KLEINFELDER

1992 ANNUAL REPORT
INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

February 19, 1993

A Report Prepared For:

Industrial Asphalt
P.O. Box 636
Pleasanton, California

1992 ANNUAL REPORT

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

Kleinfelder Job No. 10-1682-03/39

by

Guy A. Jett
Staff Geologist

David K. Behrens, P.E.
Environmental Engineering Manager

KLEINFELDER, INC.
California Plaza, Suite 570
2121 North California Boulevard
Walnut Creek, CA 94596

February 19, 1993

TABLE OF CONTENTS

1.0 SUMMARY

Quarterly ground water monitoring during 1992 allowed a continuing assessment of ground water conditions beneath the Industrial Asphalt site. Ground water impacted by petroleum hydrocarbons appears to have remained concentrated in the central portion of the investigation area (in the vicinity of monitoring wells MW-1, MW-2, MW-3, and MW-8) with lesser impacts further away from these locations. Ground water impacted by polychlorinated biphenyl compounds (PCBs) is also found in this central area but does not appear to be as widespread as the petroleum hydrocarbons.

Ground water elevations beneath the site have fallen an average of 16.6 feet since November of 1991. The apparent ground water flow direction during 1992 has remained to the northeast and the observed gradient has continued to increase.

Remedial activities at the site in 1992 included the installation of ten ground water extraction wells, conversion of one ground water monitoring well to an extraction well, preparation of construction plans and specifications for a ground water remediation system, and submittal of an application for waste discharge to the Alameda County Department of Environmental Health (ACDEH) and the Regional Water Quality Control Board (RWQCB). Activities planned for 1993 include the installation, startup and operation of the ground water remediation system.

2.0 INTRODUCTION

Thirteen ground water monitoring wells and eleven ground water extraction wells have been installed at the Industrial Asphalt site in Pleasanton, California (Plate 1 and 2). Data collected from the monitoring wells have been used to evaluate the nature and extent of the plume and changes in ground water flow patterns. These data have been provided in previous quarterly reports for 1992 (Section 7; Refs. A, B, C, D); this report summarizes these data for the year 1992.

The locations of the monitoring and extraction wells are shown on Plate 2. With a few exceptions, all wells at the site were monitored on a quarterly basis during 1992 for depth to water and product thickness in accordance with recommendations in Kleinfelder's Remedial Investigation Report (Section 7; Ref. E). In addition to the onsite wells, one offsite water supply well located on the adjacent Jamieson property was sampled via a hose tap. Ground water samples collected during the past year have been analyzed for selected hydrocarbons and PCBs. Previous laboratory analyses for volatile organic compounds for samples collected from selected wells was discontinued during 1992 following completion of a sampling program for these compounds as recommended by the ACDEH. Ground water level and chemistry data collected in 1992 are summarized on Tables 1 through 3.

3.0 WATER LEVEL MONITORING

During each quarterly sampling round, measurements of depth to the ground water surface were made in each monitoring well. To ensure observation of undisturbed ground water conditions in the wells, these measurements were made prior to removal of ground water from any of the wells. In addition, a staff gage installed in the settlement pond immediately north of the site was read for the level of the pond surface in March and November.

Ground water elevations derived from the depth to water data are summarized in Table 1. These data indicate an overall drop in ground water elevation beneath the site during 1992. This overall decline averaged 16.6 feet since November 1991 in wells for which adequate data are available. Since March 1991 ground water elevations have declined an average of 23.3 feet in those same wells. Elevations are now below the total depths of four of the monitoring wells (MW-1, MW-2, MW-3, and MW-5). The greatest declines since March 1991 were observed at the eastern side of the site in monitoring wells MW-5 (over 39 feet), MW-7 (26.88 feet), and MW-15 (25.27 feet). Water levels in the remaining five wells with data for both March 1991 and November 1992 (MW-6, MW-8, MW-10, MW-14, and MW-16) have dropped more than 20 feet. The smallest declines in ground water elevations between March 1991 and November 1992 were observed in monitoring wells MW-8 (21.34 feet) and MW-10 (21.75 feet). These two wells are in the central area of the site. Change in the elevation of the settling pond could not be evaluated as the water surface had dropped to beneath the staff plate.

