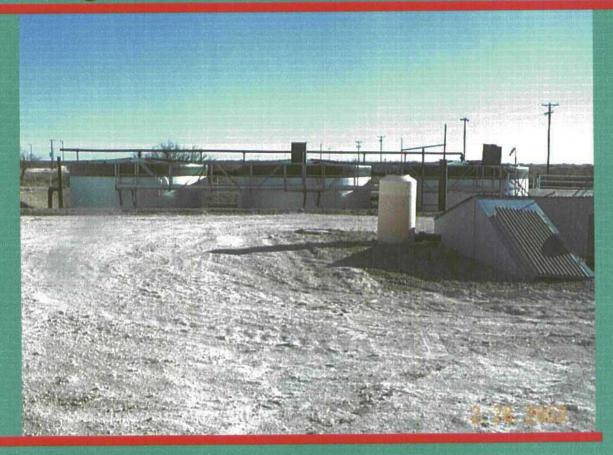
AP - 65

STAGE 1 & 2 WORKPLANS

DATE:

Dec. 30, 2005

Stage 1 Abatement Plan



EME M-9 SWD Site T20S-R37E, Section 9, Unit Letter M Lea County, New Mexico

R. T. HICKS CONSULTANTS, LTD.

M-9 HOW ZICK MW'S BE INSTALLED!

WHENE!

15 PW COMPLETE!

STAGE 1 ABATEMENT PLAN

EME M-9 SWD SITE

T20S, R37E, SECTION 9, UNIT LETTER M LEA COUNTY, NEW MEXICO

NMOCD Case # 1R0331

Prepared for:

RICE Operating Company

122 West Taylor Hobbs, New Mexico 88240

PREPARED BY:	DATE:
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R. T. HICES CONSCIETANTS, LTD.

PRINCIPAL

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1.0 EXECUTIVE SUMMARY

The M-9 SWD site is operated by Rice Operating Company (ROC) and is located in Township 20 South, Range 37 East, Section 9, unit letter M approximately 3 miles south of Monument, NM. This Stage 1 Abatement Plan incorporates the preliminary findings from previous investigations and contents of the previously submitted Investigation and Characterization Plan (ICP) and recommendations for additional assessment activities to satisfy the required elements of a Stage 1 Abatement Plan in accordance with New Mexico Oil Conservation Division (OCD) Rule 19. Since this Stage 1 Abatement Plan incorporates all four groundwater sampling events conducted during 2005 it will also serve as the annual groundwater monitoring report.

There is no threat that regulated constituents from the vadose zone at this site will cause impairment of ground water because of the excavation, lining and backfilling of the former source area below the redwood tanks and junction boxes. Ground water data from 2005 show that chloride concentrations in range between 283 and 866 mg/L, above the numerical WQCC standard but within the range of water quality acceptable to livestock. However, chloride concentrations in monitoring well MW-3 indicates that the ambient ground water quality ranges between 296 and 329 mg/L for this same period. Chloride concentrations in MW-4 is generally 100 mg/L higher than the two monitoring wells (MW-1 and MW-2) closer to the former redwood tank area. Differentiating between any impact from the former redwood tanks or junction boxes, and off-site impacts is the principal goal of the proposed Stage 1 Abatement Plan

The work elements described in detail in Section 7.0 are proposed to determine the degree that any migration of constituents originating from the former redwood tanks or junction boxes have impacted groundwater quality relative to documented regional groundwater impairment. The purpose of these work elements is to assist ROC in selecting the soil and/or groundwater remedy that is commensurate with any contribution from the M-9 SWD site to the documented regional groundwater impairment. The proposed work elements are summarized below:

Based on the evaluation of soil and groundwater sampling data and communication with the New Mexico Oil Conservation Division (NMOCD), as described herein, the following corrective actions are proposed:

- ? Define regional groundwater flow direction, potential sources of chloride in groundwater and ambient groundwater chemistry
- ? Expand our groundwater characterization to include evaluation of monitoring data from other groundwater investigation sites in the area.
- ? Install additional monitoring wells as necessary to define the extent of impairment, if any, caused by the former redwood tanks. The need for additional monitoring wells is dependent on the analysis of data from other groundwater investigation sites.

When implementing any proposed remedy or investigative work, ROC will confirm that there is a reasonable relationship between the benefits created by the proposed remedy or assessment and the economic and social costs.

E. The Effects whose as Lead

ROC is the service provider (operator) for the EME SWD System (The System) and has no ownership of any portion of the pipelines, wells, or facilities. The System is owned by a consortium of oil producers, (System Partners) who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this magnitude require System Partner Authorization for Expenditure (AFE) approval and work begins as funds are received. In general, project funding is not forthcoming until OCD approves the work plan.

2.0 CHRONOLOGY OF EVENTS

September 17, 2001	Subsurface soil investigation with a backhoe, field test for chloride and hydrocarbon levels. Sampling results indicated TPH and chloride impacts approaching the depth to groundwater at about 18 feet below ground surface (bgs).
April 2, 2002	A monitoring well (MW-1) was installed a few feet south of the former redwood tanks to further assess if groundwater was impacted with chlorides.
May 9, 2002	ROC submitted notification of groundwater impact to the NMOCD office in Santa Fe.
June 19, 2002	Excavation operations began with the removal of the redwood tanks in accordance with the Generic Closure Plan for Existing Pits and Below-Grade Redwood Tanks (February 23, 2000). Five junction boxes were also removed as they were within the area excavated at the facility. Excavation of approximately 8,000 cubic yards of TPH impacted soil was completed to a depth of 20 feet bgs and was land farmed on site. Due to the horizontal extent of the excavation, monitoring well MW-1 had to be removed.
September 9, 2002	Lining and backfilling of excavation was completed.
October 2, 2002	The junction box reports detailing all of the above-referenced work was completed and forwarded to the NMOCD in early 2003 along with the disclosure reports for other sites.
October 10, 2002	A replacement monitoring well (MW-1A) was installed immediately adjacent to the southeast corner of the excavated area. Subsequent sampling of MW-1A confirmed that chloride and TDS levels slightly above WQCC standards, however BTEX concentrations were well below the WQCC standards.
November 4, 2002	The Redwood Tank Closure Report for EME Facility M-9 was submitted to the NMOCD.
June 20, 2003	A work plan addressing further actions was submitted by Trident Environmental.
June 27, 2003	The work plan was approved by the NMOCD.
August 20, 2003	Monitoring wells MW-2 and MW-3 were installed approximately 120 feet down gradient (southeast) and approximately 130 feet upgradient (northwest) of MW-1A, respectively.
February 17, 2004	Monitoring well MW-4 was installed approximately 150 feet southeast of MW-2 for further downgradient delineation.
March 23, 2005	The Annual Monitor Well Reports for the M-9 SWD site were submitted annually with the most recent submission on March 23, 2005.
March 28, 2005	Trident Environmental submitted an Investigation and Characterization Plan (ICP) to address potential environmental concerns at the above-referenced site.
May 5, 2005	Mr. Daniel Sanchez of the OCD requested that ROC submit an abatement plan to the OCD pursuant to Rule 19.

3.0 BACKGROUND

3.1 Site Location and Land Use

The M-9 SWD site and release is located in Township 20 South, Range 37 East, Section 9, unit letter M approximately 3 miles south of Monument, NM as shown on the attached Site Location Map (Plate 1). The facility is located on Fee land owned by SW Cattle Company. The 2 acre site lease agreement has been in effect since 1989 and will continue until 2009. The M-9 SWD facility collects produced water gathered by the EME SWD System in the site area for disposal into the on site salt water disposal well. Land in the site area is primarily utilized for crude oil, gas production, and cattle ranching. Plate 2 is a recent aerial photograph at the same scale as Plate 1 showing the land use.

Based on the NMOCD online database the following oil, gas, and injection wells listed in Table 1 are located within a quarter-mile of the site.

Table 1: Oil, Gas, and Injection Wells Within 1/4 mile of the Site

OPERATOR	WELL NAME	Sec	UL.	WELLTYPE
Chevron USA Inc.	L Van Etten #004	9	K	Oil
Chevron USA Inc.	L Van Etten #013	9	K	Oil
Chevron USA Inc.	L Van Etten #017	9	K	Gas
Chevron USA Inc.	L Van Etten #009	9	L	Oil
Chevron USA Inc.	L Van Etten #016	9	L	Oil
Chevron USA Inc.	L Van Etten #014	9	M	Oil
Chevron USA Inc.	Theodore Anderson #010	8	P	Oil
Chevron USA Inc.	Theodore Anderson #012	8	Р	Oil
John H. Hendrix Corp.	State CC 16 #001	16	C	Oil
Purc Resources, LP	General G State #002	16	D	Gas
Pure Resources, LP	General G State #003	16	D	Oil
Rice Operating Company	EME SWD #009	9	M	Injection
XTO Energy Inc.	L Van Etten #015	9	N	Gas

According to the New Mexico State Land Office (NMSLO) website, companies that have lease agreements within a quarter-mile of the site are listed in Table 2 below.

Table 2: NMSLO Lease Agreements Within 1/4 mile of the Site

COMPANY NAME	Sec	UNIT LETTERS	LEASE TYPE
Kelly Maclaskey Oilfield Services Inc.	16	D	Business Lease
SW Cattle Company	16	A-P	Grazing & Agriculture
Bruce A Wilbanks	16	CF	Oil & Gas
ConocoPhillips Company	16	E	Oil & Gas
Pure Resources, LP	16	D	Oil & Gas
Bandera Inc.	16	D	Right of Way
EOTT Energy Pipeline LP	16	BCDEFJKLMNO	Right of Way
GPM Gas Corp.	16	BDEFGJKLNO	Right of Wav
Lea Partners LP	16	FKN	Right of Way
Texaco Exploration & Production Inc.	16	DELM	Right of Way
Versado Gas Processors LLC	16	CDEFKL	Right of Way
Rice Operating Company	16	D	Water

3.2 Nature of Release and Summary of Previous Work

Initial soil sampling activities for delineation of the M-9 SWD site began on September 17, 2001, prior to the removal of the redwood tanks. Sampling results indicated TPH and chloride impacts approaching the depth to groundwater at about 18 feet below ground surface (bgs). A monitoring well (MW-1) was installed on April 2, 2002. The subsurface soils primarily consist of caliche with varying amounts of very fine to fine-grained sand and some clavey silty fine sand.

On June 19, 2002 excavation operations began with the removal of the redwood tanks in accordance with the Generic Closure Plan for Existing Pits and Below-Grade Redwood Tanks (February 23, 2000). Five junction boxes were also removed as they were within the area excavated at the facility. Excavation of approximately 8,000 cubic yards of TPH impacted soil was completed to a depth of 20 feet bgs and was land farmed on site. Due to the horizontal extent of the excavation monitoring well MW-1 had to be removed. Clean backfill was placed in the deep excavation from 20 feet to 16 feet bgs. A 12-inch compacted clay liner was then installed prior to backfilling with the remediated soil in 3-foot lifts. The remaining remediated soil was placed on the surface and contoured to the surrounding terrain. Backfilling was completed on September 9, 2002. Three new fiberglass tanks were installed along the south end of the fenced facility. The Redwood Tank Closure Report detailing all of the above-referenced work was submitted to the NMOCD on November 4, 2002.

On October 10, 2002, a replacement monitoring well (MW-1A) was installed immediately adjacent to the southeast corner of the excavated area. Subsequent sampling of MW-1A confirmed that groundwater was impacted with chloride and TDS levels slightly above WQCC standards, however BTEX concentrations were well below the WQCC standards.

A work plan addressing further actions was submitted by Trident Environmental on June 20, 2003 and was approved by the NMOCD on June 27, 2003. In accordance with the work plan, monitoring wells MW-2 and MW-3 were installed approximately 120 feet down gradient (southeast) and approximately 130 feet upgradient (northwest) of MW-1A, respectively, on August 20, 2003. On February 17, 2004, monitoring well MW-4 was installed approximately 150 feet southeast of MW-2 for further downgradient delineation. Quarterly monitoring of the groundwater has been conducted since the installation of all monitoring wells.

Photographs of the site are included in Appendix A.

4.0 GEOLOGY AND HYDROGEOLOGY

4.1 Regional and Local Geology

According to published information (Nicholson and Clebsch, 1961, Barnes, 1976, and Anderson, Jones, and Green, 1997) the site is underlain by Quaternary eolian and piedmont deposits composed of sand, silt, and gravel deposited by slopewash, and talus from the Ogallala Formation. The eolian and piedmont deposits are often calichified (indurated with cemented calcium carbonate) with caliche layers from 1- to 20-feet thick. The lithology of the eolian and picdmont deposits is very similar to that of the Ogallala since the Ogallala is the source of these re-deposited colluvial sediments. The nearest outcropping of the Ogallala Formation occurs approximately one mile north of Monument along what is known as the Llano Estacado (caprock). The thickness of the colluvium deposits and Ogallala Formation is approximately 80-feet, however it varies locally as a result of significant paleo-topography at the top of the underlying Triassic Dockum Group. Since Cretaceous Age rocks in the region have been removed by pre-Tertiary erosion, the colluvial deposits and Ogallala Formation rest unconformably on the Triassic Dockum Group. The uppermost unit of the Dockum Group is the Chinle Formation, which primarily consists of micaceous red clay and shale but also contains thin interbeds of fine-grained sandstone and siltstone. The red clays and shale of the Chinle Formation act as an aquitard beneath the water bearing colluvial deposits and therefore limit the amount of recharge to the underlying Dockum Group. The thickness of the Dockum Group is estimated at approximately 300-feet in the site area although its thickness in southern Lea County varies from 0 to 1,270-feet thick (Nicholson and Clebsch, 1961). Plate 3 shows the surface geology of the site.

Based on the lithologic log descriptions provided by Trident Environmental the subsurface soils are composed caliche with varying amounts of very fine to fine-grained sand in matrix. (0-12 ft) and clayer silty very fine-grained sand with varying amounts of soft caliche in matrix (12-30 ft). More detailed descriptions of the subsurface lithology are provided on the lithologic logs in Appendix B.

4.2 Regional and Local Hydrogeology

Potable groundwater used in southern Lea County is derived primarily from the Ogallala Formation (including the colluvial deposits) and the Quaternary alluvium. Lower yields have also been provided by water bearing zones within the Triassic Dockum Group in a few scattered areas within southern Lea County. No potable water is known to be derived below the Triassic Dockum Group. Water from the Ogallala and alluvium aquifers in southern Lea County is used for irrigation, stock, domestic, industrial, and public supply purposes.

Recharge to the Ogallala aquifer occurs primarily by infiltration of precipitation at a slow rate (typically one quarter to one half inch of water per year) due to the characteristically arid climate of southern Lea County (Nicholson and Clebsch, 1961). In the Monument Area, the colluvium is recharged by both precipitation and by flow from the Ogallala Aquifer into the colluvium. Monument Springs is a surface expression of the connection between the two saturated units.

Hydraulic conductivity values are estimated between 26 and 50-feet per day and specific yields of 0.23 for the Ogallala aquifer near the site area based on limited published information (Hart & McAda, 1985). There are no surface water bodies located within a mile of the site.

Nicholsen and Clebsch (1961) found that the regional gradient of the Ogallala and interconnected colluvial aquifer in the site area generally flows toward the southeast and the hydraulic gradient varies from approximately 0.001 to 0.01 feet/feet. Based on recent data from accessible wells located within two miles south and west of Monument, the regional hydraulic gradient is to the southeast at 0.003 feet/foot (Plate 4), which is consistent with published historical data. However, the hydraulic gradient in the more immediate area of the site has generally been relatively flat (0.0021 ft/ft to 0.0031 ft/ft) but at a south-southwest to south-southeast direction with the exception of the August 2003, August 2005, and November 2005 monitoring events in which it trended towards the east-northeast at a steeper slope (0.0055 ft/ft to 0.0077 ft/ft). Depth to groundwater beneath the site is approximately 16 to 17 feet below ground surface. A summary of the local hydraulic gradient over the past 2 years is shown in Table 3 below. The groundwater gradient for the four monitoring events conducted during 2005 is depicted in plates 5A through 5D.

Table 3: Local Hydraulic Gradient

Date	Gradient					
Date	Magnitude	Direction	Azimuth*			
08/22/03	0.0077 ft/ft	ENE	73.7°			
10/30/03	0.0031 ft/ft	SSE	166.0°			
02/20/04	0.0026 ft/ft	SSE	166.3°			
05/05/04	0.0026 ft/ft	SSW	185.0°			
08/11/04	0.0021 ft/ft	SSE	168.6°			
11/10/04	0.0022 ft/ft	S	178.4°			
02/08/05	0.0027 ft/ft	SSW	188.6°			
05/02/05	0.0026 ft/ft	SSW	188.7°			
08/11/05	0.0062 ft/ft	ENE	72.0°			
11/29/05	0.0055 ft/ft	ENE	77.4°			

NIMW NINE azimuth
NIW NINE ENE
E 90°
ESE
SSW S SSE
180°
Hydraulic Gradient

A list of water wells obtained from the US Geological Survey and NMSEO on line databases located within the surrounding sections of the site is included in Appendix C. A water well survey map showing wells identified from state (NMSEO and NMOCD) and federal (USGS) databases is depicted in Plate 6.

^{*} Based on a true north reading of 0° (degrees).

5.0 VADOSE ZONE CHARACTERISTICS

ROC conducted initial upper vadose zone delineation field activities on September 17, 2001, prior to the removal of the redwood tanks. Sampling results from nine soil borings indicated TPH and chloride impacts approaching the depth to groundwater at about 18 feet below ground surface (bgs). A map and table showing the results of the soil borings is included on Exhibit 5 of the Redwood Tank Closure Report for EME SWD Facility M-9 in Appendix D. The results are also summarized in Table 4 below.

Table 4: Soil Boring Sample Results

Table 4: Soil Boring Sample Results							
Sample Legation	Date	Depth	Chloride				
Sample Location	Date	(Feet)	(mg/kg)				
		5	401				
SB-1	09/17/01	10	252				
		15	135				
SB-2	00/17/01	10	234				
5D-2	09/17/01	15	149				
		5	316				
SB-3	09/17/01	10	415				
		15	284				
		5	319				
SB-4	09/17/01	10	337				
		15	<u>1</u> 70				
	09/17/01	5	202				
SB-5		10	85				
2D-2		15	74				
		30	542				
		10	287				
SB-6	09/17/01	15	414				
SD-0	09/1//01	20	269				
		25	542				
SB-7	09/17/01	15	425				
SD-/	09/1//01	20	106				
CD 0	00/17/01	15	213				
SB-8	09/17/01	20	213				
-		10	337				
SB-9	09/17/01	15	241				
		20	195				

Sidewall and bottom samples were sent to the laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX) using EPA Method 8021B, gas and diesel range organics (GRO/DRO) using EPA Method 8015M, and chlorides to confirm the completion of excavation activities. Results of the excavation closure sampling are listed in the Table 5.

Table 5: Soil Sample Results After Excavation (08/21/02 – 09/09/02)

C 1 T	Data	BTEX	GRO	DRO	Chloride
Sample Location	Date	(mg/kg)	(mg/kg)	(mg/kg)_	(mg/kg)
Bottom (4-point composite at 16 ft bgs)	08/21/02		<10	50.3	354
Bottom (4-point composite at 20 ft bgs)	08/30/02	< 0.025	<10	<10	94.5
Sidewalls (6-point composite)	08/30/02	< 0.025	<10	<10	245
Inj. Well Wall (3-point composite at 13 ft bgs)	08/29/02		322	40	425

Due to the horizontal extent of the excavation monitoring well MW-1 had to be removed. Remediated soil was used as backfill material for the excavation from 20 feet to 15 feet bgs. A 12-inch compacted clay liner was then installed prior to backfilling with the remaining remediated soil in 3-foot lifts. A cross-section showing the placement of the clay liner and backfill with laboratory results is included on Exhibit 7 of the *Redwood Tank Closure Report for EME SWD Facility M-9* in Appendix D.

On October 10, 2002, a replacement monitoring well (MW-1A) was installed immediately adjacent to the southeast corner of the excavated area. Monitoring wells MW-2 and MW-3 were installed approximately 120 feet southeast and approximately 130 feet northwest of MW-1A, respectively, on August 20, 2003. On February 17, 2004, monitoring well MW-4 was installed approximately 150 feet southeast of MW-2 for further delineation of groundwater conditions. Soil samples were analyzed in the field for chlorides using field-adapted Method 9253 (QP-03). For quality assurance of field sampling techniques, two duplicate samples were analyzed by the laboratory. A summary of the sample results for the four monitoring wells on site are listed in Table 6 below. The monitoring well locations are shown on Plates 5A-5D.

Table 6: Monitoring Well Soil Sample Results

Table 6. Monitoring wen son sample results							
		Donth	Field	Lab			
Monitoring Well	Date	Depth (Feet)	Chloride	Chloride			
		(1.661)	(mg/kg)	(mg/kg)			
		5	100	N.A			
		10	100	NA			
		15	100	NA			
MW-1	04/02/02	20	100	N.A.			
N1W-1	04/02/02	23	100	NA			
		25	75	NA			
		28	50	NA			
		30	75	NA			
	08/20/03	5	190	NA			
MW-2		10	683	532			
		15	125	70.9			
		5	178	NA			
NIW-3	08/20/03	10	412	NA			
		15	318	NA			
		5	253	N.A			
) DV/ 4	02/17/04	10	462	N.A			
MW-4	02/17/04	15	159	NA			
		20	192	N.A			

NA indicates sample was not analyzed by the laboratory.

6.0 GROUNDWATER QUALITY

6.1 Monitoring Program

Monitoring wells MW-1, MW-2, MW-3, and MW-4 and water well WW-1, have been sampled on a quarterly basis for major ions, TDS, and BTEX. A summary of historical analytical results and groundwater elevations is listed in Table 7 and depicted in graphical format in Figures 1 through 5. Analytical results for the four sampling events conducted in 2005 are also shown on Plates 5A through 5D. A copy of the laboratory analytical report and chain of custody form for the most recent groundwater sampling event is included in Appendix E.

6.2 Hydrocarbons in Groundwater

BTEX concentrations in monitoring wells MW-1, MW-2, MW-3, and MW-4 and water well WW-1 have been well below the WQCC standards in every sampling event since April 8, 2002, and below the laboratory method detection limit of 0.001 mg/L for 10 consecutive quarters (since August 22, 2003).

6.3 Other Constituents of Concern

Chloride and TDS concentrations in the on-site monitoring wells have remained relatively consistent over the past few years. Monitoring well MW-3 has been consistently upgradient of the former redwood tanks for all monitoring events and appears to be representative of the ambient concentrations of chlorides and TDS for the site. Until further evaluation of regional groundwater quality data, background concentrations of chlorides and TDS cannot be defined at this time. Chloride concentrations in MW-3 have ranged from 296 to 337 mg/L, which is a very small range of values for this area. MW-4 is sometimes down gradient and often cross gradient from the redwood tanks with hloride concentrations ranging between 514 and 614 mg/L, which also is a very small range of values for the Monument area.

No correlations between chloride/TDS concentrations and changes in groundwater levels are evident. Based on the most recent sampling event conducted on November 29, 2005, the following conditions are noted:

- ? Chloride concentrations in monitoring wells MW-1A (283 mg/L), MW-2 (391 mg/L), MW-3 (296 mg/L), MW-4 (614 mg/L), and WW (558 mg/L), exceed the WQCC numerical standard of 250 mg/L.
- ? The TDS concentration in monitoring wells MW-1A (1,340 mg/L), MW-2 (1,630 mg/L), MW-3 (1,510 mg/L), MW-4 (1,850 mg/L), and WW (2,490 mg/L), exceed the numerical WQCC standard of 1,000 mg/L.

M. M. Michel Coursellman, forc.

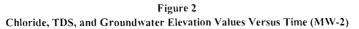
Table 7: Summary of Groundwater Monitoring Results

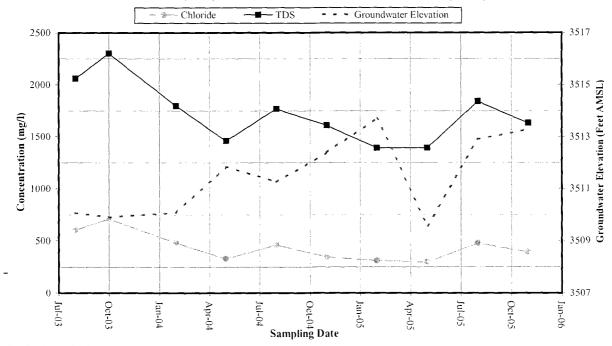
		Water Table	Water Table	Chloride	TDS	Benzene	Toluene	Ethyl-	Xylene
MW No.	Sample Date	Depth (feet	Elevation	(mg/L)	(mg/L)	(mg/L)	(mg/L)	benzene	(mg/L)
		BTOC)	(feet AMSL)		ļ			(mg/L)	
	10/28/02	19.10	3510.69	372	1470	< 0.001	< 0.001	< 0.001	< 0.001
	02/28/03	18.48	3511.31	372	1500	0.002	0.002	0.002	0.003
	05/16/03	19.00	3510.79	390	1470	0.001	< 0.001	< 0.001	0.001
	08/22/03	19.38	3510.41	372	1470	0.002	< 0.001	< 0.001	< 0.00
	10/30/03	19.57	3510.22	346	1530	< 0.001	< 0.001	< 0.001	< 0.00
	02/20/04	19.41	3510.38	337	1390	0.001	< 0.001	< 0.001	< 0.00
MW-1A	05/05/04	17.76	3512.03	337	1400	0.001	< 0.001	< 0.001	< 0.00
	08/11/04	18.27	3511.52	390	1690	0.003	< 0.001	< 0.001	< 0.00
	11/10/04	17.23	3512.56	390	1740	0.003	< 0.001	< 0.001	< 0.00
	02/08/05	15.90	3513.89	304	1500	0.003	< 0.001	< 0.001	0.001
	05/02/05	20.03	3509.76	329	1450	< 0.001	< 0.001	< 0.001	< 0.00
!	08/11/05	16.61	3513.18	286	1480	< 0.001	< 0.001	< 0.001	< 0.00
	11/29/05	16.28	3513.51	283	1340	0.001	< 0.001	< 0.001	< 0.00
	08/22/03	21.45	3510.07	603	2060	< 0.001	< 0.001	< 0.001	< 0.00
	10/30/03	21.61	3509.91	709	2300	< 0.001	< 0.001	< 0.001	< 0.00
	02/20/04	21.44	3510.08	478	1800	< 0.001	< 0.001	< 0.001	< 0.00
	05/05/04	19.67	3511.85	328	1460	< 0.001	< 0.001	< 0.001	< 0.00
MW-2	08/11/04	20.26	3511.26	461	1770	< 0.001	< 0.001	< 0.001	< 0.00
MW-2	11/10/04	19.13	3512.39	346	1610	< 0.001	< 0.001	< 0.001	< 0.00
	02/08/05	17.80	3513.72	311	1390	< 0.001	< 0.001	< 0.001	< 0.00
	05/02/05	21.94	3509.58	295	1390	< 0.001	< 0.001	< 0.001	< 0.00
	08/11/05	18.62	3512.90	476	1840	< 0.001	< 0.001	< 0.001	< 0.00
	11/29/05	18.24	3513.28	391	1630	< 0.001	< 0.001	< 0.001	< 0.00
	08/22/03	21.68	3510.76	319	1590	< 0.001	< 0.001	< 0.001	< 0.00
	10/30/03	21.86	3510.58	328	1740	< 0.001	< 0.001	< 0.001	< 0.00
	02/20/04	21.70	3510.74	337	1550	< 0.001	< 0.001	< 0.001	< 0.00
	05/05/04	20.10	3512.34	328	1530	< 0.001	< 0.001	< 0.001	< 0.00
MW-3	08/11/04	20.62	3511.82	337	1560	< 0.001	< 0.001	< 0.001	< 0.00
MIW-3	11/10/04	19.61	3512.83	337	1600	< 0.001	< 0.001	< 0.001	< 0.00
	02/08/05	18.26	3514.18	312	1450	< 0.001	< 0.001	< 0.001	< 0.00
	05/02/05	22.38	3510.06	329	1510	< 0.001	< 0.001	< 0.001	< 0.00
	08/11/05	18.95	3513.49	300	1480	< 0.001	< 0.001	< 0.001	< 0.00
	11/29/05	18.43	3514.01	296	1510	< 0.001	< 0.001	< 0.001	< 0.00
	02/20/04	22.61	3509.47	585	1820	< 0.001	< 0.001	< 0.001	< 0.00
	05/05/04	20.77	3511.31	549	1760	< 0.001	< 0.001	< 0.001	< 0.00
	08/11/04	21.28	3510.80	567	1770	< 0.001	< 0.001	< 0.001	< 0.00
	11/10/04	20.21	3511.87	514	1790	< 0.001	< 0.001	< 0.001	< 0.00
NIW-4	02/08/05	18.90	3513.18	520	1670	< 0.001	< 0.001	< 0.001	< 0.00
	05/02/05	22.99	3509.09	591	1790	< 0.001	< 0.001	< 0.001	< 0.00
	08/11/05	19.75	3512.33	571	1830	< 0.001	< 0.001	< 0.001	< 0.00
	11/29/05	19.40	3512.68	614	1850	< 0.001	< 0.001	< 0.001	< 0.00
	10/30/03	20.25	3510.21	284	1150	< 0.001	< 0.001	< 0.001	0.002
	02/20/04	20.07	3510.39	292	1100	< 0.001	< 0.001	< 0.001	0.002
	05/14/04	18.29	3512.17	266	1040	< 0.001	< 0.001	< 0.001	< 0.00
	08/11/04	18.92	3511.54	266	1810	< 0.001	< 0.001	< 0.001	< 0.00
WW-1	11/10/04	17.82	3512.64	284	959	< 0.001	< 0.001	< 0.001	< 0.00
	02/08/05	16.41	3514.05	395	1180	< 0.001	< 0.001	< 0.001	< 0.00
	05/02/05	20.54	3509.92	866	2470	< 0.001	< 0.001	< 0.001	< 0.00
	08/11/05	20.54 18.11	3509.92 3512.35	751	2900	< 0.001	< 0.001	< 0.001	< 0.00
									1
	11/29/05	17.60	3512.86 'QCC Standards	558 250	2490 1000	< 0.001	< 0.001 0.75	< 0.001 0.75	< 0.00

