KLEINFELDER

April 19, 1989
File: 10-1682-03 (Task 39)

Mr. Dennis Hunt
Industrial Asphalt
P.O. Box 636
Pleasanton, California

SUBJECT: Project Status Report No. 4, Environmental Engineering Services, Industrial Asphalt Facility in Pleasanton, California

Dear Mr. Hunt:

Enclosed is a copy of our Project Status Report No. 4 on the Industrial Asphalt facility located at 52 Charro Road in Pleasanton, California.

This report summarizes our field activities and monitoring data collected during a period of August 1988 through March 1989. In addition, we have included our conclusions and recommendations regarding further investigation. The report also includes copies of the chain-of-custody forms and chemical laboratory reports for ground water samples collected during the subject period.

We appreciate the opportunity to work with you on this project and trust that this report meets your needs at the present time. If you have any questions, please do not hesitate to contact us.

Sincerely,

KLEINFELDER, INC.

Krzysztof (Krys) S. Jesionek, M.S., M. Eng.
Project Manager

R. Jeffrey Dunn, Ph.D., G.E.
Assistant Regional Manager

cc: Mr. Dwight Beavers, Industrial Asphalt
Mr. Gill Wistar, Alameda County Department of Environmental Health
Mr. Lester Feldman, California Regional Water Quality Control Board
Mr. Jerry Killingstad, Alameda County Flood Control and Water Conservation District, Zone 7

KSJ:RJD:jwh

PROJECT STATUS REPORT NO. 4
ENVIRONMENTAL ENGINEERING SERVICES
INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

April 19, 1989

A Report Prepared for:

Industrial Asphalt
52 Charro Road
P.O. Box 636
Pleasanton, California 94566

PROJECT STATUS REPORT NO. 4
ENVIRONMENTAL ENGINEERING SERVICES
INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

Kleinfelder Job No. 10-1682-03

by

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April 19, 1989

TABLE OF CONTENTS

TABLES

PLATES

APPENDICES

1 SUMMARY

This status report presents the results of our ongoing environmental engineering services at the Industrial Asphalt facility in Pleasanton, California.

Although this report covers the investigation from August 1988 until March 1989, our analysis, conclusions, and recommendations presented herein utilize all the data collected since the beginning of the project.

Monitoring of free product thickness and depth to ground water as well as the onsite ground water monitoring well sampling and sample testing for total petroleum hydrocarbons as diesel and polychlorinated biphenyls concentrations were performed on an approximately monthly basis. In general, ground water surface elevation has declined and free product thickness in all monitoring wells has decreased to trace levels. No polychlorinated biphenyls have ever been detected in the wells above laboratory detection limits. Total petroleum hydrocarbons as diesel concentrations seem to fluctuate.

Based on analysis of data collected since the commencement of the project including chemical laboratory data, field measurement data, well canvas data, and local and regional hydrogeologic conditions, it is recommended that monitoring well observation be continued on a monthly basis. However, monitoring well sampling and sample testing should be completed bi-monthly for the next six months.

2 CONCLUSIONS AND RECOMMENDATIONS

2.1 CONCLUSIONS

Based on the information gathered during this phase of our soil and ground water quality investigation, it appears that ground water levels at the Industrial Asphalt facility area are affected by water pumping in the gravel pits and/or nearby high yield production wells. An attempt to construct a ground water contour map for any set of data indicates conflicting directions of local ground water flow.

Free product thickness levels have declined to trace levels. It is hypothesized that as ground water levels have dropped, free product has been trapped in the pore space of the subsurface due to its high viscosity, spreading into the unsaturated zone. It is also possible that the screen openings (0.020 inches) in the free product zone have become clogged by this viscous product and, therefore, entrance into the wells is prohibited by these clogged screen slots. However, due to a very complex hydraulic regime of the ground water in the site vicinity, even an approximate ground water flow direction could not be evaluated and, subsequently, potential direction of the free product movement concluded. Developed hydrographs indicate a trend of a decreasing free product layer with a declining ground water table elevation.

Only four monitoring wells MW-4, MW-5, MW-6, and MW-7 were sampled between August 1988 and March 1989. Sampling of these wells has been conducted on an approximately monthly basis. Total petroleum hydrocarbons as diesel concentrations in the four sampled wells have been less than 22 mg/l. Polychlorinated biphenyls (PCBs) concentrations during the subject period have been below the analytical laboratory's detection limits. Free product, if present, has typically been from 2.12 feet to sheen in thickness.

No detectable levels of PCBs have ever been measured in the ground water samples collected from monitoring wells MW-4, MW-5, MW-6, and MW-7. No detectable levels of total petroleum hydrocarbons as diesel (TPH-D) have ever been measured in well MW-5. It appears that TPH-D concentrations in monitoring wells MW-4, MW-6, and MW-7 fluctuate.

Monitoring wells MW-1, MW-2, MW-3, and MW-8 were not sampled during the subject period due to the presence of free product in these wells. However, free product thickness measurements collected during the last few months indicate no presence or trace amount (sheen) of free product in these wells. Therefore, sampling of these wells during the next sampling events is being reconsidered.

Several cross sections have been developed to depict geologic and hydrologic conditions at the site. In addition, regional hydrogeologic conditions have been investigated to aid in better understanding of hydraulic regime beneath the project site. Ground water surface elevation beneath the site appears to be declining.

Well canvassing conducted within a one-mile radius of the site indicated that several water supply, domestic, and irrigation wells exist in the project area. In particular, two high yield wells are located approximately 1000 feet from the site. Although these wells have intake openings much below the ground water table, the potential impact of contamination plume on these wells is not known at this time.

Kleinfelder is currently reviewing the potential for recycling the extracted product at the site. Options for free product recycling are being discussed with the California State Department of Health Services - Alternative Technology Section.

2.2 RECOMMENDATIONS

Based on our analysis of the data and work completed to date, we have the following recommendations:

1. Monitoring Well Observations
   Monthly monitoring of all onsite wells should be continued to evaluate depth to ground water and free product thickness, if any, and its distribution.

2. Monitoring Well Sampling

   It is recommended that all eight monitoring wells be sampled on a bi-monthly basis for the next half year starting in May 1989. Kleinfelder will evaluate additional data in the next status report. Quarterly sampling in the future will then be considered.

   As in the past, all ground water samples collected should be analyzed for total petroleum hydrocarbons as diesel and polychlorinated biphenyls per EPA analysis methods.

3. Vertical and Horizontal Survey

   It is recommended that the tops of casings of all onsite monitoring wells be surveyed horizontally and vertically by professional land surveyors. This data will aid in the site remediation investigation.

4. Free Product Extraction

   If free product in any of the site monitoring wells is detected, a specific gravity skimmer should be used by the Industrial Asphalt personnel to remove it and appropriately store it. If free product can be effectively removed, then the impact of the contaminant plume can be reduced.

The results of these four recommended tasks would serve to further characterize the contaminant plume, and provide additional data for identifying and evaluating alternative remedial actions for both soil and ground water.

3 INTRODUCTION

3.1 PROJECT BACKGROUND

Industrial Asphalt maintained six underground asphalt and two underground diesel tanks at their 52 Charro Road facility in Pleasanton, California (Plate 1). Industrial Asphalt purchased the diesel product during 1983 and 1984 and used it as a burner fuel in its batch plant. Following 1984, the plant began utilizing natural gas due to its lower cost. In 1985, a leaking fill pipe serving the diesel tanks was identified and repaired. Upon removal of these two diesel tanks (6,700 and 4,920 gallon capacities) in February 1987, diesel product was observed in the bottom of the excavation. Subsequent chemical analysis of the product indicated the presence of total petroleum hydrocarbons as diesel (TPH-D) at a concentration of 340,000 mg/kg and polychlorinated biphenyls (PCBs) at a concentration of 12 mg/kg. A portion of the diesel product was removed and disposed of at a Class I disposal facility. At this same time, two adjacent asphalt tanks were also excavated and removed (Ref. 1). The four remaining underground storage tanks were excavated and removed in September 1987. Contaminated backfill was also excavated and disposed of by recycling onsite in accordance with California Administrative Code (CAC) Titles 22 and 23 (Ref. 2). A map showing the location of the excavated tanks is provided on Plate 2.

Eight monitoring wells have been installed onsite. Monitoring wells MW-1, MW-2, and MW-3 were installed between June and August, 1987 (Ref. 3), monitoring wells MW-4 and MW-5 were installed in April 1988 (Ref. 4), and monitoring wells MW-6, MW-7, and MW-8 were installed in June 1988 (Ref. 4). All wells have been monitored for depth to water and product thickness on a monthly basis since their installation. Since June 1988, monitoring wells MW-4, MW-5, MW-6, and MW-7 have been sampled on a monthly basis with samples analyzed for TPH-D and PCBs. A summary of monitoring well characteristics is provided on Table 1.

TABLE 1.
MONITORING WELL CONSTRUCTION SUMMARY
INDUSTRIAL ASPHALT

Monitoring Well No.	Total Depth(1) (feet)	Well Diameter(2) (inches)	Screened Interval(3) (feet)	Sand Pack(3) (feet)	Top of PVC Casing Elevation(4) (feet)
MW-1	88	2	58-88	56-88	96.97
MW-2	90	4	65-90	62-90	97.35
MW-3	90	4	65-90	62-90	96.06
MW-4	95	4	55-95	52-95	93.65
MW-5	110	4	57-107	53-107	100.00(5)
MW-6	109	4	69-109	64-109	96.66
MW-7	109	4	69-109	64-109	96.49
MW-8	109	4	69-109	64-109	96.07

NOTE:

(1) - Total depth of borehole below ground surface
(2) - Nominal casing/screen diameter
(3) - Below ground surface
(4) - Elevation relative to arbitrary datum (MW-5)
(5) - Arbitrary datum = 100.00 feet

Detailed descriptions of the field activities summarized above were presented in four previous Kleinfelder reports (Ref. 1, 2, 3, and 4). In addition, reports describing monthly monitoring activities at the site have been issued on an approximately monthly basis since October 1987.

3.2 PURPOSE AND SCOPE OF WORK

In accordance with our recommendations presented in Status Report No. 3 (Ref. 4), this continuing phase of our investigation has been conducted to provide additional site characterization to serve as a basis for site remediation. Therefore, this status report provides information on ongoing monthly monitoring of water levels, diesel product thickness, total petroleum hydrocarbon as diesel (TPH-D), and polychlorinated biphenyls (PCBs) concentrations in the ground water underneath the Industrial Asphalt site. Additionally, local and regional hydrogeologic conditions have been investigated and are discussed in this report. This status report provides documentation of tasks completed as well as includes our findings, conclusions, and recommendations.

4 HYDROGEOLOGY

4.1 WELL CANVAS

As discussed in our previous report (Ref. 3), the files of the Alameda County Flood Control and Water Conservation District have been reviewed for well data in the site vicinity. The results of this well canvass are presented on Plate 3. This map contains all the wells discovered during the well canvas (January 1988) which were within a one-mile radius of the site. A list of the wells shown on this map is presented in Table 2. Of the forty one wells which are within a one mile radius of the site, there are fourteen listed as active and three unidentified. Of these fourteen active wells, five are water supply wells, four are monitoring wells, one is a domestic well, two are irrigation wells, and two are industrial wells. Of these active wells, the wells designated as A2 and G1 are the ones which are located closest to the Industrial Asphalt site. Well A2 is a water supply/industrial well 220 feet deep and is located approximately 1000 feet northeast from the site. Screen intervals: 135-160 and 160-205 feet (Table 2). Well G1 is located approximately 1000 feet southwest from the site and is 500 feet deep with screens between 150 to 300 and 350 to 500 feet.

4.2 REGIONAL HYDROGEOLOGY

The study area is located in the Amador Valley. The valley ground water basin is composed of alluvial deposits. The maximum depth of these deposits is about 400 feet in the area east of Pleasanton. The water bearing alluvium in the valley is composed of sand, gravel, and clay and is moderately to highly permeable. Confining layers of silty clay are found at various depths throughout the valley, and are extensive enough in some areas to define totally separate aquifers. The valley areas are underlain and are bordered on the south by the Pleistocene and Pliocene Livermore Formation which consists of sand, gravel, and clay of moderate permeability. The Pliocene Tassajara Formation, bordering the valley to the north, is composed primarily of sandstone and claystone and is of low permeability. Both of these formations are from 4000 to 5000 feet thick, and although the formations are water bearing, wells completed in them are generally of low yield and

TABLE 2
WELL CANVAS DATA SUMMARY
INDUSTRIAL ASPHALT

WELL NO.[1]	USE(S)[2]	STATUS[3]	TOTAL DEPTH[4] (ft.)	PERF. INTERVAL[5] (ft.)	SEAL INTERVAL[6] (ft.)
03S1E14A02	WS/IN	A	220	135-160, 170-205	0-50
03S1E14D01	UN	UN	UN	UN	UN
03S1E14F01	UN	D	269	UN	NO
03S1E14F03	IN	A	533	200-250, 250-533	UN
03S1E14G01	IN	A	500	150-300, 350-500	UN
03S1E14G02	MO	A	88	58-88	0-53
03S1E14G03	MO	A	90	65-90	0-62
03S1E14G04	MO	A	90	65-90	0-62
03S1E14J01	UN	D	654	110-122, 158-170, 182-194, 200-206	40-50
03S1E14J02	UN	D	675	186-286, 300-441, 481-585	UN
03S1E14K02	WS/IN	A	508	120-181, 187-245, 260-281	UN
03S1E14K03	UN	UN	UN	UN	UN
03S1E14L01	UN	UN	40	UN	UN
03S1E14L03	UN	UN	535	UN	UN
03S1E15J03	UN	UN	196	154-184	0-60
03S1E11H01	IR/DO	A	303	223-231, 262-295	UN
03S1E11H03	UN	D	106	UN	UN
03S1E11J01	UN	AB/D	207	104-128, 162-180, 190-198	UN
03S1E11J02	UN	AB/D	53	UN	UN
03S1E11J04	UN	UN	UN	UN	UN
03S1E11M01	IR	AB/D	271	UN	UN
03S1E11Q01	IR	D	192	UN	UN
03S1E11Q02	IR	AB/D	260	UN	UN
03S1E11P04	UN	UN	150	UN	UN
03S1E12E01	WS	A	276	200-219, 231-234, 239-267	UN
03S1E12M01	UN	AB	218	UN	UN
03S1E12M02	UN	AB	234	107-118, 154-166, 203-217, 219-226	UN
03S1E12N01	IR/DO	AB/D	304	112-117, 142-150 161-185, 200-208	UN
03S1E12N02	UN	AB	125	UN	UN
03S1E12P05	IR	A	346	262-290, 315-326, 336-346	0-260
03S1E12Q01	UN	UN	98	UN	UN
03S1E12Q02	UN	UN	95	UN	UN
03S1E13E01	MO	A	97	92-97	67-74
03S1E13G01	WS	UN	331	UN	UN
03S1E13K01	DO	A	750	180-200, 220-260, 300-340, 380-420, 460-500, 640-660	UN
03S1E13K02	WS	A	600	UN	UN
03S1E13M02	UN	D	70	UN	UN
03S1E13M03	UN	AB/D	150	UN	UN
03S1E13N01	UN	D	498	UN	UN
03S1E13P01	WS/IN	A	652	UN	UN
03S1E23B01	UN	UN	350	UN	UN

NOTES:

NO — No data was available at the time the well canvas was conducted.

(1) Well numbers are based on the State Well Numbering System used by the State of California Department of Water Resources. The numbering system identifies wells within each section, track, and sequence number. All wells identified are within Township 3S, Range 1E.

(2) Primary uses of water, as designated by owner or driller: WS = Water Supply, IN = Industrial, MO = Monitoring, IR = Irrigation, DO = Domestic, UN = Unknown

(3) A = Active, D = Destroyed, AB = Abandoned, UN = Unknown

(4) Depth below grade (land surface datum) of completed well, as reported by driller, agency staff, or other source.

(5) Interval in which well casing is perforated in feet below land surface; in some wells this may be the interval between the bottom of the solid casing and the maximum depth.

(6) Interval in which annular seal is placed, in feet below land surface.

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produce moderately poor quality sodium bicarbonate water (Ref. 5). Three major streams drain the lands surrounding the project area and contribute flow to the Amador Valley. These are Arroyo Mocho, Arroyo Positas, and Arroyo Valle.

Regional ground water movement in the valley is generally in a northwesterly and westerly direction. However, locally, ground water flow direction is in the general direction of the gravel pits (Ref. 5 and 6). The gravel operations pump large quantities of water from the pits to facilitate gravel mining, thus creating a large artificial depression in the valley ground water system. The gravel pit operators also back fill some of the pits with silt and clay to minimize further recharge and ground water movement in the area.

The extensive gravel mining has greatly altered the historical ground water flow regime. Originally, the ground water gradients were from east to west with outflow from the valley along Arroyo de la Laguna. This outflow of ground water has stopped due to pumping for municipal and agricultural purposes in the Pleasanton area. The directions of flow were later altered by gravel excavation activities (Ref. 5).

4.3 LOCAL HYDROGEOLOGY

Plates 12 and 13 in Reference 1 present geologic cross sections which show the soil conditions within the tank backfill and soil stratigraphy adjacent to the tank backfill area. However, these cross sections were constructed based on the soil borings advanced to the maximum depth of 46 feet and, therefore, they depict geologic features only beneath the Industrial Asphalt site within the first 46 feet below surface.

