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REPORTS

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**1996 ANNUAL GROUNDWATER MONITORING REPORT
FORMER MAVERIK REFINERY TANK FARM
KIRTLAND, NEW MEXICO
MAVERIK COUNTRY STORES, INC.**

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1.0 INTRODUCTION

Maverik Country Stores, Inc. (Maverik) retained TriTechnics Corporation to conduct groundwater monitoring and reporting activities at its former refinery and tank farm located in Kirtland, New Mexico. Results of monitoring and related activities have been submitted to the Oil Conservation Division in several reports since the removal of tanks and ancillary equipment at the refinery and tank farm, and construction of the slurry wall. Numerous earlier reports present results of site investigations dating back to 1987.

In accordance with the scope of work (discussed in Section 2.0) presented in the April 26, 1993 monitoring report and agreed upon in a letter from NMDEQ dated May 17, 1993, this Annual Report presents the results of groundwater monitoring conducted at the site on May 1-2, 1996 and October 20, 1996.

2.0 SCOPE OF WORK

The Scope of Work completed at this site is presented below:

1. Groundwater monitoring (groundwater quality sampling and groundwater level measurements) is performed twice per year. Groundwater monitoring is conducted once at the beginning of the primary biodegradation season (May or June) and once at the end of the season (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.
4. On an annual basis, nutrients are added to the area within the confines of the slurry wall impoundment to enhance in-situ biodegradation of remaining hydrocarbons. (A recommendation has been made in Section 6 of this report to terminate this activity.)

3.0 GROUNDWATER MONITORING

Groundwater monitoring at the site included well gauging and sampling of the wells (listed in Section 2.0) during the respective May and October groundwater monitoring events. Groundwater monitoring was conducted on May 1-2, 1996 and October 20, 1996. TriTechnics personnel conducted both sampling events.

Groundwater monitoring activities were conducted in accordance with standard United States Environmental Protection Agency (EPA) sampling protocol. For all wells, depth to water and total depth measurements were taken using a Keck electronic water level measuring device or a Marine Moisture Company Oil-Water Interface probe. Measurements were utilized to calculate well evacuation requirements. Wells were evacuated using a disposable, weighted HDPE 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.

Although not required by the OCD, piezometers installed near the inside corners of the slurry wall have been previously sampled and analyzed to provide further insight into the contaminant concentrations inside the slurry wall (other than that which is provided by MW-17 and MW-22). These 2-inch diameter piezometers are completed as monitor wells to a total depth of eight feet below grade and are screened from three to eight feet below grade. Groundwater samples were collected from piezometers P-2 and P-3 during the May, 1996 sampling event. Groundwater samples were not collected from piezometers P-1 and P-4, during the May, 1996 event, because Piezometer P-1 contained 0.01 inches of free-phase hydrocarbons and P-4 was purged dry and did not recover

sufficiently to sample. Samples were not collected from any of the piezometers during the October, 1996 sampling event.

4.0 BIOREMEDIATION

As requested in the May 17, 1993 letter from OCD to Maverik, nutrient addition operations to stimulate hydrocarbon biodegradation were again conducted within the area enclosed by the slurry wall. The nutrient addition activities were completed by Rosenbaum Construction of Farmington, NM, during June, 1996. The area was ripped to a depth of 4.5 feet with a Caterpillar before application of 4,000 pounds of fertilizer. The fertilizer was watered in over a two-day period using a commercial, impulse-type water applicator. Approximately 150,000 gallons of water were applied during this period. Documentation of these procedures and quantities of materials is included in Appendix A.

5.0 RESULTS

5.1 Groundwater Elevation

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.

5.2 Water Quality Analyses

Water quality monitoring results for the May and October, 1996 sampling events are summarized in Table 2 along with historical analytical results. Laboratory analytical reports for the two 1996 events are included in Appendix B. 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 October, 1996 sampling events, respectively.

The five off-site monitor wells (MW-9, MW-13, MW-14, MW-15 and MW-16) were sampled only during the October, 1996 sampling event. The concentration of DCA in monitoring well MW-14 was reported at 0.7 µg/l during the October, 1996 sampling event. BTEX was not detected in the sample from monitoring well MW-14. DCA and BTEX were not detected in any of the other off-site wells sampled during 1996.

Five on-site wells located outside the confines of the slurry wall were sampled during both May and October, 1996. BTEX was not detected in downgradient monitoring wells MW-10, MW-19, and MW-20. DCA was reported at a concentration of 1.0 µg/l in monitoring well MW-10 during the May, 1996 event. DCA was not detected during the

October, 1996 event in well MW-10. The concentrations of DCA in the groundwater samples from monitoring well MW-19 during the May and October periods were 8.6 µg/l and 4.0 µg/l, respectively. These values are consistent with past results.

In well MW-21, adjacent to but outside the slurry wall, the concentrations of DCA were reported at 1.0 µg/l and 3.6 µg/l during the May and October sampling periods, respectively. No concentrations of BTEX were observed in well MW-21. These results are consistent with previous values.

DCA was not detected in MW-18 upgradient from the slurry wall, however, relatively low concentrations of BTEX constituents were detected. The absence of BTEX components in MW-21 down-gradient of MW-18 suggest that the BTEX constituents biodegrade prior to reaching MW-21.

Monitoring wells MW-17 and MW-22 were located within the confines of the slurry wall in order to monitor evidence of biodegradation occurring within the highly contaminated area of the site. BTEX concentrations have been high during past sampling events in MW-17 and MW-22, however, time series plots (Figures 4 and 5) illustrate an overall decreasing BTEX concentration trend. This is likely the effect of bioremediation. Previous sulfate analyses documented low levels of sulfate in interior wells vs. much higher levels in exterior wells. This difference is also indicative of ongoing biodegradation inside the slurry wall.

6.0 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. Past analytical results suggest that biodegradation of organic contaminants in the groundwater at the site is taking place.

Maverik recommends that the current scope of work be modified as followed:

- The Bioremediation event will be terminated.
- One annual report will be submitted which includes both semi-annual sampling event results; therefore, the first semi-annual report will be discontinued.

These recommendations have been discussed with and agreed to by Mr. Bill Olson, OCD and were submitted in a letter dated October 31, 1996.

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
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
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
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

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 (cont.)	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
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
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
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
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

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-16 (cont.)	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
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
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
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
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

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-21 (cont.)	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
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
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
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
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

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 (cont.)	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
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
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