The apparent ground water flow direction beneath the site has remained towards the northeast during 1992. During the year, the steepness of the ground water gradient beneath the site increased from 0.014 feet per foot to 0.043 feet per foot. It is not known whether this change in gradient is due to withdrawal from the Jamieson well, from changes in settling and dewatering ponds in the area, or from other causes. Ground water surface gradient maps illustrating these changes have been provided in references A, B, C, and D.

4.0 GROUND WATER CHEMISTRY MONITORING

Prior to purging each monitoring well in preparation for collection of samples for laboratory analysis, an initial grab sample was examined for odor, sheen, or a floating product layer. These observations for the past year are summarized on Table 1 along with the ground water elevation data. Water samples from only one monitoring well (MW-8) exhibited a sheen during 1992. The presence of a sheen at other locations previously exhibiting a sheen (MW-1, MW-2, and MW-3; located in the central portion of the well field) could not be evaluated because the water surface was now below the bottom of the well. No sheen or floating product layer has been observed in monitoring wells MW-4, MW-5, MW-6, MW-7, MW-10, MW-13, MW-14, MW-15, and MW-16 during the past year. Note that monitoring wells MW-14 and MW-16, which have not exhibited any sheen during the past year, are located immediately adjacent to wells MW-2 and MW-3, respectively, which had exhibited sheens during each sampling round in 1991. Monitoring wells MW-14 and MW-16 are screened deeper than wells MW-2 and MW-3 (Table 1).

Ground water samples were collected from most of the wells at the site and from one offsite water supply well during each of the four quarters in 1992. Monitoring well MW-6 was sampled in November only because it was not accessible during the other sampling events as a result of plant operations. Monitoring well MW-9 was not sampled at all in 1992 for the same reason.

Ground water samples were analyzed for several hydrocarbon mixtures including total petroleum hydrocarbons as diesel (TPH(d)), total petroleum hydrocarbons as waste oil (TPH(o)), oil and grease (O&G), and total hydrocarbons (TH), as requested by the ACDEH. Samples were also analyzed for PCBs. These data are summarized on Table 2. In addition, samples from selected wells were analyzed for benzene, ethylbenzene, toluene, and total xylenes (BTEX) and or for halogenated volatile organic compounds through the August 1992 sampling round. These data are summarized on Table 3. All samples were submitted to an analytical laboratory certified by the California State Department of Health Services (Cal-DHS) for the methods requested. Please refer to References A through D (Section 7) for further details and for copies of the laboratory analytical reports.

TPH(d), TPH(o), O&G, and TH were the most commonly detected hydrocarbons. They were detected at least once in all monitoring wells sampled, with the exception of MW-5, MW-14, and the Jamieson well 14A2. The highest concentrations of these mixtures [TPH(d) or TPH(o) greater than 100 milligrams per liter (mg/L)] were detected in MW-1. Lower concentrations of these petroleum hydrocarbons (100 mg/L or less) were detected on more than one occasion in monitoring wells MW-2, MW-3, MW-8, and MW-16. These petroleum hydrocarbons were detected at concentrations near the reported detection limits (<1 mg/L), in monitoring wells MW-4, MW-6, MW-7, MW-8, MW-10, MW-13, and MW-15. In summary, the highest concentrations detected were from samples collected from wells located in the central portion of the site, with lesser concentrations outward. At locations where wells are in close proximity to one another (MW-1 and MW-13, MW-2 and MW-14, and MW-3 and MW-16), samples collected from the deeper wells (MW-13, MW-14, and MW-16) were reported to contain concentrations generally one or more orders of magnitude lower than the shallower wells (MW-1, MW-2, and MW-3).

Overall, the detected concentrations of these hydrocarbon mixtures appeared to decline from March 1992 through August 1992. The reported concentrations then appeared to increase in many of the wells by approximately one-half to one order of magnitude between August and November 1992. The cause of this reported increase is unknown but may be related to light rains falling in October and November 1992. Such rainfall, however, was not reflected in the water level data.

PCBs were detected only in samples collected from monitoring well MW-1 during the past year. The concentrations reported were above the primary drinking water standard established by California Department of Health Services (0.5 μg/L). In 1991, PCBs were also reported for samples collected from wells MW-2, MW-3, and MW-8. These wells are located in the central portion of the site.