Since that time, eight deeper bore holes were drilled (subsequently completed as monitoring wells MW-1 through MW-8) to obtain additional information on the local hydrogeologic conditions. Three cross sections, A-A', B-B', and C-C', which illustrate lithology of the local subsurface are presented on Plates 5 and 6. Plate 4 shows the location of the sections.

Material encountered in all eight borings was fairly continuous and correlates well between the borings. Relatively fine grained sediment consisting of silty clays and silt were encountered at a depth of approximately 25 feet below grade. Underlying these fine grained sediments, coarse materials consisting of sandy gravels and gravelly sands were encountered at the total depth of the borings. Some limited silty clayey sands and gravels

were also observed. The sand was primarily fine to coarse grained and rather poorly graded. The gravels encountered were typically subrounded to rounded and ranged from 1/2 to 2 inches in diameter. However, cobbles to 5 inches maximum diameter were also encountered.

Logs for monitoring wells MW-1, MW-2, and MW-3 are presented in Reference 1. Logs of the remaining monitoring wells, MW-4, MW-5, MW-6, MW-7, and MW-8 are included in Reference 4.

Local geologic conditions as shown on Plates 5 and 6 - cross sections A-A', B-B', and C-C', are very consistent with the regional geology (Section 4.2). Materials encountered in all borings, except fill, are of alluvial origin. The upper 25 feet of deposits is continuous and of rather low permeability. Therefore, it can act as a low permeability barrier as far as the contamination plume is concerned. However, coarse sand and gravel beneath this layer are of moderate to high permeability.

Ground water depths encountered in the borings at the time of drilling ranged from 76 feet in well MW-1 to 90 feet in MW-8. However, the borings were advanced at different times and the ground water table has fluctuated considerably since the wells' construction (Plates 7 through 14).

5 FIELD ACTIVITIES

During the period from September 1988 until March 1989, field activities related to the additional site characterization and soil and ground water quality investigation conducted by Kleinfelder at the Industrial Asphalt facility were limited to approximately monthly ground water sampling, testing, and monitoring of depth to ground water table and free product thickness levels.

5.1 MONTHLY SAMPLING

Kleinfelder sampling technicians performed monitoring well sampling and collected other pertinent data during the subject period on the following days: August 8, 15, and 26, 1988, October 4 and 28, 1988, December 22, 1988, January 26, 1989, and March 2, 1989.

Prior to sampling, measurements of depth to ground water surface and free product thickness have been made and recorded. Subsequently, wells in which free product was not detected were sampled with a teflon bailer (i.e. wells MW-4, MW-5, MW-6, and MW-7). However, only wells MW-4 and MW-5 were purged prior to sampling using a 3" submersible pump. Purging ceased when at least four well water volumes had been removed. Throughout well purging, the temperature, pH, and electrical conductance of the pumped water were recorded at regular intervals. Water samples were collected from both monitoring wells after being purged and when the well recovered to a minimum of 80% of the original water level.

Wells MW-6 and MW-7 were not purged due to the fact that this process may have activated the contamination plume believed to be stagnant. Prior to sampling, the bailer was steam cleaned to reduce the potential for cross contamination between the sampling points. In the field the bailer, water level indicator, interface probe, and the pump were thoroughly cleaned between each monitoring well with TSP (Trisodiumphosphate) following a triple rinse with distilled water for this same reason. In addition, the wells were sampled in order of degree of ground water contamination determined based on analytical data collected during previous sampling events.

To collect a sample, the bailer was lowered into the well casing below static water level. The bailer was then retrieved from the well and the water sample decanted into four one liter amber glass bottles. The samples were labeled and immediately placed in refrigerated storage for transport to the State certified analytical laboratory. Chain-of-custody control of all samples was maintained and copies of records are included as Appendix A. Copies of the chemical analytical results are included in Appendix B. Kleinfelder job number was referenced on the chain-of-custody forms to maintain client confidentiality.

During the December 1988 sampling, a teflon bailer was lost in monitoring well MW-7. Although the attempt was made to recover it at that time, the bailer is still in the well. Since the bailer is made of teflon it should not effect local ground water quality. Kleinfelder will attempt to recover the bailer in the near future after developing an appropriate fishing tool for this purpose.

6 MONITORING RESULTS

Ground water samples obtained from monitoring wells at the Industrial Asphalt site were analyzed for total petroleum hydrocarbons as diesel (TPH-D) per EPA Method 8015 (purge and trap) and for polychlorinated biphenyls (PCBs) per EPA Method 608. Analytical laboratory reports for these analyses are included in Appendix B of this report. The summary of analytical data, depth to water, and free product thickness levels for all the monitoring wells since 1987 are presented in Table 3.

6.1 GROUND WATER LEVELS AND FREE PRODUCT THICKNESS

Ground water level hydrographs for monitoring wells MW-1 through MW-8 are presented on Plates 7 through 14. These plates also show free product thickness (FPT) levels over time.

As indicated by the hydrographs, ground water table elevations at the site appear to be declining. Within this overall pattern of decline, water elevations appear to fluctuate from month to month. These fluctuations do not appear to correlate with the rainy or dry seasons. Therefore, as discussed in Section 4.2, it is possible that ground water levels in the area are affected by water pumping in the gravel pits or at nearby high yield irrigation/industrial water wells (well G1, A2 - Plate 3).

TABLE 3

MONITORING PARAMETERS
INDUSTRIAL ASPHALT

Well	Date	Depth to Water[1] (ft.)	Product Thickness (ft.)	TPH as Diesel (mg/l)	PCBs (ug/l)
MW-1	06-11-87	75.0	NE	NT	NT
	07-09-87	75.9	<0.1	NT	NT
	08-06-87	79.1	3.2	350	5.7
	09-29-87	79.3	1.84	510[2]	22[2]
	10-30-87	78.23	0.95	780[2]	22[2]
	11-30-87	77.68	1.10	1800[2]	56[2]
	12-21-87	79.53	2.52	55	1
	01-25-88	77.88	1.63	96	ND
	02-25-88	79.46	2.49	120	ND
	03-18-88	81.61	2.93	3.6	ND
	04-27-88	81.10	2.26	23	ND
	05-20-88	82.97	2.29	NT[5]	NT[5]
	06-22-88	83.48	0.93	NT	NT
	07-26-88	85.78	0.99	NT	NT
	08-11-88[4]	84.55	0.05	NT	NT
	08-15-88[4]	87.90	0.05	NT	NT
	08-26-88	84.80	0.05	NT	NT
	10-04-88	84.84	0.11	NT	NT
	10-28-88	84.94	0.04	NT	NT
	12-22-88	84.92	trace	NT	NT
	01-26-89	dry	NE	NT	NT
	03-02-89	84.74	NE	NT	NT
MW-2	08-06-87	NE	14.0	NT	NT
	09-29-87	NE	12.05	NT	NT
	10-30-87	82.76	5.34	1100[2]	14[2]
	11-30-87	84.12	7.79	1100[2]	33[2]
	12-21-87	84.28	7.31	27	2
	01-25-88	84.26	8.07	150	ND
	02-25-88	84.21	7.28	15	ND
	03-18-88	86.18	7.56	3.6	ND
	04-27-88	85.57	5.64	6.1	ND
	05-20-88	88.48	6.93	NT[5]	NT[5]
	06-22-88	87.30	4.52	NT	NT
	07-26-88	NE	5.02[3]	NT	NT
	08-11-88[4]	88.70	1.40	NT	NT
	08-15-88[4]	88.05	0.35	NT	NT
	08-26-88	88.35	0.10	NT	NT
	10-04-88	89.46	0.03	NT	NT
	10-28-88	NE	NE	NT	NT
	12-22-88	89.10	NE	NT	NT
	01-26-89	87.83	sheen	NT	NT
	03-02-89	87.55	0.02	NT	NT

TABLE 3 (continued)

Well	Date	Depth to Water[1] (ft.)	Product Thickness (ft.)	TPH as Diesel (mg/l)	PCBs (ug/l)
MW-3	08-06-87	75.00	NE	0.6	ND
	09-29-87	78.77	1.84	7.6	2.7
	10-30-87	78.44	2.11	1100[2]	24[2]
	11-30-87	77.76	2.22	340[2]	62[2]
	12-21-87	77.88	1.68	46	2
	01-25-88	76.88	1.21	27	ND
	02-25-88	77.80	1.60	6	ND
	03-18-88	80.50	2.59	3.8	ND
	04-27-88	79.40	1.32	4.5	ND
	05-20-88	81.48	1.73	14	4.7
	06-22-88	82.14	0.53	44	4.3
	07-26-88	84.36	0.54	NT[5]	NT[5]
	08-11-88[4]	86.45	0.50	NT	NT
	08-15-88[4]	86.74	0.44	NT	NT
	08-26-88	87.18	0.28	NT	NT
	10-04-88	88.72	0.30	NT	NT
	10-28-88	89.49	0.29	NT	NT
	12-22-88	84.74	0.02	NT	NT
	01-26-89	86.57	sheen	NT	NT
	03-02-89	86.26	0.02	NT	NT
MW-4	04-08-88	76.59	NE	ND	ND
	04-27-88	75.96	NE	NT	NT
	05-20-88	77.71	NE	ND	NT
	06-22-88	79.41	NE	ND	ND
	07-26-88	81.74	NE	ND	ND
	08-11-88[4]	83.80	NE	NT	NT
	08-15-88[4]	84.06	NE	NT	NT
	08-26-88	84.62	NE	ND	ND
	10-04-88	86.16	NE	ND	ND
	10-28-88	87.02	NE	0.46	ND
	12-22-88	85.42	NE	0.6	ND
	01-26-89	84.20	NE	ND	ND
	03-02-89	84.06	NE	ND	ND
MW-5	04-08-88	86.76	NE	ND	ND
	04-27-88	82.34	NE	NT	NT
	05-20-88	84.38	NE	ND	ND
	07-26-88	88.84	NE	ND	ND
	08-11-88[4]	91.70	NE	NT	NT
	08-15-88[4]	91.94	NE	NT	NT
	08-26-88	92.88	NE	ND	ND
	10-04-88	95.65	NE	ND	ND
	10-28-88	97.32	NE	ND	ND
	12-22-88	90.64	NE	ND	ND
	01-26-89	91.29	NE	ND	ND
	03-02-89	88.58	NE	ND	ND

TABLE 3 (continued)

Well	Date	Depth to Water[1] (ft.)	Product Thickness (ft.)	TPH as Diesel (mg/l)	PCBs (ug/l)
MW-6	06-22-88	82.11	NE	17	ND
	07-01-88	82.38	Sheen	ND	ND
	07-26-88	84.37	Sheen	ND	ND
	08-11-88[4]	86.46	Sheen	NT	NT
	08-15-88[4]	86.78	Sheen	NT	NT
	08-26-88	87.35	Sheen	ND	ND
	10-04-88	88.90	NE	ND	ND
	10-28-88	89.72	NE	ND	ND
	12-22-88	87.94	NE	9.3	ND
	01-26-89	86.95	NE	ND	ND
	03-02-89	85.91	NE	ND	ND
MW-7	06-22-88	82.20	NE	140	ND
	07-01-88	82.60	Sheen	17	ND
	07-26-88	84.65	Sheen	ND	ND
	08-11-88[4]	86.94	Sheen	NT	NT
	08-15-88[4]	87.27	NE	NT	NT
	08-26-88	88.02	Sheen	ND	ND
	10-04-88	84.80	NE	ND	ND
	10-28-88	90.76	NE	1.4	ND
	12-22-88	88.05	NE	1.0	ND
	01-26-89	87.21	NE	ND	ND
	03-02-89	86.49	NE	22	ND
MW-8	06-22-88	81.70	NE	NT	NT
	07-01-88	82.00	Sheen	ND	ND
	07-26-88	86.19	2.44	87	ND
	08-11-88[4]	87.22	1.27	NT	NT
	08-15-88[4]	87.02	2.12	NT	NT
	08-26-88	87.40	0.75	ND	1.2
	10-04-88	88.93	0.43	NT[5]	NT[5]
	10-28-88	89.71	0.37	NT	NT
	12-22-88	87.70	0.13	NT	NT
	01-26-89	86.52	Sheen	NT	NT
	03-02-89	86.30	0.01	NT	NT

NOTES:

(1) Below top of casing

(2) These samples may have been contaminated; analytical results may therefore be suspect.

(3) Minimum thickness of product based on no water encountered within total depth of well.

(4) Pre- and post- well skimming demonstration; approximately two gallons of product skimmed from wells MW-2 and MW-8 on 08-11-88.

(5) Sampling of ground water in wells MW-1, MW-2, MW-3, and MW-4 terminated due to the presence of free product in these wells.

TPH Total Petroleum Hydrocarbons
PCB Polychlorinated Biphenyls as Arochlor
NE Not Encountered
NT Not Tested
ND Not Detected above laboratory given detection limit

Our discussions with water well drilling representatives indicates it is unlikely that water level fluctuations and changes in the hydraulic gradient at the site are due to non-verticality of the monitoring wells.

Free product thickness (FPT) in the monitoring wells also shows a consistent decreasing trend. As shown in Table 3 and in Plates 7 through 14, no FPT has ever been detected in monitoring wells MW-4, MW-5, MW-6, and MW-7.

Maximum FPT at the site was 14 feet, in monitoring well MW-2 on August 6, 1987, following that well's installation. Maximum FPTs in wells MW-1 and MW-3 of 3.2 and 2.59 feet, respectively, were measured on August 6, 1987, and March 18, 1988, respectively. Maximum FPT in monitoring well MW-8 was 2.44 feet measured on July 26, 1988. At present, only trace levels of free product appear to be present in the wells. It is possible that as water levels have dropped beneath the site, free product has been trapped in the pore space of the subsurface, spreading into the unsaturated zone. Diesel has a high viscosity, and this viscosity may aid in the retention of diesel in the unsaturated zone. Another possible explanation for declining FPT at the site is that the well screens in the free product zone have become clogged by this viscous product and, therefore, entrance into the wells is prohibited by these clogged screens.

Kleinfelder has identified an appropriate product extraction technology for the Industrial Asphalt site. Once a determination is made concerning the reasons for the lack of free product at the site, this technology can be put in place to aid in site remediation.

6.2 GROUND WATER SAMPLE ANALYTICAL RESULTS

No detectable levels of polychlorinated biphenyls (PCBs) have ever been measured in the ground water samples collected from monitoring wells MW-4, MW-5, MW-6, and MW-7. No detectable levels of total petroleum hydrocarbons as diesel (TPH-D) have ever been measured in the samples obtained from well MW-5.

However, based on the analytical data presented in Table 3 and shown on Plates 15 through 22, it appears that TPH-D concentrations in monitoring wells MW-4, MW-6, and MW-7 fluctuate at the site.

In monitoring well MW-7, TPH-D concentrations have decreased from a high of 140 mg/l on June 22, 1988, to non-detectable levels in July, August, and October 1988. However, the concentration of TPH-D in this well was reported to be 22 mg/l on March 2, 1989. TPH-D has been detected twice in well MW-6. Concentration levels of 17 mg/l and 9.3 mg/l were reported to be in ground water samples collected from this well on June 26, 1988, and December 22, 1988, respectively.

In monitoring well MW-4, TPH-D concentrations have increased from below the 0.2 mg/l detection limit on April 8, 1988, to a high of 0.6 mg/l on December 22, 1988, back down to below laboratory detection limits in the latest sampling round.

The different detection limits are a function of changing analytical methods and different analytical laboratories. These results may indicate an overall decrease in TPH-D in ground water beneath the site, although the data is too scattered to clearly indicate this type of trend.

TPH-D concentration value was detected once in well MW-8 on July 26, 1988. However, this well has not been tested since that time, besides once during the August 26, 1988, sampling event, due to the presence of free product in the well. For this same reason, ground water sampling has been terminated in monitoring wells MW-1, MW-2, and MW-3.

However, since FPT in all wells has declined to trace levels, Kleinfelder will reconsider sampling of these wells.

7 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 warranties, expressed or implied, as to the professional advice provided are made. The recommendations provided in this report are based on the assumption that an adequate program of tests and field observations will be conducted by our firm during any subsequent phases in order to evaluate compliance with the recommendations.

8 REFERENCES

1 J.H. Kleinfelder and Associates. May 18, 1987. "Final Environmental Investigation Report, Industrial Asphalt Facility, Eastern Alameda County, California."