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		Period	DCA	B	T	E	X	Total BTEX	pH	SC
Within Slurry Wall										
MW-17	1	Sep 13-14, 1990	360	11,000	15,000	1,160	13,000	40,160	7.01	2,500
	2	Mar 18-19, 1991	400	11,000	10,000	1,900	15,000	37,900	7.04	2,700
	3	Jun 13, 1991	420	9,800	6,300	1,800	16,000	33,900	7.04	2,650
	4	Jan 20-21, 1992	MSG	MSG	MSG	MSG	MSG	MSG	MSG	MSG
	5	Jun 9 & 12, 1992	45	9,240	7,580	1,150	7,190	25,160	7.26	2,730
	6	Aug 19-20-1992	27	7,710	1,920	669	5,130	15,429	7.23	2,810
	7	Dec 16, 1992	17.3	7,990	4,740	638	4,600	17,968	7.54	2,970
	8	Mar 30, 1993	16.8	13,800	6,830	1,110	6,930	28,670	7.37	2,610
	9	May 23, 1993	12.5	13,700	6,360	993	10,530	31,583	7.33	2,470
	10	Nov 29-30, 1993	30.9	8,590	2,820	636	4,880	16,926	7.39	2,360
	11	May 25, 1994	8.3	10,900	4,340	823	5,660	21,723	7.30	2,830
	12a	Oct 2-3, 1994	4.9	5,130	1,160	409	2,818	9,517	7.04	2,470
	12b	Oct 2-3, 1994	< 1	2,070	807	350	2,013	5,240	7.04	2,470
	13a	May 17, 1995	< 10	9,320	2,510	694	3,782	16,306	7.49	2,480
	13b	May 17, 1995	< 10	12,800	4,460	944	5,710	23,914	7.49	2,480
	14 **	Oct 18-19, 1995	2.3	3,000	464	244	1,079	4,787	7.09	2,430
15a	May 1-2, 1996	2.2	7,700	1,200	530	1,800	11,230	7.20	2,280	
15b	May 1-2, 1996	< 5	7,300	1,200	490	1,800	10,790	7.20	2,280	
16	Oct 20, 1996	< 5	3,600	880	290	1,500	6,270	7.50	2,290	
MW-22	1	Sep 13-14, 1990	7,200	21,000	20,000	1,100	8,300	50,400	7.00	1,500
	2	Mar 18-19, 1991	2,200	17,000	9,500	910	6,600	34,010	6.87	1,900
	3	Jun 13, 1991	3,600	15,000	3,200	760	3,000	21,960	7.06	1,700
	4	Jan 20-21, 1992	5,400	36,000	27,000	1,900	13,500	78,400	6.86	1,600
	5	Jun 9 & 12, 1992	3,170	21,200	7,540	1,040	5,730	35,510	7.13	1,690
	6	Aug 19-20-1992	568	20,500	4,610	588	3,280	28,978	7.28	1,545
	7	Dec 16, 1992	908	12,100	4,220	514	3,254	20,088	7.43	1,508
	8	Mar 30, 1993	1,930	29,800	14,100	1,170	7,030	52,100	7.26	1,408
	9	May 23, 1993	28	17,000	6,520	1,100	6,150	30,770	7.61	6,550
	10	Nov 29-30, 1993	2,780	18,400	8,480	1,150	7,300	35,330	8.01	1,610
	11	May 25, 1994	379	9,340	2,250	845	3,725	16,160	7.15	1,505
	12	Oct 2-3, 1994	566	10,500	5,890	1,390	8,350	26,130	7.24	1,710
	13a	May 17, 1995	62	7,510	1,750	1,000	6,520	16,780	7.15	1,517
	13b	May 17, 1995	67	9,020	2,620	1,230	7,310	20,180	7.15	1,517
	14a **	Oct 18-19, 1995	42	5,700	2,430	1,580	9,000	18,710	7.25	1,820
	14b **	Oct 18-19, 1995	< 1	5,120	2,130	1,540	8,320	17,110	7.25	1,820
15	May 1-2, 1996	37	4,600	410	1,300	10,000	16,310	7.30	1,325	
16	Oct 20, 1996	38	880	250	710	4,100	5,940	7.49	1,505	
P-1	9	May 23, 1993	< 1	4,110	18.8	361	2,522	7,012	7.04	2,290
	10	Nov 29-30, 1993	< 1	3,580	10.2	506	3,215	7,311	7.22	1,460
	11 dry	May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	12	Oct 2-3, 1994	< 1	8.9	< 1	1.9	11.8	22.6	7.04	2,210
	13	May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	14	Oct 18-19, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	15	May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
16	Oct 20, 1996	NS	NS	NS	NS	NS	NS	NS	NS	
P-2	9	May 23, 1993	3.2	5.2	< 1	< 1	< 1	5.2	7.36	3,910
	10	Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.92	3,540
	11	May 25, 1994	1.3	< 1	< 1	< 1	< 1	< 1	7.41	3,980

TABLE 2
SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location	Period	DCA	B	T	E	X	Total BTEX	pH	SC
P-2 (cont.)	12 Oct 2-3, 1994	3.6	< 1	< 1	< 1	< 1	< 1	7.12	3,480
	13 May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	14 Oct 18-19, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	15 May 1-2, 1996	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.40	2,980
	16 Oct 20, 1996	NS	NS	NS	NS	NS	NS	NS	NS
P-3	9 May 23, 1993	10.6	< 1	< 1	< 1	< 1	< 1	7.24	11,160
	10 Nov 29-30, 1993	11.5	< 1	< 1	< 1	< 1	< 1	7.31	9,140
	11 May 25, 1994	12.1	< 1	< 1	< 1	< 1	< 1	7.28	8,070
	12 Oct 2-3, 1994	12.6	< 1	< 1	< 1	< 1	< 1	7.06	5,550
	13 May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	14 Oct 18-19, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	15 May 1-2, 1996	3.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.40	4,280
	16 Oct 20, 1996	NS	NS	NS	NS	NS	NS	NS	NS
P-4	9 May 23, 1993	8.3	6,690	4,090	559	6,260	17,599	NA	NA
	10 Nov 29-30, 1993	2.1	6,400	4,420	900	7,700	19,420	NA	NA
	11 May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	12 Oct 2-3, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	13 May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	14 Oct 18-19, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	15 May 1-2, 1996	NA	NA	NA	NA	NA	NA	6.60	1,621
	16 Oct 20, 1996	NS	NS	NS	NS	NS	NS	NS	NS
On-Site									
MW-10	1 Sep 13-14, 1990	1.4	< 0.5	< 0.5	< 0.5	< 1	< 1	6.95	1,550
	2 Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.29	1,700
	3 Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	4 Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.31	1,840
	5 Jun 9 & 12, 1992	1.6	< 1	< 1	< 1	< 1	1.6	7.65	1,400
	6 Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.85	1,160
	7 Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.64	6,110
	8 Mar 30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.22	9,060
	9 May 23, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.93	2,320
	10 Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.73	1,320
	11 May 25, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.75	1,335
	12 Oct 2-3, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.56	1,159
	13 May 17, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.64	1,695
	14 Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.41	1,453
	15 May 1-2, 1996	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.70	1,288
	16 Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.69	1,310
MW-18	1 Sep 13-14, 1990	< 1	17	< 12	84.0	880	981	7.00	1,500
	2 Mar 18-19, 1991	< 1	26	< 12	85.0	770	881	7.24	1,200
	3 Jun 13, 1991	< 1	< 25	< 25	78.0	930	1,008	6.77	1,200
	4 Jan 20-21, 1992	MSG	MSG	MSG	MSG	MSG	MSG	MSG	MSG
	5 Jun 9 & 12, 1992	< 1	313	1.1	200	1,710	2,224	7.07	1,480
	6 Aug 19-20-1992	< 1	527	10.8	258	2,075	2,871	7.26	2,100
	7 Dec 16, 1992	< 25	294	< 25	224	1,460	1,978	7.31	1,930
	8 Mar 30, 1993	< 1	117	8.0	96.0	226	447	7.07	2,780
	9 May 23, 1993	< 1	73	< 1	31.2	259	363	7.15	2,220
	10 Nov 29-30, 1993	< 1	337	4.9	261	1,352	1,955	7.00	1,870
	11 May 25, 1994	< 1	51	10.0	7.0	99	167	7.00	1,510