Aromatic volatile organic compounds detected by EPA Test Method 8020 were only reported in two of the monitoring wells (MW-2 and MW-8). Benzene, ethylbenzene, and xylenes were reported for samples collected from MW-2 during the March 1992 sampling round. Benzene was reported in the sample collected from MW-8 during the May 1992 sampling round and ethylbenzene was reported in the sample collected during the March 1992 sampling round. Only benzene was detected at a concentration greater than the primary drinking water standard

(1 μg/L). No volatile chlorinated hydrocarbons (EPA Test Method 8010 compounds) were reported for samples collected during 1992.

5.0 SITE REMEDIAL INVESTIGATION / REMEDIAL ACTIVITIES

Activities for implementation of the approved remedial activities began on January 13, 1992. In May and June, 1992, ten ground water extraction wells were installed at the Industrial Asphalt site and the former monitoring well MW-13 was converted into an extraction well. Construction plans and specifications for a ground water extraction and treatment system have been approved by ACDEH and the RWQCB. Construction of the system is currently awaiting final approval of an NPDES permit.

6.0 DISCUSSION AND RECOMMENDATIONS

Quarterly ground water monitoring during 1992 has allowed an assessment of temporal changes in ground water flow and in the concentrations of petroleum hydrocarbons and PCBs beneath the Industrial Asphalt site. The highest concentrations of these compounds appear to remain in the vicinity of monitoring wells MW-1, MW-2, and MW-3, with lower concentrations in areas extending away from these wells. The extent and impact of petroleum hydrocarbons and PCBs on soil and ground water beneath the site has been discussed in the Feasibility Study (Section 7, Ref. F).

The only chemical compounds detected at concentrations exceeding the primary drinking water standards in 1992 were PCBs in monitoring well MW-1. Benzene detected in monitoring well MW-2, was equal to the primary drinking water standard. No similar drinking water standards have been established for petroleum hydrocarbon mixtures, which are considered to have the most significant impact at this site. Approved remedial activities for the site should help reduce the impacts of these contaminants on the environment.

Ground water flow directions during the 1992 trended toward the northeast as the observed gradient has increased.

Kleinfelder recommends continued quarterly sampling of the site continuing through 1993. All wells should be sampled for TPH(g), TPH(o), TH, and O & G.

7.0 REFERENCES

A Kleinfelder, 1992. Quarterly Report (February - April 1992), Industrial Asphalt, Pleasanton, California. May 5, 1992.

B Kleinfelder, 1992. Quarterly Report (May - July 1992), Industrial Asphalt, Pleasanton, California. July 31, 1992.

C Kleinfelder, 1992. Quarterly Report (August - October 1992), Industrial Asphalt, Pleasanton, California. October 14, 1992.

D Kleinfelder, 1993. Quarterly Report (November 1992 - January 1993), Industrial Asphalt, Pleasanton, California. January 8. 1993.

E Kleinfelder, 1990. Remedial Investigation Report, Industrial Asphalt, Pleasanton, California. December 28, 1990.

F Kleinfelder, 1991. Feasibility Study for Soil and Ground Water Remediation, Industrial Asphalt, Inc., 52 El Charro Road, Pleasanton, California. August 14, 1991.

8.0 LIMITATIONS

This report was prepared in general accordance with the accepted standard of practice which exists in Northern California at the time the investigation was performed. It should be recognized that definition and evaluation of environmental conditions is a difficult and inexact art. Judgments leading to conclusions and recommendations are generally made with an incomplete knowledge of the conditions present. More extensive studies, including additional environmental investigations, can tend to reduce the inherent uncertainties associated with such studies. If the Client wishes to reduce the uncertainty beyond the level associated with this study, Kleinfelder should be notified for additional consultation.