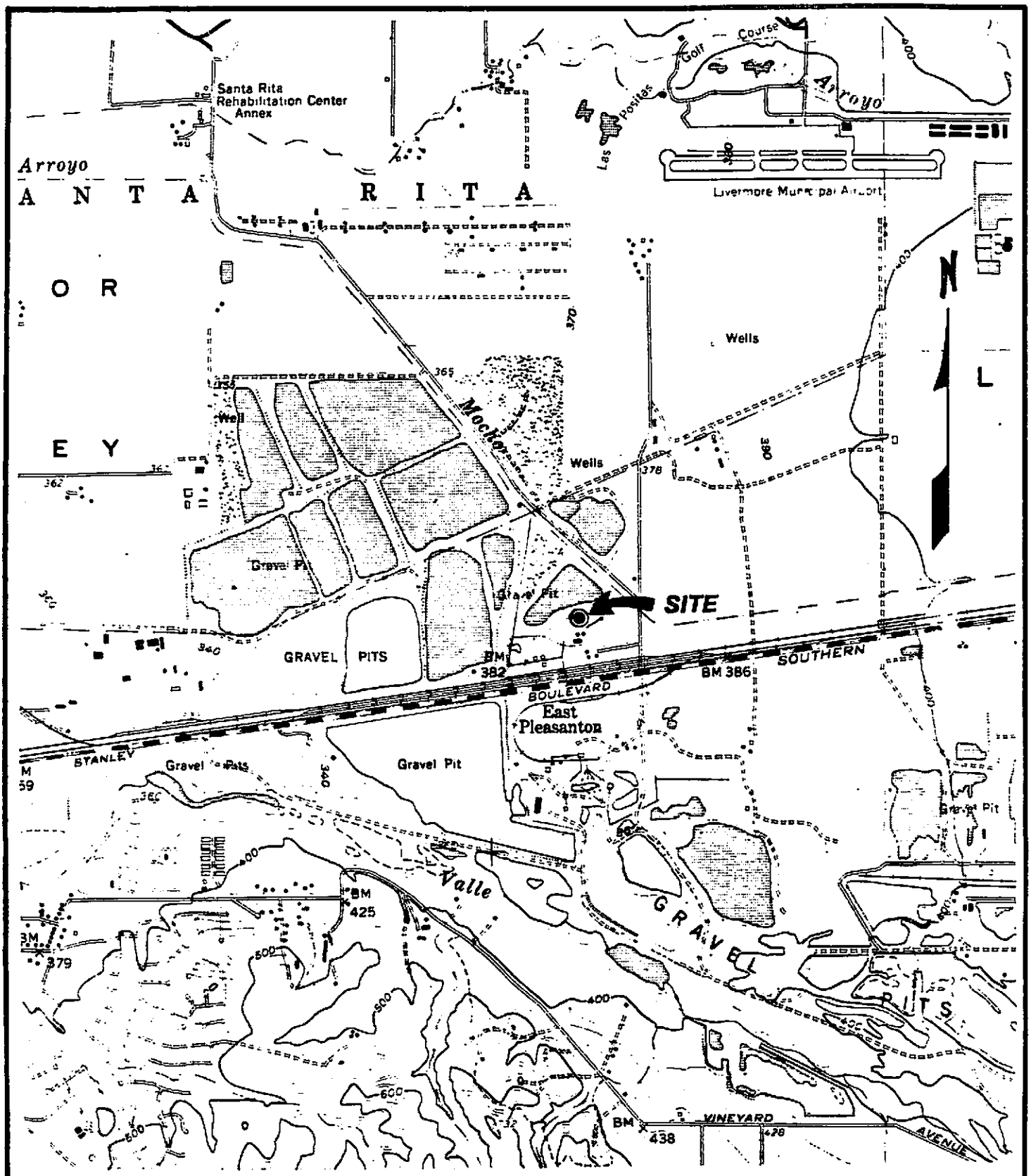
2 Kleinfelder. March 22, 1988. "Project Status Report No. 2, Environmental Engineering Services, Industrial Asphalt Facility, Pleasanton, California."

3 J.H. Kleinfelder and Associates. September 4, 1987. "Project Status Report: Environmental Engineering Services, Industrial Asphalt Facility, Pleasanton, California."

4 Kleinfelder. September 7, 1988. "Project Status Report No. 3, Environmental Engineering Services, Industrial Asphalt Facility, 1645 Stanley Blvd., Pleasanton, California."

5 Sorenson, S. et al. 1985. "Water Quality Conditions and an Evaluation of Ground and Surface Water Sampling Programs in the Livermore-Amador Valley, California." U.S.G.S. Water Resources Investigations Report 84-4352.

6 Alameda County Flood Control and Water Conservation District - Zone 7, 1986. Water Level Contours, Fall 1986. Water Resources Engineering.



SCALE 1:24000

Source: USGS 7.5 minute Livermore Quadrangle

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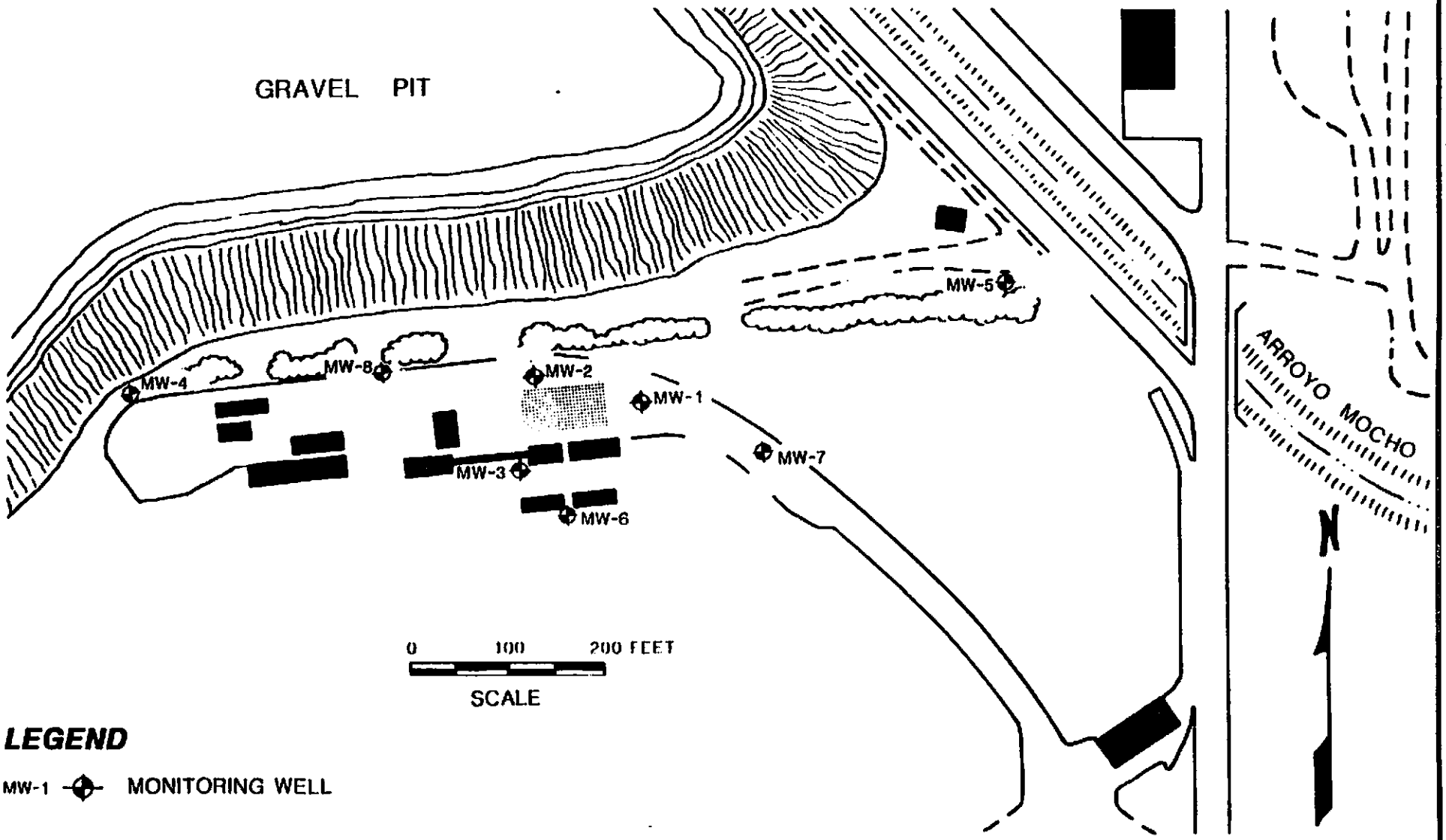
PROJECT NO. 10-1682-03

SITE LOCATION MAP

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
1



LEGEND

MW-1 ⊕ MONITORING WELL

APPROXIMATE EXTENT OF TANK EXCAVATION

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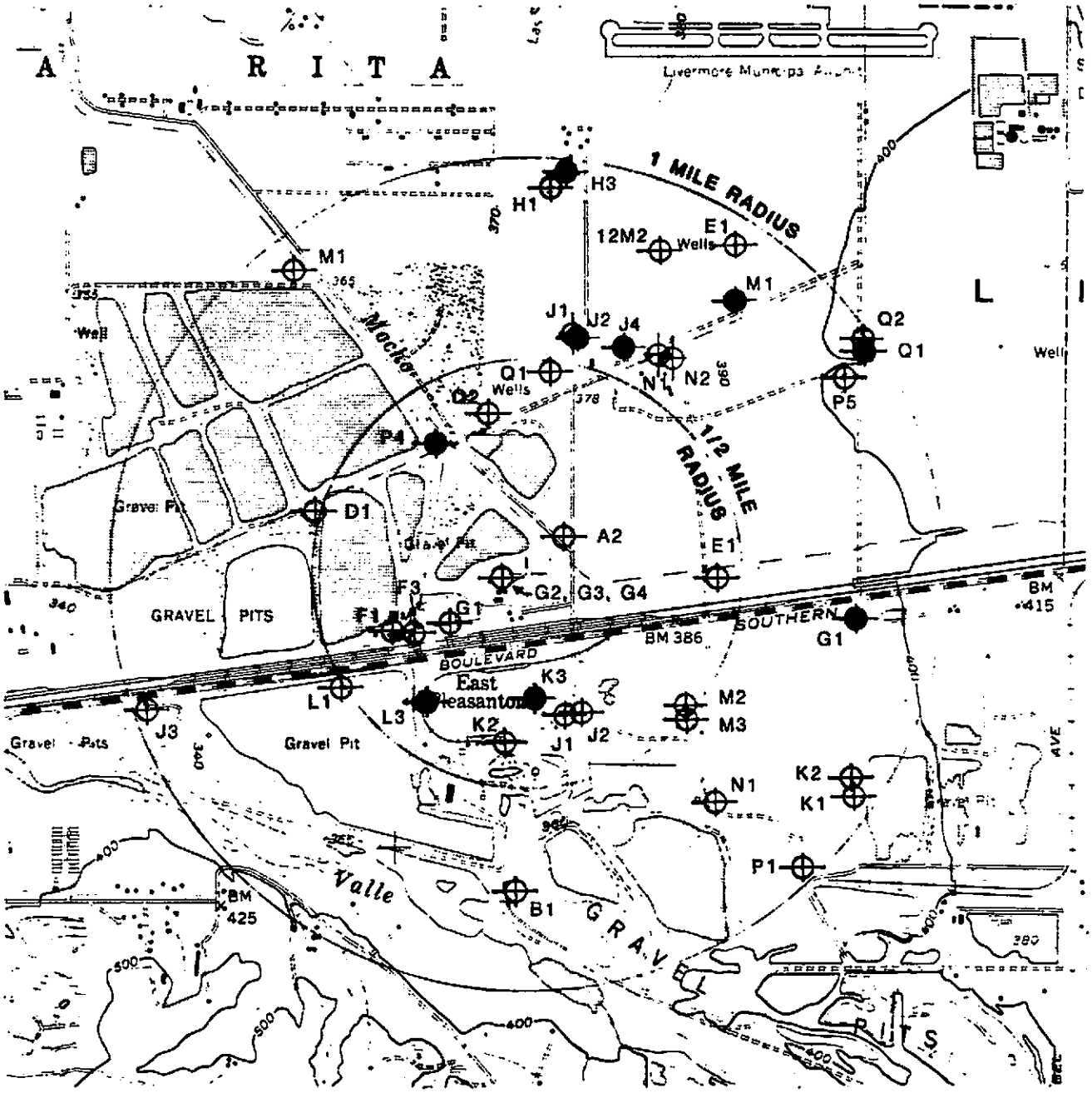
PROJECT NO. 10-1682-03

MONITORING WELL LOCATION MAP

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
2



LEGEND

M1 — ACTIVE WELL

P4 — ABANDONED OR DESTROYED WELL

——— DISTANCE FROM SITE

NOTE: BASE MAP SOURCE: USGS 7.5 MINUTE LIVERMORE QUADRANGLE MAP, 1980

WELL LOCATION MAP SOURCE: ZONE 7 - ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, AUGUST 10, 1987

WELL NUMBERS DESIGNATED BY DEPARTMENT OF WATER RESOURCES

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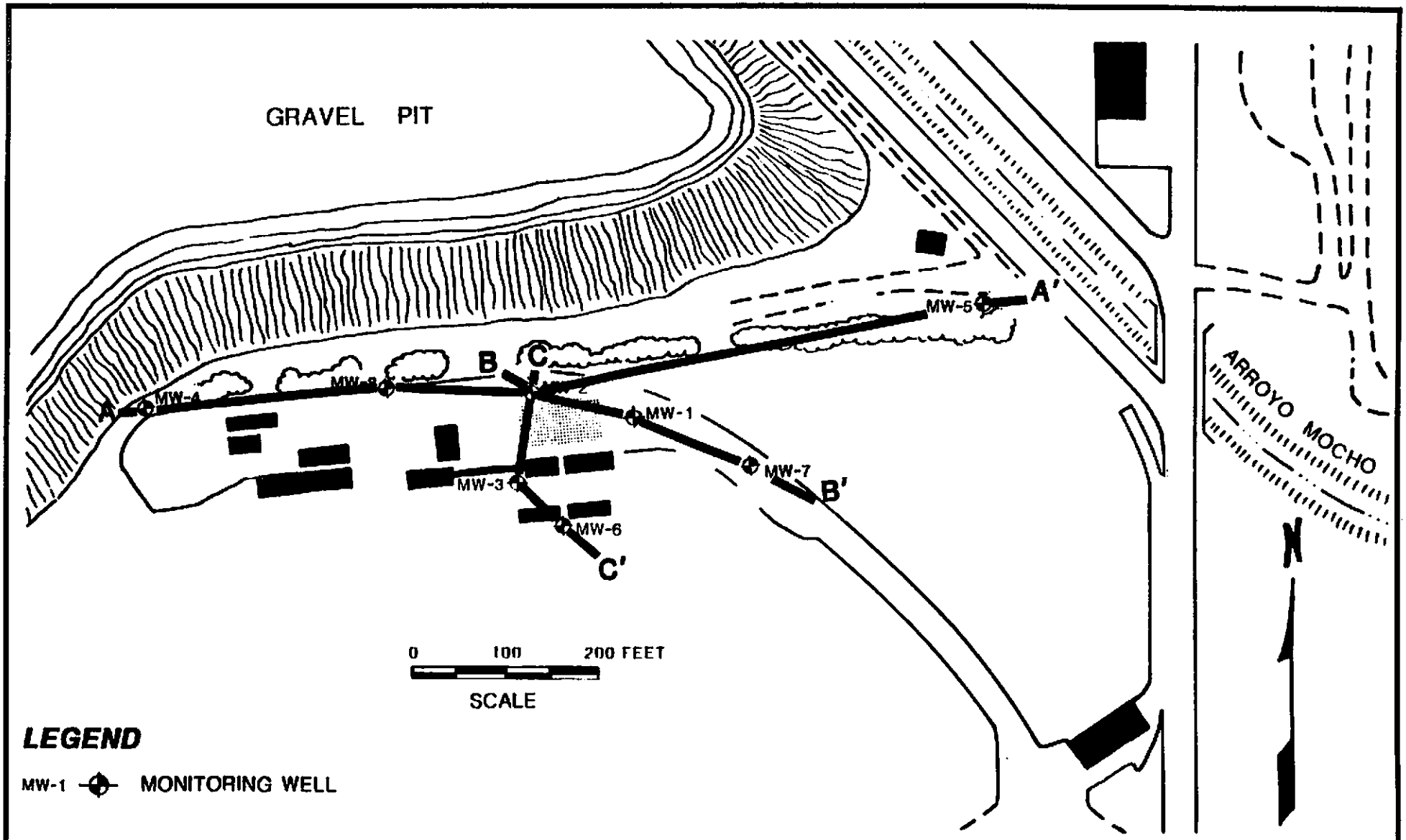
PROJECT NO. 10-1682-03