TABLE 2
SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location	Period	DCA	B	T	E	X	Total BTEX	pH	SC
MW-18 (cont.)	12 Oct 2-3, 1994	< 1	210	10.9	46.0	483	750	7.10	1,530
	13 May 17, 1995	< 1	128	< 1	10.4	274	412	6.84	1,370
	14 ** Oct 18-19, 1995	< 1	118	12.2	20.0	296	447	7.03	1,299
	15 May 1-2, 1996	< 0.5	48	0.5	3.4	150	202	7.00	1,270
	16a Oct 20, 1996	< 0.5	37	11.0	14.0	110	172	7.50	1,314
	16b Oct 20, 1996	< 0.5	33	0.8	12.0	120	166	7.50	1,314
MW-19	1 Sep 13-14, 1990	45	< 0.5	< 0.5	1.1	1.9	3.0	6.95	3,000
	2 Mar 18-19, 1991	35	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.22	2,500
	3 Jun 13, 1991	44	< 0.5	< 0.5	5.9	< 0.5	5.9	7.10	2,400
	4 Jan 20-21, 1992	14	< 5	< 5	< 5	< 5	< 5	7.66	460
	5 Jun 9 & 12, 1992	11.4	< 1	< 1	< 1	< 1	< 1	7.76	1,970
	6 Aug 19-20-1992	9.0	< 1	< 1	< 1	< 1	< 1	7.72	1,320
	7 Dec 16, 1992	6.6	< 1	< 1	< 1	< 1	< 1	7.70	1,620
	8 Mar 30, 1993	2.4	< 1	< 1	< 1	< 1	< 1	7.74	1,750
	9 May 23, 1993	7.9	< 1	< 1	< 1	< 1	< 1	7.73	1,630
	10 Nov 29-30, 1993	6.6	< 1	< 1	< 1	< 1	< 1	7.78	1,380
	11 May 25, 1994	8.0	< 1	< 1	< 1	< 1	< 1	7.65	1,762
	12 Oct 2-3, 1994	7.9	< 1	< 1	< 1	< 1	< 1	7.44	1,258
	13 May 17, 1995	8.6	< 1	< 1	< 1	< 1	< 1	7.52	1,624
	14 Oct 18-19, 1995	8.8	< 1	< 1	< 1	< 1	< 1	7.31	1,411
	15 May 1-2, 1996	8.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.50	1,361
	16 Oct 20, 1996	4.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.62	1,340
MW-20	1 Sep 13-14, 1990	< 1	< 0.5	< 0.5	< 0.5	< 1	< 1	7.01	1,350
	2 Mar 18-19, 1991	2.0	< 0.5	< 0.5	< 0.5	0.7	0.7	7.39	3,000
	3 Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	4 Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.54	3,750
	5 Jun 9 & 12, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.62	1,600
	6 Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	6.97	1,310
	7 Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.87	1,340
	8 Mar 30, 1993	2.1	< 1	< 1	< 1	< 1	< 1	7.10	6,740
	9 May 23, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.86	1,430
	10 Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.69	1,230
	11 May 25, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.38	1,292
	12 Oct 2-3, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.57	1,308
	13 May 17, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.65	1,434
	14 Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.35	1,525
	15 May 1-2, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.50	1,417
	16 Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.18	1,545
MW-21	1 Sep 13-14, 1990	67	< 0.5	1.5	1.1	5.0	7.6	7.01	1,500
	2 Mar 18-19, 1991	44	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.62	1,700
	3 Jun 13, 1991	40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.44	1,700
	4 Jan 20-21, 1992	8.8	< 5	< 5	< 5	< 5	< 5	8.31	5,110
	5 Jun 9 & 12, 1992	21.9	< 1	< 1	< 1	< 1	< 1	7.37	2,400
	6 Aug 19-20-1992	8.3	< 1	< 1	< 1	< 1	< 1	6.96	1,730
	7 Dec 16, 1992	1.7	< 1	< 1	< 1	< 1	< 1	7.69	2,030
	8 Mar 30, 1993	5.9	< 1	< 1	< 1	< 1	< 1	7.58	1,590
	9 May 23, 1993	14.8	< 1	< 1	< 1	< 1	< 1	7.63	2,530
	10 Nov 29-30, 1993	3.7	< 1	< 1	< 1	< 1	< 1	7.58	1,580
	11 May 25, 1994	8.3	< 1	< 1	< 1	< 1	< 1	7.66	1,592
	12 Oct 2-3, 1994	5.5	< 1	< 1	< 1	< 1	< 1	7.55	1,760

TABLE 2
SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location	Period	DCA	B	T	E	X	Total BTEX	pH	SC
MW-21 (cont.)	13a May 17, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.59	1,819
	13b May 17, 1995	5.4	< 1	< 1	< 1	< 1	< 1	7.59	1,819
	14 Oct 18-19, 1995	2.1	< 1	< 1	< 1	< 1	< 1	7.52	2,060
	15 May 1-2, 1996	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.60	1,824
	16 Oct 20, 1996	3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.68	2,100
Off-Site									
MW-9	1 Sep 13-14, 1990	2.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	6.97	1,550
	2 Mar 18-19, 1991	1.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.57	2,000
	3 Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	4 Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.31	4,360
	5 Jun 9 & 12, 1992	1.5	< 1	< 1	< 1	< 1	< 1	7.58	1,680
	6 Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.81	1,325
	7 Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.33	1,827
	8 Mar 30, 1993	1.5	< 1	< 1	< 1	< 1	< 1	7.63	1,640
	9 May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	10 Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.62	1,460
	11 May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	12 Oct 2-3, 1994	1.2	< 1	< 1	< 1	< 1	< 1	7.80	1,610
	13 May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	14 Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.38	1,523
	15 May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	16 Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.85	1,645
MW-13	1 Sep 13-14, 1990	< 1	< 0.5	1.5	< 0.5	< 1	1.5	7.02	2,950
	2 Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.84	3,250
	3 Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	4 Jan 20-21, 1992	NA	NA	NA	NA	NA	NA	NA	NA
	5 Jun 9 & 12, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.11	4,260
	6 Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.06	2,910
	7 Dec 16, 1992	NA	NA	NA	NA	NA	NA	NA	NA
	8 Mar 30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.72	3,410
	9 May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	10 Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.45	4,150
	11 May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	12 Oct 2-3, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.38	3,160
	13 May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	14 Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.41	3,600
	15 May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	16 Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.54	3,200
MW-14	1 Sep 13-14, 1990	2.0	< 0.5	< 0.5	< 0.5	< 1	< 1	6.97	5,450
	2 Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	1.7	1.7	7.51	8,400
	3 Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	4 Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.20	19,380
	5 Jun 9 & 12, 1992	2.3	< 1	< 1	< 1	< 1	< 1	7.62	4,520
	6 Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.38	5,760
	7 Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.40	9,090
	8 Mar 30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.02	15,280
	9 May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	10 Nov 29-30, 1993	1.2	< 1	< 1	< 1	< 1	< 1	7.61	6,030
	11 May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	12 Oct 2-3, 1994	1.9	< 1	< 1	< 1	< 1	< 1	7.34	4,560

TABLE 2
SUMMARY OF GROUNDWATER QUALITY MONITORING RESULTS
(SINCE INSTALLATION OF SLURRY WALL)
Former Maverik Refinery - Kirtland, New Mexico

Location	Period	DCA	B	T	E	X	Total BTEX	pH	SC
MW-14 (cont.)	13 May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	14 Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.15	6,760
	15 May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	16 Oct 20, 1996	0.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.15	6,120
MW-15	1 Sep 13-14, 1990	< 1	< 0.5	< 0.5	< 0.5	< 1	< 1	7.00	3,250
	2 Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.02	8,500
	3 Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	4 Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.15	12,120
	5 Jun 9 & 12, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.27	3,430
	6 Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.39	2,450
	7 Dec 16, 1992	NA	NA	NA	NA	NA	NA	NA	NA
	8 Mar 30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.42	9,810
	9 May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	10 Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	8.01	1,630
	11 May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	12 Oct 2-3, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.54	2,500
	13 May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	14 Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.48	2,260
	15 May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	16 Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	8.21	1,939
MW-16	1 Sep 13-14, 1990	< 1	< 0.5	< 0.5	< 0.5	< 1	< 1	6.97	1,370
	2 Mar 18-19, 1991	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7.57	1,200
	3 Jun 13, 1991	NA	NA	NA	NA	NA	NA	NA	NA
	4 Jan 20-21, 1992	< 5	< 5	< 5	< 5	< 5	< 5	7.30	2,050
	5 Jun 9 & 12, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.50	1,430
	6 Aug 19-20-1992	< 1	< 1	< 1	< 1	< 1	< 1	7.76	1,230
	7 Dec 16, 1992	< 1	< 1	< 1	< 1	< 1	< 1	7.12	1,735
	8 Mar 30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.23	2,400
	9 May 23, 1993	NA	NA	NA	NA	NA	NA	NA	NA
	10 Nov 29-30, 1993	< 1	< 1	< 1	< 1	< 1	< 1	7.31	1,760
	11 May 25, 1994	NS	NS	NS	NS	NS	NS	NS	NS
	12 Oct 2-3, 1994	< 1	< 1	< 1	< 1	< 1	< 1	7.44	1,253
	13 May 17, 1995	NS	NS	NS	NS	NS	NS	NS	NS
	14 Oct 18-19, 1995	< 1	< 1	< 1	< 1	< 1	< 1	7.26	1,421
	15 May 1-2, 1996	NS	NS	NS	NS	NS	NS	NS	NS
	16 Oct 20, 1996	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	6.78	1,665
Water Quality Standards									
New Mexico		10	10	750	750	620		6.90	---
EPA MCL		5	5	1,000	700	10,000		---	---