T20S-R37E-Sec 9-Unit M OCD CASE # 1R0331 EME M-9 SWD Site - Stage 1 Abatement Plan

- Chloride – TDS - Groundwater Elevation 2000 3516 3515 1500 Concentration (mg/l) 1000 500 3509 3508 Oct-02 Apr-05 Jul-05 Jul-02 Jan-03 Apr-03 Jul-03 Oct-03 Jan-04 Jul-04 Oct-04 Jan-06 Sampling Date

Figure 1 Chloride, TDS, and Groundwater Elevation Values Versus Time (MW-1A)

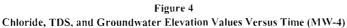


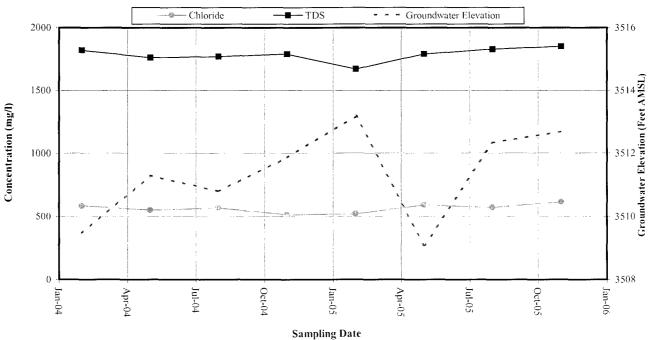


T20S-R37E-Sec 9 -Unit M NMOCD Case #1R0331 EMIE M-9 SWD Site Stage 1 Abatement Plan

Chloride ─TDS - - - Groundwater Elevation 2000 3316 3315 1500 3314 Concentration (mg/l) 3313 1000 3312 3311 500 3310 3309 3308 Jul-05 Oct-03 Oct-05 Apr-04 Oct-04 Apr-05 Jul-03 Jan-04 Jan-06 Sampling Date

Figure 3
Chloride, TDS, and Groundwater Elevation Values Versus Time (MW-3)





T20S-R37E-Sec 9 -Unit M NMOCD Case #1R0331 EME M-9 SWD Site Stage 1 Abatement Plan

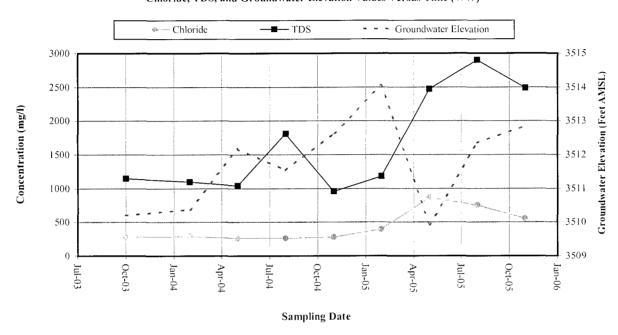


Figure 5
Chloride, TDS, and Groundwater Elevation Values Versus Time (WW)

7.0 STAGE 1 ABATEMENT PLAN

We will first determine if the documented releases from the M-9 SWD have caused a measurable groundwater impact relative to any regional groundwater impairment. If this site caused, contributed to, or could contribute to groundwater impairment, we will collect sufficient data to design an appropriate remedy. We propose collecting regional groundwater data and a subsequent field program at the site to make this determination and collect the data required for any necessary remedy. No further soil investigation of the vadose zone is warranted unless field observations suggest otherwise.

7.1 Define Regional Groundwater Flow Direction, Potential Sources of Chloride in Groundwater and Ambient Groundwater Chemistry

State records will be examined for evidence of releases up gradient from the M-9 site. We also plan to completely examine records at the OCD, NMED, Office of the State Engineer (OSE) and the US Geological Survey (USGS) for water quality and water level data for wells identified within a one-mile radius of the site. This file search will provide a better understanding of groundwater flow and ambient (and possibly background) water chemistry. Plate 6 shows the locations of nearby water supply and monitoring wells obtained from ROC, OCD, NMED, OSE, and USGS databases so far. Further examination of data for these wells identified during a field survey will assist us in understanding the contribution of the M-9 site to the observed regional chemistry. Our characterization of groundwater will include evaluation of monitoring data from other groundwater investigation sites in the area. It may be necessary to determine elevations of any additional monitoring points by a registered surveyor. The water well inventory will also assist in identifying the location of potential water supply receptors (domestic, irrigation, or livestock wells).

7.2 Installation of Additional Monitoring Wells for Further Delineation

If groundwater sampling and our file research indicate that impairment caused by releases from the redwood tank site may extend beyond the current monitoring well network, we will install additional monitoring wells.

During any drilling operations, soil samples will be collected periodically (five feet intervals) and field-tested for chloride content using the titration method. The monitoring wells will be constructed in accordance with OCD and industry standard methods with 5 feet of well screen above the water table and a minimum of 10 feet of well screen below the water table. At least one well will penetrate the entire thickness of the aquifer. We will employ field data to evaluate the need to complete a well cluster in this deep well. No further soil investigation of the vadose zone is warranted unless field observations suggest otherwise.

7.3 Groundwater Monitoring

Continued monitoring of depth to groundwater and groundwater quality (major ions and TDS) for the on-site monitoring wells is recommended on a quarterly frequency. Analysis for BTEX concentrations will be suspended, as each component of BTEX has been below the laboratory method detection limit of 0.001 mg/L since August 22, 2003 (10 consecutive quarters). In addition, groundwater quality and water table elevation data for area water wells will be evaluated based on availability and accessibility of the data from the responsible party of those wells.

7.4 Corrective Action/Closure

The information gathered from the results of the additional assessment actions described above will be evaluated and utilized to design the appropriate groundwater remedy, if necessary. The remedy that offers the greatest environmental benefit while causing the least environmental impairment will be selected. Such recommendations and findings will be presented to OCD in a subsequent Stage 2 Abatement Plan. When evaluating any proposed remedy or investigative work, ROC will confirm that there is a reasonable relationship between the benefits created by the proposed remedy or assessment and the economic and social costs.

20. W. J. Chill Control Consul Labor.

8.0 QUALITY ASSURANCE / QUALITY CONTROL

Sampling and analytical procedures shall be performed in accordance with Title 20 NMAC 6.3107.B and Section 903 of the Water Quality Standards for Interstate and Intrastate Streams in New Mexico (20 NMAC 6.1).

Soil samples will be screened in the field using a PID (QP-07) and field tested for chlorides (QP-03). Soil samples with a PID response of 100 ppm or greater will be submitted to the laboratory for analysis of BTEX. Ten percent (10%) of the soil samples will be submitted for laboratory analysis of chlorides as confirmation of the field analysis.

Groundwater samples will be collected in accordance with procedures explained in QP-04 and QP-05, and analyzed for BTEX, major ions, and TDS.

Specific quality procedures for collecting and analyzing soil and groundwater samples are included in Appendix F.

9.0 PROPOSED SCHEDULE OF ACTIVITIES

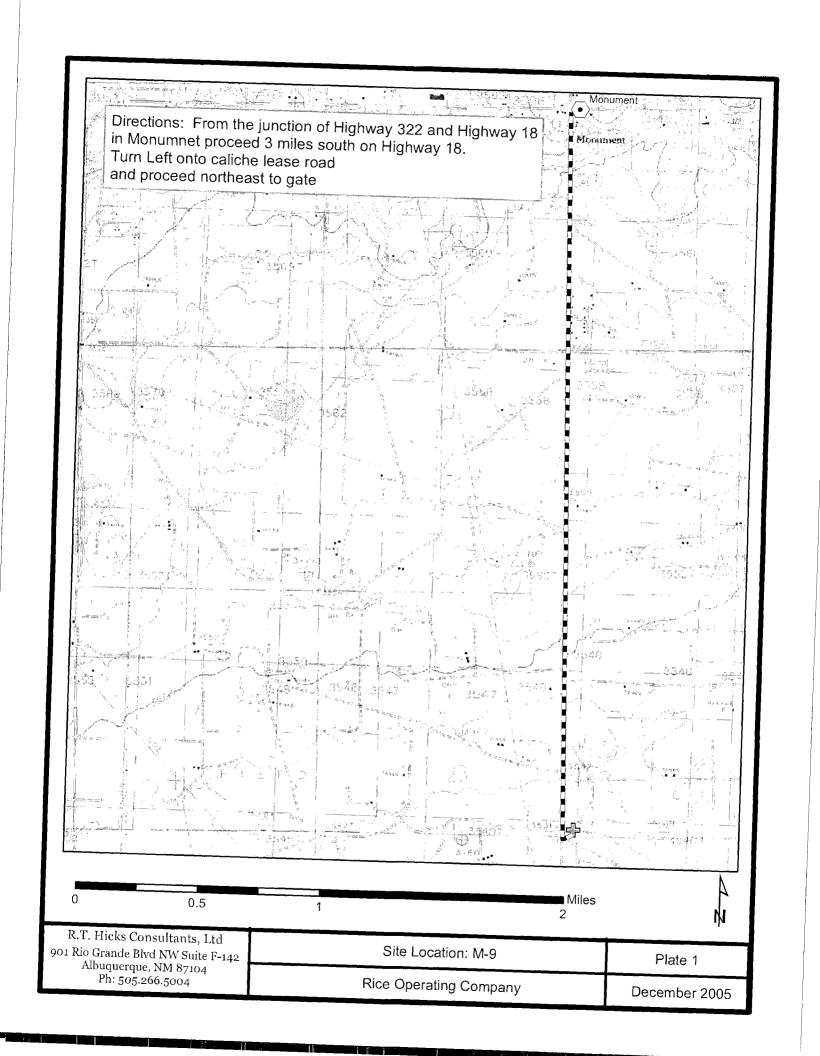
The proposed schedule of activities is summarized in Table 8 below.

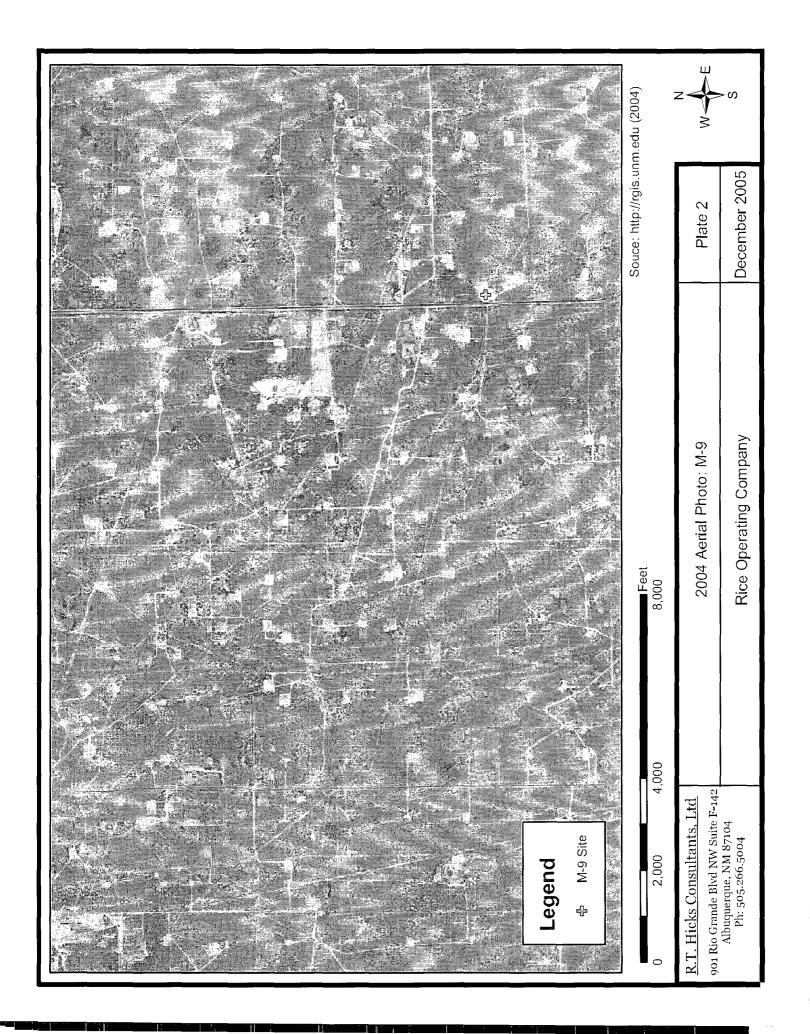
Table 8: Proposed Schedule of Activities

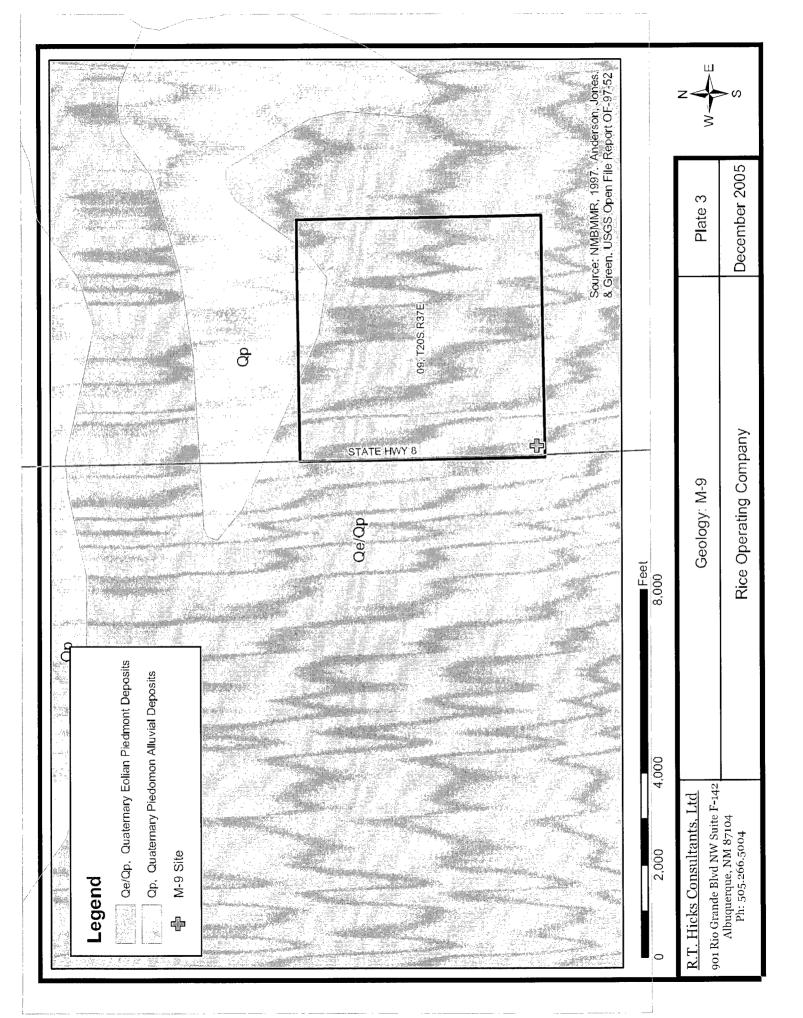
Task	Description	Date of Task Completion
Progress Reports	Submit progress reports to OCD explaining current status of site activities.	Quarterly beginning 30 days from approval of Stage 1 Abatement Plan by OCD
Groundwater Monitoring	Collect water table depth measurements and groundwater samples for analysis of chloride and TDS concentrations from on-site monitoring wells.	Continued on a quarterly basis. Annual Groundwater Monitoring Reports will be submitted to the OCD by April 1 st of each year.
Water Well Inventory (Data Collection)	Complete inventory of water wells within 1-mile of the site and collect groundwater quality and water table depth data of identified wells.	Within 45 days of Stage 1 Abatement Plan approval by OCD
Water Well Inventory (Data Evaluation)	Evaluate data from water well survey to expand characterization of the groundwater gradient and ambient water chemistry, for comparison with on-site data.	Within 30 days of completion of data collection from water well survey.
Complete Delineation of Groundwater Conditions (if necessary)	Install additional monitoring wells based on evaluation of water well survey and predominant groundwater conditions.	Within 30 days of completion of evaluation of data from water well survey.
Stage 2 Abatement Plan (if necessary)	The information gathered from the results of the additional assessment actions described above will be evaluated and utilized to design a groundwater remedy, if necessary, in the Stage 2 Abatement Plan.	Within 45 days of completion of tasks summarized in this Stage 1 Abatement Plan

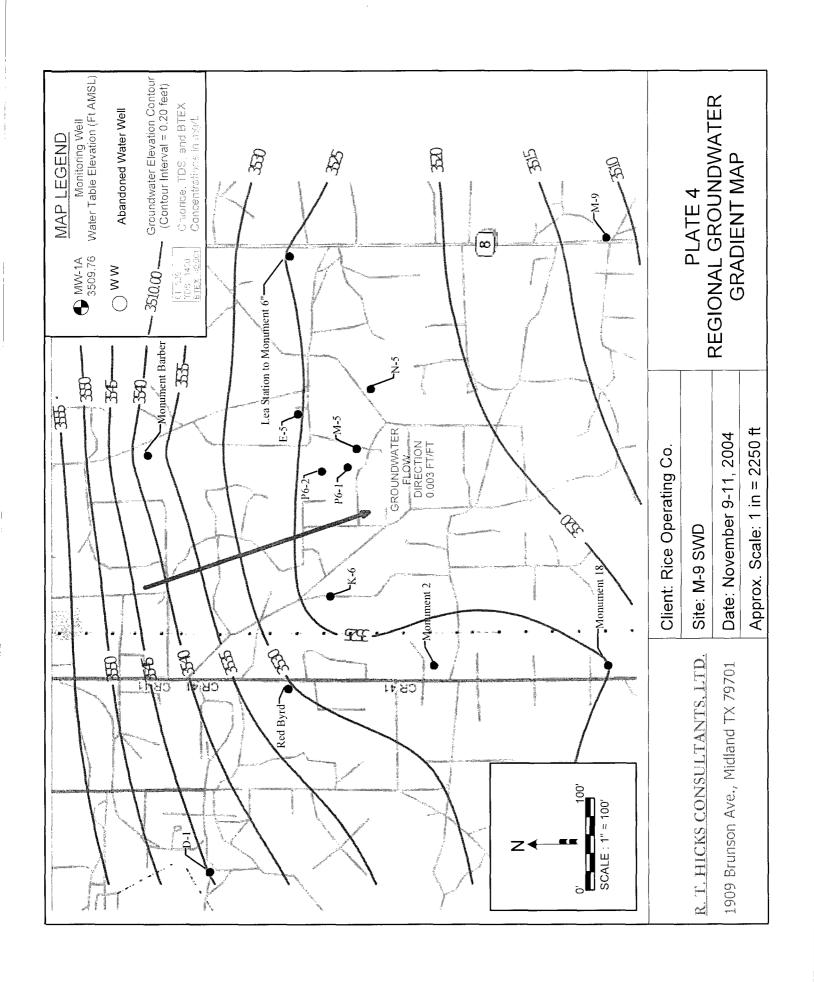
It may be necessary to extend the completion dates for the tasks outlined above dependent on contractor availability, weather conditions, or other unforeseen considerations. We suggest a phone conference or meeting to discuss the results of our regional examination of ground water data in the Monument area and our recommendations regarding additional monitoring wells for this site.

