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**ANNUAL REPORT (1991)  
INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA**

February 13, 1992

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A Report Prepared for:


Industrial Asphalt  
P.O. Box 636  
Pleasanton, California

**ANNUAL REPORT (1991)  
PLEASANTON, CALIFORNIA**

File No. 10-1682-03/31

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February 13, 1992



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## 1. SUMMARY

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Quarterly ground water monitoring during 1991 allowed an assessment of ground water conditions beneath the Industrial Asphalt site for what should be the last full year prior to initiation of remedial activities. Ground water impact by petroleum hydrocarbons appears to be concentrated in the central portion of the area investigated (vicinity of monitoring wells MW-1, MW-2, MW-3, and MW-8) with lesser impacts further away from these locations. Ground water impact 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 flow directions during 1991 have apparently shifted from the north to the northeast as the observed gradient has increased.

Remedial activities at the site in 1991 were limited to removal of approximately 1,000 cubic yards of soil from the area adjacent to the 30,000 gallon asphalt storage tank. A feasibility study for future remedial actions has, however, been approved by regulatory agencies. This plan is to be implemented beginning in the current year (1992).



## 2. INTRODUCTION

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Thirteen monitoring wells and one extraction well (MW-13) have been installed at the Industrial Asphalt site in Pleasanton, California (Plate 1). Data collected from these wells have been used to evaluate the nature and extent of the plume and changes in ground water flow patterns. These data have been summarized in previous quarterly reports for 1991 (Refs. A, B, C, D). This report summarizes this data for the year 1991.

The locations of the monitoring and extraction wells are shown on Plate 2. All wells, except MW-6, were monitored on a quarterly basis during 1991 for depth to water and product thickness in accordance with recommendations in Kleinfelder's Remedial Investigation Report (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 polychlorinated biphenyl compounds (PCBs). These samples were also analyzed for selected volatile organic compounds during the April, July, and October 1991 quarters at the request of the Alameda County Department of Environmental Health. These data are summarized on Tables 1 through 3 attached to this report.



### 3. WATER LEVEL MONITORING

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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.

Ground water elevations derived from the depth to water data are summarized on Table 1. These data indicate an overall drop in ground water elevation beneath the site during 1991. This overall decline averaged nearly eight feet (7.95 feet). The greatest declines were observed at the eastern side of the site in monitoring wells MW-5 (22.15 feet), MW-9 (13.18 feet), MW-7 (10.25 feet), and MW-15 (8.47 feet). The smallest declines in ground water elevations were observed in monitoring wells MW-3 (3.28 feet), MW-8 (4.61 feet), and MW-10 (5.26 feet). These three wells are in the central area of the site. The settling pond had the least amount of observed change, varying in elevation over a range of 3.0 feet.

As a result of the greater lowering of the ground water surface on the eastern side of the site, ground water flow beneath the site changed in direction from the north, generally in the direction of the settlement pond, in January of 1991, to the northeast by July of 1991, toward the Jamieson well 14A2. From July 1991 to November 1991, the steepness of the ground water gradient to the northeast increased from 0.013 feet per foot to 0.030 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 presented in references A, B, C, and D.



#### 4. GROUND WATER CHEMISTRY MONITORING

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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 also summarized on Table 1. Water samples from five of the monitoring wells exhibited a sheen on more than one occasion: MW-1, MW-2, MW-3, MW-8, and MW-13. These wells are located in the central portion of the well field. A sheen has been observed in monitoring wells MW-9 and MW-16 once only during the past year, during the January sampling round. This was after a rise in water levels beneath the site from the previous round in 1990 (Ref. A). No sheen has been observed in monitoring wells MW-4, MW-5, MW-6, MW-7, MW-10, MW-14 and MW-15 during the past year. Neither were any floating product layers observed during 1991. Please note that monitoring well MW-14, which has not exhibited any sheen during the past year, is located immediately adjacent to MW-2, which exhibited a sheen during each sampling round. Similarly, MW-16, for which a sheen was reported only during the January 1991 sampling event is located near MW-3, for which a sheen was reported during each sampling round. Both monitoring wells MW-14 and MW-16 are screened deeper than 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 1991. Monitoring well MW-6 was not sampled in January only during the past year because it was not accessible during the other sampling events as a result of plant operations. Monitoring well MW-9 was not sampled in April 1991 for the same reason. As requested by the Alameda County Department of Environmental Health, collected 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). Samples were also analyzed for polychlorinated biphenyl compounds (PCBs), for benzene, ethylbenzene, toluene, and total xylenes (BTEX) and for halogenated volatile organic compounds. These data are summarized on Tables 2 and 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 for further details and for copies of the laboratory analytical reports.