Our firm has prepared this report for the Client's exclusive use for this particular project and in accordance with generally accepted engineering practices within the area at the time of our investigation. No other representations, expressed or implied, and no warranty or guarantee is included or intended.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both onsite and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

TABLE 1
SUMMARY OF 1992 GROUND WATER ELEVATIONS
INDUSTRIAL ASPHALT

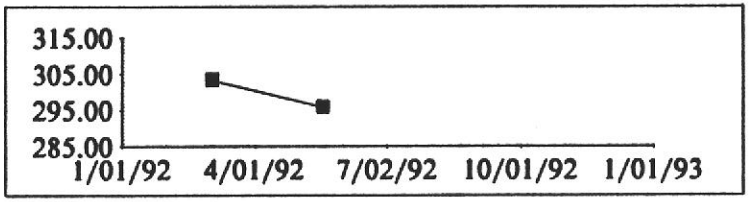
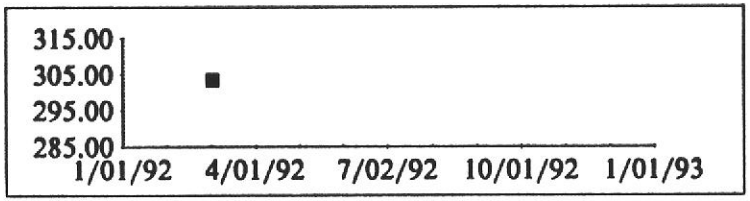
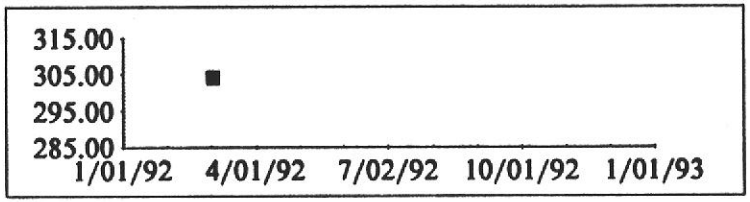
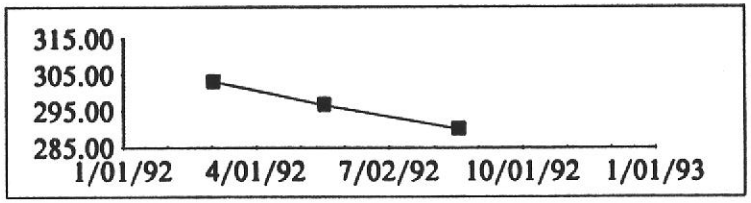
Well Number	Date	Total Well Depth (ft)	Survey Elevation (ft, MSL)	Product Thickness (ft)	Depth to Water (ft)	Elevation (ft, MSL)	Trend
MW-1	3/03/92	88	379.41	SHEEN	76.01	303.40	
	5/19/92			SHEEN	83.54	295.87	
	8/19/92			NA	DRY		
	11/18/92			NA	DRY		
MW-2	3/03/92	90	379.80	SHEEN	76.59	303.21	
	5/19/92			NA	Not Accessable		
	8/19/92			NA	DRY		
	11/18/92			NA	DRY		
MW-3	3/03/92	90	378.54	SHEEN	74.72	303.82	
	5/19/92			NA	DRY		
	8/19/92			NA	DRY		
	11/18/92			NA	DRY		
MW-4	3/03/92	95	376.26	NE	73.20	303.06	
	5/19/92			NE	79.59	296.67	
	8/19/92			NE	86.12	290.14	
	11/18/92			NA	Burried		