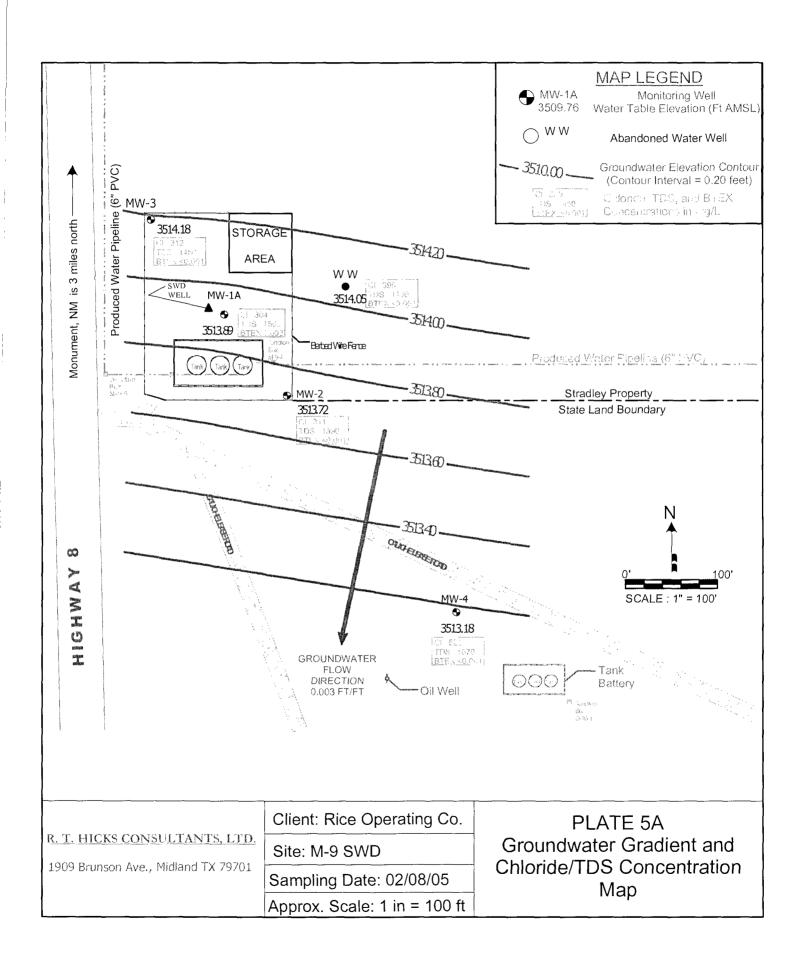


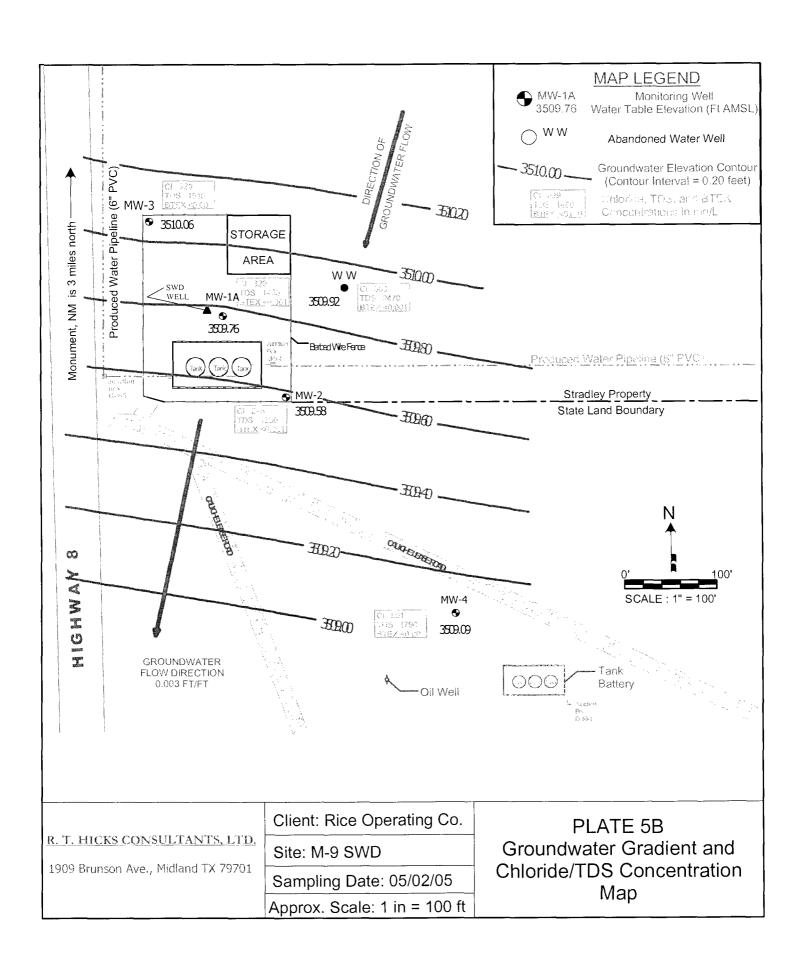


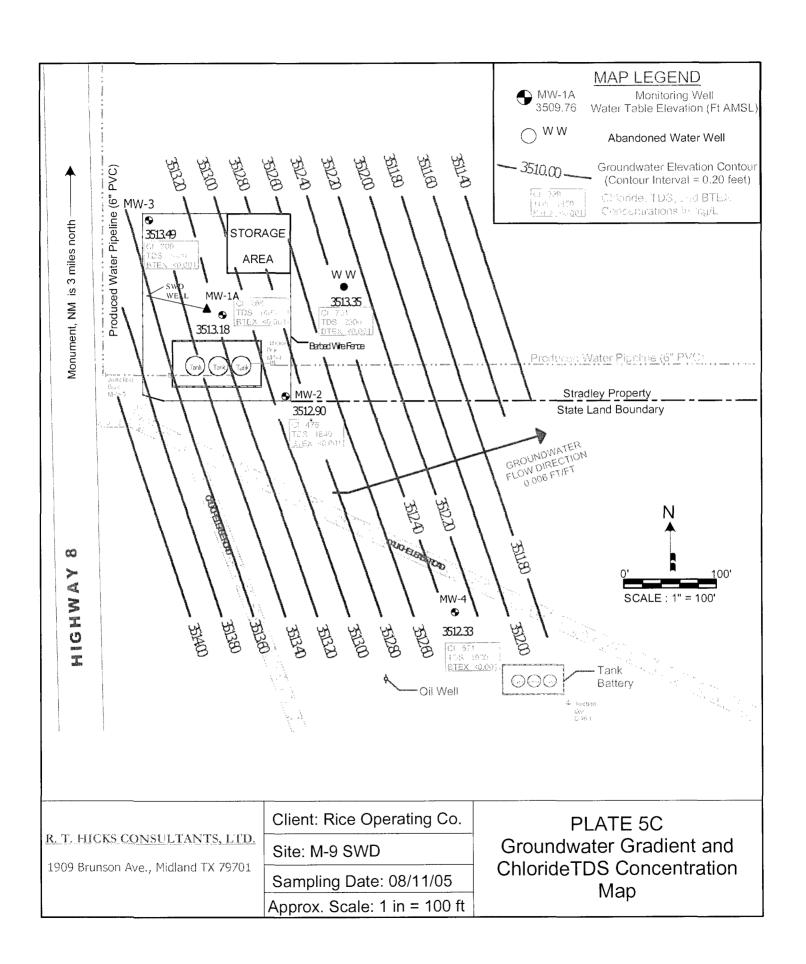


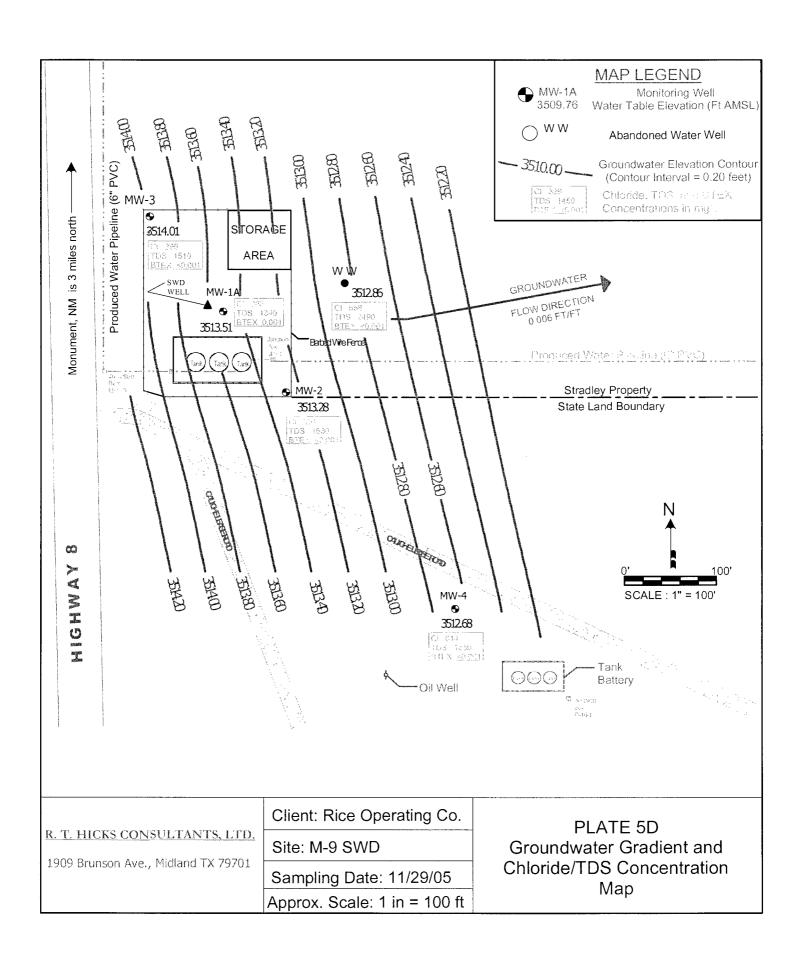






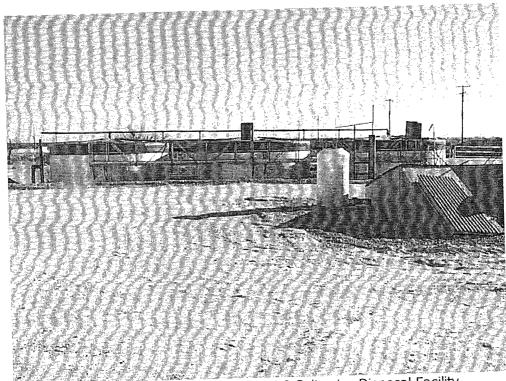




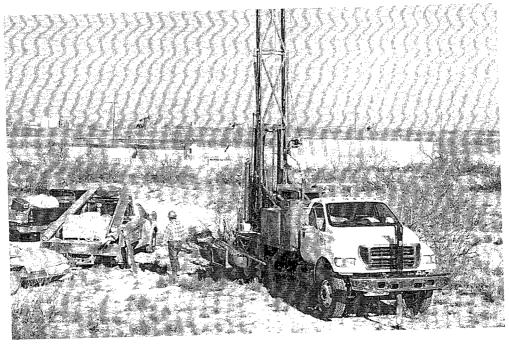


APPENDICES

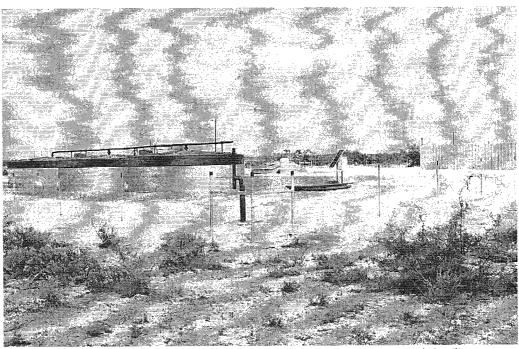
APPENDIX A



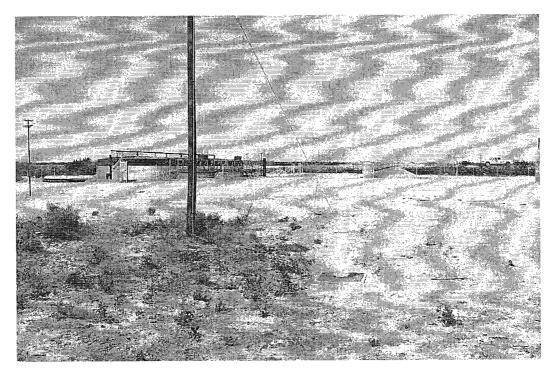
View facing south showing EME M-9 Saltwater Disposal Facility



View facing northwest showing installation of monitoring well MW-4 southeast of EME M-9 SWD facility.



View facing northwest showing EME M-9 Saltwater Disposal Facility with monitoring well MW-2 in foreground



View facing southwest showing EME M-9 SWD facility with abandoned water well in foreground.

APPENDIX B

DRILL	ING LOG	Site Namer.ocation					Eagged by . Racr
	rarting Company	M-9 SWD Facility	9269 NO. 38(4/1)	Ume Ostice: 463/0		Driver Esties	Carettellor
i	Vest Taylor	9-T20S-R37E	Avea mehin:	Figure Crees		Wel Muteral, see	Sand and
Į.	w Mexico 38240	EME	C-asing Longin:	Donny Daineler.	A 78°	Casing Size	bentonite above
Phone: (505) 393-9174	SWD System	Screen Langth: 157	Catting Mainea:	Rotary	Gird Isga. MVA	screen.
Fax. (50	05) 397-1471	Lea County, NM		TEST			MW
DEPTH	SUBSUF	RFACE LITHOLOGY	SAMPLE TYPE	(ppm)	RE	MARKS	<u>Boring</u>
	Ground surface			CF	1.15H	(EPA 418.1)	
2	Topsoil Sand & sandy c	lay	Grab	100		ppm 13 cutting	35
9 10 11 12 13			Grab	100		10	2" P 333 V 2 5
14 15 16 17			Grab	100		14 bentond	
19	Sand & sandy b	rown clay	Grab	100		17	
23			Grab	100		13	
24 25 26 27			Grab	75		wate 14	
28			Grab	50		20	
29 30 31 32 33 34 35			Grab	75		16 scree	

DRILLING LOG	Site Name/Location	BOR	ING/WELL INFORMA	TION	Logged by: A. Ecvies
RICE Operarting Company	M-9 SWD Facility	Well No. MW - 1A	Dato Drilled* 10-10-02	Onikyt: £ages	Campletion:
122 West Taylor	9-T20S-R37E	Well Depth: 297	Báring Cepth: 29'	Wet Material PVC	Sand and
Hobbs, New Mexico 88240	EME SWD System	Casing Length: 29"	Boring Diameter: 4,5"	Casing Sur 2°	bentonito above
(505) 393-9174	Lea County, NM	Screen Longth: 15'	Essling Method: As Rolesy	Sun Size N:A	screen.

Test Results (ppm)

DEPTH	SUBSURFACE LITHOLOGY	SAMPLE TYPE	CI.	TPH	REMARKS	Boring
· · · · · · · · · · · · · · · · · · ·	Ground surface		Titrate	EPA 418.1	-90 UP- 2-11 - 2 - 11 - 11 - 11 - 11 - 11 - 1	
	Topsoil				annada and Mahamana and ang Samanay ay ay an 175 a fa dhi dhe sa bhillio 1980 (1940).	
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344	Caliche					
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21					water	
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27		HER THE STATE OF T			screen	ry en
28		r-co-care-reas		***		
	Sand	F4-100-00-00-00-00-00-00-00-00-00-00-00-00				
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LITHOLOGIC LOG (MONITORING WELL)



PO BOX 7624 MIDLAND, TEXAS 79708 MONITOR WELL NO.: MW-2

SITE ID: EME M-9
SURFACE ELEVATION: 3528.9
CONTRACTOR: Eades Drilling & Pump Service

DRILLING METHOD: Air Rotary START DATE: 08/20/03

COMPLETION DATE: 08/20/03

COMMENTS: Located inside southeast corner of fence.

TOTAL DEPTH: 29 Feet

CLIENT: Rice Operating Company
COUNTY: Lea
STATE: New Mexico

LOCATION: T20S-R37E-Sec 9-Unit M

FIELD REP.: G. Van Deventer

FILE NAME: Projects/Rice/MW Diagram.xls

LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE, Sample Chloride LITH. USCS Depth Time Type (ppm) SORTING, ROUNDING, CONSOLIDATION, DISTINGUISHING 1022 Surface Unconsolidated caliche gravel cover. CAL Blank Plug 2-inch Sched 40 PVC 190 (field) Caliche with varying amounts of very fine to fine-grained sand in matrix. 5 1024 Cuttings Caliche is moderately hard and is very pale orange (10 YR 8/2). Bentonite Hole Sand is pale yellowish brown (10 YR 6/2), moderately well sorted, subangular grains. Split 683 (field) As above (Split Spoon sample taken from 9' - 11') 1030 10 532 (lab) Spoon Split 125 (field) As above (Split Spoon sample taken from 13' - 15') 1044 70.9 (lab) Spoon 15 CAL/ Silica Sand Pack SM Slotted Screen Groundwater encountered at 18 ft below ground surface. 20 1055 Cuttings Caliche with varying amounts of very fine to fine-grained sand in matrix. Caliche is moderately hard and is very pale orange (10 YR 8/2). Sand is pale yellowish brown (10 YR 6/2), moderately well sorted, 0.010-inch subangular grains. 12/20 25 1058 Cuttings Caliche with varying amounts of very fine to fine-grained sand in matrix. Caliche is moderately hard and is very pale orange (10 YR 8/2). Sand is pale yellowish brown (10 YR 6/2), moderately well sorted, subangular grains, moderately moist. 1100 Cuttings 30 Lithology as above. Bottom of boring at 30 ft below ground surface.

LITHOLOGIC LOG (MONITORING WELL)



PO BOX 7624 MIDLAND, TEXAS 79708
 MONITOR WELL NO.:
 MW-3
 TO

 SITE ID:
 EME M-9

 SURFACE ELEVATION:
 3529.9

 CONTRACTOR:
 Eades Drilling & Pump Service

 DRILLING METHOD:
 Air Rotary

 START DATE:
 08/20/03

 COMPLETION DATE:
 08/20/03

 COMMENTS:
 Located inside northwest corner of fence.

TOTAL DEPTH: 30 Feet
CLIENT: Rice Operating Company
Lea
STATE: New Mexico
LOCATION: T20S-R37E-Sec 9-Unit M
FIELD REP.: G. Van Deventer
FILE NAME: Projects/Rice/MW_Diagram.xls

LITH. USCS Sample Depth Time Type (ppm) ROUNDING, CONSQUIDATION, DISTINGUISHING FEATURES Unconsolidated caliche gravel cover. CAL 0828 Surface Unconsolidated caliche gravel cover. CAL 15 0830 Cuttings 178 (field) Caliche with varying amounts of very fine to fine-grained sand in matrix. Caliche is moderately hard and is very pale orange (10 YR 8/2). Sand is pale yellowish brown (10 YR 6/2), moderately well sorted, subangu grains. CAL Shows a superior of the superior of t	TING.
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[V	

LITHOLOGIC LOG (MONITORING WELL)

	de
T	RIDENT

PO BOX 7624 MIDLAND, TEXAS 79708
 MONITOR WELL NO.
 MW-4
 TOTAL DEPTH

 SURFACE ELEVATION:
 3529.2
 COUNT'

 CONTRACTOR:
 Atkins Engineering Associates Inc.
 STATI

 DRILLING METHOD:
 Hollow Stem Auger
 LOCATION

 START DATE:
 02/17/04
 FIELD REF

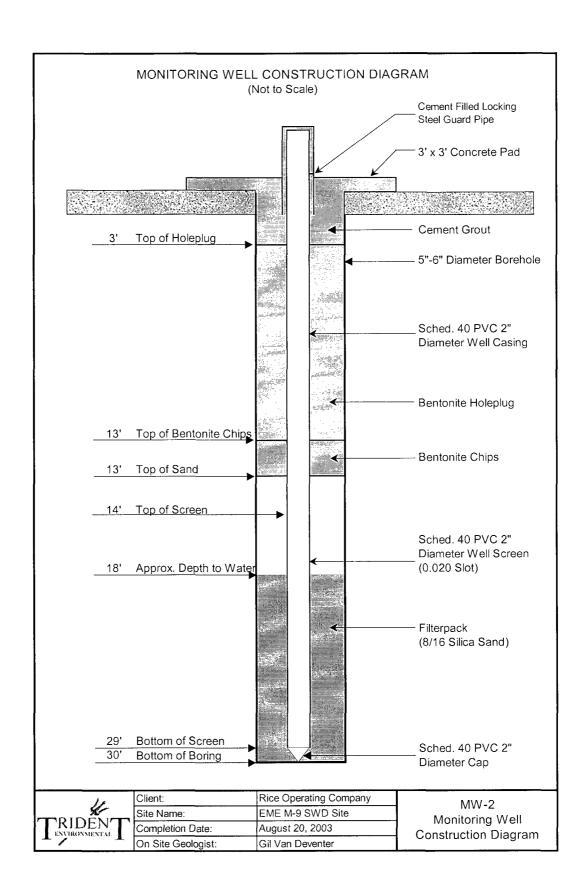
 COMPLETION DATE:
 02/17/04
 FILE NAMI

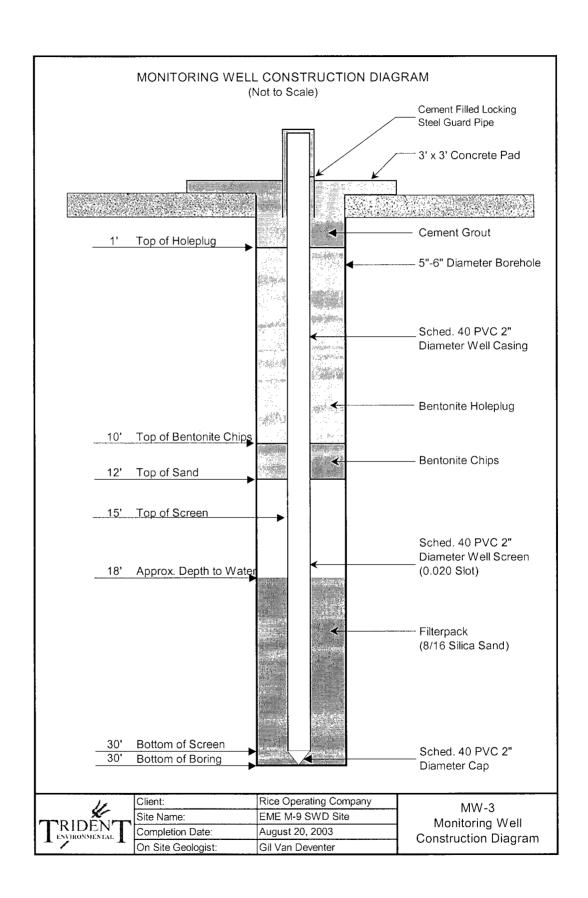
 COMMENTS:
 Located approximately 30 feet southeast of MW-2.

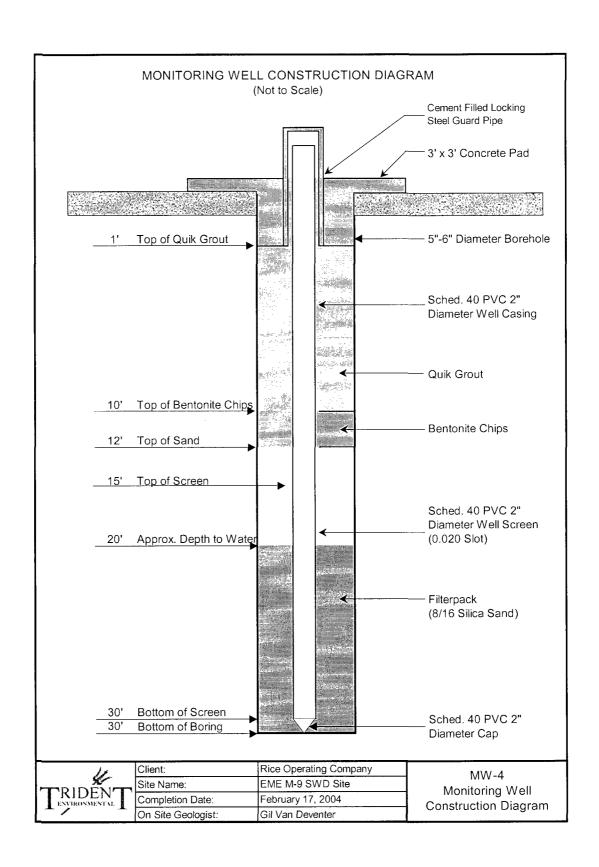
TOTAL DEPTH: 30 Feet

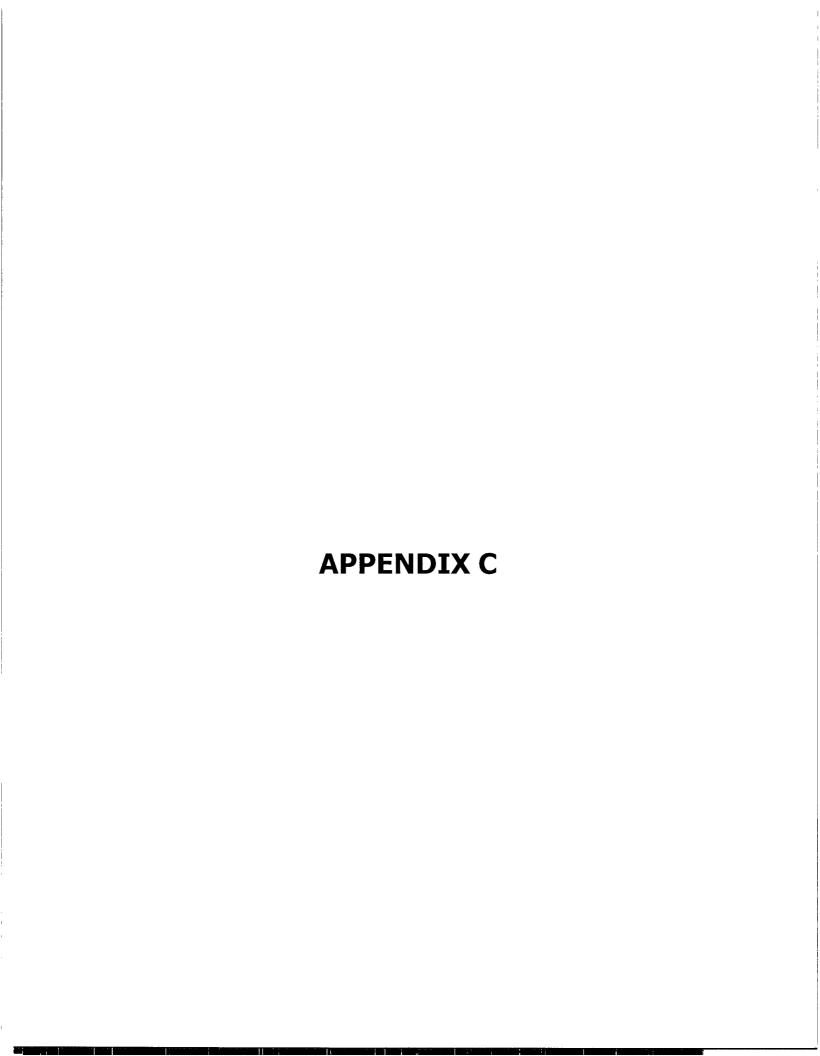
CLIENT: Rice Operating Company
COUNTY: Lea
STATE: New Mexico
LOCATION: T20S-R37E-Sec 16-Unit D
FIELD REP.: G. Van Deventer
FILE NAME: Projects/Rice/MW_Diagram.xls

""	ו, וכנו	MINIO,	1152	XAS 79708			COM	MEN 15:	госатео аг	proximately 30 feet southeast of MW-2.
	Ī			LITH.	USCS		Sample	T	Chloride	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE,
- A		8				Depth	Time 0855	Туре	(ppm)	SORTING, ROUNDING, CONSOLIDATION, DISTINGUISHING FEATURES
Blank			Quik Grout		CAL/ SM	5	0900	Split Spoon (4-6)	253 (field)	Caliche with varying amounts of very fine to fine-grained sand in matrix. Caliche is moderately hard and is very pale orange (10 YR 8/2). Sand is grayish orange pink (5 YR 7/2), moderately well sorted, subangular
2-inch Sched 40 PVC			Chips Q		CAL/ SM	10	0907	Split Spoon (9-11)	462 (field)	Caliche with varying amounts of very fine to fine-grained sand in matrix. Caliche is moderately hard and is very pale orange (10 YR 8/2). Sand is grayish orange pink (5 YR 7/2), moderately well sorted, subangular Clayey silty very fine-grained sand with varying amounts of soft caliche in
	-	_				15	0915	Split Spoon (14-16)	159 (field)	Sand is light brown (5 YR 5/6), moderately well sorted, subangular grains. Caliche is moderately hard and is very pale orange (10 YR 8/2). Fine-grained sand with varying amounts of soft caliche in matrix.
otted Screen			Silica Sand Pack		CAL/	20	0924	Split Spoon (19-21)	192 (field)	Sand is grayish orange (10 YR 7/4), moderately well sorted, subangular Caliche is moderately hard and is very pale orange (10 YR 8/2).
0.010-inch Slotted			8/16 Sil		SM	25	0912	Cuttings		As above
		7				30	0915	Cuttings		As above
										Bottom of boring at 30 ft below ground surface.









New Mexico Office of the State Engineer Well Reports and Downloads

Sections: [3,4,5,9,10,15,16,17	Zone: Search Radius:	Number: Suffix:	t) Non-Domestic Domestic LAII	Avg Depth to Water Report	Clear Form WATERS Menu Help
Township: 208 Range: 37E	NAD27 X: Y:	County: LE Basin:	Owner Name: (First) (Last)	Well / Surface Data Report	Clear Form

/2005	
12/08/2005	
DATA REPORT	
DATA	
SURFACE	
WELL /	

						(quarters are	1=NW 2=NE	-NE 3-SW 4-SE	=SE)		
		(acre	e ft per annum)	(mn)		(quarters are	biggest to	to smallest	est	X Y are i	in Fe
DB	File Nbr	Use	Diversion	Owner	Well Number	Source	Tws	Rng sec q	ם ה	Zone	×
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н	01450 (1)	PRO	0	THE OHIO OIL COMPANY	L 01450 (1)		208	37E 05 1	Q		
Н	01450 (10)	PRO	0	MARATHON OIL COMPANY	L 01450 (10)	111111111111111111111111111111111111111	208	37E 05 1	m		
н	01450 (11)	PRO	0	MARATHON OIL COMPANY	L 01450 (11)		202	37E C5 1	m		
H	01450 (12)	PRO	0	MARATHON OIL COMPANY	L 01450 (12)		202	37E 05 1	(^)		
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ы	01450 (6)	PRO	0	MARATHON OIL COMPANY	L 01450 (6)		208	37E 05 1	m		
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႕	01450 (9)	PRO	0	MARATHON OIL COMPANY	L 01450 (9)	1.000.000	202	37E 05 I	m		
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					L 02102 APPRO	Shallow	208	37E 05 3	r,		
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New Mexico Office of the State Engineer

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12/8/2005

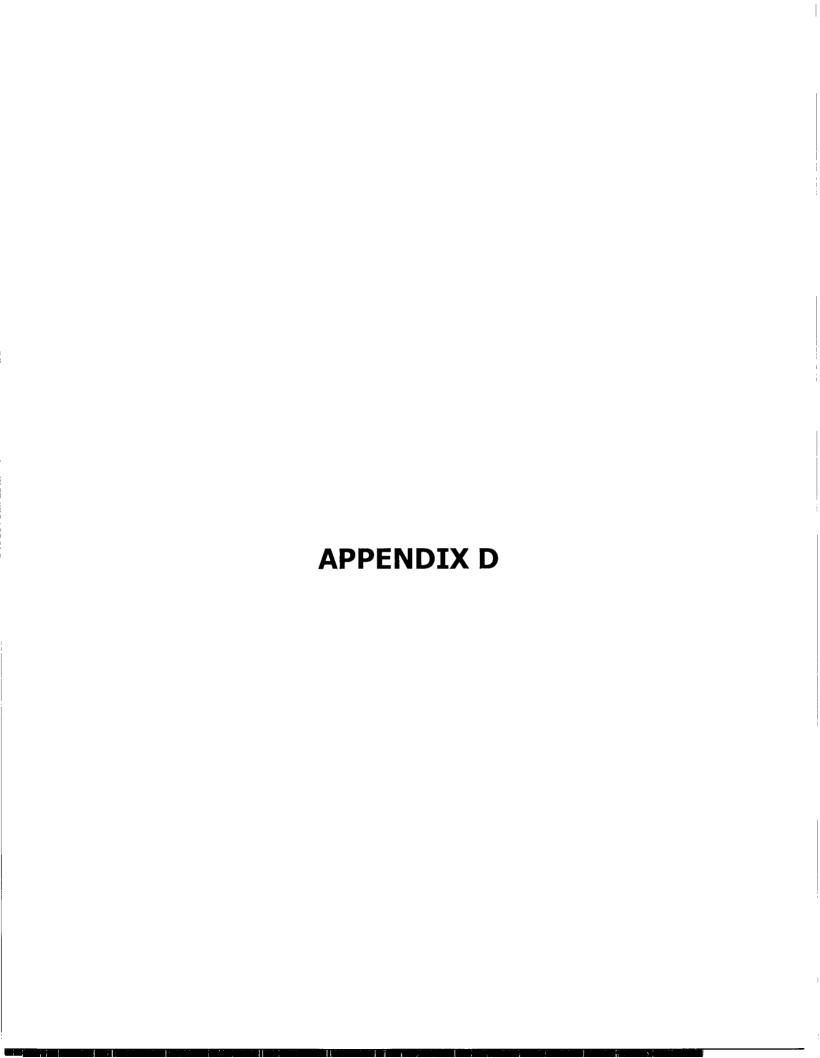
New Mexico Office of the State Engineer Well Reports and Downloads

NAD27 X: Y: Zone: Zone:	y: LE Basin: Number: Suffix:	ame: (First) [Last) [Non-Domestic Domestic All	Well / Surface Data Report Avg Depth to Water Report Avgreer Column Report	. Clear Form
Z	County:	Owner Name	Mell	
	X:	X: Y: Zone: Search Radiu	27 X: Y:	X: Y: Y: Zone: Num St)

WATER COLUMN REPORT 12/08/2005

	(quarters	are	1=NV	7 2=	Z	1=NW 2=NE 3=SW 4=SE)						
	(quarters	are	bigg	lest.	ŭ	biggest to smallest)			Depth	Depth	Water (in feet)	
Well Number	Tws	Rng	Sec	יט יט	מ	Zone	×	×	Well	Water	Column	
T 10069	202		04 1 1	' '					σi (۳	22	17	
L 05980 DCL	208	37E	04	3					S U			
T 09779	208	37E	0.5	Q					5°C	40	10	
L 02488	205	37E	0.5	Ω ω					63	32	T.E	
L 02488 APPRO	205	37E	0.5	2					63	32	H	
L 01572 APPRO	205	375	0.5	ω ω	r-1				7.0			
L 02497	202	37	0.5	8	m					(X)		
L 02497 APPRO	205	373	0.5	8	m				125			
L 02102 APPRO	208	373	0.5	€.					70	46	24	
L 02102	208	37王	0.5	(J)					70	70	54	
L 02278	202	W [7]	0.5	2,0	-0				65	37	00	
L 02278 APPRO	202	37	0.5	4 3								
L 10150	205	37月	60	4 1					30			

Record Count: 1



RICE Operating Company

122 West Taylor • Hobbs, New Mexico 88240 Phone: (505)393-9174 • Fax: (505) 397-1471

CERTIFIED MAIL RETURN RECEIPT NO. 7002 0510 0000 9384 5877

November 4, 2002

Mr. Wayne Price NM Energy, Minerals, and Natural Resources Dept. Oil Conservation Division, Environmental Bureau 1220 S. St. Francis Drive Santa Fe, NM 87505

> RE: REDWOOD TANK CLOSURE REPORT FOR EME SWD FACILITY M-9 Letter M, Sec. 9, T20S, R37E Lea County, New Mexico NMOCD Case # 1R0331

Mr. Price:

Rice Operating Company (ROC) petitions the NMOCD for closure of the excavation portion of the below grade redwood tanks site at the Eumont Monument Eunice (EMF) Salt Water Disposal Facility SWD Well M-9, located in Unit Letter M, Sec 9, T20S, R37E, Lea County, NM.

