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1998 Annual Groundwater Monitoring Report Former Maverik Refinery Tank Farm Kirtland, New Mexico

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OIL CONSERVATION DIVISION

Prepared by:

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ThermoRetec Project No.: 3-3050-311

Prepared for:

Maverik Country Stores, Inc.
880 W Center Street
North Salt Lake UT 84054

February 8, 1999

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Prepared by:

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1 Introduction

This report presents the results of the 1998 semi-annual groundwater sampling and monitoring program that was completed at the Maverik former refinery located in Kirtland, New Mexico. Field work was completed during May and December 1998. Work was completed in accordance with the scope of work (Section 2.0) proposed in the April 26, 1993 monitoring report and agreed upon in a letter from the New Mexico Oil Conservation Commission (NMOCD) dated May 17, 1993, with the exception of the nutrient addition activity. After discussions between Maverik, Maverik's environmental consultant, and the NMOCD, the nutrient addition activity was terminated after 1996 (NMOCD letter dated February 19, 1997).

2 Scope of Work

The semi-annual sampling and monitoring program consists of the following:

1. Groundwater monitoring, which includes sampling and fluid level measuring, is performed twice per year, once in May or June, and once in October or November.

2. Both monitoring events include the following wells:

   MW-10, MW-19, MW-20 (on site, down-gradient of the slurry wall impoundment)

   MW-18 (up-gradient of the slurry wall impoundment)

   MW-21 (outside of slurry wall impoundment, down-gradient of MW-18)

   MW-17, MW-22 (within the confines of the slurry wall impoundment)

3. During one of the two semi-annual sampling events (in addition to the measurements and samples required under item 2 above) groundwater monitoring will include off-site monitoring wells MW-9, MW-13, MW-14, MW-15, and MW-16.

3 Groundwater Monitoring

Groundwater monitoring was conducted on May 5, 1998 and December 9, 1998. Sampling events were coordinated by ThermoRetec Consulting Corporation.

Groundwater monitoring activities were conducted in accordance with standard United States Environmental Protection Agency (EPA) sampling protocol. For all wells, fluid levels and total depth measurements were taken using an electronic interface probe. Measurements were utilized to calculate well evacuation requirements. Wells were purged using a disposable bailer until a minimum of three casing volumes of water were removed and pH and specific conductance measurements stabilized. Field parameter measurements and water quality observations were recorded on monitoring well field data forms. After well evacuation, samples were taken from wells (which did not exhibit free-phase hydrocarbons) using a disposable bailer.

Monitoring well MW-21 could not be sampled during the fall sampling event because the well was destroyed sometime since the spring sampling event was completed. The well was likely destroyed during weeding, farming, or trucking operations that occasionally take place at the site.

4 Results

4.1 Fluid Level Measurements

Historic groundwater elevation data are presented in Table 1. Corrected groundwater elevations were calculated using an assumed product density of 0.8 when necessary. A groundwater elevation map was completed and presented as Figure 1. Groundwater flow direction is generally to the south, which is typical of past observations. The groundwater gradient is approximately 1.5 feet/100 feet.

Historic fluid level measurements demonstrate that water levels have risen approximately 18 inches from those measured approximately 18 months ago, but have not reached the higher levels reported in 1992 when monitoring was initiated. Free product was not reported in any of the measured monitoring wells, however, hydrocarbon sheens were reported in MW-17 and MW-22, both located within the slurry wall. Sheens or thin product layers have been detected sporadically within the slurry wall. Water table fluctuations likely cause the sporadic presence of product within the slurry wall.

4.2 Water Quality Analyses

Water quality monitoring results for the May and December, 1998 sampling events are summarized in Table 2 along with historical analytical results. Laboratory analytical reports for the two 1998 events are included in Appendix A. Figures 2 and 3 present the concentrations of DCA (1,2-dichloroethane), benzene, and total BTEX (benzene, toluene, ethylbenzene, and xylenes) detected in each well sampled during the May and December, 1998 sampling events, respectively.

During 1998, MW-18, which is upgradient from the slurry wall, was the only well outside of the slurry wall with analyzed parameter detections above New Mexico Water Quality Standards. Analyzed parameters in all the other wells outside the slurry wall were either non-detect, or detected at a concentration below the New Mexico Water Quality Standards. These results are consistent with past results.

Monitoring wells MW-17 and MW-22 are located within the confines of the slurry wall where high concentrations of hydrocarbons are known to exist. Historic analytical results from these wells indicates a general decreasing trend of BTEX concentrations in groundwater that has stabilized somewhat during the last two years (Figures 4 and 5). The decrease in BTEX concentrations is likely the cumulative effect of biodegradation within the aquifer and volatilization of BTEX from the unsaturated zone, which is the source of the groundwater contamination.

The BTEX concentrations in groundwater will likely continue to decrease, but possibly at a slower rate than that observed during the first five years of monitoring.

5 Conclusions and Recommendations

Data indicate that the slurry wall has maintained its integrity and is performing its planned function of containing the contaminated groundwater. Groundwater samples from all monitor wells downgradient from the slurry wall were either non-detect for BTEX and DCA or below New Mexico drinking water standards. Historical analytical results suggest that biodegradation of organic contaminants in the groundwater at the site is taking place.

Maverik proposes to replace MW-21 since the well is used to confirm the integrity of the slurry wall. A new well will be installed near the location of former monitoring well MW-21. The new well will be installed with a hollow stem auger in accordance with accepted industry standards and applicable New Mexico statutes. The well screen will be placed across the top of the water table to allow monitoring of any accumulated free phase hydrocarbons.

Since the historical analytical data indicate that the slurry wall has contained the contamination, ThermoRetec proposes that the semi-annual monitoring program be reduced to an annual program. Fluid levels will be taken on all the site wells once a year in the fall, and groundwater samples will be collected from monitoring wells MW-14, 13, 19, 10, 20, and the replacement to MW-21. Groundwater samples will be analyzed for BTEX and 1,2-dichloroethane as has been done in the past. An annual report would be submitted in accordance with past agreements.

Tables

TABLE 1

SUMMARY OF CORRECTED GROUNDWATER ELEVATIONS

Former Maverik Refinery - Kirtland, New Mexico

Well ID	Date	Ground Elevation	Datum Elevation	Depth to Water (feet)	Free Product Thickness (feet)	Corrected Elevation (ft)
Outside Slurry Wall						
MW-1	Jan-92	5,205.75	5,207.24	10.90	0	5,196.34
	Jun-92	5,205.75	5,207.24	8.40	0	5,198.84
	Aug-92	5,205.75	5,207.24	6.00	0	5,201.24
	Dec-92	5,205.75	5,207.24	8.00	0	5,199.24
	Mar-93	5,205.75	5,207.24	12.30	0	5,194.94
	May-93	5,205.75	5,207.24	NM	0	NM
	Nov-93	5,205.75	5,207.24	NM	0	NM
	May-94	5,205.75	5,207.24	NM	0	NM
	Oct-94	5,205.75	5,207.24	NM	0	NM
	May-95	5,205.75	5,207.24	NM	0	NM
	Oct-95	5,205.75	5,207.24	NM	0	NM
	May-96	5,205.75	5,207.24	NM	0	NM
	Oct-96	5,205.75	5,207.24	10.97	0	5,196.27
	Jun-97	5,205.75	5,207.24	13.58	0	5,193.66
	Oct-97	5,205.75	5,207.24	11.87	0	5,195.37
	May-98	5,205.75	5,207.24	16.17	0	5,191.07
	Dec-98	5,205.75	5,207.24	NM	NM	NM
MW-2	Jan-92	5,195.25	5,196.93	3.80	0	5,193.13
	Jun-92	5,195.25	5,196.93	4.40	0	5,192.53
	Aug-92	5,195.25	5,196.93	3.80	0	5,193.13
	Dec-92	5,195.25	5,196.93	2.50	0	5,194.43
	Mar-93	5,195.25	5,196.93	4.50	0	5,192.43
	May-93	5,195.25	5,196.93	NM	0	NM
	Nov-93	5,195.25	5,196.93	NM	0	NM
	May-94	5,195.25	5,196.93	NM	0	NM
	Oct-94	5,195.25	5,196.93	NM	0	NM
	May-95	5,195.25	5,196.93	NM	0	NM
	Oct-95	5,195.25	5,196.93	NM	0	NM
	May-96	5,195.25	5,196.93	NM	0	NM
	Oct-96	5,195.25	5,196.93	5.99	0	5,190.94
	Jun-97	5,195.25	5,196.93	7.51	0	5,189.42
	Oct-97	5,195.25	5,196.93	6.66	0	5,190.27
	May-98	5,195.25	5,196.93	8.22	0	5,188.71
	Dec-98	5,195.25	5,196.93	NM	NM	NM
MW-9	Jan-92	5,189.33	5,191.22	1.50	0	5,189.72
	Jun-92	5,189.33	5,191.22	2.30	0	5,188.92
	Aug-92	5,189.33	5,191.22	1.80	0	5,189.42
	Dec-92	5,189.33	5,191.22	0.60	0	5,190.62
	Mar-93	5,189.33	5,191.22	1.80	0	5,189.42
	May-93	5,189.33	5,191.22	NM	0	NM
	Nov-93	5,189.33	5,191.22	1.30	0	5,189.92
	May-94	5,189.33	5,191.22	NM	0	NM
	Oct-94	5,189.33	5,191.22	2.03	0	5,189.19
	May-95	5,189.33	5,191.22	NM	0	NM
	Oct-95	5,189.33	5,191.22	4.22	0	5,187.00
	May-96	5,189.33	5,191.22	NM	0	NM
	Oct-96	5,189.33	5,191.22	3.88	0	5,187.34
	Jun-97	5,189.33	5,191.22	5.59	0	5,185.63
	Oct-97	5,189.33	5,191.22	5.06	0	5,186.16
	May-98	5,189.33	5,191.22	5.89	0	5,185.33
	Dec-98	5,189.33	5,191.22	3.96	0	5,187.26

