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ThermoRetec

1999 Annual Groundwater Monitoring Report Former Maverik Refinery Tank Farm Kirtland, New Mexico

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OIL CONSERVATION DIVISION

Prepared by:

ThermoRetec Consulting Corporation
1726 Cole Boulevard
Building 22, Suite 150
Golden, Colorado 80401

ThermoRetec Project No.: MCS00-03050-311

Prepared for:

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

December 13, 1999

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Prepared by:

Wanda W. DeVargas

Wanda W. DeVargas, Staff Engineer, ThermoRetec

Reviewed by:

Bill Hendrix, Project Manager, ThermoRetec

December 13, 1999

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1 Introduction

This report presents the results for the 1999 annual groundwater monitoring and sampling event conducted at the Former Maverik Refinery Tank Farm, located in Kirtland, New Mexico. This event represents the first annual groundwater monitoring and sampling event completed since semi-annual monitoring and sampling was terminated.

Groundwater monitoring and sampling was conducted on October 14, 1999. This annual monitoring event was coordinated by ThermoRetec Consulting Corporation (ThermoRetec) on behalf of Maverik Country Stores, Inc. (Maverik).

Fieldwork was completed as proposed in Section 5 of the *1998 Annual Groundwater Monitoring Report* (ThermoRetec, 1998) and agreed upon with modifications in a letter from the New Mexico Oil Conservation Division (NMOCD) dated March 19, 1999.

During the December 1998 semi-annual groundwater sampling event, monitoring well MW-21 could not be located. Maverik proposed to replace the well and this was approved by NMOCD. However, MW-21 was subsequently located and the installation of the replacement well was canceled.

2 Description of Field Activities

2.1 Groundwater Measurements

On October 14, 1999, the depth to groundwater and total well depth measurements were collected at the following monitoring wells:

- Located outside the slurry wall impoundment:
  MW-1, MW-2, MW-9, MW-10, MW-13, MW-14, MW-15, MW-16, MW-18, MW- 19, MW-20, MW-21.

- Located inside the slurry wall impoundment:
  MW-17 and MW-22.

Although groundwater and total well depth measurements were collected from MW-13, the information was disregarded since MW-13 was destroyed during tree clearing operations that took take place prior to the annual monitoring and sampling event. The upper casing separated from the remaining well bore and dirt was pushed over the location.

Depth to groundwater and total well depth was measured using an electronic oil-water interface probe. The probe was properly decontaminated prior to and after each measurement of each groundwater monitoring well. Measurements were recorded on groundwater monitoring data sheets included in Appendix A. Table 1 summarizes the corrected groundwater level elevations.

2.2 Groundwater Sampling and Analysis

The additional field activities for groundwater monitoring included measurement of pH, temperature, specific conductivity, oxidation/reduction potential and dissolved oxygen in addition to collecting representative groundwater samples. Groundwater sampling activities were completed in accordance with the standard United States Environmental Protection Agency (USEPA) sampling protocol.

Sampled monitoring wells were purged with a disposable bailer until three casing volumes were removed (with the exception of wells that bailed dry or had low recharge rates) and pH and specific conductivity measurements had stabilized. Field parameter measurements and water quality observations were recorded on groundwater monitoring field data sheets included in Appendix A. After purging, samples were collected from the wells using a disposable bailer.

On October 14, 1999, the following wells were sampled and analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) and 1,2-dichloroethane (DCA) using EPA Method 8021 Modified:

- On-site, downgradient of the slurry wall impoundment:
  MW-10, MW-19 and MW-20.
- Off-site, downgradient of the slurry wall impoundment:
  MW-14 and MW-16.
- Upgradient of the slurry wall impoundment:
  MW-18.
- Outside of slurry wall impoundment, downgradient of MW-18:
  MW-21.
- Within the slurry wall impoundment:
  MW-17 and MW-22.

3 Summary of Monitoring and Sampling Results

3.1 Fluid Level Measurements

Historic groundwater elevation data are presented in Table 1, *Summary of Corrected Groundwater Elevations*. Corrected groundwater elevations were calculated using an assumed product density of 0.8 when necessary. A groundwater elevation map was completed using these data and is presented as Figure 1, *Groundwater Elevation Map, October 1999*. Groundwater flow direction is generally to the southeast, which is typical of past observations. The groundwater gradient is approximately 0.11 feet/feet.

October 1999 fluid level measurements demonstrate that water levels were approximately one foot lower than those measured during the fall 1998 semi-annual monitoring event. Free product was not reported in any of the monitoring wells; however, hydrocarbon sheens were reported in MW-18 and MW-22, located upgradient of the slurry wall impoundment and within the slurry wall, respectively. Sheens or thin product layers have historically been detected sporadically within the slurry wall. Water table fluctuations likely contribute to the sporadic presence of product observed in monitoring wells.

3.2 Water Quality Analyses

Water quality monitoring results for the October 1999 annual sampling event are summarized in Table 2. The laboratory analytical report for the 1999 annual event is included in Appendix B. Figure 2 presents the concentrations of DCA, benzene, and total BTEX detected in each well sampled during the 1999 annual sampling event.

During the 1999 annual event, MW-18, that is upgradient from the slurry wall, was the only well outside of the slurry wall having analyte concentrations above New Mexico Water Quality Standards. A graph of benzene and BTEX concentrations over time for MW-18 is presented in Figure 4; the graph demonstrates a general decreasing concentration trend. Analytes were not detected in any of the other wells outside the slurry wall. These results are consistent with past results.

Monitoring wells MW-17 and MW-22 are located within the confines of the slurry wall where elevated hydrocarbon levels have been historically encountered. Analytical results from these wells indicate a general decreasing trend of BTEX concentrations in groundwater (Figures 3 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. This decrease is expected to continue.

4 Conclusions and Recommendations

Data indicate that the slurry wall has maintained its integrity and is performing its planned function of containing the gasoline-affected groundwater. BTEX and DCA were not detected in monitoring wells downgradient from the slurry wall. Historical analytical results suggest that biodegradation of organic contaminants in the groundwater at the site is occurring. The annual groundwater sampling and reporting program will be continued in 2000.

Although MW-13 was destroyed during 1999, ThermoRetec does not recommend replacement. The remaining monitoring wells provide sufficient monitoring locations to verify that gasoline-affected groundwater is not migrating from the area within the slurry wall.