Total petroleum hydrocarbons as diesel, TPH(o), O&G, and TH were the most commonly detected hydrocarbons. They were detected at least once in all monitoring wells tested, with the exception of MW-6 (tested once only) 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, MW-2, MW-3. Lower concentrations of these petroleum hydrocarbons (1 to 100 mg/l) were detected on more than one occasion in monitoring wells MW-4, MW-8, and MW-15. The presence of these petroleum hydrocarbons were detected at concentrations near the reported detection limits (< 1 mg/l), or no more than once in 1991 at higher concentrations, in monitoring wells MW-5, MW-7, MW-9, MW-10, MW-13, MW-14, MW-15, and MW-16. Thus, 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 closely adjacent 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 two 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 the first sampling round of 1991 through July 1991. The reported concentrations then appeared to increase in many of the wells by approximately one-half to one order of magnitude between July and November 1991. The cause of this reported increase is unknown but may be related to light rains falling in October and November 1991. Such rainfall, however, was not reflected in the water level data.

Polychlorinated biphenyl compounds (PCBs) were detected only in samples collected from monitoring wells MW-1, MW-2, MW-3, and MW-8 during the past year. These wells are located in the central portion of the site. In each case, the detected concentration was above the primary drinking water standard established by Cal-DHS (0.5 µg/l).

Volatile organic compounds detected by EPA Test Methods 8010 and 8020 have only been detected in three of the monitoring wells (MW-2, MW-3, and MW-8). The detected compounds may be summarized as follows:

- Benzene was detected in the samples collected from MW-2 in April and July 1991 and from MW-3 in April 1991 at concentrations below 1.0 µg/l;





- Ethylbenzene was detected in the samples from MW-3 in April 1991 at a concentration of 6  $\mu\text{g/l}$  and MW-8 in April 1991 and July 1991 at concentrations of 3 and 1  $\mu\text{g/l}$  respectively.
- Total xylenes were detected in the sample from MW-3 in April, 1991 at a concentration of 3  $\mu\text{g/l}$ ;
- 1,1-Dichloroethane (1,1-DCA) was detected in samples from MW-3 in April, 1991 and July, 1991 at a concentration of 2  $\mu\text{g/l}$ ;
- 1,2-Dichloroethene (1,2-DCE) was detected in the sample from MW-8 in April, 1991 at a concentration of 1  $\mu\text{g/l}$ ;
- Vinyl chloride was detected in the samples collected from MW-3 in April, 1991 and July, 1991 at a concentration of 8  $\mu\text{g/l}$ .
- Trichlorofluoromethane (TCFM or Freon) was detected in the sample from MW-3 in April, 1991 at a concentration of 1  $\mu\text{g/l}$ ;

None of these compounds were detected during the January 1991 or November 1991 sampling rounds, despite the detection during these two rounds of the highest concentrations of the petroleum hydrocarbons reported in 1991.

With the exception of vinyl chloride, the concentrations reported were below the primary drinking water standards for each compound. The reported concentration for vinyl chloride (8  $\mu\text{g/l}$  during both April, 1991 and July, 1991) was greater than the primary drinking water standard for that compound of (0.5  $\mu\text{g/l}$ ). Vinyl chloride is a breakdown product of 1,1-DCA and 1,2-DCE, therefore its presence may not imply primary contamination by this compound.