TABLE 1

SUMMARY OF CORRECTED GROUNDWATER ELEVATIONS

Former Maverik Refinery - Kirtland, New Mexico

Well ID	Date	Ground Elevation	Datum Elevation	Depth to Water (feet)	Free Product Thickness (feet)	Corrected Elevation (ft)
MW-10	Jan-92	5,187.47	5,189.30	1.60	0	5,187.70
	Jun-92	5,187.47	5,189.30	2.70	0	5,186.60
	Aug-92	5,187.47	5,189.30	2.90	0	5,186.40
	Dec-92	5,187.47	5,189.30	0.90	0	5,188.40
	Mar-93	5,187.47	5,189.30	1.60	0	5,187.70
	May-93	5,187.47	5,189.30	2.80	0	5,186.50
	Nov-93	5,187.47	5,189.30	1.80	0	5,187.50
	May-94	5,187.47	5,189.30	4.47	0	5,184.83
	Oct-94	5,187.47	5,189.30	2.97	0	5,186.33
	May-95	5,187.47	5,189.30	4.42	0	5,184.88
	Oct-95	5,187.47	5,189.30	4.60	0	5,184.70
	May-96	5,187.47	5,189.30	4.28	0	5,185.02
	Oct-96	5,187.47	5,189.30	4.23	0	5,185.07
	Jun-97	5,187.47	5,189.30	5.37	0	5,183.93
	Oct-97	5,187.47	5,189.30	4.90	0	5,184.40
	May-98	5,187.47	5,189.30	5.52	0	5,183.78
	Dec-98	5,187.47	5,189.30	3.76	0	5,185.54
MW-13	Jan-92	5,187.56	5,187.76	NM	0	NM
	Jun-92	5,187.56	5,187.76	2.80	0	5,184.96
	Aug-92	5,187.56	5,187.76	2.70	0	5,185.06
	Dec-92	5,187.56	5,187.76	1.10	0	5,186.66
	Mar-93	5,187.56	5,187.76	1.70	0	5,186.06
	May-93	5,187.56	5,187.76	NM	0	NM
	Nov-93	5,187.56	5,187.76	1.40	0	5,186.36
	May-94	5,187.56	5,187.76	NM	0	NM
	Oct-94	5,187.56	5,187.76	2.91	0	5,184.85
	May-95	5,187.56	5,187.76	NM	0	NM
	Oct-95	5,187.56	5,187.76	3.23	0	5,184.53
	May-96	5,187.56	5,187.76	NM	0	NM
	Oct-96	5,187.56	5,187.76	2.52	0	5,185.24
	Jun-97	5,187.56	5,187.76	4.08	0	5,183.68
	Oct-97	5,187.56	5,187.76	4.12	0	5,183.64
	May-98	5,187.56	5,187.76	4.03	0	5,183.73
	Dec-98	5,187.56	5,187.76	2.17	0	5,185.59
MW-14	Jan-92	5,190.70	5,194.47	2.10	0	5,192.37
	Jun-92	5,190.70	5,194.47	4.10	0	5,190.37
	Aug-92	5,190.70	5,194.47	4.20	0	5,190.27
	Dec-92	5,190.70	5,194.47	0.70	0	5,193.77
	Mar-93	5,190.70	5,194.47	2.20	0	5,192.27
	May-93	5,190.70	5,194.47	NM	0	NM
	Nov-93	5,190.70	5,194.47	1.70	0	5,192.77
	May-94	5,190.70	5,194.47	NM	0	NM
	Oct-94	5,190.70	5,194.47	4.27	0	5,190.20
	May-95	5,190.70	5,194.47	NM	0	NM
	Oct-95	5,190.70	5,194.47	8.09	0	5,186.38
	May-96	5,190.70	5,194.47	NM	0	NM
	Oct-96	5,190.70	5,194.47	7.52	0	5,186.95
	Jun-97	5,190.70	5,194.47	8.95	0	5,185.52
	Oct-97	5,190.70	5,194.47	8.87	0	5,185.60
	May-98	5,190.70	5,194.47	9.02	0	5,185.45
	Dec-98	5,190.70	5,194.47	6.74	0	5,187.73

TABLE 1

SUMMARY OF CORRECTED GROUNDWATER ELEVATIONS

Former Maverik Refinery - Kirtland, New Mexico

Well ID	Date	Ground Elevation	Datum Elevation	Depth to Water (feet)	Free Product Thickness (feet)	Corrected Elevation (ft)
MW-15	Jan-92	5,185.40	5,188.80	0.80	0	5,188.00
	Jun-92	5,185.40	5,188.80	2.20	0	5,186.60
	Aug-92	5,185.40	5,188.80	2.40	0	5,186.40
	Dec-92	5,185.40	5,188.80	0.10	0	5,188.70
	Mar-93	5,185.40	5,188.80	0.60	0	5,188.20
	May-93	5,185.40	5,188.80	NM	0	NM
	Nov-93	5,185.40	5,188.80	0.60	0	5,188.20
	May-94	5,185.40	5,188.80	NM	0	NM
	Oct-94	5,185.40	5,188.80	1.86	0	5,186.94
	May-95	5,185.40	5,188.80	NM	0	NM
	Oct-95	5,185.40	5,188.80	5.79	0	5,183.01
	May-96	5,185.40	5,188.80	NM	0	NM
	Oct-96	5,185.40	5,188.80	5.32	0	5,183.48
	Jun-97	5,185.40	5,188.80	6.07	0	5,182.73
	Oct-97	5,185.40	5,188.80	5.57	0	5,183.23
	May-98	5,185.40	5,188.80	5.53	0	5,183.27
	Dec-98	5,185.40	5,188.80	4.39	0	5,184.41
MW-16	Jan-92	5,193.74	5,194.98	3.40	0	5,191.58
	Jun-92	5,193.74	5,194.98	4.50	0	5,190.48
	Aug-92	5,193.74	5,194.98	3.30	0	5,191.68
	Dec-92	5,193.74	5,194.98	1.90	0	5,193.08
	Mar-93	5,193.74	5,194.98	4.00	0	5,190.98
	May-93	5,193.74	5,194.98	NM	0	NM
	Nov-93	5,193.74	5,194.98	3.00	0	5,191.98
	May-94	5,193.74	5,194.98	NM	0	NM
	Oct-94	5,193.74	5,194.98	4.53	0	5,190.45
	May-95	5,193.74	5,194.98	NM	0	NM
	Oct-95	5,193.74	5,194.98	6.03	0	5,188.95
	May-96	5,193.74	5,194.98	NM	0	NM
	Oct-96	5,193.74	5,194.98	7.61	0	5,187.37
	Jun-97	5,193.74	5,194.98	7.72	0	5,187.26
	Oct-97	5,193.74	5,194.98	7.20	0	5,187.78
	May-98	5,193.74	5,194.98	8.36	0	5,186.62
	Dec-98	5,193.74	5,194.98	5.58	0	5,189.40
MW-18	Jan-92	5,199.14	5,201.75	NM	0	NM
	Jun-92	5,199.14	5,201.75	7.10	0	5,194.65
	Aug-92	5,199.14	5,201.75	5.00	0	5,196.75
	Dec-92	5,199.14	5,201.75	4.50	0	5,197.25
	Mar-93	5,199.14	5,201.75	6.70	0	5,195.05
	May-93	5,199.14	5,201.75	7.10	0	5,194.65
	Nov-93	5,199.14	5,201.75	5.20	0	5,196.55
	May-94	5,199.14	5,201.75	9.58	0	5,192.17
	Oct-94	5,199.14	5,201.75	8.60	0	5,193.15
	May-95	5,199.14	5,201.75	11.82	0	5,189.93
	Oct-95	5,199.14	5,201.75	10.69	0	5,191.06
	May-96	5,199.14	5,201.75	11.81	0	5,189.94
	Oct-96	5,199.14	5,201.75	10.35	0	5,191.40
	Jun-97	5,199.14	5,201.75	12.46	0	5,189.29
	Oct-97	5,199.14	5,201.75	11.96	0	5,189.79
	May-98	5,199.14	5,201.75	13.72	0	5,188.03
	Dec-98	5,199.14	5,201.75	10.37	0	5,191.38

TABLE 1

SUMMARY OF CORRECTED GROUNDWATER ELEVATIONS

Former Maverik Refinery - Kirtland, New Mexico

Well ID	Date	Ground Elevation	Datum Elevation	Depth to Water (feet)	Free Product Thickness (feet)	Corrected Elevation (ft)
MW-19	Jan-92	5188.58	5189.54	1.00	0	5,188.54
	Jun-92	5188.58	5189.54	2.00	0	5,187.54
	Aug-92	5188.58	5189.54	1.90	0	5,187.64
	Dec-92	5188.58	5189.54	0.30	0	5,189.24
	Mar-93	5188.58	5189.54	1.20	0	5,188.34
	May-93	5188.58	5189.54	2.20	0	5,187.34
	Nov-93	5188.58	5189.54	1.00	0	5,188.54
	May-94	5188.58	5189.54	3.43	0	5,186.11
	Oct-94	5188.58	5189.54	2.48	0	5,187.06
	May-95	5188.58	5189.54	3.50	0	5,186.04
	Oct-95	5188.58	5189.54	3.44	0	5,186.10
	May-96	5188.58	5189.54	3.42	0	5,186.12
	Oct-96	5188.58	5189.54	2.97	0	5,186.57
	Jun-97	5188.58	5189.54	4.51	0	5,185.03
	Oct-97	5188.58	5189.54	3.99	0	5,185.55
	May-98	5188.58	5189.54	4.62	0	5,184.92
	Dec-98	5188.58	5189.54	2.68	0	5,186.86
MW-20	Jan-92	5,190.10	5,191.05	2.60	0	5,188.45
	Jun-92	5,190.10	5,191.05	3.50	0	5,187.55
	Aug-92	5,190.10	5,191.05	3.50	0	5,187.55
	Dec-92	5,190.10	5,191.05	1.80	0	5,189.25
	Mar-93	5,190.10	5,191.05	2.70	0	5,188.35
	May-93	5,190.10	5,191.05	3.70	0	5,187.35
	Nov-93	5,190.10	5,191.05	2.60	0	5,188.45
	May-94	5,190.10	5,191.05	5.76	0	5,185.29
	Oct-94	5,190.10	5,191.05	3.83	0	5,187.22
	May-95	5,190.10	5,191.05	4.78	0	5,186.27
	Oct-95	5,190.10	5,191.05	4.71	0	5,186.34
	May-96	5,190.10	5,191.05	4.57	0	5,186.48
	Oct-96	5,190.10	5,191.05	4.35	0	5,186.70
	Jun-97	5,190.10	5,191.05	5.65	0	5,185.40
	Oct-97	5,190.10	5,191.05	5.15	0	5,185.90
	May-98	5,190.10	5,191.05	5.73	0	5,185.32
	Dec-98	5,190.10	5,191.05	4.05	0	5,187.00
MW-21	Jan-92	5,193.62	5,194.81	2.80	0	5,192.01
	Jun-92	5,193.62	5,194.81	4.30	0	5,190.51
	Aug-92	5,193.62	5,194.81	4.60	0	5,190.21
	Dec-92	5,193.62	5,194.81	2.20	0	5,192.61
	Mar-93	5,193.62	5,194.81	3.20	0	5,191.61
	May-93	5,193.62	5,194.81	4.70	0	5,190.11
	Nov-93	5,193.62	5,194.81	3.30	0	5,191.51
	May-94	5,193.62	5,194.81	6.00	0	5,188.81
	Oct-94	5,193.62	5,194.81	5.04	0	5,189.77
	May-95	5,193.62	5,194.81	6.29	0	5,188.52
	Oct-95	5,193.62	5,194.81	6.22	0	5,188.59
	May-96	5,193.62	5,194.81	6.22	0	5,188.59
	Oct-96	5,193.62	5,194.81	5.71	0	5,189.10
	Jun-97	5,193.62	5,194.81	6.73	0	5,188.08
	Oct-97	5,193.62	5,194.81	6.92	0	5,187.89
	May-98	5,193.62	5,194.81	7.45	0	5,187.36
	Well was destroyed					