ROC is the service provider (operator) for the EME Salt Water Disposal System and has no ownership of any portion of the pipeline, well or facility. The EME System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis. Closure projects require System Partner AFE approval and work begins as funds are received. The System Partners approved the Closure Project for the SWD M-9 Facility and work was started in January 2002.

The final excavation of the redwood tanks site resulted in TPH and BTEX levels at bottom and sides that are below the recommended guidelines for vadose zone impact when a Total Ranking Score is 20. Groundwater in this area is 18 feet bgs. The sampling results are attached. All closure samples were verified by a certified lab.

This facility is located on Fee Land owned by SW Cattle Company. The 2 acre site lease agreement has been in effect since 1989 and will continue until 2009.

ROC proposes to install a monitor well at this site to monitor groundwater constituents. The proposal includes sampling the groundwater for two years and testing for major cations and anions as well as BTEX. ROC will submit an annual report on the sampling results to the NMOCD by the first of March of the subsequent year. Three samples were taken from the sacrificed monitor well at this site in 2002. The results averaged 360 ppm chlorides and 1523 ppm TDS, with BTEX levels under NMOCD guidelines. Foresecable future use of the groundwater in this area is limited to agriculture, including livestock watering.

ROC is applying for closure of the excavation at the M-9 Facility and is submitting the Excavation Closure Report and supplemental collected data. Thank you for your consideration of this closure request.

If you have any questions, please call.

RICE OPERATING COMPANY

Domie Anderson

Project Leader - Environmental

Enclosures

Excavation Closure Report M-9 SWD Facility

Cc: CDH,file,

Mr. Chris Williams NMOCD, district I Office 1625 French Drive Hobbs, NM 88240 Trent Stradley SW Cattle Company P.O. Box 549 Hobbs, NM 88240 District I 1625 N. French Drive, Hobbs, NM 38240 District II 811 South First, Artesia, NM 38216 District III 1000 Rin Brazos, Aztes, NM 37410 District IV

2040 South Pacheco, Santa Fe, MM 87505

State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505

Submit I copy to Appropriate District Office and 1 copy to Santa Fe Office

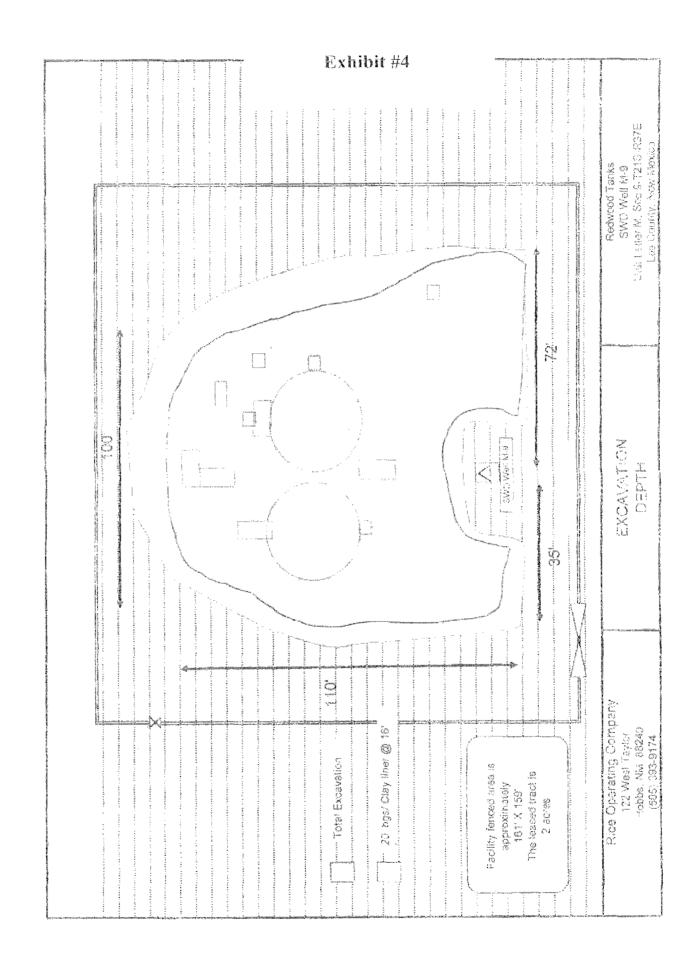
PIT REMEDIATION AND CLOSURE REPORT

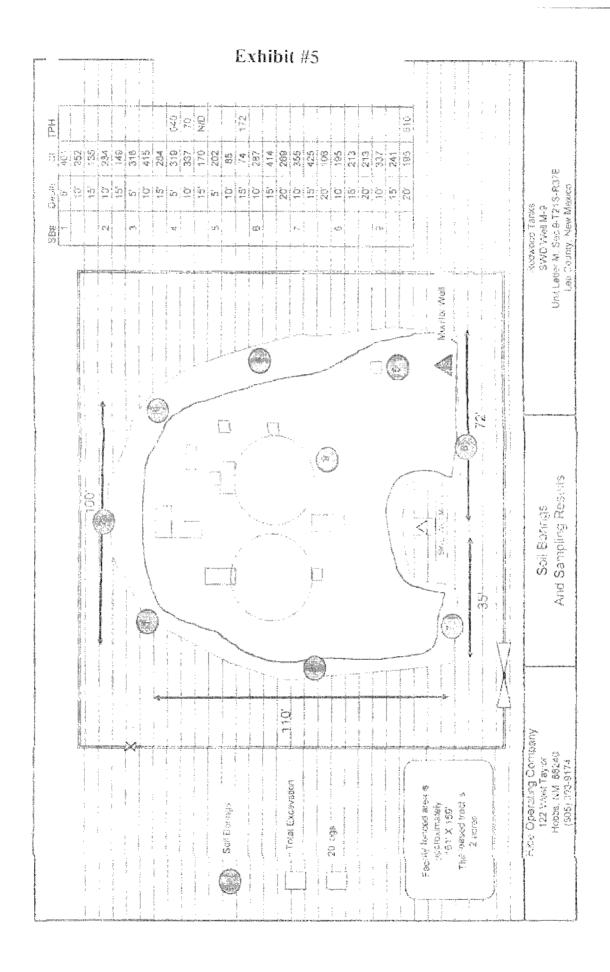
Operator: RICE OPERATING COMPANY	Telephone: 505-393-9174
Address: 122 West Taylor, Hobbs, NM 88240	
Facility or: EME SWD WELL M-9 FACILITY	
Well Name	
Location: Unit or Qtr/Qtr Sec Unit Letter M Sec	9 T 20S R 37E County LEA
Pit type: Separator Debydrator	Other Below Grade Redwood Tanks
Land Type: Bf.M State I	Fice X Other
Pit Location Pit Dimensions: length	width 28' depth 8'
(Attaca diagram) Reference: wellbead	other
Footage from reference: see diagram i	n report
Direction from reference: Degre	esEast_North
	of West South
Depth to Ground Water	Less than 50 feet (20 points)
(Vertical distance from contaminants to seasonal	50 feet to 99 feet (10 points) Greater than 100 feet (0 points) 20
high water elevation of ground water)	
Wellhead Protection Area	Yes (20 points)
(Less than 200 feet from a private domestic water source, or; less than	No (0 points) 20
1000 feet from all other water sources)	
Distance to Surface Water:	Less than 200 feet (20 points) 200 feet to 1000 feet (10 points)
lukes, ponds, rivers, streums, creeks,	Greater than 1000 feet (0 points) 0
irrigation canals and ditches)	DANICAIC SCODE CONTAIL BOTATES.
	RANKING SCORE (TOTAL POINTS): 40

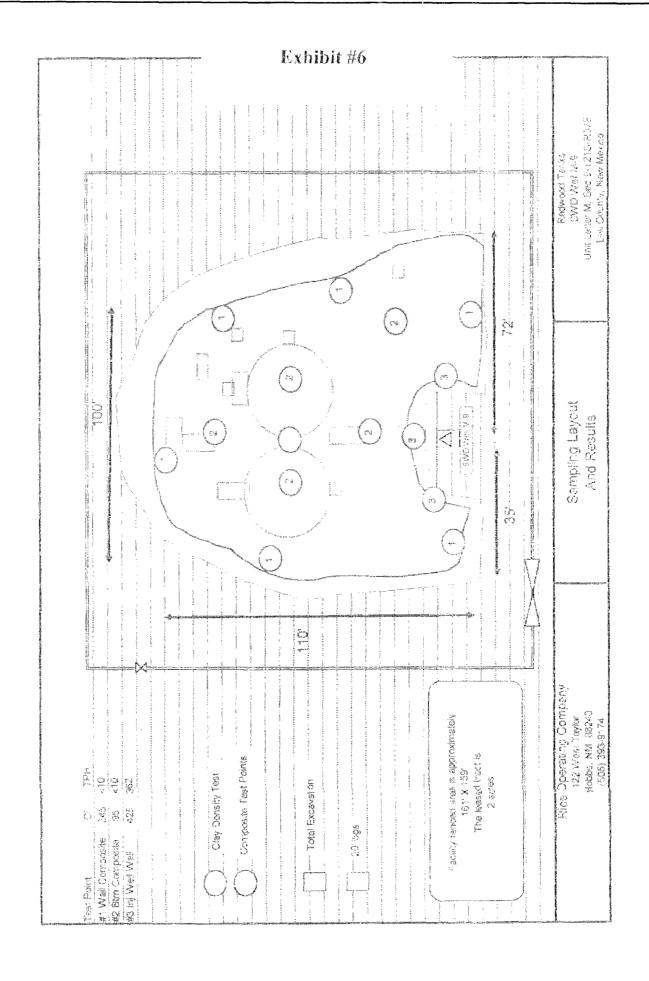
Date Remediation Star	ted: June 192002	Date Completed: _	September 9,2002
Remediation Method: (Check all appropriate	Excuvation yes	Approx. cubic yards 2	0000 excavated
sections)	Landfirmed 8000 cu yda	In-situ Bioremediation_	по
	Other		
Manager of the Francisco	574	200 - 100 -	
Remediation Location; (ie.: landfarmed onsite, name and location of offsite facility)	Cashe 725 Coshe		
General Description of	Remedial Action: Excavated redw	rood tanks area to below C	CD guidelines. Removed ail TPH
impacted soil. Backt	illed with blended landfarmed soil,	installed and tested clay !	iner, and contoured to surrounding
terrain. A new mon	itor well will be installed in Octobe	۲.	To Control of the Con
An area and the second and the secon			**************************************
		0 2002	
	mpletion date was Septemb		
Ground Water Encoun	tered: No Yes _	XX Depth	18' BGS
Final Pit Closure Sampling	Sample location <u>Com</u>	pusite samples of sidewall	s, bortom and lists.
(if multiple samples.	Analyticals, CoC, etc. :	ire included in this closure	package.
anach sample results and diagram of sample	Sample depth Bottom:	20' feet BGS	
locations and depths)	Sample date	S	ample time
	Sample Results	e report analytical results	
			State of the state
	Total BTEX (ppm)	See report analytical res	sults
	Field headspace (pp	om)	
	TPH See report a	nalyticai results	An discontinued to the contract of the contrac
Ground Water Sample:	Yes XX No	(If yes, attach s	cample results)
HEREBY C	ERTIFY THAT THE INFORMAT THE BEST OF MY KNO		- 1
DATE September 3	7, 2002	PRINTED NAME Dong	ie Anderson
SIGNATURE	(Million	nrus Projec	rt Leader-Environmenta
*			***

*

Submat 3 Copies for Appropriate District Office	State of New		Form C-103
District 1	Energy, Minerals and 2	vaturai Resources	Revised March 25, 1999
1625 N. French Dr., Hohbs, NM 88240			WELL API NO.
Districe II	OIL CONSERVATI	ON DIVISION	30-025-12801
1301 W. Grand Ave., Artesia, NM 88210 District ItI	1220 South St.		5. Indicate Type of Lease
1000 Rio Brazos Rd., Aztec, NM 87410			STATE [] FEE X
District IV	Santa Fe, NA	4 87505	6. State Oil & Gas Lease No.
1220 S. St. Francis Or., Santa Fe, NM			and the same of th
S7505	ICES AND REPORTS ON WE	T T C	7. Lease Name or Unit Agreement
(DO NOT USE THIS FORM FOR PROPE			Name:
DIFFERENT RESERVOIR. USE "APPL			(Alme.
PROPOSALS.)			Eunice Monument Eumont (EME)
1. Type of Well:			connectivities remaining (121410)
	Other SWD Well		11 - 11 - 11 - 12 - 11 - 12 - 12 - 12 -
2. Name of Operator			8. Well No.
	OPERATING COMPANY		M-9
3. Address of Operator			 Pool name or Wildcat
122 W. T	AYLOR, HOBBS, NM 88240		SAN ANDRES
4. Well Location	27 A No. J PROMOBILE MANUAL RE-AND-CONTRACT CONTRACT CONT		
			,
Unit Letter 100	feet from theSOU	TTHline and	250 feet from theWESTline
**************************************	×*************************************	geogrammentations and the second	r. w. a minous comment
Section 9	Township 20S	Range 37E	NMPM LEA County
	10. Elevation (Show whethe		
The second second second second		il.; 3537° KB	
11 Charle	Appropriate Box to Indicat		Rapart or Other Data
	Appropriate Box to indicat NTENTION TO:		
			SEQUENT REPORT OF:
PERFORM REMEDIAL WORK	PLUG AND ABANDON []	REMEDIAL WOR	K
TEMPORARILY ABANDON 🗔	CHANGE PLANS	COMMENCE DR	
Construction of the constr	grove by		ABANDONMENT
PULL OF ALTER CASING		CASING TEST A	NO []
	COMPLETION	CEMENT JOB	
OTHER:	ki	OTHER: Reme	diate Below-grade Redwood Tanks
		1	ve pertinent dates, including estimated date of
	BERULE 1103. For Multiple C	.ompletions: Altach w	eilbore diagram of proposed completion or
recompilation.			
رادر کو دادم پرستوروس	10.0003	*	the state of the s
			ic yards of soil and land farmed on site.
			nd tested compacted clay liner. Backfilled with
remediated soil and contoured t	o surrounding terrain. The work	was completed on Set	otember 9, 2002.
	ril, 2002 was sacrificed due to the	ie extent of the excavat	ion. Another monitor well is scheduled for
installation in October, 2002.			
I hereby certify that the information	above is true and complete to th	e best of my knowledg	e and belief.
V V / 16	- 1/		
SIGNATURE (MM)	UMAI TITLE	Project Lende	r-EnvironmentalDATE10/12/02
, — www			
Type or print name I	D. E. Anderson		Telephone No. 505-393-9174
(This space for State use)			The state of the s
APPPROVED BY	TITLE		DATE
Conditions of approval, if any:	The state of the s		3. West 111 fee







RICE OPERATING COMPANY JUNCTION BOX FINAL REPORT

BOX LOCATION

,				BOX LOC				the car a resident state a second	
SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX Length	DIMENSIONS -	Death Death
EME	M-9-1	М	9	20S	27E	LEA	7.7.3811	***************************************	91 May 42 93 5
LAND TYPE:	BLM	STATE	FEE L	ANDOWNER	S&W	CATTLE CO	CTHE	R	
Depth to Grou	indwater	18	_feet	NMOCD	SITE ASSE	SSMENT	RANKING	SCORE:	20
Date Started	106/19	/2002	Date Co	ompleted	09/09/2002	OCD	W∄ness	YE	5
Soil Excavared	8000	спряс Хэг	rds Ex	cavation Le	ength110	Width	100	Depth	
Soil Disposed	ere dill Marginghithassassassassassassassassassassassassass	cubis yar	rds O	ffsite Facility	· · · · · · · · · · · · · · · · · · ·	uussa _{aks} aan oo _{ta kilo} oonnaassayse alkiistä alkat, 7°° a. ooki ^{oo} onnaassa	Locatio	AMERICANA CO. CO. AMERICAN MATERIAL MAT	
FINAL ANALY	YTICAL R	ESULTS	S: Samp	le Date	09/09/2	002	Sample D	epth	20
Sample	Benzene		procedures	t results com s pursuant to Thyl Benzene		idelines.	RO I	DRO	Chlorxies
Location	mg/kg	1	ı/kg	mg/kg	mg/kg	1	y'kg	mg/kg	mg/kg
SIDEWALLS	< 0.025	<0.	025	<0.025	<0.025		10	<10	245
BOTTOM	< 0.025	<0.	025	< 0.025	< 0.025	<	10	<10	95
y y tag y tag tag a t	าก of Remedi	al Action:	This junction	box was locate	ed within the	A comment of the second	CHLO	RIDE FIELD	rests
eneral Descriptio	mediated at the	M-9 SWD Fac	cility. All same	i box was locate ples and test re	suits were		CHLO	RIDE FIELD	
Seneral Description ea excavated and real kan form the M-9 SV	mediated at the VD Facility reme	M-9 SWD Fac	cility. All same	i box was ≀ocate ples and test re excavated to 20°	suits were		OCATION	DEPTH	rests mg/kg 260
eneral Description of the earth	mediated at the VD Facility rema of clean overbur	M-9 SWD Facediation site. To den soil. A co	cility. All same The site was a empacted red-	i box was ∃ocale ples and test re excavated to 20° -bed clay liner w	suits were ogs and vas installed	SI		DEPTH	mg/kg
eneral Description ea excavated and recition the M-9 SV ten backfilled with 4° or ad density tested. The	mediated at the VD Facility reme of clean overbur se excavation wa	M-9 SWD Facedalion site. To den soil. A consistency was backfilled w	cility. All samp The site was e empacted red- rith remediates	i box was ≀ocate ples and test re excavated to 20° -bed clay liner w d soil. The rem	suits were ogs and vas installed ediated soil wa	SII	DCATION DEWALLS	DEPTH	mg/kg 260
eneral Description of each excavated and resident form the M-9 SV in backfilled with 4° or density tested. The sted in 3° lifts. A month	mediated at the VD Facility remain of clean overburne excavation wo littor well was ins	M-9 SWD Facedalion site. To den soil. A consistency was backfilled w	cility. All samp The site was e empacted red- rith remediates	i box was ≀ocate ples and test re excavated to 20° -bed clay liner w d soil. The rem	suits were ogs and vas installed ediated soil wa	S11	OCATION DEWALLS BOTTOM	DEPTH 13' 20' 16'	mg/kg 260 100
eneral Description of each excavated and resident form the M-9 SV in backfilled with 4° or density tested. The sted in 3° lifts. A month	mediated at the VD Facility remain of clean overburne excavation wo littor well was ins	M-9 SWD Facedalion site. To den soil. A consistency was backfilled w	cility. All samp The site was e empacted red- rith remediates	i box was ≀ocate ples and test re excavated to 20° -bed clay liner w d soil. The rem	suits were ogs and vas installed ediated soil wa	S11	DCATION DEWALLS BOTTOM fill above gw	DEPTH 13' 20' 16'	mg/kg 260 100 220
General Description ea excavated and residen form the M-9 SV ien backfilled with 4° ond density tested. The ested in 3° lifts. A months	mediated at the VD Facility remain of clean overburne excavation wo littor well was ins	M-9 SWD Facedalion site. To den soil. A consistency was backfilled w	cility. All samp The site was e empacted red- rith remediates	i box was ≀ocate ples and test re excavated to 20° -bed clay liner w d soil. The rem	suits were ogs and vas installed ediated soil wa	S11	DCATION DEWALLS BOTTOM fill above gw	DEPTH 13' 20' 16' r 12'	mg/kg 260 100 220 310
Deneral Description real excavated and resistent form the M-9 SV ren backfilled with 4° or and density tested. The ested in 3° lifts. A months	mediated at the VD Facility remain of clean overburne excavation wo littor well was ins	M-9 SWD Facedalion site. To den soil. A consistency was backfilled w	cility. All samp The site was e empacted red- rith remediates	i box was ≀ocate ples and test re excavated to 20° -bed clay liner w d soil. The rem	suits were ogs and vas installed ediated soil wa	S11	DCATION DEWALLS BOTTOM fill above gw lift above line 2nd lift	DEPTH 13' 20' 16' r 12' 9'	mg/kg 260 100 220 310 350
Deneral Description real excavated and resistent form the M-9 SV ren backfilled with 4° or and density tested. The ested in 3° lifts. A months	mediated at the VD Facility remain of clean overburne excavation wo littor well was ins	M-9 SWD Facedalion site. To den soil. A consistency was backfilled w	cility. All samp The site was e empacted red- rith remediates	i box was ≀ocate ples and test re excavated to 20° -bed clay liner w d soil. The rem	suits were ogs and vas installed ediated soil wa	S11	DCATION DEWALLS BOTTOM fill above gw lift above line 2nd lift 3rd lift	DEPTH 13' 20' 16' 12' 9' 6'	mg/kg 260 100 220 310 350 320
Deneral Description real excavated and resistent form the M-9 SV ren backfilled with 4° or and density tested. The ested in 3° lifts. A months	mediated at the VD Facility remain of clean overburne excavation wo littor well was ins	M-9 SWD Facedalion site. To den soil. A consistency was backfilled w	cility. All samp The site was e empacted red- rith remediates	i box was ≀ocate ples and test re excavated to 20° -bed clay liner w d soil. The rem	suits were ogs and vas installed ediated soil wa	S11	DCATION DEWALLS BOTTOM fill above gw lift above line 2nd lift 3rd lift	DEPTH 13' 20' 16' 12' 9' 6' 3'	mg/kg 260 100 220 310 350 320 360
Seneral Description real excavated and reconsider the M-9 SV non-backfilled with 4° or ad density tested. The ested in 3° lifts. A more year coarbon will matural	mediated at the VD Facility reme of clean overbur is excavation with the excavation with the state of the sta	M-9 SWD Facedation site. It den soil. A coast backfilled wastalled to samp	cility. All samples and control of the site was a compacted red- cith remediated all groundwates are groundwated as a control of the site	box was locate ples and test re excavated to 20 bed clay liner wild soil. The rem er constituents.	suits were ogs and vas installed rediated soil wa Any remaining	S!! s E 4' 1st	DCATION DEWALLS BOTTOM fill above gw lift above line 2nd lift 3rd lift 4th lift Surface	DEPTH 13' 20' 16' 12' 9' 6' 3'	mg/kg 260 100 220 310 350 320 360 471
Seneral Description real excavated and reconstant form the M-9 SV non-backfilled with 4° or ad density tested. The ested in 3° lifts. A more sydrocarbon will matural	mediated at the VD Facility reme of clean overbur is excavation with the excavation with the state of the sta	M-9 SWD Facedation site. It den soil. A coast backfilled wastalled to samp	tility. All sample street samp	box was locate ples and test re excavated to 20 bed clay liner wild soil. The rem er constituents.	suits were ogs and vas installed rediated soil wa Any remaining	SIII	DCATION DEWALLS BOTTOM fill above gw lift above line 2nd lift 3rd lift 4th lift Surface	DEPTH 13' 20' 16' 12' 9' 6' 3' 0'	mg/kg 260 100 220 310 350 320 360 471
Seneral Description real excavated and real excavated and real excavated and real exception the M-9 SV not density tested. The extent in 3' lifts. A more sydrocarbon will matural	mediated at the VD Facility reme of clean overburse excavation was instituted was instituted with the very strength of the very strengt	M-9 SWD Facedation site. It den soil. A coast backfilled wastalled to samp	tility. All sample street samp	box was locate ples and test reexcavated to 20 bed clay liner wild soil. The remer constituents.	suits were ogs and vas installed rediated soil wa Any remaining	SIII E 4' 1st	DCATION DEWALLS BOTTOM fill above gw lift above line 2nd lift 3rd lift 4th lift Surface	DEPTH 13' 20' 16' 12' 9' 6' 3' 0' THE BEST O	mg/kg 260 100 220 310 350 320 360 471

RICE OPERATING COMPANY JUNCTION BOX FINAL REPORT

BOX LOCATION

SWO SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP		COUNTY	BOX	DIMENSIONS -	#" (27 A) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
EME	M-9-2	M	9	203	37E	LEA	Length	Width	Death	
LAND TYPE:	BLM	STATE	FEE LA	ANDOWNER	3 S&W	CATTLE CO	OTHE	R		
Depth to Grou	Indwater	18	feet	NMOCE	O SITE ASSE	ESSMENT	RANKING:	SCORE:	20	
Date Started	d <u>06/19</u>	<u>/2002</u>	Date Co	mpleted	09/09/2002	OCD	Witness	YE	<u>ES</u>	
Soil Excavated	0008 t	cubic yar	ds Exc	cavation L	ength110	Width	100	Depth	201+4	¥Į.
Soil Disposed		cubic yar	ds Of	fsite Facility	/ <u></u>		Location			
FINAL ANAL'	YTICAL R								20	
,		Chloride lab	oratory test	results corr	npieted by us NMOCD gu	ng an appr				
Sample	Benzere			inyi Benzene	Total Xyleni	3	RO	DRO	Chicações	
Location SIDEWALLS	mg/kg <0.025		/kg 025	mg/kg <0.025	mg/kg <0,025		1/kg 10		<u>mg/kg</u> 245	-
BOTTOM	<0.025		025	<0.025	<0.025		10	<10	95	
Seneral Description real excavated and re	mediated at the	M-9 SWD Fac		ies and lest re	esults were	COCCOMPINED ANNALY		RIDE FIELD		
sken form the M-9 SV							DCATION	DEPTH		A SSUE
ven backfilled with 4"	of clean overbur	den soil. A co	mpacted red-t	oed clay liner	was installed		DEWALLS	13'	260	
and density lested. The				***************************************	CONTRACTOR OF THE PROPERTY OF		BOTTOM	20'	100	****
ested in 3' lifts. A mor	nitor well was ins	stalled to samp	ie groundwate	er constituents	. Any remaining] 4'	fiil above gw	16'	220	
ydrocarbon will natur	ally attenuate.					ist	lift above line	12'	310	
							2nd lift	9'	350	Parcs.
			market Mil and grown are second and a second	6.63 <u>m.g</u> g	no anno a <mark>llega an escribir de la libera de </mark>		3rd lift	6'	320	
							4th lift	3'	360	Paga
							Surface	0'	471	••••
							Y			
			ikaalaanan (hagayen goodaalaan kaalaanaa kaalaanaa kaalaanaa kaalaanaa kaalaanaa kaalaanaa kaalaanaa kaalaanaa	L-190			and the stay parameters are supported by the stay of t		78×2	
HEREB	Y CERTIFY	THAT THE			/E IS TRUE / AND BELIEF		PLETE TO	THE BEST O	F MY	2000
ATE		ev2) 2002			UNTED NAME					
IGNATURE	130	Uslin.	Y7		TITLE	Pı	roject Lead	er - Environm	rental	