## 5. SITE REMEDIAL INVESTIGATION / REMEDIAL ACTIVITIES

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In February 1991, approximately 1,000 cubic yards of soil were excavated from the area adjacent to the 30,000 gallon asphalt tank in the central part of the site. The excavation was backfilled with clean fill and finished at the surface with asphaltic concrete. The excavated soil was recycled onsite as feedstock for the asphalt batch plant (Ref. F). Two closure samples, collected from depths of 19 and 20 feet at either end of the excavation, did not contain detectable concentrations of TPH(d), TPH(o), or PCBs (Ref. A).

A feasibility study for the remediation of impacted soil and ground water beneath this site, dated August 14, 1991 (Ref. F), has been submitted to the California Regional Water Quality Control Board (RWQCB) and the Alameda County Department of Health Services (ACDHS). This study recommended a ground water extraction and treatment system to control the further spread of petroleum hydrocarbons and PCBs. Ground water would be treated by filtration through granular activated carbon (GAC) prior to discharge to the settlement pond under and NPDES discharge permit. Spent GAC would be recycled onsite as feedstock for the asphalt batch plant. The study further recommended no action with respect to soil remediation. Kleinfelder understands that this feasibility study has been given verbal approval. Activities for implementation of the recommended and approved remedial activities began on January 13, 1992.

In a letter to Mr. Robi Arulanantham of the Regional Water Quality Control Board (RWQCB) dated December 26, 1991, Kleinfelder requested that the analyses for volatile hydrocarbon, compounds (EPA methods 8010 and 8020) be discontinued. Following their review, the RWQCB allowed these analyses to be excluded from future sampling rounds with the exceptions listed below (Telephone conversation with R. Arulanantham, January 15, 1992).

Well	8010	8020
MW-2	--	X
MW-3	X	1 more round
MW-8	--	X

X      Continued quarterly sampling required  
 --     Continued quarterly sampling no longer required



## 6. DISCUSSION

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Quarterly ground water monitoring during 1991 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 be 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 (Ref. F).

Two chemical compounds were present in 1991 at concentrations exceeding the primary drinking water standards - PCBs in monitoring wells MW-1, MW-2, MW-3, and MW-8, and vinyl chloride in monitoring well MW-8. No similar drinking water standards have been established for petroleum hydrocarbon mixtures, which are considered to have the most significant impact at this site. Proposed and approved remedial activities should reduce these impacts on the environment.

Ground water flow directions during the 1991 have shifted from the direction of the settling pond (north) to the northeast as the observed gradient has increased.

Kleinfelder recommends quarterly sampling of the site continue through 1992. All wells should be sampled for TPH(g), TPH(o), TH and O & G. Samples for EPA method 8010 should continue to be collected from MW-3 only. Samples EPA Method 8020 should continue for MW-2 and MW-8 throughout 1992, and MW-3 for the February 1992 round only.



## 7. REFERENCES

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- A Kleinfelder, 1991. Quarterly Report (November 1990 - January 1991), Industrial Asphalt, Pleasanton, California. March 5, 1991.
- B Kleinfelder, 1991. Quarterly Report (February 1991 - April 1991), Industrial Asphalt, Pleasanton, California. May 29, 1991.
- C Kleinfelder, 1991. Quarterly Report (May 1991 - July 1991), Industrial Asphalt, Pleasanton, California. August 9, 1991.
- D Kleinfelder, 1990. Quarterly Report (August 1991 - October 1991), Industrial Asphalt, Pleasanton, California. December 10, 1991.
- 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. LIMITATIONS

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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. Judgements 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.

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TABLE I  
SUMMARY OF 1991 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	1/29/91	88	379.41	SHEEN	71.76	307.65	
	4/17/91			SHEEN	73.69	305.72	
	7/09/91			SHEEN	76.84	302.57	
	11/13/91			SHEEN	77.95	301.46	
MW-2	1/29/91	90	379.80	SHEEN	73.41	306.39	
	4/17/91			SHEEN	72.00	307.80	
	7/09/91			SHEEN	76.61	303.19	
	11/13/91			SHEEN	77.53	302.27	
MW-3	1/29/91	90	378.54	SHEEN	71.55	306.99	
	4/17/91			SHEEN	72.34	306.20	
	7/09/91			NE	74.14	304.40	
	11/13/91			SHEEN	74.83	303.71	
MW-4	1/29/91	95	376.26	NE	67.03	309.23	
	4/17/91			NE	70.71	305.55	
	7/09/91			NE	72.69	303.57	
	11/13/91			NE	73.67	302.59	

