1R - 424

REPORTS

DATE:

4-4-08

April 4, 2008

M-5 SWD Closure Report

Section 5 T20S R37E Unit M
NMOCD # 1R 0424

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

April 4, 2008

M-5 SWD Closure Report

Section 5 T20S R37E Unit M
NMOCD # 1R 0424

prepared for:

Rice Operating Company
122 West Taylor
Hobbs, NM 88240

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

1.0 LOCATION

Section 5 T20S R37E Unit M
NMOCD # 1R 0424

Plate 1 shows the location of the M-5 SWD site in relation the 1:100,000 scale USGS topographic map. Plate 2 is an aerial photograph of the site with the water wells (within ½ mile of the site) in the Office of the State Engineer database noted. The ROC monitoring well sites and the former Climax Chemical Plant site are also shown on Plates 1 and 2.

2.0 WORK ELEMENTS PERFORMED SINCE SEPTEMBER 2004

From 2004 through 2007, ROC routinely sampled the two monitoring wells at the site, MW-1 (deep) and MW-2 (shallow). All laboratory results from the sampling programs are summarized in Tables 1 and 2.

Rice has also conducted surface reclamation programs described and documented in Appendix A. Waste manifests are also included in Appendix A.

3.0 CONCLUSIONS

3.1 Regional Ground Water Impairment Exists at the M-5 Site

Plate 3 is a ground water elevation map documenting a regional southeastern direction of ground water flow in 2007. Examination of this map will show local ground water perturbations, however, regional flow is to the southeast. Plate 4 is a reproduction of a portion of the Ground Water Map of Southern Lea County (Nicholson and Clebsch, 1961), which also shows the southeastern ground water flow direction in the area of interest. The deep and shallow monitor wells at the M-5 site are directly down gradient from the former redwood tanks and monitoring wells associated with the P-6 release site.

Plate 5 shows the chloride concentrations in ground water from samples obtained during the 4th Quarter 2007 ROC sampling event for the area within 2-3 miles of the site. This map shows a large area of regional ground water impairment due to chloride. The highest chloride concentrations are nearest to the former Climax Chemical Plant, which is located in the northwest corner of Plate 5. A 1968 sample in the PTTC database shows a chloride concentration from a well on the Climax Chemical site exceeds 140,000 mg/L chloride. These data permit a conclusion that the former Climax Chemical Plant is the principal source of the regional ground water quality impairment shown in Plate 5.

3.2 Natural Restoration is Decreasing the Magnitude of the Regional Ground Water Impairment

Figure 1 presents the chloride concentration trend over time for the MW-2 at the P-6 site. This well is up gradient from a historic ROC release (at P-6 AP-45) and represents ambient water quality in the area of the P-6 and M-5 sites. This monitoring well is also located near the edge of the zone of regional ground water impairment that originates at or near the former Climax Chemical Plant. At MW-2 (P-6), the chloride concentration is decreasing with time and the data permit a prediction that ground water will be less than 250 mg/L within five years (before 2012).

Figure 1: Chloride in Ground Water at P-6

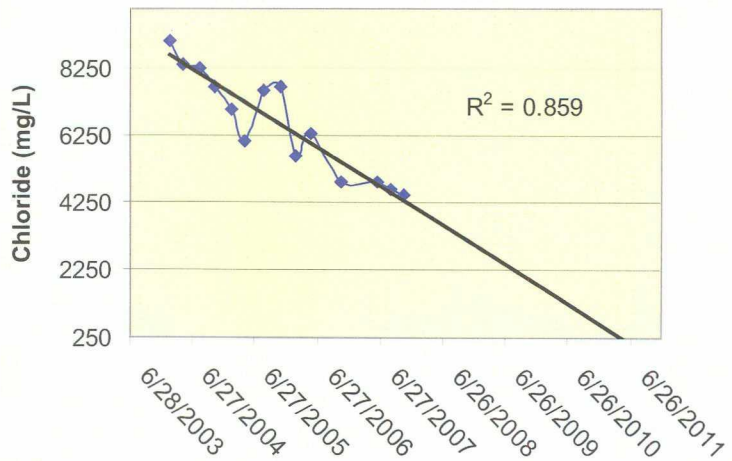


Plate 6 is an expanded view of Plate 5 in the area of the M-5 site and also shows the temporal decrease in the magnitude of the regional zone of impairment. Plotted on Plate 6 are the 8,000 and 2,000 mg/L iso-concentration lines associated with the ROC May 2004 ground water sampling event (red dotted lines) as well as the iso-concentration lines from the 2007 sampling event (shown with green solid lines). These data show that the extent of ground water impairment (as defined by the 2,000 mg/L isopleth) has not materially changed during the 3-year period, but the magnitude of the impairment (defined by the size of the 8,000 mg/L zone of impairment) has decreased due to natural restoration.

3.3 At M-5, Chloride Will Be Less than 250 mg/L Before 2022 in the Shallow Well

Figure 2 shows that chloride concentrations in ground water are decreasing with time at M-5 (shallow well) and the monitoring wells at the up gradient P-6 site. A linear regression of the data for M-5 predicts that chloride in ground water will be less than 250 mg/L before 2022. However, the correlation coefficient of the regression is relatively low (about 0.2) because of the variability observed between August 2005 and October 2006. During much of this time, the redwood tank excavation remained open and natural variations of chloride concentration (as illustrated in the data from P-6-2) might be exacerbated due to increased infiltration of precipitation through the excavation. Since the backfilling of the excavation, the decreasing trend is very similar to that observed at the background monitoring well P-6-2.

Figure 2: Chloride in Ground Water

The backfilling of the excavation will reduce deep percolation of precipitation at the site and dampen the variability of chloride concentrations in shallow ground water. If the decreasing chloride trend observed during the past year continues, chloride in the shallow well will be less than 250 mg/L within a few years.

Unlike in the uppermost portion of the aquifer, chloride in the deep well is not affected by changes in the rate of deep percolation (due to large rainfall events or surface restoration efforts). However, if the main source area of chloride at or near the former Climax Chemical Plant is removed, ground water near the base of the aquifer will be naturally restored over time.

3.4 The M-5 Site Does Not Contribute Chloride to Regional Ground Water Impairment

In Plate 6, the chloride concentration at the M-5 site is 4,499 mg/L in the shallow well. The three northernmost monitoring wells at the P-6 site, which are directly up gradient from the M-5 site and screened in the uppermost portion of the aquifer, exhibit an average chloride concentration of 5,531 mg/L. Because the chloride concentrations up gradient from M-5 site are equal to or higher than observed at the M-5 site, the data support our conclusion that the M-5 site is not contributing chloride to regional ground water impairment.

3.5 Constituents in the Vadose Zone Pose No Threat to Ground Water Quality

Table 2 shows the laboratory results of soil/sediment sampling during the October 2003 field program. Our observations at the M-5 Redwood Tank site are similar to our findings at other sites: total petroleum hydrocarbons can exceed 20,000 ppm yet the constituents of concern, such as benzene, are below 0.1 ppm (see sample M5 B4-4 feet on Table 2). In most samples, benzene is below the laboratory detection limits.

The most convincing evidence that hydrocarbon constituents in the vadose zone pose no threat to ground water quality are the results of ground water monitoring at the site (see Table 1). The down gradient monitoring wells have never detected regulated hydrocarbons over the four year monitoring period. Moreover, the results of grab samples obtained from the borings immediately adjacent to the redwood tanks (borings B-1, B-2 and B-3 in Table 2) did not detect regulated hydrocarbons above WQCC Standards despite the fact that deep soil samples from these same borings detected hydrocarbons (e.g. B-1, 26-27 feet bgs detected 13.7 mg/kg ethylbenzene).

Chloride concentrations in soil/sediment samples were also very low (Table 2). The lithologic logs presented in Appendix B of the September 2004 CAP (included with all previous submissions in Appendix C) show that field chloride concentrations range between 209 and 479 ppm. However, field analyses overestimated soil chloride concentration compared to laboratory tests during this program. We split samples in SB-1 for the 7.0 foot depth and the 16.8 foot depth. We found that the laboratory reported chloride values of <20.0 and 53.2 ppm respectively whereas the field values for these samples were 208 and 218 ppm. For SB-2

at 12 feet below grade, the laboratory result is 142 ppm and the field test showed 321 ppm. These types of differences between laboratory and field analyses were common in 2003, especially in samples with low chloride content. The results of the soil boring program allow us to conclude that chloride is less than 250 mg/kg in the vadose zone at the former redwood tank site. Moreover, the ground water data also demonstrate that the chloride in the vadose zone is not contributing to chloride concentrations caused by the source area at or near the former Climax Chemical Plant.

4.0 REQUEST FOR CLOSURE

ROC investigated the release of fluids from the M-5 Redwood Tank site and found that the site poses no threat to public health, fresh water or the environment due to petroleum hydrocarbons or soluble salts. With this submittal, we request closure of the regulatory file.

As part of the ongoing investigation of other ROC sites within the EME system, ROC plans to maintain the monitoring wells at the site. Monitoring results will be submitted with the Annual Reports associated with the P-6 release site. The SWD well will remain active and the associated facility will remain.

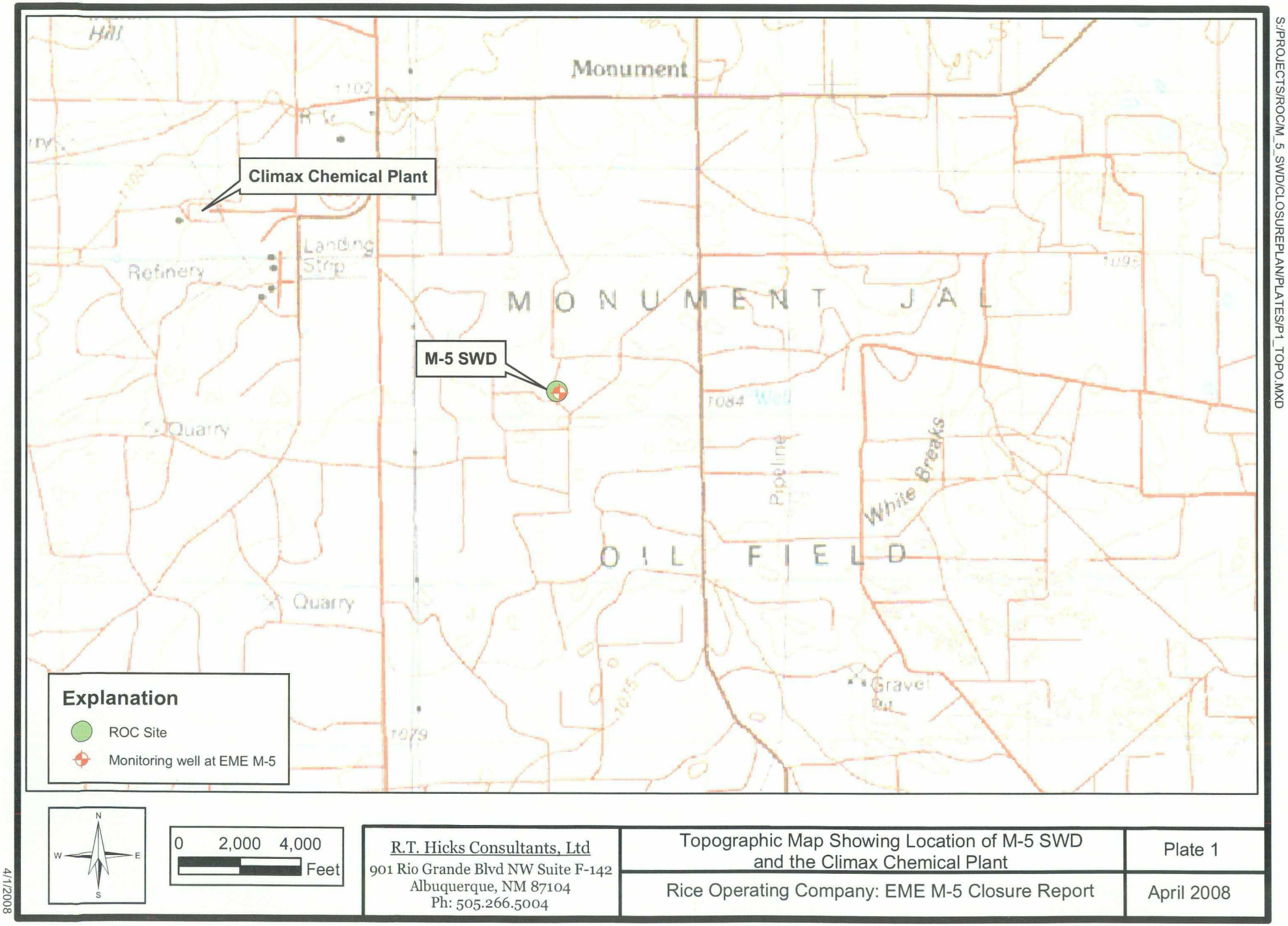
Tables & Plates

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Table 1: Ground Water Chemstry at EME M-5 SWD												
MW	Sample Date	Depth to Water	Total Depth	Well Volume	Volume Purged	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
1s	12/11/2003	33.28	40.11	1.1	3.33	6,198	10,784	<0.002	<0.002	<0.002	<0.006	99.8
1s	2/20/2004	33.37	39.85	1.1	4	5,320	14,500	<0.001	<0.001	<0.001	<0.001	454
1s	5/6/2004	32.79	39.85	1.2	6	5,940	12,400	<0.001	<0.001	<0.001	<0.001	420
1s	8/10/2004	32.52	39.85	1.2	6	6,910	17,300	<0.001	<0.001	<0.001	<0.001	470
1s	11/10/2004	31.63	39.85	1.3	10	7,090	14,000	<0.001	<0.001	<0.001	<0.001	614
1s	2/8/2005	28.85	39.85	1.8	6	6,710	13,200	<0.001	<0.001	<0.001	<0.001	1450
1s	5/3/2005	28.1	39.85		6	6,560	16,500	<0.001	<0.001	<0.001	<0.001	595
1s	8/13/2005					6,070	13,800	<0.001	<0.001	<0.001	<0.001	574
1s	11/28/2005	27.87	39.9	1.9	6	4,500	12,300	<0.001	<0.001	<0.001	<0.001	1470
1s	2/20/2006	27.25	39.9	2	6	5,660	12,400	<0.001	<0.001	<0.001	<0.001	596
1s	5/16/2006	27.81	39.9	1.9	10	7,870	14,300	<0.001	<0.001	<0.001	<0.001	626
1s	11/10/2006	27.39	39.9	2	10	5,840	10,500	<0.001	<0.001	<0.001	<0.001	622
1s	2/20/2006					5,660	12,400	<0.001	<0.001	<0.001	<0.001	596
1s	3/6/2007	26.67	39.87	2.1	10	5,440	9,190	<0.001	<0.001	<0.001	<0.001	595
1s	6/7/2007	26.53	39.87	2.1	10	4,960	11,700	<0.001	<0.001	<0.001	<0.001	539
1s	8/27/2007	27.02	39.87	2.1	8	4,499	10,095	<0.002	<0.002	<0.002	<0.006	554
1s	11/9/2007	26.92	39.87	2.1	8	4,400	8,193	<0.001	<0.001	<0.001	<0.003	549
1s	2/21/2008	26.85	39.88	2.1	8	4,200	8,640	<0.001	<0.001	<0.001	<0.003	474
1d	12/11/2003	33.4	55.1	3.5	10.61	6,198	11,736	<0.002	<0.002	<0.002	<0.006	
1d	11/28/2005	28.1	55.1	4.3	15	5,590	11,400	<0.001	<0.001	<0001	<0.001	
1d	2/20/2006	27.87	55.1	4.4	15	6,830	14,400	<0.001	<0.001	<0.001	<0.001	503
1d	5/16/2006	27.81	39.9	1.9	10	7,000	13,100	<0.001	<0.001	<0.001	<0.001	752
1d	11/10/2006	27.49	55.1	4.4	20	5,840	12,000	<0.001	<0.001	<0.001	<0.001	421
1d	2/20/2006					6,830	14,400	<0.001	<0.001	<0.001	<0.001	503
1d	3/6/2007	26.79	55.06	4.5	15	7,300	10,700	<0.001	<0.001	<0.001	<0.001	595
1d	6/7/2007	26.68	55.06	4.5	15	6,110	16,600	<0.001	<0.001	<0.001	<0.001	371
1d	8/27/2007	27.14	55.06	4.5	15	6,898	14,776	<0.002	<0.002	<0.002	<0.006	394
1d	11/9/2007	27.07	55.06	4.5	15	7,100	12,247	<0.001	<0.001	<0.001	<0.003	435
1d	2/21/2008	27.01	55.05	4.5	15	6,800	12,100	<0.001	<0.001	<0.001	<0.003	422

Table 2. Field and Laboratory Results of Soil Samples at M-5 Site

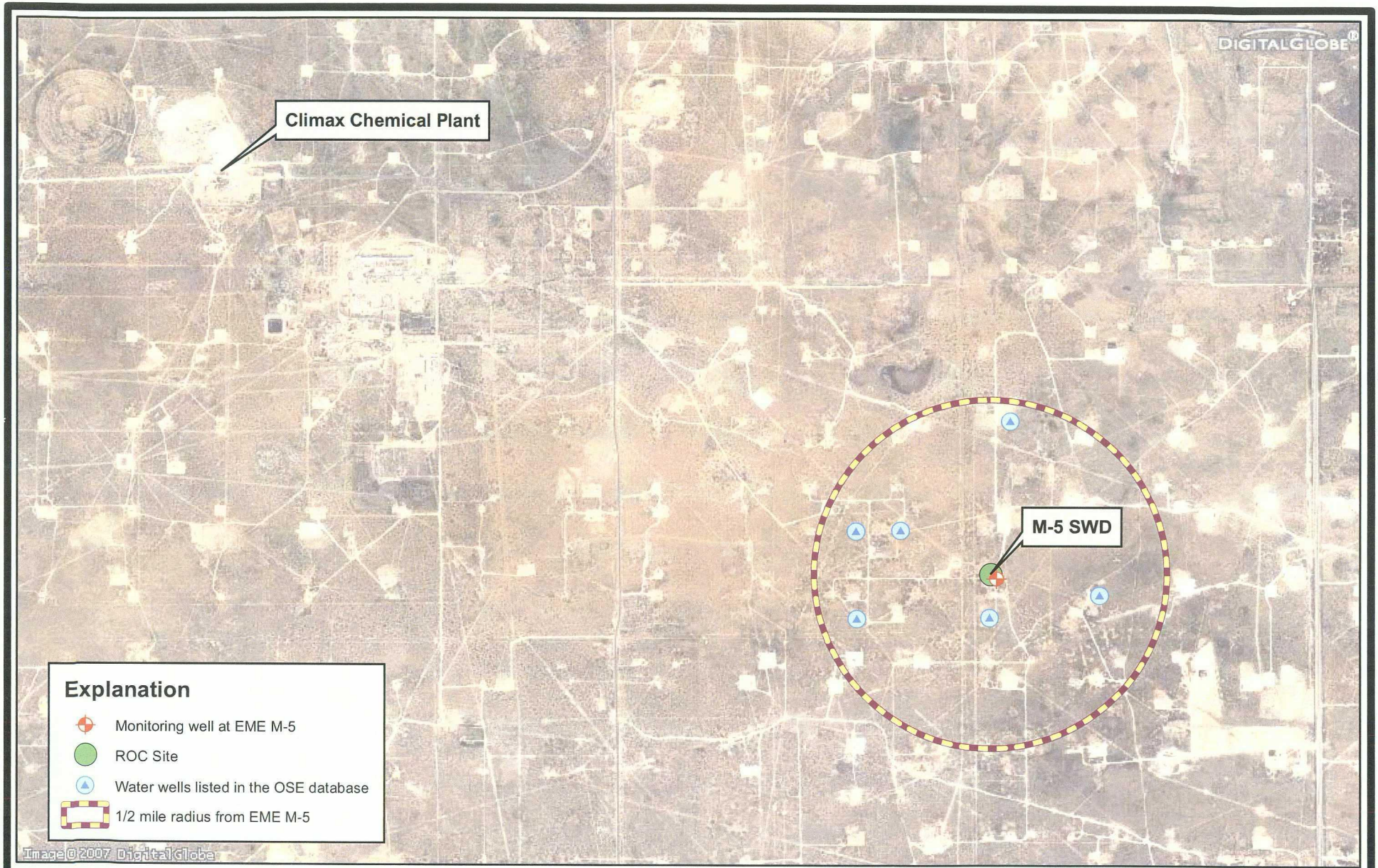
Well_ID	Date	Field Cl	Chloride	GRO_C6_C12	DRO_>C12_C35	TOTAL_C6_C35	Benzene	Toluene	Ethylbenzene	p/mXylene	oXylene	Naphthalene
		Results in mg/kg					*Results in ug/kg*					
M5 B-1 29.5	11/5/2003			507	1470	1977	<25	<25	1450	1250	<25	297
M5 B-1 6'	11/5/2003	208										
M5 B-1 7'	11/5/2003		<20	116	474	590	<25	<25	25.2	26.6	<25	51
M5 B-1 11'	11/5/2003	251										
M5-B-1 15'	11/5/2003	218										
M5 B-1 16.8	11/5/2003		53.2	857	1480	2337	<100	<100	4650	5370	135	1380
M5-B-1 21'	11/5/2003	360										
M5 B-1 26-27'	11/5/2003			4780	11100	15880	<200	<200	13700	15100	633	4160
M5-B-1 27'	11/5/2003	479										
M5-B-1 31'	11/5/2003	383										
M5 B-2 8'	11/5/2003	262										
M5 B-2 12'	11/5/2003	321										
M5 SB2 12'	11/5/2003			1140	4210	5350	<25	<25	326	795	61.9	78.2
M5 B-2 15'	11/5/2003	386										
M5 B-2 19'	11/5/2003	352										
M5 SB2 23'	11/5/2003			897	3310	4207	<25	<25	165	837	<25	91.2
M5 B-2 27'	11/5/2003	273										
M5 B-2 30'	11/5/2003	458										
M5 B-3 11'	11/5/2003			606	5370	5976	<25	<25	314	304	<25	479
M5 B-3 16.5'	11/5/2003		106	<10	<10	<10	<25	<25	<25	<25	<25	<25
M5 B-4 4'	11/5/2003			1740	11300	13040	74.1	<25	476	1560	65.9	249
M5 B-4 2'	11/5/2003		88.6	203	2210	2413	<25	<25	1090	228	25.3	45
M5 B-4 6'	11/5/2003			133	593	726	<25	<25	325	<25	<25	150
M5 B-4 7'	11/5/2003		35.4	56.6	161	218	<25	<25	143	38	<25	135

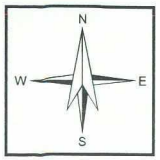


R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Topographic Map Showing Location of M-5 SWD and the Climax Chemical Plant	Plate 1
	Rice Operating Company: EME M-5 Closure Report	April 2008

S:/PROJECTS/ROC/M_5_SWD/CLOSUREPLAN/PLATES/P1_TOPO.MXD

4/1/2008





0 1,000 2,000 Feet

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Location of M-5 SWD Relative to OSE wells within 1/2-mile and the Climax Chemical Plant

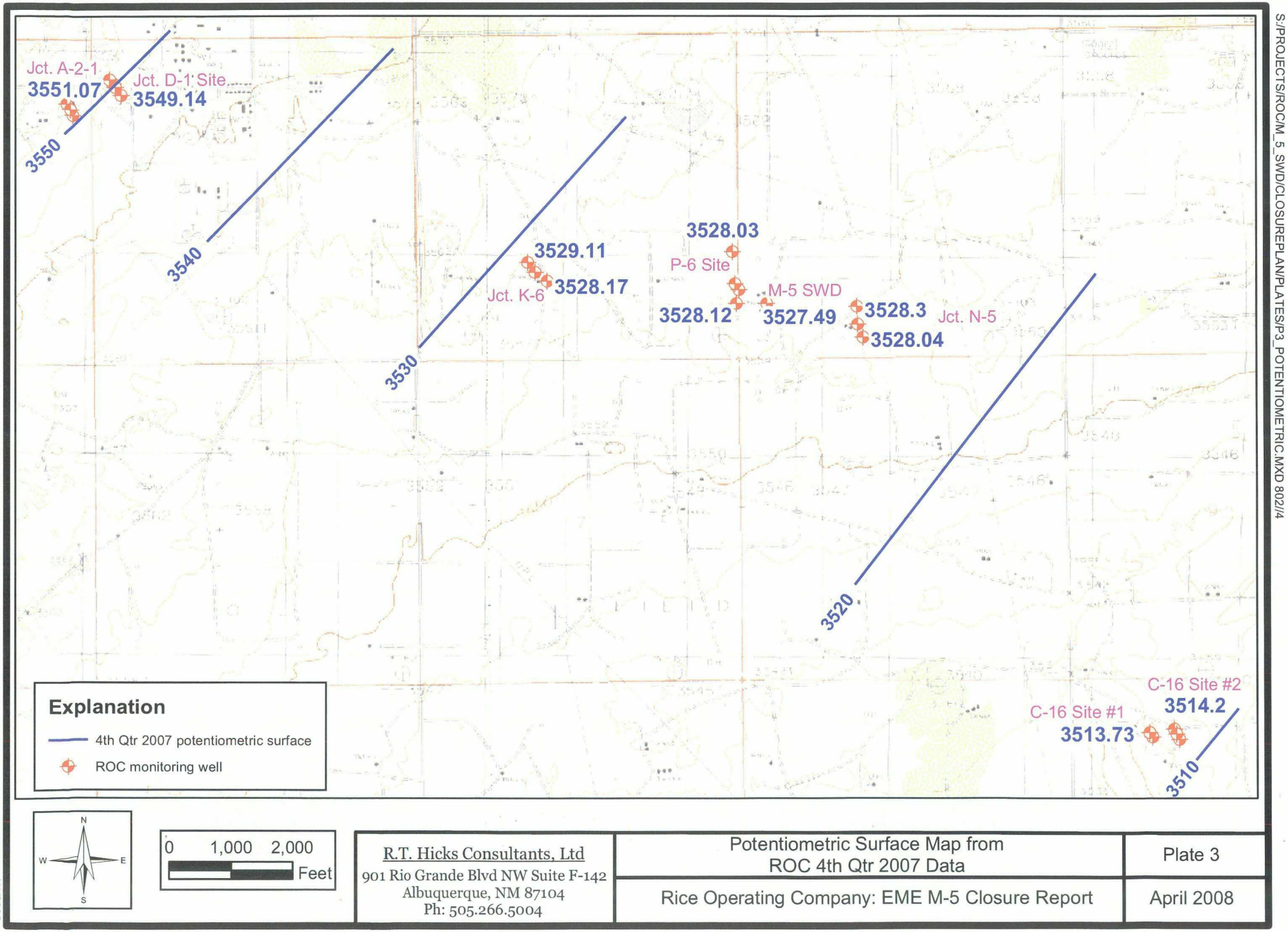
Plate 2

Rice Operating Company: EME M-5 Closure Report

April 2008

S:/PROJECTS/ROC/M_5_SWD/CLOSUREPLAN/PLATES/P2_OSEWELLS.MXD

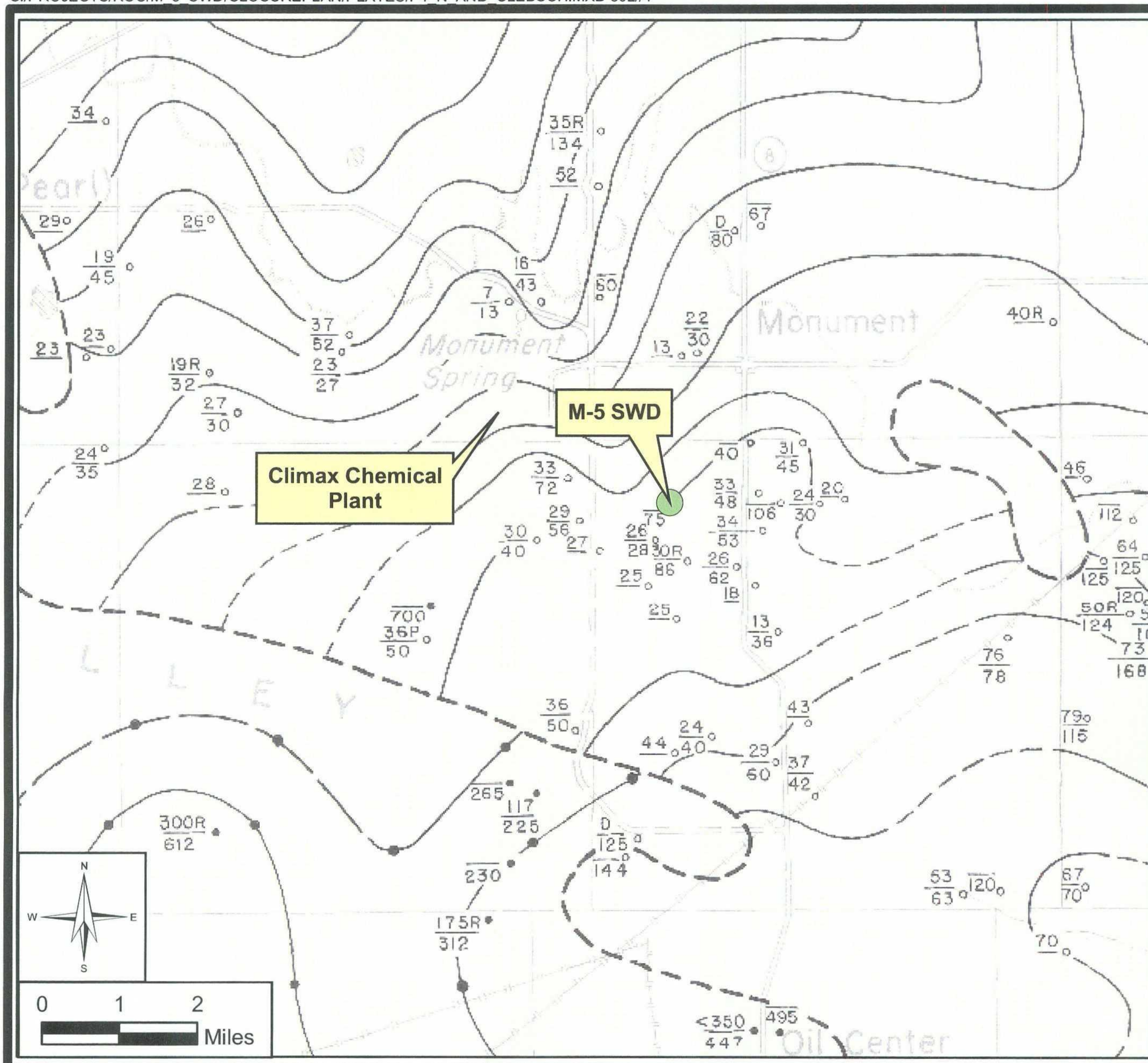
4/1/2008



S:/PROJECTS/ROC/M_5_SWD/CLOSUREPLAN/PLATES/P3_POTENTIOMETRIC.MXD 802//4

4/1/2008

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Potentiometric Surface Map from ROC 4th Qtr 2007 Data	Plate 3
	Rice Operating Company: EME M-5 Closure Report	April 2008



Water well

Upper figure is depth to water; lower figure is depth of well. Open circles are wells finished in Tertiary or Quaternary rocks; solid circles are wells finished in Triassic rocks

F : Flowing
R : Reported
P : Water level measured while pumping
D : Dry
? : Uncertainty as to aquifer
> : More than
< : Less than
(See tables 6 and 7 for detailed well data.)