TABLE 1

SUMMARY OF CORRECTED GROUNDWATER ELEVATIONS

Former Maverik Refinery - Kirtland, New Mexico

Well ID	Date	Ground Elevation	Datum Elevation	Depth to Water (feet)	Free Product Thickness (feet)	Corrected Elevation (ft)
Inside Slurry Wall						
MW-17	Jan-92	5,193.43	5,195.91	NM	0	NM
	Jun-92	5,193.43	5,195.91	3.70	0	5,192.21
	Aug-92	5,193.43	5,195.91	3.40	0	5,192.51
	Dec-92	5,193.43	5,195.91	2.10	0	5,193.81
	Mar-93	5,193.43	5,195.91	3.10	0	5,192.81
	May-93	5,193.43	5,195.91	3.90	0	5,192.01
	Nov-93	5,193.43	5,195.91	2.90	0	5,193.01
	May-94	5,193.43	5,195.91	5.71	0	5,190.20
	Oct-94	5,193.43	5,195.91	5.47	0	5,190.44
	May-95	5,193.43	5,195.91	8.30	0	5,187.61
	Oct-95	5,193.43	5,195.91	8.29	0	5,187.62
	May-96	5,193.43	5,195.91	8.11	0	5,187.80
	Oct-96	5,193.43	5,195.91	8.02	0	5,187.89
	Jun-97	5,193.43	5,195.91	9.32	0	5,186.59
	Oct-97	5,193.43	5,195.91	9.48	0	5,186.43
	May-98	5,193.43	5,195.91	9.42	0.01	5,186.49
	Dec-98	5,193.43	5,195.91	7.37	sheen	5,188.54
MW-22	Jan-92	5,194.58	5,195.86	4.50	0	5,191.36
	Jun-92	5,194.58	5,195.86	5.30	0	5,190.56
	Aug-92	5,194.58	5,195.86	4.70	0	5,191.16
	Dec-92	5,194.58	5,195.86	3.50	0	5,192.36
	Mar-93	5,194.58	5,195.86	5.00	0	5,190.86
	May-93	5,194.58	5,195.86	5.70	0	5,190.16
	Nov-93	5,194.58	5,195.86	4.40	0	5,191.46
	May-94	5,194.58	5,195.86	7.62	0	5,188.24
	Oct-94	5,194.58	5,195.86	7.18	0	5,188.68
	May-95	5,194.58	5,195.86	7.64	0	5,188.22
	Oct-95	5,194.58	5,195.86	7.16	0	5,188.70
	May-96	5,194.58	5,195.86	7.51	0	5,188.35
	Oct-96	5,194.58	5,195.86	6.89	0	5,188.97
	Jun-97	5,194.58	5,195.86	8.16	0	5,187.70
	Oct-97	5,194.58	5,195.86	8.06	0.03	5,187.80
	May-98	5,194.58	5,195.86	9.02	0.01	5,186.84
	Dec-98	5,194.58	5,195.86	6.52	sheen	5,189.34
P-1	Jan-92	5,195.74	5,197.66	NM	0	NM
	Jun-92	5,195.74	5,197.66	5.40	0	5,192.26
	Aug-92	5,195.74	5,197.66	4.20	0	5,193.46
	Dec-92	5,195.74	5,197.66	3.30	0	5,194.36
	Mar-93	5,195.74	5,197.66	5.50	0	5,192.16
	May-93	5,195.74	5,197.66	6.10	0	5,191.56
	Nov-93	5,195.74	5,197.66	4.40	0	5,193.26
	May-94	5,195.74	5,197.66	7.21	0	5,190.45
	Oct-94	5,195.74	5,197.66	7.57	0	5,190.09
	May-95	5,195.74	5,197.66	8.62	0	5,189.04
	Oct-95	5,195.74	5,197.66	7.82	0	5,189.84
	May-96	5,195.74	5,197.66	8.54	0.01	5,189.12
	Oct-96	5,195.74	5,197.66	7.43	0	5,190.23
	Jun-97	5,195.74	5,197.66	9.29	0.01	5,188.37
	Oct-97	5,195.74	5,197.66	8.91	0.01	5,188.75
	May-98	5,195.74	5,197.66	9.87	0.01	5,187.79
	Dec-98	5,195.74	5,197.66	NM	NM	NM

TABLE 1

SUMMARY OF CORRECTED GROUNDWATER ELEVATIONS

Former Maverik Refinery - Kirtland, New Mexico

Well ID	Date	Ground Elevation	Datum Elevation	Depth to Water (feet)	Free Product Thickness (feet)	Corrected Elevation (ft)
P-2	Jan-92	5,190.50	5,192.32	NM	0	NM
	Jun-92	5,190.50	5,192.32	3.10	0	5,189.22
	Aug-92	5,190.50	5,192.32	2.30	0	5,190.02
	Dec-92	5,190.50	5,192.32	1.00	0	5,191.32
	Mar-93	5,190.50	5,192.32	2.20	0	5,190.12
	May-93	5,190.50	5,192.32	3.10	0	5,189.22
	Nov-93	5,190.50	5,192.32	1.90	0	5,190.42
	May-94	5,190.50	5,192.32	4.20	0	5,188.12
	Oct-94	5,190.50	5,192.32	4.81	0	5,187.51
	May-95	5,190.50	5,192.32	5.30	0	5,187.02
	Oct-95	5,190.50	5,192.32	4.86	0	5,187.46
	May-96	5,190.50	5,192.32	5.04	0	5,187.28
	Oct-96	5,190.50	5,192.32	4.53	0	5,187.79
	Jun-97	5,190.50	5,192.32	6.04	0	5,186.28
	Oct-97	5,190.50	5,192.32	5.69	0	5,186.63
	May-98	5,190.50	5,192.32	9.96	0.01	5,182.36
	Dec-98	5,190.50	5,192.32	NM	NM	NM
P-3	Jan-92	5,191.44	5,193.21	NM	0	NM
	Jun-92	5,191.44	5,193.21	3.40	0	5,189.81
	Aug-92	5,191.44	5,193.21	3.60	0	5,189.61
	Dec-92	5,191.44	5,193.21	1.60	0	5,191.61
	Mar-93	5,191.44	5,193.21	2.60	0	5,190.61
	May-93	5,191.44	5,193.21	3.60	0	5,189.61
	Nov-93	5,191.44	5,193.21	2.60	0	5,190.61
	May-94	5,191.44	5,193.21	4.86	0	5,188.35
	Oct-94	5,191.44	5,193.21	5.77	0	5,187.44
	May-95	5,191.44	5,193.21	5.94	0	5,187.27
	Oct-95	5,191.44	5,193.21	5.88	0	5,187.33
	May-96	5,191.44	5,193.21	5.66	0	5,187.55
	Oct-96	5,191.44	5,193.21	5.62	0	5,187.59
	Jun-97	5,191.44	5,193.21	7.17	0	5,186.04
	Oct-97	5,191.44	5,193.21	6.67	0	5,186.54
	May-98	5,191.44	5,193.21	6.94	0	5,186.27
	Dec-98	5,191.44	5,193.21	NM	NM	NM
P-4	Jan-92	5,197.06	5,198.82	NM	0	NM
	Jun-92	5,197.06	5,198.82	7.00	0	5,191.82
	Aug-92	5,197.06	5,198.82	6.20	0	5,192.62
	Dec-92	5,197.06	5,198.82	5.10	0	5,193.72
	Mar-93	5,197.06	5,198.82	7.10	0	5,191.72
	May-93	5,197.06	5,198.82	7.60	0	5,191.22
	Nov-93	5,197.06	5,198.82	6.10	0	5,192.72
	May-94	5,197.06	5,198.82	8.09	0	5,190.73
	Oct-94	5,197.06	5,198.82	8.93	0.28	5,189.89
	May-95	5,197.06	5,198.82	9.85	0	5,188.97
	Oct-95	5,197.06	5,198.82	9.13	0	5,189.69
	May-96	5,197.06	5,198.82	9.73	0	5,189.09
	Oct-96	5,197.06	5,198.82	8.79	0	5,190.03
	Jun-97	5,197.06	5,198.82	9.88	0	5,188.94
	Oct-97	5,197.06	5,198.82	9.90	0	5,188.92
	May-98	5,197.06	5,198.82	6.46	0	5,192.36
	Dec-98	5,197.06	5,198.82	NM	NM	NM

NOTES: (1) NM = Not Measured

TABLE 2

SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location		DCA	B	T	E	X	Total BTEX	pH	SC
Within Slurry Wall									
MW-17	Sep 13-14, 1990	360	11,000	15,000	1,160	13,000	40,160	7.01	2,500
	Mar 18-19, 1991	400	11,000	10,000	1,900	15,000	37,900	7.04	2,700
	Jun 13, 1991	420	9,800	6,300	1,800	16,000	33,900	7.04	2,650
	Jan 20-21, 1992	MSG	MSG	MSG	MSG	MSG	MSG	MSG	MSG
	Jun 9 & 12, 1992	45	9,240	7,580	1,150	7,190	25,160	7.26	2,730
	Aug 19-20-1992	27	7,710	1,920	669	5,130	15,429	7.23	2,810
	Dec 16, 1992	17.3	7,990	4,740	638	4,600	17,968	7.54	2,970
	Mar 30, 1993	16.8	13,800	6,830	1,110	6,930	28,670	7.37	2,610
	May 23, 1993	12.5	13,700	6,360	993	10,530	31,583	7.33	2,470
	Nov 29-30, 1993	30.9	8,590	2,820	636	4,880	16,926	7.39	2,360
	May 25, 1994	8.3	10,900	4,340	823	5,660	21,723	7.30	2,830
	Oct 2-3, 1994	4.9	5,130	1,160	409	2,818	9,517	7.04	2,470
dup	Oct 2-3, 1994	< 1	2,070	807	350	2,013	5,240	7.04	2,470
	May 17, 1995	< 10	9,320	2,510	694	3,782	16,306	7.49	2,480
dup	May 17, 1995	< 10	12,800	4,460	944	5,710	23,914	7.49	2,480
**	Oct 18-19, 1995	2.3	3,000	464	244	1,079	4,787	7.09	2,430
	May 1-2, 1996	2.2	7,700	1,200	530	1,800	11,230	7.20	2,280
dup	May 1-2, 1996	< 5	7,300	1,200	490	1,800	10,790	7.20	2,280
	Oct 20, 1996	< 5	3,600	880	290	1,500	6,270	7.50	2,290
	June 24, 1997	<0.5	5,500	51	23	180	5,754	7.52	2,550
	Oct. 28, 1997	<5	590	920	140	1,300	2,950	7.42	2,310
dup	Oct. 28, 1997	<5	490	680	95	930	2,195	7.42	2,310
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
dup	Dec. 9, 1998	180	4,000	970	870	4,500	10,340	7.57	1,160
	Dec. 9, 1998	<10	2,300	44	370	1,300	4,014	7.57	1,160
MW-22	Sep 13-14, 1990	7,200	21,000	20,000	1,100	8,300	50,400	7.00	1,500
	Mar 18-19, 1991	2,200	17,000	9,500	910	6,600	34,010	6.87	1,900
	Jun 13, 1991	3,600	15,000	3,200	760	3,000	21,960	7.06	1,700
	Jan 20-21, 1992	5,400	36,000	27,000	1,900	13,500	78,400	6.86	1,600
	Jun 9 & 12, 1992	3,170	21,200	7,540	1,040	5,730	35,510	7.13	1,690
	Aug 19-20-1992	568	20,500	4,610	588	3,280	28,978	7.28	1,545
	Dec 16, 1992	908	12,100	4,220	514	3,254	20,088	7.43	1,508
	Mar 30, 1993	1,930	29,800	14,100	1,170	7,030	52,100	7.26	1,408
	May 23, 1993	28	17,000	6,520	1,100	6,150	30,770	7.61	6,550
	Nov 29-30, 1993	2,780	18,400	8,480	1,150	7,300	35,330	8.01	1,610
	May 25, 1994	379	9,340	2,250	845	3,725	16,160	7.15	1,505
	Oct 2-3, 1994	566	10,500	5,890	1,390	8,350	26,130	7.24	1,710
	May 17, 1995	62	7,510	1,750	1,000	6,520	16,780	7.15	1,517
dup	May 17, 1995	67	9,020	2,620	1,230	7,310	20,180	7.15	1,517
dup **	Oct 18-19, 1995	42	5,700	2,430	1,580	9,000	18,710	7.25	1,820
**	Oct 18-19, 1995	< 1	5,120	2,130	1,540	8,320	17,110	7.25	1,820
	May 1-2, 1996	37	4,600	410	1,300	10,000	16,310	7.30	1,325
	Oct 20, 1996	38	880	250	710	4,100	5,940	7.49	1,505
	June 24, 1997	24	4,300	580	510	5,500	10,890	7.31	1,280
dup	June 24, 1997	21	5,800	930	750	7,300	14,780	7.31	1,280
	October 18, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	May 5, 1998	12	3,300	300	610	3,400	7,610	8	1,290
duplicate	May 5, 1998	14	3,500	310	630	3,600	8,040	8	1,290
	Dec. 9, 1998	190	3,700	910	720	4,000	9,330	7.40	1,500