TABLE I  
SUMMARY OF 1991 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	1/29/91	110	382.55	NE	70.94	311.61	
	4/17/91			NE	78.57	303.98	
	7/09/91			NE	85.21	297.34	
	11/13/91			NE	93.09	289.46	
MW-6	1/29/91	109	379.15	NE	67.75	311.40	
	4/17/91			NA	NM		
	7/09/91			NA	NM		
	11/13/91			NA	NM		
MW-7	1/29/91	109	378.94	NE	68.08	310.86	
	4/17/91			NE	73.07	305.87	
	7/09/91			NE	76.42	302.52	
	11/13/91			NE	78.33	300.61	
MW-8	1/29/91	109	378.56	SHEEN	71.22	307.34	
	4/17/91			NE	72.82	305.74	
	7/09/91			SHEEN	74.64	303.92	
	11/13/91			SHEEN	75.83	302.73	





TABLE 1  
SUMMARY OF 1991 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	1/29/91	108	377.40	SHEEN	70.45	306.95	
	4/17/91			NA	NM		
	7/09/91			NE	77.20	300.20	
	11/13/91			NE	83.63	293.77	
MW-10	1/29/91	111	378.04	NE	69.55	308.49	
	4/17/91			NE	72.02	306.02	
	7/09/91			NE	73.72	304.32	
	11/13/91			NE	74.81	303.23	
MW-13 Extraction Well	1/29/91	116	380.21	NE	72.00	308.21	
	4/17/91			SHEEN	73.62	306.59	
	7/09/91			NE	76.66	303.55	
	11/13/91			SHEEN	77.80	302.41	
MW-14	1/29/91	114.5	380.09	NE	71.75	308.34	
	4/17/91			NE	74.27	305.82	
	7/09/91			NE	76.43	303.66	
	11/13/91			NE	77.75	302.34	





**TABLE 1**  
**SUMMARY OF 1991 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	1/29/91	117	378.12	NE	69.65	308.47	
	4/17/91			NE	73.03	305.09	
	7/09/91			NE	76.13	301.99	
	11/13/91			NE	78.12	300.00	
MW-16	1/29/91	110	379.65	SHEEN	70.20	309.45	
	4/17/91			NE	73.27	306.38	
	7/09/91			NE	75.08	304.57	
	11/13/91			NE	76.13	303.52	
STAFF GAGE	1/29/91	NA	300.00	NA	1	301.00	
	4/17/91			NA	1.5	301.50	
	7/09/91			NA	-1.5	298.50	
	11/13/91			NA	0	300.00	

**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

NM Not Measured



TABLE 2  
MONITORING PARAMETERS  
INDUSTRIAL ASPHALT

Well Number	Sample Date	TPH as Diesel <sup>(1)</sup> (mg/L)	TPH as Waste Oil <sup>(1)</sup> (mg/L)	Oil & Grease <sup>(2)</sup> (mg/L)	Total Hydrocarbons <sup>(3)</sup> (mg/L)	PCBs <sup>(4)</sup> (µg/L)
MW-1	Feb. 1991	110	63	NT	NT	9.6
	April 1991	40	27	91	74	ND
	July 1991	29	8	60	55	ND
	Nov. 1991	9.5	4.9	22	19	ND
MW-2	Feb. 1991	200	140	NT	NT	5.8
	April 1991	44	35	150	130	5.1
	July 1991	32	14	73	64	0.8
	Nov. 1991	110	57	110	96	1
MW-3	Feb. 1991	440	320	NT	NT	7.3
	April 1991	19	14	34	30	0.8
	July 1991	0.7	ND	ND	ND	ND
	Nov. 1991	210	120	360	330	7.4
MW-4	Feb. 1991	ND	0.5	NT	NT	ND
	April 1991	0.7	9.7	11	6	ND
	July 1991	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	2	0.9	ND
MW-5	Feb. 1991	ND	ND	NT	NT	ND
	April 1991	ND	ND	ND	ND	ND
	July 1991	ND	0.8	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND
Laboratory Detection Limit <sup>(5)</sup>		0.05	0.1	0.5	0.5	0.5
Drinking Water Standard <sup>(6)</sup>		--	--	--	--	0.5