Water table contour in Tertiary or Quaternary rocks

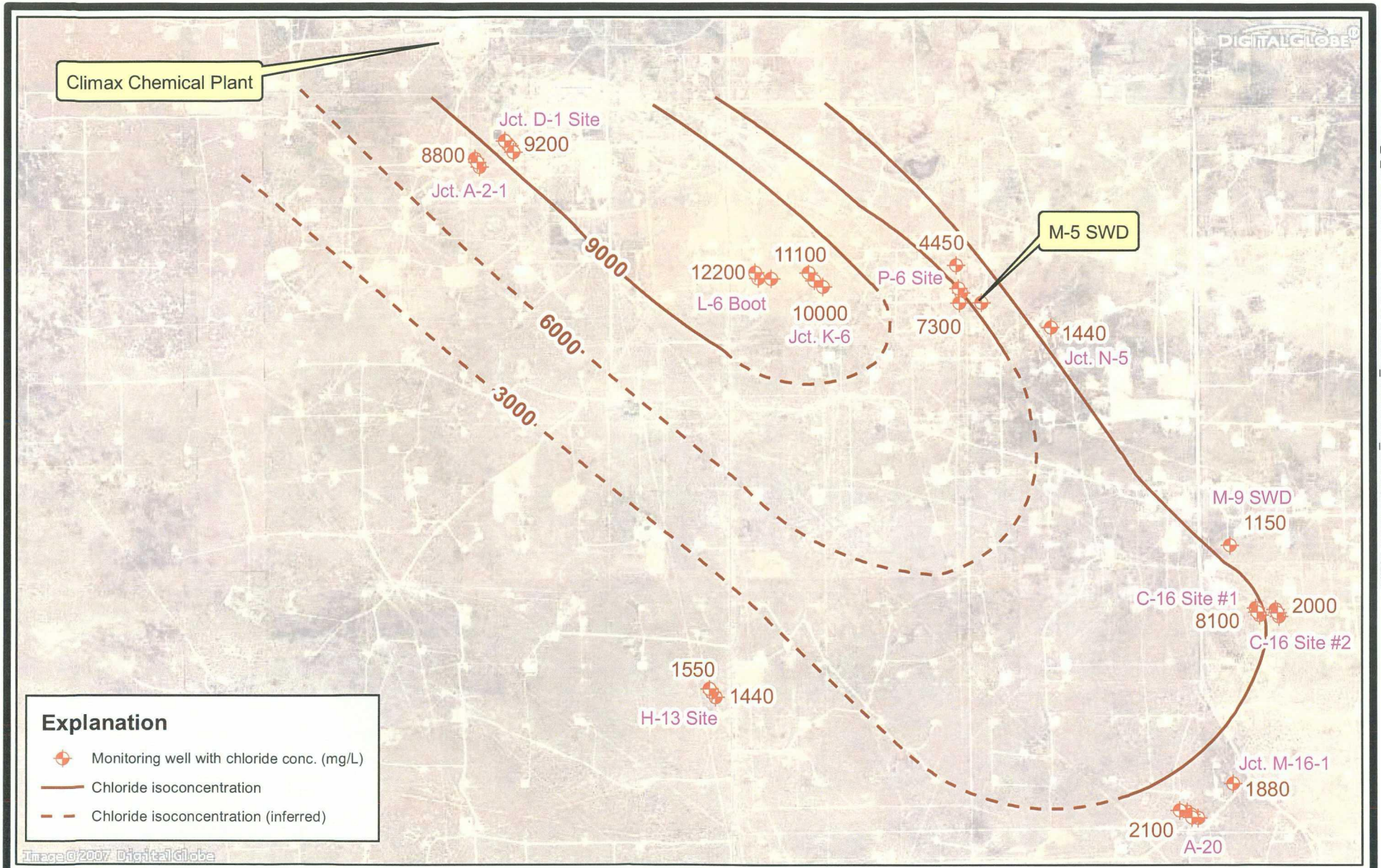
Dashed where inferred or uncertain. Contour interval 25 feet. Datum mean sea level

Water-table or piezometric contour on water body in Triassic aquifers

Dashed where inferred or uncertain. Contour interval 100 feet. Datum mean sea level

Approximate position of boundary between Triassic rocks and saturated Tertiary and Quaternary rocks

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Ground Water Levels Nicolson and Clebsch (1960)	Plate 4
	Rice Operating Company: EME M-5 Closure Report	April 2008

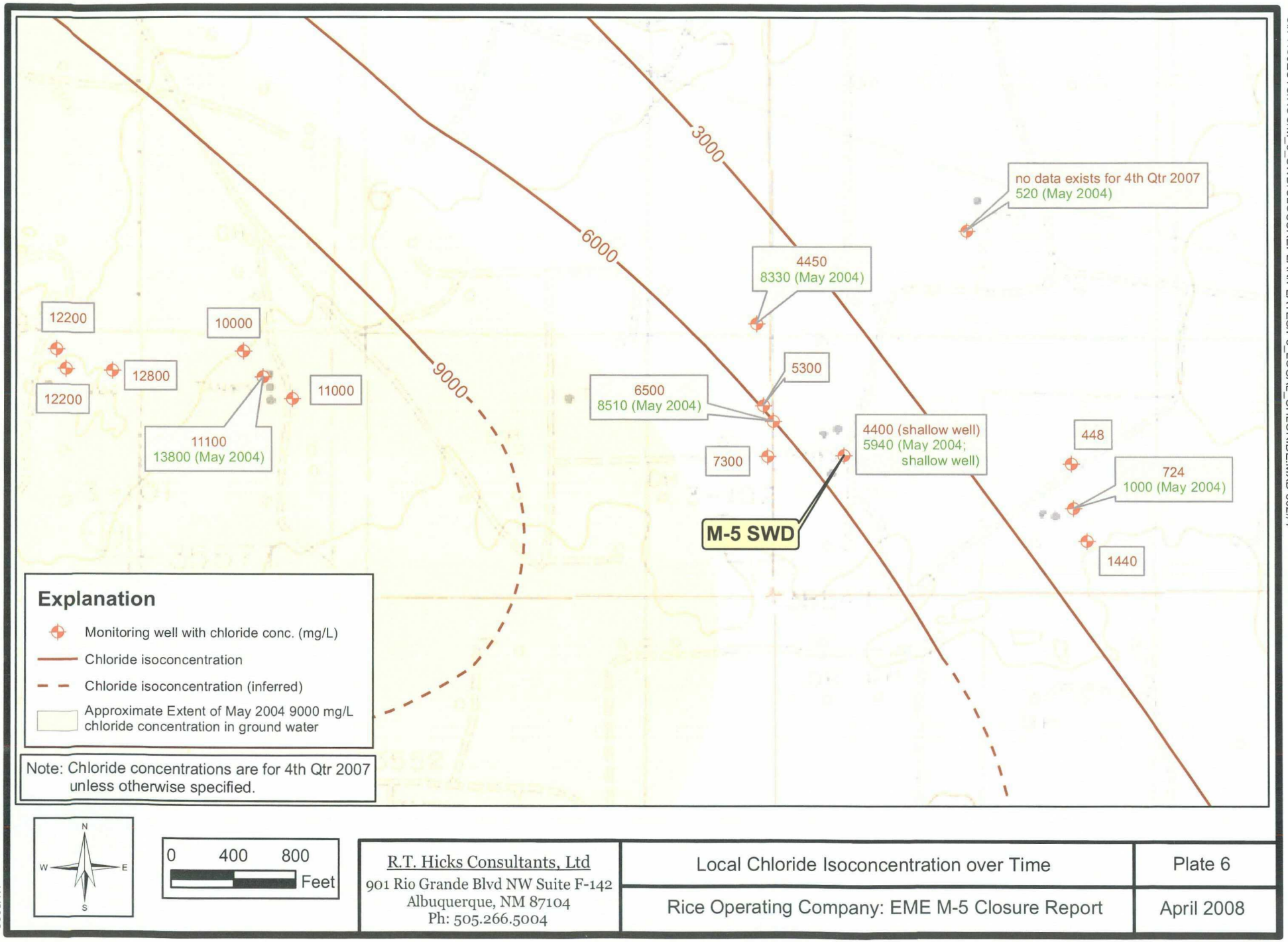


R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Regional Chloride Isoconcentration Map (ROC 4th Qtr 2007)	Plate 5
Rice Operating Company: EME M-5 Closure Report	April 2008

S:/PROJECTS/ROC/M_5_SWD/CLOSUREPLAN/PLATES/P5_REGIONAL_CHLORIDE.MXD 802//4

4/1/2008



R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Local Chloride Isoconcentration over Time	Plate 6
Rice Operating Company: EME M-5 Closure Report	April 2008

S:/PROJECTS/ROC/M_5_SWD/CLOSUREPLAN/PLATES/P6_LOCAL_CHLORIDE.MXD 802/4

4/1/2008

Appendix A

Field Work at EME M-5 SWD

Waste Manifests

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

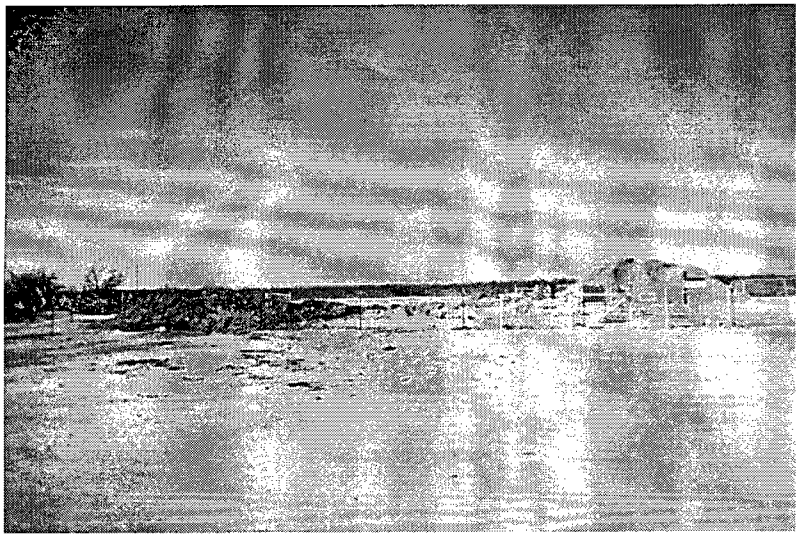
R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

Appendix A - Surface Grading/Restoration

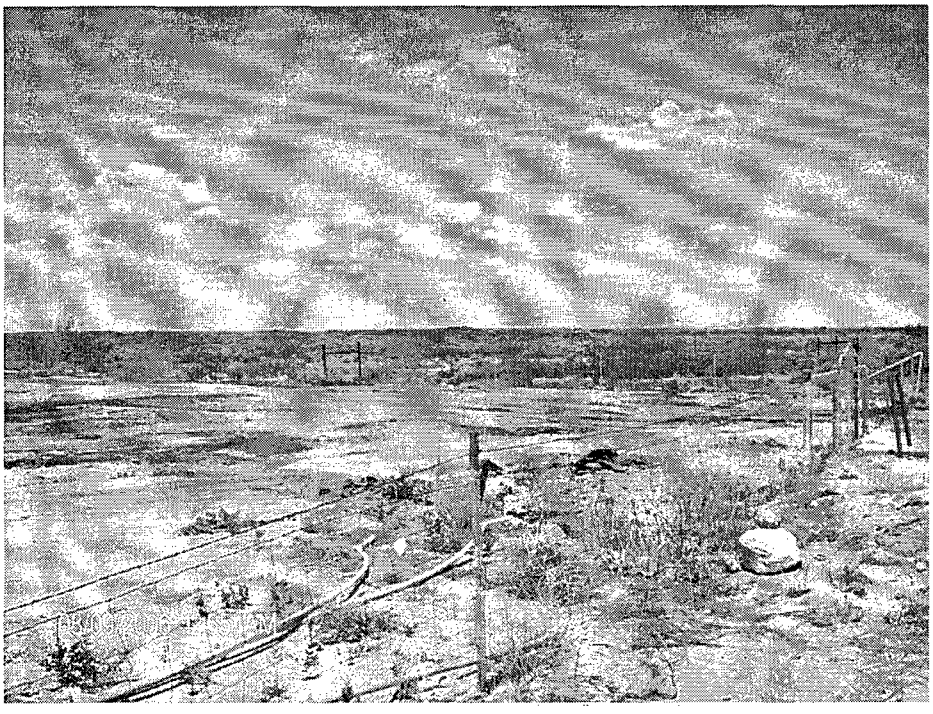
As proposed in the September 2004 Corrective Action Plan (verbally approved by the NMOCD 3-30-06 and 10-11-06), Rice Operating Company (ROC) mobilized to conduct surface restoration at the site in August of 2006 due to safety concerns at this active SWD well. Work included burial of asphaltic hydrocarbon sands previously on the ground surface into the hole created by redwood tank removal and importation of clean fill to level the site. Surface asphaltic material was either buried in place or removed to the Sundance disposal facility. As noted, the subsurface asphaltic material does not contain regulated constituents in concentrations high enough to cause impairment of fresh water or threat to human health.

The caliche pad was restored at the site as a safety precaution due to continued operation of the SWD well there.

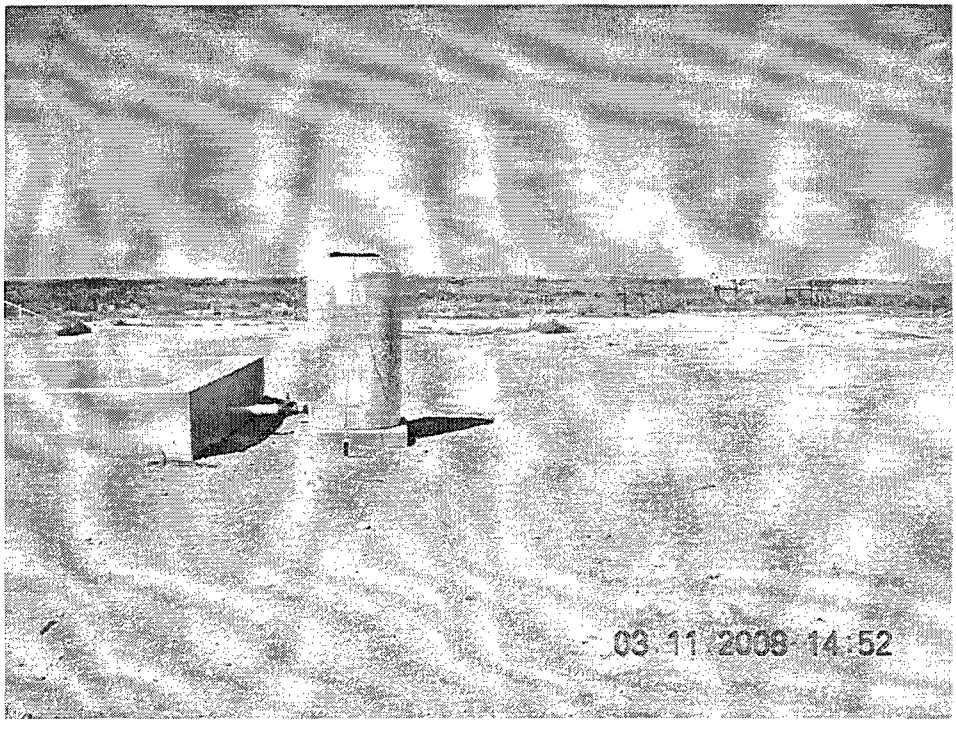
EME M-5 SWD prior to Surface Restoration

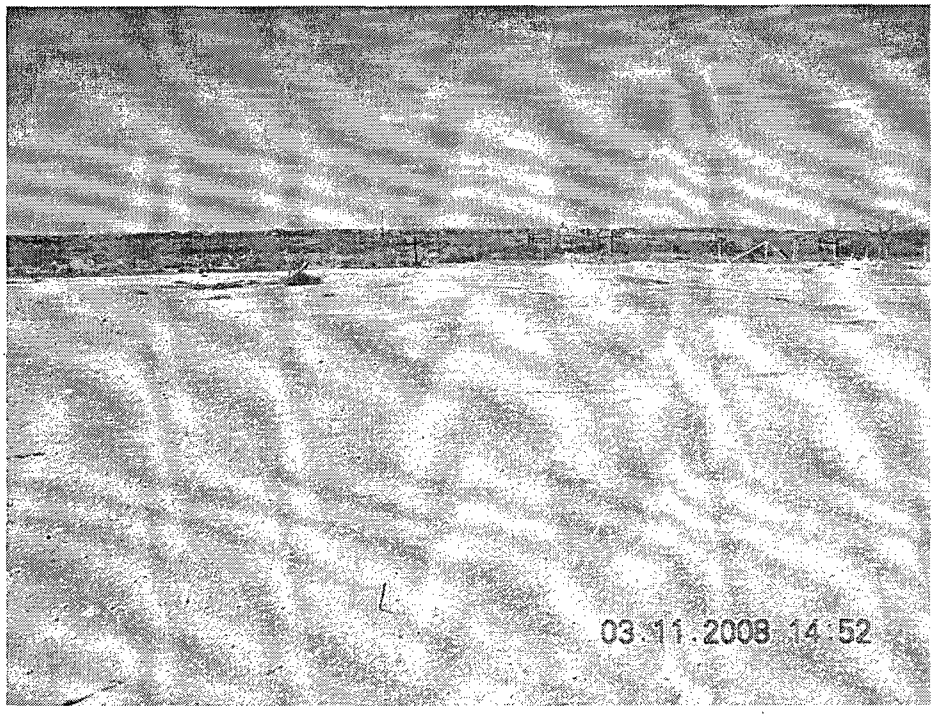


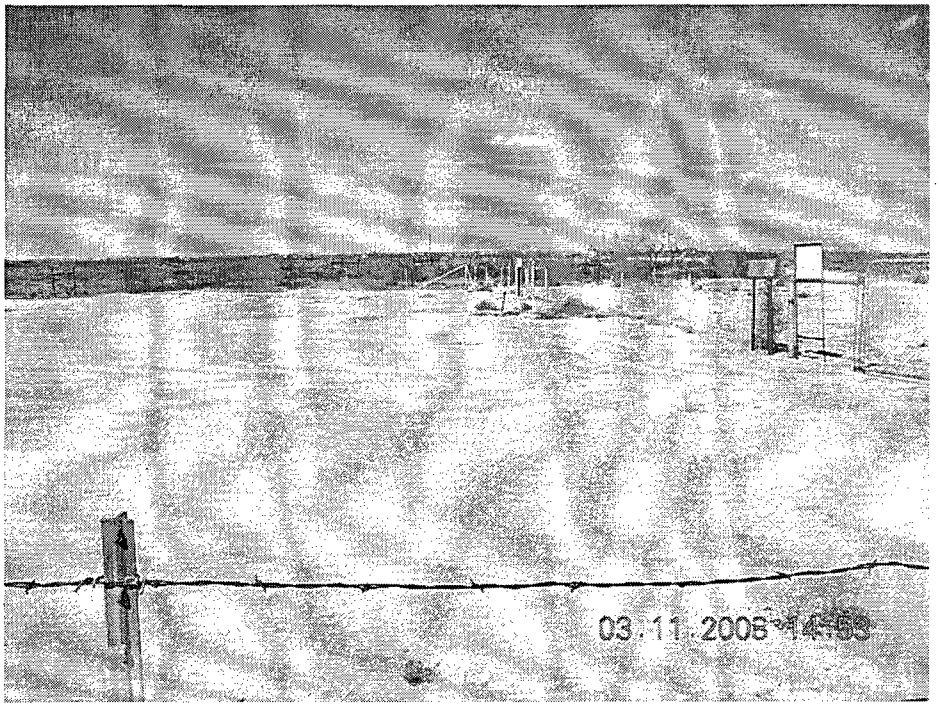
Grading/Restoring Surface at EME M-5, August 2006

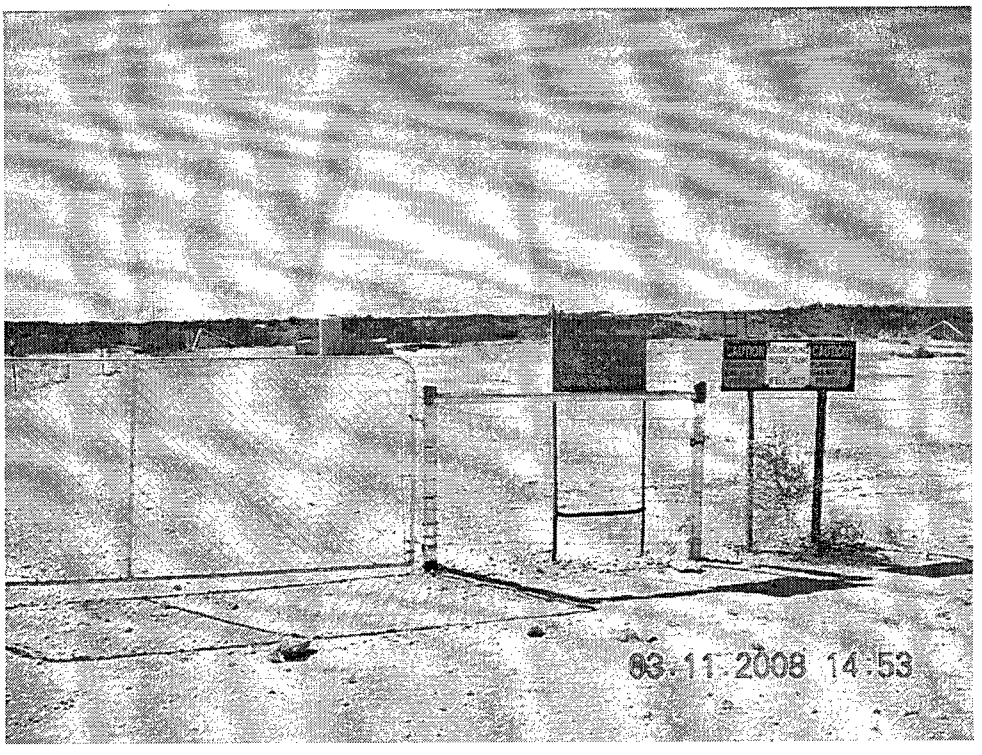


The Restored Caliche Pad, March 2008




03.11.2008 14:52


03.11.2008 14:53


03.11.2008 14:53

GCI, Inc. d/b/a Sweatt Construction, Inc.

720 S. Texaco Road
Hobbs, NM 88240

Invoice

Date	Invoice #
8/21/2006	GCI-806015

Bill To
RICE OPERATING CO. 122 W. TAYLOR HOBBS, NM 88240

EME
M-5 SWD

Ordered by	Lease Name
JENNIFER JOHNSON	EME M-5

Date	Item	Description	Quantity	Rate	Amount
		FURNISH EQUIPMENT, LABOR AND MATERIALS TO DIG OUT CONTAMINATED SOIL AS DIRECTED.			
8/8/2006	361	BACKHOE	10	70.00	700.00T
	831	MACK HAUL TRUCK	3	75.00	225.00T
8/9/2006	361	BACKHOE	9	70.00	630.00T

853-9658 Melanie Thanks 9/5/06

THANK YOU FOR YOUR BUSINESS!

Subtotal	$1,555.00
Sales Tax (5.375%)	$83.58
Total	$1,638.58

Phone #	Fax #
505-393-3180	505-391-9895

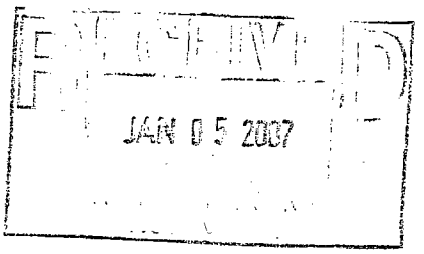
Sundance Services Inc.

P.O. Box 1737
Eunice, NM 88231

Invoice

DATE	INVOICE #
12/31/2006	43231

BILL TO
Rice Operating 122 W. Taylor Hobbs, N.M. 88240



Project	TERMS
Eme M5	

QUANTITY	DESCRIPTION	RATE	AMOUNT
30	Contaminated Soils - Exempt	14.00	420.00T
	Eme M5 – EME SWD well M-5 clean up		
	NM Sales Tax	6.6875%	28.09
		Total	$448.09

COPY

823-9623

Roy R. Rascon

Sundance Services, Inc.

P.O. Box 1737 ★ Eunice, New Mexico 88231

(505) 394-2511

Ticket # 34111

Lease Operator/Shipper/Company: Price Operating

Lease Name: M-5 Stub

Transporter Company: Nix + Wells Time _____ AM/PM

Date: 8/6/06 Vehicle No. 313 Driver No. _____

Charge To: Price Operating

TYPE OF MATERIAL

☐ Produced Water	☐ Drilling Fluids	☐ Completion Fluids
☐ Tank Bottoms	☒ Contaminated Soil	☐ C-117 No.:
☐ Other Materials	☐ BS&W Content:	

Description: DIO

☐ JETOUT
☐ CALLOUT

VOLUME OF MATERIAL BBLS. 2 YARDS

AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, OPERATOR/SHIPPER REPRESENTS AND WARRANTS THAT THE WASTE MATERIAL SHIPPED HEREWITH IS MATERIAL EXEMPT FROM THE RESOURCE, CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED FROM TIME TO TIME, 40 U.S.C. 6901, ET SEQ., THE NM HEALTH AND SAF. CODE 361.001 ET SEQ., AND REGULATIONS RELATED THERETO, BY VIRTUE OF THE EXEMPTION AFFORDED DRILLING FLUIDS, PRODUCED WATERS, AND OTHER WASTE ASSOCIATED WITH THE EXPLORATION, DEVELOPMENT OR PRODUCTION OF CRUDE OIL OR NATURAL GAS OR GEOTHERMAL ENERGY.

ALSO AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, TRANSPORTER REPRESENTS AND WARRANTS THAT ONLY THE MATERIAL DELIVERED BY OPERATOR/SHIPPER TO TRANSPORTER IS NOW DELIVERED BY TRANSPORTER TO SUNDANCE SERVICES, INC.'S FACILITY FOR DISPOSAL.

THIS WILL CERTIFY that the above Transporter loaded the material represented by this Transporter Statement at the above described location, and that it was tendered by the above described shipper. This will certify that no additional materials were added to this load, and that the material was delivered without incident.

DRIVER: Alfredo Baeza

FACILITY REPRESENTATIVE: [signature]

Sundance Services, Inc.

P.O. Box 1737 ★ Eunice, New Mexico 88231

(505) 394-2511

Ticket # 34153

Lease Operator/Shipper/Company: Rice

Lease Name: MC MS

Transporter Company: Dirt Works Time _____ AM/PM

Date: 12-6-06 Vehicle No. 313 Driver No. _____

Charge To: Rice

TYPE OF MATERIAL

☐ Produced Water	☐ Drilling Fluids	☐ Completion Fluids
☐ Tank Bottoms	☑ Contaminated Soil	☐ C-117 No.:
☐ Other Materials	☐ BS&W Content:	

Description: C/Dirt around MC ☐ JETOUT ☐ CALLOUT

VOLUME OF MATERIAL BBLS. 10 YARDS

AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, OPERATOR/SHIPPER REPRESENTS AND WARRANTS THAT THE WASTE MATERIAL SHIPPED HEREWITH IS MATERIAL EXEMPT FROM THE RESOURCE, CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED FROM TIME TO TIME, 40 U.S.C. 6901, ET SEQ., THE NM HEALTH AND SAF. CODE 361.001 ET SEQ., AND REGULATIONS RELATED THERETO, BY VIRTUE OF THE EXEMPTION AFFORDED DRILLING FLUIDS, PRODUCED WATERS, AND OTHER WASTE ASSOCIATED WITH THE EXPLORATION, DEVELOPMENT OR PRODUCTION OF CRUDE OIL OR NATURAL GAS OR GEOTHERMAL ENERGY.

ALSO AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, TRANSPORTER REPRESENTS AND WARRANTS THAT ONLY THE MATERIAL DELIVERED BY OPERATOR/SHIPPER TO TRANSPORTER IS NOW DELIVERED BY TRANSPORTER TO SUNDANCE SERVICES, INC.'S FACILITY FOR DISPOSAL.

THIS WILL CERTIFY that the above Transporter loaded the material represented by this Transporter Statement at the above described location, and that it was tendered by the above described shipper. This will certify that no additional materials were added to this load, and that the material was delivered without incident.

DRIVER: Alonso Baeza

FACILITY REPRESENTATIVE: Jason Burns

12-1623

Sundance Services, Inc.

P.O. Box 1737 ★ Eunice, New Mexico 88231
(505) 394-2511

Ticket # 34172

Lease Operator/Shipper/Company: Rice

Lease Name: CDC - #15

Transporter Company: Bill Works Time _____ AM/PM

Date: 12-6-06 Vehicle No. 313 Driver No. _____

Charge To: Rice

TYPE OF MATERIAL

☐ Produced Water	☐ Drilling Fluids	☐ Completion Fluids
☐ Tank Bottoms	☑ Contaminated Soil	☐ C-117 No.:
☐ Other Materials	☐ BS&W Content:	

Description: Oil Base

☐ JETOUT
☐ CALLOUT

VOLUME OF MATERIAL BBLS. 6 YARDS

AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, OPERATOR/SHIPPER REPRESENTS AND WARRANTS THAT THE WASTE MATERIAL SHIPPED HEREWITH IS MATERIAL EXEMPT FROM THE RESOURCE, CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED FROM TIME TO TIME, 40 U.S.C. 6901, ET SEQ., THE NM HEALTH AND SAF. CODE 361.001 ET SEQ., AND REGULATIONS RELATED THERETO, BY VIRTUE OF THE EXEMPTION AFFORDED DRILLING FLUIDS, PRODUCED WATERS, AND OTHER WASTE ASSOCIATED WITH THE EXPLORATION, DEVELOPMENT OR PRODUCTION OF CRUDE OIL OR NATURAL GAS OR GEOTHERMAL ENERGY.

ALSO AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, TRANSPORTER REPRESENTS AND WARRANTS THAT ONLY THE MATERIAL DELIVERED BY OPERATOR/SHIPPER TO TRANSPORTER IS NOW DELIVERED BY TRANSPORTER TO SUNDANCE SERVICES, INC.'S FACILITY FOR DISPOSAL.

THIS WILL CERTIFY that the above Transporter loaded the material represented by this Transporter Statement at the above described location, and that it was tendered by the above described shipper. This will certify that no additional materials were added to this load, and that the material was delivered without incident.

DRIVER: Alfonso Leon

FACILITY REPRESENTATIVE: Alfonso Leon

Appendix B

Lithologic Logs

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

R.T.Hicks Consultants, Ltd. 901 Rio Grande NW, Suite F-142 Albuquerque, New Mexico 87104		M-5 Project Name	Rice M-5
		Rice Client	
Logger	R. Hicks		
Driller	Eades Drilling	T20S R39E S30 1380 FEL 560 FSL	
Method	Air Rotary		
Start Date	11/16/2003	Lea County	Boring #1, North side between tanks
End Date	11/16/2003	New Mexico	

Sample			Description		Lith	Well Construction
Depth	Number	Cl		Grade		Cement Pad
			0-5.5 Slough			
				5		
6		208	5.5-6.5 Drk Gray-grn fine sand w/ hydrocarbon odor - v. little clay			
			6.5-15 black mottled fine sand with hydrocarbon odor, dry,	10		
11		251	some clay, odor decreasing with depth			
				15		
16		218				
16.8	1103031249		15-25 white to buff fine sand with some caliche, slight hydrocarbon odor			
20-21	1103031300			20		
21		360				
				25		
26-27	1103031323	479	25-28 indurated caliche and cemented dune sand, some HC odor, white to brown			
			28-30 as above, moist			
29-29.5	1103031335			30		
30		383				
				35		
				40		
			Cuttings suggest lithology as above			

R.T.Hicks Consultants, Ltd. 901 Rio Grande NW, Suite F-142 Albuquerque, New Mexico 87104		M-5 Project Name	Rice M-5
		Rice Client	
Logger	R. Hicks		
Driller	Eades Drilling	T20S R39E S30 1380 FEL 560 FSL	
Method	Air Rotary		
Start Date	11/16/2003	Lea County	B-3, west of tanks within berm
End Date	11/16/2003	New Mexico	

Sample			Description		Lith	Well Construction
Depth	Number	Cl		Grade		Cement Pad
				5		
			5-10 Light Brown Fine Blow Sand (No Cement)			
				10		
11	1104030852		10-20 White Caliche w/ some White Sand Plus Caliche			
				15		
16.5	1103030905					
				20		
			20-25 LT Brown Sand w/some Caliche (Cement Slightly Moist)			
				25		
			Moist "Mudballs" of Clay. Caliche w/some Sand			
			"Mudballs" Red on Outside - Tan Caliche w/ Sand on Inside (Moist)	30		
				35		
			Moist "Mudballs" of Clay. Caliche w/some Sand			
				40		
			Cuttings suggest lithology is as above			

R.T.Hicks Consultants, Ltd. 901 Rio Grande NW, Suite F-142 Albuquerque, New Mexico 87104		M-5 Project Name	Rice M-5
Logger	R. Hicks	Rice Client	
Driller	Eades Drilling	T20S R39E S30 1380 FEL 560 FSL	
Method	Air Rotary	Lea County	Boring #2, East of tank berm
Start Date	11/16/2003	New Mexico	
End Date	11/16/2003		

Sample			Description		Lith	Well Construction
Depth	Number	Cl		Grade		
			0-5 no core, cuttings are black sand			
				5		
			5-7 drk gray/blk fine-grained dune sand			
6.0-7.0	1103031443	262	6-7 light brn/buff fine sand, dry, v. slight HC odor			
				10		
			10-18 brn/tan sand with caliche cement, some clay and faint HC odor			
12	1103031459	321				
				15		
15		386				
19		352	18-20 caliche with sand, white to buff, faint HC odor			
20	1103031518			20		
			22-25 caliche and fine dune sand, faint HC odor, brown to buff			
23		326				
24	1103031532					
				25		
			26-28 indurated fine sand with caliche cement, "veins" of calcite/caliche, some gray-brn clay, slt HC odor			
27		273				
28	1103031543					
31.5	1103031550	458	30-31.5 Sand and caliche, buff, slight HC odor, wet	30		
				35		
				40		
			Cuttings suggest lithology is as above			

Appendix C

Previous Submissions & Correspondence

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

January 24, 2008

Wayne Price
Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

RE: 2007 Annual Ground Water Monitoring Report
M-5 SWD, Sec 05, T20S, R37E, Unit "M"
NMOCD Case #: 1R424

Dear Mr. Wayne Price:

R.T. Hicks Consultants, Ltd is pleased to submit the 2007 Annual Ground Water Monitoring Report for the M-5 SWD site located in the EME Salt Water Disposal System (SWD). This report consists of the following sections:

1. A table summarizing all laboratory results, depth to ground water and other pertinent data associated with ground water sampling at the site, including this past year.
2. Graphs showing chemical concentration over time for chloride, TDS, and sulfate.
3. Laboratory data sheets associated with the routine sampling for 2007.

A Corrective Action Plan was submitted to NMOCD on September 10, 2004. The CAP is pending NMOCD approval, which we respectively request in writing. We plan to continue quarterly ground water monitoring in 2008.