TABLE 2

SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location		DCA	B	T	E	X	Total BTEX	pH	SC
P-1	May 23, 1993	< 1	**4,110**	18.8	361	**2,522**	7,012	7.04	2,290
	Nov 29-30, 1993	< 1	**3,580**	10.2	506	**3,215**	7,311	7.22	1,460
	May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 2-3, 1994	< 1	8.9	< 1	1.9	11.8	22.6	7.04	2,210
	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 18-19, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 20, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	June 24, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	October 18, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Dec. 9, 1998	NS	NS	NS	NS	NS	NS	NS	NS
P-2	May 23, 1993	3.2	**5.2**	< 1	< 1	< 1	5.2	7.36	3,910
	Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.92	3,540
	May 25, 1994	1.3	< 1	< 1	< 1	< 1	< 1	7.41	3,980
	Oct 2-3, 1994	3.6	< 1	< 1	< 1	< 1	< 1	7.12	3,480
	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 18-19, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	May 1-2, 1996	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.40	2,980
	Oct 20, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	June 24, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	October 18, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Dec. 9, 1998	NS	NS	NS	NS	NS	NS	NS	NS
P-3	May 23, 1993	**10.6**	< 1	< 1	< 1	< 1	< 1	7.24	11,160
	Nov 29-30, 1993	**11.5**	< 1	< 1	< 1	< 1	< 1	7.31	9,140
	May 25, 1994	**12.1**	< 1	< 1	< 1	< 1	< 1	7.28	8,070
	Oct 2-3, 1994	**12.6**	< 1	< 1	< 1	< 1	< 1	7.06	5,550
	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 18-19, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	May 1-2, 1996	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.40	4,280
	Oct 20, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	June 24, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	October 18, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Dec. 9, 1998	NS	NS	NS	NS	NS	NS	NS	NS
P-4	May 23, 1993	8.3	**6,690**	**4,090**	559	**6,260**	17,599	NA	NA
	Nov 29-30, 1993	2.1	**6,400**	**4,420**	**900**	**7,700**	19,420	NA	NA
	May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 2-3, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 18-19, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	May 1-2, 1996	NA	NA	NA	NA	NA	NA	6.60	1,621
	Oct 20, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	June 24, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	October 18, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Dec. 9, 1998	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 2

SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location		DCA	B	T	E	X	Total BTEX	pH	SC
On Site									
MW-10	Sep 13-14, 1990	1.4	< 0.5	< 0.5	< 0.5	< 1	< 1	6.95	1,550
	Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.29	1,700
	Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.31	1,840
	Jun 9 & 12, 1992	1.6	< 1	< 1	< 1	< 1	1.6	7.65	1,400
	Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.85	1,160
	Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.64	6,110
	Mar 30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.22	9,060
	May 23, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.93	2,320
	Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.73	1,320
	May 25, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.75	1,335
	Oct 2-3, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.56	1,159
	May 17, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.64	1,695
	Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.41	1,453
	May 1-2, 1996	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.70	1,288
	Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.69	1,310
	June 24, 1997	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.63	2,520
	October 20, 1997	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.61	1,585
	May 5, 1998	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.60	1,608
	Dec. 9, 1998	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.64	1,290
MW-18	Sep 13-14, 1990	< 1	**17**	< 12	84.0	**880**	981	7.00	1,500
	Mar 18-19, 1991	< 1	**26**	< 12	85.0	**770**	881	7.24	1,200
	Jun 13, 1991	< 1	< 25	< 25	78.0	**930**	1,008	6.77	1,200
	Jan 20-21, 1992	MSG	MSG	MSG	MSG	MSG	MSG	MSG	MSG
	Jun 9 & 12, 1992	< 1	**313**	1.1	200	**1,710**	2,224	7.07	1,480
	Aug 19-20-1992	< 1	**527**	10.8	258	**2,075**	2,871	7.26	2,100
	Dec 16, 1992	< 25	**294**	< 25	224	**1,460**	1,978	7.31	1,930
	Mar 30, 1993	< 1	**117**	8.0	96.0	226	447	7.07	2,780
	May 23, 1993	< 1	**73**	< 1	31.2	259	363	7.15	2,220
	Nov 29-30, 1993	< 1	**337**	4.9	261	**1,352**	1,955	7.00	1,870
	May 25, 1994	< 1	**51**	10.0	7.0	99	167	7.00	1,510
	Oct 2-3, 1994	< 1	**210**	10.9	46.0	483	750	7.10	1,530
	May 17, 1995	< 1	**128**	< 1	10.4	274	412	6.84	1,370
	Oct 18-19, 1995	< 1	**118**	12.2	20.0	296	447	7.03	1,299
	May 1-2, 1996	< 0.5	**48**	0.5	3.4	150	202	7.00	1,270
	Oct 20, 1996	< 0.5	**37**	11.0	14.0	110	172	7.50	1,314
dup	Oct 20, 1996	< 0.5	**33**	0.8	12.0	120	166	7.50	1,314
	June 24, 1997	< 0.5	**130**	<0.5	15.0	200	345	6.98	1,399
	October 20, 1997	< 0.5	**55**	0.5	19.0	150	225	6.99	1,280
	May 5, 1998	< 0.5	**16**	<0.5	<0.5	2.1	18	6.84	1,374
	Dec. 9, 1998	<2.5	**44**	<2.5	21	<2.5	65	7.04	1,438
MW-19	Sep 13-14, 1990	**45**	< 0.5	< 0.5	1.1	1.9	3.0	6.95	3,000
	Mar 18-19, 1991	**35**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.22	2,500
	Jun 13, 1991	**44**	< 0.5	< 0.5	5.9	< 0.5	5.9	7.10	2,400
	Jan 20-21, 1992	**14**	< 5	< 5	< 5	< 5	< 5	7.66	460
	Jun 9 & 12, 1992	**11.4**	< 1	< 1	< 1	< 1	< 1	7.76	1,970
	Aug 19-20-1992	9.0	< 1	< 1	< 1	< 1	< 1	7.72	1,320
	Dec 16, 1992	6.6	< 1	< 1	< 1	< 1	< 1	7.70	1,620
	Mar 30, 1993	2.4	< 1	< 1	< 1	< 1	< 1	7.74	1,750
	May 23, 1993	7.9	< 1	< 1	< 1	< 1	< 1	7.73	1,630
	Nov 29-30, 1993	6.6	< 1	< 1	< 1	< 1	< 1	7.78	1,380

TABLE 2

SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location		DCA	B	T	E	X	Total BTEX	pH	SC
MW-19	May 25, 1994	8.0	< 1	< 1	< 1	< 1	< 1	7.65	1,762
(cont.)	Oct 2-3, 1994	7.9	< 1	< 1	< 1	< 1	< 1	7.44	1,258
	May 17, 1995	8.6	< 1	< 1	< 1	< 1	< 1	7.52	1,624
	Oct 18-19, 1995	8.8	< 1	< 1	< 1	< 1	< 1	7.31	1,411
	May 1-2, 1996	8.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.50	1,361
	Oct 20, 1996	4.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.62	1,340
	June 24, 1997	3.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.52	1,573
	October 20, 1997	2.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.53	1,346
	May 5, 1998	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.40	1,672
	Dec. 9, 1998	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.58	1,381
MW-20	Sep 13-14, 1990	< 1	< 0.5	< 0.5	< 0.5	< 1	< 1	7.01	1,350
	Mar 18-19, 1991	2.0	< 0.5	< 0.5	< 0.5	0.7	0.7	7.39	3,000
	Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.54	3,750
	Jun 9 & 12, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.62	1,600
	Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	6.97	1,310
	Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.87	1,340
	Mar 30, 1993	2.1	< 1	< 1	< 1	< 1	< 1	7.10	6,740
	May 23, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.86	1,430
	Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.69	1,230
	May 25, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.38	1,292
	Oct 2-3, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.57	1,308
	May 17, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.65	1,434
	Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.35	1,525
	May 1-2, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.50	1,417
	Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.18	1,545
	June 24, 1997	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.48	1,540
	October 20, 1997	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.01	1,452
	May 5, 1998	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.44	1,890
	Dec. 9, 1998	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.65	1,153
MW-21	Sep 13-14, 1990	67	< 0.5	1.5	1.1	5.0	7.6	7.01	1,500
	Mar 18-19, 1991	44	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.62	1,700
	Jun 13, 1991	40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.44	1,700
	Jan 20-21, 1992	8.8	< 5	< 5	< 5	< 5	< 5	8.31	5,110
	Jun 9 & 12, 1992	21.9	< 1	< 1	< 1	< 1	< 1	7.37	2,400
	Aug 19-20-1992	8.3	< 1	< 1	< 1	< 1	< 1	6.96	1,730
	Dec 16, 1992	1.7	< 1	< 1	< 1	< 1	< 1	7.69	2,030
	Mar 30, 1993	5.9	< 1	< 1	< 1	< 1	< 1	7.58	1,590
	May 23, 1993	14.8	< 1	< 1	< 1	< 1	< 1	7.63	2,530
	Nov 29-30, 1993	3.7	< 1	< 1	< 1	< 1	< 1	7.58	1,580
	May 25, 1994	8.3	< 1	< 1	< 1	< 1	< 1	7.66	1,592
	Oct 2-3, 1994	5.5	< 1	< 1	< 1	< 1	< 1	7.55	1,760
	May 17, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.59	1,819
dup	May 17, 1995	5.4	< 1	< 1	< 1	< 1	< 1	7.59	1,819
	Oct 18-19, 1995	2.1	< 1	< 1	< 1	< 1	< 1	7.52	2,060
	May 1-2, 1996	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.60	1,824
	Oct 20, 1996	3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.68	2,100
	June 24, 1997	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	6.98	1,642
	October 20, 1997	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	6.97	1,653
	May 5, 1998	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	6.67	1,760
	well was destroyed								