Please see notes on last page of Table 2  
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TABLE 2  
(Continued)  
MONITORING PARAMETERS  
INDUSTRIAL ASPHALT

Well Number	Sample Date	TPH as Diesel <sup>(1)</sup> (mg/L)	TPH as Waste Oil <sup>(1)</sup> (mg/L)	Oil & Grease <sup>(2)</sup> (mg/L)	Total Hydrocarbons <sup>(3)</sup> (mg/L)	PCBs <sup>(4)</sup> (µg/L)
MW-6	Feb. 1991	ND	ND	NT	NT	ND
	April 1991	NT	NT	NT	NT	NT
	July 1991	NT	NT	NT	NT	NT
	Nov. 1991	NT	NT	NT	NT	NT
MW-7	Feb. 1991	ND	ND	NT	NT	ND
	April 1991	0.5	ND	1	ND	ND
	July 1991	0.09	0.1	ND	ND	ND
	Nov. 1991	0.07	ND	ND	ND	ND
MW-8	Feb. 1991	12	12	NT	NT	1.2
	April 1991	4.1	4.8	15	11	0.8
	July 1991	0.3	ND	ND	ND	ND
	Nov. 1991	4.1	4.8	15	11	0.8
MW-9	Feb. 1991	ND	2.4	NT	NT	ND
	April 1991	NT	NT	NT	NT	NT
	July 1991	0.4	ND	ND	ND	ND
	Nov. 1991	0.1	ND	ND	ND	ND
MW-10	Feb. 1991	0.1	0.3	NT	NT	ND
	April 1991	3	ND	4	1	ND
	July 1991	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND
Laboratory Detection Limit <sup>(5)</sup>		0.05	0.1	0.5	0.5	0.5
Drinking Water Standard <sup>(6)</sup>		--	--	--	--	0.5

Please see notes on last page of Table 2  
(165)10-1682-03/31(R92021)

TABLE 2  
(Continued)  
MONITORING PARAMETERS  
INDUSTRIAL ASPHALT

Well Number	Sample Date	TPH as Diesel <sup>(1)</sup> (mg/L)	TPH as Waste Oil <sup>(1)</sup> (mg/L)	Oil & Grease <sup>(2)</sup> (mg/L)	Total Hydrocarbons <sup>(3)</sup> (mg/L)	PCBs <sup>(4)</sup> (µg/L)
MW-13 <sup>(7,8)</sup>	Feb. 1991	0.5	0.2	NT	NT	ND
	April 1991	0.7	ND	ND	ND	ND
	July 1991	0.8	0.3	0.9	0.6	ND
	Nov. 1991	0.6(0.6)	ND(ND)	0.9(0.9)	0.8(0.9)	ND(ND)
MW-14	Feb. 1991	0.3	.05	NT	NT	ND
	April 1991	ND	ND	ND	ND	ND
	July 1991	ND	0.3	0.6	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND
MW-15	Feb. 1991	0.5	0.6	NT	NT	ND
	April 1991	0.5	ND	2	1	ND
	July 1991	1.0	1.5	0.7	ND	ND
	Nov. 1991	0.07	ND	2	ND	ND
MW-16	Feb. 1991	0.3	0.4	NT	NT	ND
	April 1991	ND	0.5	0.9	ND	ND
	July 1991	ND	0.5	ND	ND	ND
	Nov. 1991	0.08	ND	ND	ND	ND
14A2 <sup>(9)</sup>	Feb. 1991	ND	ND	NT	NT	ND
	April 1991	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND
Laboratory Detection Limit <sup>(5)</sup>		0.05	0.1	0.5	0.5	0.5
Drinking Water Standard <sup>(6)</sup>		--	--	--	--	0.5

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TABLE 2  
(Continued)  
MONITORING PARAMETERS  
INDUSTRIAL ASPHALT

NOTES:

- (1) Sample analysis via SM 3520 GCFID.
- (2) Sample analysis via SM 5520C.
- (3) Sample analysis via SM 5520F.
- (4) Sample analysis via EPA Test Method 8080.
- (5) Routine Laboratory detection limits. Some limits may vary. Please refer to Refs A, B, C, D 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.