RICE OPERATING COMPANY JUNCTION BOX FINAL REPORT

JUNCTION BOX FINAL REPORT **BOX LOCATION** SWD SYSTEM JUNCTION UNIT SECTION TOWNSHIP! RANGE COUNTY BOX DIMENSIONS - FEST 37.72 LEA EME M-9-3 M *3 205 LAND TYPE: BLM STATE FEE LANDOWNER S & W CATTLE CO OTHER Depth to Groundwater 18 leet NMOCD SITE ASSESSMENT RANKING SCORE: 20 Date Started 06/19/2002 Date Completed 09/09/2002 OCD Witness YES Soil Excavated 8000 cubic yards Excavation Length 110 Width 100 Depth 20 feet Soil Disposed cubic yards Offsite Facility Location _____ FINAL ANALYTICAL RESULTS: Sample Date 09/09/2002 Sample Depth 20 Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH, BTEX and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines. Toluene Ethyl Benzene Totai Xylenes GRO Chlorides Samole Remece Location mg/kg mg/kg ma/ka mg/kg mg/kg mg/kg mg/kg <0.025 < 0.025 < 0.025 <0.025 <10 <10 245 SIDEWALLS < 0.025 <0.025 BOTTOM < 0.025 < 0.025 <10 <10 95 General Description of Remedial Action: This junction box was located within the CHLORIDE FIELD TESTS area excavated and remediated at the M-9 SWD Facility. All samples and test results were LOCATION DEPTH mg/kg taken form the M-9 SWD Facility remediation site. The site was excavated to 20' bgs and 260 **SIDEWALLS** 13, then backfilled with 4' of clean overburden soil. A compacted red-bed clay liner was installed 201 100 and density fested. The excavation was backfilled with remediated soil. The remediated soil was BOTTOM 220 tested in 3' lifts. A monitor well was installed to sample groundwater constituents. Any remaining 16' 4' fill above gw 12' 310 hydrocarbon will naturally attenuate. 1st lift above liner 2nd lift 9, 350 320 3rd left €' 4, 360 4th lift 0, 471 Surface THEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

PRINTED NAME D. E. Anderson

TITLE Project Leader - Environmental

Øctober 2, 2002

RICE OPERATING COMPANY JUNCTION BOX FINAL REPORT

BOX LOCATION

SWD SYSTEM JUNCTION	TINU	SECTION	TOWNSHIP		COUNTY	BOX	DIMENSIONS -	F	
EME M-9-4	V	g	20 8	375	LEA	Length	'Mikdith	Coptin	-
LAND TYPE: BLM	STATE	FEE L	ANDOWNER	8 S & W (CATTLE CO	OTHE			
Depth to Groundwater	18	_feet	NMOCE	SITE ASSE	SSMENT F	ANKING S	SCORE:	20	······································
Date Started06/	19/2002	Date Co	mpleted	09/09/2002	ocb v	Vitness	YE	<u>S</u>	***************
Soil Excavated 8000	O cubic ya	ırds Ex	cavation L	ength110	Width	100	Depth	20	_f ee t
Soil Disposed	cubic ya	inds O	ffsite Facility	<i></i>		Location	The state of the s	donnessen, se se se se con l'author de randonistisse	perpensión de escentra de con-
FINAL ANALYTICAL	RESULTS	S: Samp	le Date	09/09/2	002	Sample D	epth	20	
	d Chloride lab	procedures	s pursuant to	NMOCD gu	idelines.				
Sample Benze Localion mg/ki	1	luene E g/kg	thyi Benzene nig/kg	Total Xylen mg/kg	es GF niqu	- 4	DRO ma/kg	Chlorides mg/kg	S
SIDEWALLS <0.02		.025	< 0.025	<0.025			<10	245	
BOTTOM <0.02		.025	<0.025	<0.025	<1	O	<10	95	
General Description of Reme area excavated and remediated at the taken form the M-9 SWD Facility re	he M-9 SWD Fa	cility. All sæm		esults were	······································	CATION	RIDE FIELD T	mg/k	KQ.
then backfilled with 4" of clean over			Add 60 (Add 4 - 4 - 17 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			EWALLS	13'	260	9000 par 1 co. 1
and density tested. The excavation	was backfilled v	vith remediate	d soil. The rem	nediated soil wa	s B	оттом	20'	100)
tested in 3' lifts, A monitor well was	installed to sam	ole groundwat	er constituents	. Any remaining	4' !	il above gw	16'	220	 J
hydrocarbon will naturally attenuate					1st	ft above Ener	12'	310)
**************************************						2nd lift	9'	350	
**************************************		·			<u> </u>	3rd tift	6'	320)
						4th lift	3'	360)
						Surface	0,	471	1
I HEREBY CERTIF	Y THAT THE			E IS TRUE AND BELIEF		LETE TO 1	THE BEST O	= MY	
DATEOct	obesെ <u>ജ</u> . 2002		PR	RINTED NAME		D. E.	Anderson		
1. 7. 7.						describitions of an experience of the comments	The state of the s		

RICE OPERATING COMPANY JUNCTION BOX FINAL REPORT

BOX LOCATION SWD SYSTEM JUNCTION UNIT SECTION TOWNSHIP RANGE COUNTY **80X DIMENSIONS - FEET** 9 2015 375 LEA EME M-9-5 M LAND TYPE: BLM STATE FEE LANDOWNER S & W CATTLE CO OTHER NMOCD SITE ASSESSMENT RANKING SCORE: 20 Depth to Groundwater 18 feet Date Completed 09/09/2002 OCD Witness YES Date Started 06/19/2002 Excavation Length 110 Width 100 Depth 20 feet Soil Excavated 8000 cubic yards Offsite Facility Location_ Soil Disposed _____ cubic yards FINAL ANALYTICAL RESULTS: Sample Date 09/09/2002 Sample Depth 20 Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH, BTEX and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines. Total Xylenes OHO GRO Chlorides Benzene Toluene Ethyl Banzene Sample Location mq/kq mg/kg mq/kg mg/kg mg/kg ma/kg marka SIDEWALLS < 0.025 <0.025 < 0.025 <0.025 <10 <10 245 <0.025 95 <:10 BOTTOM < 0.025 < 0.025 < 0.025 <10 General Description of Remedial Action: CHLORIDE FIELD TESTS This junction box was located within the area excavated and remediated at the M-9 SWD Facility. All samples and test results were LOCATION DEPTH mg/kg taken form the M-9 SWO Facility remediation site. The site was excavated to 20' bgs and SIDEWALLS 13' 260 then backfilled with 4' of clean overburden soil. A compacted red-bed clay liner was installed BOTTOM 20' 100 and density tested. The excavation was backfilled with remediated soil. The remediated soil was tested in 3' lifts. A monitor well was installed to sample groundwater constituents. Any remaining 4' till above gw 16" 220 310 12' hydrocarbon will naturally attenuate. 1st lift above liner 9' 350 2nd lift 3rd lift 6, 320 4th lift 3' 360 471 Surface 0' THEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF. PRINTED NAME D. E. Anderson October 2, 2002 Wilder TITLE Project Leader - Environmental

SIGNATURE

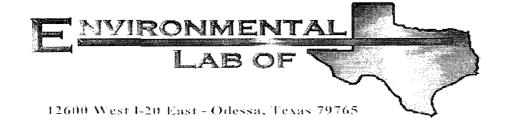
RICE OPERATING COMPANY JUNCTION BOX FINAL REPORT

BOX LOCATION SECTION TOWNSHIP! FANGE SWD SYSTEM JUNCTION UNIT BOX DIMENSIONS - FEET COUNTY Length Width CMAE M-9-6 8./1 2015 37 F LEA LAND TYPE: BLM STATE FEE LANDOWNER SAW CATTLE CO CTHER Depth to Groundwater 20 /eet NMOCD SITE ASSESSMENT RANKING SCORE: 20 Date Started 03/21/2002 Date Completed 03/21/2002 OCD Witness NO Soil Excavated 100 cubic yards Excavation Length 20 Width 12 Depth 16 feet Soil Disposed concyards Offsite Facility Location FINAL ANALYTICAL RESULTS: sample Date 03/21/2002 Sample Depth 16 Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH, STEX and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMCCD guidelines. Ethyi Berizene Total Xvenses GRO Chlorides Sample Run rona Totuene mg/kg mg/kg ണയ്ടെ Location mg/kg mg/kg ma/ka mg/kg 202 SIDEWALLS < 0.025 <0.025 < 0.025 < 0.025 <10 <10 <0.025 ₹0.025 <10 97 BOTTOM <11.025 <0.025 General Description of Remedial Action: Defineated vertical and lateral extent CHLORIDE FIELD TESTS Vertical delineation found a decline in chlorides from 750 ppm @ 10" bgs to 100 pom @ 16" bgs. LOCATION DEPTH ma/kg These results indicate impact did not reach groundwater. The excavated soil was blended with fresh soil to 300 ppm chlorides and backtilled. This site is no longer a junction and does not require a box. SIDEWALLS 300 **BOTTOM** 16' 100 Vertical Trench 5 350 700 10" 750 12" 750 14 400 100 16 I HEREBY CERTIFY THAT THE INFORMATION AGOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF. PRINTED NAME D. E. Anderson

TITLE Project Leader - Environmental

SIGNATURE

APPENDIX E



Analytical Report

Prepared for:

Kristin Farris Rice Operating Co. 122 W. Taylor Hobbs, NM 88240

Project: EME System M-9 SWD Site Project Number: None Given

Location: T2OS, R37E, Sec 9, Unit Letter M

Lab Order Number: 5B09004

Report Date: 02/18/05

Rice Operating Co.ProjectEME System M-9 SWD SiteFax: (505) 397-1471122 W. TaylorProject Number:None GivenReported:Hobbs NM, 88240Project Manager:Kristin Farris02/18/05 17:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	5B09004-01	Water	02/08/05 15:12	02/09/05 07:00
MW-2	5B09004-02	Water	02/08/05 14:20	02/09/05 07:00
MW-3	5B09004-03	Water	02/08/05 13:53	02/09/05 07:00
MW-4	5B09004 - 04	Water	02/08/05 15:53	02/09/05 07:00
WW	5B09004-05	Water	02/08/05 13:15	02/09/05 07:00

Rice Operating Co. 122 W. Taylor Hobbs NM, 88240 Project: EME System M-9 SWD Site

Project Number: None Given Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 02/18/05 17:58

Organics by GC Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	15.1 at	D . I	D. I	A	N.C.	37.7
-	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (5B09004-01) Water		 							
Benzene	0.00279	0.00100	$mg_{\ell}L$	1	EB51807	02/14-05	02/15/05	EPA 8021B	
Toluene	ND	0.00100	D.	"	ji.	"	ut.	II.	
Ethylbenzene	ND	0.00100	jø.	,,	н	H	9	и	
Xylene (p/m)	ND	0.00100	и	r	н	п	u u	u .	
Xylene (o)	0.00115	0.00100	11	н	P	11	u .	П	
Surrogate: a,a,a-Trifluorotoluene		80.5 %	80-12	20	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.5 %	80-12	20	"	"	"	"	
MW-2 (5B09004-02) Water									
Benzene	ND	0.00100	mg.L	1	EB51807	02/14/05	02/15/05	EPA 8021B	
Toluene	ND	0.00100	p	0	0	"	16	и	
Ethylbenzene	ND	0.00100	н	0	0	"	11	и	
Xylene (p/m)	ND	0.00100	п	P	rt .	н	16	п	
Xylene (o)	ND	0.00100	ii .	0	a.	п	W	п	
Surrogate: a,a,a-Trifluorotoluene	ALL DESCRIPTION OF THE PROPERTY OF THE PROPERT	103 %	80-12	20	"	"	,,	"	
Surrogate: 4-Bromofluorobenzene		112%	80-12	20	"	"	"	"	
MW-3 (5B09004-03) Water									
Benzene	ND	0.00100	mg, L	1	EB51807	02/14/05	02/15/05	EPA 8021B	
Toluene	ND	0.00100	it	н	0	н	0	rt.	
Ethylbenzene	ND	0.00100	H.	17	41	п	0	4	
Xylene (p/m)	ND	0.00100	41	p	4	ıı	0	п	
Xylene (o)	ND	0.00100	4	**		п	0	4	
Surrogate: a,a,a-Trifluorotoluene		105 %	80-12	20	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	80-12	20	"	"	"	n	
MW-4 (5B09004-04) Water									
Benzene	ND	0.00100	mg _' L	1	EB51807	02/14/05	02/15/05	EPA 8021B	
Toluene	ND	0.00100	II.	"	u	п	п		
Ethylbenzene	ND	0.00100	II .	"	ji	п	n	u	
Xylene (p/m)	ND	0.00100	ji .	n	18	п	n	u	
Xylene (o)	ND	0.00100	U	P	18	"	п	je.	
Surrogate: a,a,a-Triffuorotohiene	-	82.0 %	80-12	20	21	11	p.	"	
Surrogate: 4-Bromofluorobenzene		88.0 %	80-12	20	"	"	"	"	

Rice Operating Co. 122 W. Taylor Hobbs NM, 88240 Project: EME System M-9 SWD Site

Project Number: None Given Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 02/18/05 17:58

Organics by GC Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WW (5B09004-05) Water									
Benzene	ND	0.00100	mg/L	1	EB51807	02/14/05	02/15/05	EPA 8021B	
Toluene	ND	0.00100	и	и	ш	п	U	п	
Ethylbenzene	ND	0.00100	a	'n	O.	н	н	II.	
Xylene (p/m)	ND	0.00100	Į t	п	н	n	11	rt	
Xylene (o)	ND	0.00100	"	μ	"	н	II	II	
Surrogate: a,a,a-Trifluorotoluene		108 %	80-12	0	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	80-12	0	"	"	,,	"	

Rice Operating Co. 122 W. Taylor Hobbs NM, 88240 Project: EME System M-9 SWD Site

Project Number: None Given Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 02/18/05 17:58

General Chemistry Parameters by EPA / Standard Methods Environmental Lab of Texas

Analyte	Result	Reporting Lunit	Units	Dilution	Batch	Prepared	Analy zed	Method	Notes
MW-1 (5B09004-01) Water	TO SUIT		O11167	Dilution	Бацен		Anany zed	wiemod	inotes
Total Alkalinity	340	2.00	mg/L	1	EB51404	02/15/05	02/15/05	EPA 310.2M	
Chloride	304	10.0	"	20	EB51713	02/10/05	02/10/05	EPA 300.0	
Total Dissolved Solids	1500	5.00	"	1	EB51004	02/09/05	02/10/05	EPA 160.1	
Sulfate	356	10.0	и	20	EB51713	02/10/05	02/10/05	EPA 300.0	
MW-2 (5B09004-02) Water									
Total Alkalinity	290	2.00	mg/L	1	EB51404	02/15/05	02/15/05	EPA 310 2M	
Chloride	311	10.0	п	20	EB51713	02/10/05	02/10/05	EPA 300.0	
Total Dissolved Solids	1390	5.00	n	1	EB51004	02/09/05	02/10/05	EPA 160.1	
Sulfate	308	10.0	и	20	EB51713	02/10/05	02/10/05	EPA 300.0	
MW-3 (5B09004-03) Water									
Total Alkalinity	226	2.00	mg/L	1	EB51404	02/15/05	02/15/05	EPA 310.2M	
Chloride	312	10.0	IF	20	EB51713	02/10.05	02/10/05	EPA 300 0	
Total Dissolved Solids	1450	5.00	н	1	EB51004	02/09.05	02/10/05	EPA 160.1	
Sulfate	407	10.0	и	20	EB51713	02/10/05	02/10/05	EPA 300 0	
MW-4 (5B09004-04) Water									
Total Alkalinity	250	2.00	mg/L	1	EB51404	02/15/05	02/15/05	EPA 310.2M	
Chloride	520	12.5	и	25	EB51713	02/10/05	02/10/05	EPA 300.0	
Total Dissolved Solids	1670	5.00		1	EB51004	02/09/05	02/10/05	EPA 160 i	
Sulfate	311	12.5	"	25	EB51713	02/10.05	02/10/05	EPA 300.0	
WW (5B09004-05) Water									
Total Alkalinity	264	2.00	mg/L	1	EB51404	02/15/05	02/15/05	EPA 310.2M	
Chloride	395	10.0	и	20	EB51713	02/10/05	02/10/05	EPA 300 0	
Total Dissolved Solids	1180	5.00	n	l	EB51004	02/09/05	02/10/05	EPA 160.1	
Sulfate	155	10.0	"	20	EB51713	02/10/05	02/10/05	EPA 300 0	

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

122 W. Taylor Hobbs NM, 88240

Project Number: None Given Project Manager: Kristin Farris

Reported: 02/18/05 17:58

Total Metals by EPA / Standard Methods **Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dile	Date	Dean-sel	Analogad	Viforti - 4	NT-4
MW-1 (5B09004-01) Water	Kesun	Limit	OHIG	Dilution	Batch	Prepared	Analy zed	Method	Notes
M1W-1 (3B02004-01) Water									
Calcium	135	1.00	mg/L	100	EB51702	02/14/05	02/16/05	EPA 6010B	
Magnesium	80.5	0.0500	ır	50	if.	н	"	"	
Potassium	10.8	0.500	H	10	or .	II .	u	II.	
Sodium	239	1.00	"	100	10	II	и	II	
MW-2 (5B09004-02) Water									
Calcium	105	1.00	mg/L	100	EB51702	02/14.05	02/16/05	EPA 6010B	-
Magnesium	64.4	0.0500		50	"	n	n	n	
Potassium	11.4	0.250	н	5	u.	ш	и	п	
Sodium	256	1.00	"	100	μ	п	и	п	
MW-3 (5B09004-03) Water							_		
Calcium	175	1.00	mg/L	100	EB51702	02/14/05	02/16/05	EPA 6010B	
Magnesium	73.2	0.0500		50	н	· "	п	"	
Potassium	8.65	0.250	н	5	*	ii.		п	
Sodium	276	1.00	U	100	n.	. "	II.	П	
MW-4 (5B09004-04) Water									
Calcium	131	1.00	mg/L	100	EB51702	02/14:05	02/16/05	EPA 6010B	
Magnesium	76.1	0.0500	и	50		п	и	11	
Potassium	11.3	0.250	n	5	μ	li .	11	н	
Sodium	327	1.00	II.	100	μ	0	H	"	
WW (5B09004-05) Water									
Calcium	114	0.500	mg/L	50	EB51702	02/14/05	02/16/05	EPA 6010B	
Magnesium	60.6	0.0500	U	п	ņ	n	n	и	
Potassium	9.08	0.250	"	5	P	il	11	и	
Sodium	201	1.00	ĮF.	100	п	"	н	н	

122 W. Taylor Hobbs NM, 88240 Project: EME System M-9 SWD Site

Project Number: None Given Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 02/18/05 17:58

Organics by GC - Quality Control Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EB51807 - EPA 5030C (GC)										
Blank (EB51807-BLK1)				Prepared &	: Analyzed:	02/14/05				
Benzene	ND	0 00100	mg/L							
Toluene	ZID	0.00100	II.							
Ethylbenzene	ND	0.00100	11							
Xylene (p/m)	ND	0.00100	11							
Xylene (o)	ND	0.00100	п							
Surrogate: a,a,a-Trifluorotoluene	16.5		ug/l	20.0		82.5	80-120			
Surrogate: 4-Bromofluorobenzene	17.4		"	20.0		87.0	80-120			
LCS (EB51807-BS1)				Prepared &	Analyzed:	02/14/05				
Benzene	105		ug/l	100		105	80-120			
Toluene	105		п	100		105	80-120			
Ethylhenzene	95.9		н	100		95.9	80-120			
Xylene (p/m)	196		ш	200		98.0	80-120			
Xylene (o)	95.7		tr	100		95.7	80-120			
Surrogate: a,a,a-Trífluorotoluene	16.5		"	20.0		82.5	80-120			
Surrogate: 4-Bromofluorobenzene	16.8		"	20.0		84.0	80-120			
LCS Dup (EB51807-BSD1)				Prepared &	z Analyzed:	02/14/05				
Benzene	113		ug/l	100		113	80-120	7.34	20	
Toluene	112		"	100		112	80-120	6 45	20	
Ethylbenzene	107		н	100		107	80-120	10 9	20	
Xylene (p/m)	224		0	200		112	80-120	13.3	20	
Xylene (o)	111		10	100		111	80-120	14.8	20	
Surrogate: a,a,a-Trifluorotoluene	18.6		"	20.0		93.0	80-120			
Surrogate: 4-Bromofluorobenzene	20.2		"	20.0		101	80-120			
Calibration Check (EB51807-CCV1)				Prepared: 0	02/14/05 A	nalyzed: 02	/16/05			
Benzene	97.5	11 10 10 10	ug/l	100		97.5	80-120			
Toluene	104		н	100		104	80-120			
Ethylbenzene	93.1		"	100		93.1	80-120			
Xylene (p/m)	194		п	200		97.0	80-120			
Xylene (a)	97.9		и	100		97.9	80-120			
Surrogate: a,a,a-Trifluorotoluene	16.7		"	20.0		83.5	80-120	·		
Surrogate: 4-Bromofluorobenzene	17.8		"	20.0		89.0	80-120			

Rice Operating Co. 122 W. Taylor Project: EME System M-9 SWD Site

Project Number: None Given

Fax: (505) 397-1471

Reported:

Hobbs NM, 88240 Project Manager: Kristin Farris

Reported: 02/18/05 17:58

Organics by GC - Quality Control Environmental Lab of Texas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch	EB51807 -	· EPA	5030C	(GC)

Matrix Spike (EB51807-MS1)	Source: 51	309008-01	Prepared: 0	02/14/05 A	nalyzed: 0	2/18/05
Benzene	93 3	ug/l	100	ND	93.3	80-120
Toluene	101	u	100	ND	101	80-120
Ethylbenzene	102	-U	100	ND	102	80-120
Xylene (p/m)	206	п	200	ND	103	80-120
Xylene (o)	97.3	u	100	ND	97.3	80-120
Surrogate: a,a,a-Trifluorotoluene	23.3	"	20.0		116	80-120
Surrogate: 4-Bromofluorobenzene	20.4	"	20.0		102	80-120

122 W. Taylor Hobbs NM, 88240 Project: EME System M-9 SWD Site

Project Number: None Given

Project Manager: Kristin Farris

Fax: (505) 397-1471

Reported: 02/18/05 17:58

General Chemistry Parameters by EPA / Standard Methods - Quality Control Environmental Lab of Texas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EB51004 - General Preparati	on (WetChem)									
Blank (EB51004-BLK1)				Prepared: 02/09/05 Analyzed: 02/10/05						
Total Dissolved Solids	ND	5 00	mg/L							
Duplicate (EB51004-DUP1)	Sour	ce: 5B09003-	01	Prepared: (
Total Dissolved Solids	16200	5.00	mg/L		14600		· <u>-</u>	10.4	20	
Batch EB51404 - General Preparati	on (WetChem)									
Blank (EB51404-BLK1)				Prepared & Analyzed: 02/15/05						
Total Alkalinity	ND	2.00	mg/L							
Duplicate (EB51404-DUP1)	Sour	ce: 5B09003-	01	Prepared & Analyzed: 02/15/05						
Total Alkalinity	395	2 00	mg/L		396			0 253	20	
Reference (EB51404-SRM1)				Prepared &	: Analyzed:	02/15/05				
Carbonate Alkalinity	0 0510		mg/L	0 0500		102	80-120			
Batch EB51713 - General Preparati	on (WetChem)									
Blank (EB51713-BLK1)				Prepared &	: Analyzed:	02/10/05				
Sulfate	ND	0.500	mg/L							
Chloride	ND	0.500	н							
						00/10/05				
LCS (EB51713-BS1)				Prepared &	: Analyzed:	02/10/05				
LCS (EB51713-BS1) Sulfate	9.66		mg/L	Prepared &	Analyzed:	96.6	80-120			

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

122 W. Taylor Hobbs NM, 88240 Project Number: None Given Project Manager: Kristin Farris

Reported: 02/18/05 17:58

General Chemistry Parameters by EPA / Standard Methods - Quality Control Environmental Lab of Texas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EB51713 - General Preparation (V	VetChem)									
LCS Dup (EB51713-BSD1)				Prepared &	z Analyzed:	02/10/05				
Sulfate	9.64		mg/L	10.0		96.4	80-120	0.207	20	
Chloride	9.51		a	10.0		95.1	80-120	0.524	20	
Calibration Check (EB51713-CCV1)				Prepared &	Analyzed:	02/10/05				
Chloride	9.73		mg/L	10.0		97.3	80-120			
Sulfate	9.88		(1	10.0		98.8	80-120			
Duplicate (EB51713-DUP1)	Sou	rce: 5B09004-	01	Prepared &	z Analyzed:	02/10/05				
Chloride	304	100	mg/L		304			0.00	20	
Sulfate	357	10.0			356			0.281	20	

Project: EME System M-9 SWD Site

Project Number: None Given Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 02/18/05 17:58

Total Metals by EPA / Standard Methods - Quality Control Environmental Lab of Texas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EB51702 - 6010B/No Digestion										
Blank (EB51702-BLK1)				Prepared: ()2/14/05 A	nalyzed: 02	2/16/05			
Calcium	ND	0,0100	mg/L							
Magnesium	ND	0.00100	II							
Potassium	ND	0.0500	11							
Sodium	CIK	0.0100	п							
Calibration Check (EB51702-CCV1)				Prepared: (02/14/05 A	nalyzed: 02	2/16/05			
Calcium	2.22		mg/L	2.00		111	85-115			
Magnesium	2.08		н	2.00		104	85-115			
Potassium	1.75		п	2.00		87.5	85-115			
Sodium	1 94		u	2.00		970	85-115			
Duplicate (EB51702-DUP1)	Sou	rce: 5B09003-	01	Prepared: (02/14/05 A	nafyzed: 02	1/16/05			
Calcium	905	1.00	mg/L		8+8			6.50	20	
Magnesium	254	0.100	H		239			6.09	20	
Potassium	88.3	2.50			90 7			2.68	20	
Sodium	5810	10.0	15		4840			18 2	20	

Rice Operating Co.
Project: EME System M-9 SWD Site
Fax: (505) 397-1471

122 W. Taylor
Project Number: None Given
Reported:
Project Manager: Kristin Farris
02/18/05 17:58

Notes and Definitions

DET Analyte DETECTED ND Analyte NOT DETECTED at or above the reporting limit NR Not Reported Sample results reported on a dry weight basis dry RPD Relative Percent Difference LCS Laboratory Control Spike MS Matrix Spike Duplicate Dup

	Kaland K Jours		
Report Approved By:	Racan Cres.	Date	2/18/2005

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer Jeanne Mc Murrey, Inorg. Tech Director James L. Hawkins, Chemist/Geologist Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas 12600 West 1-20 East Phone: 432-563-1860 Odessa, Texas 79765 Fax: 432-563-1713

Sampler Signature:

Company Address: 122 West Taylor

city/state/zip: Hobbs, New Mexico 88240

Telephone No: 505-393-9174

Project Wanager: Kristin Farris Company Name Rice Operating Company Project Name: EME System M-9 SWD Site

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Location: T205, R37E, Sec 9, Unit Letter M coc #: V117M9-0205