TABLE 1
SUMMARY OF 1992 GROUND WATER ELEVATIONS
INDUSTRIAL ASPHALT

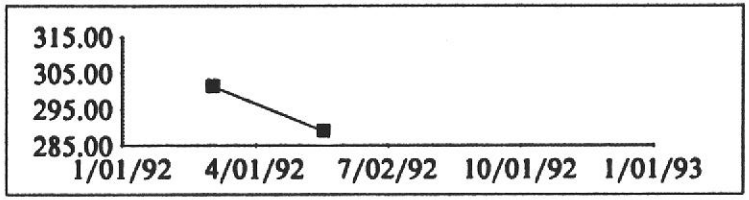
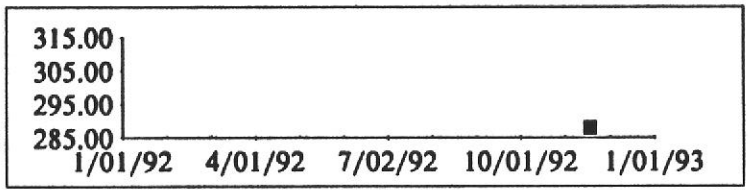
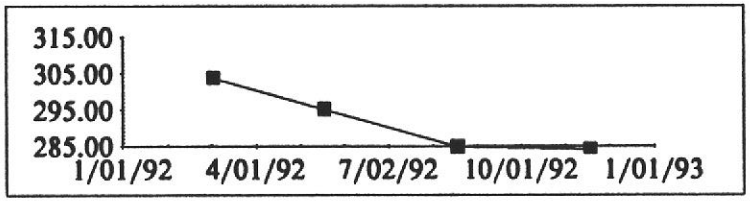
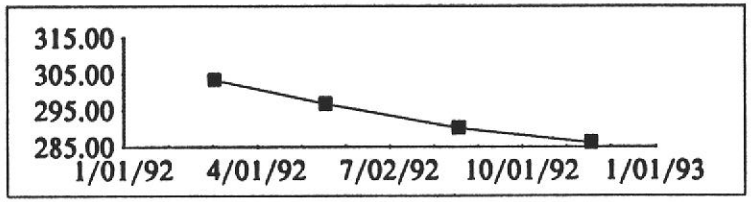
Well Number	Date	Total Well Depth (ft)	Survey Elevation (ft, MSL)	Product Thickness (ft)	Depth to Water (ft)	Elevation (ft, MSL)	Trend
MW-5	3/03/92	110	382.55	NE	81.23	301.32	
	5/19/92			NE	93.51	289.04	
	8/19/92			NA	DRY		
	11/18/92			NA	DRY		
MW-6	3/03/92	109	379.15	NA	Burried		
	5/19/92			NA	Burried		
	8/19/92			NA	Burried		
	11/18/92			NE	91.40	287.75	
MW-7	3/03/92	109	378.94	NE	75.29	303.65	
	5/19/92			NE	83.85	295.09	
	8/19/92			NE	94.21	284.73	
	11/18/92			NE	94.96	283.98	
MW-8	3/03/92	109	378.56	SHEEN	75.20	303.36	
	5/19/92			SHEEN	81.76	296.80	
	8/19/92			NE	88.57	289.99	
	11/18/92			NE	92.56	286.00	