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
	Oct-99	5,205.75	5,207.24	10.66	0	5,196.58
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
	Oct-99	5,195.25	5,196.93	6.51	0	5,190.42
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
	Oct-99	5,189.33	5,191.22	4.82	0	5,186.40

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
	Oct-99	5,187.47	5,189.30	4.85	0	5,184.45
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
Well Destroyed	Oct-99	5,187.56	5,187.76	NA	0	NA
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
	Oct-99	5,190.70	5,194.47	8.21	0	5,186.26

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-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
	Oct-99	5,185.40	5,188.80	5.86	0	5,182.94
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
	Oct-99	5,193.74	5,194.98	6.72	0	5,188.26
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
	Oct-99	5,199.14	5,201.75	11.51	Slight Sheen	5,190.24

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
	Oct-99	5188.58	5189.54	3.70	0	5,185.84
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
	Oct-99	5,190.10	5,191.05	5.10	0	5,185.95
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
	Dec-98	5,193.62	5,194.81	NM	NM	NM
	Oct-99	5,193.62	5,194.81	6.64	0	5,188.17

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
	Oct-99	5,193.43	5,195.91	9.45	0.00	5,186.46
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
	Oct-99	5,194.58	5,195.86	7.75	Slight Sheen	5,188.11
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
	Oct-99	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
	Oct-99	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
	Oct-99	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
	Oct-99	5,197.06	5,198.82	NM	NM	NM

NOTES: NM = Not Measured
NA - Not Applicable, Well 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
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
Duplicate	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
Duplicate	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
Duplicate	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
Duplicate	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
Duplicate	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
	Oct. 14, 1999	<5	440	140	110	930	1,620	7.64	2,030
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
Duplicate	May 17, 1995	67	9,020	2,620	1,230	7,310	20,180	7.15	1,517
Duplicate **	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
Duplicate	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
	Oct. 14, 1999	<5	580	210	150	820	1,760	7.72	1,840
Duplicate	Oct. 14, 1999	<5	730	270	180	1000	2,180	7.72	1,840

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
	Oct. 14, 1999	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
	Oct. 14, 1999	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
	Oct. 14, 1999	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
	Oct. 14, 1999	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
	Oct. 14, 1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.68	1,650
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
Duplicate	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
	Oct. 14, 1999	0.50	33	4	11	60	108	7.13	1,550
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
	May 25, 1994	8.0	< 1	< 1	< 1	< 1	< 1	7.65	1,762
	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
	Oct 14, 1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.62	2,000

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-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
	Oct. 14, 1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.01	1,600
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
Duplicate	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
	Dec. 9, 1998	NS	NS	NS	NS	NS	NS	NS	NS
	Oct. 14, 1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.97	2180

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
	Oct. 14, 1999	NS	NS	NS	NS	NS	NS	NS	NS
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
Destroyed	Oct. 14, 1999	NS	NS	NS	NS	NS	NS	NS	NS
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
	Oct 2-3, 1994	1.9	< 1	< 1	< 1	< 1	< 1	7.34	4,560
	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
	Oct. 14, 1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.26	7830

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-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
	Oct. 14, 1999	NS	NS	NS	NS	NS	NS	NS	NS
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
	Oct. 14, 1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.3	1890
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

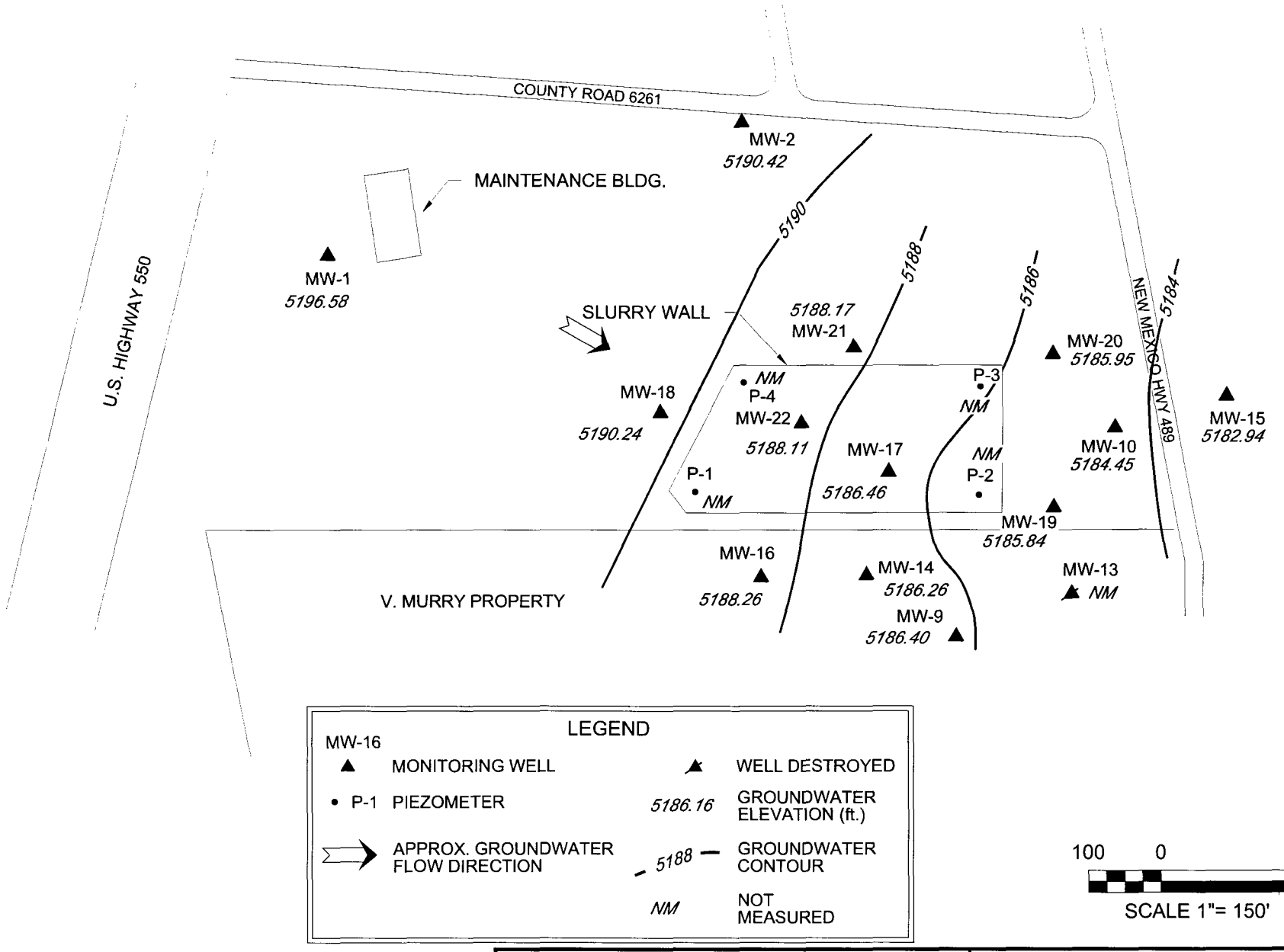
SC = Specific Conductivity
TDS = Total Dissolved Solids
MSG = Well Missing
NA = Not Analyzed
NS = Not Sampled