Fax No: 505-397-1471

Na * (lab use only) Special Instructions: MW22 MOVE Please email results to both gil@trident-environmental.com and to enviro@leaco.net FIELD CODE 2/2/2 Di cop Tione . Time 2805 1315 233 153 20.8.02 Received by: 2 3.05 1353 2.8.05 1420 Received by ELOT: Date Sampled 5/2 Time Sampled 10.1 ت wahi No. of Containers ice нио, 110 (BTEX soly NaOn $\mathsf{H}_2\mathsf{SO}_4$ None Other (Specity) <. Water Date Date Soft Other (specify): Time State, TFH: 418.1 8015F4 1005 100 Cations (Ca, Mg. Na. K) Anions (Ci, SO4, CO3, HCO3) SAR / ESP / CEC Metais: As Ag Ba Cd Cr Pb Hg S Voiables Semivolatilus BTEX 80218/5030 or BTEX 8266 N.R.O M 70% Total Dissolved Solids RUSH TAT (Pre-Schedu Standard TAT

Drop Bex

299

07.00

GANDONIE WAX

2-4-5

0700

Seal on Block 85

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

Client Rice Operation Co.				
and the state of t				
Date/Time: 02-09-05 @ 0700				
Order#: 5809004				
Initials: UMM				
Sample Receip	ot Checki	ist		
Temperature of container/cooler?	(Yes	No	-1.0 C	
Shipping container/cooler in good condition?	T Yes	No		4
Custody Seals intact on shipping container/cooler?	(Yes)	No	Not present	Lack Back Ba
Custody Seals intact on sample bottles?	Yes	No	(Mot present	
Chain of custody present?	Yes			on notin dropb
Sample Instructions complete on Chain of Custody?	(Yes)		The second section of the page of the second	Client dispressible
Chain of Custody signed when relinquished and received?		No		1 later
Chain of custody agrees with sample label(s)	(Yes	No		
Container labels legible and intact?	्रें एंटर	No		
Sample Matrix and properties same as on chain of custody?	(Yes)			
Samples in proper container/bottle?	(Yes)	****		
Samples properly preserved?	(es)			i
Sample bottles intact?	(Yes	No		-{
Preservations documented on Chain of Custody?	Yes		A MANAGEM AND ADMINISTRATION OF THE PARTY OF	<u> </u>
Containers documented on Chain of Custody?	Yes	Ne		
Sufficient sample amount for indicated test?	(४३३)	No	To an about the observed to Annuary or annuary in a consideration of	
All samples received within sufficient hold time?	Xee\	No	The second secon	
VOC samples have zero headspace?	Yas	No I	Not Applicable	*
Contact Person: - GT Van Dever- Date/Time: 02-Regarding:	C9.05 @	9800		M. M. M.
missing COC	The state of the s		anning a series and a series of the series o	angleting and a state of the st
			and an oblighing that to reverse, assume the Mariana return Tage years in a Manager	
Corrective Action Taken: Clientwill bring Cox, by later	hss ex	1012		againet, <u>skappa</u> or a not a skappa of a skappa or a not a not a not a skappa or a not a n
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Analytical Report

Prepared for:

Kristin Farris Rice Operating Co. 122 W. Taylor Hobbs, NM 88240

Project: EME System M-9 SWD Site
Project Number: V117M9
Location: T20S, R37E, Sec 9, Unit Letter M

Lab Order Number: 5E09004

Report Date: 05/16/05

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

122 W. Taylor Hobbs NM, 88240 Project Number: V117M9 Project Manager: Kristin Farris

Reported: 05/16/05 07:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WW-1	5E09004-01	Water	05/02/05 11:20	05/06/05 16:40
MW-1	5E09004-02	Water	05/02/05 16:02	05/06/05 16:40
MW-2	5E09004-03	Water	05/02/05 14:16	05/06/05 16:40
MW-3	5E09004-04	Water	05/02/05 13:40	05/06/05 16:40
MW-4	5E09004-05	Water	05/02/05 15:07	05/06/05 16:40

Project: EME System M-9 SWD Site

Project Number: V117M9
Project Manager: Kristin Farris

Fax: (505) 397-1471

Reported: 05/16/05 07:42

Organics by GC Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
WW-1 (5E09004-01) Water				Dittion		rrepared	Allany Zeti	Nettion	11010
Benzene	ND	0.00100	mg/L	1	EE51006	05/10/05	05/10/05	EPA 8021B	
Toluene	ND	0.00100	"	,,	EL.1000	"	"	"	
Ethylbenzene	ND	0.00100		ıt	,,	п	iř	и	
Xylene (p/m)	ND	0.00100	,,	p	H	u.	п	a	
Xylene (o)	ND	0.00100	"	и	и	,,	11	и	
Surrogate: a,a,a-Trifluorotoluene		99.0%	80-12	20		"		"	
Surrogate: 4-Bromofluorobenzene		116%	80-12		"	"	u	"	
MW-1 (5E09004-02) Water									
Benzene	J [0.000499]	0.00100	mg/L	1	EE51006	05/10/05	05/10/05	EPA 8021B	
Toluene	ND	0.00100	**	p.	н	"	"	n	
Ethylbenzene	ND	0.00100	"	o		ır	U	и	
Xylene (p/m)	J [0.000517]	0.00100	н	n	11	If	Ü	II.	
Xylene (o)	J [0.000491]	0.00100	u	0	,,	П	ir.	n .	
Surrogate: a,a,a-Trifluorotoluene		115 %	80-12	20	"	"	п	"	
Surrogate: 4-Bromofluorobenzene	•	118 %	80-12	20	"	"	"	"	
MW-2 (5E09004-03) Water									
Benzene	ND	0.00100	mg/L	1	EE51006	05/10/05	05/10/05	EPA 8021B	
Toluene	ND	0.00100	n .	"	11.	II	N	in	
Ethylbenzene	ND	0.00100	H	ri	и	ш	п	D.	
Xylene (p/m)	ND	0.00100	u .	μ	И	"	ii.	u	
Xylene (o)	ND	0.00100	М	,,	u u	11	ы	II.	
Surrogate: a,a,a-Trifluorotoluene		109 %	80-12	20	"	"	"	"	
Surrogate: 4-Bromofluorohenzene		118 %	80-12	20	"	"	"	"	
MW-3 (5E09004-04) Water									
Benzene	ND	0.00100	mg/L	1	EE51006	05/10/05	05/10/05	EPA 8021B	
Toluene	ND	0.00100	ij	μ	И	ıı	n	v	
Ethylbenzene	ND	0.00100	n	μ	II.	rr .	R	n	
Xylene (p/m)	ND	0.00100	H	р	ıl	II	и	n	
Xylene (o)	ND	0.00100	И	li .	n	и	м	p.	
Surrogate: a,a,a-Trifluorotoluene		112%	80-12	20	"	"	"	n	
Surrogate: 4-Bromofluorobenzene		95.0%	80-12	20	"	"	"	"	

Project: EME System M-9 SWD Site

Project Number: V117M9 Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 05/16/05 07:42

Organics by GC **Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (5E09004-05) Water									
Benzene	ND	0.00100	mg/L	1	EE51006	05/10/05	05/10/05	EPA 8021B	
Toluene	ND	0.00100	н	,,	**	n		n	
Ethylbenzene	ND	0.00100	ii.	μ	п	п	ri .	of Control	
Xylene (p/m)	ND	0.00100	ıt	ø	U.	н	и	rt	
Xylene (o)	ND	0.00100	н	11	11	ri	n	и	
Surrogate: a,a,a-Trifluorotoluene		107 %	80-12	0	и	"	"	"	
Surrogate: 4-Bromofluorobenzene		112%	80-12	0	"	"	"	"	

Project: EME System M-9 SWD Site

Project Number: V117M9
Project Manager: Kristin Farris

Fax: (505) 397-1471

Reported: 05/16/05 07:42

General Chemistry Parameters by EPA / Standard Methods Environmental Lab of Texas

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WW-1 (5E09004-01) Water									
Total Alkalinity	256	2.00	mg/L	1	EE51104	05/09/05	05/09/05	EPA 310.2M	
Chloride	866	12.5	n	25	EE51001	05/09/05	05/09/05	EPA 300.0	
Total Dissolved Solids	2470	5.00	n	1	EE51105	05/09/05	05/10/05	EPA 160.1	
Sulfate	420	12.5	n .	25	EE51001	05/09/05	05/09/05	EPA 300.0	
MW-1 (5E09004-02) Water									
Total Alkalinity	274	2.00	mg/L	1	EE51104	05/09/05	05/09/05	EPA 310.2M	
Chloride	329	10.0	If	20	EE51001	05/09/05	05/09/05	EPA 300 0	
Total Dissolved Solids	1450	5.00	и	I	EE51105	05/09/05	05/10/05	EPA 160 1	
Sulfate	358	10.0	II	20	EE51001	05/09,05	05/09/05	EPA 300.0	
MW-2 (5E09004-03) Water									
Total Alkalinity	275	2.00	mg/L	1	EE51104	05/09/05	05/09/05	EPA 310.2M	
Chloride	295	10.0	4	20	EE51001	05/09.05	05/09/05	EPA 300 0	
Total Dissolved Solids	1390	5.00		1	EE51105	05/09.05	05/10/05	EPA 160.1	
Sulfate	332	10.0	u .	20	EE51001	05/09.05	05/09/05	EPA 300.0	
MW-3 (5E09004-04) Water									
Total Alkalinity	242	2.00	mg/L	1	EE51104	05/09/05	05/09/05	EPA 310.2M	
Chloride	329	10.0	II.	20	EE51001	05/09/05	05/09/05	EPA 300.0	
Total Dissolved Solids	1510	5.00	n	1	EE51105	05/09/05	05/10/05	EPA 160.1	
Sulfate	417	10.0	"	20	EE51001	05/09/05	05/09/05	EPA 300.0	
MW-4 (5E09004-05) Water									<u>-</u> .
Total Alkalinity	258	2.00	mg/L	1	EE51104	05/09/05	05/09/05	EPA 310.2M	
Chloride	591	10.0	u	20	EE51001	05/09/05	05/09/05	EPA 300 0	
Total Dissolved Solids	1790	5.00	IF.	1	EE51105	05/09/05	05/10/05	EPA 160.1	
Sulfate	337	10.0	и	20	EE51001	05/09/05	05/09/05	EPA 300.0	

Rice Operating Co. 122 W. Taylor

Hobbs NM, 88240

Project: EME System M-9 SWD Site

Project Number: V117M9 Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 05/16/05 07:42

Total Metals by EPA / Standard Methods **Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WW-1 (5E09004-01) Water									
Calcium	188	0.500	mg/L	50	EE50905	05/09/05	05/09/05	EPA 6010B	
Magnesium	119	0.0500	19	и	p	н	"	п	
Potassium	12.1	0.500	н	10	ri .	н	W	п	
Sodium	370	0.500	y	50	"	н	Ü	It	
MW-1 (5E09004-02) Water									
Calcium	110	0.100	mg/L	10	EE50905	05/09,05	05/09/05	EPA 6010B	
Magnesium	64.5	0.0100	п	v	n	н	4	п	
Potassium	9.39	0.500	ı	0	n	II.	u	п	
Sodium	261	0.500	W	50	ii .	n	u	М	
MW-2 (5E09004-03) Water									
Calcium	120	0.100	mg L	10	EE50905	05/09:05	05/09/05	EPA 6010B	
Magnesium	60.3	0.0100	4	0	11	н		п	
Potassium	9.76	0.250	u u	5	n	rl	b	ч	
Sodium	199	0.500	II.	50	o	"	и	n	
MW-3 (5E09004-04) Water									
Calcium	121	0.500	mg/L	50	EE50905	05/09/05	05/09/05	EPA 6010B	
Magnesium	60.8	0.0100	u	10	11	н	u	TI .	
Potassium	7.62	0.250	u	5	"	11	и	n	
Sodium	242	0.500	v	50	n	"	II	"	
MW-4 (5E09004-05) Water									
Calcium	110	0.500	mg/L	50	EE50905	05/09.05	05/09/05	EPA 6010B	
Magnesium	73.7	0.0100	"	10	P	ш	v	п	
Potassium	10.2	0.500	u.	п	n	п	9	11	
Sodium									

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

122 W. Taylor Hobbs NM, 88240

Project Number: V117M9 Project Manager: Kristin Farris

Reported: 05/16/05 07:42

Organics by GC - Quality Control **Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE51006 - EPA 5030C (GC)										
Blank (EE51006-BLK1)				Prepared &	Analyzed:	05/10/05				
Benzene	CIV	0 00100	mg/L							
Toluene	ND	0.00100	0							
Ethylbenzene	ND	0.00100	0							
Xylene (p/m)	ND	0 00100	11							
Xylene (o)	ND	0.00100	II							
Surrogate: a,a,a-Trifluorotoluene	23.1		ng/l	20.0		116	80-120			
Surrogate: 4-Bromofluorobenzene	18.8		"	20.0		94.0	80-120			
LCS (EE51006-BS1)				Prepared &	Analyzed:	05/10/05				
Benzene	94.7		ug/l	100		94.7	80-120			
Toluene	107		u	100		107	80-120			
Ethylbenzene	110		п	100		110	80-120			
Xylene (p/m)	226		11	200		113	80-120			
Xylene (o)	109		11	100		109	80-120			
Surrogate: a,a,a-Trifluorotoluene	20.2	•	"	20.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	22.2		"	20.0		111	80-120			
LCS Dup (EE51006-BSD1)				Prepared &	t Analyzed:	05/10/05				
Benzene	105		ug/l	100		105	80-120	10.3	20	
Toluene	110		"	100		110	80-120	2.76	20	
Ethylbenzene	108		"	100		108	80-120	1.83	20	
Xylene (p/m)	212		n	200		106	80-120	6 39	20	
Xylene (o)	98.7		"	100		98.7	80-120	9.92	20	
Surrogate: a,a,a-Trifluorotoluene	19.5		"	20.0		97.5	80-120			
Surrogate: 4-Bromofluorobenzene	20.2		"	20.0		101	80-120			
Calibration Check (EE51006-CCV1)				Prepared: (05/10/05 A	nalyzed: 05	/11/05			
Benzene	104		ug/l	100		104	80-120			
Toluene	107		н	100		107	80-120			
Ethylbenzene	106		п	100		106	80-120			
Xylene (p/m)	214		"	200		107	80-120			
Xylene (o)	102		n	100		102	80-120			
Surrogate: a, a, a-Trifluorotoluene	22.1		"	20.0		110	80-120			
Surrogate: 4-Bromofluorobenzene	23.3		"	20.0		116	80-120			

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

122 W. Taylor Hobbs NM, 88240 Project Number: V117M9

Project Manager: Kristin Farris

Reported: 05/16/05 07:42

Organics by GC - Quality Control **Environmental Lab of Texas**

		Reporting		Spike	Source		%REC		RPD	Ì
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch EE51006 - EPA 5030C (GC)

Matrix Spike (EE51006-MS1)	Source: 51	Prepared:	05/10/05 Ai	nalyzed: 0	5/11/05		
Benzene	115	ug/l	100	0.658	114	80-120	
Toluene	120	п	100	1.02	119	80-120	
Ethylbenzene	115	п	100	1 03	114	80-120	
Xylene (p/m)	242	"	200	2.17	120	80-120	
Xylene (o)	113	11	100	1 99	111	80-120	
Surrogate: a,a,a-Trifluorotoluene	26.6	"	20.0		133	80-120	S-0
Surrogate: 4-Bromofluorobenzene	26.2	"	20.0		131	80-120	S-U

Project: EME System M-9 SWD Site

Project Number: V117M9 Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 05/16/05 07:42

General Chemistry Parameters by EPA / Standard Methods - Quality Control Environmental Lab of Texas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EE51001 - General Preparation (WetChem)									<u> </u>
Blank (EE51001-BLK1)				Prepared &	Analyzed:	05/09/05				
Sulfate	ND	0 500	mg/L			*				
Chloride	ND	0.500	n							
LCS (EE51001-BS1)				Prepared &	: Analyzed:	05/09/05				
Chloride	10.5		mg/L	10.0		105	80-120			
Sulfate	10.9		п	10.0		109	80-120			
Calibration Check (EE51001-CCV1)				Prepared &	Analyzed:	05/09/05				
Sulfate	11.2		mg/L	10 0		112	80-120			
Chloride	11.0		п	10.0		110	80-120			
Duplicate (EE51001-DUP1)	Sou	rce: 5E09002-	01	Prepared &	Analyzed:	05/09/05				
Sulfate	263	10.0	mg/L		264			0.380	20	
Chloride	178	10 0	п		179			0.560	20	
Batch EE51104 - General Preparation (WetChem)									
Blank (EE51104-BLK1)				Prepared &	: Analyzed:	05/09/05				
Total Alkalinity	ND	2.00	mg/L							-
Duplicate (EE51104-DUP1)	Sou	rce: 5E09002-	01	Prepared &	: Analyzed:	05/09/05				
Total Alkalınity	191	2.00	mg/L		190			0 525	20	
Reference (EE51104-SRM1)				Prepared &	Analyzed:	05/09/05				
Bicarbonate Alkalinity	231		mg/L	200		116	80-120	***************************************		

 Rice Operating Co.
 Project
 EME System M-9 SWD Site
 Fax: (505) 397-1471

 122 W. Taylor
 Project Number: V117M9
 Reported:

 Hobbs NM, 88240
 Project Manager: Kristin Farris
 05/16/05 07:42

General Chemistry Parameters by EPA / Standard Methods - Quality Control Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE51105 - Filtration Preparation										
Blank (EE51105-BLK1)				Prepared: (05/09/05 A	nalyzed: 05	/10/05			
Total Dissolved Solids	ND.	5 00	mg/L					-		
Dunlicate (EE51105-DUP1)	Sou	rce: 5E09002-	01	Prepared: (05/09/05 A	nalvzed: 05	710/05			

mg/L

1060

2.87

20

5.00

1030

Total Dissolved Solids

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

122 W. Taylor

Reported:

Hobbs NM, 88240

Project Number: V117M9 Project Manager: Kristin Farris

05/16/05 07:42

Total Metals by EPA / Standard Methods - Quality Control **Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE50905 - 6010B/No Digestion										
Blank (EE50905-BLK1)				Prepared 8	Analyzed:	05/09/05				
Calcium	ND	0.0100	mg/L							
Magnesium	CIK	0.00100	ш							
Potassium	ND	0.0500	Ш							
Sodium	ND	0.0100	п							
Calibration Check (EE50905-CCV1)				Prepared &	k Analyzed:	05/09/05				
Calcium	1 87		mg/L	2.00		93 5	85-115			
Magnesium	2 17		"	2.00		108	85-115			
Potassium	1 77		"	2.00		88 5	85-115			
Sodium	1.71		u	2.00		85.5	85-115			
Duplicate (EE50905-DUP1)	Sou	rce: 5E09002-	-01	Prepared &	k Analyzed:	05/09/05				
Calcium	30.2	0.100	mg/L		32.4			7.03	20	
Magnesium	9.97	0.0100	11		9 90			0.705	20	
Potassium	24.4	0.500	ш		24 9			2.03	20	
Sodium	262	0.500	п		293			11.2	20	

 Rice Operating Co.
 Project:
 EME System M-9 SWD Site
 Fax: (505) 397-1471

 122 W. Taylor
 Project Number:
 V117M9
 Reported:

 Hobbs NM, 88240
 Project Manager:
 Kristin Farris
 05/16/05 07:42

Notes and Definitions

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect. Analyte DETECTED DET ND Analyte NOT DETECTED at or above the reporting limit NR Not Reported Sample results reported on a dry weight basis dry RPD Relative Percent Difference Laboratory Control Spike MS Matrix Spike Dup Duplicate

	Kaland KJulis		
Report Approved By:	Carane 110	Date:	5/16/2005

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer Jeanne Mc Murrey, Inorg. Tech Director James L. Hawkins, Chemist/Geologist Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas

12600 West I-20 East Odessa, Texas 79765

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Phone: 432-563-1800 Fax: 432-563-1713

Project Location: T20S, R37E, Sec 9, Unit Letter M Project Name: EME System M-9 SWD Site COC #: V117M9-0505 Project #: V117M9 Fax No: 505-397-1471 City/State/Zip: Hobbs, New Mexico 88240 Company Name RICE Operating Company Company Address: 122 West Taylor Telephone No: 505-393-9174 Project Manager, Kristin Farris Sampler Signature:

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

Client: Rice O perating Co.				
Date/Time: <u>05-56-05 (1700</u>				
Order #: 55 09004				
Initials: Jmm				
Sample Receipt	Checkli	st		
Temperature of container/cooler?			4.5 0	
Shipping container/cooler in good condition?	(Yes)	No I		
Custody Seals intact on shipping container/cooler?	(ZES)	No	Not present	
Custody Seals intact on sample bottles?	(Kes)	No	Not present	
Chain of custody present?	(Pas)	No		
Sample Instructions complete on Chain of Gustody?	Yes	No		
Chain of Custody signed when relinquished and received?	Yes	No		
Chain of custody agrees with sample label(s)	(Yes)	No		
Container labels legible and intact?	Yes	No		
Sample Matrix and properties same as on chain of custody?	(fês)	No		
Samples in proper container/bottle?	(resyl	No		
Samples properly preserved?	(Yes)	No		
Sample bottles intact?	(Yes)	No	- Color - Colo	
Preservations documented on Chain of Custody?		<u>No l</u>	and the second was a second as the second	
Containers documented on Chain of Custody?	1 (Yes)	No	and the same of th	
Sufficient sample amount for indicated test? All samples received within sufficient hold time?	(Yes)	No		
VOC samples have zero headspace?	Yes V	No !	Not Applicable	
	- Indiana	and a service of the		
Other observations:				
	district of the contraction that the state of the state of the	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ما المراجعة المراجعة المراجعة المراجعة المستحدة المراجعة المراجعة المراجعة المراجعة المراجعة المراجعة المراجعة	ery, glychart and it briggs at the general published appropriet just steep griffsfan.
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Corrective Action Taken:	~~~~~~	***********	_{ат} үүлдөгүүн түр (_ү р, 1 өтүүн астайга үр үү бүйдө 1 өзө ээр <u>үүлүү үү</u> үү түр бүрүү үүрүү үү үүрүү талаг - э Жирү	ويادا والمراجع والمراجع والمراجع المراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع
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May 9, 2005



Ms. Jeanne Mc Murrey, Technical Director Environmental Lab of Texas 12600 West I-20 East Odessa, Texas 79765

Ms. Mc Murrey:

Please note that during groundwater sampling activities last week I incorrectly assigned the wrong day of the month as the sample date on the chains-of-custody for each groundwater sample submitted. Starting with Monday May 2nd I started dating all samples by the previous day that it was actually sampled on. One day should be added for each sample to report the correct date of sampling. For clarity, the correct sample dates are listed in the table below.

COC No.	Project Name	Field Code	Date Sampled
		WW-1	May 2, 2005
		MW-I	May 2, 2005
V117M9-0505	M-9 SWD Site	MW-2	May 2, 2005
		MW-3	May 2, 2005
		MW-4	May 2, 2005
V117N5-0505	N-5 Junction Box Site	MW-I	May 2, 2005
V117K6-0505	K-6 Junction Box Site	MW-I	May 3, 2005
V117P6-0505	P-6 Line Leak Site	P6-1	May 3, 2005
V11710-0303	1 "O Line Leak She	P6-2	May 3, 2005
V117M5-0505	M-5 SWD Site	M5-1	May 3, 2005
V117E5-050S	E-5 Junction Box Site	MW-I	May 3, 2005
V117D1-0505	D-1 Junction Box and Line Leak Site	MW-1	May 3, 2005
		MW-1	May 4, 2005
,		MW-2	May 5, 2005
		MW-3	May 5, 2005
V118J26-0505	J-26 Junction Box Site	Windmill #138	May 4, 2005
¥ 110320=0305	J-10 Juneauli Dok Dite	Windmill #220	May 4, 2005
		Wallach #914	May 4, 2005
İ		Wallach #36.211	May 4, 2005
No. was provided a way to the special and the second special of the property and the second special and the second		Well # 23.333	May 5, 2005

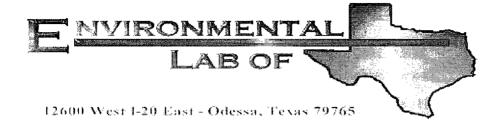
Thank you for your assistance in this matter. Please feel free to call me at 432-638-3106, if you have any questions.

Sincerely,

Gilbert J. Van Deventer, REM, PG, NMCS

Trident Environmental - Project Manager

cc: CDH, KFP, file



Analytical Report

Prepared for:

Kristin Farris Rice Operating Co. 122 W. Taylor Hobbs, NM 88240

Project: EME System M-9 SWD Site

Project Number: V117M9

Location: T20S, R37E, Sec. 9, Unit Letter M

Lab Order Number: 5H12013

Report Date: 08/24/05

 Rice Operating Co.
 Project:
 EME System M-9 SWD Site
 Fax: (505) 397-1471

 122 W. Taylor
 Project Number:
 V117M9
 Reported:

 Hobbs NM, 88240
 Project Manager:
 Kristin Farris
 08/24/05 16:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1A	5H12013-01	Water	08/11/05 13:25	08/12/05 14:00
MW-2	5H12013-02	Water	08/11/05 11:52	08/12/05 14:00
MW-3	5H12013-03	Water	08/11/05 11:20	08/12/05 14:00
MW-4	5H12013-04	Water	08/11/05 12:40	08/12/05 14:00
WW-1	5H12013-05	Water	08/11/05 10:45	08/12/05 14:00

Project: EME System M-9 SWD Site

Project Number: V117M9
Project Manager: Kristin Farris

Fax: (505) 397-1471

Reported:
08/24/05 16:17

General Chemistry Parameters by EPA / Standard Methods Environmental Lab of Texas

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	N lethod	Notes
MW-1A (5H12013-01) Water									
Total Alkalinity	290	2.00	mg/L	1	EH51603	08/15/05	08/15/05	EPA 310.2M	
Chloride	286	10.0	"	20	EH52302	08/22/05	08/22/05	EPA 300.0	
Total Dissolved Solids	1480	5.00	19]	EH51210	08/16/05	08/17/05	EPA 160.1	
Sulfate	326	10.0	и	20	EH52302	08/22/05	08/22/05	EPA 300.0	
MW-2 (5H12013-02) Water									
Total Alkalinity	308	2.00	mg/L	1	EH51603	08/15/05	08/15/05	EPA 310.2M	
Chloride	476	12.5	u	25	EH52302	08/22/05	08/22/05	EPA 300 0	
Total Dissolved Solids	1840	5.00	н	1	EH51210	08/16/05	08/17/05	EPA 160 1	
Sulfate	389	12.5	"	25	EH52302	08/22/05	08/22/05	EPA 300.0	
MW-3 (5H12013-03) Water									
Total Alkalinity	230	2.00	mg/L	1	EH51603	08/15/05	08/15/05	EPA 310.2λ1	
Chloride	300	10.0	"	20	EH52302	08/22/05	08/22/05	EPA 300.0	
Total Dissolved Solids	1480	5.00	19	1	EH51210	08/16/05	08/17/05	EPA 160 l	
Sulfate	. 377	10.0	III.	20	EH52302	08/22/05	08/22/05	EPA 300.0	
MW-4 (5H12013-04) Water									
Total Alkalinity	260	2.00	mg/L	1	EH51603	08/15/05	08/15/05	EPA 310 2M	
Chloride	571	12.5	W	25	EH52302	08/22/05	08/22/05	EPA 300 0	
Total Dissolved Solids	1830	5.00	и	1	EH51210	08/16/05	08/17/05	EPA 160.1	
Sulfate	303	12.5	N	25	EH52302	08/22/05	08/22/05	EPA 300.0	
WW-1 (5H12013-05) Water									
Total Alkalinity	252	2.00	mg/L	1	EH51603	08/15/05	08/15/05	EPA 310.2\d	
Chloride	751	25.0	11	50	EH52302	08/22/05	08/22/05	EPA 300.0	
Total Dissolved Solids	2900	5.00	n	1	EH51210	08/16/05	08/17/05	EPA 160.1	
Sulfate	915	25.0	"	50	EH52302	08/22/05	08/22/05	EPA 300.0	

Project: EME System M-9 SWD Site

Project Number: V117M9
Project Manager: Kristin Farris

Fax: (505) 397-1471

Reported: 08/24/05 16:17

Total Metals by EPA / Standard Methods Environmental Lab of Texas

		Reporting						•	
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1A (5H12013-01) Water						_			
Calcium	87.4	0.100	$mg_\ell L$	10	EH51610	08/16/05	08/16/05	EPA 6010B	
Magnesium	43.2	0.00100	п	1	P	н		ři.	
Potassium	9.87	0.500	и	10	μ	n	и	n	
Sodium	287	0.500	и	50	ji.	"	п	q1	
MW-2 (5H12013-02) Water									
Calcium	134	0.500	mg/L	50	EH51610	08/16/05	08/16/05	EPA 6010B	
Magnesium	53.4	0.0100	"	10	P	н	II.	н	
Potassium	13.8	0.500	u	п	и	11	II.	u	
Sodium	481	0.500	ii.	50	и	n	II.	п	
MW-3 (5H12013-03) Water									
Calcium	101	0.100	mg/L	10	EH51610	08/16/05	08/16/05	EPA 6010B	
Magnesium	42.3	0.0100	μ	п	18	"	TI.	и	
Potassium	8.38	0.250	н	5	11	п	11	п	
Sodium	292	0.500	12	50	p	n .	ų	н	
MW-4 (5H12013-04) Water									
Calcium	121	0.500	mg/L	50	EH51610	08/16.05	08/16/05	EPA 6010B	
Magnesium	52.2	0.0100	и	10	11	u	n	Tr.	
Potassium	9.94	0.500	n.	п	,,	II	n	II.	
Sodium	475	0.500	H	50	μ	П	п	II.	
WW-1 (5H12013-05) Water									
Calcium	214	0.500	mg/L	50	EH51610	08/16/05	08/16/05	EPA 6010B	
Magnesium	80.4	0.0100	14	10	n	и	п	18	
Potassium	15.1	0.500	п	"	"	п	"	D	
Sodium	457	1.00	п	100	pi.	н	at a	n .	