TABLE 1
SUMMARY OF 1992 GROUND WATER ELEVATIONS
INDUSTRIAL ASPHALT

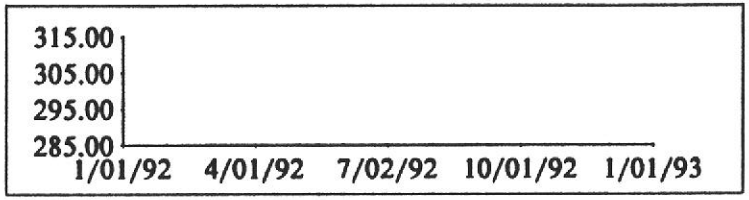
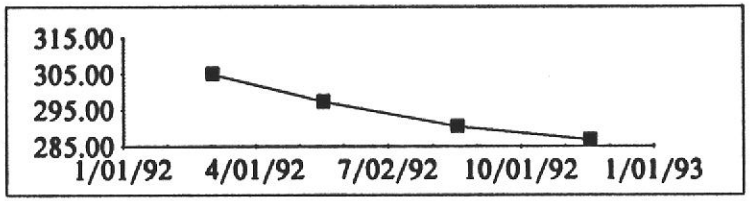
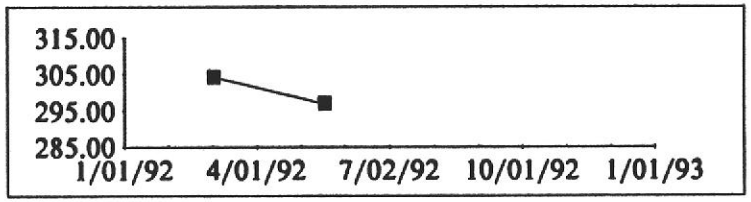
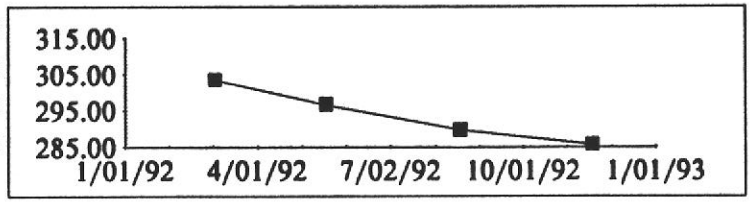
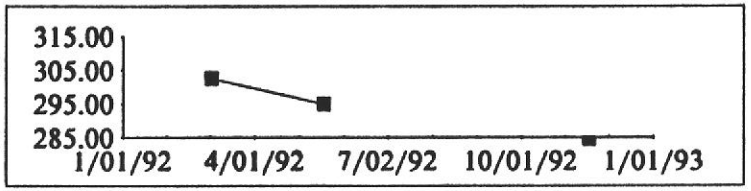
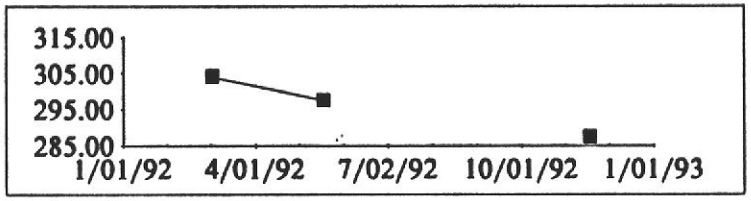
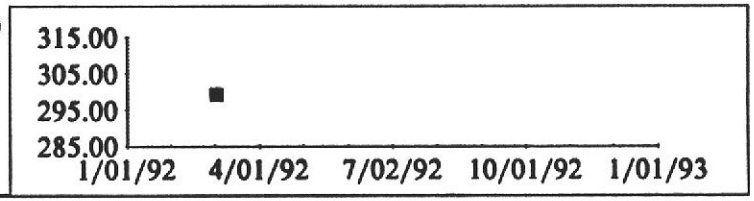
Well Number	Date	Total Well Depth (ft)	Survey Elevation (ft, MSL)	Product Thickness (ft)	Depth to Water (ft)	Elevation (ft, MSL)	Trend
MW-9	3/03/92	108	377.40	NA	Flooded		
	5/19/92			NA	Burried		
	8/19/92			NA	Burried		
	11/18/92			NA	Burried		
MW-10	3/03/92	111	378.04	NE	73.10	304.94	
	5/19/92			NE	80.76	297.28	
	8/19/92			NE	87.54	290.50	
	11/18/92			NE	91.30	286.74	
MW-13 Extraction Well	3/03/92	116	380.21	NE	76.03	304.18	
	5/19/92			NE	83.37	296.84	
	8/19/92	Converted to Well EX-11			Not Measured		
MW-14	3/03/92	114.5	380.09	NE	76.63	303.46	
	5/19/92			NE	83.46	296.63	
	8/19/92			NE	90.39	289.70	
	11/18/92			NE	94.36	285.73	

TABLE 1
SUMMARY OF 1992 GROUND WATER ELEVATIONS
INDUSTRIAL ASPHALT

Well Number	Date	Total Well Depth (ft)	Survey Elevation (ft, MSL)	Product Thickness (ft)	Depth to Water (ft)	Elevation (ft, MSL)	Trend
MW-15	3/03/92	117	378.12	NE	75.54	302.58	
	5/19/92			NE	83.22	294.90	
	8/19/92			NA	Burried		
	11/18/92			NE	94.92	283.20	
MW-16	3/03/92	110	379.65	NE	75.61	304.04	
	5/19/92			NE	82.14	297.51	
	8/19/92				Not Measured		
	11/18/92			NE	92.26	287.39	
STAFF GAGE	3/03/92	NA	300.00	NE	-1	299.00	
	5/19/92			NA	Not Measured		
	8/19/92			NA	Not Measured		
	11/18/92			NA	Below Staff Gage		

NOTES:

Survey elevations refer to Top of Casing, Mean Sea Level (USGS Datum)
Depth to Water in feet below Top of Casing
NA Not Applicable
NE Not Encountered