Thank you for your consideration of this annual summary information. The attached CD contains an electronic copy of this report. If you have any questions, please contact us at 505-266-5004, or Kristin Farris Pope at ROC, 505-393-9174.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall T. Hicks
Principal

Copy: Hobbs NMOCD office; Rice Operating Company

M-5 SWD

Table 1: chemistry over time

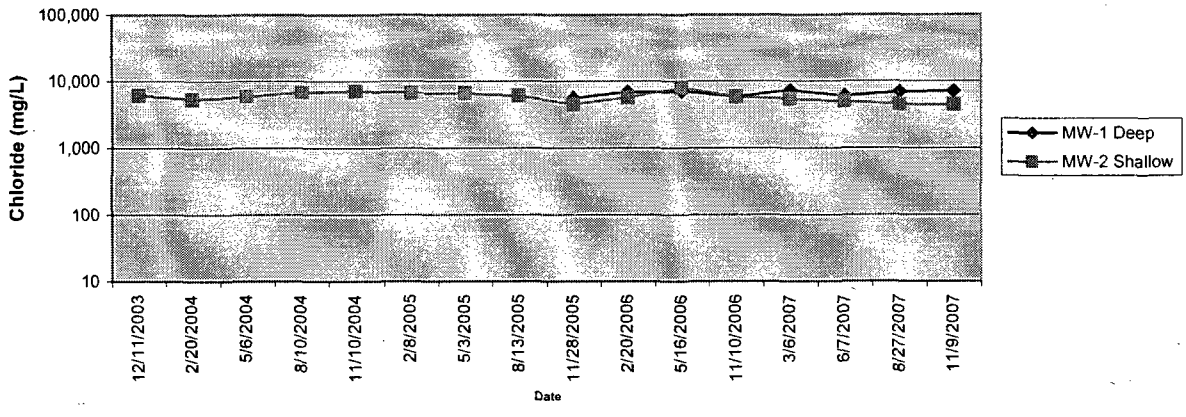
Well Name	Date	DTW (ft)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene (mg/L)	EthylBenzene (mg/L)	Total Xylenes (mg/L)	Comments
MW-1 Deep	12/11/2003	33.40	6198	XXX	11736	<0.002	<0.002	<0.002	<0.006	Deep
MW-1 Deep	11/28/2005	28.1	5590	XXX	11400	<0.001	<0.001	<0001	<0.001	Deep
MW-1 Deep	2/20/2006		6830	503	14400	<0.001	<0.001	<0.001	<0.001	
MW-1 Deep	2/20/2006	27.87	6830	503	14400	<0.001	<0.001	<0.001	<0.001	Deep
MW-1 Deep	5/16/2006	27.81	7000	752	13100	<0.001	<0.001	<0.001	<0.001	Deep
MW-1 Deep	11/10/2006	27.49	5840	421	12000	<0.001	<0.001	<0.001	<0.001	Clear no odor
MW-1 Deep	3/6/2007	26.79	7300	595	10700	<0.001	<0.001	<0.001	<0.001	Clear/ No Odor
MW-1 Deep	6/7/2007	26.68	6110	371	16600	<0.001	<0.001	<0.001	<0.001	clear no odor
MW-1 Deep	8/27/2007	27.14	6898	394	14776	<0.002	<0.002	<0.002	<0.006	Clear No Odor
MW-1 Deep	11/9/2007	27.07	7100	435	12247	<0.001	<0.001	<0.001	<0.003	Clear No odor

M-5 SWD

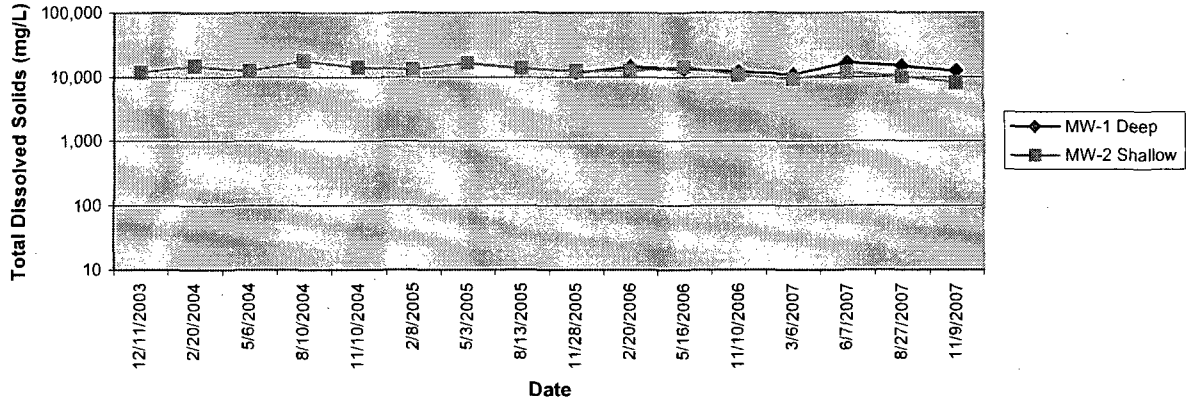
Table 1: chemistry over time

Well Name	Date	DTW (ft)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene (mg/L)	EthylBenzene (mg/L)	Total Xylenes (mg/L)	Comments
MW-2 Shallow	12/11/2003	33.40	6198	90.5	11736	<0.002	<0.002	<0.002	<0.006	Deep
MW-2 Shallow	12/11/2003	33.26	6198	99.8	10784	<0.002	<0.002	<0.002	<0.006	Shallow
MW-2 Shallow	2/20/2004	33.37	5320	454	14500	<0.001	<0.001	<0.001	<0.001	Shallow
MW-2 Shallow	5/6/2004	32.79	5940	420	12400	<0.001	<0.001	<0.001	<0.001	Shallow
MW-2 Shallow	8/10/2004	32.52	6910	470	17300	<0.001	<0.001	<0.001	<0.001	Shallow
MW-2 Shallow	11/10/2004	31.63	7090	614	14000	<0.001	<0.001	<0.001	<0.001	Shallow
MW-2 Shallow	2/8/2005	28.85	6710	1450	13200	<0.001	<0.001	<0.001	<0.001	Shallow
MW-2 Shallow	5/3/2005	28.1	6560	595	16500	<0.001	<0.001	<0.001	<0.001	XXX
MW-2 Shallow	8/13/2005	XXX	6070	574	13800	<0.001	<0.001	<0.001	<0.001	XXX
MW-2 Shallow	11/28/2005	27.87	4500	1470	12300	<0.001	<0.001	<0.001	<0.001	Shallow
MW-2 Shallow	2/20/2006	27.25	5660	596	12400	<0.001	<0.001	<0.001	<0.001	Shallow
MW-2 Shallow	2/20/2006		5660	596	12400	<0.001	<0.001	<0.001	<0.001	
MW-2 Shallow	5/16/2006	27.81	7870	626	14300	<0.001	<0.001	<0.001	<0.001	Shallow
MW-2 Shallow	11/10/2006	27.39	5840	622	10500	<0.001	<0.001	<0.001	<0.001	Clear no odor
MW-2 Shallow	3/6/2007	26.87	5440	595	9190	<0.001	<0.001	<0.001	<0.001	Clear/
MW-2 Shallow	6/7/2007	26.53	4960	539	11700	<0.001	<0.001	<0.001	<0.001	clear no odor
MW-2 Shallow	8/27/2007	27.02	4499	554	10095	<0.002	<0.002	<0.002	<0.006	Clear No Odor
MW-2 Shallow	11/9/2007	26.92	4400	549	8193	<0.001	<0.001	<0.001	<0.003	Clear No odor

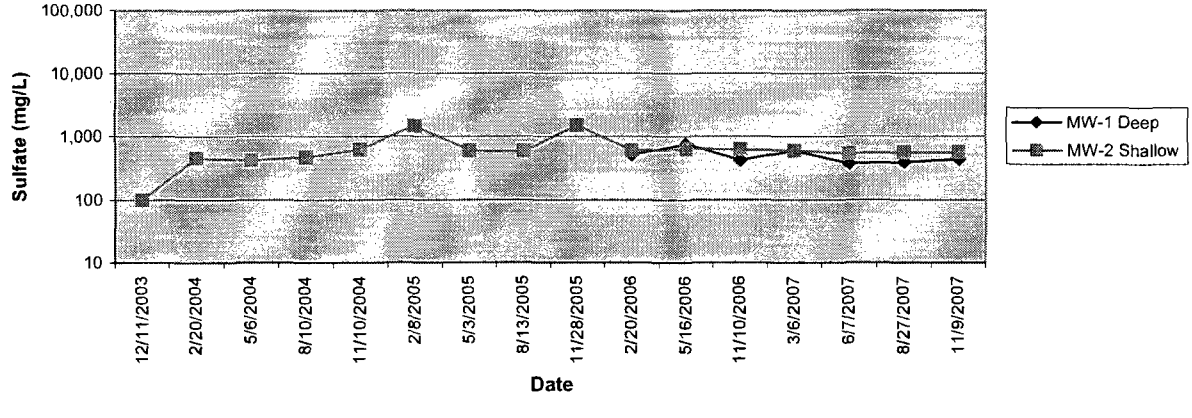
M-5 SWD
Chloride Over Time



M-5 SWD
TDS Over Time



M-5 SWD
Sulfate Over Time



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW, Suite F-142 Albuquerque, NM 87104 505-266-5004	Ground Water Chemistry	M-5 SWD
	Rice Operating Company 2007 Annual Report	1/24/2008

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

A Xenco Laboratories Company

Analytical Report

Prepared for:

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: EME M-5 SWD

Project Number: None Given

Location: T20S-R37E-Sec 5M- Lea County, NM

Lab Order Number: 7C09026

Report Date: 03/29/07

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Monitor Well #1 Shallow	7C09026-01	Water	03/06/07 12:50	03-09-2007 13:15
Monitor Well #1 Deep	7C09026-02	Water	03/06/07 13:55	03-09-2007 13:15

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 Shallow (7C09026-01) Water									
Benzene	ND	0.00100	mg/L	1	EC71307	03/13/07	03/13/07	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*92.0 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91.2 %*	*80-120*		"	"	"	"	
Monitor Well #1 Deep (7C09026-02) Water									
Benzene	ND	0.00100	mg/L	1	EC71307	03/13/07	03/13/07	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*89.2 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88.6 %*	*80-120*		"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 Shallow (7C09026-01) Water									
Total Alkalinity	**226**	2.00	mg/L	1	EC71304	03/13/07	03/13/07	EPA 310.1M	
Chloride	**5440**	100	"	200	EC71615	03/14/07	03/14/07	EPA 300.0	
Total Dissolved Solids	**9190**	10.0	"	1	EC71610	03/12/07	03/13/07	EPA 160.1	
Sulfate	**595**	100	"	200	EC71615	03/14/07	03/14/07	EPA 300.0	
Monitor Well #1 Deep (7C09026-02) Water									
Total Alkalinity	**206**	2.00	mg/L	1	EC71304	03/13/07	03/13/07	EPA 310.1M	
Chloride	**7300**	100	"	200	EC71615	03/14/07	03/14/07	EPA 300.0	
Total Dissolved Solids	**10700**	10.0	"	1	EC71610	03/12/07	03/13/07	EPA 160.1	
Sulfate	**474**	100	"	200	EC71615	03/14/07	03/14/07	EPA 300.0	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Total Metals by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 Shallow (7C09026-01) Water									
Calcium	**1110**	0.200	mg/L	1	EC72614	03/23/07	03/23/07	EPA 6020A	
Magnesium	**327**	0.500	"	"	"	"	"	"	
Potassium	**13.9**	0.500	"	"	"	"	"	"	
Sodium	**2380**	0.500	"	"	"	"	"	"	
Monitor Well #1 Deep (7C09026-02) Water									
Calcium	**1490**	0.200	mg/L	1	EC72614	03/23/07	03/23/07	EPA 6020A	
Magnesium	**419**	0.500	"	"	"	"	"	"	
Potassium	**12.2**	0.500	"	"	"	"	"	"	
Sodium	**1830**	0.500	"	"	"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EC71307 - EPA 5030C (GC)										
Blank (EC71307-BLK1)				Prepared & Analyzed: 03/13/07						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*40.0*		*ug/l*	*50.0*		*80.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*43.8*		*"*	*50.0*		*87.6*	*80-120*			
LCS (EC71307-BS1)				Prepared & Analyzed: 03/13/07						
Benzene	0.0438	0.00100	mg/L	0.0500		87.6	80-120			
Toluene	0.0413	0.00100	"	0.0500		82.6	80-120			
Ethylbenzene	0.0422	0.00100	"	0.0500		84.4	80-120			
Xylene (p/m)	0.0843	0.00100	"	0.100		84.3	80-120			
Xylene (o)	0.0406	0.00100	"	0.0500		81.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	*42.5*		*ug/l*	*50.0*		*85.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*47.6*		*"*	*50.0*		*95.2*	*80-120*			
Calibration Check (EC71307-CCV1)				Prepared: 03/13/07		Analyzed: 03/14/07				
Benzene	0.0450		mg/L	0.0500		90.0	80-120			
Toluene	0.0414		"	0.0500		82.8	80-120			
Ethylbenzene	0.0401		"	0.0500		80.2	80-120			
Xylene (p/m)	0.0802		"	0.100		80.2	80-120			
Xylene (o)	0.0401		"	0.0500		80.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	*41.5*		*ug/l*	*50.0*		*83.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*42.2*		*"*	*50.0*		*84.4*	*80-120*			
Matrix Spike (EC71307-MS1)	**Source: 7C09031-03**			Prepared: 03/13/07		Analyzed: 03/14/07				
Benzene	0.0423	0.00100	mg/L	0.0500	ND	84.6	80-120			
Toluene	0.0408	0.00100	"	0.0500	ND	81.6	80-120			
Ethylbenzene	0.0402	0.00100	"	0.0500	ND	80.4	80-120			
Xylene (p/m)	0.0809	0.00100	"	0.100	ND	80.9	80-120			
Xylene (o)	0.0401	0.00100	"	0.0500	ND	80.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	*44.0*		*ug/l*	*50.0*		*88.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*47.5*		*"*	*50.0*		*95.0*	*80-120*			

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

Project: EME M-5 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

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 EC71307 - EPA 5030C (GC)										
Matrix Spike Dup (EC71307-MSD1)	**Source: 7C09031-03**			Prepared: 03/13/07		Analyzed: 03/14/07				
Benzene	0.0421	0.00100	mg/L	0.0500	ND	84.2	80-120	0.474	20	
Toluene	0.0411	0.00100	"	0.0500	ND	82.2	80-120	0.733	20	
Ethylbenzene	0.0411	0.00100	"	0.0500	ND	82.2	80-120	2.21	20	
Xylene (p/m)	0.0815	0.00100	"	0.100	ND	81.5	80-120	0.739	20	
Xylene (o)	0.0403	0.00100	"	0.0500	ND	80.6	80-120	0.498	20	
Surrogate: a,a,a-Trifluorotoluene	*42.9*		*ug/l*	*50.0*		*85.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*43.0*		"	*50.0*		*86.0*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EC71304 - General Preparation (WetChem)										
Blank (EC71304-BLK1)				Prepared & Analyzed: 03/13/07						
Total Alkalinity	2.00	2.00	mg/L							
LCS (EC71304-BS1)				Prepared & Analyzed: 03/13/07						
Bicarbonate Alkalinity	174	2.00	mg/L	200		87.0	85-115			
Duplicate (EC71304-DUP1)		**Source: 7C09025-01**		Prepared & Analyzed: 03/13/07						
Total Alkalinity	328	2.00	mg/L		336			2.41	20	
Reference (EC71304-SRM1)				Prepared & Analyzed: 03/13/07						
Total Alkalinity	246		mg/L	250		98.4	90-110			
Batch EC71610 - General Preparation (WetChem)										
Blank (EC71610-BLK1)				Prepared: 03/12/07 Analyzed: 03/13/07						
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (EC71610-DUP1)		**Source: 7C09022-01**		Prepared: 03/12/07 Analyzed: 03/13/07						
Total Dissolved Solids	1690	10.0	mg/L		1550			8.64	20	
Duplicate (EC71610-DUP2)		**Source: 7C09026-02**		Prepared: 03/12/07 Analyzed: 03/13/07						
Total Dissolved Solids	11500	10.0	mg/L		10700			7.21	20	
Batch EC71615 - General Preparation (WetChem)										
Blank (EC71615-BLK1)				Prepared & Analyzed: 03/14/07						
Chloride	ND	0.500	mg/L							
Sulfate	ND	0.500	"							

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

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

Project: EME M-5 SWD
Project Number: None Given
Project Manager: Kristin Farris-Pope

Fax: (505) 397-1471

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 EC71615 - General Preparation (WetChem)										
LCS (EC71615-BS1)				Prepared & Analyzed: 03/14/07						
Chloride	9.19	0.500	mg/L	10.0		91.9	80-120			
Sulfate	9.74	0.500	"	10.0		97.4	80-120			
Calibration Check (EC71615-CCV1)				Prepared & Analyzed: 03/14/07						
Chloride	8.13		mg/L	10.0		81.3	80-120			
Sulfate	11.6		"	10.0		116	80-120			
Duplicate (EC71615-DUP1)	**Source: 7C09022-01**			Prepared & Analyzed: 03/14/07						
Chloride	326	10.0	mg/L		328			0.612	20	
Sulfate	393	10.0	"		397			1.01	20	
Duplicate (EC71615-DUP2)	**Source: 7C09027-01**			Prepared & Analyzed: 03/14/07						
Chloride	700	12.5	mg/L		704			0.570	20	
Sulfate	89.6	12.5	"		90.8			1.33	20	
Matrix Spike (EC71615-MS1)	**Source: 7C09022-01**			Prepared & Analyzed: 03/14/07						
Sulfate	621	10.0	mg/L	200	397	112	80-120			
Chloride	553	10.0	"	200	328	112	80-120			
Matrix Spike (EC71615-MS2)	**Source: 7C09027-01**			Prepared & Analyzed: 03/14/07						
Chloride	961	12.5	mg/L	250	704	103	80-120			
Sulfate	313	12.5	"	250	90.8	88.9	80-120			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EC72614 - General Preparation (Metals)										
Blank (EC72614-BLK1)				Prepared & Analyzed: 03/23/07						
Calcium	ND	0.200	mg/L							
Magnesium	ND	0.500	"							
Potassium	ND	0.500	"							
Sodium	ND	0.500	"							
LCS (EC72614-BS1)				Prepared & Analyzed: 03/23/07						
Calcium	2.46	0.200	mg/L	2.50		98.4	75-125			
Magnesium	2.22	0.500	"	2.50		88.8	75-125			
Potassium	1.98	0.500	"	2.50		79.2	75-125			
Sodium	2.58	0.500	"	2.50		103	75-125			
Duplicate (EC72614-DUP1)	**Source: 7C09022-01**			Prepared & Analyzed: 03/23/07						
Calcium	123	0.200	mg/L		125			1.61	25	
Magnesium	73.5	0.500	"		71.3			3.04	25	
Potassium	9.49	0.500	"		8.45			11.6	25	
Sodium	221	0.500	"		247			11.1	25	
Matrix Spike (EC72614-MS1)	**Source: 7C09022-01**			Prepared & Analyzed: 03/23/07						
Calcium	132	0.200	mg/L	2.50	125	280	75-125			MS-1
Magnesium	73.1	0.500	"	2.50	71.3	72.0	75-125			MS-1
Potassium	11.3	0.500	"	2.50	8.45	114	75-125			
Sodium	237	0.500	"	2.50	247	NR	75-125			MS-1
Matrix Spike Dup (EC72614-MSD1)	**Source: 7C09022-01**			Prepared & Analyzed: 03/23/07						
Calcium	132	0.200	mg/L	2.50	125	280	75-125	0.00	25	MS-1
Magnesium	74.2	0.500	"	2.50	71.3	116	75-125	1.49	25	
Potassium	11.1	0.500	"	2.50	8.45	106	75-125	1.79	25	
Sodium	243	0.500	"	2.50	247	NR	75-125	2.50	25	MS-1

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Notes and Definitions

MS-1	Recovery of sample outside of historical limits due to matrix interference.
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: Brent Barron Date: 3/29/2007

Brent Barron, Laboratory Director/Corp. Technical Director
Celey D. Keene, Org. Tech Director
Raland K. Tuttle, Laboratory Consultant

James Mathis, QA/QC Officer
Jeanne Mc Murrey, Inorg. Tech Director

Environmental Lab of Texas

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

12600 West I-20 East
Odessa, Texas 79765

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

Project Manager: Kristin Farris Pope kpope@riceswd.com

Company Name: RICE Operating Company

Company Address: 122 W. Taylor Street

City/State/Zip: Hobbs, New Mexico 88240

Telephone No: (505) 393-9174 Fax No: (505) 397-1471

Sampler Signature: Rozanne Johnson (505)631 9310 e-mail: rozanne@valornet.com

Project Name: EME M-5 SWD

Project #:

Project Loc: T20S R37E Sec5 M ~ Lea County New Mexico

PO #:

Report Format: [X] Standard [ ] TRRP [ ] NPDES

(lab use only)

ORDER #: 7M09026

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl (2) 40 ml glass vials	H_2SO_4	NaOH	$Na_2S_2O_3$	None (1) 1 Liter HDPE	Other (Specify)	Matrix: GW=Drinking Water SL=Sludge; SW = Groundwater S=Soil/Solid; WW=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles (BTEX-N 8260)	Semivolatiles	TOTAL: BTEX 8021B/5030	RCI	N.O.R.M.	Total Dissolved Solids			RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	Monitor Well #1-Shallow			3/6/2007	12:50		3	X		2				1		GW			X	X					X			X				X
02	Monitor Well #1-Deep			3/6/2007	13:55		3	X		2				1		GW			X	X					X			X				X

Special Instructions:

Please email to kpope@riceswd.com jpurvis@riceswd.com matt@riceswd.com rozanne@valornet.com

Relinquished by:	Date	Time	Received by:	Date	Time
Rozanne Johnson	3/9/07	6:30	James Johnson	3/9/07	6:31
James Johnson	3/9/07	13:15	Received by:	Date	Time
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
				3/9/07	1315

Laboratory Comments:

Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
Labels on container(s) Y N
Custody seals on container(s) Y N
Custody seals on cooler(s) Y N
Sample Hand Delivered by Sampler/Client Rep. ? Y N
by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt: 1.0 °C

Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

Client: Rice

Date/ Time: 3/9/07 1315

Lab ID # : 7C09026

Initials: DM

Sample Receipt Checklist

					Client Initials
#1	Temperature of container/ cooler?	Yes	No	1.0 °C	
#2	Shipping container in good condition?	Yes	No		
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
#4	Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
#5	Chain of Custody present?	Yes	No		
#6	Sample instructions complete of Chain of Custody?	Yes	No		
#7	Chain of Custody signed when relinquished/ received?	Yes	No		
#8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	Yes	No	Not Applicable	
#10	Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#11	Containers supplied by ELOT?	Yes	No		
#12	Samples in proper container/ bottle?	Yes	No	See Below	
#13	Samples properly preserved?	Yes	No	See Below	
#14	Sample bottles intact?	Yes	No		
#15	Preservations documented on Chain of Custody?	Yes	No		
#16	Containers documented on Chain of Custody?	Yes	No		
#17	Sufficient sample amount for indicated test(s)?	Yes	No	See Below	
#18	All samples received within sufficient hold time?	Yes	No	See Below	
#19	Subcontract of sample(s)?	Yes	No	Not Applicable	
#20	VOC samples have zero headspace?	Yes	No	Not Applicable	

Variance Documentation

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

Regarding: _____

Corrective Action Taken: _____

Check all that Apply:

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

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

A Xenco Laboratories Company

Analytical Report

Prepared for:

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: EME M-5 SWD

Project Number: None Given

Location: T20S R37E Sec5 M ~ Lea County New Mexico

Lab Order Number: 7F11013

Report Date: 06/27/07

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
M5-1s	7F11013-01	Water	06/07/07 13:55	06-11-2007 16:30
M5-1d	7F11013-02	Water	06/07/07 14:50	06-11-2007 16:30

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
M5-1s (7F11013-01) Water									
Benzene	ND	0.00100	mg/L	1	EF71312	06/13/07	06/15/07	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*102 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*86.6 %*	*80-120*		"	"	"	"	
M5-1d (7F11013-02) Water									
Benzene	ND	0.00100	mg/L	1	EF71312	06/13/07	06/15/07	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*99.0 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*87.8 %*	*80-120*		"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
M5-1s (7F11013-01) Water									
Total Alkalinity	**290**	2.00	mg/L	1	EF71403	06/14/07	06/14/07	EPA 310.1M	
Chloride	**4960**	100	"	200	EF71504	06/15/07	06/15/07	EPA 300.0	
Total Dissolved Solids	**11700**	10.0	"	1	EF71519	06/12/07	06/15/07	EPA 160.1	
Sulfate	**539**	100	"	200	EF71504	06/15/07	06/15/07	EPA 300.0	
M5-1d (7F11013-02) Water									
Total Alkalinity	**170**	2.00	mg/L	1	EF71403	06/14/07	06/14/07	EPA 310.1M	
Chloride	**6110**	100	"	200	EF71504	06/15/07	06/15/07	EPA 300.0	
Total Dissolved Solids	**16600**	10.0	"	1	EF71519	06/12/07	06/15/07	EPA 160.1	
Sulfate	**371**	100	"	200	EF71504	06/15/07	06/15/07	EPA 300.0	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Total Metals by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
M5-1s (7F11013-01) Water									
Calcium	**776**	40.5	mg/L	500	EF71902	06/19/07	06/19/07	EPA 6010B	
Magnesium	**230**	3.60	"	100	"	"	"	"	
Potassium	**27.5**	0.600	"	10	"	"	"	"	
Sodium	**2120**	21.5	"	500	"	"	"	"	
M5-1d (7F11013-02) Water									
Calcium	**955**	40.5	mg/L	500	EF71902	06/19/07	06/19/07	EPA 6010B	
Magnesium	**236**	3.60	"	100	"	"	"	"	
Potassium	**21.8**	0.600	"	10	"	"	"	"	
Sodium	**1370**	21.5	"	500	"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EF71312 - EPA 5030C (GC)										
Blank (EF71312-BLK1)				Prepared: 06/13/07		Analyzed: 06/15/07				
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*46.1*		*ug/l*	*50.0*		*92.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*41.1*		"	*50.0*		*82.2*	*80-120*			
LCS (EF71312-BS1)				Prepared: 06/13/07		Analyzed: 06/15/07				
Benzene	0.0508	0.00100	mg/L	0.0500		102	80-120			
Toluene	0.0522	0.00100	"	0.0500		104	80-120			
Ethylbenzene	0.0541	0.00100	"	0.0500		108	80-120			
Xylene (p/m)	0.0945	0.00100	"	0.100		94.5	80-120			
Xylene (o)	0.0527	0.00100	"	0.0500		105	80-120			
Surrogate: a,a,a-Trifluorotoluene	*49.2*		*ug/l*	*50.0*		*98.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*47.4*		"	*50.0*		*94.8*	*80-120*			
Calibration Check (EF71312-CCV1)				Prepared: 06/13/07		Analyzed: 06/15/07				
Benzene	0.0493		mg/L	0.0500		98.6	80-120			
Toluene	0.0501		"	0.0500		100	80-120			
Ethylbenzene	0.0485		"	0.0500		97.0	80-120			
Xylene (p/m)	0.0906		"	0.100		90.6	80-120			
Xylene (o)	0.0506		"	0.0500		101	80-120			
Surrogate: a,a,a-Trifluorotoluene	*48.6*		*ug/l*	*50.0*		*97.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*46.8*		"	*50.0*		*93.6*	*80-120*			
Matrix Spike (EF71312-MS1)	**Source: 7F12005-03**			Prepared: 06/13/07		Analyzed: 06/15/07				
Benzene	0.0494	0.00100	mg/L	0.0500	ND	98.8	80-120			
Toluene	0.0505	0.00100	"	0.0500	ND	101	80-120			
Ethylbenzene	0.0534	0.00100	"	0.0500	ND	107	80-120			
Xylene (p/m)	0.0936	0.00100	"	0.100	ND	93.6	80-120			
Xylene (o)	0.0523	0.00100	"	0.0500	ND	105	80-120			
Surrogate: a,a,a-Trifluorotoluene	*50.4*		*ug/l*	*50.0*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*47.1*		"	*50.0*		*94.2*	*80-120*			

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 EF71312 - EPA 5030C (GC)										
Matrix Spike Dup (EF71312-MSD1)		**Source: 7F12005-03**		Prepared: 06/13/07		Analyzed: 06/15/07				
Benzene	0.0478	0.00100	mg/L	0.0500	ND	95.6	80-120	3.29	20	
Toluene	0.0495	0.00100	"	0.0500	ND	99.0	80-120	2.00	20	
Ethylbenzene	0.0523	0.00100	"	0.0500	ND	105	80-120	1.89	20	
Xylene (p/m)	0.0913	0.00100	"	0.100	ND	91.3	80-120	2.49	20	
Xylene (o)	0.0506	0.00100	"	0.0500	ND	101	80-120	3.88	20	
Surrogate: a,a,a-Trifluorotoluene	*49.5*		*ug/l*	*50.0*		*99.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*47.1*		*"*	*50.0*		*94.2*	*80-120*			

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EF71403 - General Preparation (WetChem)										
Blank (EF71403-BLK1)				Prepared & Analyzed: 06/14/07						
Total Alkalinity	ND	2.00	mg/L							
LCS (EF71403-BS1)				Prepared & Analyzed: 06/14/07						
Bicarbonate Alkalinity	170	2.00	mg/L	200		85.0	85-115			
Duplicate (EF71403-DUP1)	**Source: 7F11010-01**			Prepared & Analyzed: 06/14/07						
Total Alkalinity	320	2.00	mg/L		320			0.00	20	
Reference (EF71403-SRM1)				Prepared & Analyzed: 06/14/07						
Total Alkalinity	250		mg/L	250		100	90-110			
Batch EF71504 - General Preparation (WetChem)										
Blank (EF71504-BLK1)				Prepared & Analyzed: 06/15/07						
Sulfate	ND	0.500	mg/L							
Chloride	ND	0.500	"							
LCS (EF71504-BS1)				Prepared & Analyzed: 06/15/07						
Sulfate	10.1	0.500	mg/L	10.0		101	80-120			
Chloride	9.83	0.500	"	10.0		98.3	80-120			
Calibration Check (EF71504-CCV1)				Prepared & Analyzed: 06/15/07						
Chloride	9.07		mg/L	10.0		90.7	80-120			
Sulfate	12.0		"	10.0		120	80-120			
Duplicate (EF71504-DUP1)	**Source: 7F11014-01**			Prepared & Analyzed: 06/15/07						
Sulfate	104	12.5	mg/L		104			0.00	20	
Chloride	734	12.5	"		731			0.410	20	

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EF71504 - General Preparation (WetChem)										
Duplicate (EF71504-DUP2)		**Source: 7F11017-01**		Prepared & Analyzed: 06/15/07						
Sulfate	76.7	5.00	mg/L		77.6			1.17	20	
Chloride	67.9	5.00	"		69.9			2.90	20	
Matrix Spike (EF71504-MS1)		**Source: 7F11014-01**		Prepared & Analyzed: 06/15/07						
Chloride	992	12.5	mg/L	250	731	104	80-120			
Sulfate	354	12.5	"	250	104	100	80-120			
Matrix Spike (EF71504-MS2)		**Source: 7F11017-01**		Prepared & Analyzed: 06/15/07						
Sulfate	174	5.00	mg/L	100	77.6	96.4	80-120			
Chloride	168	5.00	"	100	69.9	98.1	80-120			
Batch EF71519 - General Preparation (WetChem)										
Blank (EF71519-BLK1)				Prepared: 06/12/07	Analyzed: 06/15/07					
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (EF71519-DUP1)		**Source: 7F11009-01**		Prepared: 06/12/07	Analyzed: 06/15/07					
Total Dissolved Solids	24600	10.0	mg/L		23000			6.72	20	
Duplicate (EF71519-DUP2)		**Source: 7F11014-03**		Prepared: 06/12/07	Analyzed: 06/15/07					
Total Dissolved Solids	1380	10.0	mg/L		1340			2.94	20	

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EF71902 - 6010B/No Digestion										
Blank (EF71902-BLK1)				Prepared & Analyzed: 06/19/07						
Calcium	ND	0.0810	mg/L							
Magnesium	ND	0.0360	"							
Potassium	ND	0.0600	"							
Sodium	ND	0.0430	"							
Calibration Check (EF71902-CCV1)				Prepared & Analyzed: 06/19/07						
Calcium	2.04		mg/L	2.00		102	85-115			
Magnesium	2.00		"	2.00		100	85-115			
Potassium	2.13		"	2.00		106	85-115			
Sodium	2.04		"	2.00		102	85-115			
Duplicate (EF71902-DUP1)	**Source: 7F11010-01**			Prepared & Analyzed: 06/19/07						
Calcium	956	40.5	mg/L		940			1.69	20	
Magnesium	337	3.60	"		346			2.64	20	
Potassium	29.9	0.600	"		30.9			3.29	20	
Sodium	2970	21.5	"		2940			1.02	20	

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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: Brent Barron Date: 6/27/2007

Brent Barron, Laboratory Director/Corp. Technical Director
Celey D. Keene, Org. Tech Director
Raland K. Tuttle, Laboratory Consultant

James Mathis, QA/QC Officer
Jeanne Mc Murrey, Inorg. Tech Director

Environmental Lab of Texas

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

12600 West I-20 East
Odessa, Texas 79765

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

Project Manager: Kristin Farris Pope kpope@riceswd.com

Company Name: RICE Operating Company

Company Address: 122 W. Taylor Street

City/State/Zip: Hobbs, New Mexico 88240

Telephone No: (505) 393-9174 Fax No: (505) 397-1471

Sampler Signature: Rozanne Johnson (505)631-9310 e-mail: rozanne@valornet.com

Project Name: EME M-5 SWD

Project #:

Project Loc: T20S R37E Sec5 M ~ Lea County New Mexico

PO #:

Report Format: [X] Standard [ ] TRRP [ ] NPDES

(lab use only)

ORDER #: 7E11013

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl (2) 40 ml glass vials	H_2SO_4	NaOH	$Na_2S_2O_3$	None (1) 1 Liter HDPE	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge	GW = Groundwater S=Soil/Solid	NP=Non-Potable Specify Other	Analyze For: TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles (BTEX-N 8260)	Semivolatiles	BTEX 8021R/5030	RCI	N.O.R.M.	Total Dissolved Solids	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	M5-1s			6/7/2007	13:55		3	X		2				1		GW					X	X					X			X		X
02	M5-1d			6/7/2007	14:50		3	X		2				1		GW					X	X					X			X		X

Special Instructions:

Please email to: kpope@riceswd.com matt@riceswd.com rozanne@valornet.com jpurvis@riceswd.com

Relinquished by:	Date	Time	Received by:	Date	Time
Rozanne Johnson	6/11/07			6/11/07	14:41
Relinquished by:	Date	Time	Received by:	Date	Time
	6/11/07				
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Andrea Law	6/11/07	4:30

Laboratory Comments:

Sample Containers Intact?	N
VOCs Free of Headspace?	N
Labels on container(s)	N
Custody seals on container(s)	N
Custody seals on cooler(s)	N
Sample Hand Delivered	N
by Sampler/Client Rep.?	
by Courier? UPS DHL FedEx Lone Star	

Temperature Upon Receipt: 5.0 °C

Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

Client: Rice

Date/ Time: 6·11·07 4:30

Lab ID #: 7F11013

Initials: AL

Sample Receipt Checklist

					Client Initials
#1	Temperature of container/ cooler?	Yes	No	5.0 °C	
#2	Shipping container in good condition?	Yes	No		
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
#4	Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
#5	Chain of Custody present?	Yes	No		
#6	Sample instructions complete of Chain of Custody?	Yes	No		
#7	Chain of Custody signed when relinquished/ received?	Yes	No		
#8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	Yes	No	Not Applicable	
#10	Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#11	Containers supplied by ELOT?	Yes	No		
#12	Samples in proper container/ bottle?	Yes	No	See Below	
#13	Samples properly preserved?	Yes	No	See Below	
#14	Sample bottles intact?	Yes	No		
#15	Preservations documented on Chain of Custody?	Yes	No		
#16	Containers documented on Chain of Custody?	Yes	No		
#17	Sufficient sample amount for indicated test(s)?	Yes	No	See Below	
#18	All samples received within sufficient hold time?	Yes	No	See Below	
#19	Subcontract of sample(s)?	Yes	No	Not Applicable	
#20	VOC samples have zero headspace?	Yes	No	Not Applicable	

Variance Documentation

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

Regarding: _____

Corrective Action Taken:

Check all that Apply:

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

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (505) 397-1471

Receiving Date: 08/29/07
Reporting Date: 09/04/07
Project Number: NOT GIVEN
Project Name: EME M-5 SWD
Project Location: T20S-R37E-SEC5 M ~ LEA CO., NM

Sampling Date: 08/27/07
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: HM
Analyzed By: CK

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		08/30/07	08/30/07	08/30/07	08/30/07
H13194-1	M5-1s	<0.002	<0.002	<0.002	<0.006
H13194-2	M5-1d	<0.002	<0.002	<0.002	<0.006
Quality Control		0.086	0.082	0.082	0.252
True Value QC		0.100	0.100	0.100	0.300
% Recovery		86.0	82.3	82.4	84.0
Relative Percent Difference		6.0	2.6	1.8	0.7

METHOD: EPA SW-846 8021 B

Chemist

09/06/07
Date

H13194B PAGE

ARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (505) 397-1471

Receiving Date: 08/29/07
Reporting Date: 09/05/07
Project Owner: NOT GIVEN
Project Name: EME M-5 SWD
Project Location: T20S-R37E-SEC5 M~LEA COUNTY, NM

Sampling Date: 08/27/07
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: HM
Analyzed By: HM/KS

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (μS/cm)	T-Alkalinity ($mgCaCO_3/L$)
ANALYSIS DATE:		09/04/07	09/04/07	09/04/07	09/05/07	08/30/07	09/04/07
H13194-1	M5-1s	1895	865	182	15.4	13,970	136
H13194-2	M5-1d	2070	1680	363	19.1	19,590	92.0
Quality Control		NR	50.6	53.2	1.87	1423	NR
True Value QC		NR	50.0	50.0	2.00	1413	NR
% Recovery		NR	101	106	93.6	101	NR
Relative Percent Difference		NR	< 0.1	3.1	2.1	< 0.1	NR
METHODS:			SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl^- (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		09/04/07	09/05/07	09/04/07	09/04/07	08/30/07	09/04/07
H13194-1	M5-1s	4,499	554	0	166	6.76	10,095
H13194-2	M5-1d	6,898	394	0	112	6.63	14,776
Quality Control		500	24.0	NR	1025	6.97	NR
True Value QC		500	25.0	NR	1000	7.00	NR
% Recovery		100	96.1	NR	102	99.6	NR
Relative Percent Difference		< 0.1	8.2	NR	6.1	0.1	NR
METHODS:		SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Chemist

09-05-07
Date

H13194 R/E

101 East Marland - Hobbs, New Mexico 88240
Tel (505) 393-2326
Fax (505) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Kristin Farris-Pope, Project Scientist	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (505) 393-9174 — Fax#: (505)397-1471
Phone #: (505) 393-9174	Fax #: (505)397-1471
Project #:	Project Name: EME M-5 SWD
Project Location: T20S-R37E-Sec5 M ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (505)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2007)	TIME
H12199-1	M5-1s	G	3	X					2				1		8-27	1330
-2	M5-1d	G	3	X					2				1		8-27	1405

ANALYSIS REQUEST (Circle or Specify Method No.)

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

Relinquished by: Rozanne Johnson	Date: 8-29-07	Time: 4:05	Received by:
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff) Date: 08/29/07 Time: 4:05

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

REMARKS:

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

Delivered By: (Circle One) Sampler - UPS - Bus - Other:

Sample Condition: Cool: Yes / No; Intact: Yes / No

CHECKED BY: (Initials)

CARDINAL LABORATORIES

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

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

Receiving Date: 11/13/07
Reporting Date: 11/20/07
Project Number: NOT GIVEN
Project Name: EME M-5 SWD
Project Location: T20S R37E SEC5 M - LEA COUNTY, NM

Sampling Date: 11/09/07
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: CK
Analyzed By: AB

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		11/14/07	11/14/07	11/14/07	11/14/07
H13698-1	M5-1S	<0.001	<0.001	<0.001	<0.003
H13698-2	M5-1D	<0.001	<0.001	<0.001	<0.003
Quality Control		0.102	0.092	0.095	0.293
True Value QC		0.100	0.100	0.100	0.300
% Recovery		102	92	95	98
Relative Percent Difference		2.4	0.4	1.0	1.5

METHOD: EPA SW-846 8021B

Chemist

11/20/07
Date

H13698b Rice

CARDINAL LABORATORIES

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

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

Receiving Date: 11/13/07
Reporting Date: 11/19/07
Project Number: NOT GIVEN
Project Name: EME M-5 SWD
Project Location: T20S-R37E-SEC5 M~LEA COUNTY, NM

Sampling Date: 11/09/07
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: CK
Analyzed By: HM/KS

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (u S/cm)	T-Alkalinity (mgCaCO3/L)
ANALYSIS DATE:		11/16/07	11/16/07	11/16/07	11/15/07	11/14/07	11/14/07
H13698-1	M5-1s	1,807	872	234	15.9	13,910	240
H13698-2	M5-1d	2,207	1,710	383	13.5	20,310	212
Quality Control		NR	49.2	51.6	2.95	1,415	NR
True Value QC		NR	50.0	50.0	3.00	1,413	NR
% Recovery		NR	98.5	103	98.3	100	NR
Relative Percent Difference		NR	< 0.1	1.5	5.0	0.1	NR
METHODS:			SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl (mg/L)	SO4 (mg/L)	CO3 (mg/L)	HCO3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		11/15/07	11/16/07	11/14/07	11/14/07	11/14/07	11/15/07
H13698-1	M5-1s	4,400	549	0	393	6.76	8,193
H13698-2	M5-1d	7,100	435	0	259	6.59	12,247
Quality Control		500	24.3	NR	988	6.95	NR
True Value QC		500	25.0	NR	1000	7.00	NR
% Recovery		100	97.0	NR	98.8	99.3	NR
Relative Percent Difference		< 0.1	3.5	NR	1.2	0.7	NR
METHODS:		SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Chemist

11/19/07
Date

H13698 RICE

101 East Marland - Hobbs, New Mexico 88240
Tel (505) 393-2326
Fax (505) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name:	BILL TO Company:	PO#
RICE Operating Company	RICE Operating Company	
Project Manager:	**Address:** (Street, City, Zip)	
Kristin Farris-Pope, Project Scientist	122 W Taylor Street ~ Hobbs, New Mexico 88240	
Address: (Street, City, Zip)	**Phone#:**	**Fax#:**
122 W Taylor Street ~ Hobbs, New Mexico 88240	(505) 393-9174	(505)397-1471
Phone #:	**Fax #:**	
(505) 393-9174	(505)397-1471	
Project #:	**Project Name:**	
	EME M-5 SWD	
Project Location:	**Sampler Signature:**	Rozanne Johnson (505)631-9310
T20S-R37E-Sec5 M ~ Lea County - New Mexico		rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2007)	TIME
1113698-1	M5-1s	G	3	X				2				1		11-9	13:55
2	M5-1d	G	3	X				2				1		11-9	15:00

ANALYSIS REQUEST
(Circle or Specify Method No.)

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

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Rozanne Johnson	11-13-2007	2:05			
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date:	Time:
				11/13/07	2:05

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

REMARKS:

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

Delivered By: (Circle One)	Sample Condition	CHECKED BY:
Sampler - UPS - Bus - Other:	Cool: Yes [X] No [ ] Intact: Yes [X] No [ ]	(Initials)

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

February 12, 2007

Wayne Price
Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

RE: 2006 Annual Ground Water Monitoring Report
M-5 SWD, Sec 05, T20S, R37E, Unit "M"
NMOCD Case #: Pending

Dear Mr. Wayne Price:

R.T. Hicks Consultants, Ltd is pleased to submit the 2006 Annual Ground Water Monitoring Report for the M-5 SWD site located in the EME Salt Water Disposal System (SWD). This report consists of the following sections:

1. A table summarizing all laboratory results, depth to ground water and other pertinent data associated with ground water sampling at the site, including this past year.
2. Graphs showing chemical concentration vs. time for chloride and TDS.
3. Laboratory data sheets associated with the routine sampling for 2006.

The Corrective Action Plan was submitted to NMOCD on September 10, 2004. The CAP is pending NMOCD approval.

Thank you for your consideration of this annual summary information. The attached CD contains an electronic copy of the annual report. If you have any questions, please contact us at 505-266-5004, or Kristin Farris Pope at ROC, 505-393-9174.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall T. Hicks
Principal

Copy: Hobbs NMOCD office; Rice Operating Company

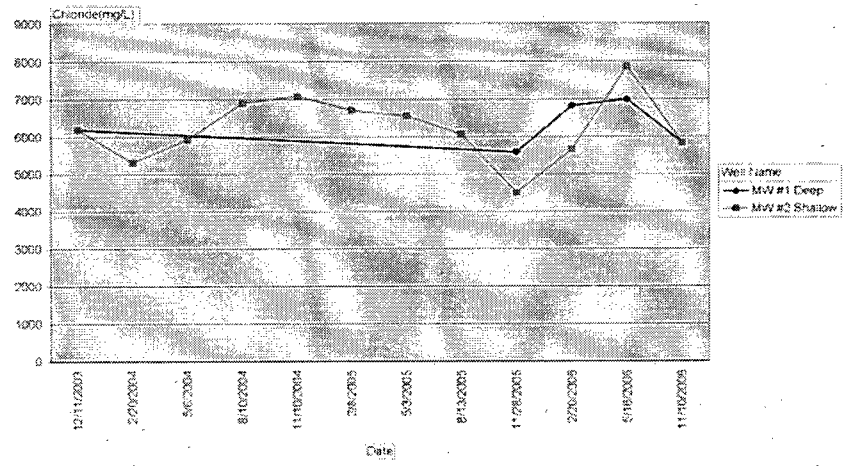
Table 1: chemistry over time

M-5 SWD

Well Name	*Date*	*DTW (ft)*	*Chloride (mg/L)*	*Sulfate (mg/L)*	*TDS (mg/L)*	*Benzene (ug/L)*	*Toluene (ug/L)*	*EthylBenzene (ug/L)*	*Total Xylenes (ug/L)*	*Comments*
MW #1 Deep	12/11/2003	33.40	6198	XXX	11736	<0.002	<0.002	<0.002	<0.006	Deep
MW #1 Deep	11/28/2005	28.1	5590	XXX	11400	<0.001	<0.001	<0001	<0.001	Deep
MW #1 Deep	2/20/2006	27.87	6830	503	14400	<0.001	<0.001	<0.001	<0.001	Deep
MW #1 Deep	5/16/2006	27.81	7000	752	13100	<0.001	<0.001	<0.001	<0.001	Deep
MW #1 Deep	11/10/2006	27.49	5840	421	12000	<0.001	<0.001	<0.001	<0.001	Clear no odor
MW #2 Shallow	12/11/2003	33.40	6198	90.5	11736	<0.002	<0.002	<0.002	<0.006	Deep
MW #2 Shallow	12/11/2003	33.28	6198	99.8	10784	<0.002	<0.002	<0.002	<0.006	Shallow
MW #2 Shallow	2/20/2004	33.37	5320	454	14500	<0.001	<0.001	<0.001	<0.001	Shallow
MW #2 Shallow	5/6/2004	32.79	5940	420	12400	<0.001	<0.001	<0.001	<0.001	Shallow
MW #2 Shallow	8/10/2004	32.52	6910	470	17300	<0.001	<0.001	<0.001	<0.001	Shallow
MW #2 Shallow	11/10/2004	31.63	7090	614	14000	<0.001	<0.001	<0.001	<0.001	Shallow
MW #2 Shallow	2/8/2005	28.85	6710	1450	13200	<0.001	<0.001	<0.001	<0.001	Shallow
MW #2 Shallow	5/3/2005	28.1	6560	595	16500	<0.001	<0.001	<0.001	<0.001	XXX
MW #2 Shallow	8/13/2005	XXX	6070	574	13800	<0.001	<0.001	<0.001	<0.001	XXX
MW #2 Shallow	11/28/2005	27.87	4500	1470	12300	<0.001	<0.001	<0.001	<0.001	Shallow
MW #2 Shallow	2/20/2006	27.25	5660	596	12400	<0.001	<0.001	<0.001	<0.001	Shallow
MW #2 Shallow	5/16/2006	27.81	7870	626	14300	<0.001	<0.001	<0.001	<0.001	Shallow
MW #2 Shallow	11/10/2006	27.39	5840	622	10500	<0.001	<0.001	<0.001	<0.001	Clear no odor

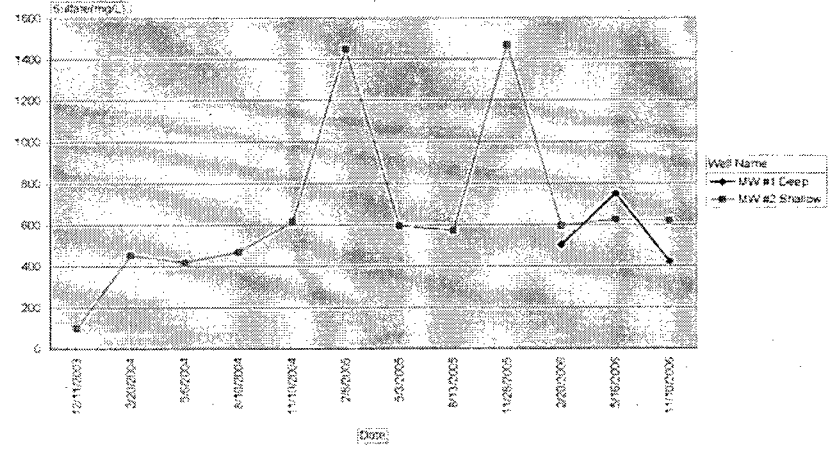
Site Name M-5 SWD

Chloride Over Time



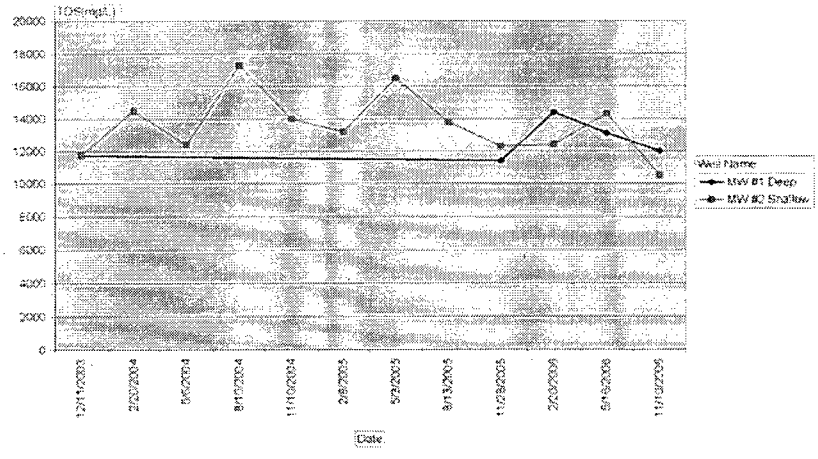
Site Name M-5 SWD

Sulfate Over Time



Site Name M-5 SWD

TDS Over Time



ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: EME M-5 SWD

Project Number: None Given

Location: Lea County

Lab Order Number: 6B23002

Report Date: 03/06/06

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	03/06/06 11:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Monitor Well #1 Shallow	6B23002-01	Water	02/20/06 12:05	02/23/06 09:45
Monitor Well #1 Deep	6B23002-02	Water	02/20/06 11:45	02/23/06 09:45

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	03/06/06 11:34

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 Shallow (6B23002-01) Water									
Benzene	ND	0.00100	mg/L	1	EB62306	02/23/06	02/24/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*85.8 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.2 %*	*80-120*		"	"	"	"	
Monitor Well #1 Deep (6B23002-02) Water									
Benzene	ND	0.00100	mg/L	1	EB62306	02/23/06	02/24/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*86.0 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.5 %*	*80-120*		"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	03/06/06 11:34

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 Shallow (6B23002-01) Water									
Total Alkalinity	**237**	2.00	mg/L	1	EB62205	02/23/06	02/23/06	EPA 310.1M	
Chloride	**5660**	100	"	200	EB62811	02/28/06	02/28/06	EPA 300.0	
Total Dissolved Solids	**12400**	5.00	"	1	EB62405	02/23/06	02/24/06	EPA 160.1	
Sulfate	**596**	100	"	200	EB62811	02/28/06	02/28/06	EPA 300.0	
Monitor Well #1 Deep (6B23002-02) Water									
Total Alkalinity	**182**	2.00	mg/L	1	EB62205	02/23/06	02/23/06	EPA 310.1M	
Chloride	**6830**	100	"	200	EB62811	02/28/06	02/28/06	EPA 300.0	
Total Dissolved Solids	**14400**	5.00	"	1	EB62405	02/23/06	02/24/06	EPA 160.1	
Sulfate	**503**	100	"	200	EB62811	02/28/06	02/28/06	EPA 300.0	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	03/06/06 11:34

Total Metals by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 Shallow (6B23002-01) Water									
Calcium	**1470**	5.00	mg/L	500	EC60207	03/02/06	03/02/06	EPA 6010B	
Magnesium	**419**	0.100	"	100	"	"	"	"	
Potassium	**36.4**	0.500	"	10	"	"	"	"	
Sodium	**2610**	5.00	"	500	"	"	"	"	
Monitor Well #1 Deep (6B23002-02) Water									
Calcium	**2170**	5.00	mg/L	500	EC60207	03/02/06	03/02/06	EPA 6010B	
Magnesium	**529**	0.500	"	"	"	"	"	"	
Potassium	**35.5**	0.500	"	10	"	"	"	"	
Sodium	**2150**	5.00	"	500	"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	03/06/06 11:34

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 EB62306 - EPA 5030C (GC)										
Blank (EB62306-BLK1)				Prepared & Analyzed: 02/23/06						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*33.3*		*ug/l*	*40.0*		*83.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*35.5*		*"*	*40.0*		*88.8*	*80-120*			
LCS (EB62306-BS1)				Prepared: 02/23/06 Analyzed: 02/27/06						
Benzene	0.0480	0.00100	mg/L	0.0500		96.0	80-120			
Toluene	0.0524	0.00100	"	0.0500		105	80-120			
Ethylbenzene	0.0564	0.00100	"	0.0500		113	80-120			
Xylene (p/m)	0.118	0.00100	"	0.100		118	80-120			
Xylene (o)	0.0577	0.00100	"	0.0500		115	80-120			
Surrogate: a,a,a-Trifluorotoluene	*40.5*		*ug/l*	*40.0*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*38.4*		*"*	*40.0*		*96.0*	*80-120*			
Calibration Check (EB62306-CCV1)				Prepared: 02/23/06 Analyzed: 02/27/06						
Benzene	47.3		ug/l	50.0		94.6	80-120			
Toluene	52.9		"	50.0		106	80-120			
Ethylbenzene	59.9		"	50.0		120	80-120			
Xylene (p/m)	120		"	100		120	80-120			
Xylene (o)	59.7		"	50.0		119	80-120			
Surrogate: a,a,a-Trifluorotoluene	*41.5*		*"*	*40.0*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*47.5*		*"*	*40.0*		*119*	*80-120*			
Matrix Spike (EB62306-MS1)	**Source: 6B23001-01**			Prepared: 02/23/06 Analyzed: 02/27/06						
Benzene	0.0418	0.00100	mg/L	0.0500	ND	83.6	80-120			
Toluene	0.0464	0.00100	"	0.0500	ND	92.8	80-120			
Ethylbenzene	0.0521	0.00100	"	0.0500	ND	104	80-120			
Xylene (p/m)	0.109	0.00100	"	0.100	ND	109	80-120			
Xylene (o)	0.0537	0.00100	"	0.0500	ND	107	80-120			
Surrogate: a,a,a-Trifluorotoluene	*38.4*		*ug/l*	*40.0*		*96.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*41.3*		*"*	*40.0*		*103*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	03/06/06 11:34

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 EB62306 - EPA 5030C (GC)										
Matrix Spike Dup (EB62306-MSD1)	**Source: 6B23001-01**			Prepared: 02/23/06 Analyzed: 02/27/06						
Benzene	0.0475	0.00100	mg/L	0.0500	ND	95.0	80-120	12.8	20	
Toluene	0.0524	0.00100	"	0.0500	ND	105	80-120	12.3	20	
Ethylbenzene	0.0577	0.00100	"	0.0500	ND	115	80-120	10.0	20	
Xylene (p/m)	0.120	0.00100	"	0.100	ND	120	80-120	9.61	20	
Xylene (o)	0.0591	0.00100	"	0.0500	ND	118	80-120	9.78	20	
Surrogate: a,a,a-Trifluorotoluene	*40.3*		*ug/l*	*40.0*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*41.3*		*"*	*40.0*		*103*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	03/06/06 11:34

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 EB62205 - General Preparation (WetChem)										
Blank (EB62205-BLK1)				Prepared & Analyzed: 02/23/06						
Total Alkalinity	ND	2.00	mg/L							
LCS (EB62205-BS1)				Prepared & Analyzed: 02/23/06						
Bicarbonate Alkalinity	207	2.00	mg/L	200		104	85-115			
Duplicate (EB62205-DUP1)	**Source: 6B16004-01**			Prepared & Analyzed: 02/23/06						
Total Alkalinity	273	2.00	mg/L		278			1.81	20	
Reference (EB62205-SRM1)				Prepared & Analyzed: 02/23/06						
Total Alkalinity	97.0		mg/L	100		97.0	90-110			
Batch EB62405 - General Preparation (WetChem)										
Blank (EB62405-BLK1)				Prepared: 02/23/06 Analyzed: 02/24/06						
Total Dissolved Solids	ND	5.00	mg/L							
Duplicate (EB62405-DUP1)	**Source: 6B17004-01**			Prepared: 02/23/06 Analyzed: 02/24/06						
Total Dissolved Solids	178	5.00	mg/L		178			0.00	5	
Batch EB62811 - General Preparation (WetChem)										
Blank (EB62811-BLK1)				Prepared & Analyzed: 02/28/06						
Sulfate	ND	0.500	mg/L							
Chloride	ND	0.500	"							
LCS (EB62811-BS1)				Prepared & Analyzed: 02/28/06						
Chloride	8.76	0.500	mg/L	10.0		87.6	80-120			
Sulfate	8.40	0.500	"	10.0		84.0	80-120			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	03/06/06 11:34

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 EB62811 - General Preparation (WetChem)										
Calibration Check (EB62811-CCV1)				Prepared & Analyzed: 02/28/06						
Sulfate	9.25		mg/L	10.0		92.5	80-120			
Chloride	9.36		"	10.0		93.6	80-120			
Duplicate (EB62811-DUP1)		**Source: 6B23001-01**		Prepared & Analyzed: 02/28/06						
Chloride	7740	100	mg/L		7510			3.02	20	
Sulfate	956	100	"		889			7.26	20	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	03/06/06 11:34

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 EC60207 - 6010B/No Digestion										
Blank (EC60207-BLK1)				Prepared & Analyzed: 03/02/06						
Calcium	ND	0.0100	mg/L							
Magnesium	ND	0.00100	"							
Potassium	ND	0.0500	"							
Sodium	ND	0.0100	"							
Calibration Check (EC60207-CCV1)				Prepared & Analyzed: 03/02/06						
Calcium	2.15		mg/L	2.00		108	85-115			
Magnesium	2.20		"	2.00		110	85-115			
Potassium	1.72		"	2.00		86.0	85-115			
Sodium	1.87		"	2.00		93.5	85-115			
Duplicate (EC60207-DUP1)	**Source: 6B17004-01**			Prepared & Analyzed: 03/02/06						
Calcium	106	0.500	mg/L		102			3.85	20	
Magnesium	20.6	0.0100	"		22.2			7.48	20	
Potassium	15.4	0.500	"		15.8			2.56	20	
Sodium	91.5	0.500	"		88.3			3.56	20	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

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: Raland K Tuttle Date: 3/6/2006

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.

Environmental Lab of Texas

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris Pope kpriceswd@valornet.com
Company Name: RICE Operating Company
Company Address: 122 W. Taylor Street
City/State/Zip: Hobbs, New Mexico 88240
Telephone No: (505) 393-9174 Fax No: (505) 397-1471
Sampler Signature: Rozanne Johnson (505) 631-9310
Email: rozanne@valornet.com

Project Name: EME M-5 SWD
Project #:
Project Loc: Lea County
PO #:

6B23002

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3	Preservative: HCl (2) 40 ml glass vials	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None (1) 1 Liter HDPE	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify):	Analyze For: TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RCI	N.O.R.M.	Total Dissolved Solids				RUSH TAT (Pre-Schedule)	Standard TAT
																TCLP:															
																TOTAL:							X								
-01	Monitor Well #1 - Shallow	2/20/2006	12:05	3	X		2			1		X					X	X					X			X					X
-02	Monitor Well #1 - Deep	2/20/2006	11:45	3	X		2			1		X					X	X					X			X					X

Special Instructions:

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

Sample Containers Intact? Y N
Labels on container? Y N
Custody Seals: Containers / Cooler
Temperature Upon Receipt: 1.5

Laboratory Comments: not frozen

Relinquished by:	Date	Time	Received by:	Date	Time
Rozanne Johnson	2-23-06	6:00	James Johnson	2/23/06	6:01
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
James Johnson	2/23/06	9:45		2/23/06	9:45

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

Client: Rice Dp.

Date/Time: 2/23/06 9:45

Order #: 6B23002

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	-2.5 C
Shipping container/cooler in good condition?	Yes	No	
Custody Seals intact on shipping container/cooler?	Yes	No	Not present
Custody Seals intact on sample bottles?	Yes	No	Not present
Chain of custody present?	Yes	No	
Sample Instructions complete on Chain of Custody?	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?	Yes	No	
Samples in proper container/bottle?	Yes	No	
Samples properly preserved?	Yes	No	
Sample bottles intact?	Yes	No	
Preservations documented on Chain of Custody?	Yes	No	
Containers documented on Chain of Custody?	Yes	No	
Sufficient sample amount for indicated test?	Yes	No	
All samples received within sufficient hold time?	Yes	No	
VOC samples have zero headspace?	Yes	No	Not Applicable

Other observations:

Variance Documentation:

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

Regarding:

Corrective Action Taken:

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: EME M-5 SWD

Project Number: None Given

Location: Lea County

Lab Order Number: 6E18014

Report Date: 05/25/06

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	05/25/06 16:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Monitor Well #1 Shallow	6E18014-01	Water	05/16/06 11:35	05/18/06 12:00
Monitor Well #1 Deep	6E18014-02	Water	05/16/06 12:40	05/18/06 12:00

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	05/25/06 16:13

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 Shallow (6E18014-01) Water									
Benzene	ND	0.00100	mg/L	1	EE62101	05/21/06	05/22/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*114 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*83.2 %*	*80-120*		"	"	"	"	
Monitor Well #1 Deep (6E18014-02) Water									
Benzene	ND	0.00100	mg/L	1	EE62101	05/21/06	05/22/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*112 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*82.2 %*	*80-120*		"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	05/25/06 16:13

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 Shallow (6E18014-01) Water									
Total Alkalinity	**206**	2.00	mg/L	1	EE62220	05/22/06	05/22/06	EPA 310.1M	
Chloride	**7000**	100	"	200	EE62205	05/22/06	05/22/06	EPA 300.0	
Total Dissolved Solids	**13100**	5.00	"	1	EE61919	05/18/06	05/18/06	EPA 160.1	
Sulfate	**752**	100	"	200	EE62205	05/22/06	05/22/06	EPA 300.0	
Monitor Well #1 Deep (6E18014-02) Water									
Total Alkalinity	**198**	2.00	mg/L	1	EE62220	05/22/06	05/22/06	EPA 310.1M	
Chloride	**7870**	100	"	200	EE62205	05/22/06	05/22/06	EPA 300.0	
Total Dissolved Solids	**14300**	5.00	"	1	EE61919	05/18/06	05/18/06	EPA 160.1	
Sulfate	**626**	100	"	200	EE62205	05/22/06	05/22/06	EPA 300.0	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	05/25/06 16:13

Total Metals by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1 Shallow (6E18014-01) Water									
Calcium	**1280**	2.00	mg/L	200	EE61926	05/19/06	05/19/06	EPA 6010B	
Magnesium	**366**	0.200	"	"	"	"	"	"	
Potassium	**23.8**	2.50	"	50	"	"	"	"	
Sodium	**2070**	5.00	"	500	"	"	"	"	
Monitor Well #1 Deep (6E18014-02) Water									
Calcium	**1830**	2.00	mg/L	200	EE61926	05/19/06	05/19/06	EPA 6010B	
Magnesium	**417**	0.200	"	"	"	"	"	"	
Potassium	**20.6**	2.50	"	50	"	"	"	"	
Sodium	**1600**	5.00	"	500	"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

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 EE62101 - EPA 5030C (GC)										
Blank (EE62101-BLK1)				Prepared & Analyzed: 05/21/06						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*42.9*		*ug/l*	*40.0*		*107*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*32.2*		"	*40.0*		*80.5*	*80-120*			
LCS (EE62101-BS1)				Prepared & Analyzed: 05/21/06						
Benzene	0.0415	0.00100	mg/L	0.0500		83.0	80-120			
Toluene	0.0421	0.00100	"	0.0500		84.2	80-120			
Ethylbenzene	0.0463	0.00100	"	0.0500		92.6	80-120			
Xylene (p/m)	0.102	0.00100	"	0.100		102	80-120			
Xylene (o)	0.0504	0.00100	"	0.0500		101	80-120			
Surrogate: a,a,a-Trifluorotoluene	*42.7*		*ug/l*	*40.0*		*107*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*36.2*		"	*40.0*		*90.5*	*80-120*			
Calibration Check (EE62101-CCV1)				Prepared & Analyzed: 05/21/06						
Benzene	44.3		ug/l	50.0		88.6	80-120			
Toluene	44.3		"	50.0		88.6	80-120			
Ethylbenzene	55.3		"	50.0		111	80-120			
Xylene (p/m)	99.1		"	100		99.1	80-120			
Xylene (o)	49.1		"	50.0		98.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	*44.6*		"	*40.0*		*112*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*34.8*		"	*40.0*		*87.0*	*80-120*			
Matrix Spike (EE62101-MS1)	**Source: 6E17005-01**			Prepared: 05/21/06 Analyzed: 05/22/06						
Benzene	0.0444	0.00100	mg/L	0.0500	ND	88.8	80-120			
Toluene	0.0454	0.00100	"	0.0500	ND	90.8	80-120			
Ethylbenzene	0.0488	0.00100	"	0.0500	ND	97.6	80-120			
Xylene (p/m)	0.108	0.00100	"	0.100	ND	108	80-120			
Xylene (o)	0.0531	0.00100	"	0.0500	ND	106	80-120			
Surrogate: a,a,a-Trifluorotoluene	*45.5*		*ug/l*	*40.0*		*114*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*36.9*		"	*40.0*		*92.2*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	05/25/06 16:13

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 EE62101 - EPA 5030C (GC)										
Matrix Spike Dup (EE62101-MSD1)	**Source: 6E17005-01**			Prepared: 05/21/06 Analyzed: 05/22/06						
Benzene	0.0439	0.00100	mg/L	0.0500	ND	87.8	80-120	1.13	20	
Toluene	0.0447	0.00100	"	0.0500	ND	89.4	80-120	1.55	20	
Ethylbenzene	0.0481	0.00100	"	0.0500	ND	96.2	80-120	1.44	20	
Xylene (p/m)	0.107	0.00100	"	0.100	ND	107	80-120	0.930	20	
Xylene (o)	0.0521	0.00100	"	0.0500	ND	104	80-120	1.90	20	
Surrogate: a,a,a-Trifluorotoluene	*46.4*		*ug/l*	*40.0*		*116*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*33.4*		*"*	*40.0*		*83.5*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	05/25/06 16:13

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 EE61919 - Filtration Preparation										
Blank (EE61919-BLK1)				Prepared & Analyzed: 05/18/06						
Total Dissolved Solids	ND	5.00	mg/L							
Duplicate (EE61919-DUP1)	**Source: 6E18012-01**			Prepared & Analyzed: 05/18/06						
Total Dissolved Solids	1420	5.00	mg/L		1470			3.46	5	
Batch EE62205 - General Preparation (WetChem)										
Blank (EE62205-BLK1)				Prepared & Analyzed: 05/22/06						
Sulfate	ND	0.500	mg/L							
Chloride	ND	0.500	"							
LCS (EE62205-BS1)				Prepared & Analyzed: 05/22/06						
Sulfate	8.20		mg/L	10.0		82.0	80-120			
Chloride	10.1		"	10.0		101	80-120			
Calibration Check (EE62205-CCV1)				Prepared & Analyzed: 05/22/06						
Chloride	10.1		mg/L	10.0		101	80-120			
Sulfate	9.63		"	10.0		96.3	80-120			
Duplicate (EE62205-DUP1)	**Source: 6E18012-01**			Prepared & Analyzed: 05/22/06						
Sulfate	307	10.0	mg/L		304			0.982	20	
Chloride	343	10.0	"		344			0.291	20	
Duplicate (EE62205-DUP2)	**Source: 6E18015-01**			Prepared & Analyzed: 05/22/06						
Chloride	415	10.0	mg/L		412			0.726	20	
Sulfate	50.3	10.0	"		50.6			0.595	20	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	05/25/06 16:13

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 EE62205 - General Preparation (WetChem)										
Matrix Spike (EE62205-MS1)	**Source: 6E18012-01**			Prepared & Analyzed: 05/22/06						
Chloride	565	10.0	mg/L	200	344	110	80-120			
Sulfate	465	10.0	"	200	304	80.5	80-120			
Matrix Spike (EE62205-MS2)	**Source: 6E18015-01**			Prepared & Analyzed: 05/22/06						
Chloride	654	10.0	mg/L	200	412	121	80-120			S-07
Sulfate	200	10.0	"	200	50.6	74.7	80-120			S-07
Batch EE62220 - General Preparation (WetChem)										
Blank (EE62220-BLK1)				Prepared & Analyzed: 05/22/06						
Total Alkalinity	ND	2.00	mg/L							
LCS (EE62220-BS1)				Prepared & Analyzed: 05/22/06						
Bicarbonate Alkalinity	214	2.00	mg/L	200		107	85-115			
Duplicate (EE62220-DUP1)	**Source: 6E18012-01**			Prepared & Analyzed: 05/22/06						
Total Alkalinity	279	2.00	mg/L		280			0.358	20	
Reference (EE62220-SRM1)				Prepared & Analyzed: 05/22/06						
Total Alkalinity	96.0		mg/L	100		96.0	90-110			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	**Reported:**
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	05/25/06 16:13

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 EE61926 - 6010B/No Digestion										
Blank (EE61926-BLK1)				Prepared & Analyzed: 05/19/06						
Calcium	ND	0.0100	mg/L							
Magnesium	ND	0.00100	"							
Potassium	ND	0.0500	"							
Sodium	ND	0.0100	"							
Calibration Check (EE61926-CCV1)				Prepared & Analyzed: 05/19/06						
Calcium	2.30		mg/L	2.00		115	85-115			
Magnesium	2.21		"	2.00		110	85-115			
Potassium	1.80		"	2.00		90.0	85-115			
Sodium	1.81		"	2.00		90.5	85-115			
Duplicate (EE61926-DUP1)	**Source: 6E18012-01**			Prepared & Analyzed: 05/19/06						
Calcium	111	0.500	mg/L		111			0.00	20	
Magnesium	58.3	0.0100	"		56.5			3.14	20	
Potassium	12.2	0.500	"		12.9			5.58	20	
Sodium	266	0.500	"		271			1.86	20	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Notes and Definitions

S-07	Recovery outside Laboratory historical or method prescribed limits.
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: Raland K Tuttle Date: 5/25/2006

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.