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

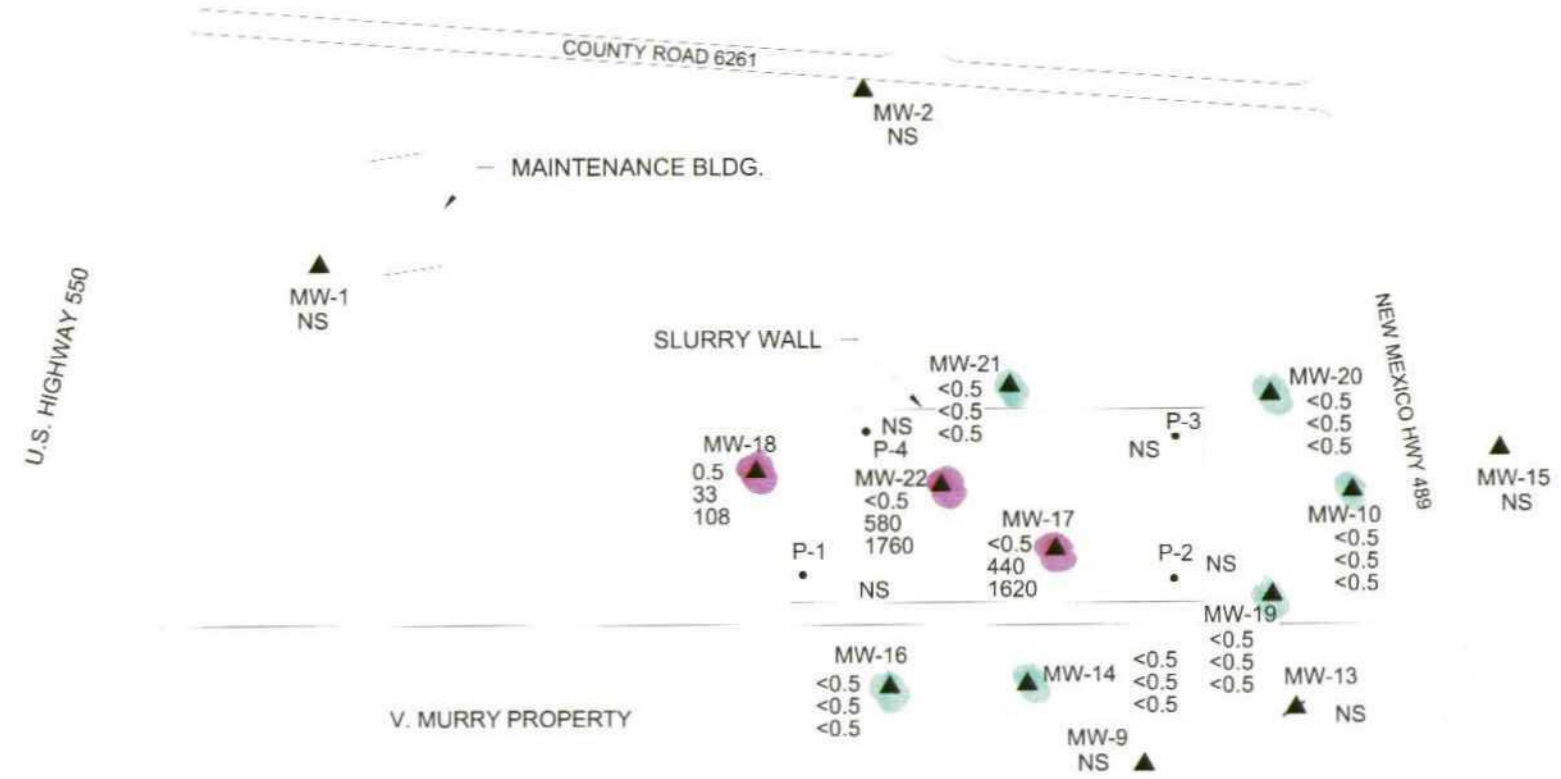
1999 Annual Report

Kirtland Refinery, Kirtland, NM (MCS00-03050-311)

DATE: 11/11/99 | DRWN: E.S.S. | FILE: 131AN991-3

GROUNDWATER ELEVATION MAP
OCTOBER 14, 1999

FIGURE 1



LEGEND

MW-17

▲	MONITORING WELL	<5	DCA (ug/l)
▲	WELL DESTROYED	440	BENZENE (ug/l)
		1620	BTEX (ug/l)
• P-1	PIEZOMETER	NS	NOT SAMPLED

100 0 200

SCALE 1"= 150'

ThermoRetec

1999 Annual Report

Kirtland Refinery, Kirtland, NM (MCS00-03050-311)