TABLE 2
MONITORING PARAMETERS
INDUSTRIAL ASPHALT

Well Number	Sample Date	TPH as Diesel[1] (mg/L)	TPH as Oil[1] (mg/L)	Oil & Grease[2] (mg/L)	Total Hydro-carbons[3] (mg/L)	PCBs[4] (µg/L)
MW-1	Mar. 1992	11	4.9	27	20	0.7
	May 1992	130	57	340	310	2
	Aug. 1992	DRY	DRY	DRY	DRY	DRY
	Nov. 1992	DRY	DRY	DRY	DRY	DRY
MW-2	Mar. 1992	4.1	1.5	10	8	ND
	May 1992	NT	NT	NT	NT	NT
	Aug. 1992	DRY	DRY	DRY	DRY	DRY
	Nov. 1992	DRY	DRY	DRY	DRY	DRY
MW-3	Mar. 1992	4.2	2.4	31	27	ND
	May 1992	NT	NT	NT	NT	NT
	Aug. 1992	DRY	DRY	DRY	DRY	DRY
	Nov. 1992	DRY	DRY	DRY	DRY	DRY
MW-4	Mar. 1992	ND	ND	3	1	ND
	May 1992	ND	0.8	1	0.7	ND
	Aug. 1992	ND	ND	ND	ND	ND
	Nov. 1992	NA	NA	NA	NA	NA
MW-5	Mar. 1992	ND	ND	ND	ND	ND
	May 1992	ND	ND	ND	ND	ND
	Aug. 1992	DRY	DRY	DRY	DRY	DRY
	Nov. 1992	DRY	DRY	DRY	DRY	DRY
MW-6	Mar. 1992	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT
	Nov. 1992	0.1	0.3	1	0.7	ND
MW-7	Mar. 1992	ND	ND	ND	ND	ND
	May 1992	0.2	0.3	0.8	0.5	ND
	Aug. 1992	ND	ND	ND	ND	ND
	Nov. 1992	ND	ND	ND	ND	ND
MW-8[8]	Mar. 1992	0.5	0.1	0.6	ND	ND
	May 1992	0.3	ND	ND	ND	ND
	Aug. 1992	0.1(0.1)	ND(ND)	ND(ND)	ND(ND)	ND(ND)
	Nov. 1992	0.4(0.2)	0.7(0.4)	1(0.5)	0.7(ND)	ND(ND)
MW-9	Mar. 1992	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT
	Nov. 1992	NT	NT	NT	NT	NT
Laboratory Detection Limit[5]		0.05	0.1	0.5	0.5	0.5
Drinking Water Standard[6]		--	--	--	--	0.5

TABLE 2
(continued)
MONITORING PARAMETERS
INDUSTRIAL ASPHALT

Well Number	Sample Date	TPH as Diesel[1] (mg/L)	TPH as Oil[1] (mg/L)	Oil & Grease[2] (mg/L)	Total Hydro-carbons[3] (mg/L)	PCBs[4] (µg/L)
MW-10	Mar. 1992	ND	ND	ND	ND	ND
	May 1992	0.4	0.4	3	0.8	ND
	Aug. 1992	ND	ND	ND	ND	ND
	Nov. 1992	ND	ND	ND	ND	ND
MW-13[7,8]	Mar. 1992	0.58(0.61)	ND(0.1)	ND(ND)	ND(ND)	ND(ND)
	May 1992	0.6	ND	0.5	ND	ND
	Aug. 1992	NT	Converted to Extraction Well			
	Nov. 1992	NT	Converted to Extraction Well			
MW-14[8]	Mar. 1992	ND	ND	ND	ND	ND
	May 1992	ND(ND)	ND(ND)	ND(ND)	ND(ND)	ND(ND)
	Aug. 1992	ND	ND	ND	ND	ND
	Nov. 1992	ND(ND)	ND(ND)	ND(ND)	ND(ND)	ND(ND)
MW-15[8]	Mar. 1992	0.3	ND	0.5	ND	ND
	May 1992	ND(ND)	ND(ND)	ND(ND)	ND(ND)	ND(ND)
	Aug. 1992	NT	NT	NT	NT	NT
	Nov. 1992	ND	ND	ND	ND	ND
MW-16[8]	Mar. 1992	1.4(1.5)	ND(ND)	1(2)	ND(ND)	ND(ND)
	May 1992	0.4	0.2	0.9	ND	ND
	Aug. 1992	NT	NT	NT	NT	NT
	Nov. 1992	ND	ND	ND	ND	ND
14A2[9]	Mar. 1992	ND	ND	ND	ND	ND
	May 1992	ND	ND	ND	ND	ND
	Aug. 1992	ND	ND	ND	ND	ND
	Nov. 1992	ND	ND	ND	ND	ND
Laboratory Detection Limit[5]		0.05	0.1	0.5	0.5	0.5
Drinking Water Standard[6]		--	--	--	--	0.5

TABLE 2
(continued)
MONITORING PARAMETERS
INDUSTRIAL ASPHALT

NOTES:

(1) Sample analysis via SM 3510 GCFID.