Environmental Lab of Texas

12600 West I-20 East
Odessa, Texas 79765

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris Pope kpope@riceswd.com

Company Name: RICE Operating Company

Company Address: 122 W. Taylor Street

City/State/Zip: Hobbs, New Mexico 88240

Telephone No: (505) 393-9174

Fax No: (505) 397-1471

Sampler Signature: Rozanne Johnson (505) 631-9310

Email: rozanne@valornet.com

Project Name: EME M-5 SWD

Project #:

Project Loc: Lea County

PO #:

Analyze For: TCLP: / TOTAL: X (BTEX 8021B/5030)

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO_3	HCl (2) 40 ml glass vials	NaOH	H_2SO_4	None (1) 1 Liter HDPE	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify):	TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RCI	N.O.R.M.	Total Dissolved Solids				RUSH TAT (Pre-Schedule)	Standard TAT
6E18014 -01	Monitor Well #1 Shallow	5/16/2006	11:35	3	X		2			1		X					X	X					X			X					X
-02	Monitor Well #1 Deep	5/16/2006	12:40	3	X		2			1		X					X	X					X			X					X

Special Instructions:

PLEASE Email RESULTS TO: kpope@riceswd.com & mfranks@riceswd.com

Sample Containers Intact? (Y) N
Labels on container? (Y) N
Custody Seals: (Containers / Cooler)
Temperature Upon Receipt: 1.0°C not frozen

Laboratory Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
Rozanne Johnson	5/18/06	6:00	James Johnson	5/18/06	6:01
Relinquished by: James Johnson	5/18/06	12:00	Received by ELOT: [signature]	5-18-06	1200

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

ient: Rice Operating Co.

ate/Time: 05-18-06 @ 1200

rder #: 6E18014

itials: JMM

Sample Receipt Checklist

mperature of container/cooler?	(Yes)	No	I.D C
ipping container/cooler in good condition?	(Yes)	No	
ustody Seals intact on shipping container/cooler?	(Yes)	No	Not present
stody Seals intact on sample bottles?	(Yes)	No	Not present
ain of custody present?	(Yes)	No	
mple Instructions complete on Chain of Custody?	(Yes)	No	
ain of Custody signed when relinquished and received?	(Yes)	No	
ain of custody agrees with sample label(s)	(Yes)	No	
ntainer labels legible and intact?	(Yes)	No	
mple Matrix and properties same as on chain of custody?	(Yes)	No	
mples in proper container/bottle?	(Yes)	No	
mples properly preserved?	(Yes)	No	
mple bottles intact?	(Yes)	No	
eservations documented on Chain of Custody?	(Yes)	No	
ntainers documented on Chain of Custody?	(Yes)	No	
fficient samole amount for indicated test?	(Yes)	No	
samples received within sufficient hold time?	(Yes)	No	
OC samples have zero headspace?	(Yes)	No	Not Applicable

ther observations:

Variance Documentation:

ontact Person: - Date/Time: Contacted by:

egarding:

orrective Action Taken:

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: EME M-5 SWD

Project Number: None Given

Location: T20S-R37E-Sec5M, Lea Co., NM

Lab Order Number: 6H25014

Report Date: 09/05/06

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Monitor Well #1-Shallow	6H25014-01	Water	08/24/06 10:35	08-25-2006 15:22
Monitor Well #1-Deep	6H25014-02	Water	08/24/06 09:25	08-25-2006 15:22

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1-Shallow (6H25014-01) Water									
Benzene	ND	0.00100	mg/L	1	EH62909	08/29/06	08/29/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*106 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*82.2 %*	*80-120*		"	"	"	"	
Monitor Well #1-Deep (6H25014-02) Water									
Benzene	ND	0.00100	mg/L	1	EH62909	08/29/06	08/29/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*106 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*96.8 %*	*80-120*		"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1-Shallow (6H25014-01) Water									
Total Alkalinity	**230**	2.00	mg/L	1	EH63106	08/31/06	08/31/06	EPA 310.1M	
Chloride	**6160**	100	"	200	EH63019	08/28/06	08/28/06	EPA 300.0	
Total Dissolved Solids	**11800**	10.0	"	1	EH62916	08/28/06	08/31/06	EPA 160.1	
Sulfate	**601**	100	"	200	EH63019	08/28/06	08/28/06	EPA 300.0	
Monitor Well #1-Deep (6H25014-02) Water									
Total Alkalinity	**202**	2.00	mg/L	1	EH63106	08/31/06	08/31/06	EPA 310.1M	
Chloride	**7100**	100	"	200	EH63019	08/28/06	08/28/06	EPA 300.0	
Total Dissolved Solids	**14100**	10.0	"	1	EH62916	08/28/06	08/31/06	EPA 160.1	
Sulfate	**460**	100	"	200	EH63019	08/28/06	08/28/06	EPA 300.0	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Total Metals by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1-Shallow (6H25014-01) Water									
Calcium	**1150**	40.5	mg/L	500	EH62802	08/28/06	08/28/06	EPA 6010B	
Magnesium	**305**	1.80	"	50	"	"	"	"	
Potassium	**24.0**	3.00	"	"	"	"	"	"	
Sodium	**2150**	21.5	"	500	"	"	"	"	
Monitor Well #1-Deep (6H25014-02) Water									
Calcium	**1570**	40.5	mg/L	500	EH62802	08/28/06	08/28/06	EPA 6010B	
Magnesium	**316**	1.80	"	50	"	"	"	"	
Potassium	**21.9**	3.00	"	"	"	"	"	"	
Sodium	**1720**	21.5	"	500	"	"	"	"	

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EH62909 - EPA 5030C (GC)										
Blank (EH62909-BLK1)				Prepared & Analyzed: 08/29/06						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*42.1*		*ug/l*	*40.0*		*105*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*32.7*		*"*	*40.0*		*81.8*	*80-120*			
LCS (EH62909-BS1)				Prepared & Analyzed: 08/29/06						
Benzene	0.0499	0.00100	mg/L	0.0500		99.8	80-120			
Toluene	0.0528	0.00100	"	0.0500		106	80-120			
Ethylbenzene	0.0490	0.00100	"	0.0500		98.0	80-120			
Xylene (p/m)	0.113	0.00100	"	0.100		113	80-120			
Xylene (o)	0.0530	0.00100	"	0.0500		106	80-120			
Surrogate: a,a,a-Trifluorotoluene	*43.9*		*ug/l*	*40.0*		*110*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*46.1*		*"*	*40.0*		*115*	*80-120*			
Calibration Check (EH62909-CCV1)				Prepared & Analyzed: 08/29/06						
Benzene	52.7		ug/l	50.0		105	80-120			
Toluene	56.2		"	50.0		112	80-120			
Ethylbenzene	55.8		"	50.0		112	80-120			
Xylene (p/m)	115		"	100		115	80-120			
Xylene (o)	57.3		"	50.0		115	80-120			
Surrogate: a,a,a-Trifluorotoluene	*44.7*		*"*	*40.0*		*112*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*46.4*		*"*	*40.0*		*116*	*80-120*			
Matrix Spike (EH62909-MS1)	**Source: 6H25012-04**			Prepared: 08/29/06 Analyzed: 08/30/06						
Benzene	0.0489	0.00100	mg/L	0.0500	ND	97.8	80-120			
Toluene	0.0506	0.00100	"	0.0500	ND	101	80-120			
Ethylbenzene	0.0510	0.00100	"	0.0500	ND	102	80-120			
Xylene (p/m)	0.117	0.00100	"	0.100	ND	117	80-120			
Xylene (o)	0.0538	0.00100	"	0.0500	ND	108	80-120			
Surrogate: a,a,a-Trifluorotoluene	*45.7*		*ug/l*	*40.0*		*114*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*47.4*		*"*	*40.0*		*118*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EH62909 - EPA 5030C (GC)										
Matrix Spike Dup (EH62909-MSD1)	**Source: 6H25012-04**			Prepared: 08/29/06 Analyzed: 08/30/06						
Benzene	0.0472	0.00100	mg/L	0.0500	ND	94.4	80-120	3.54	20	
Toluene	0.0489	0.00100	"	0.0500	ND	97.8	80-120	3.22	20	
Ethylbenzene	0.0471	0.00100	"	0.0500	ND	94.2	80-120	7.95	20	
Xylene (p/m)	0.107	0.00100	"	0.100	ND	107	80-120	8.93	20	
Xylene (o)	0.0500	0.00100	"	0.0500	ND	100	80-120	7.69	20	
Surrogate: a,a,a-Trifluorotoluene	*41.2*		*ug/l*	*40.0*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*44.1*		*"*	*40.0*		*110*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EH62916 - Filtration Preparation										
Blank (EH62916-BLK1)				Prepared: 08/28/06 Analyzed: 08/29/06						
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (EH62916-DUP1)		**Source: 6H25010-01**		Prepared: 08/28/06 Analyzed: 08/29/06						
Total Dissolved Solids	2480	10.0	mg/L		2580			3.95	5	
Duplicate (EH62916-DUP2)		**Source: 6H25013-01**		Prepared: 08/28/06 Analyzed: 08/29/06						
Total Dissolved Solids	1350	10.0	mg/L		1400			3.64	5	
Batch EH63019 - General Preparation (WetChem)										
Blank (EH63019-BLK1)				Prepared & Analyzed: 08/28/06						
Sulfate	ND	0.500	mg/L							
Chloride	ND	0.500	"							
LCS (EH63019-BS1)				Prepared & Analyzed: 08/28/06						
Sulfate	10.1	0.500	mg/L	10.0		101	80-120			
Chloride	10.2	0.500	"	10.0		102	80-120			
Calibration Check (EH63019-CCV1)				Prepared & Analyzed: 08/28/06						
Sulfate	12.0		mg/L	10.0		120	80-120			
Chloride	9.87		"	10.0		98.7	80-120			
Duplicate (EH63019-DUP1)		**Source: 6H24003-01**		Prepared & Analyzed: 08/28/06						
Sulfate	225	5.00	mg/L		227			0.885	20	
Chloride	94.7	5.00	"		102			7.42	20	
Duplicate (EH63019-DUP2)		**Source: 6H25013-01**		Prepared & Analyzed: 08/28/06						
Sulfate	40.5	10.0	mg/L		40.9			0.983	20	
Chloride	420	10.0	"		418			0.477	20	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EH63019 - General Preparation (WetChem)										
Matrix Spike (EH63019-MS1)	**Source: 6H24003-01**			Prepared & Analyzed: 08/28/06						
Chloride	204	5.00	mg/L	100	102	102	80-120			
Sulfate	338	5.00	"	100	227	111	75-125			
Matrix Spike (EH63019-MS2)	**Source: 6H25013-01**			Prepared & Analyzed: 08/28/06						
Chloride	645	10.0	mg/L	200	418	114	80-120			
Sulfate	239	10.0	"	200	40.9	99.0	75-125			
Batch EH63106 - General Preparation (WetChem)										
Blank (EH63106-BLK1)				Prepared & Analyzed: 08/31/06						
Total Alkalinity	ND	2.00	mg/L							
LCS (EH63106-BS1)				Prepared & Analyzed: 08/31/06						
Bicarbonate Alkalinity	190	2.00	mg/L	200		95.0	85-115			
Duplicate (EH63106-DUP1)	**Source: 6H24003-01**			Prepared & Analyzed: 08/31/06						
Total Alkalinity	150	2.00	mg/L		156			3.92	20	
Reference (EH63106-SRM1)				Prepared & Analyzed: 08/31/06						
Total Alkalinity	254		mg/L	250		102	90-110			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EH62802 - 6010B/No Digestion										
Blank (EH62802-BLK1)				Prepared & Analyzed: 08/28/06						
Calcium	ND	0.0810	mg/L							
Magnesium	ND	0.0360	"							
Potassium	ND	0.0600	"							
Sodium	ND	0.0430	"							
Calibration Check (EH62802-CCV1)				Prepared & Analyzed: 08/28/06						
Calcium	1.97		mg/L	2.00		98.5	85-115			
Magnesium	2.13		"	2.00		106	85-115			
Potassium	1.74		"	2.00		87.0	85-115			
Sodium	1.84		"	2.00		92.0	85-115			
Duplicate (EH62802-DUP1)	**Source: 6H25010-01**			Prepared & Analyzed: 08/28/06						
Calcium	267	4.05	mg/L		251			6.18	20	
Magnesium	81.9	1.80	"		77.6			5.39	20	
Potassium	7.20	0.600	"		7.76			7.49	20	
Sodium	396	2.15	"		409			3.23	20	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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: Raland K. Tuttle Date: 9/5/2006

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.

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Lab of Texas

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris Pope kpope@riceswd.com
Company Name: RICE Operating Company
Company Address: 122 W. Taylor Street
City/State/Zip: Hobbs, New Mexico 88240
Telephone No: (505) 393-9174 Fax No: (505) 397-1471
Sampler Signature: Rozanne Johnson (505) 631-9310
Email: rozanne@valornet.com

Project Name: EME M-5 SWD
Project Number:
Project Loc: T20S-R37E-Sec5M, Lab County NM
PO Number:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3	Preservative: HCl (2) 40 ml glass vials	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None (1) 1 Liter HDPE	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify):	Analyze For: TCLP:	Analyze For: TOTAL:	TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RCI	N.O.R.M.	Total Dissolved Solids			RUSH TAT (Pre-Schedule)	Standard TAT
H25014																	X															
-01	Monitor Well #1-Shallow	8/24/2006	10:35	3	X		2			1		X							X	X					X			X				X
-02	Monitor Well #1-Deep	8/24/2006	9:25	3	X		2			1		X							X	X					X			X				X

Special Instructions:

PLEASE Email RESULTS TO: kpope@riceswd.com; mfranks@riceswd.com
rozanne@valornet.com

Sample Containers Intact? Y N
Labels on container? Y N
Custody Seals: Containers / Cooler
Temperature Upon Receipt: 1.0°C.
Laboratory Comments: not froze

Relinquished by:	Date	Time	Received by:	Date	Time
Rozanne Johnson	8-25-06	13:10	James Johnson	8-25-06	13:11
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
	8-25-06	15:22		8-25-06	1522

Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

Client: Rice Operating

Date/ Time: 08-25-06 @ 1522

Lab ID #: 6H25014

Initials: JMM

Sample Receipt Checklist

					Client Initials
#1	Temperature of container/ cooler?	(Yes)	No	1.0 °C	
#2	Shipping container in good condition?	(Yes)	No		
#3	Custody Seals intact on shipping container/ cooler?	(Yes)	No	Not Present	
#4	Custody Seals intact on sample bottles/ container?	(Yes)	No	Not Present	
#5	Chain of Custody present?	(Yes)	No		
#6	Sample instructions complete of Chain of Custody?	(Yes)	No		
#7	Chain of Custody signed when relinquished/ received?	(Yes)	No		
#8	Chain of Custody agrees with sample label(s)?	(Yes)	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	(Yes)	No	Not Applicable	
#10	Sample matrix/ properties agree with Chain of Custody?	(Yes)	No		
#11	Containers supplied by ELOT?	(Yes)	No		
#12	Samples in proper container/ bottle?	(Yes)	No	See Below	
#13	Samples properly preserved?	(Yes)	No	See Below	
#14	Sample bottles intact?	(Yes)	No		
#15	Preservations documented on Chain of Custody?	(Yes)	No		
#16	Containers documented on Chain of Custody?	(Yes)	No		
#17	Sufficient sample amount for indicated test(s)?	(Yes)	No	See Below	
#18	All samples received within sufficient hold time?	(Yes)	No	See Below	
#19	VOC samples have zero headspace?	(Yes)	No	Not Applicable	

Variance Documentation

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

Regarding: _____

Corrective Action Taken:

Check all that Apply:

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

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Kristin Farris-Pope

Rice Operating Co.

122 W. Taylor

Hobbs, NM 88240

Project: EME M-5 SWD

Project Number: None Given

Location: T20S R37E Sec.5 M- Lea County, NM

Lab Order Number: 6K15002

Report Date: 12/01/06

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Monitor Well #1- Shallow	6K15002-01	Water	11/10/06 09:20	11-15-2006 08:10
Monitor Well #1- Deep	6K15002-02	Water	11/10/06 10:15	11-15-2006 08:10

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1- Shallow (6K15002-01) Water									
Benzene	ND	0.00100	mg/L	1	EK61614	11/16/06	11/19/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*110 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*80.8 %*	*80-120*		"	"	"	"	
Monitor Well #1- Deep (6K15002-02) Water									
Benzene	ND	0.00100	mg/L	1	EK61614	11/16/06	11/19/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*109 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*81.2 %*	*80-120*		"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1- Shallow (6K15002-01) Water									
Total Alkalinity	**224**	2.00	mg/L	1	EK61605	11/17/06	11/17/06	EPA 310.1M	
Chloride	**5840**	100	"	200	EK61507	11/15/06	11/15/06	EPA 300.0	
Total Dissolved Solids	**10500**	10.0	"	1	EK61611	11/15/06	11/16/06	EPA 160.1	
Sulfate	**622**	100	"	200	EK61507	11/15/06	11/15/06	EPA 300.0	
Monitor Well #1- Deep (6K15002-02) Water									
Total Alkalinity	**216**	2.00	mg/L	1	EK61605	11/17/06	11/17/06	EPA 310.1M	
Chloride	**6570**	100	"	200	EK61507	11/15/06	11/15/06	EPA 300.0	
Total Dissolved Solids	**12000**	10.0	"	1	EK61611	11/15/06	11/16/06	EPA 160.1	
Sulfate	**421**	100	"	200	EK61507	11/15/06	11/15/06	EPA 300.0	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Total Metals by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Monitor Well #1- Shallow (6K15002-01) Water									
Calcium	**1400**	20.2	mg/L	250	EK61703	11/17/06	11/17/06	EPA 6010B	
Magnesium	**487**	3.60	"	100	"	"	"	"	
Potassium	**39.2**	0.600	"	10	"	"	"	"	
Sodium	**2410**	10.8	"	250	"	"	"	"	
Monitor Well #1- Deep (6K15002-02) Water									
Calcium	**2180**	20.2	mg/L	250	EK61703	11/17/06	11/17/06	EPA 6010B	
Magnesium	**487**	3.60	"	100	"	"	"	"	
Potassium	**38.5**	0.600	"	10	"	"	"	"	
Sodium	**2310**	10.8	"	250	"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EK61614 - EPA 5030C (GC)										
Blank (EK61614-BLK1)				Prepared: 11/16/06 Analyzed: 11/17/06						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*47.8*		*ug/l*	*40.0*		*120*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*40.5*		*"*	*40.0*		*101*	*80-120*			
LCS (EK61614-BS1)				Prepared: 11/16/06 Analyzed: 11/17/06						
Benzene	0.0594	0.00100	mg/L	0.0500		119	80-120			
Toluene	0.0562	0.00100	"	0.0500		112	80-120			
Ethylbenzene	0.0458	0.00100	"	0.0500		91.6	80-120			
Xylene (p/m)	0.0949	0.00100	"	0.100		94.9	80-120			
Xylene (o)	0.0499	0.00100	"	0.0500		99.8	80-120			
Surrogate: a,a,a-Trifluorotoluene	*46.1*		*ug/l*	*40.0*		*115*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*44.2*		*"*	*40.0*		*110*	*80-120*			
Calibration Check (EK61614-CCV1)				Prepared: 11/16/06 Analyzed: 11/20/06						
Benzene	54.7		ug/l	50.0		109	80-120			
Toluene	48.5		"	50.0		97.0	80-120			
Ethylbenzene	42.1		"	50.0		84.2	80-120			
Xylene (p/m)	83.0		"	100		83.0	80-120			
Xylene (o)	43.3		"	50.0		86.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	*41.4*		*"*	*40.0*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*37.0*		*"*	*40.0*		*92.5*	*80-120*			
Matrix Spike (EK61614-MS1)	**Source: 6K13007-01**			Prepared: 11/16/06 Analyzed: 11/17/06						
Benzene	0.0551	0.00100	mg/L	0.0500		110	80-120			
Toluene	0.0498	0.00100	"	0.0500		99.6	80-120			
Ethylbenzene	0.0401	0.00100	"	0.0500		80.2	80-120			
Xylene (p/m)	0.0844	0.00100	"	0.100		84.4	80-120			
Xylene (o)	0.0442	0.00100	"	0.0500		88.4	80-120			
Surrogate: a,a,a-Trifluorotoluene	*41.1*		*ug/l*	*40.0*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*42.4*		*"*	*40.0*		*106*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EK61614 - EPA 5030C (GC)										
Matrix Spike Dup (EK61614-MSD1)	**Source: 6K13007-01**			Prepared: 11/16/06 Analyzed: 11/17/06						
Benzene	0.0580	0.00100	mg/L	0.0500		116	80-120	5.31	20	
Toluene	0.0550	0.00100	"	0.0500		110	80-120	9.92	20	
Ethylbenzene	0.0421	0.00100	"	0.0500		84.2	80-120	4.87	20	
Xylene (p/m)	0.0909	0.00100	"	0.100		90.9	80-120	7.42	20	
Xylene (o)	0.0455	0.00100	"	0.0500		91.0	80-120	2.90	20	
Surrogate: a,a,a-Trifluorotoluene	*46.3*		*ug/l*	*40.0*		*116*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*42.0*		*"*	*40.0*		*105*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EK61507 - General Preparation (WetChem)										
Blank (EK61507-BLK1)				Prepared & Analyzed: 11/15/06						
Sulfate	0.579	0.500	mg/L							B
Chloride	ND	0.500	"							
LCS (EK61507-BS1)				Prepared & Analyzed: 11/15/06						
Sulfate	10.9	0.500	mg/L	10.0		109	80-120			
Chloride	11.1	0.500	"	10.0		111	80-120			
Calibration Check (EK61507-CCV1)				Prepared & Analyzed: 11/15/06						
Chloride	10.7		mg/L	10.0		107	80-120			
Sulfate	12.0		"	10.0		120	80-120			
Duplicate (EK61507-DUP1)	**Source: 6K15004-01**			Prepared & Analyzed: 11/15/06						
Sulfate	79.9	5.00	mg/L		79.8			0.125	20	
Chloride	232	5.00	"		234			0.858	20	
Duplicate (EK61507-DUP2)	**Source: 6K15006-07**			Prepared & Analyzed: 11/15/06						
Sulfate	78.2	5.00	mg/L		78.1			0.128	20	
Chloride	37.9	5.00	"		43.7			14.2	20	
Matrix Spike (EK61507-MS1)	**Source: 6K15004-01**			Prepared & Analyzed: 11/15/06						
Chloride	345	5.00	mg/L	100	234	111	80-120			
Sulfate	175	5.00	"	100	79.8	95.2	80-120			
Matrix Spike (EK61507-MS2)	**Source: 6K15006-07**			Prepared & Analyzed: 11/15/06						
Chloride	142	5.00	mg/L	100	43.7	98.3	80-120			
Sulfate	175	5.00	"	100	78.1	96.9	80-120			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EK61605 - General Preparation (WetChem)										
Blank (EK61605-BLK1)				Prepared & Analyzed: 11/17/06						
Total Alkalinity	ND	2.00	mg/L							
Blank (EK61605-BLK2)				Prepared & Analyzed: 11/17/06						
Total Alkalinity	ND	2.00	mg/L							
LCS (EK61605-BS1)				Prepared & Analyzed: 11/17/06						
Bicarbonate Alkalinity	172		mg/L	200		86.0	85-115			
LCS (EK61605-BS2)				Prepared & Analyzed: 11/17/06						
Bicarbonate Alkalinity	172		mg/L	200		86.0	85-115			
Hydroxide Alkalinity	0.00	0.100	"				85-115			
Duplicate (EK61605-DUP1)	**Source: 6K15001-01**			Prepared & Analyzed: 11/17/06						
Total Alkalinity	238	2.00	mg/L		238			0.00	20	
Carbonate Alkalinity	0.00	0.100	"		0.00				20	
Bicarbonate Alkalinity	0.00	2.00	"		0.00				20	
Hydroxide Alkalinity	0.00	0.100	"		0.00				20	
Duplicate (EK61605-DUP2)	**Source: 6K16005-01**			Prepared & Analyzed: 11/17/06						
Total Alkalinity	296	2.00	mg/L		300			1.34	20	
Carbonate Alkalinity	0.00	0.100	"		0.00				20	
Bicarbonate Alkalinity	0.00	2.00	"		300				20	
Hydroxide Alkalinity	0.00	0.100	"		0.00				20	
Reference (EK61605-SRM1)				Prepared & Analyzed: 11/17/06						
Total Alkalinity	238		mg/L	250		95.2	90-110			
Reference (EK61605-SRM2)				Prepared & Analyzed: 11/17/06						
Total Alkalinity	238		mg/L	250		95.2	90-110			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EK61611 - Filtration Preparation										
Blank (EK61611-BLK1)				Prepared: 11/15/06 Analyzed: 11/16/06						
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (EK61611-DUP1)	**Source: 6K15001-01**			Prepared: 11/15/06 Analyzed: 11/16/06						
Total Dissolved Solids	14000	10.0	mg/L		13200			5.88	5	QR-03
Duplicate (EK61611-DUP2)	**Source: 6K15005-03**			Prepared: 11/15/06 Analyzed: 11/16/06						
Total Dissolved Solids	586	10.0	mg/L		622			5.96	5	QR-03

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

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 EK61703 - 6010B/No Digestion										
Blank (EK61703-BLK1)				Prepared & Analyzed: 11/17/06						
Calcium	ND	0.0810	mg/L							
Magnesium	ND	0.0360	"							
Potassium	ND	0.0600	"							
Sodium	ND	0.0430	"							
Calibration Check (EK61703-CCV1)				Prepared & Analyzed: 11/17/06						
Calcium	2.17		mg/L	2.00		108	85-115			
Magnesium	2.21		"	2.00		110	85-115			
Potassium	1.74		"	2.00		87.0	85-115			
Sodium	1.88		"	2.00		94.0	85-115			
Duplicate (EK61703-DUP1)	**Source: 6K15001-01**			Prepared & Analyzed: 11/17/06						
Calcium	1300	40.5	mg/L		1340			3.03	20	
Magnesium	461	3.60	"		461			0.00	20	
Potassium	55.7	0.600	"		53.2			4.59	20	
Sodium	2890	21.5	"		3100			7.01	20	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Rice Operating Co.	Project: EME M-5 SWD	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	
Hobbs NM, 88240	Project Manager: Kristin Farris-Pope	

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
B	Analyte is found in the associated blank as well as in the sample (CLP B-flag).
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: Raland K Tuttle Date: 12/1/2006

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.

Environmental Lab of Texas

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

12600 West I-20 East
Odessa, Texas 79765

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

Project Manager: Kristin Farris Pope kpope@riceswd.com

Company Name: RICE Operating Company

Company Address: 122 W. Taylor Street

City/State/Zip: Hobbs, New Mexico 88240

Telephone No: (505) 393-9174 Fax No: (505) 397-1471

Sampler Signature: Rozanne Johnson (505)631-9310 e-mail: rozanne@valornet.com

Project Name: EME M-5 SWD

Project #:

Project Loc: T20S R37E Sec5 M ~ Lea County New Mexico

PO #:

Report Format: [X] Standard [ ] TRRP [ ] NPDES

(lab use only)

ORDER #: 6K15002

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl (2) 40 ml glass vials	H_2SO_4	NaOH	$Na_2S_2O_3$	None (1) 1 Liter HDPE	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge	GW = Groundwater S=Soil/Solid	NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 8015M	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles (BTEX-N 8260)	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Total Dissolved Solids	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	Monitor Well #1-Shallow			11/10/2006	9:20		3	X		2				1		GW					X	X					X			X		X
02	Monitor Well #1-Deep			11/10/2006	10:15		3	X		2				1		GW					X	X					X			X		X

Special Instructions:

Please email to : kpope@riceswd.com mfranks@riceswd.com rozanne@valornet.com

Relinquished by:	Date	Time	Received by:	Date	Time
Rozanne Johnson	11/14/06	20:00	James Johnson	11/14/06	20:01
James Johnson	11/15/06	8:10			
			Received by ELOT:	11/15/06	8:10

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt: 0.5 °C

Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

ent: RICO Op.

te/ Time: 11/15/06 8:10

o ID #: 6K15002

ials: CK

Sample Receipt Checklist

				Client Initials
Temperature of container/ cooler?	Yes	No	0.5 °C	
Shipping container in good condition?	Yes	No		
Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
Chain of Custody present?	Yes	No		
Sample instructions complete of Chain of Custody?	Yes	No		
Chain of Custody signed when relinquished/ received?	Yes	No		
Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
Container label(s) legible and intact?	Yes	No	Not Applicable	
Sample matrix/ properties agree with Chain of Custody?	Yes	No		
Containers supplied by ELOT?	Yes	No		
Samples in proper container/ bottle?	Yes	No	See Below	
Samples properly preserved?	Yes	No	See Below	
Sample bottles intact?	Yes	No		
Preservations documented on Chain of Custody?	Yes	No		
Containers documented on Chain of Custody?	Yes	No		
Sufficient sample amount for indicated test(s)?	Yes	No	See Below	
All samples received within sufficient hold time?	Yes	No	See Below	
Subcontract of sample(s)?	Yes	No	Not Applicable	
VOC samples have zero headspace?	Yes	No	Not Applicable	

Variance Documentation

act: _____ Contacted by: _____ Date/ Time: _____

arding: _____

ective Action Taken: _____

k all that Apply:

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

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

January 25, 2005

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

RE: M-5 Redwood Tanks, Section 5 T20S R37E Unit M
NMOCD Case #NOT YET ASSIGNED

Dear Wayne:

In your E-mail of November 18, 2004, you wrote:

1. Collect soil samples 3 feet below the bottom of where the two tanks sit. Soil samples shall be analyzed for BTEX, TPH and Chlorides.