NOTES: DCA = 1,2-dichloroethane
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes

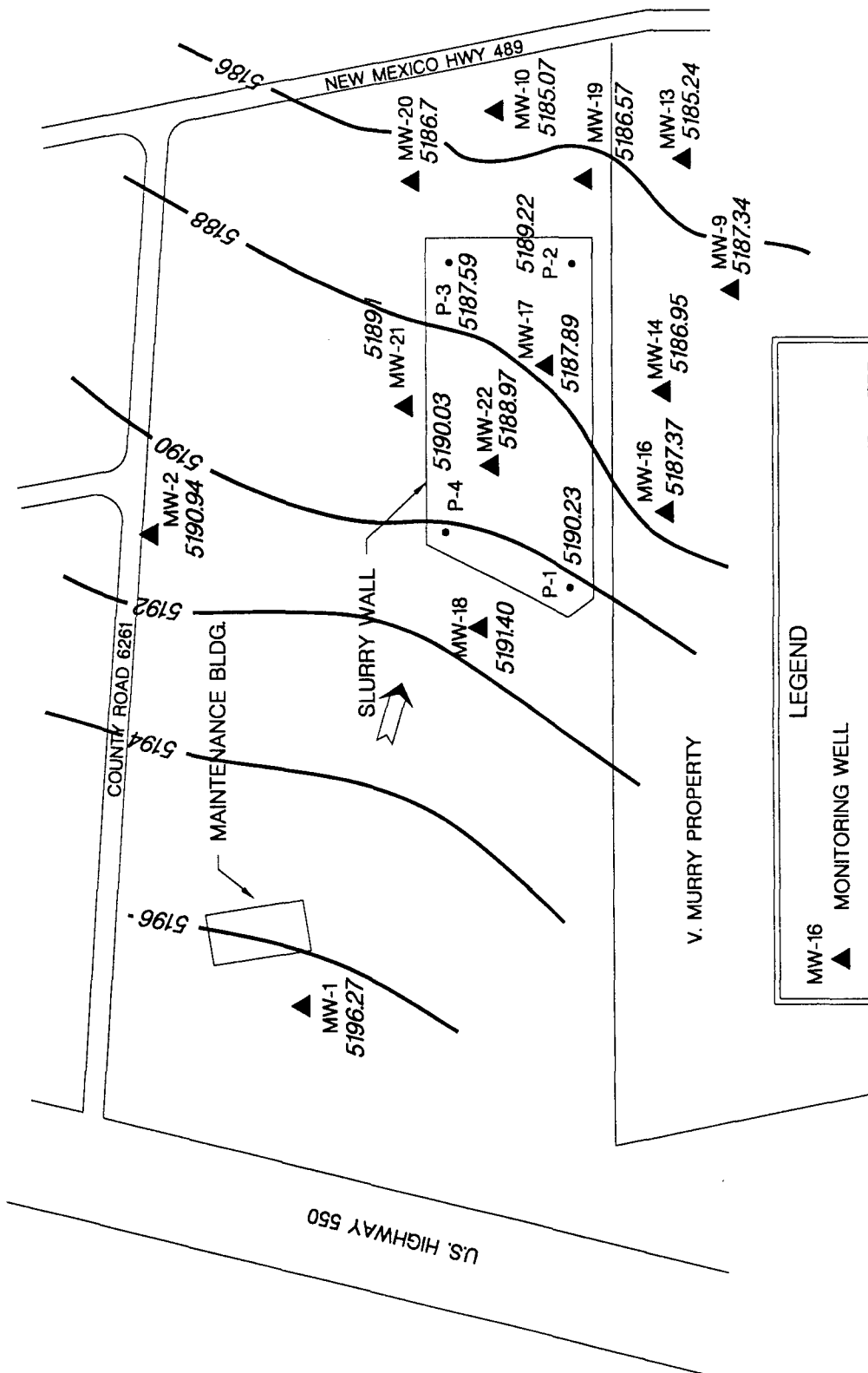
SC = Specific Conductivity
TDS = Total Dissolved Solids
MSG = Well Missing
NA = Not Analyzed
NS = Not Sampled

Organic values in ug/l
pH in standard units
SC in umhos/cm

Values in bold exceed New Mexico MCL for drinking water

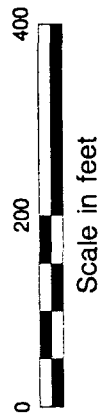
** = Laboratory exceeded holding time before completing sample analyses.

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



LEGEND

- MW-16 ▲ MONITORING WELL
- P-1 PIEZOMETER
- 5187.37 GROUNDWATER ELEVATION (ft)
- 5188 - GROUNDWATER CONTOUR
- ➡ APPROX. GROUNDWATER FLOW DIRECTION



North



1996 Annual Report

GROUNDWATER ELEVATION MAP OCTOBER 1996

Kirtland Refinery
Kirtland, NM

FIGURE 1



LEGEND			
MW-17	22	DCA (ug/l)	
▲ MONITORING WELL	7,700	BENZENE (ug/l)	
● P-1 PIEZOMETER	11,230	BTEX (ug/l)	
	NS	NOT SAMPLED	