(2) Sample analysis via SM 5520C.

(3) Sample analysis via SM 5520F.

(4) Polychlorinated Biphenyl compounds. Sample analysis via EPA Test Method 8080.

(5) Routine Laboratory detection limits. Some limits may vary. Please refer to attached laboratory reports for specific detection limits.

(6) California Department of Health Services Drinking Water Standards, Primary Maximum Contaminant Levels (MCL); secondary MCLs listed in parentheses. Source: Water Quality Goals, California Regional Water Quality Control Board, February 1991.

(7) Extraction Well.

(8) Duplicate analyses in parentheses.

(9) Jamieson Well sampled via a tap.

TPH Total Petroleum Hydrocarbons.

ND Not Detected at or above laboratory reporting limits

NT Not Tested

TABLE 3
VOLATILE ORGANIC COMPOUNDS[1]
INDUSTRIAL ASPHALT

Well Number	Sample Date	Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1-DCA[2] (µg/L)	1,2-DCE[3] (µg/L)	TCFM[4] (µg/L)	Vinyl Chloride (µg/L)	Other 8010 Compounds (µg/L)
MW-1	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-2	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	1	4	ND	2	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-3	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	ND	ND	ND	ND	ND	ND	ND	ND	ND
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-4	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-5	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
Laboratory Detection Limit		0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	
Drinking Water Standard[6]		1	680	1,000(40)	1,750(20)	5	6	150	0.5	--

Please see notes on last page of Table

TABLE 3
(Continued)
VOLATILE ORGANIC COMPOUNDS[1]
INDUSTRIAL ASPHALT

Well Number	Sample Date	Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1-DCA[2] (µg/L)	1,2-DCE[3] (µg/L)	TCFM[4] (µg/L)	Vinyl Chloride (µg/L)	Other 8010 Compounds (µg/L)
MW-6	Nov. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-7	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-8	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	ND	0.8	ND	ND	NT	NT	NT	NT	NT
	May 1992	0.3	ND	ND	ND	NT	NT	NT	NT	NT
	Aug. 1992	ND(ND)	ND(ND)	ND(ND)	ND(ND)	NT	NT	NT	NT	NT
MW-9	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-10	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
Laboratory Detection Limit		0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	
Drinking Water Standard[6]	1	680	1,000(40)	1,750(20)	5	6	150	0.5	--	

Please see notes on last page of Table

TABLE 3
(Continued)
VOLATILE ORGANIC COMPOUNDS[1]
INDUSTRIAL ASPHALT

Well Number	Sample Date	Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1-DCA[2] (µg/L)	1,2-DCE[3] (µg/L)	TCFM[4] (µg/L)	Vinyl Chloride (µg/L)	Other 8010 Compounds (µg/L)
MW-13	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-14	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-15	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-16	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
14A2[5]	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mar. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	May 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Aug. 1992	NT	NT	NT	NT	NT	NT	NT	NT	NT
Laboratory Detection Limit		0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	
Drinking Water Standard[6]		1	680	1,000(40)	1,750(20)	5	6	150	0.5	--

Please see notes on last page of Table

TABLE 3
NOTES
VOLATILE ORGANIC COMPOUNDS
INDUSTRIAL ASPHALT

NOTES:

(1) Sample analysis for benzene, ethylbenzene, toluene, and total xylenes via EPA Test Method 8020 (volatile aromatic compounds). Sample analysis for other compounds via EPA Test Method 8010 (halogenated volatile organic compounds). Compounds not listed were not detected at concentrations above the laboratory detection limit.

(2) 1,1-Dichloroethane

(3) 1,2-Dichloroethene, total

(4) Trichlorofluoromethane

(5) Jamieson water supply well sampled via a tap.

(6) California Department of Health Services Drinking Water Standards, Primary Maximum Contaminant Levels (MCL); secondary MCLs listed in parentheses. Source: Water Quality Goals, California Regional Water Quality Control Board, February 1991.

ND Not Detected at or above laboratory detection limits (Only those compounds which were detected in one or more samples are tabulated).

NT Not Tested