WELL LOCATION MAP

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
3



LEGEND

MW-1 — MONITORING WELL

APPROXIMATE EXTENT OF TANK EXCAVATION

A — A' CROSS-SECTION

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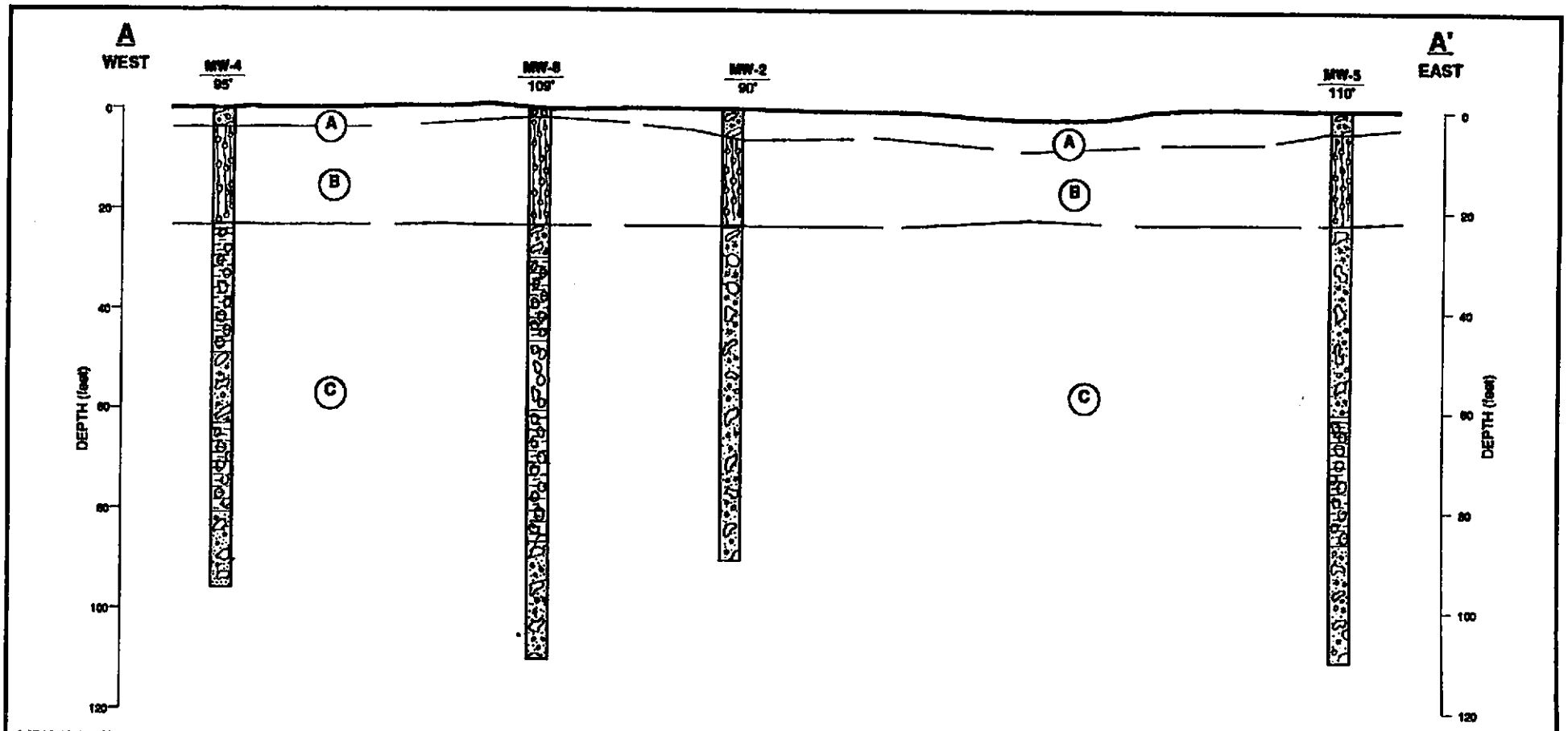
PROJECT NO. 10-1682-03

GEOLOGIC CROSS-SECTION LOCATIONS

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
4



LITHOLOGY

- (A) FILL - SANDY GRAVEL AND GRAVEL
- (B) SILT AND SILTY CLAY - light brown to green and red brown, dry, low to medium plasticity, soft to medium stiff
- (C) GRAVEL, (SILTY CLAYEY) SANDY GRAVEL and GRAVELLY SAND - light brown and gray to brown, dry to damp, medium dense to dense, fine to coarse grained sand, subrounded to rounded gravel and cobbles to 5-inch diameter

LEGEND

- MW-4 / 95' — MONITORING WELL NUMBER / DEPTH (FEET) OF BORING
- SILTY CLAY
- GRAVEL
- SANDY GRAVEL AND GRAVELLY SAND
- SILTY (CLAYEY) SANDY GRAVEL

20 feet

80 feet

VERTICAL EXAGGERATION = 4X

KLEINFELDER

DRAFTED BY: L. Sue DATE: 4-13-89

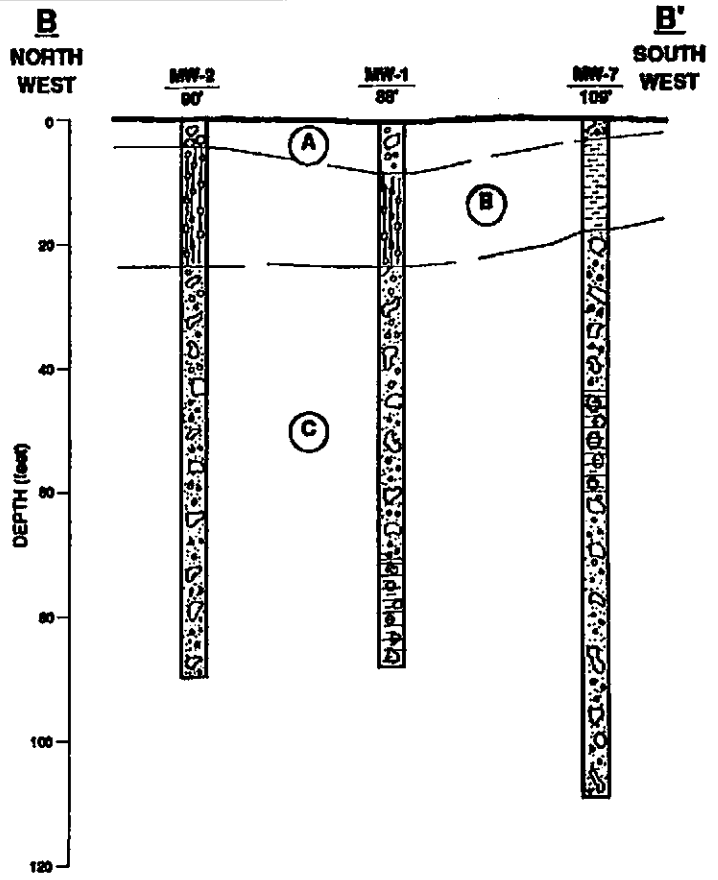
CHECKED BY: K. Jasionek DATE: 4-18-89

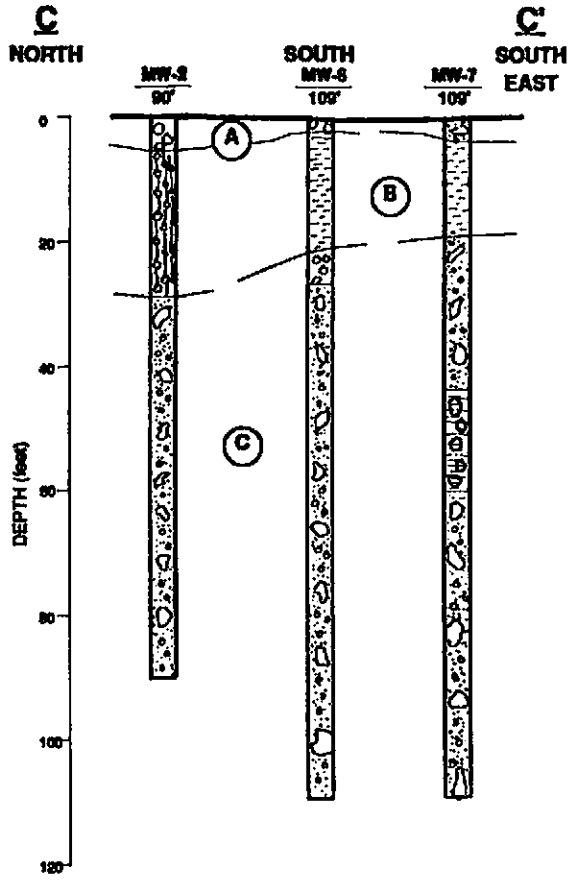
GEOLOGIC CROSS-SECTION A—A'

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PROJECT NO. 10-1682-03

PLATE 5





LITHOLOGY

- (A) FILL - SANDY GRAVEL AND GRAVEL
- (B) SILT AND SILTY CLAY - light brown to green and red brown, dry, low to medium plasticity, soft to medium stiff
- (C) GRAVEL, (SILTY CLAYEY) SANDY GRAVEL and GRAVELLY SAND - light brown and gray to brown, dry to damp, medium dense to dense, fine to coarse grained sand, subrounded to rounded gravel and cobbles to 5-inch diameter

LEGEND

- MW-4 / 95' — MONITORING WELL NUMBER / DEPTH (FEET) OF BORING
- SILT
- SILTY CLAY
- GRAVEL
- SANDY GRAVEL AND GRAVELLY SAND
- SILTY (CLAYEY) SANDY GRAVEL

20 feet

80 feet

VERTICAL EXAGGERATION = 4X

KLEINFELDER

DRAFTED BY: L. Sue DATE: 4-13-89

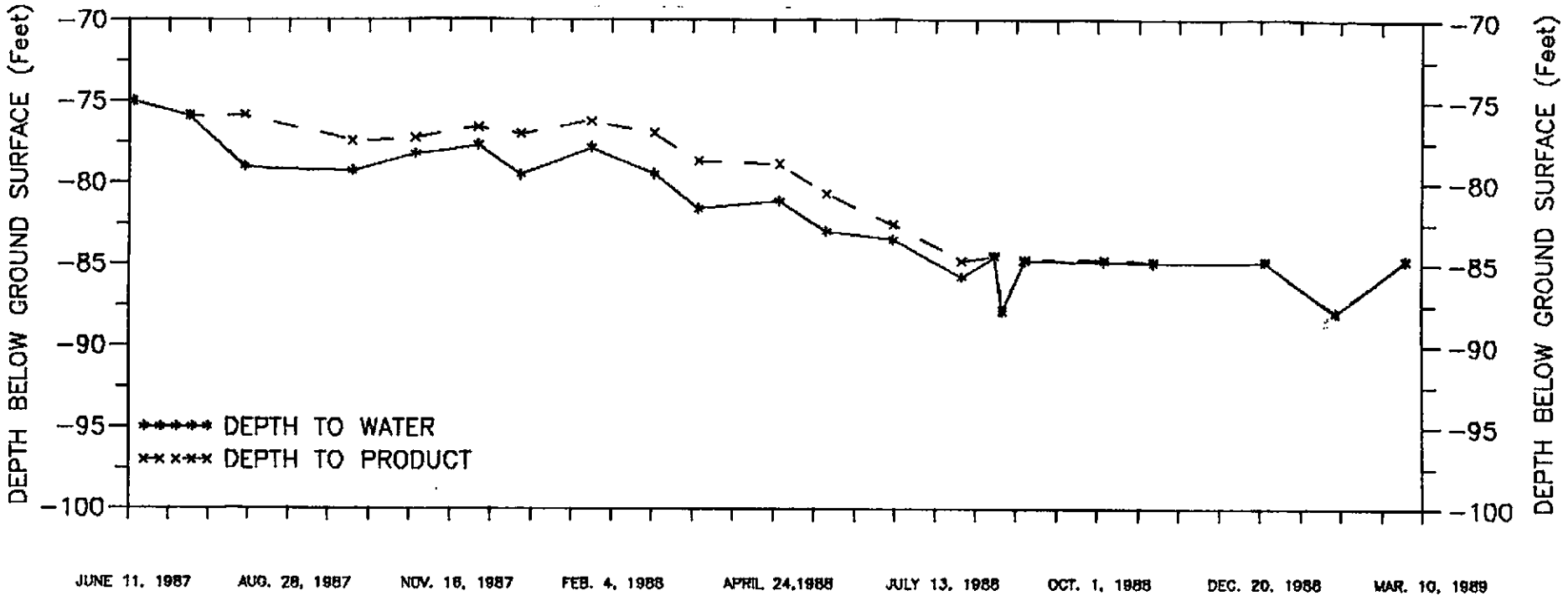
CHECKED BY: K. Jesionek DATE: 4-18-89

GEOLOGIC CROSS-SECTIONS A—A' AND C—C'