2. Provide documentation from the landowner that burying the asphaltic material is permissible. If landowner agrees, then perform a SPLP 1312 on this material.

3. Notify this office and the local OCD office when sampling occurs.

With respect to items 1 and 3, ROC routinely collects samples such as you requested prior to closure of sites. In the future, we will specifically reference this standard closure protocol our corrective action plan. We will notify the local NMOCD office 72 hours before ROC obtains the samples. Please examine Figure 1, which is a southwestern looking view of the depression caused by removal of the redwood tanks. We have attached the original file of this digital image to this submission to permit close examination. The green hardware (well control valve) and 165-gallon white tank are associated with the active salt water disposal well that will remain on-site. In the bottom of the depression are the two circular concrete bases of the former tanks. Cleaning and inspection of these concrete bases shows no discoloration of the concrete due to intrusion of produced water and hydrocarbons and no fractures or other conduits that would allow seepage to the subsurface through the concrete. The attached image labeled

"hole 1" provides a close-up of the concrete pad. We do not propose to compromise the integrity of these concrete pads to obtain samples directly below the tanks. These images suggest that seepage from the tanks occurred through the redwood or where the redwood met the concrete. We will sample in the areas of obvious seepage at or near the edges of the concrete slab.

Figure 1 does show discolored soil to the left (east) of the active disposal well and a stockpile of discolored soil on the west side of the well. Our Corrective Action Plan presents data from two boreholes located in the area of the stockpile shown in Figure 1. Samples from these borings (SB-3 and SB-4) detected high total petroleum hydrocarbon values but low BTEX concentrations. Below we reproduce a portion of the soil analytical results from our Corrective Action Plan.

Well_ID	Date	GRO_C6_C12	DRO_>C12_C35	TOTAL_C6_C35	Chloride	Benzene	Toluene	Ethylbenzene	p/mXylene	oXylene
		Results in mg/kg				Results in ug/kg				
M5 SB4 4'	11/5/2003	1740	11300	13040		74.1	<25	476	1560	65.9
M5 SB4 2'	11/5/2003	203	2210	2413	88.6	<25	<25	1090	228	25.3
M5 SB4 6'	11/5/2003	133	593	726		<25	<25	325	<25	<25
M5 SB4 7'	11/5/2003	56.6	161	218	35.4	<25	<25	143	38	<25

We placed our hand-auger boring (B-4) about 3 feet from the edge of the tank; the arrow in Figure 1 is the location of this boring. Boring B-4 was located essentially at the edge of the depression shown in Figure 1. To provide additional characterization of the residual hydrocarbon material, as requested by NMOCD, we plan the following:

1. Obtain 2 representative samples from the side of the depression where the tanks once stood at the location of SB-4 to confirm the initial results presented in our Corrective Action Plan.
2. Hand auger below the concrete pad at this same location to a depth of 9 and 11 feet below the original grade (about 2 and 4 feet below the concrete pad) and obtain samples for TPH and BTEX.
3. Obtain 2 samples using the protocol outlined in 1 (for a sample above the pad) and 2 (for a sample below the pad) above at the location east of the active disposal well where Figure 1 shows some discoloration of soil.
4. Repeat the protocol at a third location selected to characterize the residual soil near the eastern-most tank pad.
5. Obtain one sample of the surface asphaltic material that comprised the berms around the former storage tanks.
6. We will ask the laboratory to analyze these nine (9) samples for TPH and BTEX using the following methods:
   (i) bvBenzene, toluene, ethylbenzene and xylene
      - EPA Method 8021
   (ii) Total Petroleum Hydrocarbons
      - EPA Method Modified 8015
   (iii) Chloride
      - EPA Method 300

7. As a matter of academic interest and to respond to NMOCD's second request, we will ask the laboratory to use the SPLP method (BTEX) for the two samples that exhibit the highest TPH concentration.

Some states employ the SPLP analytical method to evaluate Risk Based Corrective Action initiatives at specific sites. As directed by the NMOCD, we will comply with your request and employ this method as outlined in item 7 of our proposed scope of work. To what shall we compare these results? In New Mexico, a protocol for evaluating a risk-based corrective action for residual hydrocarbons in soil does exist within the UST Guidance manual; however the UST Manual does not employ the SPLP method.

If the analyses confirm the results presented in the Corrective Action Plan, we will anticipate NMOCD approval of the plan and we will move forward as proposed.

With respect to NMOCD request #2, we need clarification regarding the regulatory authority for this request in order to gain approval for this action by the System Partners. We clearly understand NMOCD's mandate under the Oil and Gas Act is protection of fresh water, public health and the environment. If NMOCD agrees that our plan provides such protection and approves this Corrective Action Plan, we will notify the landowner as is our custom. If any landowner objects to any Corrective Action Plan that is consistent with Regulations or Rules, we will discuss the plan with the landowner and negotiate a business solution that remains consistent with Rules and is consistent with our lease. Perhaps these negotiations will cause us to submit a modification to the approved plan. However, in the absence of an NMOCD-approved Corrective Action Plan, we have nothing to present to the landowner.

ROC would like to resolve this matter to permit backfilling of the depression shown in Figure 1.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall T. Hicks

Randall Hicks
Principal

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

November 3, 2004

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

RE: M-5 Redwood Tanks- Response to NMOCD Comments

Dear Mr. Price

On October 1, 2003 you transmitted an email communication which included these questions:

1. Who is the landowner? [of the M-5 site]
2. Your report indicates that natural conditions for chloride are between 209 and 479 ppm. Are you talking about soil or water?
3. The sites located on plate 5 (EME) who do they belong to?

Rice Operating Company leases the land that includes the active injection well and the former Redwood Tanks from the Barber Estate. This estate includes James Dellis Barber, Mary V. Barber, Jimmie T. Cooper, Broadman Ware, Browning Ware, Connie Ware, and Weston Ware.

All of the chloride measurements referenced in your email communication are soils data. We believe the background chloride in soil is slightly higher than other places in Lea County due to this site's proximity to the former Climax Chemical facility. Windblown salt from the various exposed piles at this site is probably distributed downwind (east). Precipitation will drive the windblown salt into the upper vadose zone. We have seen this same phenomenon of slightly elevated background chloride in soil in Eddy County near the Potash Mines.

With respect to the EME system sites identified on Plate 5, the land ownership is:

M-5 SWD	Barber Estate
P-6 Leak	Chevron Texaco
Jct. K-6	U.S. Government, BLM
Jct. M-16-1	State of New Mexico, SLO
Jct. E-5	Barber Estate
Jct. N-5	Barber Estate
M-9 SWD	S&W Cattle Co. (Trent Stradley)
Jct. N-4-1	Elsie Reeves

If you have any additional questions or comments regarding our proposed closure of this site, please contact Kristin Pope of Rice Operating Company with a copy to my office.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall T. Hicks
Principal

Copy:
Rice Operating Company

-----Original Message-----
From: Price, Wayne [mailto:WPrice@state.nm.us]
Sent: Friday, October 01, 2004 4:46 PM
To: Carolyn Doran Haynes (E-mail); Randall Hicks (E-mail)
Cc: Sheeley, Paul; Johnson, Larry
Subject: Rice M-5 Redwood Tanks

In order for OCD to continue its evaluation of this site please provide the
following information:

1. Who is the landowner?
2. Your report indicates that natural conditions for chloride are between 209 and 479 ppm. Are you talking about soil or water?
3. The sites located on plate 5 (EME) who do they belong to?

Sincerely:

Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us

----- Original Message -----
From: "Price, Wayne" <WPrice@state.nm.us>
To: "Carolyn Doran Haynes (E-mail)" <riceswd@leaco.net>; "Kristin Farris
Pope (E-mail)" <enviro@leaco.net>
Cc: "Sheeley, Paul" <PSheeley@state.nm.us>; "Johnson, Larry" <LWJohnson@state.nm.us>
Sent: Thursday, November 18, 2004 11:07 AM
Subject: M-5 Redwood Tank Project Sec 5-T20s-R37E

> Dear Ms Haynes and Pope:
>
> OCD is in receipt of the M-5 Corrective Action Plan dated September
> 10, 2004. After reviewing the document the OCD has the following
> comments and
> requirements:
>
> 1. Collect soil samples 3 feet below the bottom of where the two tanks
> sit. Soil samples shall be analyzed for BTEX, TPH and Chlorides.
>
> 2. Provide documentation from the landowner that burying the asphaltic
> material is permissible. If landowner agrees, then perform a SPLP
> 1312 on this material.

>
> 3. Notify this office and the local OCD office when sampling occurs.
>
>
>
> Sincerely:
>
> Wayne Price
> New Mexico Oil Conservation Division
> 1220 S. Saint Francis Drive
> Santa Fe, NM 87505
> 505-476-3487
> fax: 505-476-3462
> E-mail: WPRICE@state.nm.us
>

From: Katie Lee
Sent: Thursday, September 09, 2004 5:30 PM
To: Wayne Price
Cc: Kristen at Rice
Subject: M-5 Report
Dear Mr. Price:

R.T. Hicks Consultants, Ltd. is pleased to submit the Corrective Action Plan for M-5 Redwood Tanks on behalf of Rice Operating Company. Due to file size restrictions, you will find the entire report with tables, plates and Appendix A attached, with the exception of Appendix B. A CD with the full report and both appendices follows via the post office.

If you have any questions, please let us know.

Best regards,

Katie Lee
R.T. Hicks Consultants, Ltd.
505.266.5004

September 10, 2004

Corrective Action Plan

M-5 REDWOOD TANKS
MONUMENT, NEW MEXICO

Prepared for:

Rice Operative Company
122 West Taylor
Hobbs, NM 88240

R.T. HICKS CONSULTANTS, LTD.
901 RIO GRANDE BLVD. NW, SUITE F-142, ALBUQUERQUE, NM 87104

1.0 BACKGROUND

The M-5 Redwood Tank Site is located about 2 miles southwest of Monument, New Mexico (Section 5 T20S R37E Unit M). Rice Operating Company (ROC) is the service provider (operator) for the Eunice-Monument-Eumount (EME) Saltwater Disposal System and has no ownership of any portion of 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. ROC abandoned the use of these tanks on February 11, 2004. Plate 1 is a topographic map that shows the location of the site and nearby water supply and monitoring wells in the Monument area.

On October 2, 2003, R.T. Hicks Consultants, Ltd. (Hicks Consultants) submitted a work plan to NMOCD describing the activities upon which this Corrective Action Plan is based. NMOCD approved our workplan on that same day. Plate 2 shows the locations of soil borings and monitoring wells used to characterize the lease area, as described in the work plan. Plate 1 also shows the location of monitoring and water supply wells near the site. We obtained data from many of these nearby wells to better characterize regional water quality and ground water flow direction.

The field procedures employed by Hicks Consultants were consistent with industry practice and with previously-submitted ROC characterization plans (e.g. junction box plan). Hicks Consultants used the site data and obtained additional data from public sources to evaluate the potential impact to ground water quality as a result of any leakage from the tanks and to develop a remedy to protect ground water quality and to restore the ground surface.

2.0 RESULTS OF FIELD PROGRAMS AND INVESTIGATIONS

LITHOLOGIC CHARACTERISTICS OF THE VADOSE ZONE

As shown in Plate 2, we drilled three soil borings (B-1, B-2, B-3) and one hand-auger boring (B-4) to characterize the magnitude and extent of any impact due to produced water seepage from the Redwood Tanks. After evaluation of ground water elevations in nearby monitoring wells (Plate 3), we confirmed the regional ground water flow direction, which is generally to the south-southeast. We then installed a monitoring well cluster at the southeastern corner of the lease.

The logs for each of these borings are included in Appendix A. We observed a 33-foot thick vadose zone that is composed of fine sand and caliche. The sand is very similar to dune sand, which dominates the ground surface around the site. We commonly penetrated well-indurated sand and in some core samples, we observed calcite/caliche veins. Clay was present in small amounts.

In SB-4, which we hand-augered to 7 feet deep, the sand was jet black due to hydrocarbons. Samples from this boring resembled an asphalt.

CHLORIDE AND HYDROCARBON DISTRIBUTION IN THE VADOSE ZONE

Table 1 shows the laboratory results of soil/sediment sampling during the October field program (see also Appendix B). Our observations at the M-5 Redwood Tank site are similar to our findings at other sites: total petroleum hydrocarbons can exceed 20,000 ppm yet the constituents of concern, such as benzene, are below 100 ppb (see sample M5 B4-4 feet on Table 1). In most samples, benzene is below the laboratory detection limits.

Chloride concentrations in soil/sediment samples were also very low (Table 1 and Appendix A). The lithologic logs presented in Appendix A show that field chloride concentrations range between 209 and 479 ppm, a very narrow range that is consistent with natural conditions. Because of the lack of variability in chloride measurements, we elected to forego field analysis of B3 and MW-1.

Field analyses overestimated soil chloride concentration compared to laboratory tests during this program. We split samples in SB-1 for the 7.0

foot depth and the 16.8 foot depth. We found that the laboratory reported chloride values of <20.0 and 53.2 ppm respectively whereas the field values for these samples were 208 and 218 ppm. For SB-2 at 12 feet below grade, the laboratory result is 142 ppm and the field test showed 321. These types of difference between laboratory and field analyses are common, especially in samples with low chloride content. Regardless of this difference in values, the results clearly show no material impact to soil from the high chloride produced water stored in the tanks.

CHARACTERISTICS OF THE SATURATED ZONE

The log of MW-1 (Appendix A) shows that the lithology of the saturated zone contains more caliche and clay than samples retrieved from the vadose zone. The air rotary drilling process did not produce large volumes of water from the monitoring well or any of the soil borings, further testifying to the fine-grained nature of the saturated zone. At the M5-1 monitoring well, we ceased drilling when we encountered the characteristic red clay of the Dockum Group at 55 feet below grade.

The hydrogeologic map of Nicholsen and Clebsch (1961) shows that the Ogallala Aquifer is not present in much of the Monument area. The absence of a gravel unit immediately overlying the red beds, which is typical of the Ogallala, supports the mapping of Nicholsen and Clebsch. We conclude that the Ogallala Aqufer is not present at the site.

As displayed in Plate 3 the water table elevation within 1-mile of the site is very flat. On a larger scale, Plate 4 shows that groundwater flows south-southeast, perpendicular to the ground surface elevation in this general area. Table 2 shows the data used to compile this potentiometric surface map.

CHLORIDE AND HYDROCARBON DISTRIBUTION IN GROUND WATER

We obtained ground water grab samples from the temporary piezometers installed in B1, B2, and B3. In these piezometers, benzene was below laboratory detection levels in B1 and B3. In B2, the benzene concentration of 7.6 ppb is below the New Mexico Water Quality Control Commission standards (10 ppb). No volatile organic compounds exceed the WQCC standards in any of these grab samples. Below the former redwood tanks, ground water TDS is 15,000-18,600 ppm. The dissolved solids are dominated by sodium, chloride and calcium.

In M5-1, which lies about 200 feet southeast from the redwood tanks, three sampling events have not detected any volatile organic constituents in M5-Is (Table 3). The quarterly sampling data also data suggest that

TDS ranges between 10,000 and 15,000 ppm and chloride in ground water is 5000-6500 ppm. Chloride is distributed throughout the thickness of the saturated zone.

Examination of ground water chemistry data from nearby monitoring wells (see Plate 5) shows TDS values exceeding 5,000 ppm up gradient and cross-gradient of the redwood tanks at M-5. Monitoring well P6-2, which is located up gradient from a known pipeline leak site and up gradient from the M-5 redwood tank site, shows a TDS of nearly 20,000 ppm.

3.0 DISCUSSION AND CONCLUSIONS

The soil/sediment sampling data clearly show that any seepage from the former redwood tanks have not caused impairment of ground water with respect to hydrocarbons. Moreover, the ground water data also provide empirical evidence that the asphaltic sands that surround the former tanks are not releasing hydrocarbons to ground water. Benzene was detected in only one of 12 samples and this single analyses showed a concentration of less than 75 ppm. We conclude that low concentrations of residual asphaltic hydrocarbons in the vadose zone and on ground surface pose no threat to ground water quality.

Soil chemistry shows that residual chloride in the vadose zone is at or near background concentrations. Because chloride concentrations are at or near background levels, residual chloride also poses no threat to ground water quality.

Residual hydrocarbon and chloride in the vadose zone also pose no threat to the success of surface restoration, human health or the environment. Ground water TDS and chloride at the temporary piezometers is slightly higher than the TDS observed in M5-1, which samples a larger portion of the aquifer than the discrete sampling point of the piezometers. We conclude that the slightly higher TDS and chloride in the piezometers does not suggest that the redwood tanks released sufficient produced water to create measurable impairment. Additionally all of the ground water samples from the M-5 site show a lower TDS than the up gradient well P 6-2. We conclude that regional degradation of ground water quality with respect to chloride and TDS is due to past releases up gradient from the M-5 site.

4.0 REMEDY EVALUATION AND PROPOSED ALTERNATIVE

We examined the potential remedies for the M-5 Redwood Tank restoration identified in the NMOCD-approved work plan. Based upon our evaluation, Hicks Consultants recommends burial of the asphaltic hydrocarbons sands which are now on the ground surface in the hole created by the tank removal and importation of clean fill. The site may then be graded and eventually re-seeded when ROC plugs and abandons this active saltwater disposal well.

Removal of surface asphaltic material, which generally contain no regulated constituents of concern (e.g. benzene), creates an environmental benefit by allowing natural re-vegetation at the edges of the site in areas where ROC future operations associated with the salt water disposal well will be minimal . Restoration of the surface through importation of soil and eventual re-seeding will return this parcel to the same productive capacity of the surrounding land. We elected to minimize any excavation of stained soil below the root zone because such excavation provides no environmental benefit and instead creates environmental damage. For example, unnecessary excavation causes environmental damage in the form of air pollution (dust, vehicle exhaust). The subsurface asphaltic material does not contain regulated constituents in concentrations high enough to cause impairment of fresh water or a threat to human health or the environment. Therefore, excavation of this material is unnecessary.

We also plan to import sand/soil from the adjacent property that now houses the tanks associated with the active salt water disposal well at the site. Employing a source of soil close to the facility also minimizes the environmental damage (air pollution, dust, etc.) which can result from our proposed action.

The surface and subsurface asphaltic material has remained on site for the past several decades and has not caused impairment of ground water with respect to hydrocarbons. As stated above, the hydrocarbons in this asphaltic material generally contain no regulated constituents of concern and represent no threat to human health, the environment or the eventual surface re-vegetation of the site.

After ROC plugs and abandons the saltwater disposal well, final surface restoration could include placement of sand over the area to mimic the stabilized sand dunes that surround the site. The Shinnery Oak can

colonize the restored sand dunes over the former redwood tanks, because upward movement of chloride into the root zone is not a technical problem. High levels of chloride do not exist in the vadose zone at this site. We believe the vadose zone at this site does not contain any regulated constituents in concentrations that are materially different from background conditions.

We recommend voluntary semi-annual sampling of ground water at the M-5 site to assist in the establishment of a database for future regional groundwater characterization. Final surface restoration, as described above, may be a condition for the plugging and abandonment of the saltwater disposal well. We recommend closure of the regulatory file upon documentation of site grading.

TABLES

Table 1. Laboratory Results of Soil Samples at M-5 Site

Well_ID	Date	Field Cl	Chloride	GRO_C6_C12	DRO_>C12_C35	TOTAL_C6_C35	Benzene	Toluene	Ethylbenzene	p/mXylene	oXylene	Naphthalene
		Results in mg/kg					Results in ug/kg					
M5 B-1 29.5	11/5/2003			507	1470	1977	<25	<25	1450	1250	<25	297
M5 B-1 6'	11/5/2003	208										
M5 B-1 7'	11/5/2003		<20	116	474	590	<25	<25	25.2	26.6	<25	51
M5 B-1 11'	11/5/2003	251										
M5-B-1 15'	11/5/2003	218										
M5 B-1 16.8	11/5/2003		53.2	857	1480	2337	<100	<100	4650	5370	135	1380
M5-B-1 21'	11/5/2003	360										
M5 B-1 26-27'	11/5/2003			4780	11100	15880	<200	<200	13700	15100	633	4160
M5-B-1 27'	11/5/2003	479										
M5-B-1 31'	11/5/2003	383										
M5 B-2 8'	11/5/2003	262										
M5 B-2 12'	11/5/2003	321										
M5 SB2 12'	11/5/2003			1140	4210	5350	<25	<25	326	795	61.9	78.2
M5 B-2 15'	11/5/2003	386										
M5 B-2 19'	11/5/2003	352										
M5 SB2 23'	11/5/2003			897	3310	4207	<25	<25	165	837	<25	91.2
M5 B-2 27'	11/5/2003	273										
M5 B-2 30'	11/5/2003	458										
M5 B-3 11'	11/5/2003			606	5370	5976	<25	<25	314	304	<25	479
M5 B-3 16.5'	11/5/2003		106	<10	<10	<10	<25	<25	<25	<25	<25	<25
M5 B-4 4'	11/5/2003			1740	11300	13040	74.1	<25	476	1560	65.9	249
M5 B-4 2'	11/5/2003		88.6	203	2210	2413	<25	<25	1090	228	25.3	45
M5 B-4 6'	11/5/2003			133	593	726	<25	<25	325	<25	<25	150
M5 B-4 7'	11/5/2003		35.4	56.6	161	218	<25	<25	143	38	<25	135

Table 2. Water Elevations of wells in Monument Area

Site Name	Depth to Water	Surface Elevation	Ground Water Elevation
	(feet)		
EME Jct K-33-1	37.3	3559.7	3522.4
EME Jct M-16-1	22.8	3551.5	3528.7
EME Jct N-5-1	37.8	3555.4	3517.6
EME Jct E-5-1	40.9	3558.1	3517.2
EME Jct K-6-1	37.6	3561.3	3523.7
EME P-6-1 Leak Site	37.4	3557	3519.6
EME M-9	22.61	3557	3534.39
EME Jct N-4-1	31	3555.1	3524.1
EME M-5-1	32.8	3556.1	3523.3
EME SWD System	37	3557.4	3520.4
EME B-6	28	3560.3	3532.3
EME F-29	17	3609.9	3592.9
EME I-1-A & I-1-C	26	3565.6	3539.6
EME I-35	122	3546.9	3424.9
EME J-9	25	3543.3	3518.3
EME K-36	115	3541	3426
EME N-16-1	32	3523.9	3491.9
EME P-6-2 Leak Site	37.97	3558	3520

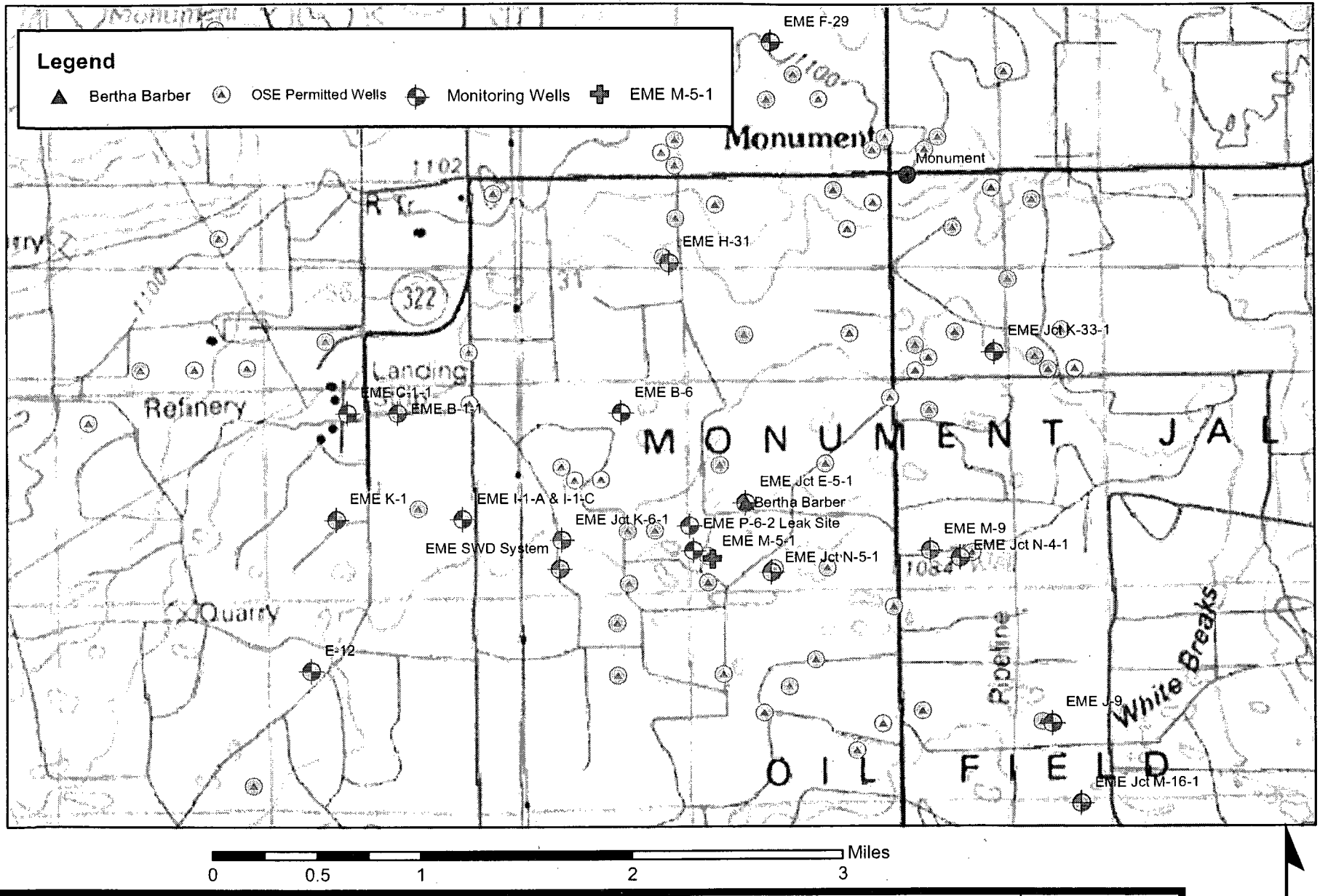
Source: ROC files and NMOCD files

Table 3. Groundwater Chemistry at M-5 Site

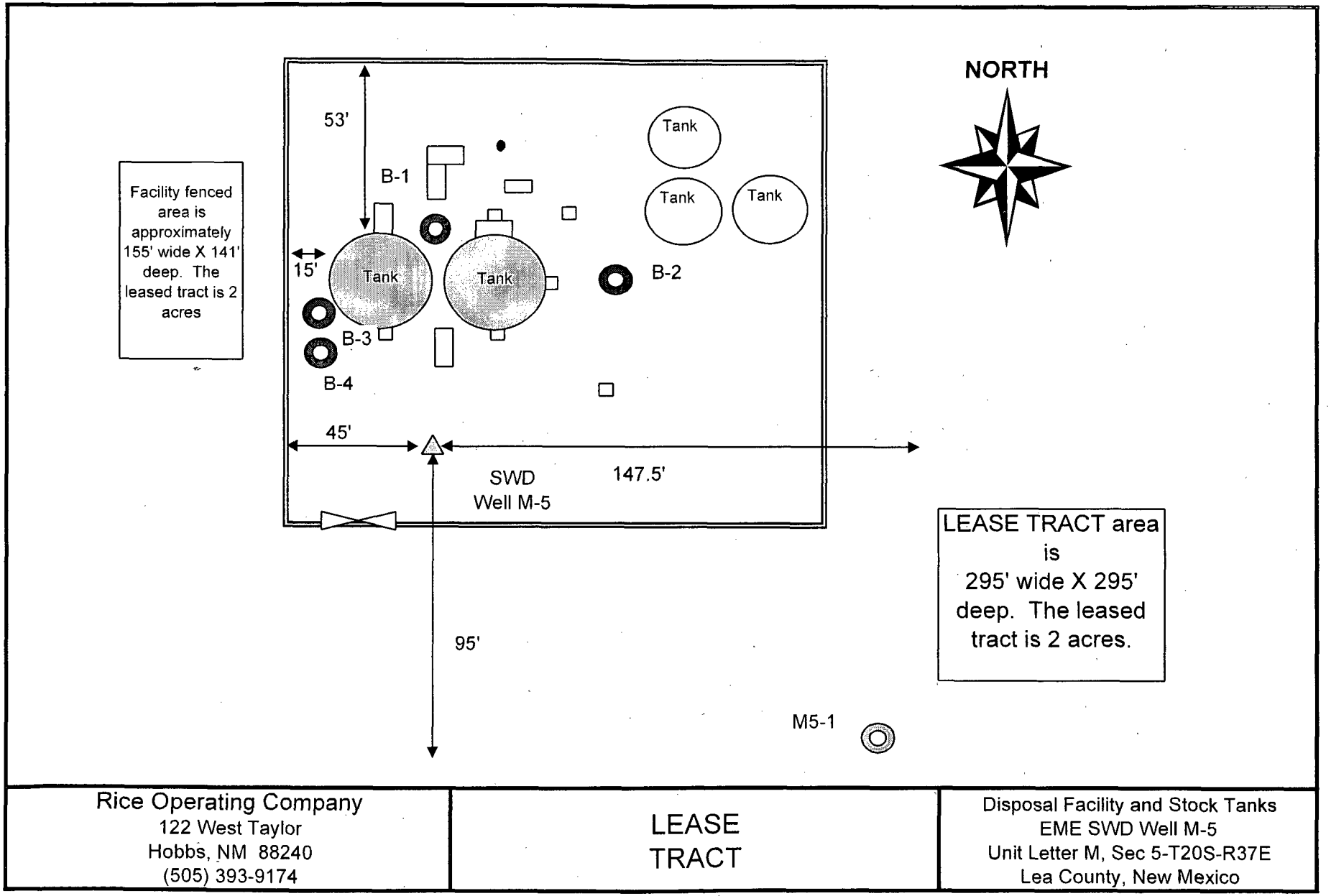
Well_ID	Date	Bicarbonate_ Alkalilnity	Caronate_ Alkalinity	Chloride	Hydroxide_ Alkalinity	Sulfate_37 5.4	Calcium	Magnesium	Potassium	Sodium	Bromide_3 00	TDS
		mg/L										
B1 grab	11/5/2003	188	<0.1	8600	<0.1	599	1610	470	46.2	2910	<50	17200
B2 grab	11/5/2003	208	<0.1	7090	<0.1	566	1640	445	44.8	2490	<50	15000
B3 grab	11/5/2003	188	<0.2	7890	<0.2	660	1550	490	57.4	3033	<100	18600
MW-1s	12/11/2003			6198								10784
MW-1s	2/20/04			5320								14500
MW-1s	5/6/04			5940								12400
MW-1d				6198								11736

Well_ID	Date	Benzene	Toluene	Ethylbenz ene	p/mXylene	oXylene	Total Xylenes	Naphthale ne	Dibromofluor omethane	1_2_dichlor oethance_d 4	Toluene_d 8	4_Bromofl uorobenze ne
		Results in ug/kg							% Recovered			
B1 (voa)	11/5/2003	<1	<1	7.84	7.97	<1		4.15	124	123	116	116
B2 (voa)	11/5/2003	7.6	1.02	15	26.8	1.11		11.5	126	125	106	125
B3 (voa)	11/5/2003	<1	<1	12.4	2.89	<1		11.5	127	127	113	111
MW-1s	12/11/03	<0.002	<0.002	<0.002			<0.002					
	2/20/04	<0.001	<0.001	<0.001			<0.001					
	5/6/04	<0.001	<0.001	<0.001			<0.001					
MW-1d	12/11/2003	<0.002	<0.002	<0.002			<0.002					