TPH Total Petroleum Hydrocarbons.  
PCBs Polychlorinated biphenyl compounds.  
ND Not Detected at or above laboratory reporting limits  
NT Not Tested



VOLATILE ORGANIC COMPOUNDS<sup>(1)</sup>  
INDUSTRIAL ASPHALT

Well Number	Sample Date	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1-DCA <sup>(2)</sup> (µg/L)	1,2-DCE <sup>(3)</sup> (µg/L)	TCFM <sup>(4)</sup> (µg/L)	Vinyl Chloride (µg/L)	Other 8010 Compounds (µg/L)
MW-1	Feb. 1991	ND	ND	ND	ND	NT	NT	NT	NT	NT
	April 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	0.7	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	0.8	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	0.9	6	ND	3	2	ND	1	8	ND
	July 1991	ND	ND	ND	ND	2	ND	ND	8	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND

Laboratory Detection Limit	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5
Drinking Water Standard <sup>(6)</sup>	1	680	1,000(40)	1,750(20)	5	6	150	0.5	--	--

Please see notes on last page of Table  
(165)10-1682-03/31(R92021)

TABLE 3(Continued)  
VOLATILE ORGANIC COMPOUNDS<sup>(1)</sup>  
INDUSTRIAL ASPHALT

Well Number	Sample Date	Benzene (µg/L)	Ethyl- benzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1- DCA <sup>(2)</sup> (µg/L)	1,2- DCE <sup>(3)</sup> (µg/L)	TCFM <sup>(4)</sup> (µg/L)	Vinyl Chloride (µg/L)	Other 8010 Compounds (µg/L)
MW-6	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	July 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Nov. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-7	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	ND	3	ND	ND	ND	1	ND	ND	ND
	July 1991	ND	1	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-9	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
Laboratory Detection Limit		0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5
Drinking Water Standard <sup>(6)</sup>		1	680	1,000(40)	1,750(20)	5	6	150	0.5	--

Please see notes on last page of Table  
(165)10-1682-03/31(R92021)

TABLE 3(Continued)  
VOLATILE ORGANIC COMPOUNDS<sup>(1)</sup>  
INDUSTRIAL ASPHALT

Well Number	Sample Date	Benzene (µg/L)	Ethyl- benzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1- DCA <sup>(2)</sup> (µg/L)	1,2- DCE <sup>(3)</sup> (µg/L)	TCFM <sup>(4)</sup> (µg/L)	Vinyl Chloride (µg/L)	Other 8010 Compounds (µg/L)
MW-13	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-14	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	ND	0.7	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-15	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-16	Feb. 1991	NT	NT	NT	NT	NT	NT	NT	NT	NT
	April 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
14A2 <sup>(5)</sup>	Feb. 1991	ND	ND	ND	ND	NT	NT	NT	NT	NT
	April 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	July 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nov. 1991	ND	ND	ND	ND	ND	ND	ND	ND	ND
Laboratory Detection Limit		0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5
Drinking Water Standard <sup>(6)</sup>		1	680	1,000(40)	1,750(20)	5	6	150	0.5	--

Please see notes on last page of Table  
(165)10-1682-03/31(R92021)