TABLE 2

SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location		DCA	B	T	E	X	Total BTEX	pH	SC
Off Site									
MW-9	Sep 13-14, 1990	2.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	6.97	1,550
	Mar 18-19, 1991	1.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.57	2,000
	Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.31	4,360
	Jun 9 & 12, 1992	1.5	< 1	< 1	< 1	< 1	< 1	7.58	1,680
	Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.81	1,325
	Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.33	1,827
	Mar 30, 1993	1.5	< 1	< 1	< 1	< 1	< 1	7.63	1,640
	May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.62	1,460
	May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 2-3, 1994	1.2	< 1	< 1	< 1	< 1	< 1	7.80	1,610
	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.38	1,523
	May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.85	1,645
	June 24, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	October 20, 1997	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NV	NV
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Dec. 9, 1998	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.51	1,588
MW-13	Sep 13-14, 1990	< 1	< 0.5	1.5	< 0.5	<1	1.5	7.02	2,950
	Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.84	3,250
	Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	Jan 20-21, 1992	NA	NA	NA	NA	NA	NA	NA	NA
	Jun 9 & 12, 1992	<1	<1	<1	<1	<1	<1	7.11	4,260
	Aug 19-20-1992	<1	<1	<1	<1	<1	<1	7.06	2,910
	Dec 16, 1992	NA	NA	NA	NA	NA	NA	NA	NA
	Mar 30, 1993	<1	<1	<1	<1	<1	<1	7.72	3,410
	May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	Nov 29-30, 1993	<1	<1	<1	<1	<1	<1	7.45	4,150
	May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 2-3, 1994	<1	<1	<1	<1	<1	<1	7.38	3,160
	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 18-19, 1995	<1	<1	<1	<1	<1	<1	7.41	3,600
	May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.54	3,200
	June 24, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	October 20, 1997	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NV	NV
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Dec. 9, 1998	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.81	4,100
MW-14	Sep 13-14, 1990	2.0	< 0.5	< 0.5	< 0.5	< 1	< 1	6.97	5,450
	Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	1.7	1.7	7.51	8,400
	Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.20	19,380
	Jun 9 & 12, 1992	2.3	< 1	< 1	< 1	< 1	< 1	7.62	4,520
	Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.38	5,760
	Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.40	9,090
	Mar 30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.02	15,280
	May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	Nov 29-30, 1993	1.2	< 1	< 1	< 1	< 1	< 1	7.61	6,030
	May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 2

SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location		DCA	B	T	E	X	Total BTEX	pH	SC
MW-14	Oct 2-3, 1994	1.9	< 1	< 1	< 1	< 1	< 1	7.34	4,560
(cont.)	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.15	6,760
	May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 20, 1996	0.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.15	6,120
	June 24, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	October 20, 1997	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NV	NV
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Dec. 9, 1998	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.68	14,100
MW-15	Sep 13-14, 1990	< 1	< 0.5	< 0.5	< 0.5	< 1	< 1	7.00	3,250
	Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.02	8,500
	Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.15	12,120
	Jun 9 & 12, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.27	3,430
	Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.39	2,450
	Dec 16, 1992	NA	NA	NA	NA	NA	NA	NA	NA
	Mar 30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.42	9,810
	May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	8.01	1,630
	May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 2-3, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.54	2,500
	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.48	2,260
	May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	8.21	1,939
	June 24, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	October 20, 1997	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	6.97	3,250
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Dec. 9, 1998	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.30	1,980
MW-16	Sep 13-14, 1990	< 1	< 0.5	< 0.5	< 0.5	< 1	< 1	6.97	1,370
	Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.57	1,200
	Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.30	2,050
	Jun 9 & 12, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.50	1,430
	Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.76	1,230
	Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.12	1,735
	Mar 30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.23	2,400
	May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.31	1,760
	May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 2-3, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.44	1,253
	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.26	1,421
	May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	6.78	1,665
	June 24, 1997	NS	NS	NS	NS	NS	NS	NS	NS
	October 20, 1997	< 0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	NV	NV
	May 5, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Dec. 9, 1998	< 0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.26	3,930

TABLE 2

SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location	DCA	B	T	E	X	Total BTEX	pH	SC
Water Quality Standards								
New Mexico	**10**	**10**	**750**	**750**	**620**		**6.90**	**---**
EPA MCL	**5**	**5**	**1,000**	**700**	**10,000**		**---**	**---**

NOTES:
1,2-dichloroethane
Benzene
Toluene
Ethylbenzene
Total Xylenes

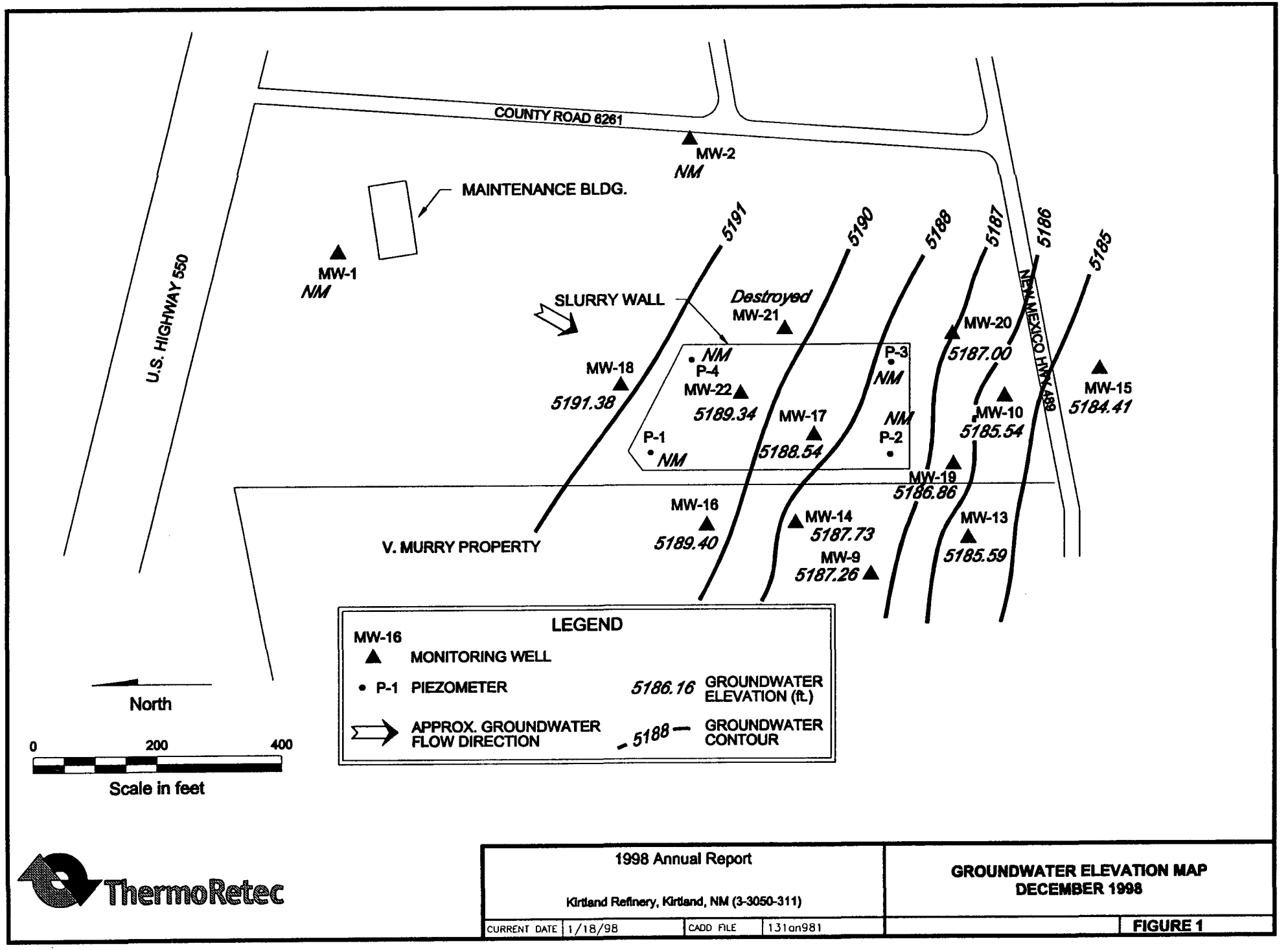
SC = Specific Conductivity
TDS = Total Dissolved Solids
MSG = Well Missing
NA = Not Analyzed
NS = Not Sampled

Organic values in ug/l
pH in standard units
SC in umhos/cm
NV=no value recorded

Values in bold exceed New Mexico MCL for drinking water
** = Laboratory exceeded holding time before completing sample analyses.

From sampling period 5 onward, samples were obtained from replacement wells at MW-17 and MW-18.

Figures



ThermoRetec

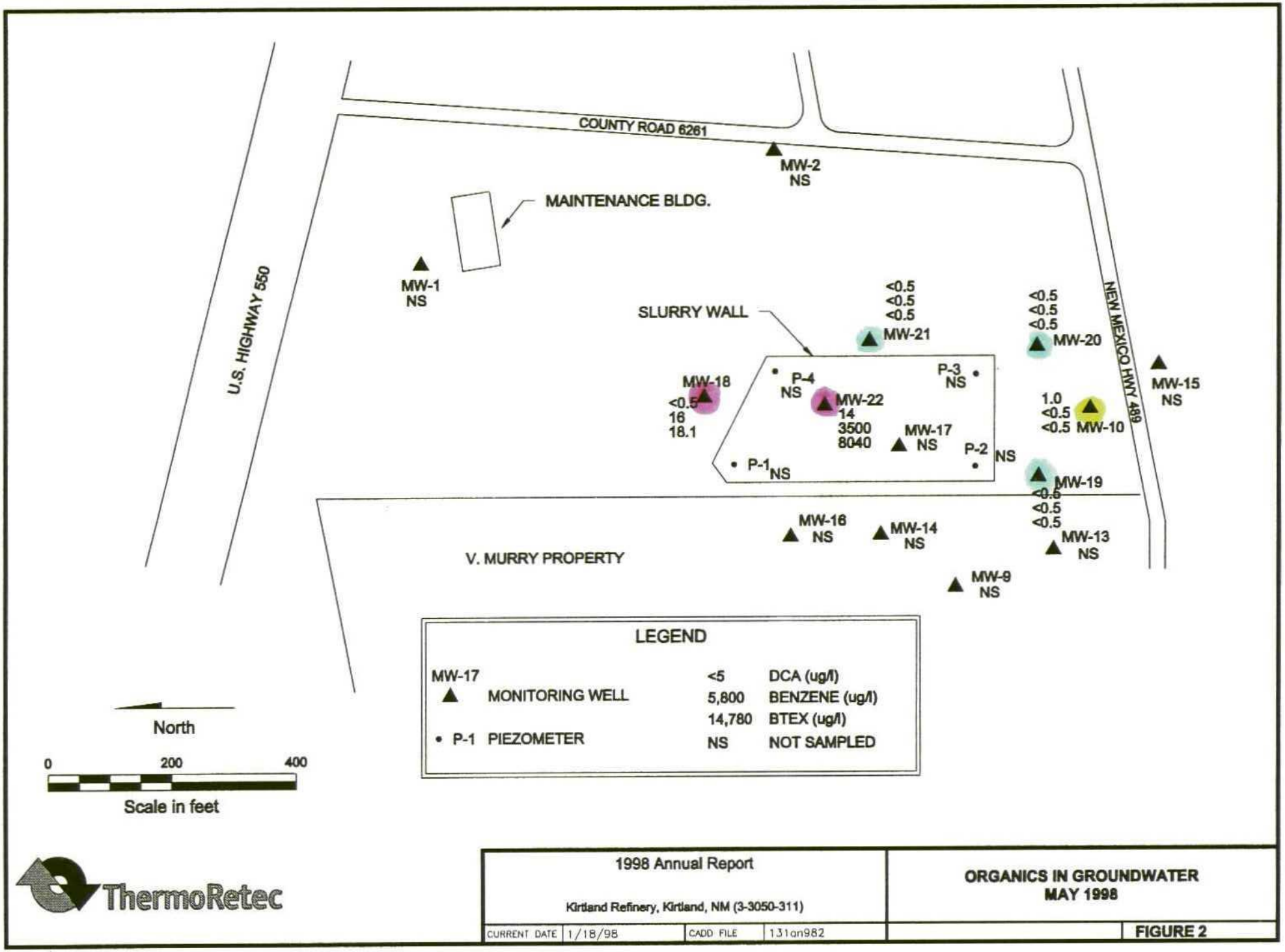
1998 Annual Report

Kirtland Refinery, Kirtland, NM (3-3050-311)