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

Reported:
08/24/05 16:17

122 W. Taylor Hobbs NM, 88240 Project Number: V117M9 Project Manager: Kristin Farris

Volatile Organic Compounds by EPA Method 8260B Environmental Lab of Texas

A lot -	T114	Reporting	T In it			_			
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note:
MW-1A (5H12013-01) Water									
Benzene	ND	1.00	ug/l	1	EH51810	08/17/05	08/19/05	EPA 8260B	
Toluene	ND	1.00	И	0	U.	"	H.	и	
Ethylbenzene	ND	1.00	n	"	"	п	u	ø	
Xylene (p/m)	ND	1.00	17	r	n	п	"	n	
Xylene (o)	ND	1.00	И	P	и	п	11	p	
Naphthalene	ND	1.00	H	n	n	п	H	u .	
Surrogate: Dibromofluoromethane		109 %	68-12	29	,,	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		90.8 %	72-13	32	"	"	n	"	
Surrogate: Toluene-d8		95.2 %	~4-1 i	!8	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.0 %	65-1-	<i>‡0</i>	"	ii.	"	"	
MW-2 (5H12013-02) Water									
Benzene	ND	1.00	ug/l	1	EH51810	08/17/05	08/17/05	EPA 8260B	****
Toluene	ND	1.00	W	18	H	11	u u	μ	
Ethylbenzene	ND	1.00	n		11	11	IP.	n	
Xylene (p/m)	ND	1.00	IF.		U	11	"	u	
Xylene (o)	ND	1.00	н	11	11	0	u	n .	
Naphthalene	ND	1.00	ıt	11	H .	h	ıt	"	
Surrogate: Dibromofluoromethane		113 %	68-12	29	"	"	"	и	
Surrogate: 1,2-Dichloroethane-d4		93.4 %	72-13	32	"	"	"	"	
Surrogate: Toluene-d8		98.0 %	74-1	18	"	"	"	"	
Surrogate: 4-Bromofluorohenzene		96.4 %	65-1-	40	"	"	r	"	
MW-3 (5H12013-03) Water									
Benzene	ND	1.00	ug/l	1	EH51810	08/17/05	08/17/05	EPA 8260B	
Toluene	ND	1.00	II .	ır	н	II	М	п	
Ethylbenzene	ND	1.00	н	II.	н	m .	n	a.	
Xylene (p/m)	ND	1.00	и	ĮI.	п		U.	it.	
Xylene (o)	ND	1.00	U	"	н	н	п	**	
Naphthalene	ND	1.00	п	μ	п	ļt	ij	×	
Surrogate: Dibromofluoromethane		103 %	68-12	29	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		73.4 %	72-13	32	"	"	"	"	
Surrogate: Toluene-d8		108 %	74-1	18	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		117%	65-1-	10	"	"	,,	"	

Project: EME System M-9 SWD Site

Project Number: V117M9 Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 08/24/05 16:17

Volatile Organic Compounds by EPA Method 8260B Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (5H12013-04) Water									
Benzene	ND	1.00	ug/l	1	E1151810	08/17/05	08/17/05	EPA 8260B	
Toluene	ND	1.00	n	11	U	0	и	U	
Ethylbenzene	ND	1.00	н	e	IF.	п	И	u .	
Xylene (p/m)	ND	1.00	n .	17	11	П	н	u .	
Xylene (0)	ND	1.00	н	P	и	II.	и	u .	
Naphthalene	ND	1.00	n	0	0	н	ji.	ul-	
Surrogate: Dibromofluoromethane		119 %	68-1.	29	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		97.2 %	72-1.	32	"	"	"	"	
Surrogate: Toluene-d8		101 %	74-1	18	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.4 %	65-1-	40	"	,,	n	"	
WW-1 (5H12013-05) Water									
Benzene	ND	1.00	ug/I	1	EH51810	08/17/05	08/17/05	EPA 8260B	
Toluene	ND	00.1	a	"	tt.	n	d	и	
Ethylbenzene	ND	1.00	u	v	ır	11		it	
Xylene (p/m)	ND	1.00	а	u	tt	n	ur.	u	
Xylene (o)	ND	1.00	и	"	n	II	II.	ч	
Naphthalene	ND	1.00	ut.	ii.	n	II	п	ar .	
Surrogate: Dibromofluoromethane		123 %	68-1.	29	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		94.2 %	⁻ 2-1.	32	"	"	"	"	
Surrogate: Toluene-d8		101 %	74-1	18	"	"	"	"	
Surrogate: 4-Bromofluorohenzene		98.0 %	65-1-	40	"	"	"	"	

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

122 W. Taylor Hobbs NM, 88240 Project Number: V117M9

Project Manager: Kristin Farris

Reported: 08/24/05 16:17

General Chemistry Parameters by EPA / Standard Methods - Quality Control **Environmental Lab of Texas**

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EH51210 - General Preparatio	on (WetChem)				<u></u> .					
Blank (EH51210-BLK1)				Prepared: 0	08/16/05 Ai	nalyzed: 08	/17/05			
Total Dissolved Solids	ND	5.00	mg/L							
Duplicate (EH51210-DUP1)	Sour	ce: 5H11001-	-01	Prepared: (08/16/05 Ai	nalyzed: 08	/17/05			
Total Dissolved Solids	628	5.00	mg/L		603			4.06	5	
Batch EH51603 - General Preparation	on (WetChem)									
Blank (EH51603-BLK1)				Prepared &	: Analyzed:	08/16/05				
Total Alkalinity	ND	2 00	mg/L							
Duplicate (EH51603-DUP1)	Sour	ce: 5H12005-	-01	Prepared &	: Analyzed:	08/16/05				
Total Alkalinity	221	2 00	mg/L		220			0 454	20	
Reference (EH51603-SRM1)				Prepared &	: Analyzed:	08/16/05				
Bicarbonate Alkalimity	229		mg/L	200		114	80-120			
Batch EH52302 - General Preparatio	on (WetChem)									
Blank (EH52302-BLK1)				Prepared &	: Analyzed:	08/22/05				
Sulfate	ND	0.500	mg/L							
Chloride	ND	0 500	и							
						00/00/07				
LCS (EH52302-BS1)				Prepared &	: Analyzed:	08/22/05				
LCS (EH52302-BS1) Sulfate	8.50		mg/L	Prepared &	Analyzed:	85.0	80-120			

 Rice Operating Co.
 Project.
 EME System M-9 SWD Site
 Fax: (505) 397-1471

 122 W. Taylor
 Project Number:
 V117M9
 Reported:

 Hobbs NM, 88240
 Project Manager:
 Kristin Farris
 08/24/05 16:17

General Chemistry Parameters by EPA / Standard Methods - Quality Control Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EH52302 - General Preparation	(WetChem)									
Calibration Check (EH52302-CCV1)				Prepared &	Analyzed:	08/22/05				
Chloride	8.78		mg/L	10 0		878	80-120			

Sulfate	10.0		П	10 0 100	80-120	
Duplicate (EH52302-DUP1)	Source	:: 5H12005-	01	Prepared & Analyzed: 08/22/0)5	
Chloride	240	5.00	mg/L	228	5.13	20
Sulfate	203	5.00	n	191	6.09	20

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

122 W. Taylor Hobbs NM, 88240

Project Number: V117M9 Project Manager: Kristin Farris

Reported: 08/24/05 16:17

Total Metals by EPA / Standard Methods - Quality Control **Environmental Lab of Texas**

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EH51610 - 6010B/No Digestion										
Blank (EH51610-BLK1)				Prepared &	Analyzed:	08/16/05				
Calcium	ND	0.0100	mg/L							
Magnesium	ND	0.00100	"							
Potassium	ИD	0.0500	И							
Sodium	UK	0 0100	II.							
Calibration Check (EH51610-CCV1)				Prepared 8	Analyzed:	08/16/05				
Calcium	1.76		mg/L	2.00		88.0	85-115	-		
Magnesium	1.86			2.00		93.0	85-115			
Potassium	1.89		"	2.00		94.5	85-115			
Sodium	1.94		п	2.00		970	85-115			
Duplicate (EH51610-DUP1)	Sou	rce: 5H12005-	-01	Prepared &	Analyzed:	08/16/05				
Calcium	104	0 100	mg/L		95.0			9 05	20	
Magnesium	39.1	0.0100	ш		36 8			6.06	20	
Potassium	10.1	0.500	н		11.4			12.1	20	
Sodium	122	0 500	"		108			12 2	20	
Duplicate (EH51610-DUP2)	Sou	rce: 5H16004	-01	Prepared &	Analyzed:	08/16/05				
Calcium	213	2.00	mg/L		213			0.00	20	
Magnesium	40.9	0.0100	"		41.8			2.18	20	
Potassium	25 4	0 500	u		24.1			5.25	20	
Sodjum	2200	4.00	11		2180			0.913	20	

Project: EME System M-9 SWD Site

Fax: (505) 397-1471

122 W. Taylor Hobbs NM, 88240 Project Number: V117M9
Project Manager: Kristin Farris

Reported: 08/24/05 16:17

Volatile Organic Compounds by EPA Method 8260B - Quality Control Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EH51810 - EPA 5030C (GCMS)						118				
Blank (EH51810-BLK1)				Prepared &	Analyzed:	08/17/05			- "	
Benzene	ND	1 00	ug/l	-						
Toluene	ND	1 00	н							
Ethylbenzene	ND	1.00	п							
Xylene (p/m)	ND	1.00	п							
Xylene (o)	ND	1.00	11							
Naphthalene	ND	1.00								
Surrogate: Dibromofluoromethane	57.2		"	50.0		114	68-129			
Surrogate: 1,2-Dichloroethane-d4	47.7		"	50.0		95.4	72-132			
Surrogate: Toluene-d8	47.1		"	50.0		94.2	74-118			
Surrogate: 4-Bromofluorobenzene	46.4		"	50.0		92.8	65-140			
LCS (EH51810-BS1)				Prepared &	Ł Analyzed:	08/17/05				
Benzene	47.6		ug/l	50.0		95.2	70-130			
Toluene	45.9		п	50.0		91.8	70-130			
Ethylbenzene	44.3		н	50.0		886	70-130			
Xylene (p/m)	71.0		11	100		71.0	70-130			
Xylene (o)	43.6		н	50 0		87.2	70-130			
Naphthalene	45.2		p	50 0		90.4	70-130			
Surrogate: Dibromofluoromethane	55.6		"	50.0		111	68-129			
Surrogate: 1,2-Dichloroethane-d4	52.4		**	50.0		105	72-132			
Surrogate: Toluene-d8	48.6		"	50.0		97.2	74-118			
Surrogate: 4-Bromofluorobenzene	45.5		"	50.0		91.0	65-140			
Calibration Check (EH51810-CCV1)				Prepared &	k Analyzed:	08/17/05				
Toluene	43.4		ug/l	50 0		868	70-130	_		
Ethylbenzene	42.2		н	50.0		84.4	70-130			
Surrogate: Dibromofluoromethane	57.0		"	50.0		114	0-200			
Surrogate: 1,2-Dichloroethane-d4	49.9		"	50.0		99.8	0-200			
Surrogate: Toluene-d8	48.5		"	50.0		97.0	0-200			
Surrogate: 4-Bromofluorobenzene	46.8		"	50.0		93.6	0-200			

Hobbs NM, 88240

122 W. Taylor

Project: EME System M-9 SWD Site

Project Number: V117M9 Project Manager: Kristin Farris Fax: (505) 397-1471

Reported: 08/24/05 16:17

Volatile Organic Compounds by EPA Method 8260B - Quality Control **Environmental Lab of Texas**

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EH51810 - EPA 5030C (GCMS)					·					
Matrix Spike (EH51810-MS1)	Sou	rce: 5H15013-	-01	Prepared: (08/17/05 At	nalyzed: 08	/19/05		_	
Benzene	48.8		ug/l	50.0	ND.	97.6	70-130			
Foluene	47.2		п	50.0	ND	94.4	70-130			
Ethylbenzene	44.6		"	50.0	ND	89 2	70-130			
Kylene (p/m)	72.2		"	100	ND	72.2	70-130			
Kylene (o)	43 8		"	50 0	ND	87.6	70-130			
Naphthalene	46.2		н	50.0	ИD	92.4	70-130			
Surrogate: Dibromofluoromethane	54.4		"	50.0		109	68-129			
Surrogate: 1,2-Dichloroethane-d4	51.4		"	50.0		103	72-132			
Surrogate: Toluene-d8	50.0		"	50.0		100	74-118			
Surrogate: 4-Bromofluorobenzene	45.3		"	50.0		90.6	65-140			
Matrix Spike Dup (EH51810-MSD1)	Sou	rce: 5H15013-	-01	Prepared: (08/17/05 A	nalyzed: 08	/19/05			
Benzene	48.5		ug/l	50 0	ND	97.0	70-130	0 617	20	
Foluene	46.4		II.	50.0	ND	92.8	70-130	1.71	20	
Ethylbenzene	43.9		п	50.0	ИD	878	70-130	1 58	20	
Kylene (p/m)	70.8		11	100	ND	70.8	70-130	1 96	20	
Kylene (o)	43.3		ш	50.0	ZID	86.6	70-130	1 15	20	
Naphthalene	49.5		Ħ	50.0	ND	99.0	70-130	6.90	20	
Surrogate: Dibromofluoromethane	56.3		"	50.0		113	68-129			
Surrogate: 1,2-Dichloroethane-d4	52.0		"	50.0		104	72-132			
Surrogate: Toluene-d8	49.8		"	50.0		99.6	74-118			
Surrogate: 4-Bromofluorobenzene	44.9		"	50.0		89.8	65-140			

Project: EME System M-9 SWD Site

122 W. Taylor Hobbs NM, 88240 Project Number: V117M9

Fax: (505) 397-1471

Reported: 08/24/05 16:17

Project Manager: Kristin Farris

Notes and Definitions

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:

nta:

8/24/2005

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director James L. Hawkins, Chemist/Geologist Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Environmental Lab of Texas 12600 West I-20 East Odessa, Texas 79765

Phone: 432-563-1800 Fax: 432-563-1713

Project Location: T20S, R37E, Sec 9, Unit Letter M Project Name: EME System M-9 SWD Site COC #; V117M9-0805 Project #: V117M9 Fax No: 505-397-1471 city/state/zip. Hobbs, New Mexico 88240 Company Name RICE Operating Company Company Address: 122 West Taylor Telephone No. 505-393-9174 Project Manager, Kristin Farris Sampler Signature:

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

Olient: <u>Pice Op.</u> Date/Time: <u>6/12/05 2:00</u>				
Date/Time: <u>6/12/05 2:00</u>				
Order#: 5HI2OI3				
Initials: Cle_s				
Sample Receipt (Checkli	st		
Temperature of container/cooler?		No i	6.0	C
Shipping container/cooler in good condition?	Tares	No I		NAME OF THE PARTY
Custody Seals intact on shipping container/cooler?	Yes	No i	Not present	*
Custody Seals intact on sample bottles?	(ES)	No	Not presen	random ra
Chain of custody present?	KES)	No 1	anning trap against the statement of the	And the last the same of
Sample Instructions complete on Chain of Custody?	Yes.	No !	The state of the s	And the state of t
Chain of Custody signed when relinquished and received?	Yas	No		And of the second space of
Chain of custody agrees with sample label(s)	Yas,	No I		
Container labels legible and intact?	Yes	No I		
Sample Matrix and properties same as on chain of custody?	(GS)	No I	references, again to the legal that the growth or constituting a post reference to the desired and a secure	
Semcies in proper container/bottle?	Yes.			confidence in the confusion of the confu
Samples procedly preserved?			er and the second second production of the production of the second second second second second second second	
Sample bottles intact?	<u> 258 </u>			. The Control of the
Preservations documented on Chain of Custody?	Yes Vas			- Management and a second and a second and a second a sec
Centainers documented on Chain of Custody? Sufficient sample amount for Indicated test?	7.53 7.53	No :	t on the transference as an illustration of the settle and the set	The same and the s
All samples received within sufficient hold time?	- Ves	No .	genet en telescommunicationeringganiss/communitygeningstegen	The same are who when the force
The sality as help the different more than a second terms.			Not Applicat	nla i
Other ciservations: Samples brought in by sample Received only 1 400 -7401 for MW-4	<u>er 5</u>	<u> </u>		
Variance Docum	n a shi ta tir			
Contact Person: - <u>Chilloent</u> Date/Time: <u>P/12</u> Regarding:			Contacted (by: Carrie
Analysis labels differ from Co	02.	i, gara a Maja di Majasan di Majasan aya jabi da an ayan yingidan Majasan di Majasan di Andi d		te natural entre de la companya de la companya de la companya de la companya de la companya de la companya de International de la companya del la companya de la companya d
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Containers have labels reques	+129j	1002		
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Jeanne McMurrey

From:

"Jeanne McMurrey" < jeanne@elabtexas.com>

To:

"Gilbert Van Deventer" < gil@trident-environmental.com>

Sent: Subject: Monday, August 15, 2005 8:47 AM Re: EME System M-9 SWD samples

Good Morning Gil,

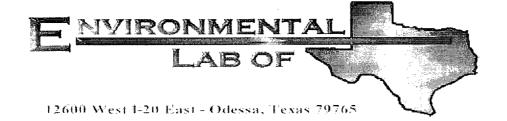
I need to inform you that we only received 1 VOA w/HCl for your sample MW-4 for EME System M-9 SWD. We can still use the single VOA for BTEX analysis. I just needed to let you know we received a total of 2 containers instead of 3 containers for that sample point.

Thanks,

Jeanne

Jeanne

Jeanne McMurrey
Environmental Lab of Texas I, Ltd.
12600 West I-20 East
Odessa, Texas 79765
432-563-1800



Analytical Report

Prepared for:

Kristin Farris-Pope Rice Operating Co. 122 W. Taylor Hobbs, NM 88240

Project: EME M-9 SWD
Project Number: None Given
Location: Lea County

Lab Order Number: 5K30020

Report Date: 12/15/05

Rice Operating Co. 122 W. Taylor Hobbs NM, 88240 Project: EME M-9 SWD

Project Number: None Given

Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported: 12/15/05 17:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Monitor Well #1A	5K30020-01	Water	11/29/05 13:15	11/30/05 12:57
Monitor Well #2	5K30020-02	Water	11/29/05 12:05	11/30/05 12:57
Monitor Well #3	5K30020-03	Water	11/29/05 10:40	11/30/05 12:57
Monitor Well #4	5K30020-04	Water	11/29/05 09:10	11/30/05 12:57
Water Well	5K30020-05	Water	11/29/05 15:05	11/30/05 12:57

Rice Operating Co. 122 W. Taylor Hobbs NM, 88240 Project : EME M-9 SWD

Project Number: None Given

Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported:
12/15/05 17:09

Organics by GC Environmental Lab of Texas

A multiple	D34	Reporting	Linita	D3 -:	D	10	, , ,	N. C. A.	3.1
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analy zed	A lethod	Notes
Monitor Well #1A (5K30020-01) Wat	er ———————							·	
Benzene	0.00143	0.00100	mg/L	1	EL50605	12/06/05	12/07/05	EPA 8021B	
Tolucne	J [0.000328]	0.00100	ď	11	D.	н	II .	п	
Ethylbenzene	ND	0.00100	II.	n n	μ	п	n	п	
Xylene (p/m)	ND	0.00100	11	и	μ	11	н	п	
Xylene (o)	ND	0.00100	11	"	"	"	μ	IF.	
Surrogate: a,a,a-Trifluorotoluene		94.8 %	80-1.	20	"	u	"	"	
Surrogate: 4-Bromofluorobenzene		96.0 %	80-1.	20	"	"	"	"	
Monitor Well #2 (5K30020-02) Water	•								
Benzene	ND	0.00100	mg/L	1	EL50605	12/06/05	12/07/05	EPA 8021B	
Toluene	ND	0.00100	и	"	н	11	u	н	
Ethylbenzene	ND	0.00100	li .	"	и	н	tf.	П	
Xylene (p/m)	ND	0.00100	II.	0	И	n .	"	II.	
Xylene (o)	ND	0.00100	n	P	19	11	ir	U	
Surrogate: a,a,a-Trifluorotoluene		84.5 %	80-1.	20	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		82.0 %	80-1.	20	"	"	"	"	
Monitor Well #3 (5K30020-03) Water	r								
Benzene	ND	0.00100	mg/L	1	EL50605	12/06/05	12/07/05	EPA 8021B	
Toluene	ND	0.00100	и	pt.	ıf.	н	п	u	
Ethylbenzene	ND	0.00100	n	u	"	н	н	n	
Xylene (p/m)	ND	0.00100	H	μ	11	II	ii .	17	
Xylene (o)	ND	0.00100	н	н	и	"	n	IP.	
Surrogate: a,a,a-Trifluorotoluene		87.2 %	80-1.	20	"	"	"	"	
Surrogate: 4-Bromofluorohenzene		92.2 %	80-1	20	"	"	"	"	
Monitor Well #4 (5K30020-04) Water	r								
Benzene	ND	0.00100	mg/L	1	EL50605	12/06/05	12/07/05	EPA 8021B	
Toluene	ND	0.00100	п	n	Įŧ	a	al .	W	
Ethylbenzene	ND	0.00100	"	и		"	n .	U	
Xylene (p/m)	ND	0.00100	"	3*	я	n	II	U	
Xylene (0)	ND	0.00100	11	a	"	IF.	It	п	
Surrogate: a,a,a-Trifluorotoluene		80.8 %	80-1	20	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		81.2 %	80-1	20	"	"	, ,	"	

Rice Operating Co.Project:EME M-9 SWDFax: (505) 397-1471122 W. TaylorProject Number:None GivenReported:Hobbs NM, 88240Project Manager:Kristin Farris-Pope12/15/05 17:09

Organics by GC Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analy zed	Method	Notes
Water Well (5K30020-05) Water									
Benzene	ND	0.00100	mg/L	1	EL50605	12/06/05	12/07/05	EPA 8021B	
Toluene	ND	0.00100	у	11	n	н	ıt	W.	
Ethylbenzene	ND	0.00100	10	"	q	и	н		
Xylene (p/m)	ND	0.00100	В	r	u	и	и	и	
Xylene (o)	ND	0.00100	н	P	μ	н	u	il.	
Surrogate: a,a,a-Trifluorotoluene		82.2 %	80-12	0	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		82.2 %	80-12	0	"	"	"	"	

Rice Operating Co.

Project: EME M-9 SWD

Fax: (505) 397-1471

122 W. Taylor Hobbs NM, 88240 Project Number: None Given Project Manager: Kristin Farris-Pope

Reported: +12/15/05 17:09

General Chemistry Parameters by EPA / Standard Methods Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1A (5K30020-01) Water									
Total Alkalinity	330	2.00	mg/L	1	EL50712	12/07/05	12/07/05	EPA 310 2M	
Chloride	602	10.0	of .	20	EL50207	12/12/05	12/13/05	EPA 300.0	
Total Dissolved Solids	1340	5.00	0	1	EL50501	12/01/05	12/02/05	EPA 160.1	
Sulfate	57.1	10.0	"	20	EL50207	12/12/05	12/13/05	EPA 300.0	
Monitor Well #2 (5K30020-02) Water									
Total Alkalinity	321	2.00	mg/L	1	EL50712	12/07/05	12/07/05	EPA 310.2M	
Chloride	440	0.01	n	20	EL50207	12/12/05	12/13/05	EPA 300.0	
Total Dissolved Solids	1630	5.00	4	1	EL50501	12/01/05	12/02/05	EPA 160 I	
Sulfate	55.5	10.0	H	20	EL50207	12/12.05	12/13/05	EPA 300 0	
Monitor Well #3 (5K30020-03) Water									
Total Alkalinity	240	2.00	mg/L	1	EL50712	12/07/05	12/07/05	EPA 310.2M	
Chloride	272	10.0	U	20	EL50207	12/12-05	12/13/05	EPA 300 0	
Total Dissolved Solids	1510	5.00	п	1	EL50501	12/01.05	12/02/05	EPA 160 1	
Sulfate	268	10.0		20	EL50207	12/12.05	12/13/05	EPA 300 0	
Monitor Well #4 (5K30020-04) Water									
Total Alkalinity	252	2.00	mg/L	1	EL50712	12/07.05	12/07/05	EPA 310.2M	
Chloride	378	10.0	if	20	EL50207	12/12/05	12/13/05	EPA 300.0	
Total Dissolved Solids	1850	5.00	n	1	EL50501	12/01/05	12/02/05	EPA 160 1	
Sulfate	332	10.0	и	20	EL50207	12/12/05	12/13/05	EPA 300.0	
Water Well (5K30020-05) Water									
Total Alkalinity	274	2.00	mg/L	1	EL50712	12/07/05	12/07/05	EPA 310.2M	
Chloride	775	12.5	"	25	EL50207	12/12/05	12/13/05	EPA 300.0	
Total Dissolved Solids	2490	5.00	11	1	EL50501	12/01/05	12/02/05	EPA 160.1	
Sulfate	385	12.5	"	25	EL50207	12/12/05	12/13/05	EPA 300 0	

Rice Operating Co. 122 W. Taylor Hobbs NM, 88240 Project: EME M-9 SWD

Project Number: None Given Project Manager: Kristin Farris-Pope Fax: (505) 397-1471

Reported: 12/15/05 17:09

Total Metals by EPA / Standard Methods Environmental Lab of Texas

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analy zed	Method	Notes
Monitor Well #1A (5K30020-01) Water									
Calcium	65.8	0.100	$mg_{\ell}L$	10	EL50506	12/05/05	12/05/05	EPA 6010B	
Magnesium	51.8	0.0100	W	"		н	11	п	
Potassium	9.33	0.500	14	"	0	"	"	п	
Sodium	246	0.500	"	50	II	n	"	П	
Monitor Well #2 (5K30020-02) Water									
Calcium	131	0.500	mg/L	50	EL50506	12/05/05	12/05/05	EPA 6010B	
Magnesium	57.8	0.0100	и	10	n	li .	II.	v	
Potassium	13.2	0.500	U	н	,,	н	11	н	
Sodium	312	0.500	W	50	p	п	n	н	
Monitor Well #3 (5K30020-03) Water									
Calcium	121	0.500	mg/L	50	EL50506	12/05/05	12/05/05	EPA 6010B	
Magnesium	50.3	0.0100	и	10	и	**	IF.	и	
Potassium	6.05	0.500	n	н	μ	ш	U	u.	
Sodium	239	0.500	п	50	P	u	П	14	
Monitor Well #4 (5K30020-04) Water									
Calcium	129	0.500	mg/L	50	EL50506	12/05/05	12/05/05	EPA 6010B	
Magnesium	71.0	0.0100	н	10	14	и	11	U	
Potassium	9.72	0.500	it.	п	p	#	u	"	
Sodium	351	0.500	ır	50	μ	u	U	н	
Water Well (5K30020-05) Water								.	
Calcium	168	0.500	mg/L	50	EL50506	12/05/05	12/05/05	EPA 6010B	
Magnesium	79.2	0.0100	v	10	"	il.	TI .	п	
Potassium	12.0	0.500	и	п	"	If	n	и	
Sodium	482	2.00	0	200	"	n	11	ti	

Rice Operating Co.