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PROJECT NO. 10-1682-03

PLATE 6



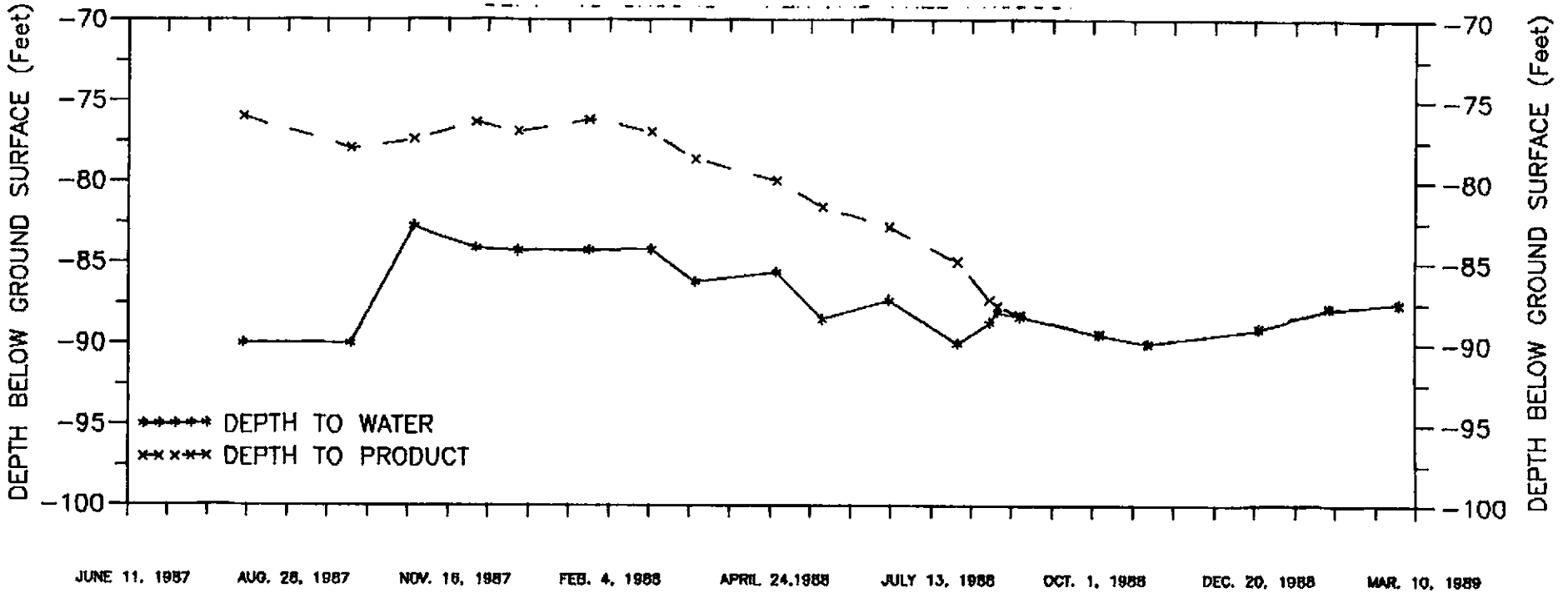
KLEINFELDER

PROJECT NO. 10-1682-03

DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-1

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
7



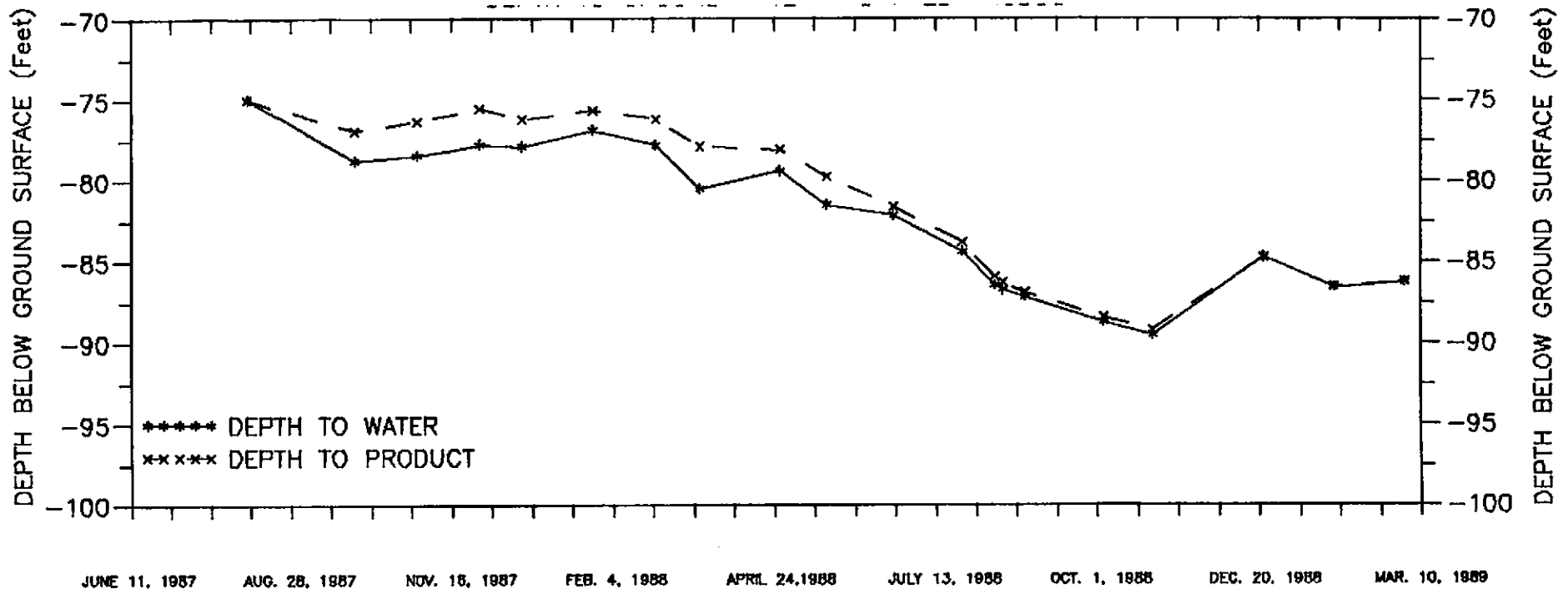
KLEINFELDER

PROJECT NO. 10-1682-03

DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-2

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
8



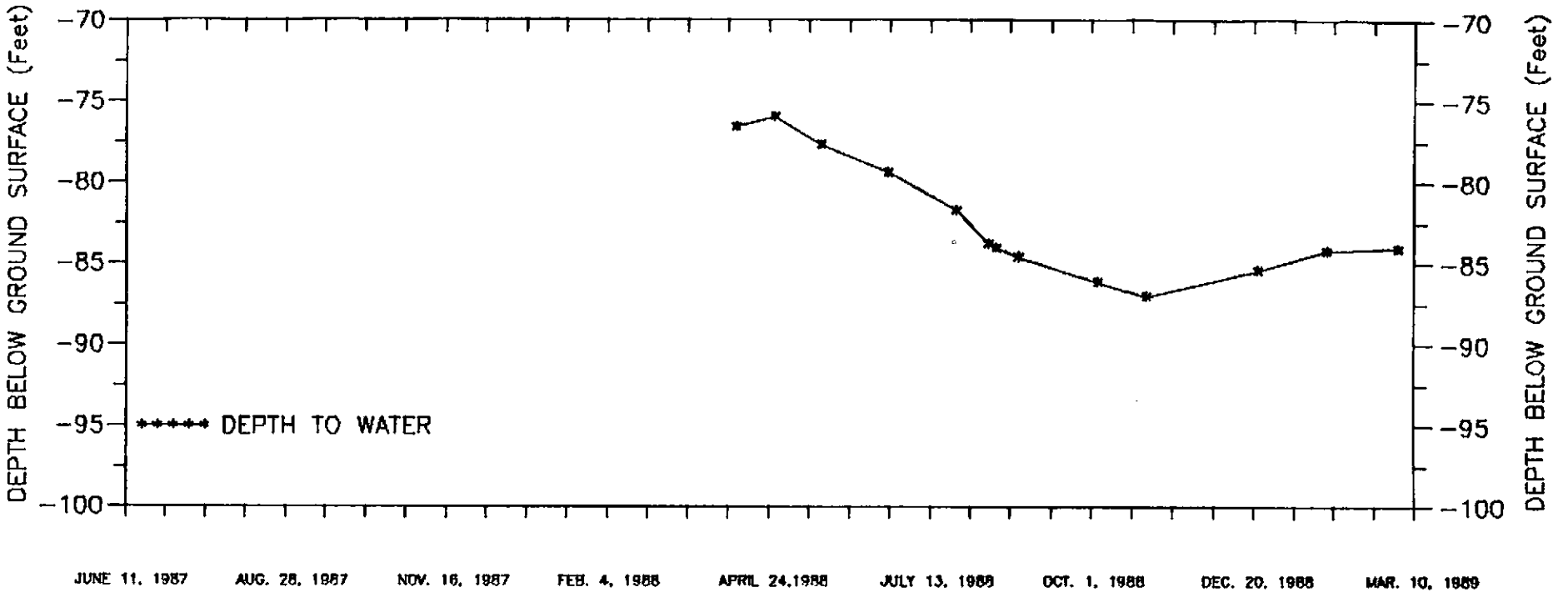
KLEINFELDER

PROJECT NO. 10-1682-03

DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-3

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
9



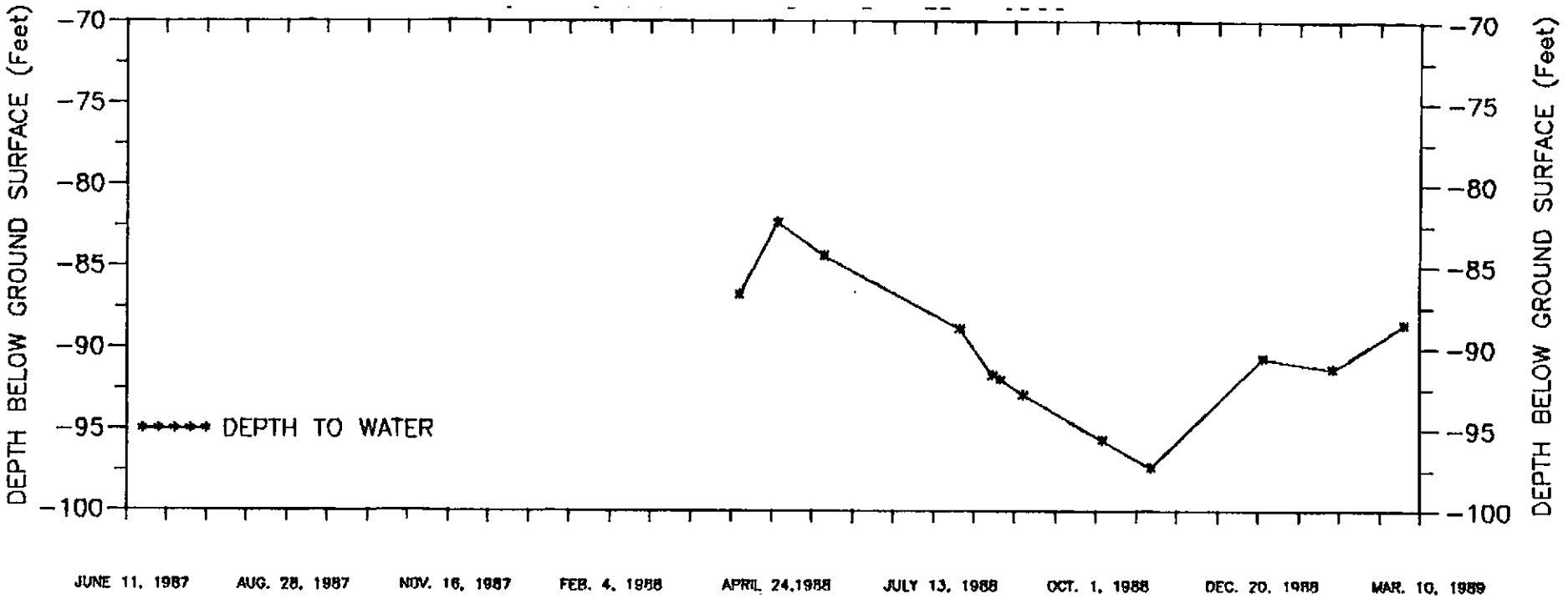
KLEINFELDER

PROJECT NO. 10-1682-03

DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-4

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
10



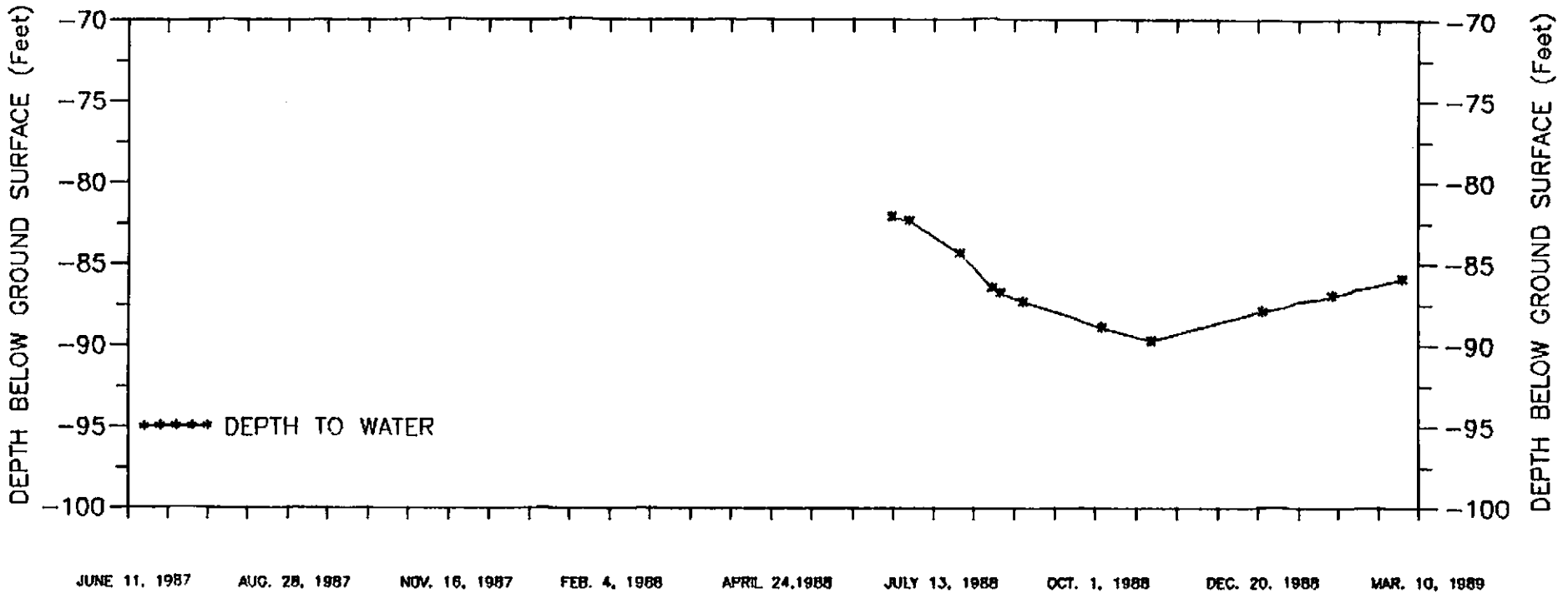
KLEINFELDER

PROJECT NO. 10-1682-03

DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-5

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
11



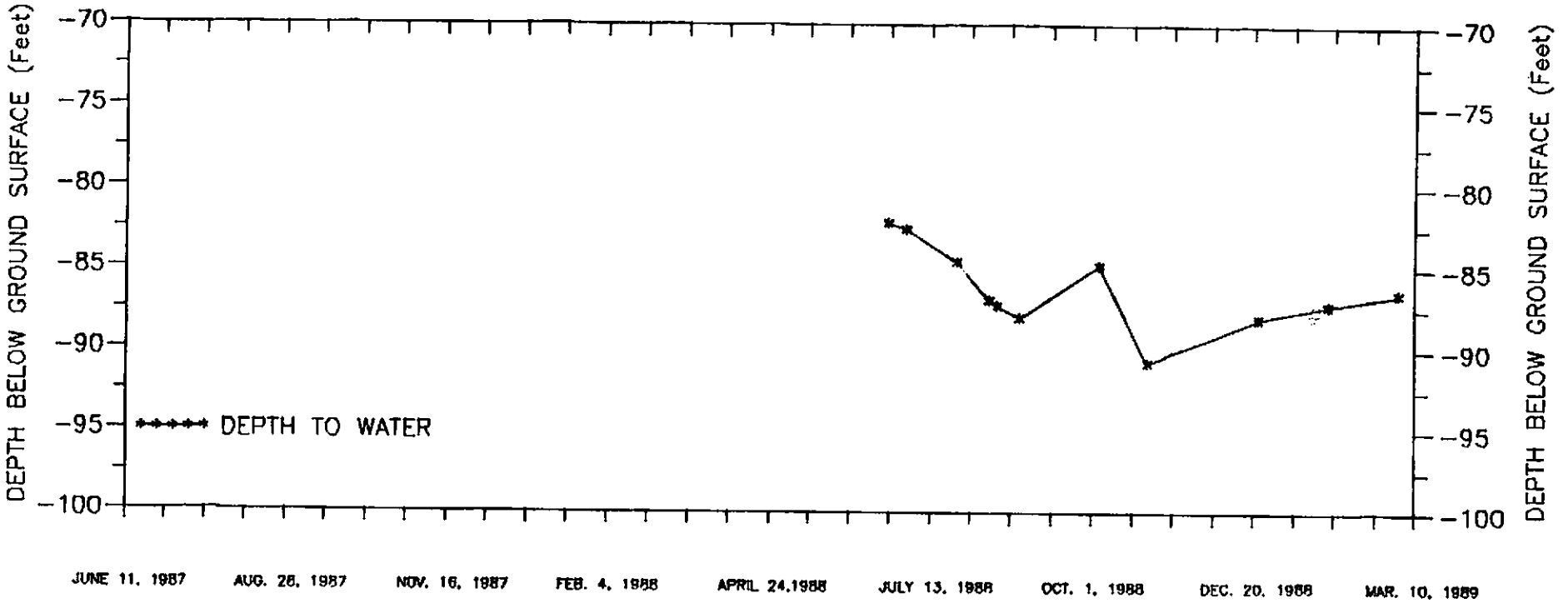
KLEINFELDER

PROJECT NO. 10-1682-03

DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-6

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
12



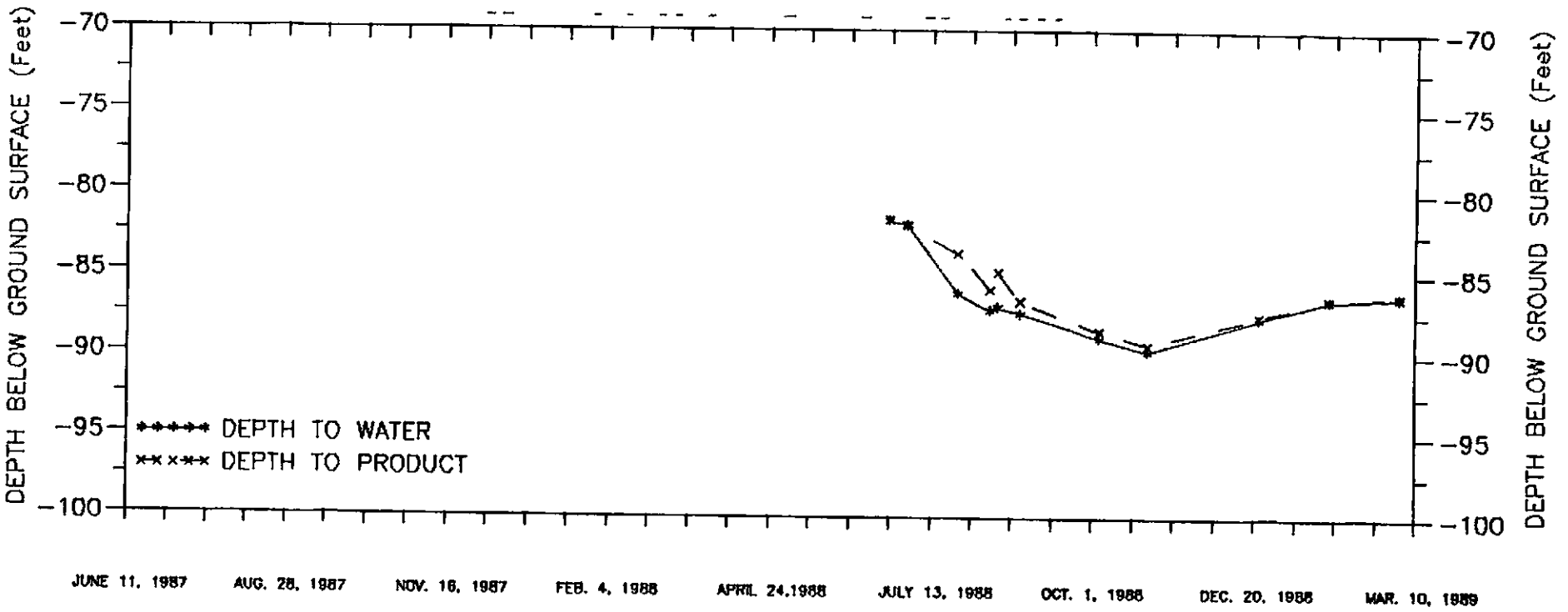
KLEINFELDER

PROJECT NO. 10-1682-03

DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-7

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
13



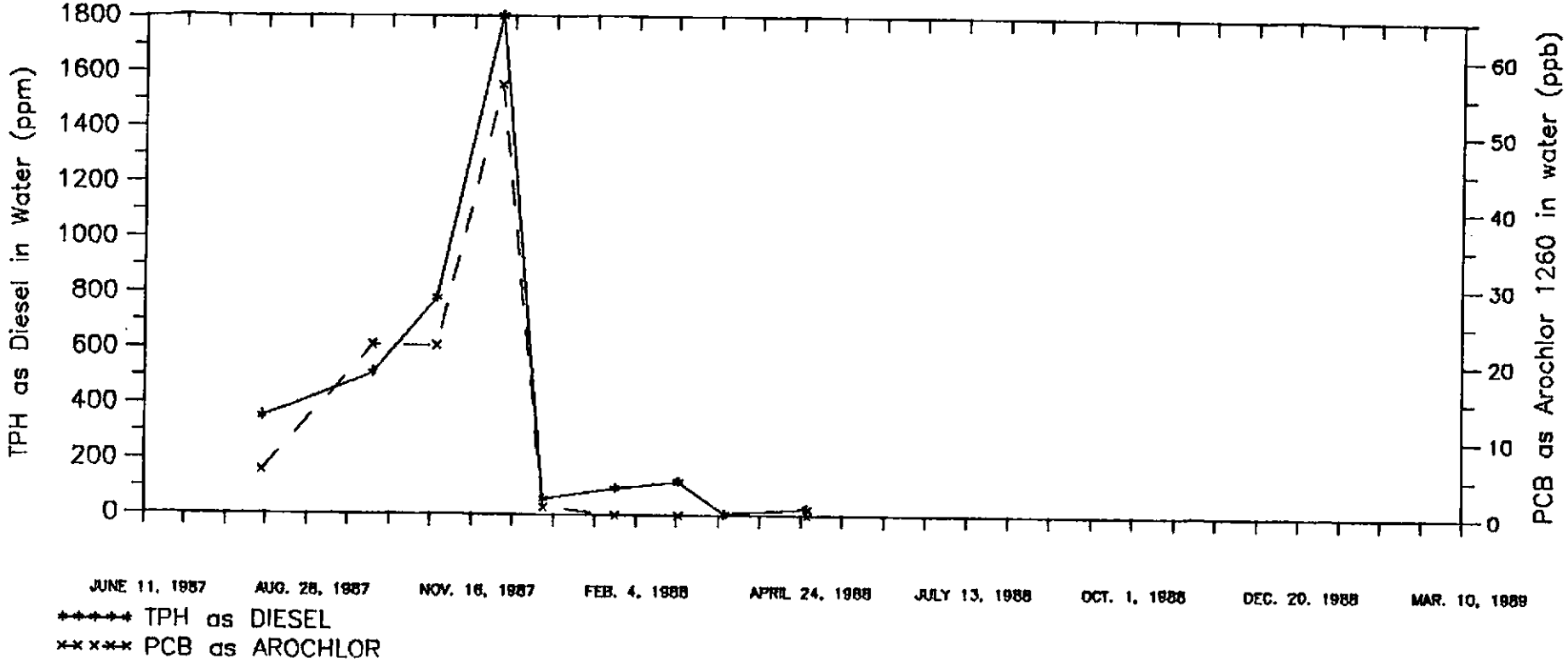
KLEINFELDER

PROJECT NO. 10-1682-03

DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-8

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
14



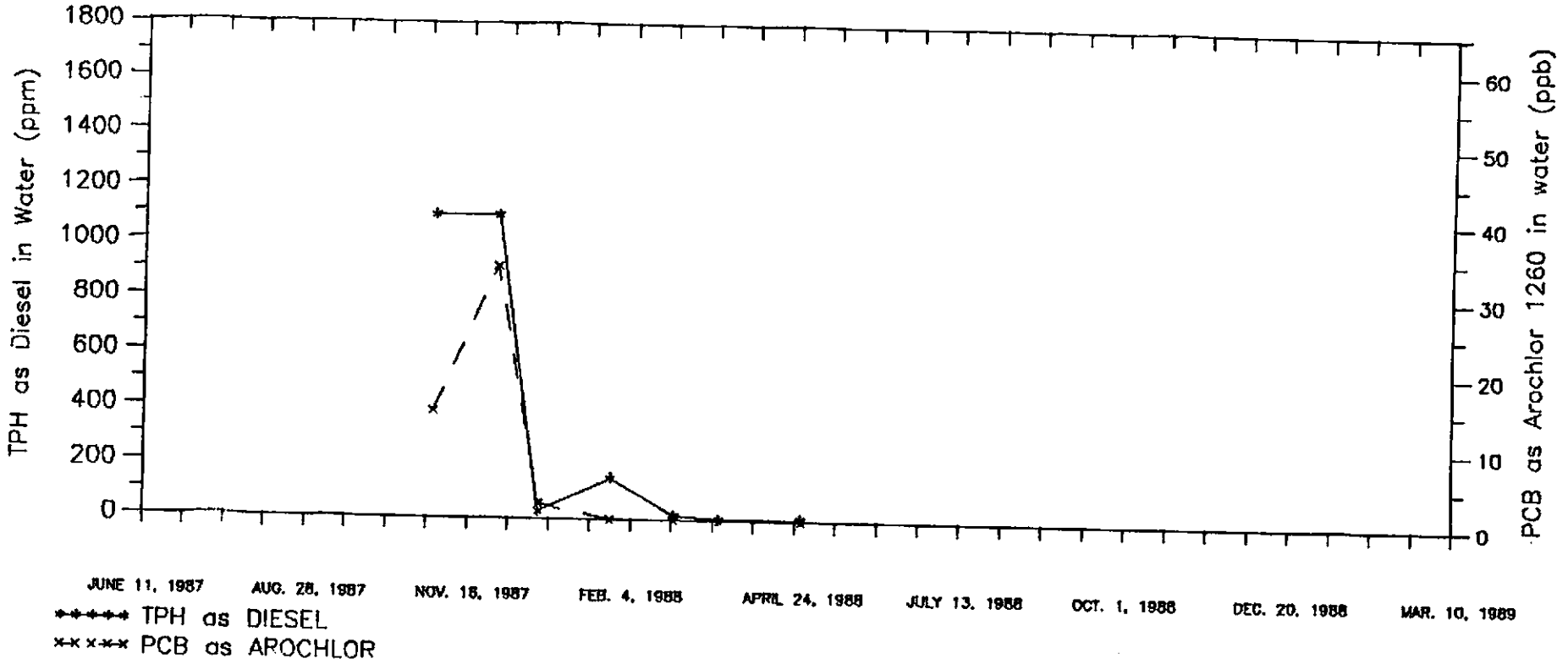
KLEINFELDER

PROJECT NO. 10-1682-03

TPH AS DIESEL AND PCBs CONCENTRATION-TIME DATA FOR WELL MW-1

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
15



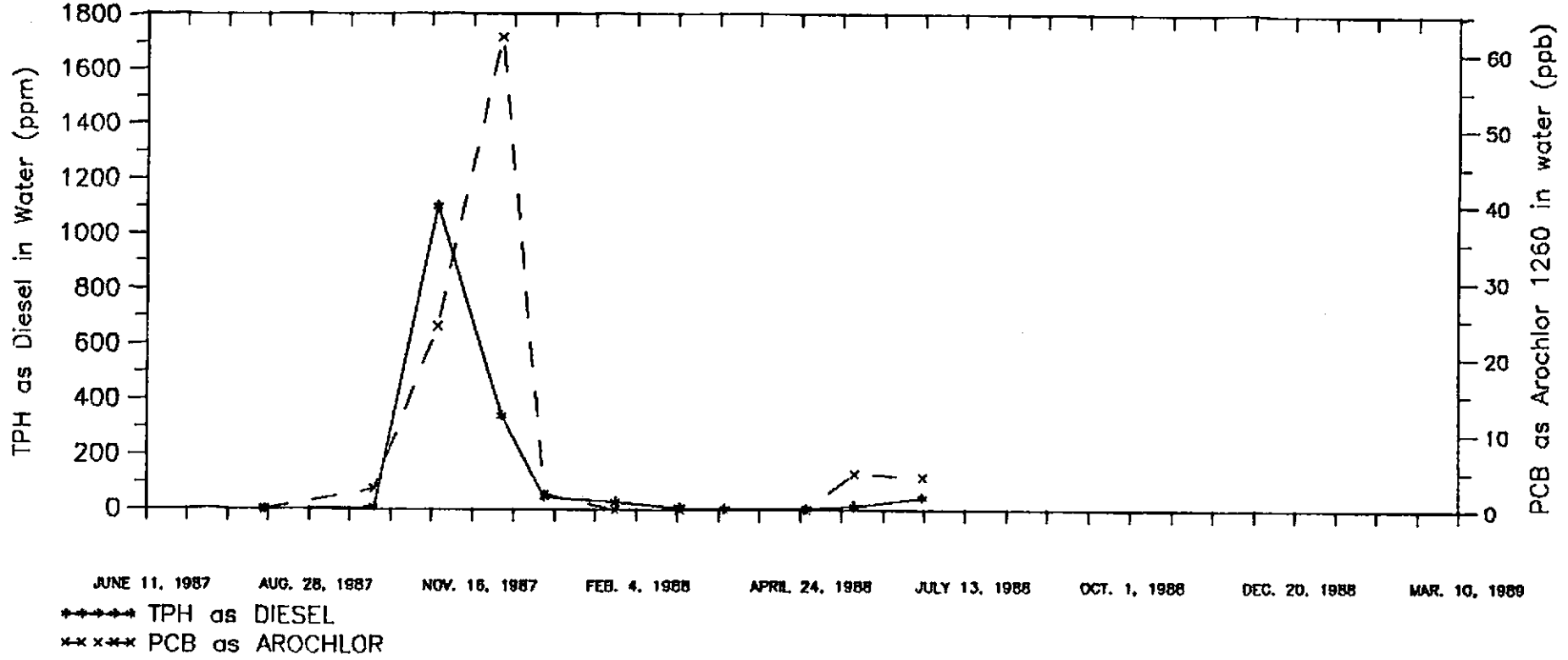
KLEINFELDER

PROJECT NO. 10-1682-03

TPH AS DIESEL AND PCBs CONCENTRATION TIME DATA FOR WELL MW-2

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
16



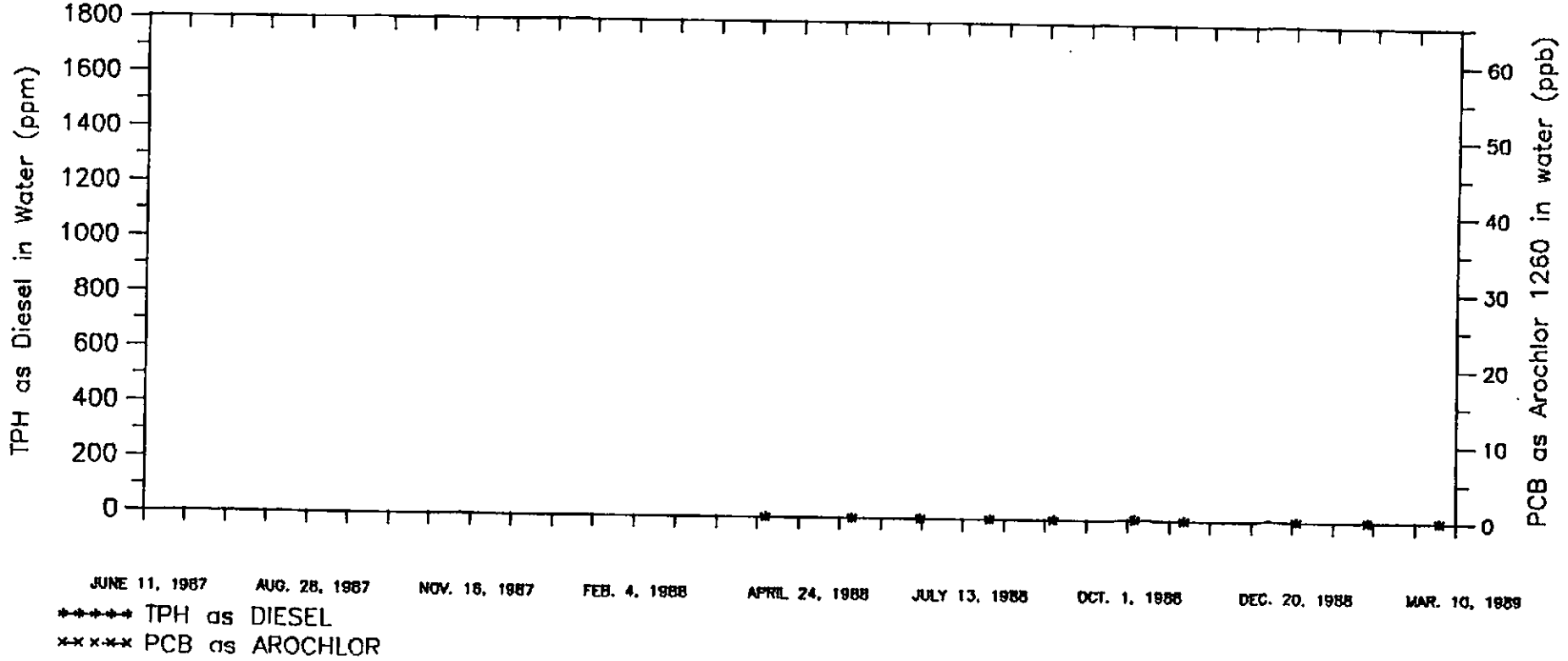
KLEINFELDER

PROJECT NO. 10-1682-03

TPH AS DIESEL AND PCBs CONCENTRATION–TIME DATA FOR WELL MW-3

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
17



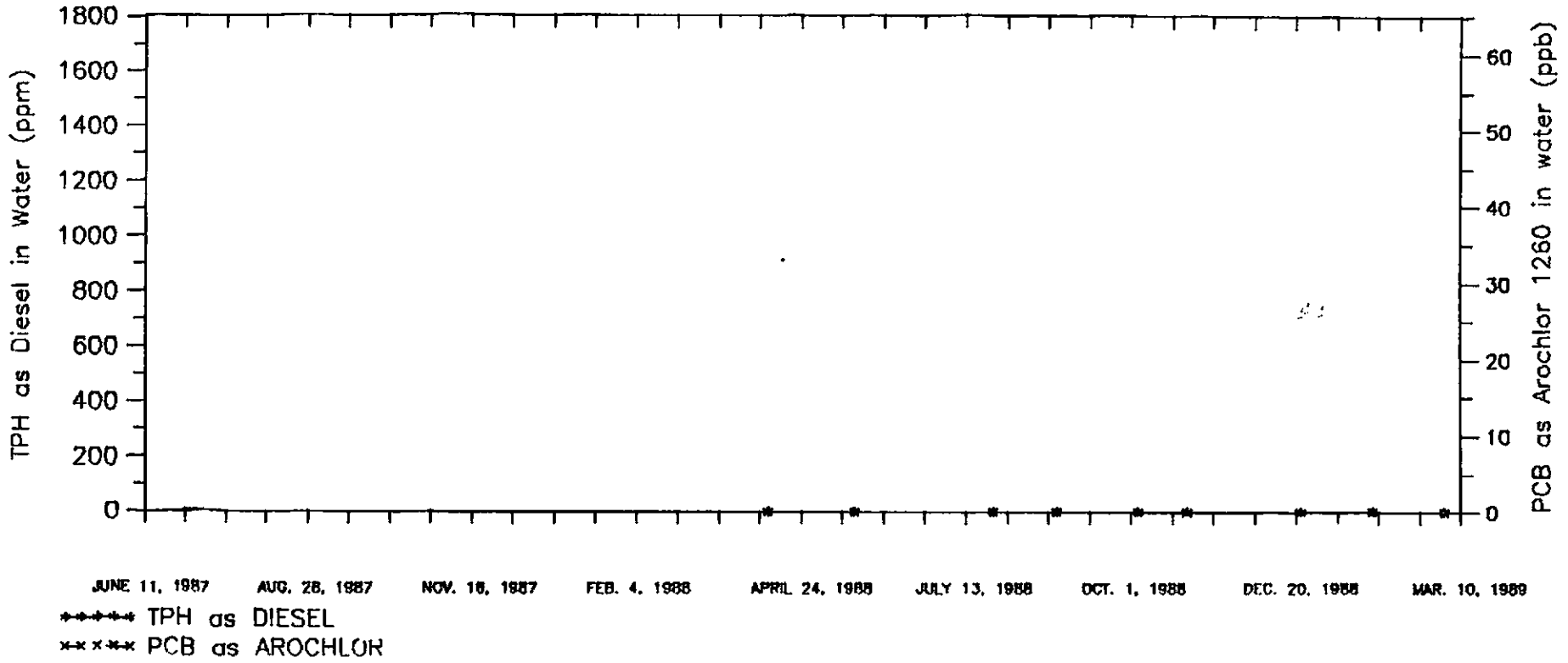
KLEINFELDER

PROJECT NO. 10-1682-03

TPH AS DIESEL AND PCBs CONCENTRATION-TIME DATA FOR WELL MW-4

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
18



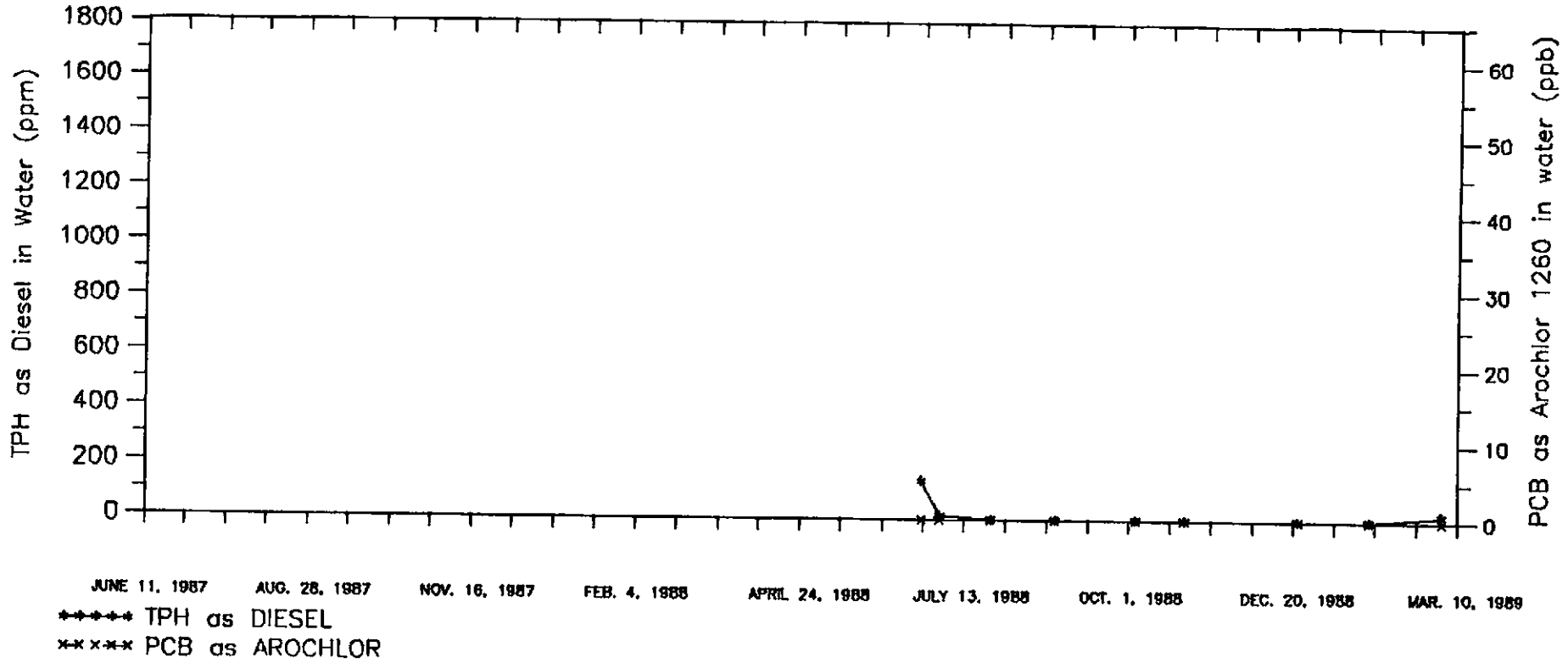
KLEINFELDER

PROJECT NO. 10-1682-03

TPH AS DIESEL AND PCBs CONCENTRATION-TIME DATA FOR WELL MW-5

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
19



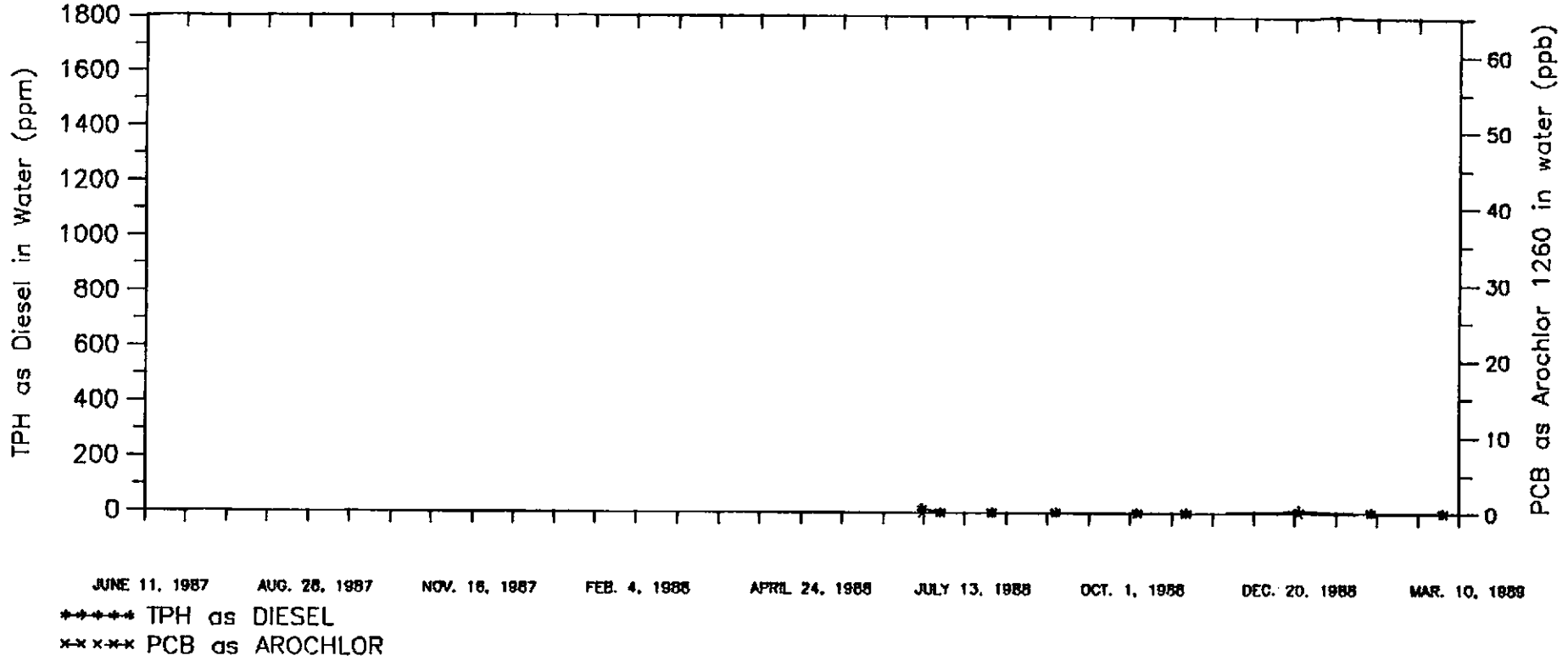
KLEINFELDER

PROJECT NO. 10-1682-03

TPH AS DIESEL AND PCBs CONCENTRATION-TIME DATA FOR WELL MW-7

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
20



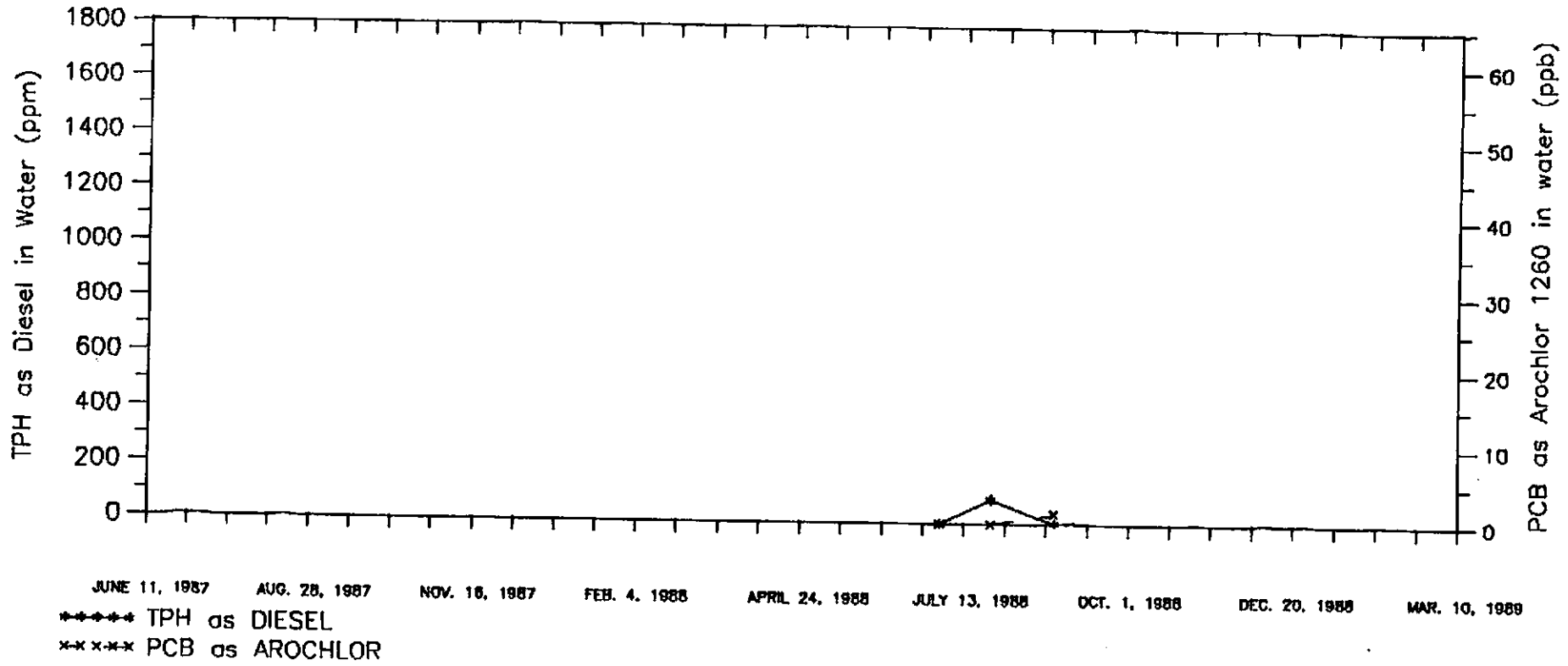
KLEINFELDER

PROJECT NO. 10-1682-03

TPH AS DIESEL AND PCBs CONCENTRATION-TIME DATA FOR WELL MW-6

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
21



KLEINFELDER

PROJECT NO. 10-1682-03

TPH AS DIESEL AND PCBs CONCENTRATION-TIME DATA FOR WELL MW-8

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