ORGANICS IN GROUNDWATER
OCTOBER 14, 1999

DATE: 11/11/99 | DRWN: E.S.S. | FILE: 131AN991-3

FIGURE 2

Concentrations of Benzene and BTEX in MW-17

Former Maverik Refinery - Kirtland, New Mexico

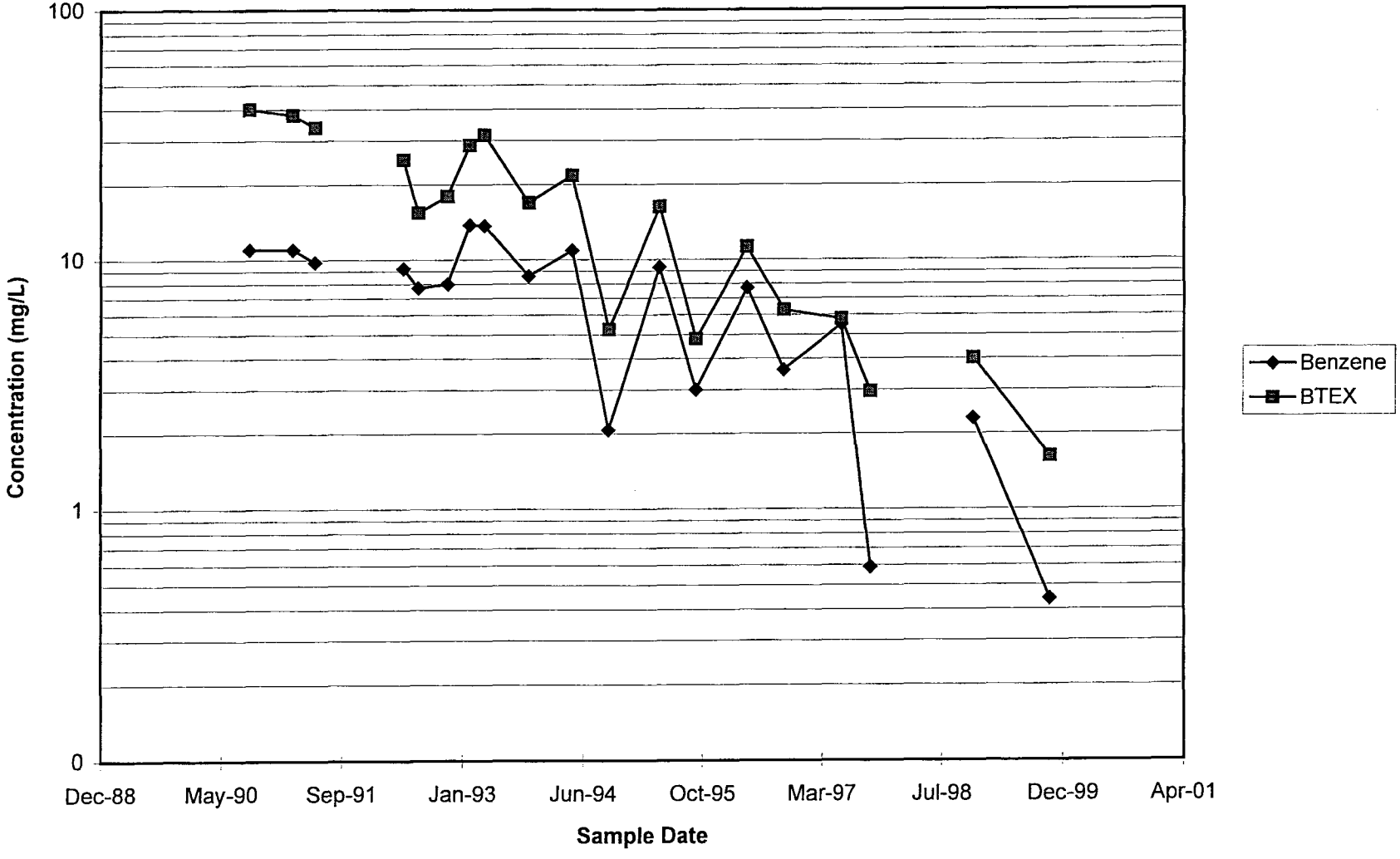


FIGURE 3

Concentrations of Benzene and BTEX in MW-18

Former Maverik Refinery - Kirtland, New Mexico

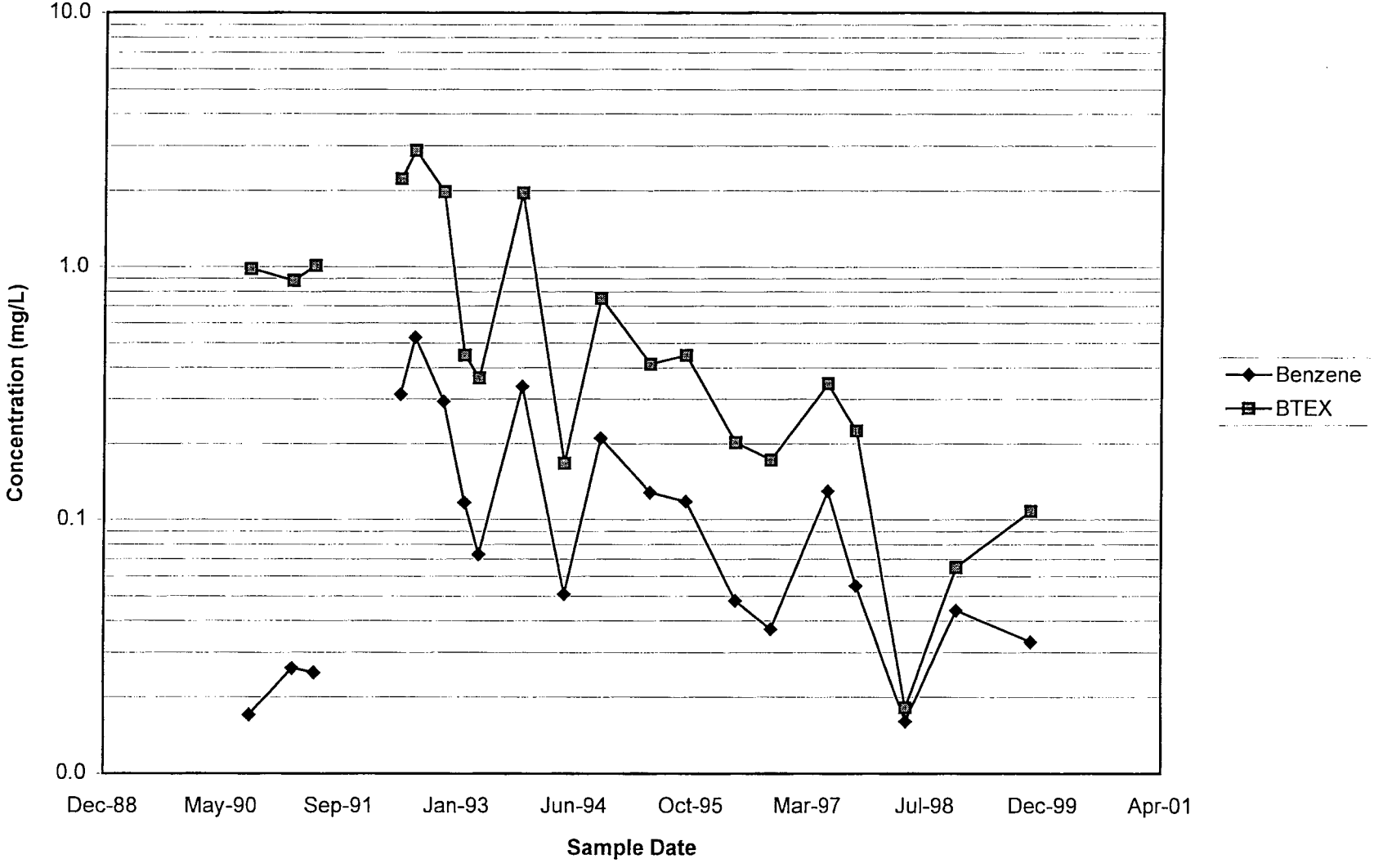


FIGURE 4

Concentrations of Benzene and BTEX in MW-22

Former Maverik Refinery - Kirtland, New Mexico

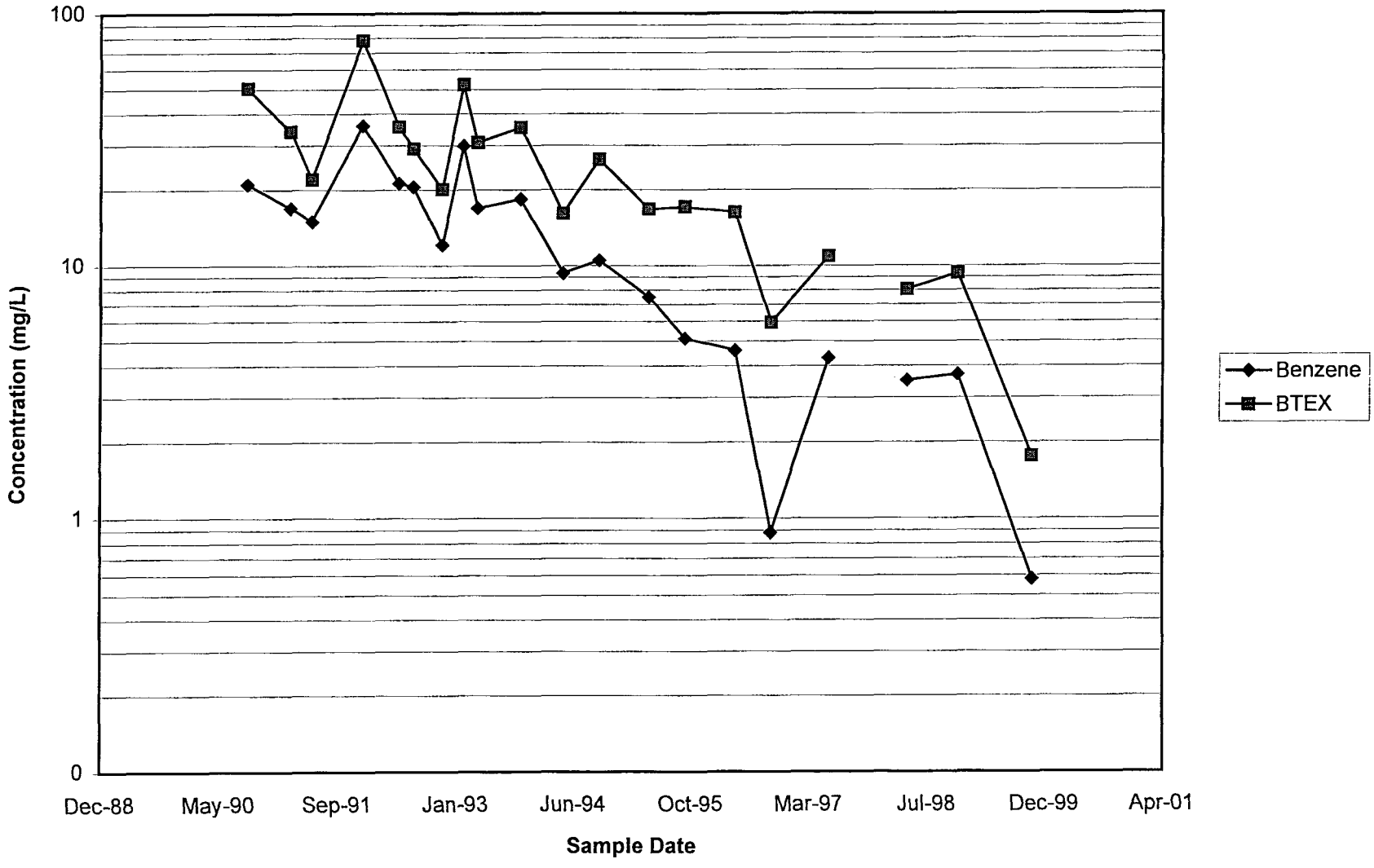


FIGURE 5

Appendix A
Field Notes

OCT 22 19

DAILY FIELD LOG

Date: 10-14-99

Client: THERMORETEC

Project Name: KIRTLAND FORMER REFINERY

Project Number: 9814-02 Completed By: K. TURNER

BASIN ENGINEERING, INC

Description of Activities:

7:45 CALIBRATE METERS, DECON PROBE - ALCONOX
8:00 LOAD / DEPART
TAKE TRENT TO SITE TO START WATER LEVELS.
8:45 DEPART

10:00 RETURN TO SITE
LOCATE MONITOR WELLS

11:00 SAMPLE MW-18
11:40 SAMPLE MW-17
12:00 SAMPLE MW-22 TOOK DUPLICATE SAMPLE MW-22
LABELED @ MW-48
12:35 SAMPLE MW-21
~~KC950~~
12:45 LUNCH
1:15 ONSITE
1:45 SAMPLE MW-20
2:10 SAMPLE MW-19
2:50 SAMPLE MW-10
3:25 SAMPLE MW-16
3:35 SAMPLE MW-14
MONITOR WELL MW-13 DESTROYED BY LAND OWNER
DURING CLEARING OF TREES
PREP SAMPLE FOR SHIPPING DELIVER TO FED EX
5:00

Personnel On-Site:

Weather Conditions:

p.o. box 389 2550 la plata hwy farmington, new mexico 87499 telephone (505) 325-0267 facsimile (505) 325-9128

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMOBETEC PROJECT# 9814-02

ADDRESS MAVERIK - FORMER REFINERY DATE 10-14-99

MW # 18 PID - ppm _____

DEPTH OF CASED HOLE 18.75 (ft) DEPTH TO WATER 11.51 (ft)

HEIGHT OF WATER 7.24 (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER 1.16 (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING BAILED DRY @ 2.0 (gal)

GROUNDWATER PARAMETERS:

pH	7.08	TEMP(°F)	20.7°C	SPECIFIC	1.49mS	REDOX	-92mV	D.O.	2.20 PPM
	7.13		20.3°C	CONDUCT.	1.55mS	POTENTIAL	151.3mV		1.55 PPM

SAMPLE DESCRIPTION BLACK, HYDROCARBON ODOR, SLIGHT SHEEN

OBSERVATIONS SLOW RECHARGE

PARAMETERS SAMPLED FOR BTEX 8021 (EDX)

TYPE OF SAMPLER HDPE BAILER

SAMPLE TAKEN BY Kenny Ruiz

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETEC PROJECT# 9814-02

ADDRESS MAVERIK - FORMER REFINERY DATE 10-14-99

MW # 17 PID - ppm

DEPTH OF CASED HOLE 16.6 (ft) DEPTH TO WATER 9.45 (ft)