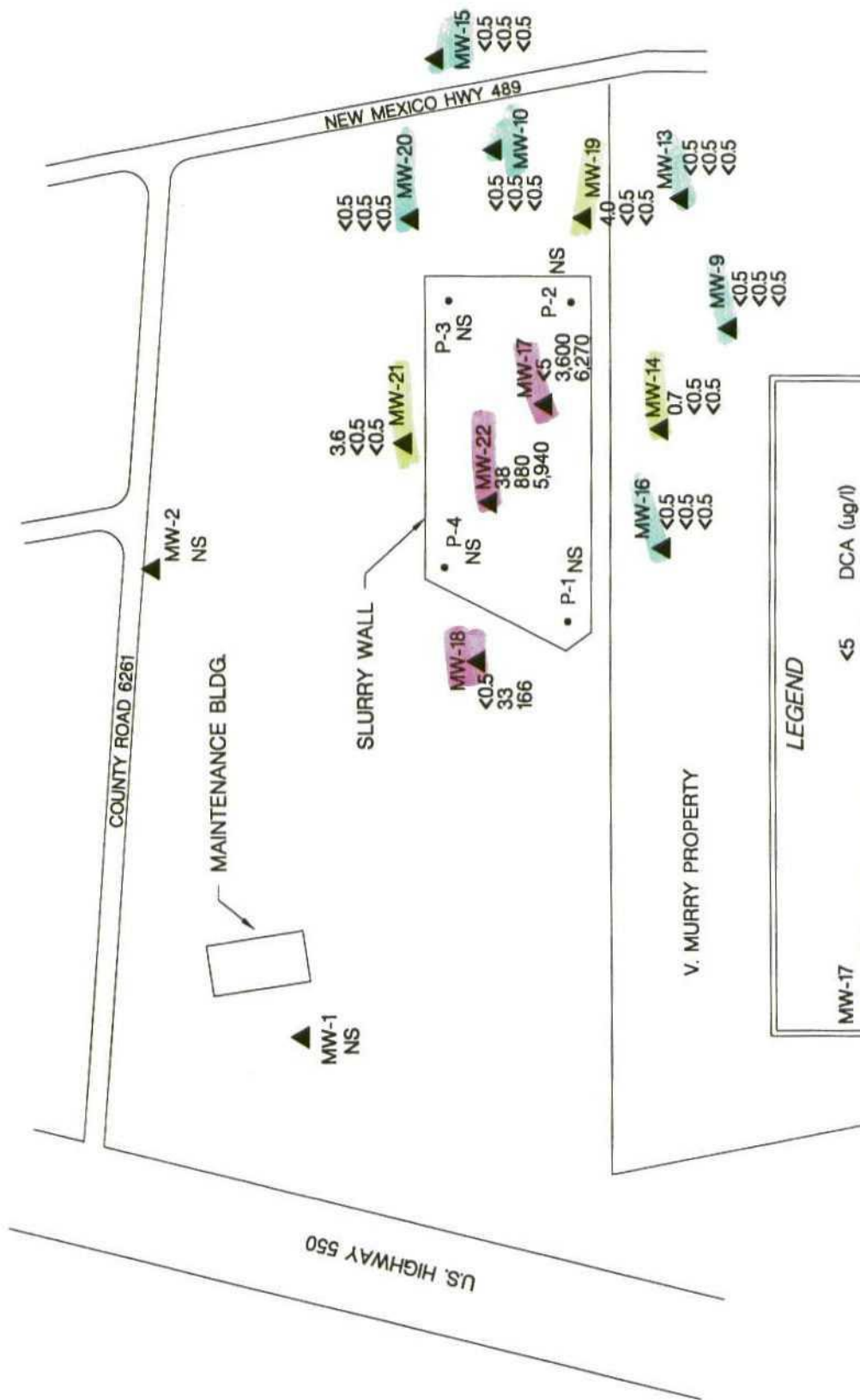
North



1996 Annual Report

ORGANICS IN GROUNDWATER MAY 1996

Kirtland Refinery
Kirtland, NM



1996 Annual Report

ORGANICS IN GROUNDWATER OCTOBER 1996

Kirtland Refinery
Kirtland, NM

FIGURE 3

Concentrations of Benzene and BTEX in MW-17
Former Maverik Refinery - Kirtland, New Mexico