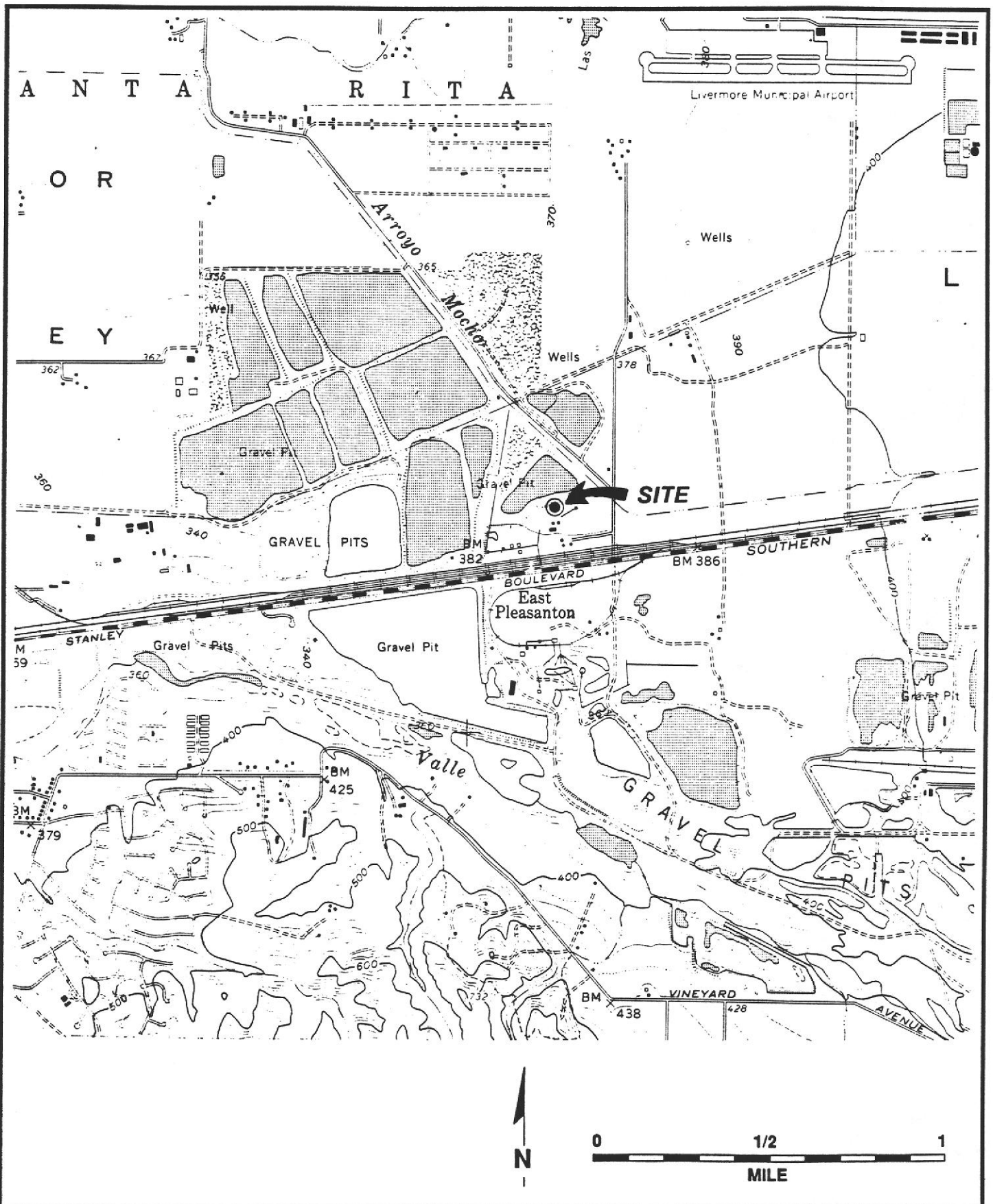
TABLE 3  
VOLATILE ORGANIC COMPOUNDS  
INDUSTRIAL ASPHALT

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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.
  - (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. See laboratory reports in Appendix for a listing of and detection limits for other compounds reported using EPA Test Method 8240.
- NT Not Tested