HEIGHT OF WATER 7.15 (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER 1.14 (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING BAILED DRY @ 1.25 (gal)

GROUNDWATER PARAMETERS:

pH	7.63	TEMP(°F)	20.4°C	SPECIFIC	1.96 mS	REDOX	-250.4 mV	D.O.	.73 PPM
	7.64		19.4°C	CONDUCT.	2.03 mS	POTENTIAL	-218.3 mV		1.90 PPM

SAMPLE DESCRIPTION BLACK, SWAMP ODOR, NO SHEEN

OBSERVATIONS SLOW RECHARGE

PARAMETERS SAMPLED FOR BTEX 8021 (EDX)

TYPE OF SAMPLER HDPE BAILER

SAMPLE TAKEN BY Kenny Turner

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETEC PROJECT# 9814-02

ADDRESS MAVERIK - FORMER REFINERY DATE 10-14-99

MW# 22 PID - ppm _____

DEPTH OF CASED HOLE 13.88 (ft) DEPTHTO WATER 7.75 (ft)

HEIGHT OF WATER 6.13 (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER .98 (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING BAILED DRY @ 1.5 (gal)

GROUNDWATER PARAMETERS:

pH	7.57	TEMP(°F)	20.4°C	SPECIFIC	1.98mS	REDOX	-268.9mV	D.O.	0.11PPM
	7.72		21.0°C	CONDUCT.	1.84mS	POTENTIAL	-210.5mV		1.60PPM

SAMPLE DESCRIPTION LT. GREY-BLACK, HYDROCARBON ODOR SLIGHT SHEEN

OBSERVATIONS SLOW RECHARGE

TOOK DUPLICATE SAMPLE LABELED MW 48 FROM MW-22

PARAMETERS SAMPLED FOR BTEX 8021

TYPE OF SAMPLER HDPE BAILER

SAMPLE TAKEN BY Kenny Cuvner

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMO RETEC PROJECT# 9814-02

ADDRESS MAVERIK - FORMER REFINERY DATE 10-14-99

MW # 21 PID - ppm _____

DEPTH OF CASED HOLE 14.45 (ft) DEPTH TO WATER 6.64 (ft)

HEIGHT OF WATER 7.81 (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER 1.25 (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING BAILED DRY @ 2.0 (gal)

GROUNDWATER PARAMETERS:

pH	6.96	TEMP(°F)	19.9°C	SPECIFIC	21.6 mS	REDOX	-125.1mV	D.O.	1.30 PPM
	6.97		18.5°C	CONDUCT.	21.8 mS	POTENTIAL	-49.5mV		1.87 PPM

SAMPLE DESCRIPTION LT YELLOW - BROWN, NO ODOR NO SHEEN

OBSERVATIONS _____

PARAMETERS SAMPLED FOR BTEX 8021 (EDX)

TYPE OF SAMPLER HDPE BAILER

SAMPLE TAKEN BY Kenny Ritter

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETEC PROJECT# 9814-02

ADDRESS MAVERIK FORMER REFINERY DATE 10-14-99

MW# 20 PID - ppm _____

DEPTH OF CASED HOLE 13.51 (ft) DEPTHTOWATER 85.1 (ft)

HEIGHT OF WATER 8.41 (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER 1.35 (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING 4.0 (gal)