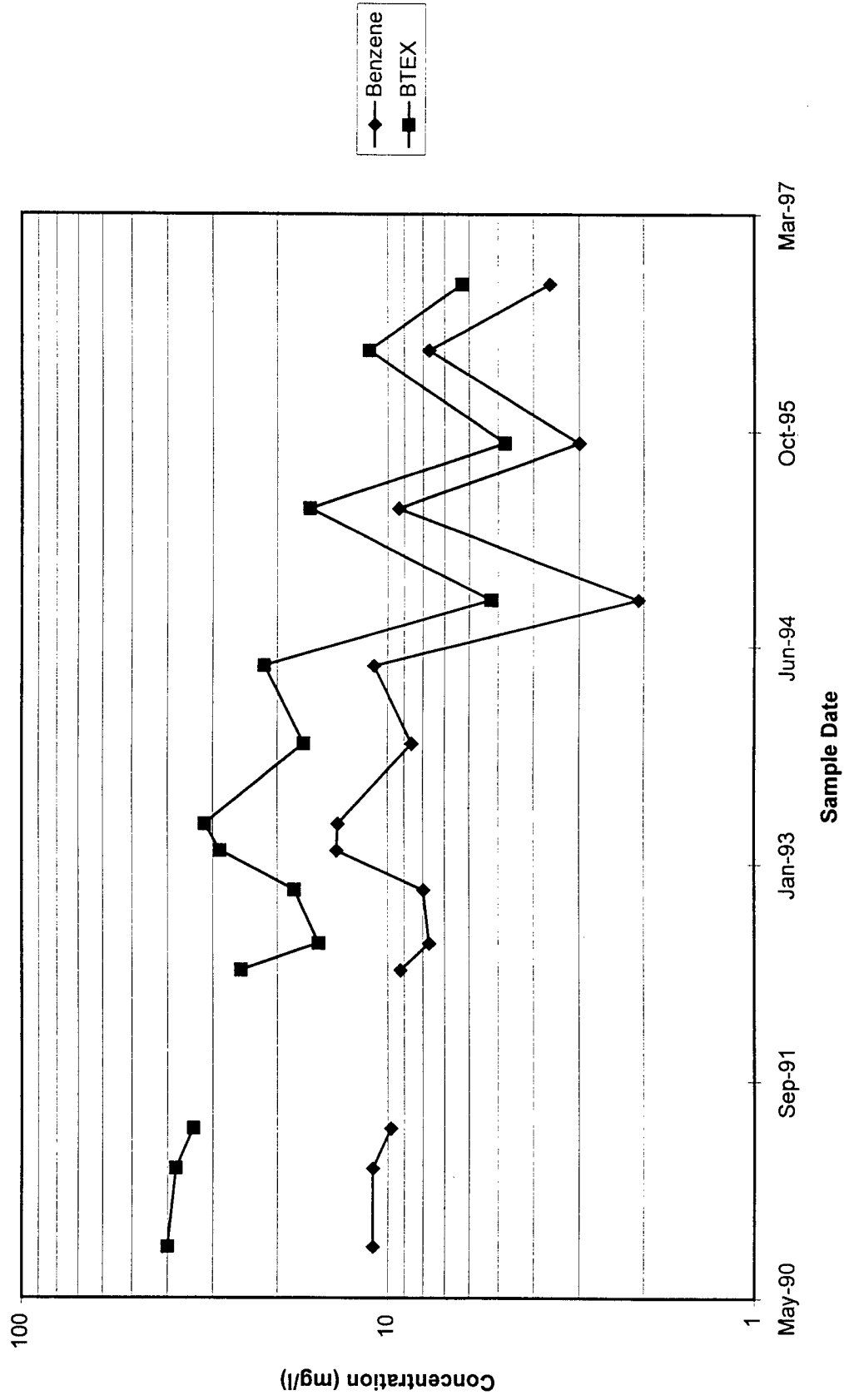


FIGURE 4

January 23, 1997

Concentrations of Benzene and BTEX in MW-22

Former Maverik Refinery - Kirtland, New Mexico

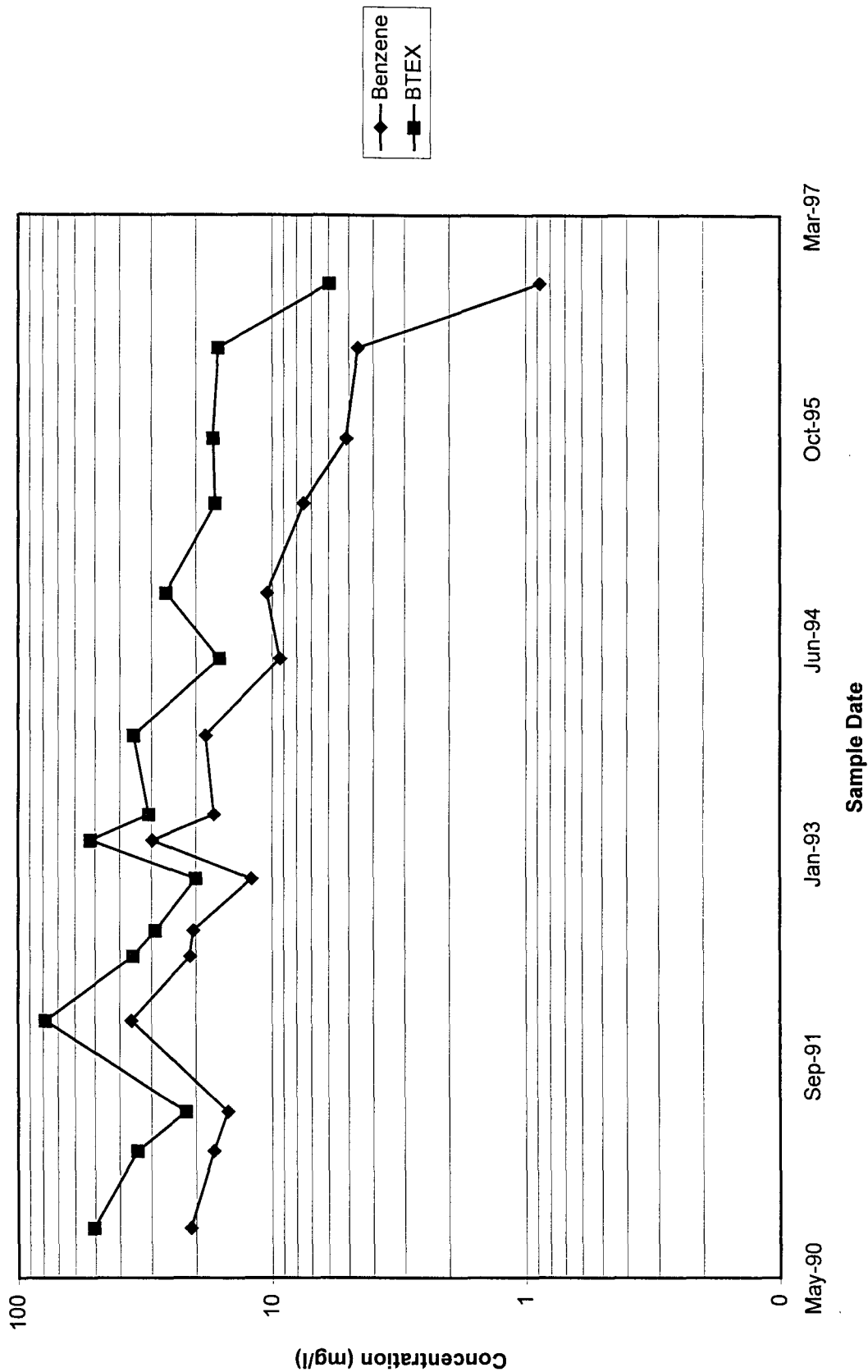


FIGURE 5

APPENDIX A

BIOREMEDIATION FIELD NOTES

(Page A-1)

JUL - 1 1996

ROSENBAUM CONSTRUCTION CO., INC.

Box 2308 • Aztec Hwy
Farmington, New Mexico 87499
(505) 325-6367

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

Mr. Paul Weissenborn:

RE: Former Maverik Refinery

6-17-96 Hauled D8 tractor to job site.
 Set water meter abd gun, prewet complete area.
 Ripped 4½' deep in north to south direction.

6-18-96 General Supply delivered 2 tons of fertilizer
 and spread over area.
 Ripped with D8 4½" deep in east to west direction.
 Started watering again.

6-19-96 Set water meter and sprinkler, watered complete area.

6-20-96 Set water mater and sprinkler, finished watering.
 150,000 gallons total over complete area.
 Returned meter, sprinkler and hose. Job complete,
 invoice as per bid.

 Meter reading start: 007750.00
 Meter reading end: 009250.00

APPENDIX B

ANALYTICAL LABORATORY DATA REPORTS

(Pages B-1 through B-28)

American Environmental Network, Inc.

AEN I.D. 605308

May 8, 1996

Tritechnics
1726 Cole Blvd, Bldg 22
Suite 150
Golden, CO 80401

Project Name/Number: KIRTLAND REFINERY MAVKL02896

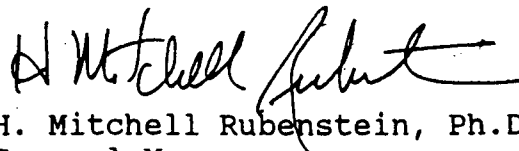
Attention: Bill Hendrix

On 05/03/96, 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:jt

Enclosure

American Environmental Network, Inc.

CLIENT : TRITECHNICS DATE RECEIVED : 05/03/96
PROJECT # : MAVKL02896
PROJECT NAME : KIRTLAND REFINERY REPORT DATE : 05/08/96

AEN ID: 605308

AEN #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-18	AQUEOUS	05/01/96
02	MW-21	AQUEOUS	05/01/96
03	MW-20	AQUEOUS	05/01/96
04	P2-3	AQUEOUS	05/01/96
05	P2-2	AQUEOUS	05/01/96
06	MW-19	AQUEOUS	05/01/96
07	MW-10	AQUEOUS	05/01/96
08	MW-22	AQUEOUS	05/02/96
09	MW-71	AQUEOUS	05/02/96
10	MW-17	AQUEOUS	05/02/96
11	EQP BLANK	AQUEOUS	05/02/96
12	TRIP BLANK C	AQUEOUS	04/26/96

---TOTALS---

<u>MATRIX</u>	<u>#SAMPLES</u>
AQUEOUS	12

AEN STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX (EPA 602)/EDC (EPA 601)
CLIENT : TRITECHNICS ATI I.D.: 605308
PROJECT # : MAVKL02896
PROJECT NAME : KIRTLAND REFINERY

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-18	AQUEOUS	05/01/96	NA	05/03/96	1
02	MW-21	AQUEOUS	05/01/96	NA	05/04/96	1
03	MW-20	AQUEOUS	05/01/96	NA	05/04/96	1

PARAMETER	UNITS	01 ✓	02 ✓	03 ✓
BENZENE	UG/L	48	<0.5	<0.5
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5	1.0	<0.5
ETHYLBENZENE	UG/L	3.4	<0.5	<0.5
TOLUENE	UG/L	0.5	<0.5	<0.5
TOTAL XYLENES	UG/L	150	<0.5	<0.5

SURROGATES:

BROMOCHLOROMETHANE (%)	86	85	84
TRIFLUOROTOLUENE (%)	95	94	97

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX (EPA 602)/EDC (EPA 601)
CLIENT : TRITECHNICS ATI I.D.: 605308
PROJECT # : MAVKL02896
PROJECT NAME : KIRTLAND REFINERY

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	MW-10	AQUEOUS	05/01/96	NA	05/04/96	1
08	MW-22	AQUEOUS	05/02/96	NA	05/06/96	100
09	MW-71	AQUEOUS	05/02/96	NA	05/06/96	100

PARAMETER	UNITS	07	08	09
BENZENE	UG/L	<0.5	4600	7300
1,2-DICHLOROETHANE (EDC)	UG/L	1.0	37 D(25)	<5.0 D(10)
ETHYLBENZENE	UG/L	<0.5	1300	490
TOLUENE	UG/L	<0.5	410	1200
TOTAL XYLENES	UG/L	<0.5	10000	1800

SURROGATES:

BROMOCHLOROMETHANE (%)	103	95	83
TRIFLUOROTOLUENE (%)	114	88	92

D(25)=DILUTED 25X, ANALYZED 05/04/96
D(10)=DILUTED 10X, ANALYZED 05/04/96

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX (EPA 602)/EDC (EPA 601)
CLIENT : TRITECHNICS ATI I.D.: 605308
PROJECT # : MAVKL02896
PROJECT NAME : KIRTLAND REFINERY

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	P2-3	AQUEOUS	05/01/96	NA	05/04/96	1
05	P2-2	AQUEOUS	05/01/96	NA	05/04/96	1
06	MW-19	AQUEOUS	05/01/96	NA	05/04/96	1

PARAMETER	UNITS	04 ✓	05 ✓	06 ✓
BENZENE	UG/L	<0.5	<0.5	<0.5
1,2-DICHLOROETHANE (EDC)	UG/L	3.4	0.8	8.6
ETHYLBENZENE	UG/L	<0.5	<0.5	<0.5
TOLUENE	UG/L	<0.5	<0.5	<0.5
TOTAL XYLENES	UG/L	<0.5	<0.5	<0.5

SURROGATES:

BROMOCHLOROMETHANE (%)	92	88	90
TRIFLUOROTOLUENE (%)	97	93	89

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 602)/EDB, EDC (EPA 601)
CLIENT : TRITECHNICS ATI I.D.: 605308
PROJECT # : MAVKL02896
PROJECT NAME : KIRTLAND REFINERY

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
10	MW-17	AQUEOUS	05/02/96	NA	05/08/96	100
11	EQP BLANK	AQUEOUS	05/02/96	NA	05/06/96	1
12	TRIP BLANK C	AQUEOUS	04/26/96	NA	05/06/96	1