**KLEINFELDER**

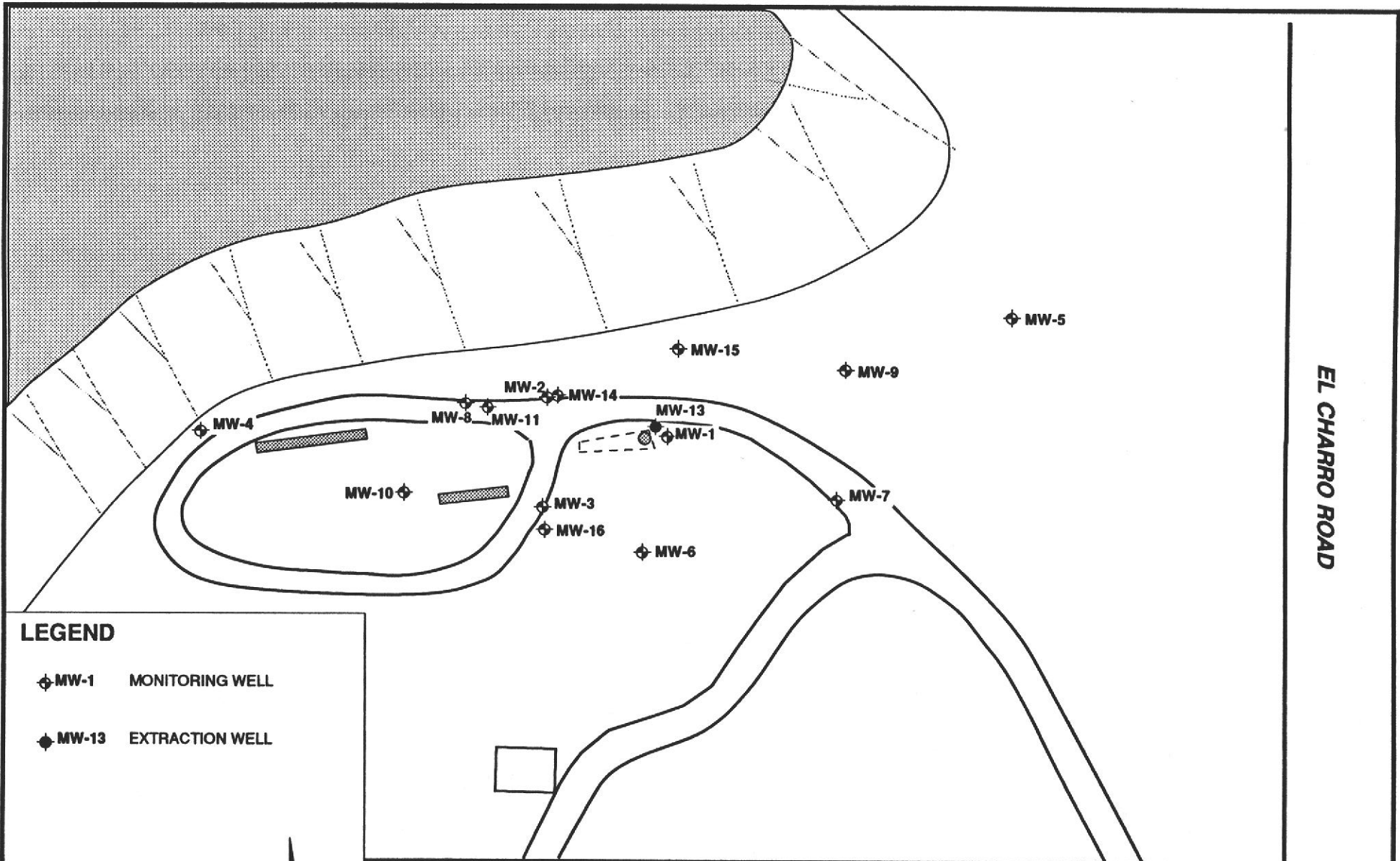
PROJECT NO. 10-1682-03

**SITE LOCATION MAP**

**INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA**

PLATE

**1**



EL CHARRO ROAD

**LEGEND**

- ◊ MW-1 MONITORING WELL
- ◆ MW-13 EXTRACTION WELL



**BASE MAP SOURCE:**  
 Wells surveyed by Associated Professions Inc., April 7, 1990.  
 Site details from 1967 photo (No. HAP-753), Pacific Aerial Surveys.



**MONITORING WELL LOCATION MAP**

INDUSTRIAL ASPHALT  
 PLEASANTON, CALIFORNIA

PROJECT NO. 10-1682-03

DRAFTED BY: L. Sue      DATE: 9-5-90  
 CHECKED BY: K. Jesionek      DATE: 9-5-90

PLATE

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