CURRENT DATE	1/18/98	CADD FILE	131an981

GROUNDWATER ELEVATION MAP DECEMBER 1998

FIGURE 1



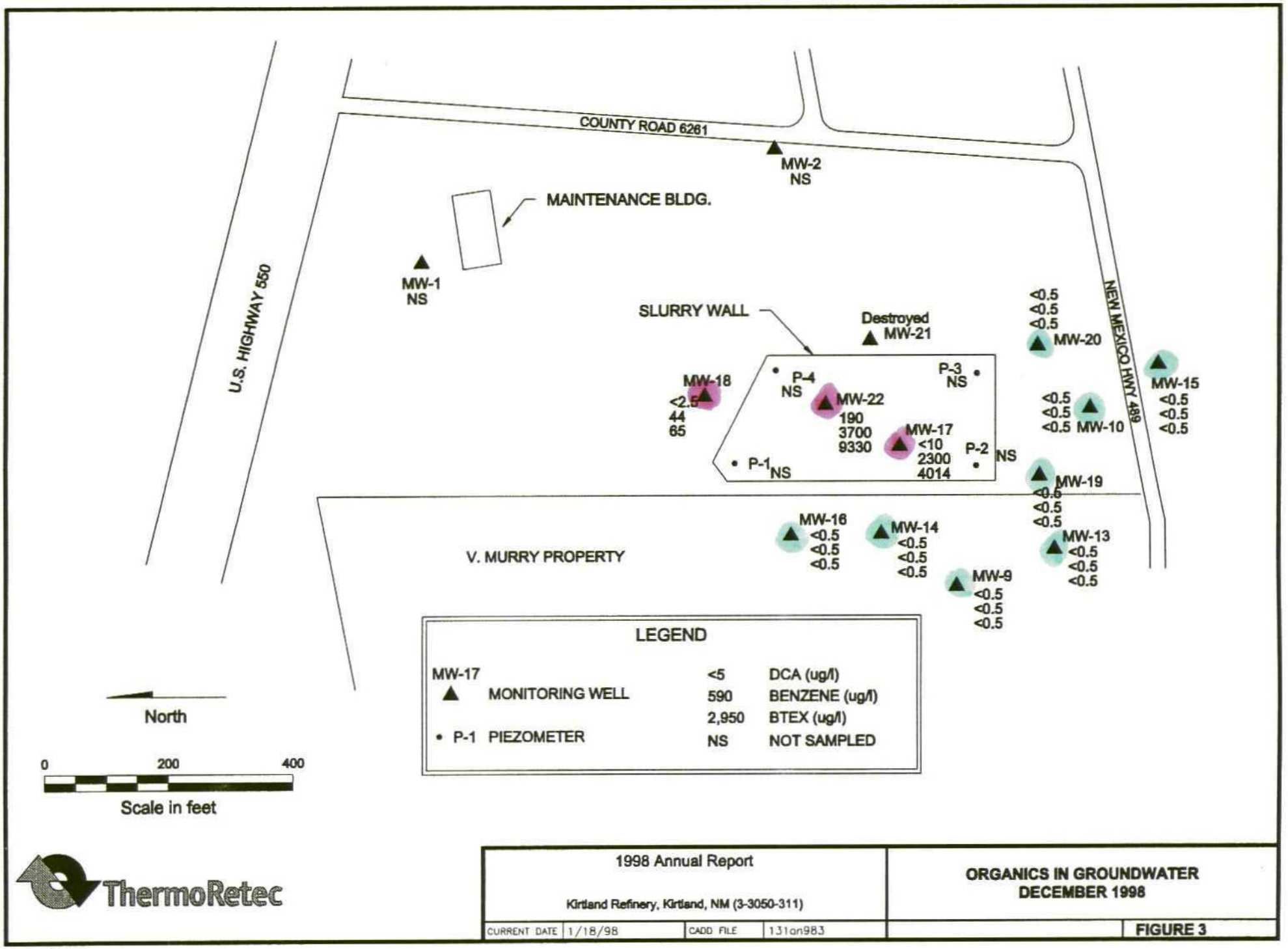
ThermoRetec

1998 Annual Report

Kirtland Refinery, Kirtland, NM (3-3050-311)

ORGANICS IN GROUNDWATER
MAY 1998

CURRENT DATE	1/18/98	CADD FILE	131on982	FIGURE 2



ThermoRetec

1998 Annual Report

Kirtland Refinery, Kirtland, NM (3-3050-311)

ORGANICS IN GROUNDWATER
DECEMBER 1998

CURRENT DATE	1/18/98	CADD FILE	131gn983	FIGURE 3

Concentrations of Benzene and BTEX in MW-17

Former Maverik Refinery - Kirtland, New Mexico

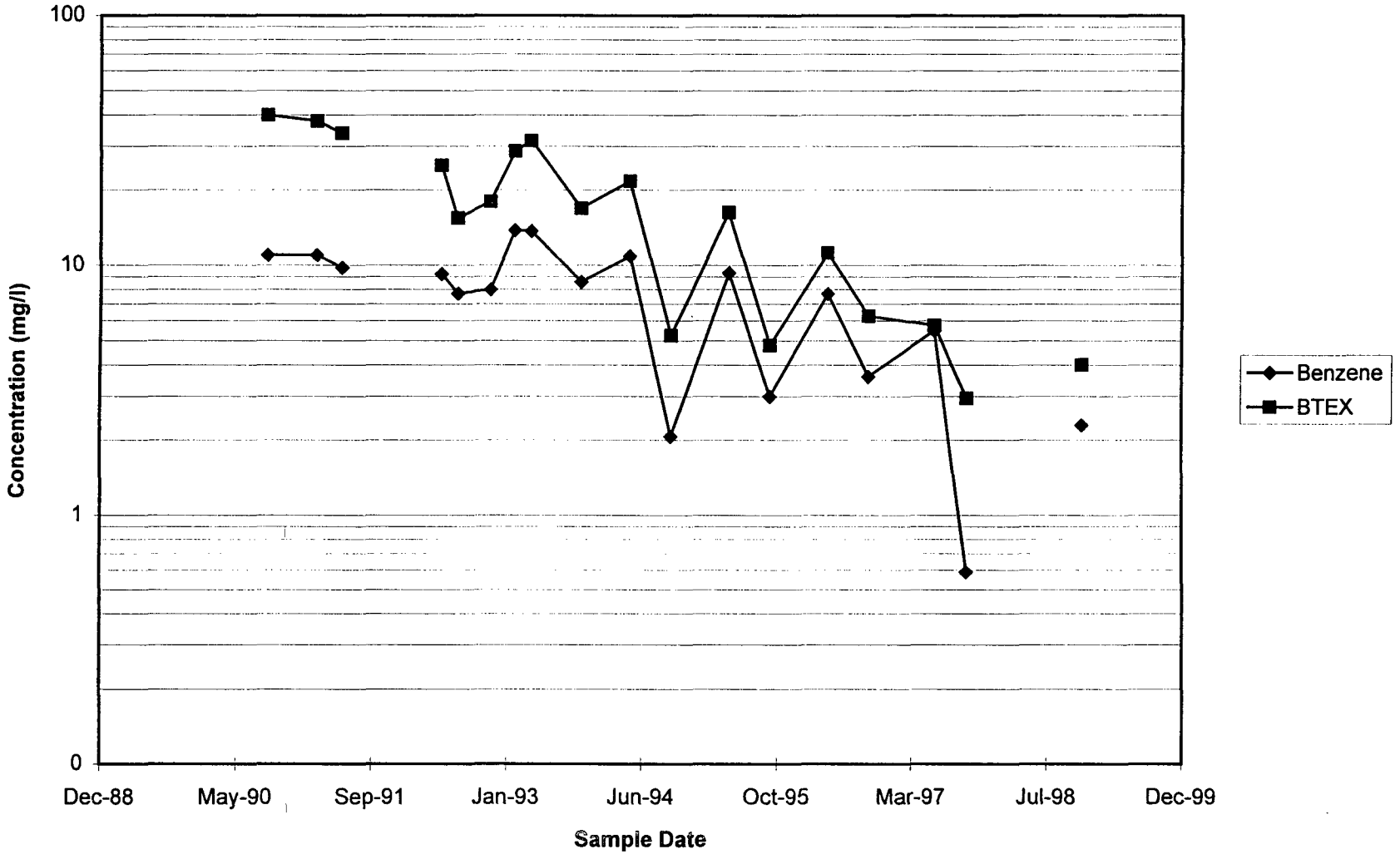


FIGURE 4

Concentrations of Benzene and BTEX in MW-22

Former Maverik Refinery - Kirtland, New Mexico

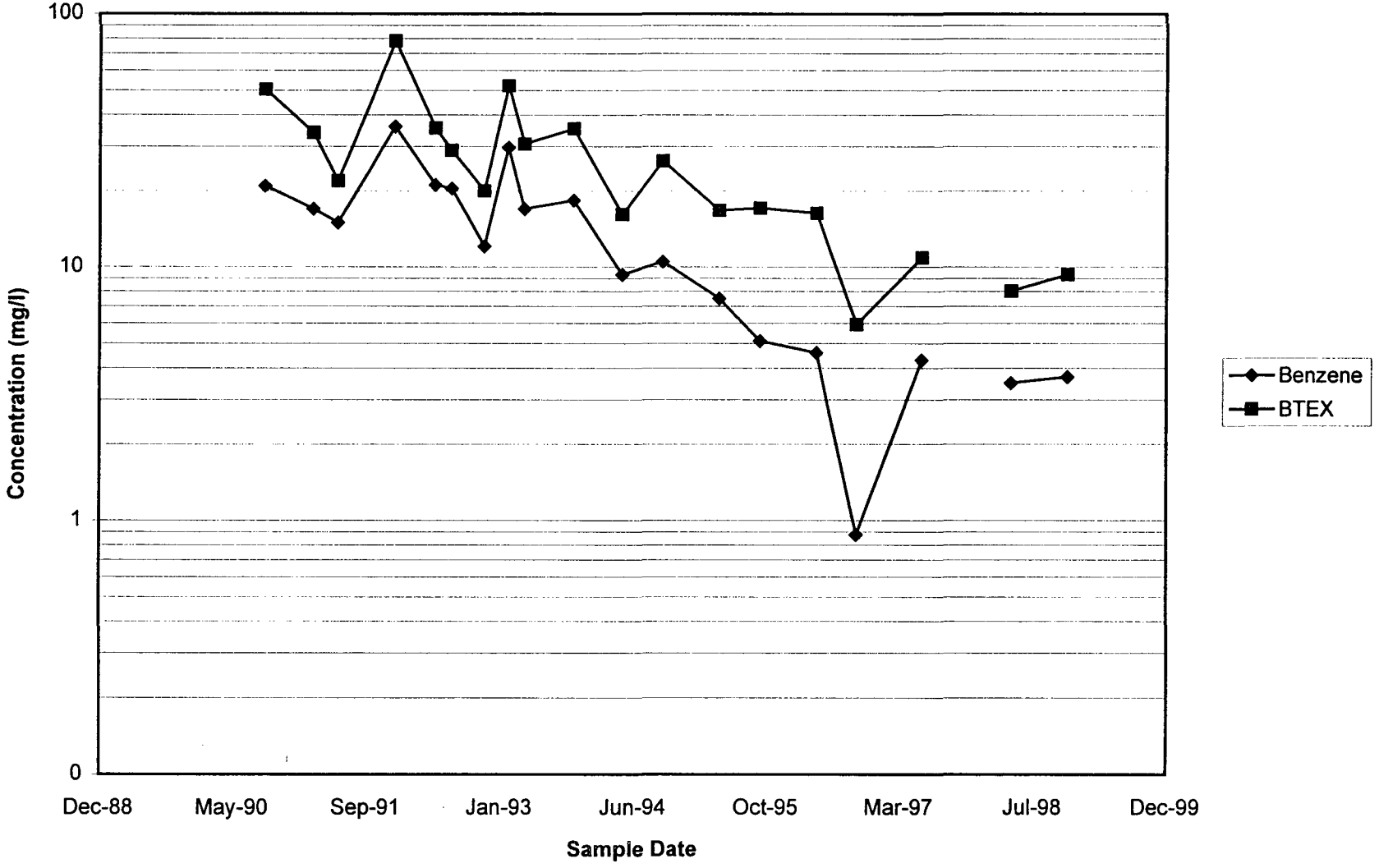


FIGURE 5

M:\MAVKL027\301\DB\Btex

January 12, 1998

Appendix A

Analytical Laboratory Data Reports

(Pages A-1 through A-21)

American Environmental Network, Inc.