22

CHAIN OF CUSTODY RECORD

R-1
S-1

SAMPLERS: (Signature) Brian Rumm

Phone: 415-938-5610

SHIP TO:
Med-Tox

ATTENTION:

Phone No.

SHIPPING INFORMATION

Shipper: Kleinfelder
Address: Walnut Creek
Date Shipped: 8-26-88
Shipment Service: Hand
Airbill No.: —
Cooler No.: —
Att. E. Hanford

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Brian Rumm		
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Receive for laboratory by*: (Signature) A. Van Vleck	Date/Time 7/31

* Analysis laboratory should complete, "sample condition upon receipt", section below, sign and return top copy to J. H. KLEINFELDER & ASSOCIATES, 1901 Olympic Blvd., Suite 300, Walnut Creek, California 94596

Sample Number	Site Identification	Date Sampled	Analysis Requested	Sample Condition Upon Receipt
MW-4	10-168203	8-26-88	-TPH-Diesel	01A-01C
MW-5			-PCB's	02A-02C
MW-6				03A-03C
MW-7				04A-04C
*MW-8				05A-05C

LAB INSTRUCTIONS: Laboratory reports should reference and be billed by site ID# and contain the following:

(1) summary of analytical methodology and QA work (blanks, spikes, duplicates)
(2) dates for (a) sampling, (b) lab receipt, (c) extraction, (d) injection/analysis
(3) detection limits for all constituents analyzed for and reporting of all constituents detected which were not specifically designated Standard Turnaround
(4)
(5)

*Yuk! Watch Out

White - Sampler | Canary - J. H. Kleinfelder & Associates | Pink - Lab Courtesy Copy JHK&A Form

CHAIN OF CUSTODY RECORD

10-1682-03

SAMPLERS: (Signature) B Rasmussen
Brian Rasmussen

Phone: 415-938-5610

SHIP TO:
NET Pacific
Santa Rosa

ATTENTION: Judy Ridley
Phone No. 707 526-7200

SHIPPING INFORMATION

Shipper Kleinfelder
Address Walnut Creek
Date Shipped 10-5-88
Shipment Service Courier
Airbill No. —
Cooler No. —
Att E Hanford

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Brian Rasmussen	Tom Hodge NCS 421	10/6/88 0055
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Receive for laboratory by*: (Signature)	Date/Time

* Analysis laboratory should complete, "sample condition upon receipt", section below, sign and return top copy to J. H. KLEINFELDER & ASSOCIATES, 1901 Olympic Blvd., Suite 300, Walnut Creek, California 94596

Sample Number	Site Identification	Date Sampled	Analysis Requested	Sample Condition Upon Receipt
MW-4	10-1682-03	10-5-88	BTXE	
MW-5	↓	↓	TPH- Diesel	
MW-6				
MW-7				

Analysis Requested - Revised
Per Telephone 10-18-88
TPH - Diesel
PCB's
E. J. Hanford

LAB INSTRUCTIONS: Laboratory reports should reference and be billed by site ID# and contain the following:

(1) summary of analytical methodology and QA work (blanks, spikes, duplicates)
(2) dates for (a) sampling, (b) lab receipt, (c) extraction, (d) injection/analysis
(3) detection limits for all constituents analyzed for and reporting of all constituents detected which were not specifically designated
(4) Standard Turnaround
(5)

Thank You!!

White - Sampler Canary - J. H. Kleinfelder & Associates Pink - Lab Courtesy Copy

JHK&A Form M-60

CHAIN OF CUSTODY RECORD

4653

SAMPLERS: *(Signature)* Doug Heard

Phone: (415) 938-5610

SHIP TO:

Net - Pacific

Santa Rosa, Ca.

ATTENTION: Judy Ridley

Phone No. 707-526-7200