GROUNDWATER PARAMETERS:

pH	7.92	TEMP(°F)	21.7°C	SPECIFIC	2.41mS	REDOX	54.1mV	D.O.	.68 PPM
	8.08		18.4°C	CONDUCT.	1.61 mS	POTENTIAL	38.7 mV		.72 PPM
	8.01		18.0°C		1.60 mS		35.7 mV		.56 PPM

SAMPLE DESCRIPTION LT. GREY-BROWN, NO ODOR, NO SHEEN

OBSERVATIONS _____

PARAMETERS SAMPLED FOR BTEX 8021 (EDX)

TYPE OF SAMPLER HDPE BAILER

SAMPLE TAKEN BY Kenny Ruvin

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETECH PROJECT# 9814.02

ADDRESS MAVERIK FORMER REFINERY DATE 10.14.99

MW # 19 PID - ppm

DEPTH OF CASED HOLE 14.1 (ft) DEPTH TO WATER 3.7 (ft)

HEIGHT OF WATER 10.4 (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER 1.66 (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING 5.0 (gal)

GROUNDWATER PARAMETERS:

pH	TEMP(°F)	SPECIFIC CONDUCT.		REDOX POTENTIAL	D.O.	
7.69	17.9°C	1.86 mS		82.4mV	~~1.96 mS~~ 1.00PPM	
7.71	16.8°C	2.02 mS		107.5mV	1.84PPM	
7.62	16.9°C	2.00 mS		146.8mV	2.50PPM	

SAMPLE DESCRIPTION LT. SANDY BROWN, NO ODOR, NO SHEEN

OBSERVATIONS ORGANICS (ROOTS) IN WATER

PARAMETERS SAMPLED FOR BTEX 8021 (EDX)

TYPE OF SAMPLER HDPE BAILER

SAMPLE TAKEN BY Kenny Turner

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETEC PROJECT# 9814-02

ADDRESS MAVERIK FORMER REFINERY DATE 10-14-99

MW # 10 PID - ppm _____

DEPTH OF CASED HOLE 15.18 (ft) DEPTH TO WATER 4.85 (ft)

HEIGHT OF WATER 10.33 (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER 1.6 (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING 4.0 (gal)

GROUNDWATER PARAMETERS:

pH	7.93	TEMP(°F)	18.7°C	SPECIFIC	1.70mS	REDOX	113.9mV D.O. 1.70mS
	7.86		18.2°C	CONDUCT.	1.75mS	POTENTIAL	131.4mV 1.75mS
	7.68		17.8°C		1.65mS		184.7mV 1.65mS

SAMPLE DESCRIPTION MED. SANDY BROWN, NO ODOR, NO SHEEN

OBSERVATIONS ORGANICS (ROOTS) IN WATER

PARAMETERS SAMPLED FOR BTEX 8021 (EDX)

TYPE OF SAMPLER HDPE BAILER

SAMPLE TAKEN BY Kenny Turner

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETEC PROJECT# 9814-02

ADDRESS MAVERIK - FORMER REFINERY DATE 10-14-99

MW # 16 PID - ppm _____

DEPTH OF CASED HOLE 14.55 (ft) DEPTH TO WATER 6.72 (ft)

HEIGHT OF WATER @ 7.83 (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER 1.25 (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING 4.0 (gal)

GROUNDWATER PARAMETERS:

pH	7.45	TEMP(°F)	20.6°C	SPECIFIC	1.81mS	REDOX	-51.5mV	D.O.	.85 ppm
	7.48		19.5°C	CONDUCT.	1.84mS	POTENTIAL	-49.7mV		1.80 ppm
	7:30		19.6°C		1.89mS		-30.5mV		2.11 ppm

SAMPLE DESCRIPTION LT. GREY-BROWN, NO ODOR, NO SHEEN

OBSERVATIONS ORGANICS (ROOTS) IN WATER

PARAMETERS SAMPLED FOR BTEX 8021 (EDX)

TYPE OF SAMPLER HDPE BAILER

SAMPLE TAKEN BY Kenny Turner

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETEC PROJECT# 9814-02

ADDRESS MAVERIK-FORMER REFINERY DATE 10-14-99

MW# 14 PID - ppm

DEPTH OF CASED HOLE 9.97 (ft) DEPTHTOWATER 8.21 (ft)

HEIGHT OF WATER 1.76 (ft) WELL DIAMETER (ft)

VOLUME OF WATER .28 (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING BAILED DRY @ .25GAL (gal)

GROUNDWATER PARAMETERS:

pH	TEMP(°F)	SPECIFIC CONDUCT.	REDOX POTENTIAL	D.O.
7.26	20.6°C	7.83mS	53.9mV	.74PPM

SAMPLE DESCRIPTION LIGHT SANDY BROWN, NO ODOR, NO SHEEN

OBSERVATIONS VERY SLOW RECHARGE

PARAMETERS SAMPLED FOR BTEX 8021 (EDX)

TYPE OF SAMPLER HDPE BAILER

SAMPLE TAKEN BY Kenny Turner

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETECH PROJECT# 9814-02

ADDRESS MAVERIK - FORMER REFINERY DATE 10-14-99

MW # 1 PID - ppm _____

DEPTH OF CASED HOLE _____ (ft) DEPTH TO WATER 10.66' (ft)

HEIGHT OF WATER _____ (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER _____ (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING _____ (gal)

GROUNDWATER PARAMETERS:

pH	TEMP(°F)	SPECIFIC CONDUCT.	REDOX POTENTIAL	D.O.

SAMPLE DESCRIPTION _____

OBSERVATIONS NOT SAMPLED H2O LEVEL ONLY

PARAMETERS SAMPLED FOR _____

TYPE OF SAMPLER _____

SAMPLE TAKEN BY _____

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMOTECH PROJECT# 9814-02

ADDRESS MALVERK - FORMER REFINERY DATE 10-14-99

MW # 2 PID - ppm _____

DEPTH OF CASED HOLE _____ (ft) DEPTH TO WATER 6.51 (ft)

HEIGHT OF WATER _____ (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER _____ (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING _____ (gal)

GROUNDWATER PARAMETERS:

pH	TEMP(°F)	SPECIFIC CONDUCT.	REDOX POTENTIAL	D.O.

SAMPLE DESCRIPTION _____

OBSERVATIONS NOT SAMPLED H2O LEVEL ONLY

PARAMETERS SAMPLED FOR _____

TYPE OF SAMPLER _____

SAMPLE TAKEN BY _____

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETEC PROJECT# 9814-02

ADDRESS MAVERIK-FORMER REFINERY DATE 10-14-99

MW # 9 PID - ppm _____

DEPTH OF CASED HOLE 16.7 (ft) DEPTH TO WATER 4.82 (ft)

HEIGHT OF WATER 11.88 (ft) WELL DIAMETER 2" (ft)

VOLUME OF WATER _____ (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING _____ (gal)

GROUNDWATER PARAMETERS:

pH	TEMP(°F)	SPECIFIC CONDUCT.	REDOX POTENTIAL	D.O.