PARAMETER	UNITS	10	11	12
BENZENE	UG/L	7700	<0.5	<0.5
1,2-DICHLOROETHANE (EDC)	UG/L	2.2 D(1)	<0.5	<0.5
ETHYLBENZENE	UG/L	530	<0.5	<0.5
TOLUENE	UG/L	1200	<0.5	<0.5
TOTAL XYLENES	UG/L	1800	<0.5	<0.5

SURROGATES:

BROMOCHLOROMETHANE (%)	82	87	82
TRIFLUOROTOLUENE (%)	98	92	93

D(1)=DILUTED 1X, ANALYZED 05/07/96

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK
PURGEABLE HALOCARBONS/AROMATICS

TEST : BTEX (EPA 602)/EDC (EPA 601)

BLANK I.D. : 050396

CLIENT : TRITECHNICS

PROJECT # : MAVKL02896

PROJECT NAME : KIRTLAND REFINERY

ATI I.D. : 605308

MATRIX : AQUEOUS

DATE EXTRACTED : NA

DATE ANALYZED : 05/03/96

DIL. FACTOR : 1

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

SURROGATES:

BROMOCHLOROMETHANE (%) 87

TRIFLUOROTOLUENE (%) 96

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK
PURGEABLE HALOCARBONS/AROMATICS

TEST : BTEX (EPA 602)/EDC (EPA 601)

BLANK I.D. : 050696

CLIENT : TRITECHNICS

PROJECT # : MAVKL02896

PROJECT NAME : KIRTLAND REFINERY

ATI I.D. : 605308

MATRIX : AQUEOUS

DATE EXTRACTED : NA

DATE ANALYZED : 05/06/96

DIL. FACTOR : 1

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

SURROGATES:

BROMOCHLOROMETHANE (%) 91

TRIFLUOROTOLUENE (%) 91

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK
PURGEABLE HALOCARBONS/AROMATICS

TEST : BTEX (EPA 602)/EDC (EPA 601)

BLANK I.D. : 050796

CLIENT : TRITECHNICS

PROJECT # : MAVKL02896

PROJECT NAME : KIRTLAND REFINERY

ATI I.D. : 605308

MATRIX : AQUEOUS

DATE EXTRACTED : NA

DATE ANALYZED : 05/07/96

DIL. FACTOR : 1

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

SURROGATES:

BROMOCHLOROMETHANE (%) 87

TRIFLUOROTOLUENE (%) 95

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST : BTEX (EPA 602)/EDC (EPA 601)
MSMSD # : 60530803 ATI I.D. : 605308
CLIENT : TRITECHNICS DATE EXTRACTED : NA
PROJECT # : MAVKL02896 DATE ANALYZED : 05/03/96
PROJECT NAME : KIRTLAND REFINERY SAMPLE MATRIX : AQUEOUS
REF. I.D. : 60530803 UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10.0	12.1	121	10.7	107	12
1,2-DICHLOROETHANE (EDC)	<0.5	10.0	12.2	122	10.6	106	14
ETHYLBENZENE	<0.5	10.0	12.3	123	11.4	114	8
TOLUENE	<0.5	10.0	12.0	120	10.7	107	11
TOTAL XYLENES	<0.5	30.0	36.1	120	33.6	112	7

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

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

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST : BTEX (EPA 602)/EDC (EPA 601)
MSMSD # : 60530807 ATI I.D. : 605308
CLIENT : TRITECHNICS DATE EXTRACTED : NA
PROJECT # : MAVKL02896 DATE ANALYZED : 05/07/96
PROJECT NAME : KIRTLAND REFINERY SAMPLE MATRIX : AQUEOUS
REF. I.D. : 60530807 UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10.0	10.9	109	9.4	94	15
1,2-DICHLOROETHANE (EDC)	1.0	10.0	12.2	112	10.4	94	16
ETHYLBENZENE	<0.5	10.0	11.4	114	9.4	94	19
TOLUENE	<0.5	10.0	11.2	112	9.2	92	20
TOTAL XYLENES	<0.5	30.0	33.3	111	27.2	91	20

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

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

PLEASE FILL THIS FORM IN COMPLETELY.

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SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

[illegible]

NOV - 4 1996

American Environmental Network, Inc.

AEN I.D. 610379

November 1, 1996

TRITECHNICS
1726 COLE BLVD. BLDG. 22 SUITE 150
GOLDEN, CO 80401

Project Name KIRTLAND NM
Project Number MAVKL02896

Attention: BILL HENDRIX

On 10/22/96 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

MR: mt

Enclosure



H. Mitchell Rubenstein, Ph. D.
General Manager

B-14

American Environmental Network, Inc.

CLIENT : TRITECHNICS AEN I.D. : 610379
PROJECT # : MAVKL02896 DATE RECEIVED : 10/22/96
PROJECT NAME : KIRTLAND NM REPORT DATE : 11/1/96

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-9	AQUEOUS	10/20/96
02	MW-10	AQUEOUS	10/20/96
03	MW-13	AQUEOUS	10/20/96
04	MW-14	AQUEOUS	10/20/96
05	MW-15	AQUEOUS	10/20/96
06	MW-16	AQUEOUS	10/20/96
07	MW-17	AQUEOUS	10/20/96
08	MW-18	AQUEOUS	10/20/96
09	MW-19	AQUEOUS	10/20/96
10	MW-20	AQUEOUS	10/20/96
11	MW-21	AQUEOUS	10/20/96
12	MW-22	AQUEOUS	10/20/96
13	MW-25	AQUEOUS	10/20/96
14	TRIP BLANK	AQUEOUS	10/11/96

B-15

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)
CLIENT : TRITECHNICS AEN I.D.: 610379
PROJECT # : MAVKL02896
PROJECT NAME : KIRTLAND NM

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-9	AQUEOUS	10/20/96	NA	10/29/96	1
02	MW-10	AQUEOUS	10/20/96	NA	10/29/96	1
03	MW-13	AQUEOUS	10/20/96	NA	10/29/96	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
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
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 (%)		111	106	112
SURROGATE LIMITS	(73 - 117)			
TRIFLUOROTOLUENE (%)		99	100	105
SURROGATE LIMITS	(69 - 117)			

CHEMIST NOTES:

N/A

B-16

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)
CLIENT : TRITECHNICS AEN I.D.: 610379
PROJECT # : MAVKL02896
PROJECT NAME : KIRTLAND NM

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	MW-14	AQUEOUS	10/20/96	NA	10/29/96	1
05	MW-15	AQUEOUS	10/20/96	NA	10/29/96	1
06	MW-16	AQUEOUS	10/20/96	NA	10/29/96	1

PARAMETER	DET. LIMIT	UNITS	04	05	06
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	0.7	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
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 (%) 108 110 105
SURROGATE LIMITS (73 - 117)
TRIFLUOROTOLUENE (%) 103 106 104
SURROGATE LIMITS (69 - 117)

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)
 CLIENT : TRITECHNICS AEN I.D.: 610379
 PROJECT # : MAVKL02896
 PROJECT NAME : KIRTLAND NM

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	MW-17	AQUEOUS	10/20/96	NA	10/29/96	10
08	MW-18	AQUEOUS	10/20/96	NA	10/29/96	1
09	MW-19	AQUEOUS	10/20/96	NA	10/31/96	1

PARAMETER	DET. LIMIT	UNITS	07	08	09
BENZENE	0.5	UG/L	3600 D(100)	37 D(5)	< 0.5
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 5.0	< 0.5	4.0
ETHYLBENZENE	0.5	UG/L	290	14 D(5)	< 0.5
TOLUENE	0.5	UG/L	880	11 D(5)	< 0.5
TOTAL XYLENES	0.5	UG/L	1500	110 D(5)	< 0.5

SURROGATE:

BROMOCHLOROMETHANE (%)			108	113	110
SURROGATE LIMITS	(73 - 117)				
TRIFLUOROTOLUENE (%)			93	NA	103
SURROGATE LIMITS	(69 - 117)				
BROMOFLUOROBENZENE (%)					
SURROGATE LIMITS	(80 - 120)			100 D(5)	