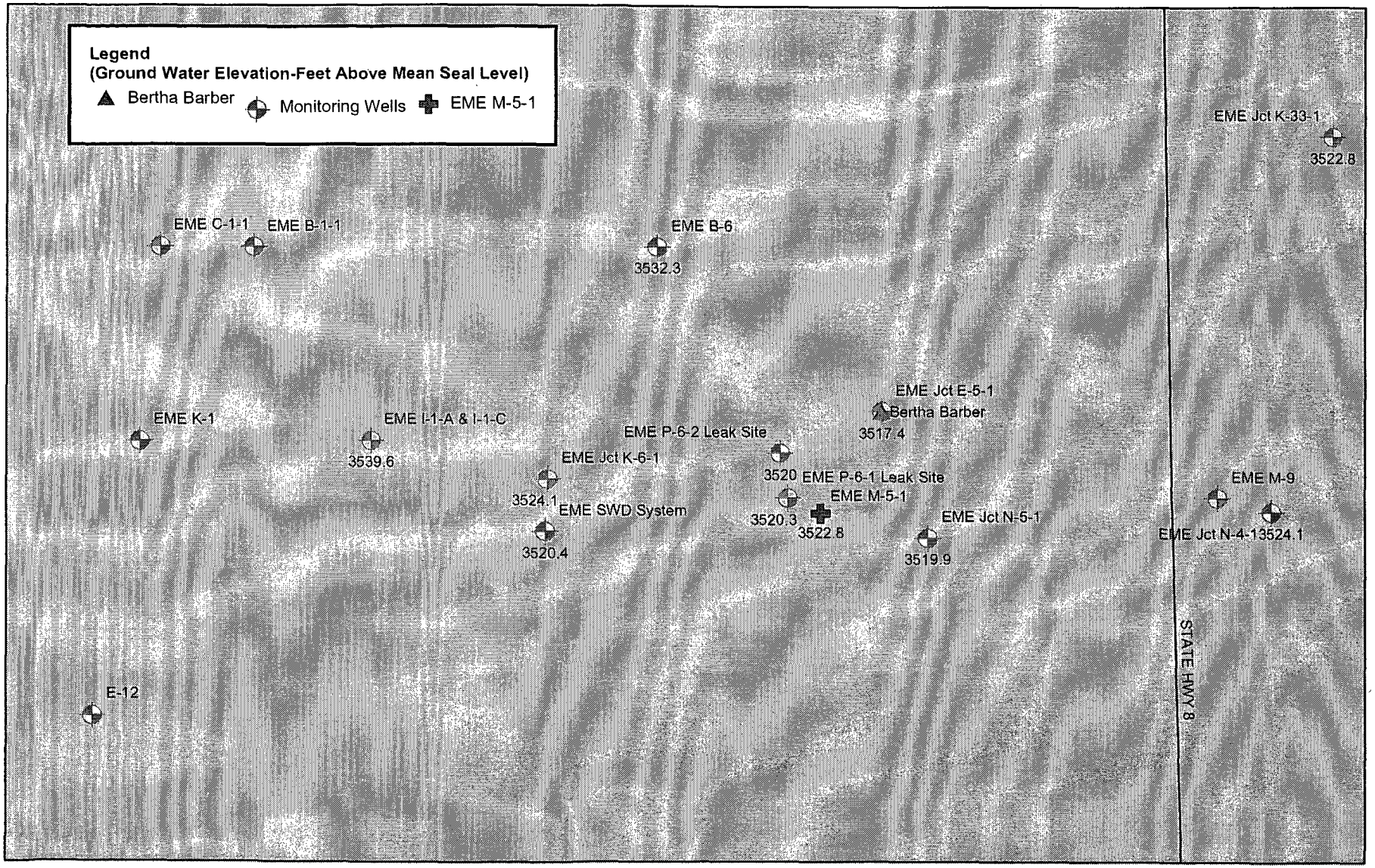
PLATES



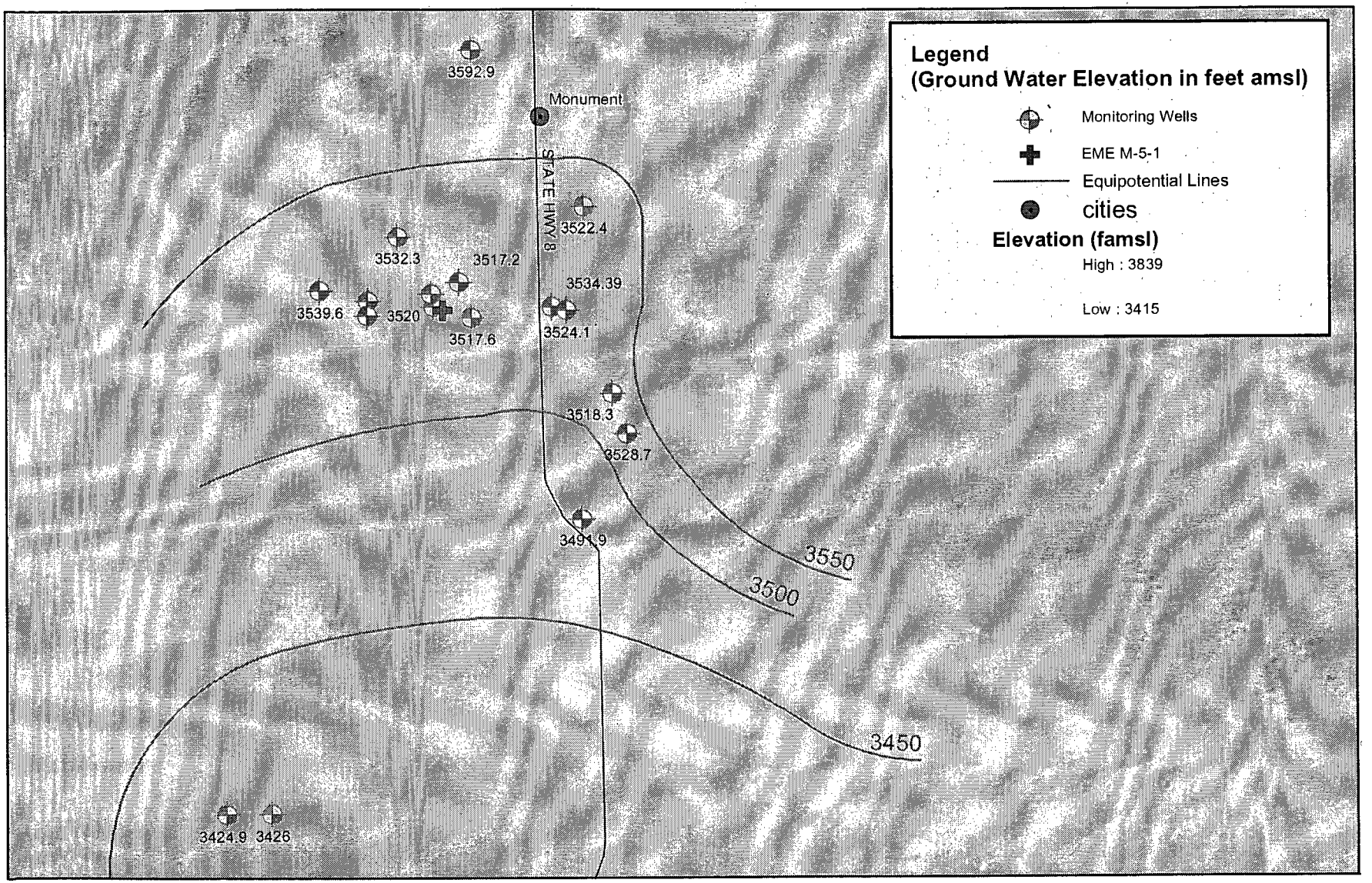
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Map Showing Location of Monitoring Wells and Water Well Permits	Plate 1
	Rice Operating Company: M-5 Redwood Tanks	July 2004



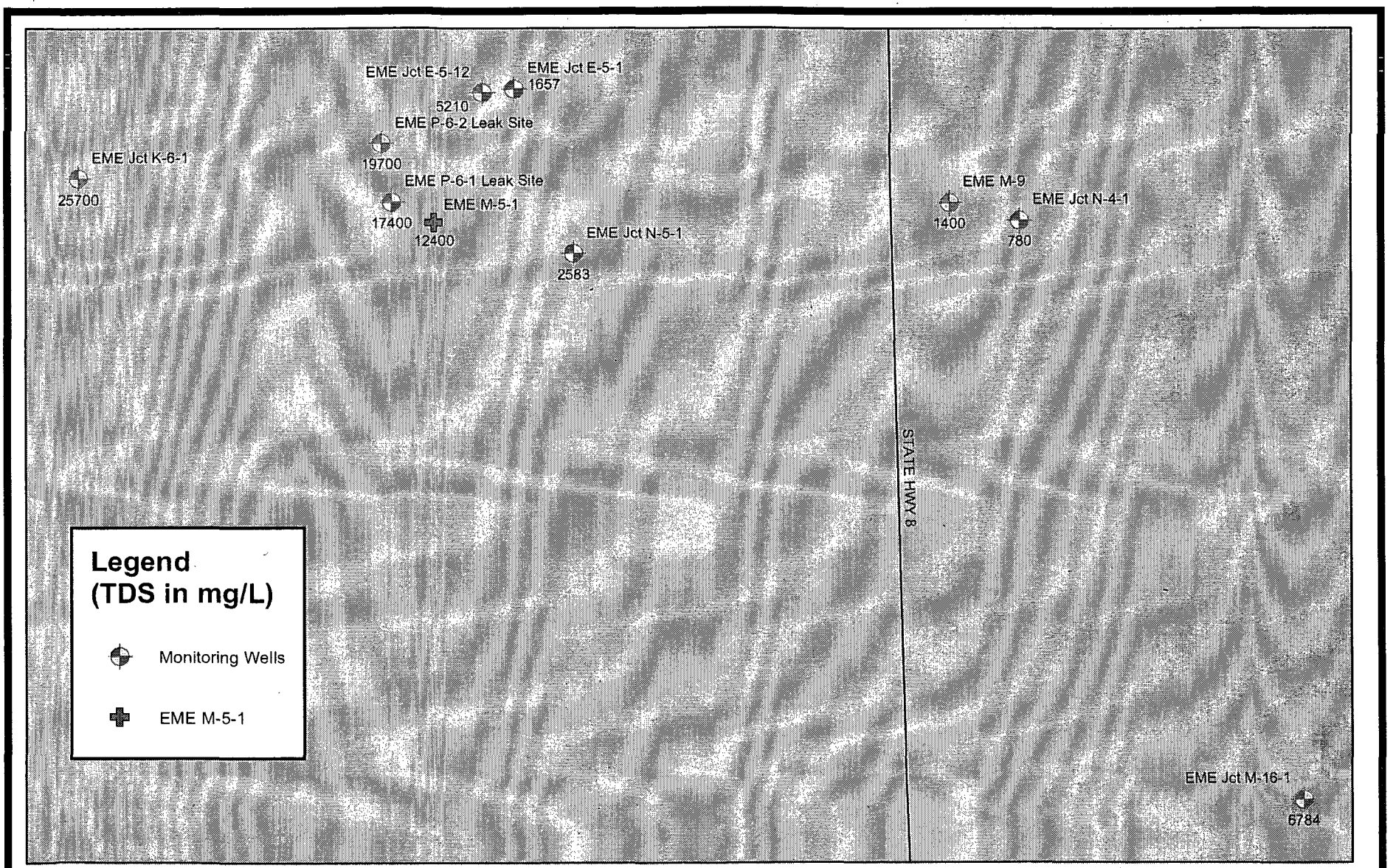
Rice Operating Company 122 West Taylor Hobbs, NM 88240 (505) 393-9174	LEASE TRACT	Disposal Facility and Stock Tanks EME SWD Well M-5 Unit Letter M, Sec 5-T20S-R37E Lea County, New Mexico



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Potentiometric Surface Map of the Monument Area	Plate 3
	Rice Operating Company: M-5 Redwood Tanks	July 2004



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Potentiometric Surface Map	Plate 4
	Rice Operating Company: M-5 Redwood Tanks	July 2004



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Total Dissolved Solids (TDS) in nearby Wells	Plate 5
	Rice Operating Company: M-5 Redwood Tanks	July 2004

APPENDIX A

R.T.Hicks Consultants, Ltd. 901 Rio Grande NW, Suite F-142 Albuquerque, New Mexico 87104		M-5 Project Name	Rice M-5
		Rice Client	
Logger	R. Hicks		
Driller	Eades Drilling	T20S R39E S30 1380 FEL 560 FSL	
Method	Air Rotary		
Start Date	11/16/2003	Lea County	Boring #1, North side between tanks
End Date	11/16/2003	New Mexico	

Sample			Description		Lith	Well Construction
Depth	Number	Cl		Grade		Cement Pad
			0-5.5 Slough			
				5		
6		208	5.5-6.5 Drk Gray-grn fine sand w/ hydrocarbon odor - v. little clay			
			6.5-15 black mottled fine sand with hydrocarbon odor, dry,	10		
11		251	some clay, odor decreasing with depth			
				15		
16		218				
16.8	1103031249		15-25 white to buff fine sand with some caliche, slight hydrocarbon odor			
20-21	1103031300			20		
21		360				
				25		
26-27	1103031323	479	25-28 indurated caliche and cemented dune sand, some HC odor, white to brown			
			28-30 as above, moist			
29-29.5	1103031335			30		
30		383				
				35		
				40		
			Cuttings suggest lithology as above			

R.T.Hicks Consultants, Ltd. 901 Rio Grande NW, Suite F-142 Albuquerque, New Mexico 87104		M-5 Project Name	Rice M-5
		Rice Client	
Logger	R. Hicks	T20S R39E S30 1380 FEL 560 FSL	
Driller	Eades Drilling		
Method	Air Rotary		
Start Date	11/16/2003	Lea County	B-3, west of tanks within berm
End Date	11/16/2003	New Mexico	

Sample			Description		Lith	Well Construction
Depth	Number	Cl		Grade		Cement Pad
				5		
			5-10 Light Brown Fine Blow Sand (No Cement)	10		
11	1104030852		10-20 White Caliche w/ some White Sand Plus Caliche	15		
16.5	1103030905			20		
			20-25 LT Brown Sand w/some Caliche (Cement Slightly Moist)	25		
			Moist "Mudballs" of Clay. Caliche w/some Sand	30		
			"Mudballs" Red on Outside - Tan Caliche w/ Sand on Inside (Moist)	35		
			Moist "Mudballs" of Clay. Caliche w/some Sand	40		
			Cuttings suggest lithology is as above			

R.T.Hicks Consultants, Ltd. 901 Rio Grande NW, Suite F-142 Albuquerque, New Mexico 87104		M-5 Project Name	Rice M-5
		Rice Client	
Logger	R. Hicks		
Driller	Eades Drilling	T20S R39E S30 1380 FEL 560 FSL	
Method	Air Rotary		
Start Date	11/16/2003	Lea County	Boring #2, East of tank berm
End Date	11/16/2003	New Mexico	

Sample			Description		Lith	Well Construction
Depth	Number	Cl		Grade		
			0-5 no core, cuttings are black sand			
				5		
			5-7 drk gray/blk fine-grained dune sand			
6.0-7.0	1103031443	262	6-7 light brn/buff fine sand, dry, v. slight HC odor			
				10		
12	1103031459	321	10-18 brn/tan sand with caliche cement, some clay and faint HC odor			
15		386		15		
19		352				
20	1103031518		18-20 caliche with sand, white to buff, faint HC odor	20		
			22-25 caliche and fine dune sand, faint HC odor, brown to buff			
23		326				
24	1103031532					
				25		
			26-28 indurated fine sand with caliche cement, "veins" of calcite/caliche, some gray-brn clay, slt HC odor			
27		273				
28	1103031543					
31.5	1103031550	458	30-31.5 Sand and caliche, buff, slight HC odor, wet	30		
				35		
				40		
			Cuttings suggest lithology is as above			

APPENDIX B

ANALYTICAL REPORT

Prepared for:

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

Project:	M-5 SWD Soil Bore #1
PO#:	758
Order#:	G0307862
Report Date:	11/18/2003

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471 #1

Order#: G0307862
Project:
Project Name: M-5 SWD Soil Bore #1
Location: EME

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0307862-01	M5 7.0	SOIL	11/3/03	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					
	Chloride					
0307862-02	M5 16.8	SOIL	11/3/03 12:49	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					
	Chloride					
0307862-03	M5 B1	SOIL	11/3/03 13:23	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					
0307862-04	M5 29.5	SOIL	11/3/03 13:35	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0307862
Project:
Project Name: M-5 SWD Soil Bore #1
Location: EME

Lab ID: 0307862-01
Sample ID: M5 7.0 #1

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	1	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	116	10.0
DRO, >C12-C35	474	10.0
TOTAL, C6-C35	590	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	99%	70	130
1-Chlorooctadecane	106%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 15:46	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<25.0	25.0
Toluene	<25.0	25.0
Ethylbenzene	25.2	25.0
p/m-Xylene	26.6	25.0
o-Xylene	<25.0	25.0
Naphthalene	51.0	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	111%	53	144
1,2-dichloroethane-d4	104%	57	147
Toluene-d8	98%	64	128
4-Bromofluorobenzene	100%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0307862
Project:
Project Name: M-5 SWD Soil Bore #1
Location: EME

Lab ID: 0307862-02
Sample ID: M5 16.8 #1

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	1	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	857	10.0
DRO, >C12-C35	1,480	10.0
TOTAL, C6-C35	2,337	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	102%	70	130
1-Chlorooctadecane	111%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 16:11	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<100	100
Toluene	<100	100
Ethylbenzene	4650	100
p/m-Xylene	5370	100
o-Xylene	135	100
Naphthalene	1380	100

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	114%	53	144
1,2-dichloroethane-d4	114%	57	147
Toluene-d8	98%	64	128
4-Bromofluorobenzene	100%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris	Order#: G0307862
Rice Operating	Project:
122 W. Taylor	Project Name: M-5 SWD Soil Bore #1
Hobbs, NM 88240	Location: EME

Lab ID: 0307862-03
Sample ID: M5 B1 26-27

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	5	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	4,780	50.0
DRO, >C12-C35	11,100	50.0
TOTAL, C6-C35	15,880	50.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	18%	70	130
1-Chlorooctadecane	33%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 16:46	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<200	200
Toluene	<200	200
Ethylbenzene	13700	200
p/m-Xylene	15100	200
o-Xylene	633	200
Naphthalene	4160	200

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	119%	53	144
1,2-dichloroethane-d4	121%	57	147
Toluene-d8	101%	64	128
4-Bromofluorobenzene	101%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0307862
Project:
Project Name: M-5 SWD Soil Bore #1
Location: EME

Lab ID: 0307862-04
Sample ID: M5 29.5

#1

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	1	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	507	10.0
DRO, >C12-C35	1,470	10.0
TOTAL, C6-C35	1,977	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	102%	70	130
1-Chlorooctadecane	109%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 17:11	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<25.0	25.0
Toluene	<25.0	25.0
Ethylbenzene	1450	25.0
p/m-Xylene	1250	25.0
o-Xylene	<25.0	25.0
Naphthalene	297	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	117%	53	144
1,2-dichloroethane-d4	116%	57	147
Toluene-d8	100%	64	128
4-Bromofluorobenzene	100%	47	158

Approval: Celey D. Keene 11/18/03
Date

Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris		Order#:	G0307862
Rice Operating		Project:	
122 W. Taylor		Project Name:	M-5 SWD Soil Bore #1
Hobbs, NM 88240		Location:	EME

Lab ID: 0307862-01
Sample ID: M5 7.0

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	<20.0	mg/kg	1	20	9253	11/7/03	SB

Lab ID: 0307862-02
Sample ID: M5 16.8

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	53.2	mg/kg	1	20	9253	11/7/03	SB

Approval: Celey D. Keene 11/18/03
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezughe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS I, LTD. 12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0307862

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0007353-02			<10.0		
CONTROL SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0007353-03		952	759	79.7%	
CONTROL DUP SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0007353-04		952	756	79.4%	0.4%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0007353-05		1000	856	85.6%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8260B BTEX + NAPHTHALENE by GC/MS

Order#: G0307862

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/kg	0007451-02			<25.0		
Toluene-µg/kg	0007451-02			<25.0		
Ethylbenzene-µg/kg	0007451-02			<25.0		
p/m-Xylene-µg/kg	0007451-02			<25.0		
o-Xylene-µg/kg	0007451-02			<25.0		
Naphthalene-µg/kg	0007451-02			<25.0		
CONTROL SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/kg	0007451-03		50	63	126.%	
Toluene-µg/kg	0007451-03		50	63	126.%	
Ethylbenzene-µg/kg	0007451-03		50	51	102.%	
p/m-Xylene-µg/kg	0007451-03		100	100	100.%	
o-Xylene-µg/kg	0007451-03		50	54	108.%	
Naphthalene-µg/kg	0007451-03		50	44	88.%	
CONTROL DUP SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/kg	0007451-04		50	59	118.%	6.6%
Toluene-µg/kg	0007451-04		50	57	114.%	10.%
Ethylbenzene-µg/kg	0007451-04		50	48	96.%	6.1%
p/m-Xylene-µg/kg	0007451-04		100	91	91.%	9.4%
o-Xylene-µg/kg	0007451-04		50	49	98.%	9.7%
Naphthalene-µg/kg	0007451-04		50	51	102.%	14.7%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/kg	0007451-05		50	53.6	107.2%	
Toluene-µg/kg	0007451-05		50	54.7	109.4%	
Ethylbenzene-µg/kg	0007451-05		50	47.8	95.6%	
p/m-Xylene-µg/kg	0007451-05		100	95.1	95.1%	
o-Xylene-µg/kg	0007451-05		50	49.4	98.8%	
Naphthalene-µg/kg	0007451-05		50	48.8	97.6%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0307862

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0007361-01			<20.0		
MS SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0307873-01	354	500	851	99.4%	
MSD SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0307873-01	354	500	868	102.8%	2.%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0007361-04		5000	4960	99.2%	

CASE NARRATIVE

ENVIRONMENTAL LAB OF TEXAS

Prepared for:

Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0307862

Project: M-5 SWD Soil Bore #1

The following samples were received as indicated below and on the attached Chain of Custody record. All analyses were performed within the holding time and with acceptable quality control results unless otherwise noted.

SAMPLE ID	LAB ID	MATRIX	Date Collected	Date Received
M5 7.0	0307862-01	SOIL	11/03/2003	11/05/2003
M5 16.8	0307862-02	SOIL	11/03/2003	11/05/2003
M5 B1	0307862-03	SOIL	11/03/2003	11/05/2003
M5 29.5	0307862-04	SOIL	11/03/2003	11/05/2003

Surrogate recoveries on the 8015M TPH are outside of control limits due to dilution (G0307862-03).

The enclosed results of analyses are representative of the samples as received by the laboratory. Environmental Lab of Texas makes no representations or certifications as to the methods of sample collection, sample identification, or transportation handling procedures used prior to our receipt of samples. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved By: Clint D. Kline Date: 11/18/03

Environmental Lab of Texas I, Ltd.

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris
Company Name: RICE Operating
Company Address: 122 W. Taylor
City/State/Zip: Hobbs, NM 88240
Telephone No: (505) 393-9174
Fax No: (505) 397-1471
Sampler Signature: Kandall Hy

Project Name: M-5 SWD Soil Base #1
Project #:
Project Loc: EME
PO #: 158

030186-2

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO3	HCl	NaOH	H2SO4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify):	Analyze For: TCLP: TOTAL: TDS	SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	Naph	RUSH TAT (Pre-Scheduled)	Standard TAT
-01	MS 7.0	110303		1	X									X		X				X				X			
-02	MS 16.8	110303	1249	1	X									X		X				X				X			
-03	MS B1	110303	1323	1	X									X						X				X			
-04	MS @ 29.5	110303	1335	1	X									X						X				X			

Special Instructions: FAX to RANDY HICKS - email
Naphalene w/ BTEX ; (505) 266-0945

Relinquished by:	Date	Time	Received by:	Date	Time
Kandall Hy	1105	1900			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Rec @ 20	11-07-03	1657

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments:
Rec 5°C

p.13

Nov 18 03 04:37p

p.4

ANALYTICAL REPORT

Prepared for:

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

Project:	M-5 SWD Soil Bores #3 & #4 #2
PO#:	758
Order#:	G0307864
Report Date:	11/18/2003

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471

Order#: G0307864
Project:
Project Name: M-5 SWD Soil Bores #3 & #4
Location: EME

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0307864-01	M5 SB4 4'	SOIL	11/4/03 11:00	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					
0307864-02	M5 SB4 2'	SOIL	11/4/03 11:11	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					
	Chloride					
0307864-03	M5 SB4 6.0'	SOIL	11/4/03 11:20	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					
0307864-04	M5 SB4 7'	SOIL	11/4/03 11:30	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					
	Chloride					
0307864-05	M5 B3 11'	SOIL	11/4/03 8:52	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					
0307864-06	M5 B3 16.5'	SOIL	11/4/03 9:05	11/5/03 18:50	4 oz glass	Ice
	Lab Testing:	Rejected: No		Temp: 5 C		
	8015M					
	8260B BTEX + NAPHTHALENE by GC/MS					
	Chloride					

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471

Order#: G0307864
Project:
Project Name: M-5 SWD Soil Bores #3 & #4
Location: EME

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0307864-07	M5 B2 12'	SOIL	11/3/03 14:57	11/5/03 18:50	4 oz glass	Ice

Lab Testing: Rejected: No Temp: 5 C

8015M
8260B BTEX + NAPHTHALENE by GC/MS
Chloride

0307864-08	M5 B2 23'	SOIL	11/3/03 15:32	11/5/03 18:50	4 oz glass	Ice

Lab Testing: Rejected: No Temp: 5 C

8015M
8260B BTEX + NAPHTHALENE by GC/MS

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris	Order#: G0307864
Rice Operating	Project:
122 W. Taylor	Project Name: M-5 SWD Soil Bores #3 & #4
Hobbs, NM 88240	Location: EME

Lab ID: 0307864-01
Sample ID: M5 SB4 4'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	5	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	1,740	50.0
DRO, >C12-C35	11,300	50.0
TOTAL, C6-C35	13,040	50.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	23%	70	130
1-Chlorooctadecane	23%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 17:35	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	74.1	25.0
Toluene	<25.0	25.0
Ethylbenzene	476	25.0
p/m-Xylene	1560	25.0
o-Xylene	65.9	25.0
Naphthalene	249	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	123%	53	144
1,2-dichloroethane-d4	123%	57	147
Toluene-d8	101%	64	128
4-Bromofluorobenzene	114%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris	Order#: G0307864
Rice Operating	Project:
122 W. Taylor	Project Name: M-5 SWD Soil Bores #3 & #4
Hobbs, NM 88240	Location: EME

Lab ID: 0307864-02
Sample ID: M5 SB4 2'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	5	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	203	50.0
DRO, >C12-C35	2,210	50.0
TOTAL, C6-C35	2,413	50.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	19%	70	130
1-Chlorooctadecane	21%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 17:59	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<25.0	25.0
Toluene	<25.0	25.0
Ethylbenzene	1090	25.0
p/m-Xylene	228	25.0
o-Xylene	25.3	25.0
Naphthalene	45.0	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	118%	53	144
1,2-dichloroethane-d4	117%	57	147
Toluene-d8	99%	64	128
4-Bromofluorobenzene	95%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris	Order#: G0307864
Rice Operating	Project:
122 W. Taylor	Project Name: M-5 SWD Soil Bores #3 & #4
Hobbs, NM 88240	Location: EME

Lab ID: 0307864-03
Sample ID: M5 SB4 6.0'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	1	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	133	10.0
DRO, >C12-C35	593	10.0
TOTAL, C6-C35	726	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	92%	70	130
1-Chlorooctadecane	97%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 18:24	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<25.0	25.0
Toluene	<25.0	25.0
Ethylbenzene	325	25.0
p/m-Xylene	<25.0	25.0
o-Xylene	<25.0	25.0
Naphthalene	150	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	118%	53	144
1,2-dichloroethane-d4	114%	57	147
Toluene-d8	98%	64	128
4-Bromofluorobenzene	99%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0307864
Project:
Project Name: M-5 SWD Soil Bores #3 & #4
Location: EME

Lab ID: 0307864-04
Sample ID: M5 SB4 7'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	1	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	56.6	10.0
DRO, >C12-C35	161	10.0
TOTAL, C6-C35	218	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	96%	70	130
1-Chlorooctadecane	108%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 18:48	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<25.0	25.0
Toluene	<25.0	25.0
Ethylbenzene	143	25.0
p/m-Xylene	38.0	25.0
o-Xylene	<25.0	25.0
Naphthalene	135	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	121%	53	144
1,2-dichloroethane-d4	114%	57	147
Toluene-d8	101%	64	128
4-Bromofluorobenzene	113%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris		Order#:	G0307864
Rice Operating		Project:	
122 W. Taylor		Project Name:	M-5 SWD Soil Bores #3 & #4
Hobbs, NM 88240		Location:	EME

Lab ID: 0307864-05
Sample ID: M5 B3 11'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	5	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	606	50.0
DRO, >C12-C35	5,370	50.0
TOTAL, C6-C35	5,976	50.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	21%	70	130
1-Chlorooctadecane	23%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 19:13	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<25.0	25.0
Toluene	<25.0	25.0
Ethylbenzene	314	25.0
p/m-Xylene	304	25.0
o-Xylene	<25.0	25.0
Naphthalene	479	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	120%	53	144
1,2-dichloroethane-d4	119%	57	147
Toluene-d8	101%	64	128
4-Bromofluorobenzene	122%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0307864
Project:
Project Name: M-5 SWD Soil Bores #3 & #4
Location: EME

Lab ID: 0307864-06
Sample ID: M5 B3 16.5'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	1	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	<10.0	10.0
TOTAL, C6-C35	<10.0	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	95%	70	130
1-Chlorooctadecane	104%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 19:37	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<25.0	25.0
Toluene	<25.0	25.0
Ethylbenzene	<25.0	25.0
p/m-Xylene	<25.0	25.0
o-Xylene	<25.0	25.0
Naphthalene	<25.0	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	123%	53	144
1,2-dichloroethane-d4	114%	57	147
Toluene-d8	108%	64	128
4-Bromofluorobenzene	103%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris	Order#: G0307864
Rice Operating	Project:
122 W. Taylor	Project Name: M-5 SWD Soil Bores #3 & #4
Hobbs, NM 88240	Location: EME

Lab ID: 0307864-07
Sample ID: M5 B2 12'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	5	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	1,140	50.0
DRO, >C12-C35	4,210	50.0
TOTAL, C6-C35	5,350	50.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	21%	70	130
1-Chlorooctadecane	21%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 20:01	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<25.0	25.0
Toluene	<25.0	25.0
Ethylbenzene	326	25.0
p/m-Xylene	795	25.0
o-Xylene	61.9	25.0
Naphthalene	78.2	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	128%	53	144
1,2-dichloroethane-d4	122%	57	147
Toluene-d8	99%	64	128
4-Bromofluorobenzene	111%	47	158

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris		Order#:	G0307864
Rice Operating		Project:	
122 W. Taylor		Project Name:	M-5 SWD Soil Bores #3 & #4
Hobbs, NM 88240		Location:	EME

Lab ID: 0307864-08
Sample ID: M5 B2 23'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		11/6/03	1	1	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	897	10.0
DRO, >C12-C35	3,310	10.0
TOTAL, C6-C35	4,207	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	103%	70	130
1-Chlorooctadecane	113%	70	130

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007451-02		11/17/03 20:50	1	1	CK	8260B

Parameter	Result µg/kg	RL
Benzene	<25.0	25.0
Toluene	<25.0	25.0
Ethylbenzene	165	25.0
p/m-Xylene	837	25.0
o-Xylene	<25.0	25.0
Naphthalene	91.2	25.0

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	121%	53	144
1,2-dichloroethane-d4	120%	57	147
Toluene-d8	97%	64	128
4-Bromofluorobenzene	105%	47	158

Approval: Celey D. Keene 11/18/03
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezughe, Lab Tech.
Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris		Order#:	G0307864
Rice Operating		Project:	
122 W. Taylor		Project Name:	M-5 SWD Soil Bores #3 & #4
Hobbs, NM 88240		Location:	EME

Lab ID: 0307864-02
Sample ID: M5 SB4 2'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	88.6	mg/kg	1	20	9253	11/7/03	SB

Lab ID: 0307864-04
Sample ID: M5 SB4 7'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	35.4	mg/kg	1	20	9253	11/7/03	SB

Lab ID: 0307864-06
Sample ID: M5 B3 16.5'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	106	mg/kg	1	20	9253	11/7/03	SB

Lab ID: 0307864-07
Sample ID: M5 B2 12'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	142	mg/kg	1	20	9253	11/7/03	SB

Approval: Celey D. Keene 11/18/03
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS I, LTD. 12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0307864

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0007353-02			<10.0		
CONTROL SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0007353-03		952	759	79.7%	
CONTROL DUP SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0007353-04		952	756	79.4%	0.4%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0007353-05		1000	856	85.6%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8260B BTEX + NAPHTHALENE by GC/MS

Order#: G0307864

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/kg	0007451-02			<25.0		
Toluene-µg/kg	0007451-02			<25.0		
Ethylbenzene-µg/kg	0007451-02			<25.0		
p/m-Xylene-µg/kg	0007451-02			<25.0		
o-Xylene-µg/kg	0007451-02			<25.0		
Naphthalene-µg/kg	0007451-02			<25.0		
CONTROL SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/kg	0007451-03		50	63	126.%	
Toluene-µg/kg	0007451-03		50	63	126.%	
Ethylbenzene-µg/kg	0007451-03		50	51	102.%	
p/m-Xylene-µg/kg	0007451-03		100	100	100.%	
o-Xylene-µg/kg	0007451-03		50	54	108.%	
Naphthalene-µg/kg	0007451-03		50	44	88.%	
CONTROL DUP SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/kg	0007451-04		50	59	118.%	6.6%
Toluene-µg/kg	0007451-04		50	57	114.%	10.%
Ethylbenzene-µg/kg	0007451-04		50	48	96.%	6.1%
p/m-Xylene-µg/kg	0007451-04		100	91	91.%	9.4%
o-Xylene-µg/kg	0007451-04		50	49	98.%	9.7%
Naphthalene-µg/kg	0007451-04		50	51	102.%	14.7%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/kg	0007451-05		50	53.6	107.2%	
Toluene-µg/kg	0007451-05		50	54.7	109.4%	
Ethylbenzene-µg/kg	0007451-05		50	47.8	95.6%	
p/m-Xylene-µg/kg	0007451-05		100	95.1	95.1%	
o-Xylene-µg/kg	0007451-05		50	49.4	98.8%	
Naphthalene-µg/kg	0007451-05		50	48.8	97.6%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0307864

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0007361-01			<20.0		
MS SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0307873-01	354	500	851	99.4%	
MSD SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0307873-01	354	500	868	102.8%	2.%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0007361-04		5000	4960	99.2%	

CASE NARRATIVE

ENVIRONMENTAL LAB OF TEXAS

Prepared for:

Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0307864

Project: M-5 SWD Soil Bores #3 & #4

The following samples were received as indicated below and on the attached Chain of Custody record. All analyses were performed within the holding time and with acceptable quality control results unless otherwise noted.