122 W. Taylor Hobbs NM, 88240 Project: EME M-9 SWD

Project Number: None Given

Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

Reported: 12/15/05 17:09

Organics by GC - Quality Control Environmental Lab of Texas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EL50605 - EPA 5030C (GC)										
Blank (EL50605-BLK1)				Prepared &	: Analyzed:	12/06/05				
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	u							
Xylene (p/m)	ND	0.00100	II							
Xylene (o)	ND	0 00100	II							
Surrogate: a,a,a-Trifluorotoluene	32.5		ug/l	40.0		81.2	80-120			
Surrogate: 4-Bromofluorobenzene	32.7		"	40.0		81.8	80-120			
LCS (EL50605-BS1)				Prepared: 1	12/06/05 A	nalyzed: 12	2/07/05			
Benzene	0 0572	0.00100	mg/L	0.0500		114	80-120			
Toluene	0.0583	0 00100	"	0 0500		117	80-120			
Ethylbenzene	0.0593	0.00100	и	0.0500		119	80-120			
Xylene (p/m)	0 112	0.00100	и	0.100		112	80-120			
Xylene (o)	0.0571	0.00100	п	0.0500		114	80-120			
Surrogate: a,a,a-Trifluorotoluene	41.0		ug/l	40.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	44.9		"	40.0		112	80-120			
Calibration Check (EL50605-CCV1)				Prepared:	12/06/05 A	nalyzed: 12	2/07/05			
Benzene	46.6		ug/l	50.0		93 2	80-120			
Toluene	49.5		n	50.0		99 0	80-120			
Ethylbenzene	45.6		11	50 0		91.2	80-120			
Xylene (p/m)	87.3		"	100		873	80-120			
Xylene (o)	44.8		и	50.0		89.6	80-120			
Surrogate: a,a,a-Trifhiorotohiene	37.8		"	40.0		94.5	80-120			
Surrogate: 4-Bromofluorobenzene	39.7		"	40.0		99.2	80-120			
Matrix Spike (EL50605-MS1)	Sou	rce: 5K30020-	-02	Prepared:	12/06/05 A	nalyzed: 12	2/08/05			
Benzene	0.0466	0.00100	mg/I.	0.0500	ND	93.2	80-120			
Toluene	0.0492	0.00100	"	0.0500	NID.	98.4	80-120			
Ethylbenzene	0.0452	0.00100	"	0.0500	ND	90.4	80-120			
Xylene (p/m)	0.0871	0.00100	"	0.100	ND	87 1	80-120			
Xylene (o)	0.0450	0.00100	"	0 0500	ND	90.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	37.5		ug/l	40.0		93.8	80-120			
Surrogate: 4-Bromofluorobenzene	37.5		"	40.0		93.8	80-120			

 Rice Operating Co.
 Project
 EME M-9 SWD
 Fax: (505) 397-1471

 122 W. Taylor
 Project Number: None Given
 Reported:

 Hobbs NM, 88240
 Project Manager: Kristin Farris-Pope
 12/15/05 17:09

Organics by GC - Quality Control Environmental Lab of Texas

										i i
		Reporting		Spike	Source		%REC		RPD	i
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch EL50605 - EPA 5030C (GC)

Matrix Spike Dup (EL50605-MSD1)	Sou	rce: 5K30020-	-02	Prepared: 1	2/06/05 A	nalyzed: 1	2/07/05		
Benzene	0.0535	0.00100	mg/L	0.0500	ND	107	80-120	13 8	20
Toluene	0 0555	0.00100	11	0.0500	ND	111	80-120	120	20
Ethylbenzene	0.0503	0.00100	"	0 0500	ND	101	80-120	11.1	20
Xylene (p/m)	0.0955	0.00100	"	0.100	ND	95.5	80-120	9.20	20
Xylene (o)	0.0491	0.00100	"	0.0500	ND	98 2	80-120	8.71	20
Surrogate: a,a,a-Trifluorotoluene	36.1		ug/l	40.0		90.2	80-120		
Surrogate: 4-Bromofluorobenzene	36.0		"	40.0		90.0	80-120		

Rice Operating Co. 122 W. Taylor Hobbs NM, 88240 Project: EME M-9 SWD

Project Number: None Given Project Manager: Kristin Farris-Pope Fax: (505) 397-1471

Reported: 12/15/05 17:09

General Chemistry Parameters by EPA / Standard Methods - Quality Control Environmental Lab of Texas

		Reporting		Spike	Source		%REC	n no	RPD	37.
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EL50207 - General Preparation (Wet	Chem)								<u></u>	
Blank (EL50207-BLK1)		•		Prepared:	12/12/05	Analyzed: 13	2/13/05			
Chloride	ND	0.500	mg/L							
Sulfate	ND	0.500	П							
LCS (EL50207-BS1)				Prepared:	12/12/05	Analyzed: 1	2/13/05			
Sulfate	9.23		mg/L	10.0		92.3	80-120			
Chloride	8.00		н	10 0		80.0	80-120			
Calibration Check (EL50207-CCV1)				Prepared:	12/12/05	Analyzed: 1	2/13/05			
Chloride	8.15		mg/L	10.0		81.5	80-120			
Sulfate	8.74		н	100		87.4	80-120			
Duplicate (EL50207-DUP1)	Sou	rce: 5K30015-	01	Prepared:	12/12/05	Analyzed: 1	2/13/05			
Chloride	7650	100	mg/L		7580			0 919	20	
Sulfate	970	100	и		1040			6 97	20	
Batch EL50501 - General Preparation (Wet	Chem)									
Blank (EL50501-BLK1)				Prepared:	12/01/05	Analyzed: 1:	2/02/05			
Total Dissolved Solids	ND	5 00	mg/L							
Duplicate (EL50501-DUP1)	Sou	rce: 5K30019-	01	Prepared:	12/01/05	Analyzed: 1	2/02/05			_
Total Dissolved Solids	1280	5.00	mg/L		1300			1.55	5	
Duplicate (EL50501-DUP2)	Sou	rce: 5K30020-	-04	Prepared:	12/01/05	Analyzed: 1	2/02/05			
Total Dissolved Solids	1790	5 00	mg/L		1850			3.30	5	

 Rice Operating Co.
 Project
 EME M-9 SWD
 Fax: (505) 397-1471

 122 W. Taylor
 Project Number:
 None Given
 Reported:

 Hobbs NM, 88240
 Project Manager:
 Kristin Farris-Pope
 12/15/05 17:09

General Chemistry Parameters by EPA / Standard Methods - Quality Control Environmental Lab of Texas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EL50712 - General Preparation (WetChem)									
Blank (EL50712-BLK1)				Prepared &	: Analyzed:	12/07/05				
Total Alkalinity	ND	2.00	mg/L							
Calibration Check (EL50712-CCV1)				Prepared &	: Analyzed:	12/07/05				
Bicarbonate Alkalinity	230		mg/L	200		115	80-120			
Duplicate (EL50712-DUP1)	Sou	rce: 5K30015	-01	Prepared &	: Analyzed:	12/07/05				
Total Alkalinity	221	2.00	mg/L		222			0.451	20	

Rice Operating Co.

Project: EME M-9 SWD

Fax: (505) 397-1471

122 W. Taylor

Project Number: None Given

Reported: 12/15/05 17:09

Hobbs NM, 88240

Project Manager: Kristin Farris-Pope

Total Metals by EPA / Standard Methods - Quality Control **Environmental Lab of Texas**

					_					
A lade	33 14	Reporting	V T 12	Spike Level	Source Result	0/10/2/2	%REC	DDD	RPD	Notes
Analyte	Result	Limit	Units	Perel	Resuit	%REC	Limits	RPD	Limit	Notes
Batch EL50506 - 6010B/No Digestion										
Blank (EL50506-BLK1)	Prepared & Analyzed: 12/05/05									
Calcium	ND	0.0100	mg/L							
Magnesium	ND	0.00100	11							
Potassium	ND.	0.0500	н							
Sodium	ND	0.0100	"							
Calibration Check (EL50506-CCV1)				Prepared &	: Analyzed:	12/05/05				
Calcium	1.99		mg/L	2 00		99 5	85-115			
Magnesium	1.94		"	2 00		970	85-115			
Potassium	1.73		"	2.00		86.5	85-115			
Sodium	1.96		"	2 00		98.0	85-115			
Duplicate (EL50506-DUP1)	Sou	Source: 5K30015-01		Prepared &	Analyzed:	12/05/05				
Calcium	1350	2.00	mg/L		1330			1.49	20	
Magnesium	505	0.200	u u		507			0.395	20	
Potassium	34.2	2.50	· ·		37.1			8.13	20	
Sodium	2310	20 0			2360			2.14	20	

Rice Operating Co. 122 W. Taylor Hobbs NM, 88240 Project: EME M-9 SWD

Project Number: None Given Project Manager: Kristin Farris-Pope Fax: (505) 397-1471

Reported: 12/15/05 17:09

Notes and Definitions

DET	Analyte DETECTED
NID	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
VIS	Matrix Spike
Dup	Duplicate

Report Approved By:	Kalane	1 K	Juis

Date: 12/15/2005

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer Jeanne Mc Murrey, Inorg. Tech Director LaTasha Cornish, Chemist Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

126th West I.20 East Odessa, Texas 79765

Phone: 432-563-1800

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Name: CINIS

Fax: 432-583-1713

kpriceswd@vaiomet.com Project Monagen, Kristin Farris Pope

Company Address: 122 VV. Taylor Street

Company Name RICE Operating Company

chystelezip: Hobbs, New Mexico 88240

Telephone No. (505) 393-9174

Sampler Signature: Rozanne Johnson (505) 631-9316

Tax No. (505) 397-1471

₽0.% .

Lea County

Project Loc:

Project #1

TAT brebnets (Mubanos-and) TAT HBUR abiled bevious bine? XX 1 M.R.Q.V BTEX NETE TO TO SEED ASTER goldelo, MMISIS: VE VO SO CR OLP HE DE TCLF SAR LESP / CEC (EOOH, 500, 408, 10) ender Cations (Ca., Mg, Na, K) 8061 9001 WS108 1.845 中华的 Other (epacify): gos: oppnie XX ~ JOSEPH AND Capet (Specify) (1) FLOHT TI MON °062H HOMN HOI 4000 PRESS (2) XX يكن يكن × HMO³ MMMM Mo, of Conteiners 0 200 910 8 i i i i i Time Sampled 1129.05 balgnied stell --Email: 10231111e(t2V3Iornet.com) FELLI CODE EMIN Monitor Well # -oqu 4P ****** ******

PLEASE Email RESULTS TO: kpriceswd@valomet.com & mfranks@riceswd.com

Special Instructions:

THIE 100g #30-05H Date Received by ELOT. Received by

CLAN XI

gon Laides WHEL

emperature Upon Receipt

Laboratory Comments:

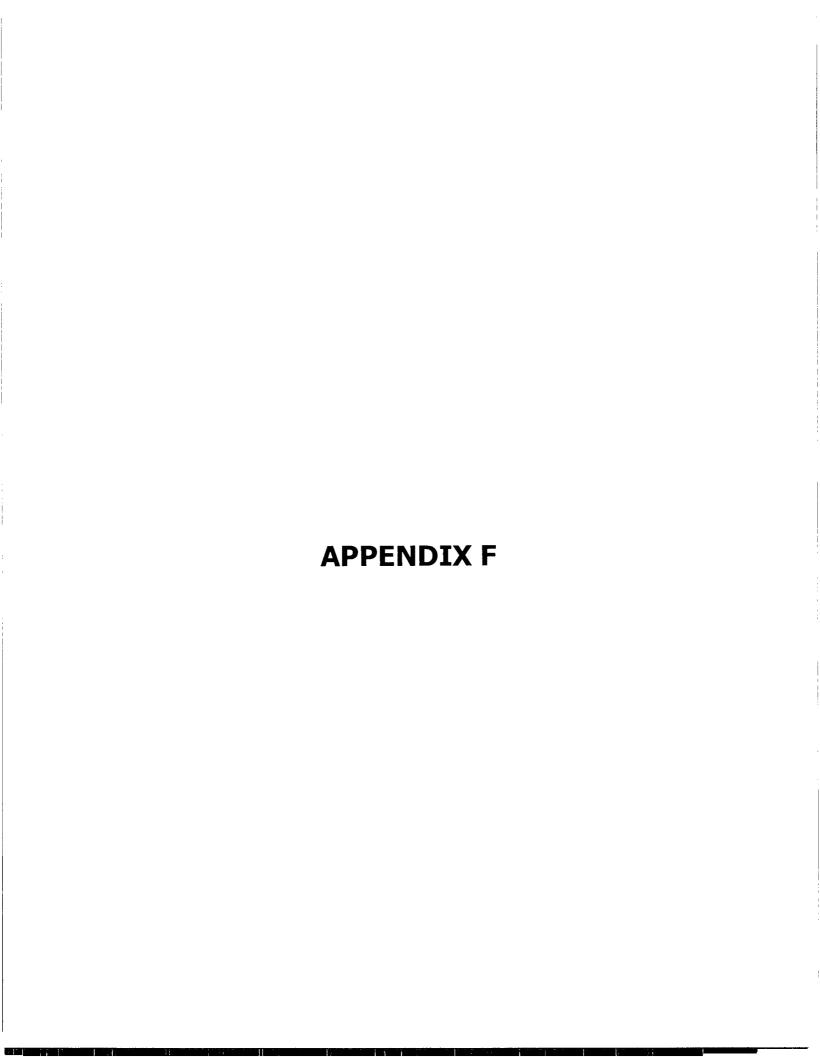
1. 1. 18. P. 2.

Sample Containers Intact? Custocy Seeks Contains

Labela on containers.

Environmental Lab of Texas Variance / Corrective Action Réport – Sample Log-In

ient MULTUR.				
tent: $\frac{113000}{1257}$				
terme: $11/30/06 - 12.511$				
rder #: <u>6K30026</u>			·	
rs ha				
itials:				
Sample Receip	t Checkli	st		
emperature of container/cooler?	Yes	No 1	0,0 C	
hiscing container/cooler in good condition?	100	No I	1 2000	
ustody Seals intaction shipping container/copter?	18635	No 1	hat present	
ustody Sesis intaction sample bottles?	1 785	1 211	fict cresent	
hain of custody present?	/ YES !			
ample Instructions complete on Chain of Custody?	Xae	No I		
Ingin of Custody signed when relinguished and received?	i Yası	No 1		
Chain of custody agrees with sample label(s)	Yes		The state of the s	
Container labels legicle and intact?	YES		***************************************	
lample Matrix and procerties same as on chain of custody?	Y23		Alle de la filia de la companya de l La companya de la companya de	
Parnoles in proper container/bottle?	163			
Samples procesy preserved?	T Yes		and program which the real tables as become referring on the riph depth, by the Program of the depth and an experience of the riph depth of the real tables and the real tables are real tables.	
Sample bottles intact?	YES		and materials Problems with some the secundaries and materials and materials and an expension of the secundaries and the secundaries and the secundaries and the secundaries and the secundaries are secundaries are secundaries and the secundaries are secundaries are secundaries are secundaries and the secundaries are secundaries are secundaries are secundaries and the secundaries are secundaries are secundaries and the secundaries are secundari	
Preservations documented on Chain of Custody?	Yes		terror control control materials and state and state of the control of the contro	
Containers documented on Chain of Custody?	YES	1 No		
Sufficient sample amount for indicated test?	Yes	No		
All samples received within sufficient hold time?	Yes	No	CONTRACTOR OF THE STATE OF THE	
VOC samples have zero headspace?	¥ 555	l No	Not Accilcable	
VOC samples have zero headspace? Other observations:	(2)	No	Not Accilcagle	
Other observations: Variance Doc	umentati	on:	Contacted by:	
Other observations: Variance Doc Contact Person:	umentati	on:		
Other observations: Contact Person: - Date/Time:	umentati	on:	Contacted by:	
Other observations: Contact Person: - Date/Time: Regarding: Corrective Action Taken:	umentati	on:	Contacted by:	
Other observations: Contact Person: - Date/Time:	umentati	on:	Contacted by:	
Other observations: Contact Person: - Date/Time: Pegarding: Corrective Action Taken:	umentati	on:	Contacted by:	



Rice Operating Company

QUALITY PROCEDURE

Sampling and Testing Protocol Chloride Titration Using .282 Normal Silver Nitrate Solution

1.0 Purpose

This procedure is to be used to determine the concentration of chloride in soil.

2.0 Scope

This procedure is to be used as the standard field measurement for soil chloride concentrations.

3.0 Sample Collection and Preparation

- 3.1 Collect at least 80 grams of soil from the sample collection point. Take care to insure that the sample is representative of the general background to include visible concentrations of hydrocarbons and soil types. If necessary, prepare a composite sample for soils obtained at several points in the sample area. Take care to insure that no loose vegetation, rocks or liquids are included in the sample(s).
- 3.2 The soil sample(s) shall be immediately inserted into a one-quart or larger polyethylene freezer bag. Care should be taken to insure that no cross-contamination occurs between the soil sample and the collection tools or sample processing equipment.
- 3.3 The sealed sample bag should be massaged to break up any clods.

4.0 Sample Preparation

- 4.1 Tare a clean glass vial having a minimum 40 ml capacity. Add at least 10 grams of the soil sample and record the weight.
- 4.2 Add at least 10 grams of reverse osmosis water to the soil sample and shake for 20 seconds.
- 4.3 Allow the sample to set for a period of 5 minutes or until the separation of soil and water.
- 4.4 Carefully pour the free liquid extract from the sample through a paper filter into a clean plastic cup if necessary.

5.0 Titration Procedure

- 5.1 Using a graduated pipette, remove 10 ml extract and dispense into a clean plastic cup.
- 5.2 Add 2-3 drops potassium chromate (K₂CrO₄) to mixture.
- 5.3 If the sample contains any sulfides (hydrogen or iron sulfides are common to oilfield soil samples) add 2-3 drops of hydrogen peroxide (H₂O₂) to mixture.
- 5.4 Using a 1 ml pipette, carefully add .282 normal silver nitrate (one drop at a time) to the sample while constantly agitating it. Stop adding silver nitrate when the solution begins to change from yellow to red. Be consistent with endpoint recognition.
- 5.5 Record the ml of silver nitrate used.

6.0 Calculation

To obtain the chloride concentration, insert measured data into the following formula:

.282 X 35,450 X ml AgNO₃ X grams of water in mixture ml water extract grams of soil in mixture

Using Step 5.0, determine the chloride concentration of the RO water used to mix with the soil sample. Record this concentration and subtract it from the formula results to find the net chloride in the soil sample.

Record all results on the delineation form.

Rice Operating Company

Quality Procedure Development of Cased Water-Monitoring Wells

1.0 Purpose

This procedure outlines the methods to be employed to develop cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Sample Collection and Preparation

- 3.1 Prior to development, the static water level and height of the water column within the well casing will be measured with the use of an electric D.C. probe or a steel engineer's tape and water sensitive pasts.
- 3.2 All measurements will be recorded within a field log notebook.
- 3.3 All equipment used to measure the static water level will be decontaminated after each use by means of Liquinox, a phosphate free laboratory detergent, and water to reduce the possibility of cross-contamination. The volume of water in each well casing will be calculated.

4.0 Purging

- 4.1 Wells will be purged by using a 2" decontaminated submersible pump or dedicated one liter Tefion bailer. Wells should be purged until the pH and conductivity are stabilized and the turbidity has been reduced to the greatest extent possible.
- 4.2 If a submersible is used the pump will be decontaminated prior to use by scrubbing the outside surface of tubing and wiring with a Liquinox water mixture, pumping a Liquinox-water mixture through the pump, and a final flush with fresh water.

5.0 Water Disposal

5.1 All purge and decontamination water will be temporarily stored within a portable tank to be later disposed of in an appropriate manner.

6.0 Records

6.1 Rice Operating Company will record the amount of water removed from the well during development procedures. The purge volume will be reported to the appropriate regulatory authority when filing the closure report.

Rice Operating Company

Quality Procedure

Procedure for Obtaining Water Samples (Cased Wells)
Using One Liter Bailer

1.0 Parpose

This procedure outlines the methods to be employed in obtaining water samples from cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Preliminary

- 3.1 Obtain sterile sampling containers from the testing laboratory designated to conduct analyses of the water. The shipment should include a Certificate of Compliance from the manufacturer of the collection bottle or vial and a Serial Number for the lot of containers. Retain this Certificate for future documentation purposes.
- 3.2 The following table shall be used to select the appropriate sampling container, preservative method and holding times for the various elements and compounds to be analyzed.

Compound to be Analyzed	Sample Container Size	Sample Container Description	Cap Requirements	Preservative	Maximum Hold Time
BIEX	40 ml	VOA Container	Teflon Lined	HCI	7 days
IPH	l liter	clear glass	Teflon Lined	HCI	28 days
PAH	l liter	amber glass	Teflon Lined	Ice	7 days
Cation/Anion	I liter	clear glass	Teflon Lined	None	48 Hrs
Metals	l liter	HD polyethylene	Any Plastic	Ice/HNO₃	28 Days
TDS	300 ml	clear glass	Any Plastic	Ice	7 Days

4.0 Chain of Custody

4.1 Prepare a Sample Plan. The plan will list the well identification and the individual tests to be performed at that location. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.

- 4.2 Transfer the data to the Laboratory Chain of Lastody Form Complete all sections of the form except transmits a chair to the time of delivery of the samples to the laboratory
- 4.3 Pre-label the sample collection in the point Sharple to insure that the ink remains on the label. After the labels to the jars.

5.0 Bailing Procedure

- 5.1 Identify the well property assessmentation. Place pre-labeled jar(s) next to the well property are plastic cap from the well bore by first lifting the many than and then unscrewing the entire assembly.
- 5.2 Using a dedicated one liter Teffon bailer, purge a minimum of three well vokudes. Place the water in storage container for transport to a ROC disposes facility:
- 5.3 Take case us insure that the bailing device and string do not become cross-contaminated. A clean pair of subber gloves should be used when handling either the retrieval string or bailer. The retrieval string should not be allowed to come into contact with the ground.

6.0 Sampling Procedure

- 6.1 Once the well has been bailed in accordance with 5.2 of this procedure, a sample may be decanted into the appropriate sample collection jar directly from the bailer. The collection jar should be filled to the brim. Once the jar is sealed, turn the jar over to detect any bubbles that may be present. Add additional water to remove all bubbles from the sample container.
- 6.2 Note the time of collection on the sample jar with a fine Sharpie.

4.0 Chain of Custody

- 4.1 Prepare a Sample Plan. The plan will list the well identification and the individual tests to be performed at that location. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.
- 4.2 Transfer the data to the Laboratory Chain of Custody Form. Complete all sections of the form except those that relate to the time of delivery of the samples to the laboratory.
- 4.3 Pre-label the sample collection jars. Include all requested information except time of collection. (Use a fine point Sharpie to insure that the ink remains on the label). Affix the labels to the jars.

5.0 Bailing Procedure

- 5.1 Identify the well from the sites schematics. Place pre-labeled jar(s) next to the well. Remove the plastic cap from the well bore by first lifting the metal lever and then unscrewing the entire assembly.
- 5.2 Using a dedicated one liter Teflon bailer, purge a minimum of three well volumes. Place the water in storage container for transport to a ROC disposal facility.
- 5.3 Take care to insure that the bailing device and string do not become cross-contaminated. A clean pair of rubber gloves should be used when handling either the retrieval string or bailer. The retrieval string should not be allowed to come into contact with the ground.

6.0 Sampling Procedure

- 6.1 Once the well has been bailed in accordance with 5.2 of this procedure, a sample may be decanted into the appropriate sample collection jar directly from the bailer. The collection jar should be filled to the brim. Once the jar is sealed, turn the jar over to detect any bubbles that may be present. Add additional water to remove all bubbles from the sample container.
- 6.2 Note the time of collection on the sample jar with a fine Sharpie.

- 6.3 Place the sample directly on ice for transport to the laboratory. The preceding table shows the maximum hold times between collection and testing for the various analyses.
- 6.4 Complete the Chain of Custody form to include the collection times for each sample. Deliver all samples to the laboratory.

7.0 Documentation

- 7.1 The testing laboratory shall provide the following minimum information:
 - A. Project and sample name.
 - B. Signed copy of the original Chain of Custody Form including the time the sample was received by the lab.
 - C. Results of the requested analyses
 - D. Test Methods employed
 - E. Quality Control methods and results

Calculation for Determining the Minimum Bailing Volume for Monitor Wells Formula $V=(\pi r^2h)$ 2" well [V/231=gal] X 3 = Purge Volume

V=Volume

n-pi

r-inside radius of the well bore

h=maximum height of well bore in water table

Example:

π			h(in) V(cu.in)		X 3 Volumes	Actual	
3.1416	1	180	565.488	2,448	7.34 gal	>10 gal	

Rice Operating Company

QUALITY PROCEDURE Sampling and Testing Protocol for VOC in Soil

1.0 Purpose

This procedure is to be used to determine the concentrations of Volatile Organic Compounds in soils.

2.0 Scope

This procedure is to be used as the standard field measurement for soil VOC concentrations. It is not to be used as a substitute for full spectrographic speciation of organic compounds.

3.0 Procedure

- 3.1 Sample Collection and Preparation
 - 3.1.1 Collect at least 500 g. of soil from the sample collection point. Take care to insure that the sample is representative of the general background to include visible concentrations of hydrocarbons and soil types. If necessary, prepare a composite sample of soils obtained at several points in the sample area. Take care to insure that no loose vegetation, rocks or liquids are included in the sample(s).
 - 3.1.2 The soil sample(s) shall be immediately inserted into a one-quart or larger polyethylene freezer bag and sealed. When sealed, the bag should contain a nearly equal space between the soil sample and trapped air. Record the sample name and the time that the sample was collected on the Field Analytical Report Form.
 - 3.1.3 The sealed samples shall be allowed to set for a minimum of five minutes at a temperature of between 10-15 Celsius, (59-77°F). The sample temperatures may be adjusted by cooling the sample in ice, or by heating the sample within a generally controlled environment such as the inside of a vehicle. The samples should not be placed directly on heater vents.
 - 3.1.4 The sealed sample bag should be massaged to break up any clods, and to provide the soil sample with as much exposed surface area as practically possible.

3.2 Sampling Procedure

- 3.2.1 The instrument to be used in conducting VOC concentration testing shall be an Environmental Instruments 13471 OVM / Datalogger or a similar PID-type instrument. (Device will be identified on VOC Field Test Report Form.) Prior to use, the instrument shall be zeroed-out in accordance with the appropriate maintenance and calibration procedure outlined in the instrument operation manual. The PID device will be calibrated each day it's used.
- 3.2.2 Carefully open one end of the collection bag and insert the probe tip into the bag taking care that the probe tip not touch the soil sample or the sidewalls of the bag.
- 3.2.3 Set the instrument to retain the highest result reading value. Record the reading onto the Field Test Report Form.
- 3.2.4 If the instrument provides a reading exceeding 100 ppm, proceed to conduct BTEX Speciation in accordance with QP-02 and QP-06. If the reading is 100 ppm or less, NMOCD BTEX guideline has been met and no further testing for BTEX is necessary. File the Field Test Report Form in the project file.

4.0 Clean-up

After testing, the soil samples shall be returned to the sampling location, and the bags collected for off-site disposal. IN NO CASE SHALL THE SAME BAG BE USED TWICE. EACH SAMPLE CONTAINER MUST BE DISCARDED AFTER EACH USE.