SAMPLE DESCRIPTION _____

OBSERVATIONS NOT SAMPLED

WATER LEVELS ONLY

PARAMETERS SAMPLED FOR _____

TYPE OF SAMPLER _____

SAMPLE TAKEN BY _____

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO

P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMORETECH PROJECT# 9814-02

ADDRESS MAVERIK-FORMER REFINERY DATE 10-14-99

MW # 13 PID - ppm _____

DEPTH OF CASED HOLE 4.98 (ft) DEPTH TO WATER 2.60 (ft)

HEIGHT OF WATER 2.38 (ft) WELL DIAMETER _____ (ft)

VOLUME OF WATER _____ (gal)

VOLUME OF WATER REMOVED BEFORE SAMPLING _____ (gal)

GROUNDWATER PARAMETERS:

pH	TEMP(°F)	SPECIFIC CONDUCT.	REDOX POTENTIAL	D.O.

SAMPLE DESCRIPTION _____

OBSERVATIONS CASING DESTROYED DURING TREE CLEARING BY LAND OWNER. NOT SAMPLED / WATER LEVELS ONLY

PARAMETERS SAMPLED FOR _____

TYPE OF SAMPLER _____

SAMPLE TAKEN BY _____

BASIN ENGINEERING, INC. - FARMINGTON, NEW MEXICO
P.O. Box 389, 2550 La Plata Highway, 87499 Tel. (505) 325-0267

GROUND WATER MONITORING DATA SHEET

CLIENT THERMOBETEC PROJECT# 9814-02
ADDRESS MAVERIK - FORMER REFINERY DATE 10-14-99

MW# 15 PID - ppm _____
DEPTH OF CASED HOLE _____(ft) DEPTHTO WATER 5.86 (ft)
HEIGHT OF WATER _____(ft) WELL DIAMETER _____(ft)
VOLUME OF WATER _____(gal)
VOLUME OF WATER REMOVED BEFORE SAMPLING _____(gal)

GROUNDWATER PARAMETERS:

pH	TEMP(°F)	SPECIFIC CONDUCT.	REDOX POTENTIAL	D.O.

SAMPLE DESCRIPTION _____

OBSERVATIONS NOT SAMPLED H20 LEVELS ONLY

PARAMETERS SAMPLED FOR _____
TYPE OF SAMPLER _____
SAMPLE TAKEN BY _____

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 10-14-99 PAGE: 1 OF 1

PLI Accession #: 910054

PROJECT MANAGER: JOHN CASEY

COMPANY: BASIN ENGINEERING INC
ADDRESS: PO 389 FARMINGTON NM 87499
PHONE: 505 325-0267
FAX: 325 9128
BILL TO: ABOVE
COMPANY:
ADDRESS:

ANALYSIS REQUEST

- Petroleum Hydrocarbons (418.1) TRPH
- (MOD.8015) Diesel/Direct Inject
- (M8015) Gas/Purge & Trap
- 8021 (BTEX)/8015 (Gasoline) MTBE
- 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 (608/8081/8082)
- Herbicides (615/8151)
- Base/Neutral/Acid Compounds GC/MS (625/8270)
- Polynuclear Aromatics (610/8310/8270-SIMS)
- General Chemistry:
- Priority Pollutant Metals (13)
- Target Analyte List Metals (23)
- RCRA Metals (8)
- RCRA Metals by TCLP (Method 1311)
- Metals:
- NUMBER OF CONTAINERS

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	8021 (EDX)
981402-14-18	10-14-99	11:00	H2O		X
981402-14-17		11:40			X
981402-14-22		12:00			X
981402-14-48		12:10			X
981402-14-21		12:35			X
981402-14-20		1:45			X
981402-14-19		2:10			X
981402-14-10		2:50			X
981402-14-16		3:25			X
981402-14-14		3:35			X

PROJECT INFORMATION

PROJ. NO.: 9814-02
PROJ. NAME: MAVERIK FORMER REFINERY
P.O. NO.:
SHIPPED VIA: FED EX

SAMPLE RECEIPT

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

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.
Signature: Kenny Turner Time: 4:35 Pm
Printed Name: Kenny Turner Date: 10-14-99
Company:
See reverse side (Force Majure)

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: 1.
Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 2.
Signature: Time:
Printed Name: Date:
Pinnacle Laboratories Inc.

Appendix B
Analytical Laboratory Data Reports

PINNACLE LABORATORIES

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

OCT 25 1999

Pinnacle Lab ID number **910054**
October 19, 1999

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

Project Name MAVERIK FORMER REFINERY
Project Number 9814-02

Attention: WANDA DE VARGAS

On 10/15/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), 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

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	: 910054
PROJECT #	: 9814-02	DATE RECEIVED	: 10/15/99
PROJECT NAME	: MAVERIK FORMER REFINERY	REPORT DATE	: 10/19/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	981402-14-18	AQUEOUS	10/14/99
02	981402-14-17	AQUEOUS	10/14/99
03	981402-14-22	AQUEOUS	10/14/99
04	981402-14-48	AQUEOUS	10/14/99
05	981402-14-21	AQUEOUS	10/14/99
06	981402-14-20	AQUEOUS	10/14/99
07	981402-14-19	AQUEOUS	10/14/99
08	981402-14-10	AQUEOUS	10/14/99
09	981402-14-16	AQUEOUS	10/14/99
10	981402-14-14	AQUEOUS	9/28/99
11	TRIP BLANK	#REF!	#REF!

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 101599	PINNACLE I.D.	: 910054
CLIENT	: THERMORETEC CORPORATION	DATE EXTRACTED	: NA
PROJECT #	: 9814-02	DATE ANALYZED	: 10/16/99
PROJECT NAME	: MAVERIK FORMER REFINERY	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	9.3	93	9.6	96	3	(82 - 128)	20
1,2-DIBROMOETHANE (EDB)	<0.2	10.0	9.6	96	10.2	102	6	(64 - 144)	20
1,2-DICHLOROETHANE (EDC)	<0.5	10.0	9.0	90	9.8	98	9	(73 - 147)	20
TOLUENE	<0.5	10.0	9.6	96	10.0	100	4	(87 - 128)	20
ETHYLBENZENE	<0.5	10.0	9.3	93	9.7	97	4	(73 - 148)	20
TOTAL XYLENES	<0.5	30.0	29.5	98	30.9	103	5	(70 - 143)	20
METHYL-t-BUTYL ETHER	<2.5	10.0	11.9	119	11.0	110	8	(71 - 165)	20

CHEMIST NOTES:
N/A

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

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

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : THERMORETEC CORPORATION PINNACLE I.D.: 910054
PROJECT # : 9814-02
PROJECT NAME : MAVERIK FORMER REFINERY

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	981402-14-18	AQUEOUS	10/14/99	NA	10/15/99	1
02	981402-14-17	AQUEOUS	10/14/99	NA	10/15/99	10
03	981402-14-22	AQUEOUS	10/14/99	NA	10/15/99	10

PARAMETER	DET. LIMIT	UNITS	981402-14-18	981402-14-17	981402-14-22
BENZENE	0.5	**UG/L**	**33**	**440**	**580**
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 2.0	< 2.0
1,2-DICHLOROETHANE (EDC)	0.5	**UG/L**	**0.5**	< 5.0	< 5.0
TOLUENE	0.5	**UG/L**	**4.0**	**140**	**210**
ETHYLBENZENE	0.5	**UG/L**	**11**	**110**	**150**
TOTAL XYLENES	0.5	**UG/L**	**60**	**930**	**820**
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 25	< 25
SURROGATE:					
BROMOCHLOROMETHANE (%)			101	97	99
SURROGATE LIMITS	(71 - 126)				
TRIFLUOROTOLUENE (%)			101	100	98
SURROGATE LIMITS	(72 - 130)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : THERMORETEC CORPORATION PINNACLE I.D.: 910054
PROJECT # : 9814-02
PROJECT NAME : MAVERIK FORMER REFINERY