AEN I.D. 805327

May 22, 1998

RETEC
1726 COLE BLVD 22/150
GOLDEN, CO 80401

Project Name KIRTLAND REF.
Project Number 3-3050-311

Attention: BILL HENDRIX

On 5/8/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

2709-D Pan American Freeway, NE • Albuquerque, NM 87107 • (505) 344-3777 • Fax (505) 344-4413

CLIENT	: RETEC	AEN I.D.	: 805327
PROJECT #	: 3-3050-311	DATE RECEIVED	: 5/8/98
PROJECT NAME	: KIRTLAND REF.	REPORT DATE	: 5/22/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-10	AQUEOUS	5/5/98
02	MW-18	AQUEOUS	5/5/98
03	MW-19	AQUEOUS	5/5/98
04	MW-20	AQUEOUS	5/5/98
05	MW-21	AQUEOUS	5/5/98
06	MW-22	AQUEOUS	5/5/98
07	MW-122	AQUEOUS	5/5/98

American Environmental Network, Inc.

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601\602)
CLIENT : RETEC AEN I.D.: 805327
PROJECT # : 3-3050-311
PROJECT NAME : KIRTLAND REF.

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-10	AQUEOUS	5/5/98	NA	5/19/98	1
02	MW-18	AQUEOUS	5/5/98	NA	5/19/98	1
03	MW-19	AQUEOUS	5/5/98	NA	5/19/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
BENZENE	0.5	**UG/L**	< 0.5	**16**	< 0.5
BROMODICHLORMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,2-DIBROMOETHANE (EDB)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	UG/L	< 0.3	< 0.3	< 0.3
1,2-DICHLOROETHANE (EDC)	0.5	**UG/L**	**1.0**	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 2.5	< 2.5
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	**UG/L**	< 0.5	**2.1**	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			99	104	100
SURROGATE LIMITS	(73 - 117)				
TRIFLUOROTOLUENE (%)			99	90	99
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

A-3

American Environmental Network, Inc.

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601\602)
CLIENT : RETEC AEN I.D.: 805327
PROJECT # : 3-3050-311
PROJECT NAME : KIRTLAND REF.

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-20	AQUEOUS	5/5/98	NA	5/19/98	1
05	MW-21	AQUEOUS	5/5/98	NA	5/19/98	1
06	MW-22	AQUEOUS	5/5/98	NA	5/19/98	10

PARAMETER	DET. LIMIT	UNITS	04	05	06
BENZENE	0.5	**UG/L**	< 0.5	< 0.5	**3300 (D100)**
BROMODICHLORMETHANE	0.2	UG/L	< 0.2	< 0.2	< 2.0
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 5.0
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 10
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 2.0
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 5.0
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 5.0
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 5.0
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 10
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 5.0
1,2-DIBROMOETHANE (EDB)	0.5	UG/L	< 0.5	< 0.5	< 5.0
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 5.0
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 5.0
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 5.0
1,1-DICHLOROETHANE	0.3	UG/L	< 0.3	< 0.3	< 3.0
1,2-DICHLOROETHANE (EDC)	0.5	**UG/L**	< 0.5	< 0.5	**12**
1,1-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 2.0
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 2.0
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 10
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 2.0
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 5.0
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 2.0
ETHYLBENZENE	0.5	**UG/L**	< 0.5	< 0.5	**610**
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 2.5	< 25
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 20
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 5.0
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 5.0
TOLUENE	0.5	**UG/L**	< 0.5	< 0.5	**300**
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 1.0	< 1.0	< 10
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 2.0
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 3.0
TRICHLOROFLUOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 5.0
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 5.0
TOTAL XYLENES	0.5	**UG/L**	< 0.5	< 0.5	**3400 (D100)**
SURROGATE:					
BROMOCHLOROMETHANE (%)			95	99	100
SURROGATE LIMITS	(73 - 117)				
TRIFLUOROTOLUENE (%)			100	95	87
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
(D100) = 100 X DILUTION, ANALYZED ON 5/19/98

A-4

American Environmental Network, Inc.

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601\602)
CLIENT : RETEC AEN I.D.: 805327
PROJECT # : 3-3050-311
PROJECT NAME : KIRTLAND REF.

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	MW-122	AQUEOUS	5/5/98	NA	5/19/98	10

PARAMETER	DET. LIMIT	UNITS	07
BENZENE	0.5	**UG/L**	**3500 (D100)**
BROMODICHLORMETHANE	0.2	UG/L	< 2.0
BROMOFORM	0.5	UG/L	< 5.0
BROMOMETHANE	1.0	UG/L	< 10
CARBON TETRACHLORIDE	0.2	UG/L	< 2.0
CHLOROBENZENE	0.5	UG/L	< 5.0
CHLOROETHANE	0.5	UG/L	< 5.0
CHLOROFORM	0.5	UG/L	< 5.0
CHLOROMETHANE	1.0	UG/L	< 10
DIBROMOCHLOROMETHANE	0.5	UG/L	< 5.0
1,2-DIBROMOETHANE (EDB)	0.5	UG/L	< 5.0
1,2-DICHLOROBENZENE	0.5	UG/L	< 5.0
1,3-DICHLOROBENZENE	0.5	UG/L	< 5.0
1,4-DICHLOROBENZENE	0.5	UG/L	< 5.0
1,1-DICHLOROETHANE	0.3	UG/L	< 3.0
1,2-DICHLOROETHANE (EDC)	0.5	**UG/L**	**14**
1,1-DICHLOROETHENE	0.2	UG/L	< 2.0
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 2.0
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 10
1,2-DICHLOROPROPANE	0.2	UG/L	< 2.0
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 5.0
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 2.0
ETHYLBENZENE	0.5	**UG/L**	**630**
METHYL-t-BUTYL ETHER	2.5	UG/L	< 25
METHYLENE CHLORIDE	2.0	UG/L	< 20
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 5.0
TETRACHLOROETHENE	0.5	UG/L	< 5.0
TOLUENE	0.5	**UG/L**	**310**
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 10
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 2.0
TRICHLOROETHENE	0.3	UG/L	< 3.0
TRICHLOROFLUOROMETHANE	0.5	UG/L	< 5.0
VINYL CHLORIDE	0.5	UG/L	< 5.0
TOTAL XYLENES	0.5	**UG/L**	**3600 (D100)**

SURROGATE:		
BROMOCHLOROMETHANE (%)		101
SURROGATE LIMITS	(73 - 117)	
TRIFLUOROTOLUENE (%)		85
SURROGATE LIMITS	(69 - 117)	

CHEMIST NOTES:
(D100) = 100 X DILUTION, ANALYZED ON 5/19/98

A-5

American Environmental Network, Inc.

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)		
BLANK I.D.	: 051998	AEN I.D.	: 805327
CLIENT	: RETEC	DATE EXTRACTED	: N/A
PROJECT #	: 3-3050-311	DATE ANALYZED	: 5/19/98
PROJECT NAME	: KIRTLAND REF.	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
BROMODICHLORMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.5
1,2-DIBROMOETHANE (EDB)	UG/L	<0.5
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
cis-1,2-DICHLOROETHENE	UG/L	<0.2
trans-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
cis-1,3-DICHLOROPROPENE	UG/L	<0.5
trans-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL -t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.5
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
BROMOCHLOROMETHANE (%)		107
SURROGATE LIMITS	(73 - 117)	
TRIFLUOROTOLUENE (%)		98
SURROGATE LIMITS	(69 - 117)	

CHEMIST NOTES:
N/A

A-6

American Environmental Network, Inc.

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)		
BLANK I.D.	: 051998 B	AEN I.D.	: 805327
CLIENT	: RETEC	DATE EXTRACTED	: N/A
PROJECT #	: 3-3050-311	DATE ANALYZED	: 5/19/98
PROJECT NAME	: KIRTLAND REF.	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
BROMODICHLORMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.5
1,2-DIBROMOETHANE (EDB)	UG/L	<0.5
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
cis-1,2-DICHLOROETHENE	UG/L	<0.2
trans-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
cis-1,3-DICHLOROPROPENE	UG/L	<0.5
trans-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL -t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.5
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
BROMOCHLOROMETHANE (%)		102
SURROGATE LIMITS	(73 - 117)	
TRIFLUOROTOLUENE (%)		99
SURROGATE LIMITS	(69 - 117)	

CHEMIST NOTES:
N/A

A-7

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)		
MSMSD #	: 805324-01	AEN I.D.	: 805327
CLIENT	: RETEC	DATE EXTRACTED	: N/A
PROJECT #	: 3-3050-311	DATE ANALYZED	: 5/19/98
PROJECT NAME	: KIRTLAND REF.	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	10.0	100	10.5	105	5	(82 -128)	20
TOLUENE	<0.5	10.0	11.5	115	11.8	118	3	(87 -128)	20
1,1-DICHLOROETHENE	<0.2	10.0	6.1	61	6.0	60	2	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.7	107	10.6	106	1	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	10.3	103	10.3	103	0	(87 - 124)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 5/8 PAGE: 1 OF 1

AEN (NM) Accession #: 805322

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Bill Henderson
COMPANY:	RETEC
ADDRESS:	1726 Cole Blvd 22/150 Golden, Co 80401
PHONE:	303 271 2100
FAX:	303 2770110
BILL TO:	
COMPANY:	
ADDRESS:	

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	601/602	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
MW-10	5/5	1400	H_2O	01											X																	2
MW-18		0900		02											X																	2
MW-19		1400		03											X																	2
MW-20		1300		04											X																	2
MW-21		0955		05											X																	2
MW-22		1050		06											X																	2
MW-122		1110		07											X																	2

b-4

PROJECT INFORMATION

PROJ. NO.:	3-3050-311
PROJ. NAME:	KIRTLAND REF.
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT

NO. CONTAINERS	14
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	Yes
BLUE ICE/ICE	4°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) [ ] 24hr [ ] 48hr [ ] 72hr [ ] 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: [ ] NM [ ] SDWA [ ] OTHER