SAMPLE ID	LAB ID	MATRIX	Date Collected	Date Received
M5 SB4 4'	0307864-01	SOIL	11/04/2003	11/05/2003
M5 SB4 2'	0307864-02	SOIL	11/04/2003	11/05/2003
M5 SB4 6.0'	0307864-03	SOIL	11/04/2003	11/05/2003
M5 SB4 7'	0307864-04	SOIL	11/04/2003	11/05/2003
M5 B3 11'	0307864-05	SOIL	11/04/2003	11/05/2003
M5 B3 16.5'	0307864-06	SOIL	11/04/2003	11/05/2003
M5 B2 12'	0307864-07	SOIL	11/03/2003	11/05/2003
M5 B2 23'	0307864-08	SOIL	11/03/2003	11/05/2003

Surrogate recoveries on the 8015M TPH are outside of control limits due to dilution. (G0307864-01, 02, 05, & 07)

The enclosed results of analyses are representative of the samples as received by the laboratory. Environmental Lab of Texas makes no representations or certifications as to the methods of sample collection, sample identification, or transportation handling procedures used prior to our receipt of samples. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved By: _____ Date: 11/18/03

Environmental Lab of Texas I, Ltd.

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris
Company Name: RICE Operating
Company Address: 122 W. Taylor
City/State/Zip: Hobbs, NM 88240
Telephone No: (505) 393-9174 Fax No: (505) 397-1471
Sampler Signature: Randall T. Hill

Project Name: M-5 SWD Soil Borings #3 + #4
Project #:
Project Loc: EME
PO #: 758

Analyze For:
TCLP:
TOTAL:

LAB # (lab use only) 0307864	FIELD CODE	Date Sampled	Time Sampled	No. of Containers 4oz-glass	Preservative: Ice	HNO3	HCl	NaOH	H2SO4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify):	TDS (Cl) SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	NAPH									RUSH TAT (Pre-Scheduled)	Standard TAT
-01	MS SB4 4'	110403	1100	1	X									X					X				X											
-02	MS SB4 2'	110403	1111	1	X									X		X			X				X											
-03	MS SB4 6-0'	110403	1120	1	X									X					X				X											
-04	MS SB4 7'	110403	1130	1	X									X		X			X				X											
-05	MS-B3 -11'	110403	0852	1	X									X					X				X											
-06	MS B3 16.5'	110403	0905	1	X									X		X			X				X											
-07	MS B2 12'	110303	1457	1	X									X		X			X				X											
-08	MS B2 23'	110303	1532	1	X									X					X				X											

Special Instructions: Fax to R. HICKS - e-mail
Naphalene w/BTEX ; (505) 266-0745

Sample Containers Intact? Y
Temperature Upon Receipt: 11cc - 5°C
Laboratory Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
Randall T. Hill	1105	1900			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Rebecca	11-05-07	1855

ANALYTICAL REPORT

Prepared for:

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

Project: M-5
PO#:
Order#: G0307863
Report Date: 11/07/2003

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471

Order#: G0307863
Project:
Project Name: M-5
Location: None Given

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0307863-01	M5 B2 11	SOIL	11/3/03 14:55	11/5/03 18:50	Plastic Bag	Ice
	Lab Testing: Density, Moisture	Rejected: No		Temp: 4 C		
0307863-02	M5 B2 19'	SOIL	11/3/03 15:15	11/5/03 18:50	Plastic Bag	Ice
	Lab Testing: Density, Moisture	Rejected: No		Temp: 4 C		
0307863-03	M5 B3 21	SOIL	11/4/03 9:15	11/5/03 18:50	Plastic Bag	Ice
	Lab Testing: Density, Moisture	Rejected: No		Temp: 4 C		
0307863-04	M5 B3 11.5	SOIL	11/4/03 8:32	11/5/03 18:50	Plastic Bag	Ice
	Lab Testing: Density, Moisture	Rejected: No		Temp: 4 C		

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0307863
Project:
Project Name: M-5
Location: None Given

Lab ID: 0307863-01
Sample ID: M5 B2 11

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Density	1.336	g/cm3(wet)	1	N/A	ASTM4292	11/7/03	SB
Moisture	15.0	%	1	1.00	CLP	11/6/03	SB

Lab ID: 0307863-02
Sample ID: M5 B2 19'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Density	1.162	g/cm3(wet)	1	N/A	ASTM4292	11/7/03	SB
Moisture	15.0	%	1	1.00	CLP	11/6/03	SB

Lab ID: 0307863-03
Sample ID: M5 B3 21

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Density	1.432	g/cm3(wet)	1	N/A	ASTM 4292	11/7/03	SB
Moisture	13.0	%	1	1.00	CLP	11/6/03	SB

Lab ID: 0307863-04
Sample ID: M5 B3 11.5

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Density	1.512	g/cm3(wet)	1	N/A	ASTM4292	11/7/03	SB
Moisture	7.00	%	1	1.00	CLP	11/6/03	SB

Approval: Celey D. Keene 11/10/03
Roland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0307863

DUPLICATE SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Moisture-%	0307863-04	7		9.00		25.%

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris
Company Name: RICE Operating
Company Address: 122 W. Taylor
City/State/Zip: Hobbs, NM 88240
Telephone No: (505) 393-9174
Fax No: (505) 397-1471
Sampler Signature: [signature]

Project Name: M-5
Project #:
Project Loc:
PO #:

Lab # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers (plastic bags)	Preservative: Ice	HNO_3	HCl	NaOH	H_2SO_4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify)	TDS / Cl / SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	Soil moisture	Density					RUSH TAT (Pre-Schedule)	Standard TAT
-01	M5 B2 11	110303	1455	1	X									X										✓	✓						
-02	M-5 B2 19'	110303	1515	1	X									X										✓	✓						
-03	M5 B3 21	110403	0945	1	X									X										✓	✓						
-04	M5 B3 11.5	110403	0832	1	X									X										✓	✓						

Special Instructions: Soil Moisture + Density

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

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	1105	1900			
Relinquished by:	Date	Time	Received by ELOT: [signature]	11-5-03	1650

ANALYTICAL REPORT

Prepared for:

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

Project:	M-5 SWD Water
PO#:	758
Order#:	G0307865
Report Date:	11/18/2003

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471

Order#: G0307865
Project:
Project Name: M-5 SWD Water
Location: EME

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0307865-01	B1 grab	WATER	11/3/03 15:23	11/5/03 18:50	See COC	See COC
	Lab Testing:	Rejected: No		Temp: 4 C		
	Anions Cations Bromide - 300.0 Total Dissolved Solids (TDS)					
0307865-02	B1 (voa)	WATER	11/4/03 8:20	11/5/03 18:50	See COC	See COC
	Lab Testing:	Rejected: No		Temp: 4 C		
	8260B BTEX + NAPHTHALENE by GC/MS					
0307865-03	B2 grab	WATER	11/3/03 16:35	11/5/03 18:50	See COC	See COC
	Lab Testing:	Rejected: No		Temp: 4 C		
	Anions Cations Bromide - 300.0 Total Dissolved Solids (TDS)					
0307865-04	B2 (voa)	WATER	11/4/03 12:15	11/5/03 18:50	See COC	See COC
	Lab Testing:	Rejected: No		Temp: 4 C		
	8260B BTEX + NAPHTHALENE by GC/MS					
0307865-05	B3	WATER	11/4/03 15:40	11/5/03 18:50	See COC	See COC
	Lab Testing:	Rejected: No		Temp: 4 C		
	Anions Cations Bromide - 300.0 Total Dissolved Solids (TDS)					
0307865-06	B3 (voa)	WATER	11/4/03 12:50	11/5/03 18:50	See COC	See COC
	Lab Testing:	Rejected: No		Temp: 4 C		
	8260B BTEX + NAPHTHALENE by GC/MS					

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris		Order#:	G0307865
Rice Operating		Project:	
122 W. Taylor		Project Name:	M-5 SWD Water
Hobbs, NM 88240		Location:	EME

Lab ID: 0307865-02
Sample ID: B1 (voa)

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007452-02		11/17/03 21:15	1	1	CK	8260B

Parameter	Result µg/L	RL
Benzene	<1.00	1.00
Toluene	<1.00	1.00
Ethylbenzene	7.84	1.00
p/m-Xylene	7.97	1.00
o-Xylene	<1.00	1.00
Naphthalene	4.15	1.00

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	124%	53	144
1,2-dichloroethane-d4	123%	57	147
Toluene-d8	116%	64	128
4-Bromofluorobenzene	116%	65	140

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris		Order#:	G0307865
Rice Operating		Project:	
122 W. Taylor		Project Name:	M-5 SWD Water
Hobbs, NM 88240		Location:	EME

Lab ID: 0307865-04
Sample ID: B2 (voa)

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007452-02		11/18/03 11:20	1	1	CK	8260B

Parameter	Result µg/L	RL
Benzene	7.60	1.00
Toluene	1.02	1.00
Ethylbenzene	15.0	1.00
p/m-Xylene	26.8	1.00
o-Xylene	1.11	1.00
Naphthalene	11.5	1.00

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	126%	53	144
1,2-dichloroethane-d4	125%	57	147
Toluene-d8	106%	64	128
4-Bromofluorobenzene	125%	65	140

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris		Order#:	G0307865
Rice Operating		Project:	
122 W. Taylor		Project Name:	M-5 SWD Water
Hobbs, NM 88240		Location:	EME

Lab ID: 0307865-06
Sample ID: B3 (voa)

8260B BTEX + NAPHTHALENE by GC/MS

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0007452-02		11/17/03 22:03	1	1	CK	8260B

Parameter	Result µg/L	RL
Benzene	<1.00	1.00
Toluene	<1.00	1.00
Ethylbenzene	12.4	1.00
p/m-Xylene	2.89	1.00
o-Xylene	<1.00	1.00
Naphthalene	11.5	1.00

Surrogates	% Recovered	QC Limits (%)	
Dibromofluoromethane	127%	53	144
1,2-dichloroethane-d4	127%	57	147
Toluene-d8	113%	64	128
4-Bromofluorobenzene	111%	65	140

Approval: Celey D. Keene 11/19/03
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0307865
Project:
Project Name: M-5 SWD Water
Location: EME

Lab ID: 0307865-01
Sample ID: B1 grab

Anions

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Bicarbonate Alkalinity	188	mg/L	1	2.00	310.1	11/6/03	SB
Carbonate Alkalinity	<0.10	mg/L	1	0.10	310.1	11/6/03	SB
Chloride	8600	mg/L	1	5.00	325	11/6/03	SB
Hydroxide Alkalinity	<0.10	mg/L	1	0.10	310.1	11/6/03	SB
SULFATE, 375.4	599	mg/L	12.5	6.25	375.4	11/7/03	SB

Cations

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Calcium	1610	mg/L	1000	10.0	6010B	11/6/03	SM
Magnesium	470	mg/L	100	0.10	6010B	11/6/03	SM
Potassium	46.2	mg/L	10	0.50	6010B	11/6/03	SM
Sodium	2910	mg/L	1000	10.0	6010B	11/6/03	SM

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Bromide - 300.0	< 50.0	mg/L	100	50.0	300.0	11/10/03	RKT
Total Dissolved Solids (TDS)	17200	mg/L	2	10.0	160.1	11/6/03	SB

Lab ID: 0307865-03
Sample ID: B2 grab

Anions

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Bicarbonate Alkalinity	208	mg/L	1	2.00	310.1	11/6/03	SB
Carbonate Alkalinity	<0.10	mg/L	1	0.10	310.1	11/6/03	SB
Chloride	7090	mg/L	1	5.00	325	11/6/03	SB
Hydroxide Alkalinity	<0.10	mg/L	1	0.10	310.1	11/6/03	SB
SULFATE, 375.4	566	mg/L	12.5	6.25	375.4	11/7/03	SB

Cations

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Calcium	1640	mg/L	1000	10.0	6010B	11/6/03	SM
Magnesium	445	mg/L	100	0.10	6010B	11/6/03	SM
Potassium	44.8	mg/L	10	0.50	6010B	11/6/03	SM
Sodium	2490	mg/L	1000	10.0	6010B	11/6/03	SM

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Bromide - 300.0	< 50.0	mg/L	100	50.0	300.0	11/10/03	RKT
Total Dissolved Solids (TDS)	15,000	mg/L	2	10.0	160.1	11/6/03	SB

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris		Order#:	G0307865
Rice Operating		Project:	
122 W. Taylor		Project Name:	M-5 SWD Water
Hobbs, NM 88240		Location:	EME

Lab ID: 0307865-05
Sample ID: B3

Anions

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Bicarbonate Alkalinity	188	mg/L	2	4.0	310.1	11/6/03	SB
Carbonate Alkalinity	<0.20	mg/L	2	0.20	310.1	11/6/03	SB
Chloride	7890	mg/L	1	5.00	325	11/6/03	SB
Hydroxide Alkalinity	<0.20	mg/L	2	0.20	310.1	11/6/03	SB
SULFATE, 375.4	660	mg/L	12.5	6.25	375.4	11/7/03	SB

Cations

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Calcium	1550	mg/L	1000	10.0	6010B	11/6/03	SM
Magnesium	490	mg/L	100	0.10	6010B	11/6/03	SM
Potassium	57.4	mg/L	10	0.50	6010B	11/6/03	SM
Sodium	3033	mg/L	1000	10.0	6010B	11/6/03	SM

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Bromide - 300.0	< 100	mg/L	200	100	300.0	11/10/03	RKT
Total Dissolved Solids (TDS)	18600	mg/L	4	20.0	160.1	11/6/03	SB

Approval: Celey D Keene 11/19/03
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS I, LTD. 12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8260B BTEX + NAPHTHALENE by GC/MS

Order#: G0307865

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/L	0007452-02			<1.00		
Toluene-µg/L	0007452-02			<1.00		
Ethylbenzene-µg/L	0007452-02			<1.00		
p/m-Xylene-µg/L	0007452-02			<1.00		
o-Xylene-µg/L	0007452-02			<1.00		
Naphthalene-µg/L	0007452-02			<1.00		
CONTROL WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/L	0007452-03		50	63	126.%	
Toluene-µg/L	0007452-03		50	63	126.%	
Ethylbenzene-µg/L	0007452-03		50	51	102.%	
p/m-Xylene-µg/L	0007452-03		100	100	100.%	
o-Xylene-µg/L	0007452-03		50	54	108.%	
Naphthalene-µg/L	0007452-03		50	44	88.%	
CONTROL DUP WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/L	0007452-04		50	59	118.%	6.6%
Toluene-µg/L	0007452-04		50	57	114.%	10.%
Ethylbenzene-µg/L	0007452-04		50	48	96.%	6.1%
p/m-Xylene-µg/L	0007452-04		100	91	91.%	9.4%
o-Xylene-µg/L	0007452-04		50	49	98.%	9.7%
Naphthalene-µg/L	0007452-04		50	51	102.%	14.7%
SRM WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-µg/L	0007452-05		50	53.6	107.2%	
Toluene-µg/L	0007452-05		50	54.7	109.4%	
Ethylbenzene-µg/L	0007452-05		50	47.8	95.6%	
p/m-Xylene-µg/L	0007452-05		100	95.1	95.1%	
o-Xylene-µg/L	0007452-05		50	49.4	98.8%	
Naphthalene-µg/L	0007452-05		50	48.8	97.6%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Anions

Order#: G0307865

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L	0007363-01			<2.00		
Carbonate Alkalinity-mg/L	0007364-01			<0.10		
Chloride-mg/L	0007362-01			<5.00		
Hydroxide Alkalinity-mg/L	0007365-01			<0.10		
SULFATE, 375.4-mg/L	0007381-01			<0.50		
DUPLICATE WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L	0307865-01	188		186		1.1%
Carbonate Alkalinity-mg/L	0307865-01	0		<0.10		0.%
Hydroxide Alkalinity-mg/L	0307865-01	0		<0.10		0.%
SULFATE, 375.4-mg/L	0307865-01	599		601		0.3%
MS WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0307865-01	8600	5000	13100	90.%	
MSD WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0307865-01	8600	5000	13000	88.%	0.8%
SRM WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L	0007363-04		0.05	0.0496	99.2%	
Carbonate Alkalinity-mg/L	0007364-04		0.05	0.0496	99.2%	
Chloride-mg/L	0007362-04		5000	4960	99.2%	
Hydroxide Alkalinity-mg/L	0007365-04		0.05	0.0496	99.2%	
SULFATE, 375.4-mg/L	0007381-04		50	48.7	97.4%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Cations

Order#: G0307865

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L	0007349-02			<0.010		
Magnesium-mg/L	0007349-02			<0.001		
Potassium-mg/L	0007349-02			<0.050		
Sodium-mg/L	0007349-02			<0.010		
DUPLICATE WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L	0307865-01	1610		1590		1.3%
Magnesium-mg/L	0307865-01	470		472		0.4%
Potassium-mg/L	0307865-01	46.2		46.4		0.4%
Sodium-mg/L	0307865-01	2910		2870		1.4%
SRM WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L	0007349-05		2	1.77	88.5%	
Magnesium-mg/L	0007349-05		2	2.16	108.%	
Potassium-mg/L	0007349-05		2	1.88	94.%	
Sodium-mg/L	0007349-05		2	2.11	105.5%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0307865

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bromide - 300.0-mg/L	0007459-01			< 0.50		
Total Dissolved Solids (TDS)-mg/L	0007369-01			<5.00		
CONTROL WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bromide - 300.0-mg/L	0007459-02		10	9.83	98.3%	
CONTROL DUP WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bromide - 300.0-mg/L	0007459-03		10	10.05	100.5%	2.2%
DUPLICATE WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L	0307865-01	17200		17600		2.3%
SRM WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bromide - 300.0-mg/L	0007459-04		10	10.03	100.3%	

...ronmental Lab of Texas, Inc.
12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris
Company Name: RICE Operating
Company Address: 122 W. Taylor
City/State/Zip: Hobbs, NM 88240
Telephone No: (505) 393-9174
Fax No: (505) 397-1471
Sampler Signature:

Project Name: M-5 SWD water
Project #:
Project Loc: EME
PO #: 758

Analyze For:
TCLP:
TOTAL:

LAB # (lab use only) 630785	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO3	HCl	NaOH	H2SO4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify):	(TOX) (Cl) SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 Naphthalene	Anions/Cations Br-						RUSH TAT (Pre-Scheduled)	Standard TAT
-01	B1 grab	110303	1523	1								✓				✓								✓	✓						
-02	B1 (VOA)	110403	0820	2	X							X												✓							
-03	B2 grab	110303	1135	1								X				✓								✓	✓						
-04	B2 (VOA)	110403	1215	2	X							X												✓							
-05	B3	110403	1540	1								X				✓									✓	✓					
-06	B3 (VOA)	110403	1250	1	X							X												✓							

Special Instructions:
Fax to R. HICKS
Naphalene w/BTEX ; (505) 266-0745
Br

Relinquished by:	Date	Time	Received by:	Date	Time
	1105	190			
Relinquished by	Date	Time	Received by ELOT	Date	Time
				11-05-03	1150

Sample Containers Intact? Y: N:
Temperature Upon Receipt:
Laboratory Comments:
4°C
L HDPE (Anions/Cations) TDS
40mL 91487 (BTEX)

BTEXN = CALL Michelle Hunter 505-266-5004

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris
Company Name: RICE Operating
Company Address: 122 W. Taylor
City/State/Zip: Hobbs, NM 88240
Telephone No: (505) 393-9174
Fax No: (505) 397-1471
Sampler Signature: Kristin Farris

Project Name: M-5 SWD water
Project #:
Project Loc: EME
PO #: 758

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO3	HCl	NaOH	H2SO4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify)	Analyze For: TCLP: TOTAL: TDS/Cl/SAR/EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	Naphthalene	BTEX	RUSH TAT (Pre-Schedule)	Standard TAT
	B1 grab	110303	1523	1								✓				✓								✓			
	B1 (VOA)	110403	0820	2	X							X											✓				
	B2 grab	110303	1635	1								X				✓								✓			
	B2 (VOA)	110403	1215	2	X							X											✓				
	B3	110403	1540	1								X				✓								✓			
	B3 (VOA)	110403	1250	1	X							X											✓				

Special Instructions:
Fax to R. HICKS
Naphalene w/BTEX ; (505) 266-0745
BR

Sample Containers Intact? Y
Temperature Upon Receipt:
Laboratory Comments:
RUSH 4°C

Relinquished by:	Date	Time	Received by:	Date	Time
Kristin Farris	1105	19a			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			RUSH	11-05-03	1150

BTEX = CALL MICHELLE HUNTER 505-266-5004

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

October 2, 2003

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

RE: M-5 Redwood Tanks, Section 5 T20S R37E Unit M

Dear Mr. Price

Rice Operating Company retained Hicks Consultants to address potential environmental concerns at the above referenced site. This submission proposes a scope of work that we believe will best mitigate any threat to human health and the environment and lead to closure of the regulatory file for this site.

Background

The M-5 Redwood Tank Site is located about 2 miles southwest of Monument, New Mexico. Figure 1 shows the location of the site. Mr. Jimmy Cooper is the owner of the land surface at this location. Rice Operating Company (ROC) is the service provider (operator) for the Eunice-Monument-Eumount (EME) Saltwater Disposal System and has no ownership of any portion of 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. Major projects require System Partner authorization of expenditures (AFE) approval and work begins as funds are received. We will implement the work outlined herein after NMOCD approval and subsequent authorization from the System Partners.

1. Evaluate Possible Impacts to Soil and Ground Water

The M-5 Redwood Tanks have operated for several decades and will be replaced with tanks that meet more current industry standards. ROC has replaced several such tanks in the past and found that some of these sites caused impairment of ground water quality or have the potential to cause such impairment. The first task of this work assignment is determining the magnitude and extent of any such impairment.

The HYDRUS1D and mixing model simulation, which we plan to employ in Task 2, requires input of 10 parameters. As Table 1 shows, we must collect site specific data for several of these parameters. First we will measure the depth to ground water at nearby windmills and monitoring wells to determine the hydraulic gradient. Figure 1 shows the location of four windmills which we hope to employ in this initial water level

measurement program. We know that several monitoring wells are nearby, such as the ROC well at the P-6 site, west of the tanks. We will employ this well and others to clearly establish the hydraulic gradient of the area and the direction of ground water flow.

Table 1: Input Parameters for Simulation Modeling

Input Parameter	Source
Vadose Zone Thickness	Proposed monitoring well and borings
Vadose Zone Texture	Proposed monitoring well and borings
Dispersion Length	Professional judgment
Soil Moisture	Field Measurements from borings
Vadose Zone Chloride Load	Proposed borings adjacent to the tanks
Length of release perpendicular to ground water flow	Field Measurements
Climate	Pearl, NM station (Hobbs)
Background Chloride in Ground Water	Samples from nearby water supply wells and monitoring wells
Ground Water Flux	Calculated from regional hydraulic data and data from nearby wells
Aquifer Thickness	Nicholson and Clebsch (1960) and SEO data and proposed monitoring well

Because ROC plans to move forward with taking these two tanks out of service and constructing new facilities adjacent to the existing tanks, our work is independent of this replacement program. We plan to collect samples from four boreholes adjacent to the tanks to obtain information for other input parameters.

Near the northwest side of the tanks (up gradient of probable ground water flow), we will install a boring as close as practical to the existing tanks, perhaps between the two tanks. Drilling and sampling will cease in this borehole when we encounter ground water (approximately 30 feet below grade). We propose a second boring 15 feet west of the westernmost tank and a third boring 30 feet east of the easternmost tank. Again, drilling and sampling will cease in these boreholes when we encounter ground water. Sixty feet southeast of the tanks, we plan a fourth boring which we will convert to a monitoring well as described later.

From each boring, we will obtain split-spoon soil samples every five feet of the vadose zone. We will evaluate these discrete samples, the borehole drilling characteristics, and drill cuttings to develop a lithologic profile of the vadose zone. We will employ standard methods, as described in the Junction Box Replacement Program Plan, to evaluate all soil samples in the field for chloride content, TPH and volatile organic

constituent content. We will submit at least one soil sample from each boring to a qualified laboratory for evaluation of chloride and BTEXN (benzene, toluene, ethylbenzene, xylene, naphthalene). The field geologist will identify samples for laboratory analysis after review of the field analysis of chloride, TPH and VOCs. The geologist will select two samples from the first boring and two samples from the fourth boring for laboratory analysis of soil moisture content and bulk density.

After we complete the sampling program described above for the fourth boring, will continue drilling through the saturated zone to the top of the Dockam Group red beds, which form the base of the aquifer in this area. If the saturated thickness of the aquifer in this boring is less than 25 feet, we will install a 2-inch monitoring well with five feet of screen above the water table and 15 feet below the water table, in a manner consistent with industry standards (see NMOCD, ASTM or EPA publications). If the saturated thickness of the aquifer is greater than 25 feet we will install two 2-inch wells in the same boring. We will complete the uppermost well as described above. In the deeper well, we will install 5 feet of well screen above the top of the Dockam Group red beds. If possible, we will isolate the two screened intervals by installing bentonite pellets above the lowermost screened interval.

To establish background chloride concentrations in ground water, we propose to sample Water Wells #1 and #2 on Figure 1. We also plan to employ water analysis from a proposed background monitoring well (MW-3) at the ROC P-6 Line Leak Site (work plan submitted by Trident Environmental).

2. Evaluate Chloride, Benzene and Naphthalene Flux from the Vadose Zone to Ground Water

We propose to employ HYDRUS1D and a simple ground water mixing model to evaluate the potential of any residual chloride and hydrocarbon mass in the vadose zone to materially impair ground water quality at the site. We will employ predictions of the migration of chloride ion, benzene and naphthalene from the vadose zone to ground water in our selection of an appropriate remedy for the land surface and underlying vadose zone. This simulation is the "no action" alternative, which predicts chloride flux to ground water in the absence of any action by ROC. We have selected these three constituents for simulation modeling because each of these constituents exists in the fluids stored in the tanks and each is specifically regulated by New Mexico ground water regulations (WQCC).

We might provide simulations of two "no action" scenarios. For both simulations, we will employ the input parameters to HYDRUS and the mixing model outlined in Table 1. In the first simulation, we will assume that vegetation is not present over the release site (no evapotranspiration) and a minimum aquifer thickness of 10 feet. This will simulate restriction of any released chloride and hydrocarbons to a portion of the underlying aquifer. If this first simulation does not return results that are consistent with the ground water data from the proposed monitoring well (see below), we will increase the aquifer thickness in the mixing model to the total thickness measured in nearby water

supply wells or from the proposed monitoring well. At other sites, we have found that chloride can be distributed throughout the thickness of the aquifer. Employing the entire thickness of the aquifer in the mixing model calculations for chloride may be appropriate for M-5 tank site. Data may show that employing the entire aquifer thickness in the mixing model for hydrocarbons may not be appropriate.

3. Design Remedy and Submit Report

After ROC completes the replacement of the tanks, we anticipate no additional releases of produced water. Our modeling of the "no action alternative" (Task 1) may show that the residual chloride and hydrocarbon mass in the vadose zone poses a threat to ground water quality. If such a threat does exist, we will use the HYDRUS-1D model predictions to develop a remedy for the vadose zone. If necessary, we will simulate:

1. excavation of affected soil and replacement with clean soil to remove the chloride and hydrocarbon mass,

2. installation of a low permeability barrier to minimize natural infiltration,

3. surface grading to eliminate any ponding of precipitation thereby minimizing natural infiltration, and

4. a combination of the above potential remedies.

We will select the vadose zone remedy that offers the greatest environmental benefit while causing the least environmental damage. We may elect to export the affected soil to a disposal site and import clean soil, or we may treat the soil on site then re-fill the excavation with the restored soil.

We will use the ground water mixing model or a suitable alternative to assist in the design of a ground water remedy. It is possible, however, that the background chloride and /or hydrocarbon concentrations in ground water measured in the nearby windmills are equal to or higher than the concentration in the proposed monitoring well. Such data would strongly suggest that the M-5 tank site has not caused any material impairment of ground water quality. If we find no evidence of impairment of water quality due to past activities, we will not prepare a ground water remedy. If data suggest that the site has contributed chloride or hydrocarbons to ground water and caused ground water impairment, we will examine the following alternatives:

1. Natural restoration due to dilution and dispersion,

2. Pump and dispose to remove the chloride and hydrocarbon mass in the saturated zone,

3. Pump and treat to remove the chloride and hydrocarbon mass in the saturated zone,

4. Because of the location of the site, institutional controls negotiated with the landowner may provide an effective remedy. Such controls may be restriction of water use to livestock until natural restoration returns the water quality to state standards, a provision for alternative supply well design, or a provision for well head treatment to mitigate any damage to the water resource.

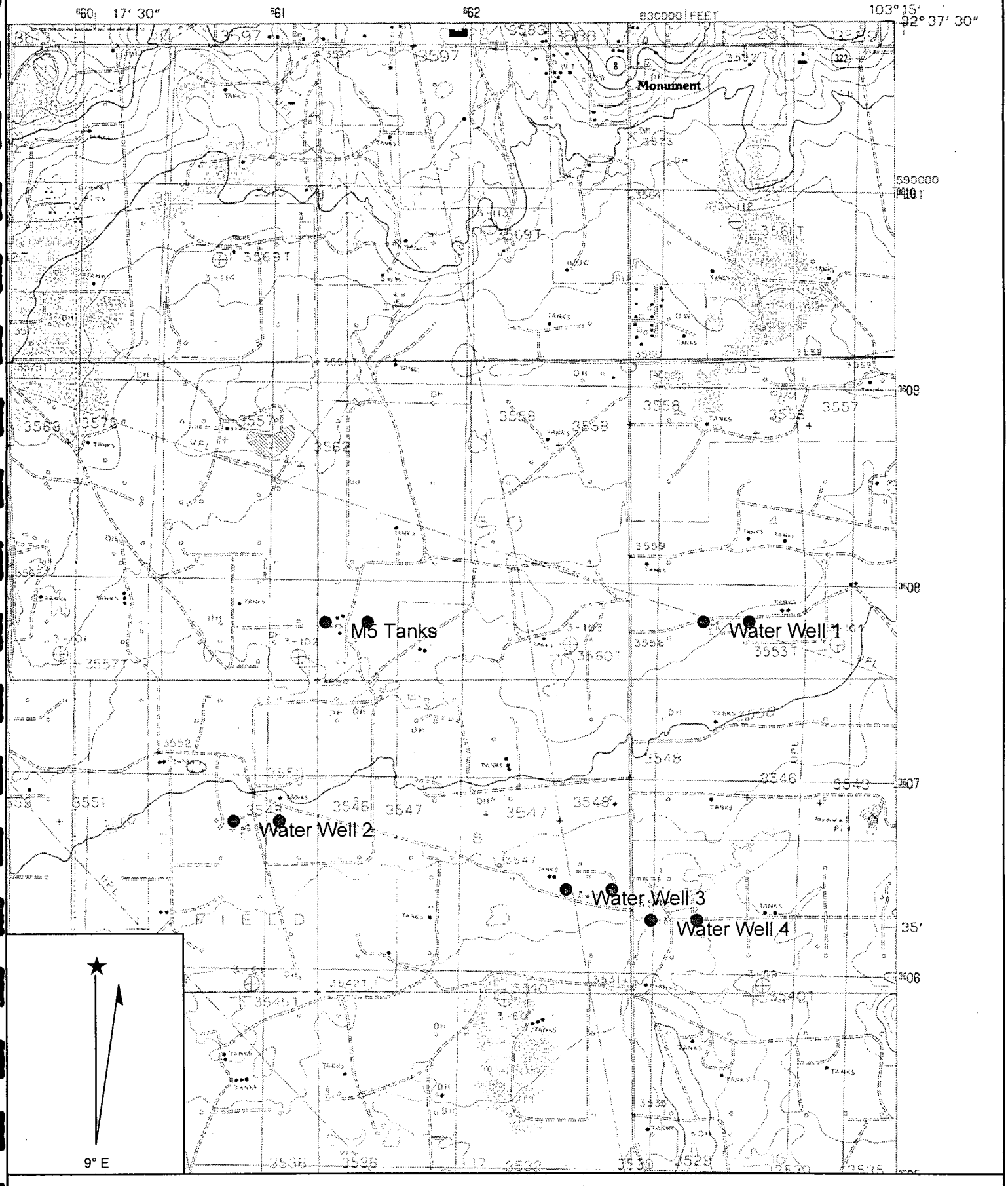
We plan to commence data collection for the HYDRUS1D simulations described above in late August or September. Your approval to move forward with this work plan will facilitate our access to nearby windmills an, approval of expenditures by the System Partners.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall T. Hicks
Principal

Copy:
Rice Operating Company

7.5 MINUTE SERIES (TOPOGRAPHIC)



Name: *MONUMENT SOUTH*
Date: 7/7/2003
Scale: 1 inch equals 2000 feet

Location: 13 662205 E 3608045 N