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	981402-14-48	AQUEOUS	10/14/99	NA	10/15/99	10
05	981402-14-21	AQUEOUS	10/14/99	NA	10/15/99	1
06	981402-14-20	AQUEOUS	10/14/99	NA	10/15/99	1

PARAMETER	DET. LIMIT	UNITS	981402-14-48	981402-14-21	981402-14-20
BENZENE	0.5	**UG/L**	**730**	< 0.5	< 0.5
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 2.0	< 0.2	< 0.2
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 5.0	< 0.5	< 0.5
TOLUENE	0.5	**UG/L**	**270**	< 0.5	< 0.5
ETHYLBENZENE	0.5	**UG/L**	**180**	< 0.5	< 0.5
TOTAL XYLENES	0.5	**UG/L**	**1000**	< 0.5	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 25	< 2.5	< 2.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			97	109	93
SURROGATE LIMITS	(71 - 126)				
TRIFLUOROTOLUENE (%)			96	109	107
SURROGATE LIMITS	(72 - 130)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : THERMORETEC CORPORATION PINNACLE I.D.: 910054
PROJECT # : 9814-02
PROJECT NAME : MAVERIK FORMER REFINERY

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	981402-14-19	AQUEOUS	10/14/99	NA	10/15/99	1
08	981402-14-10	AQUEOUS	10/14/99	NA	10/15/99	1
09	981402-14-16	AQUEOUS	10/14/99	NA	10/18/99	1

PARAMETER	DET. LIMIT	UNITS	981402-14-19	981402-14-10	981402-14-16
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 2.5	< 2.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			95	113	105
SURROGATE LIMITS	(71 - 126)				
TRIFLUOROTOLUENE (%)			107	110	107
SURROGATE LIMITS	(72 - 130)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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Albuquerque, New Mexico 87107
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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : THERMORETEC CORPORATION PINNACLE I.D.: 910054
PROJECT # : 9814-02
PROJECT NAME : MAVERIK FORMER REFINERY

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
10	981402-14-14	AQUEOUS	10/14/99	NA	10/15/99	1
11	TRIP BLANK	AQUEOUS	9/28/99	NA	10/15/99	1

PARAMETER	DET. LIMIT	UNITS	981402-14-14	TRIP BLANK
BENZENE	0.5	UG/L	< 0.5	< 0.5
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 2.5
SURROGATE:				
BROMOCHLOROMETHANE (%)			106	105
SURROGATE LIMITS	(71 - 126)			
TRIFLUOROTOLUENE (%)			107	103
SURROGATE LIMITS	(72 - 130)			

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK
PURGEABLE HALOCARBONS / AROMATICS

TEST	: EPA 8021 MODIFIED		
BLANK I.D.	: 101599	PINNACLE I.D.	: 910054
CLIENT	: THERMORETEC CORPORATION	DATE EXTRACTED	: NA
PROJECT #	: 9814-02	DATE ANALYZED	: 10/15/99
PROJECT NAME	: MAVERIK FORMER REFINERY	MATRIX	: AQUEOUS

PARAMETER		UNITS	
BENZENE		UG/L	<0.5
1,2-DIBROMOETHANE (EDB)		UG/L	<0.2
1,2-DICHLOROETHANE (EDC)		UG/L	<0.5
TOLUENE		UG/L	<0.5
ETHYLBENZENE		UG/L	<0.5
TOTAL XYLENES		UG/L	<0.5
METHYL-t-BUTYL ETHER		UG/L	<2.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			98
SURROGATE LIMITS	(71 - 126)		
TRIFLUOROTOLUENE (%)			102
SURROGATE LIMITS	(72 - 130)		

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK
PURGEABLE HALOCARBONS / AROMATICS

TEST	: EPA 8021 MODIFIED		
BLANK I.D.	: 101899	PINNACLE I.D.	: 910054
CLIENT	: THERMORETEC CORPORATION	DATE EXTRACTED	: NA
PROJECT #	: 9814-02	DATE ANALYZED	: 10/18/99
PROJECT NAME	: MAVERIK FORMER REFINERY	MATRIX	: AQUEOUS

PARAMETER		UNITS	
BENZENE		UG/L	<0.5
1,2-DIBROMOETHANE (EDB)		UG/L	<0.2
1,2-DICHLOROETHANE (EDC)		UG/L	<0.5
TOLUENE		UG/L	<0.5
ETHYLBENZENE		UG/L	<0.5
TOTAL XYLENES		UG/L	<0.5
METHYL-t-BUTYL ETHER		UG/L	<2.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			105
SURROGATE LIMITS	(71 - 126)		
TRIFLUOROTOLUENE (%)			109
SURROGATE LIMITS	(72 - 130)		

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 10-14-99 PAGE: 1 OF 1

PLI Accession #: 910054

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: JOHN CASEY

COMPANY: BASIN ENGINEERING INC

ADDRESS: PO 389 FARMINGTON NM 87499

PHONE: 505 325-0267

FAX: 325 9128

BILL TO: ABOVE

COMPANY: Send bill & report to Thermo

ADDRESS: Retech attn: Wanda DeVerges per John Casey.

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	8021 (EDX)	NUMBER OF CONTAINERS
981402-14-18	10-14-99	11:00	H20	-01	X	2
981402-14-17		11:40		-02	X	2
981402-14-22		12:00		-03	X	2
981402-14-48		12:10		-04	X	2
981402-14-21		12:35		-05	X	2
981402-14-20		1:45		-06	X	2
981402-14-19		2:10		-07	X	2
981402-14-10		2:50		-08	X	2
981402-14-16		3:25		-09	X	2
981402-14-14		3:35		-10	X	1

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline) MTBE
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 (608/8081/8082)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310/8270-SIMS)
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.: 9814-02

PROJ. NAME: MAVERIK FORMER REFINERY

P.O. NO.:

SHIPPED VIA: FED EX

SAMPLE RECEIPT

NO. CONTAINERS	21
CUSTODY SEALS	(Y) N / NA
RECEIVED INTACT	X
BLUE ICE/ICE	3.8°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 ☐

TRIP BLANK - 11 (9/28)

RELINQUISHED BY: 1.

Signature: Kenny Turner Time: 4:35 PM

Printed Name: Kenny Turner Date: 10-14-99

Company:

See reverse side (Force Magure)

RECEIVED BY: 1.

Signature: Time:

Printed Name: Date:

Company:

RELINQUISHED BY: 2.

Signature: Time:

Printed Name: Date:

Company:

RECEIVED BY: (LAB) 2.

Signature: Time: 13:35

Printed Name: Date: 10/15/99

Pinnacle Laboratories Inc.

[redacted]98 PI[redacted]nacle [redacted]tories, [redacted]709-D [redacted]erican [redacted]y, NE • [redacted]rque, [redacted]xico 8[redacted]505) 3[redacted] • Fax [redacted]14-44[redacted]ail: PI[redacted]WORL[redacted]TT.NE[redacted]STRIB[redacted] White [redacted] Canary [redacted]ginato