SHIPPING INFORMATION

Shipper Net Pacific - Field Services

Address Santa Rosa

Date Shipped 10-28-88

Shipment Service Carrier

Airbill No. —

Cooler No. —

AH. E Hanford

Relinquished by: *(Signature)* Doug Heard	Received by: *(Signature)* Diane Kruger Pleasant Hill	Date/Time 10/29/88 1850
Relinquished by: *(Signature)* Diane Kruger	Received by: *(Signature)* VIA NCS	Date/Time
Relinquished by: *(Signature)*	Received by: *(Signature)*	Date/Time
Relinquished by: *(Signature)*	Receive for laboratory by*: *(Signature)* K Temple	Date/Time 10/29/88 2130

* Analysis laboratory should complete, "sample condition upon receipt", section below, sign and return top copy to J. H. KLEINFELDER & ASSOCIATES, 1901 Olympic Blvd., Suite 300, Walnut Creek, California 94596

Sample Number	Site Identification	Date Sampled	Analysis Requested	Sample Condition Upon Receipt
MW-4	10-1682-03	10/28/88	608 PCB's aqu (2x1 L)	ok
MW-5			TPH as diesel (3x40mL)	
MW-6				
MW-7				

LAB INSTRUCTIONS: Laboratory reports should reference and be billed by site ID# and contain the following:

(1) summary of analytical methodology and QA work (blanks, spikes, duplicates)
(2) dates for (a) sampling, (b) lab receipt, (c) extraction, (d) injection/analysis
(3) detection limits for all constituents analyzed for and reporting of all constituents detected which were not specifically designated Standard Turnaround
(4)
(5)

Thank You!

White - Sampler Canary - J. H. Kleinfelder & Associates Pink - Lab Courtesy Copy

JHK&A Form M-60

CHAIN OF CUSTODY RECORD

SAMPLERS: *(Signature)*

Phone:

SHIP TO:

ATTENTION:

Phone No.

SHIPPING INFORMATION

Shipper

Address

Date Shipped

Shipment Service

Airbill No.

Cooler No.

Relinquished by: *(Signature)*	Received by: *(Signature)*	Date/Time
Relinquished by: *(Signature)*	Received by: *(Signature)*	Date/Time
Relinquished by: *(Signature)*	Received by: *(Signature)*	Date/Time
Relinquished by: *(Signature)*	Receive for laboratory by*: *(Signature)*	Date/Time

* Analysis laboratory should complete, "sample condition upon receipt", section below, sign and return top copy to J. H. KLEINFELDER & ASSOCIATES, 1901 Olympic Blvd., Suite 300, Walnut Creek, California 94596

Sample Number	Site Identification	Date Sampled	Analysis Requested	Sample Condition Upon Receipt
MW-5	01A→D 10-1182-63	12/22	TPH-D, TPH-G, Diesel	Good
MW-1	02A→D			
MW-6	03A→D			
MW-7	04A→D			

INSTRUCTIONS: Laboratory reports should reference and be billed by site ID# and contain the following:

1) summary of analytical methodology and QA work (blanks, spikes, duplicates)
2) dates for (a) sampling, (b) lab receipt, (c) extraction, (d) injection/analysis
3) detection limits for all constituents analyzed for and reporting of all constituents detected which were not specifically designated
4)
5)

White - Sampler

Canary - J. H. Kleinfelder & Associates

Pink - Lab Courtesy Copy

JHK&A Form M-60

CHAIN OF CUSTODY RECORD

8901157

SAMPLERS: (Signature) Doug Heard

Phone: 938-5610

SHIP TO: ~~Kleinfelder, Walnut Creek~~ Med-Tox

ATTENTION: ~~Dennis Laduzinsky~~

Phone No.

SHIPPING INFORMATION

Shipper Kleinfelder, Walnut Creek

Address

Date Shipped 1-26-89

Shipment Service ~~Next Day~~

Airbill No.