METHANOL PRESERVATION [ ]

COMMENTS: FIXED FEE [ ]

ANALYSIS REQUEST

RELINQUISHED BY:	RELINQUISHED BY:
Signature: Darrell Anderson Time: 1000	Signature: Time
Printed Name: Darrell Date: 8 May	Printed Name: Date:
Company:	Company:
RECEIVED BY:	**RECEIVED BY: (LAB)**
Signature: Time:	Signature:
Printed Name: Date:	Printed Name: Date:
Company:	Company:

DEC 2 1 1998

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

PINNACLE LABORATORIES

Pinnacle Lab ID number **812053**
December 18, 1998

THERMORETEC CORPORATION
1726 COLE BLVD, BLDG. 22 #150
GOLDEN, CO 80401

Project Name FORMER MAVERIK REF.
Project Number (none)

Attention: BILL HENDRIX

On 12/11/98 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: THERMORETEC CORPORATION	PINNACLE ID	: 812053
PROJECT #	: (none)	DATE RECEIVED	: 12/11/98
PROJECT NAME	: FORMER MAVERIK REF.	REPORT DATE	: 12/18/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-15	AQUEOUS	12/9/98
02	MW-16	AQUEOUS	12/9/98
03	MW-14	AQUEOUS	12/9/98
04	MW-9	AQUEOUS	12/9/98
05	MW-13	AQUEOUS	12/9/98
06	MW-20	AQUEOUS	12/9/98
07	MW-10	AQUEOUS	12/9/98
08	MW-19	AQUEOUS	12/9/98
09	MW-18	AQUEOUS	12/9/98
10	MW-22	AQUEOUS	12/9/98
11	MW-17	AQUEOUS	12/9/98
12	MW-12	AQUEOUS	12/9/98
13	MW-6	AQUEOUS	12/9/98

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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 601/602
CLIENT : THERMORETEC CORPORATION PINNACLE I.D.: 812053
PROJECT # : (none)
PROJECT NAME : FORMER MAVERIK REF.

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-15	AQUEOUS	12/9/98	NA	12/16/98	1
02	MW-16	AQUEOUS	12/9/98	NA	12/16/98	1
03	MW-14	AQUEOUS	12/9/98	NA	12/16/98	1

PARAMETER	DET. LIMIT	UNITS	MW-15	MW-16	MW-14
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 2.5	< 2.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			103	105	105
SURROGATE LIMITS	(73 - 117)				
TRIFLUOROTOLUENE (%)			109	105	103
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 601/602
CLIENT : THERMORETEC CORPORATION PINNACLE I.D.: 812053
PROJECT # : (none)
PROJECT NAME : FORMER MAVERIK REF.

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-9	AQUEOUS	12/9/98	NA	12/16/98	1
05	MW-13	AQUEOUS	12/9/98	NA	12/16/98	1
06	MW-20	AQUEOUS	12/9/98	NA	12/16/98	1

PARAMETER	DET. LIMIT	UNITS	MW-9	MW-13	MW-20
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 2.5	< 2.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			109	112	112
SURROGATE LIMITS	(73 - 117)				
TRIFLUOROTOLUENE (%)			110	108	111
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 601/602
CLIENT : THERMORETEC CORPORATION PINNACLE I.D.: 812053
PROJECT # : (none)
PROJECT NAME : FORMER MAVERIK REF.

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	MW-10	AQUEOUS	12/9/98	NA	12/16/98	1
08	MW-19	AQUEOUS	12/9/98	NA	12/16/98	1
09	MW-18	AQUEOUS	12/9/98	NA	12/16/98	5

PARAMETER	DET. LIMIT	UNITS	MW-10	MW-19	MW-18
BENZENE	0.5	**UG/L**	< 0.5	< 0.5	**44**
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 2.5
ETHYLBENZENE	0.5	**UG/L**	< 0.5	< 0.5	**21**
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 2.5	< 12.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 2.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 2.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			108	112	110
SURROGATE LIMITS	(73 - 117)				
TRIFLUOROTOLUENE (%)			106	112	101
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 601/602
CLIENT : THERMORETEC CORPORATION PINNACLE I.D.: 812053
PROJECT # : (none)
PROJECT NAME : FORMER MAVERIK REF.

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
10	MW-22	AQUEOUS	12/9/98	NA	12/16/98	40
11	MW-17	AQUEOUS	12/9/98	NA	12/16/98	20
12	MW-12	AQUEOUS	12/9/98	NA	12/16/98	50

PARAMETER	DET. LIMIT	UNITS	MW-22	MW-17	MW-12
BENZENE	0.5	**UG/L**	**3700**	**2300**	**4000**
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	**190**	< 10	**180**
ETHYLBENZENE	0.5	**UG/L**	**720**	**370**	**870**
METHYL-t-BUTYL ETHER	2.5	UG/L	< 100	< 50	< 130
TOLUENE	0.5	**UG/L**	**910**	**44**	**970**
TOTAL XYLENES	0.5	**UG/L**	**4000**	**1300**	**4500**
SURROGATE:					
BROMOCHLOROMETHANE (%)			103	102	100
SURROGATE LIMITS	(73 - 117)				
TRIFLUOROTOLUENE (%)			96	101	94
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 601/602
CLIENT : THERMORETEC CORPORATION PINNACLE I.D.: 812053
PROJECT # : (none)
PROJECT NAME : FORMER MAVERIK REF.

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
13	MW-6	AQUEOUS	12/9/98	NA	12/16/98	1

PARAMETER	DET. LIMIT	UNITS	MW-6 (BLANK - DI WATER)
BENZENE	0.5	UG/L	< 0.5
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5
TOLUENE	0.5	UG/L	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			101
SURROGATE LIMITS	(73 - 117)		
TRIFLUOROTOLUENE (%)			106
SURROGATE LIMITS	(69 - 117)		

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 601/602		
BLANK I.D.	: 121598	PINNACLE I.D.	: 812053
CLIENT	: THERMORETEC CORPORATION	DATE EXTRACTED	: NA
PROJECT #	: (none)	DATE ANALYZED	: 12/15/98
PROJECT NAME	: FORMER MAVERIK REF.	SAMPLE MATRIX	: AQUEOUS

PARAMETER		UNITS	
BENZENE		UG/L	<0.5
1,2-DICHLOROETHANE (EDC)		UG/L	<0.5
ETHYLBENZENE		UG/L	<0.5
METHYL -t-BUTYL ETHER		UG/L	<2.5
TOLUENE		UG/L	<0.5
TOTAL XYLENES		UG/L	<0.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			107
SURROGATE LIMITS	(73 - 117)		
TRIFLUOROTOLUENE (%)			107
SURROGATE LIMITS	(69 - 117)		

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 601/602		
BLANK I.D.	: 121698	PINNACLE I.D.	: 812053
CLIENT	: THERMORETEC CORPORATION	DATE EXTRACTED	: NA
PROJECT #	: (none)	DATE ANALYZED	: 12/16/98
PROJECT NAME	: FORMER MAVERIK REF.	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
METHYL -t-BUTYL ETHER	UG/L	<2.5
TOLUENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:		
BROMOCHLOROMETHANE (%)		105
SURROGATE LIMITS	(73 - 117)	
TRIFLUOROTOLUENE (%)		105
SURROGATE LIMITS	(69 - 117)	

CHEMIST NOTES:

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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 601/602		
MSMSD #	: 812052-02	PINNACLE I.D.	: 812053
CLIENT	: THERMORETEC CORPORATION	DATE EXTRACTED	: NA
PROJECT #	: (none)	DATE ANALYZED	: 12/15/98
PROJECT NAME	: FORMER MAVERIK REF.	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMIT
BENZENE	<0.5	10.0	8.9	89	8.9	89	0	(80 - 120)	20
1,2-DICHLOROETHANE (EDC	<0.5	10.0	9.6	96	10.0	100	4	(80 - 120)	20
ETHYLBENZENE	<0.2	10.0	9.0	90	8.8	88	2	(80 - 120)	20
METHYL-t-BUTYL ETHER	<0.3	10.0	9.5	95	10.0	100	5	(80 - 120)	20
TOLUENE	<0.5	10.0	9.2	92	8.9	89	3	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	27.1	90	26.4	88	3	(80 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 12/10/98, PAGE: 1 OF 2

AEN(NM) Accession #: 812053

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

A-20

PROJECT MANAGER:

COMPANY: THERMORETEC CORP
ADDRESS: 1726 Cole Blvd, Bldg 22, #150
Golden CO 80401-3213
PHONE: (303) 271-2100
FAX: (303) 277-0110
BILL TO: (Above)
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	BTEX, MTBE, 1,2 dichloroethane by 8021
MW-15	12/9/98	10:40a	H2O	01	X
MW-16	12/9/98	11:40a		02	
MW-14	12/9/98	12:20		03	
MW-9	12/9/98	1:15p		04	
MW-13	12/9/98	2:30p		05	
MW-20	12/9/98	2:50p		06	
MW-10	12/9/98	3:10p		07	
MW-19	12/9/98	3:15p		08	
MW-18	12/9/98	3:25p		09	
MW-22	12/9/98	3:40p	H2O	10	X

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline)
8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
8021 (TCL)
8021 (EDX)
8021 (HALO)
8021 (CUST)
504.1 EDB ☐ / DBCP ☐
8260 (TCL) Volatile Organics
8260 (Full) Volatile Organics
8260 (CUST) Volatile Organics
8260 (Landfill) Volatile Organics
Pesticides /PCB (608/8081)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310)
General Chemistry:
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:
NUMBER OF CONTAINERS

PROJECT INFORMATION

PROJ NO:
PROJ NAME: FORMER MAVERICK REF.
PO NO:
SHIPPED VIA: FED-X

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	4.3°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.

Signature: Time: 4:03pm
Printed Name: James A. Cadas Date: 12/10/98
Company: Basin Engineering

RECEIVED BY: 1.

Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 2.

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 2.

Signature: Time:
Printed Name: Kim Kelly Date: 12/11/98
American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 12/9/98 PAGE: 2 OF 2

AEN(NM) Accession #: 812053

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

A-21

PROJECT MANAGER:

COMPANY: THERMORETEC CORP
ADDRESS: 1726 Cole Blvd., Bldg 22, #150
Golden, CO 80401-3213
PHONE: (303) 271-2100
FAX: (303) 277-0110

BILL TO: (Above)
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	BTEX, MTBE, 1,2 dichloroethane confirm 602	NUMBER OF CONTAINERS
MW-17	12/9/98	4:00pm	H2O	11	X	
MW-12	12/9/98	4:30pm	"	12	X	
MW-6	12/9/98	5:00pm	"	13	X	

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline)
8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
8021 (TCL)
8021 (EDX)
8021 (HALO)
8021 (CUST)
504.1 EDB ☐ / DBCP ☐
8260 (TCL) Volatile Organics
8260 (Full) Volatile Organics
8260 (CUST) Volatile Organics
8260 (Landfill) Volatile Organics
Pesticides /PCB (608/8081)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310)
General Chemistry:
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME: FORMER MAVERIK REF.
P.O. NO.:
SHIPPED VIA: FED-X

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	4.3°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Time: 4:20pm	Signature: Time:
Printed Name: James A Cates Date: 12/10/98	Printed Name: Date:
Company: Basin Engineering	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Kim Mitchell Date: 12/11/98
Company:	American Enviromental Network (NM), Inc.