CHEMIST NOTES:

D(100)=DILUTED 100X, ANALYZED 10/30/96. D(5)=DILUTED 5X, ANALYZED 10/30/96.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)
 CLIENT : TRITECHNICS AEN I.D.: 610379
 PROJECT # : MAVKL02896
 PROJECT NAME : KIRTLAND NM

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
10	MW-20	AQUEOUS	10/20/96	NA	10/30/96	1
11	MW-21	AQUEOUS	10/20/96	NA	10/30/96	1
12	MW-22	AQUEOUS	10/20/96	NA	10/30/96	50

PARAMETER	DET. LIMIT	UNITS	10	11	12
BENZENE	0.5	UG/L	< 0.5	< 0.5	880
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	3.6	38
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	710
TOLUENE	0.5	UG/L	< 0.5	< 0.5	250
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	4100

SURROGATE:
 BROMOCHLOROMETHANE (%) 105 106 113
 SURROGATE LIMITS (73 - 117)
 TRIFLUOROTOLUENE (%) 98 95 95
 SURROGATE LIMITS (69 - 117)

CHEMIST NOTES:
 N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)
CLIENT : TRITECHNICS AEN I.D.: 610379
PROJECT # : MAVKL02896
PROJECT NAME : KIRTLAND NM

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
13	MW-25	AQUEOUS	10/20/96	NA	10/31/96	1
14	TRIP BLANK	AQUEOUS	10/11/96	NA	10/31/96	1

PARAMETER	DET. LIMIT	UNITS	13	14
BENZENE	0.5	UG/L	33	< 0.5
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	12	< 0.5
TOLUENE	0.5	UG/L	0.8	< 0.5
TOTAL XYLENES	0.5	UG/L	120	< 0.5

SURROGATE:

BROMOCHLOROMETHANE (%)		106	97
SURROGATE LIMITS	(73 - 117)		
TRIFLUOROTOLUENE (%)		94	97
SURROGATE LIMITS	(69 - 117)		

CHEMIST NOTES:

N/A

B-20

GAS CHROMATOGRAPHY RESULTS

REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)		
BLANK I.D.	: 102996	AEN I.D.	: 610379
CLIENT	: TRITECHNICS	DATE EXTRACTED	: NA
PROJECT #	: MAVKL02896	DATE ANALYZED	: 10/29/96
PROJECT NAME	: KIRTLAND NM	SAMPLE MATRIX	: AQUEOUS

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

SURROGATE:		
BROMOCHLOROMETHANE (%)		113
SURROGATE LIMITS	(73 - 117)	
TRIFLUOROTOLUENE (%)		99
SURROGATE LIMITS	(69 - 117)	

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)		
BLANK I.D.	: 103096	AEN I.D.	: 610379
CLIENT	: TRITECHNICS	DATE EXTRACTED	: NA
PROJECT #	: MAVKL02896	DATE ANALYZED	: 10/30/96
PROJECT NAME	: KIRTLAND NM	SAMPLE MATRIX	: AQUEOUS

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

SURROGATE:

BROMOCHLOROMETHANE (%)		110
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SURROGATE LIMITS	(73 - 117)
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TRIFLUOROTOLUENE (%)		103
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SURROGATE LIMITS	(69 - 117)
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CHEMIST NOTES:

N/A

GAS CHROMATOGRAPHY RESULTS

REAGENT BLANK

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)
BLANK I.D. : 103096 AEN I.D. : 610379
CLIENT : TRITECHNICS DATE EXTRACTED : NA
PROJECT # : MAVKL02896 DATE ANALYZED : 10/30/96
PROJECT NAME : KIRTLAND NM SAMPLE MATRIX : AQUEOUS

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
BROMOFLUOROBENZENE (%)		99
SURROGATE LIMITS	(80 - 120)	

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)		
BLANK I.D.	: 103196	AEN I.D.	: 610379
CLIENT	: TRITECHNICS	DATE EXTRACTED	: NA
PROJECT #	: MAVKL02896	DATE ANALYZED	: 10/31/96
PROJECT NAME	: KIRTLAND NM	SAMPLE MATRIX	: AQUEOUS

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

SURROGATE:		
BROMOCHLOROMETHANE (%)		111
SURROGATE LIMITS	(73 - 117)	
TRIFLUOROTOLUENE (%)		99
SURROGATE LIMITS	(69 - 117)	

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)
MSMSD # : 610379-01 AEN I.D. : 610379
CLIENT : TRITECHNICS DATE EXTRACTED : NA
PROJECT # : MAVKL02896 DATE ANALYZED : 10/30/96
PROJECT NAME : KIRTLAND NM 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	8.8	88	8.5	85	3	(82 -128)	20
TOLUENE	<0.5	10.0	9.2	92	8.7	87	6	(80 -128)	20
1,1-DICHLOROETHENE	<0.2	10.0	8.1	81	7.5	75	8	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.9	109	10.0	100	9	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	9.4	94	9.0	90	4	(87 - 124)	20

CHEMIST NOTES:
N/A

(Spike Sample Result - Sample Result)
% Recovery = ----- X 100
Spike Concentration

(Sample Result - Duplicate Result)
RPD (Relative Percent Difference) = ----- X 100
Average Result

B-25

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 601/602)		
MSMSD #	: 610379-02	AEN I.D.	: 610379
CLIENT	: TRITECHNICS	DATE EXTRACTED	: NA
PROJECT #	: MAVKL02896	DATE ANALYZED	: 10/30/96
PROJECT NAME	: KIRTLAND NM	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	8.2	82	8.6	86	5	(82 - 128)	20
TOLUENE	<0.5	10.0	8.5	85	8.8	88	3	(80 - 128)	20
1,1-DICHLOROETHENE	<0.2	10.0	7.5	75	7.9	79	5	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.0	100	10.7	107	7	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	9.1	91	9.6	96	5	(87 - 124)	20

CHEMIST NOTES:
N/A

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

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

PLEASE FILL THIS FORM IN COMPLETELY.

B-27

[illegible]

PROJECT MANAGER:

Tritechnics / Morrow
1736 Cole Blvd
BLDG 22 Suite 150
303 271 2100
303 277 0110
Paul W. Overman
Morrow County Sherz
Salt Lake City, UT

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
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MW-9	10-20%	1115	W	-01
MW-10		1435		-02
MW-13		1150		-03
MW-14		1045		-04
MW-15		1225		-05
MW-16		1010		-06
MW-17		1615		-07
MW-18		1540		-08
MW-19		1350		-09
MW-20		1315		-10

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TPH	(MOD.8015) Diesel/Direct/Inject	461 BTEX	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (8020)	BTX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	462 DCA	504	EDB ☐ / DBCP ☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry:		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
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X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X																						

PROJECT INFORMATION

PROJ. NO.: MAU KL02896
PROJ. NAME: Kuitland NM
PO. NO.:

SHIPPED VIA:

SAMPLE RECEIPT	
NO. CONTAINERS	30
CUSTODY SEALS	Y/N/ND
RECEIVED INTACT	Yes
BLUE ICE/ICE	Yes

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr	☐ 48hr	☐ 72hr	☐ 1 WEEK	(NORMAL) ☒
CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER				
METHANOL PRESERVATION ☐				

COMMENTS: FIXED FEE 11

pastures on Sanger,
call: Lowell Anderson
801-359-~~3555~~
3059

RELINQUISHED BY:

Signature: Darrell Anderson Time: 1020
Printed Name: Darrell Anderson Date: 10-22
Company: _____

RECEIVED BY:

Signature: _____ Time: _____

Printed Name: _____ Date: _____

Company: _____

RELINQUISHED BY:

Signature: _____ Time: _____

Printed Name: _____ Date: _____

Company: _____

RECEIVED BY: (LAB) 2

Signature: [Signature] Title: Director
 Printed Name: John A. Howell Date: 11/19/94
 American Environmental Network (AEN) for

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.