Cooler No. Attn' Dennis L.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Doug Heard		
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Receive for laboratory by*: (Signature) G. Van Vleck	Date/Time 1-26-89 1650

* Analysis laboratory should complete, "sample condition upon receipt", section below, sign and return top copy to J. H. KLEINFELDER & ASSOCIATES, 1901 Olympic Blvd., Suite 300, Walnut Creek, California 94596

Sample Number	Site Identification	Date Sampled	Analysis Requested	Sample Condition Upon Receipt
MW-5	10-1682-03	1/26/89	PCBs, TPH as Diesel	
MW-4	↓	↓	↓	
MW-6				
MW-7				
		Standard Two Week Turnaround Please		
		Results to Dennis Laduzinsky		

LAB INSTRUCTIONS: Laboratory reports should reference and be billed by site ID# and contain the following:

(1) summary of analytical methodology and QA work (blanks, spikes, duplicates)
(2) dates for (a) sampling, (b) lab receipt, (c) extraction, (d) injection/analysis
(3) detection limits for all constituents analyzed for and reporting of all constituents detected which were not specifically designated
(4)
(5)

Thank You

White - Sampler Canary - J. H. Kleinfelder & Associates Pink - Lab Courtesy Copy

JHK&A Form M-60

C[illegible]IN OF CUSTODY RE[illegible]RT

SAMPLERS: (Signature) Adam Klein

Phone: 415-938-5610

SHIPPING INFORMATION

Shipper: Kleinfelder, Walnut Creek

Address:

Date Shipped:

Shipment Service:

Airbill No.:

Cooler No.:

SHIP TO:
Med-Tox

ATTENTION:

Phone No.:

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Adam Klein		
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Receive for laboratory by*: (Signature) Yvonne St. John	Date/Time 3/5/89 1503

* Analysis laboratory should complete, "sample condition upon receipt", section below, sign and return top copy to J. H. KLEINFELDER & ASSOCIATES, 1901 Olympic Blvd., Suite 300, Walnut Creek, California 94596

Sample Number	Site Identification	Date Sampled	Analysis Requested	Sample Condition Upon Receipt
10031, MW6	1C-1682-03	3/2/89	TPH as diesel, motor oil	Intact
10033, MW6	-14		PCB's	
09971, MW7			TPH as diesel, motor oil	
09973, MW7	500 ppm		PCB's	
09966, MW1			TPH as diesel, motor oil	
09968, MW4			PCB's	
09963, MW5			TPH as diesel, motor oil	
09961, MW5			PCB's	

STANDARD 2-WEEK TURNAROUND PLEASE

Results to Adam Klein

LAB INSTRUCTIONS: Laboratory reports should reference and be billed by site ID# and contain the following:

(1) summary of analytical methodology and QA work (blanks, spikes, duplicates)
(2) dates for (a) sampling, (b) lab receipt, (c) extraction, (d) injection/analysis
(3) detection limits for all constituents analyzed for and reporting of all constituents detected which were not specifically designated

(5)

White - Sampler Canary - J. H. Kleinfelder & Associates Pink - Lab Courtesy Copy

JHK&A Form M-60

WORKING COPY

MED-TOX ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

3440 Vincent Road Pleasant Hill, CA 94523 • (415) 930-9090 • FAX# (415) 930-0256

LABORATORY ANALYSIS REPORT

J.H. KLEINFELDER & ASSOCIATES
2121 N. CALIFORNIA BLVD.
SUITE 570
WALNUT CREEK, CA 94596

ATTN: ELAINE HANFORD

CLIENT JOB REF: 10-1682-03

REPORT DATE: 09/14/88

DATE SAMPLED: 08/26/88

DATE RECEIVED: 08/26/88

DATE ANALYZED: 09/03/88

MED-TOX JOB NO: 8808203

ANALYSIS OF: FIVE WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AND POLYCHLORINATED BIPHENYLS

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client Id.	Lab No.	Total Petroleum Hydrocarbons As Diesel (mg/L)
MW-4	01A	ND
MW-5	02A	ND
MW-6	03A	ND
MW-7	04A	ND
MW-8	05A	ND
Detection Limit		10

Michael J. Jaeger, Manager
Organic Laboratory

Results FAXed to Elaine Hanford 09/09/88

This is a revision of the report dated 09/12/88

J.H. KLEINFLEDER & ASSOCIATES

CLIENT ID: MW-4
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 08/26/88
DATE RECEIVED: 08/26/88

MED-TOX LAB NO: 8808203-01C
MED-TOX JOB NO: 8808203
DATE EXTRACTED: 09/01/88
DATE ANALYZED: 09/07/88
REPORT DATE: 09/14/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:

ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFLEDER & ASSOCIATES

CLIENT ID: MW-5
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 08/26/88
DATE RECEIVED: 08/26/88

MED-TOX LAB NO: 8808203-02C
MED-TOX JOB NO: 8808203
DATE EXTRACTED: 09/01/88
DATE ANALYZED: 09/07/88
REPORT DATE: 09/14/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:

ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFLEDER & ASSOCIATES

CLIENT ID: MW-6
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 08/26/88
DATE RECEIVED: 08/26/88

MED-TOX LAB NO: B808203-03C
MED-TOX JOB NO: B808203
DATE EXTRACTED: 09/01/88
DATE ANALYZED: 09/07/88
REPORT DATE: 09/14/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:

ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFLEDER & ASSOCIATES

CLIENT ID: MW-7
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 08/26/88
DATE RECEIVED: 08/26/88

MED-TOX LAB NO: 8808203-04C
MED-TOX JOB NO: 8808203
DATE EXTRACTED: 09/01/88
DATE ANALYZED: 09/07/88
REPORT DATE: 09/14/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:

ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd *Edition*, 1986

J.H. KLEINFLEDER & ASSOCIATES

CLIENT ID: MW-8
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 08/26/88
DATE RECEIVED: 08/26/88

MED-TOX LAB NO: 8808203-05C
MED-TOX JOB NO: 8808203
DATE EXTRACTED: 09/01/88
DATE ANALYZED: 09/07/88
REPORT DATE: 09/14/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	1.2	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:

ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Formerly: ANATEC Labs, Inc.

Elaine Hanford
Kleinfelder
2121 N California Blvd
Suite 570
Walnut Creek, CA 94596

10-26-88
NET Pacific Log No: 4416 (1-4)
Series No: 300/051
Client Ref: Site ID# 10-1682-03

Subject: Analytical Results for Four Water Samples Received 10-06-88.

Dear Ms. Hanford:

Analysis of the samples referenced above has been completed. Results are presented following this page.

Please feel welcome to contact us should you have questions regarding procedures or results.

Submitted by:

David Hirano
Project Chemist

Approved by:

Jules Skamarack
Project Manager

/sm
Enc: Sample Custody Document

KEY TO ABBREVIATIONS

mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
NA	:	Not analyzed; see cover letter for details.
ND	:	Not detected; the analyte concentration is less than the listed reporting limit.
NR	:	Not requested.
NTU	:	Nephelometric turbidity units.
RL	:	Reporting limit.
RPD	:	RPD--Relative percent difference; $[(V_1-V_2)/V_{mean}] \times 100$.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
ug/filter	:	Concentration in units of micrograms of analyte per filter.
umhos/cm	:	Micromhos per centimeter.
*	:	See cover letter for details.

SAMPLE DESCRIPTION: MW-4 10-05-88
LAB NO.: (-16538)

Parameter	Reporting Limit	Results	Units	Date Extracted	Date Analyzed
PETROLEUM HYDROCARBONS (8015-3550)					
Extractable,					
as Motor Oil	0.05	ND	mg/L	10-07-88	10-14-88
as Diesel Fuel	0.05	ND	mg/L	10-07-88	10-14-88
PCBs (8080)					
Aroclor 1016	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1221	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1232	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1242	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1248	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1254	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1260	0.5	ND	ug/L	10-07-88	10-21-88

SAMPLE DESCRIPTION: MW-5 10-05-88
LAB NO.: (-16539)

Parameter	Reporting Limit	Results	Units	Date Extracted	Date Analyzed
PETROLEUM HYDROCARBONS (8015-3550)					
Extractable,					
as Motor Oil	0.05	ND	mg/L	10-07-88	10-14-88
as Diesel Fuel	0.05	ND	mg/L	10-07-88	10-14-88
PCBs (8080)					
Aroclor 1016	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1221	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1232	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1242	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1248	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1254	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1260	0.5	ND	ug/L	10-07-88	10-21-88

SAMPLE DESCRIPTION: MW-6 10-05-88
LAB NO.: (-16540)

Parameter	Reporting Limit	Results	Units	Date Extracted	Date Analyzed
PETROLEUM HYDROCARBONS (8015-3550)					
Extractable,					
as Motor Oil	0.05	ND	mg/L	10-07-88	10-14-88
as Diesel Fuel	0.05	ND	mg/L	10-07-88	10-14-88
PCBs (8080)					
Aroclor 1016	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1221	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1232	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1242	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1248	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1254	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1260	0.5	ND	ug/L	10-07-88	10-21-88

SAMPLE DESCRIPTION: MW-7 10-05-88
LAB NO.: (-16541)

Parameter	Reporting Limit	Results	Units	Date Extracted	Date Analyzed
PETROLEUM HYDROCARBONS (8015-3550)					
Extractable,					
as Motor Oil	0.05	ND	mg/L	10-07-88	10-14-88
as Diesel Fuel	0.05	ND	mg/L	10-07-88	10-14-88
PCBs (8080)					
Aroclor 1016	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1221	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1232	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1242	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1248	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1254	0.5	ND	ug/L	10-07-88	10-21-88
Aroclor 1260	0.5	ND	ug/L	10-07-88	10-21-88

QUALITY CONTROL RESULTS TOTAL PETROLEUM HYDROCARBONS AS DIESEL
EPA Method[a] 8015-3550[b]

	Spike and Spike Replicate Results		
Blank (mg/Kg)	(DI Spike)	(DI Spike R)	RPD (%)
<10	106	95	11

[a]"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA, SW-846, 3rd edition, revised 1986.
[b]Sonification extraction with gas chromatography/flame ionization detection (GC/PID)

QUALITY CONTROL RESULTS - PCB'S - EPA[a] Method 8080[b]

Parameter	Blank (mg/L)	Spike and Spike Replicate Results Lab No. ( )	Results %Recovery ( )	RPD
Aroclor 1016	<0.5	NA[c]	NA	NA
Aroclor 1221	<0.5	NA	NA	NA
Aroclor 1232	<0.5	NA	NA	NA
Aroclor 1242	<0.5	NA	NA	NA
Aroclor 1248	<0.5	NA	NA	NA
Aroclor 1254	<0.5	NA	NA	NA
Aroclor 1260	<0.5	NA	NA	NA

[a]"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA, SW-846, 3rd edition, revised 1986.
[b]Separating funnel extraction (EPA[a] Method 3510) with gas chromotography/electron capture detection - GC/ECD.
[c]Not analyzed - insufficient sample for QC analysis.

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Formerly: ANATEC Labs, Inc.

WORKING COPY

Elaine Hanford
Kleinfelder
2121 N California Blvd
Suite 570
Walnut Creek, CA 94596

11-07-88
NET Pacific Log No: 4653 (1-4)
Series No: 300/075
Client Ref: Site ID# 10-1682-03

Subject: Analytical Results for Four Water Samples Received 10-28-88.

Dear Ms. Hanford:

Analysis of the samples referenced above has been completed. Results are presented on the following pages.

Please feel welcome to contact us should you have questions regarding procedures or results.

Submitted by:

Larry Thurston
Project Chemist

Approved by:

Jules Skamarack
Project Manager

/sm
Enc: Sample Custody Document

KEY TO ABBREVIATIONS

mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
NA	:	Not analyzed; see cover letter for details.
ND	:	Not detected; the analyte concentration is less than the listed reporting limit.
NR	:	Not requested.
NTU	:	Nephelometric turbidity units.
RL	:	Reporting limit.
RPD	:	Relative percent deviation.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
ug/filter	:	Concentration in units of micrograms of analyte per filter.
umhos/cm	:	Micromhos per centimeter.
*	:	See cover letter for details.

Parameter	Reporting Limit (mg/L)	Descriptor, Lab No. and Results (mg/L) MW-4 10-28-88 (-17579)[a]	MW-5 10-28-88 (-17580)[a]	MW-6 10-28-88 (-17581)[a]	MW-7 10-28-88 (-17582)[a]
PETROLEUM HYDROCARBONS Extractable,					
as Motor Oil	0.05	ND	ND	ND	ND
as Diesel Fuel	0.05	0.46	ND	ND	1.4

[a]Date Extracted--11/02/88
Date Analyzed-- 11/07/88

Parameter	Reporting Limit (ug/L)	Descriptor, Lab No. and Results (ug/L) MW-4 10-28-88 (-17579)[a]	MW-5 10-28-88 (-17580)[a]	MW-6 10-28-88 (-17581)[a]	MW-7 10-28-88 (-17582)[a]
POLYCHLORINATED BIPHENYLS					
Aroclor 1016	0.5	ND	ND	ND	ND
Aroclor 1221	0.5	ND	ND	ND	ND
Aroclor 1232	0.5	ND	ND	ND	ND
Aroclor 1242	0.5	ND	ND	ND	ND
Aroclor 1248	0.5	ND	ND	ND	ND
Aroclor 1254	0.5	ND	ND	ND	ND
Aroclor 1260	0.5	ND	ND	ND	ND

[a]Date Extracted--11/03/88
Date Analyzed-- 11/06/88

THE COVER LETTER AND KEY TO ABBREVIATIONS ARE AN INTEGRAL PART OF THIS REPORT

QUALITY CONTROL RESULTS - TOTAL PETROLEUM HYDROCARBONS AS DIESEL

EPA Method[a] 8015-3550[b]

	Lab No. Spike and Spike Replicate Results % Recovery		
Blank (mg/L)	(DI Spike)	(DI Spike)	RPD (%)
<0.05	74	52	34

[a]"Test Methods for Evaluating solid Waste, Physical/Chemical Methods," U.S. EPA, SW-846, 3rd edition, revised 1986.
[b]8015-3550--Sonication extraction with Gas Chromatography/Flame Ionization Detection. (GC/FID)

QUALITY CONTROL RESULTS - PCB'S

EPA Method[a] 8080[b]

Parameter	Blank (ug/L)	Lab No. Spike and Spike Replicate Results % Recovery (DI Spike)	(DI SpikeR)	RPD (%)
Aroclor 1016	<0.5	NS[c]	NS	NA
Aroclor 1221	<0.5	NS	NS	NA
Aroclor 1232	<0.5	NS	NS	NA
Aroclor 1242	<0.5	NS	NS	NA
Aroclor 1248	<0.5	NS	NS	NA
Aroclor 1254	<0.5	NS	NS	NA
Aroclor 1260	<0.5	NS	NS	NA
Beta BHC	<0.1	86	75	13
Heptachlor	<0.1	56	54	4
DDE op	<0.1	61	59	14
DDE pp	<0.1	64	52	20
Endosulfan	<0.1	65	52	22
Methoxychlor	<0.1	57	46	21

[a] "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA, SW-846, 3rd edition, revised 1986.
[b] Separating funnel extraction (EPA[a] Method 3510) with gas chromotography/electron caputre detection - GC/ECD
[c] NS--Not spiked.

Industrial Asphalt

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MED-TOX ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

3440 Vincent Road Pleasant Hill, CA 94523 • (415) 930-9090 • FAX# (415) 930-0256

LABORATORY ANALYSIS REPORT

J.H. KLEINFELDER & ASSOCIATES
2121 N. CALIFORNIA BLVD.
SUITE 570
WALNUT CREEK, CA 94596

REPORT DATE: 01/05/89
DATE SAMPLED: 12/22/88
DATE RECEIVED: 12/22/88
DATE ANALYZED: 12/05/88

ATTN: DENNIS LADUZINSKY

CLIENT PROJECT NO: 10-1682-03

MED-TOX JOB NO: 8812098

ANALYSIS OF: FOUR WATER SAMPLES FOR TOTAL PETROELUM HYDROCARBONS AND POLYCHLORINATED BIPHENYLS

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client Id.	Lab No.	Total Petroleum Hydrocarbons As Diesel (mg/L)
MW-5	01A	ND
MW-4	02A	0.6*
MW-6	03A	9.3*
MW-7	04A	1.0*
Detection Limit		0.3

* Although this sample contains what appear to be higher molecular weight hydrocarbons than those typically contained in a diesel fuel, reported concentrations are based on diesel calibration.

Linsea M. Nowak for MJJ
Michael J. Jaeger, Manager
Organic Laboratory

Results FAXed to Dennis Laduzinsky 01/04/89

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: MW-5
CLIENT JOB NO: 10-1682-03
DATE SAMPLED: 12/22/88
DATE RECEIVED: 12/22/88

MED-TOX LAB NO: 8812098-01C
MED-TOX JOB NO: 8812098
DATE EXTRACTED: 12/27/88
DATE ANALYZED: 12/27/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:

ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: MW-4
CLIENT JOB NO: 10-1682-03
DATE SAMPLED: 12/22/88
DATE RECEIVED: 12/22/88

MED-TOX LAB NO: 8812098-02C
MED-TOX JOB NO: 8812098
DATE EXTRACTED: 12/27/88
DATE ANALYZED: 12/27/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:

ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: MW-6
CLIENT JOB NO: 10-1682-03
DATE SAMPLED: 12/22/88
DATE RECEIVED: 12/22/88

MED-TOX LAB NO: 8812098-03C
MED-TOX JOB NO: 8812098
DATE EXTRACTED: 12/27/88
DATE ANALYZED: 12/27/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:

ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: MW-7
CLIENT JOB NO: 10-1682-03
DATE SAMPLED: 12/22/88
DATE RECEIVED: 12/22/88

MED-TOX LAB NO: 8812098-04C
MED-TOX JOB NO: 8812098
DATE EXTRACTED: 12/27/88
DATE ANALYZED: 12/27/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:

ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

MED-TOX ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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LABORATORY ANALYSIS REPORT

J.H. KLEINFELDER & ASSOCIATES
2121 N. CALIFORNIA BLVD.
SUITE 570
WALNUT CREEK, CA 94596

ATTN: DENNIS LADUZINSKY

REPORT DATE: 02/22/89

DATE SAMPLED: 01/26/89

DATE RECEIVED: 01/26/89
DATE EXTRACTED: 01/30/89
DATE ANALYZED: 01/30-02/01/89

CLIENT PROJECT ID: 10-1682-03

MED-TOX JOB NO: 8901157

ANALYSIS OF: FOUR WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AND POLYCHLORINATED BIPHENYLS

Sample Identification Client Id.	Lab No.	Total Petroleum Hydrocarbons as Diesel (mg/L)
MW-5	01A	ND
MW-4	02A	ND
MW-6	03A	ND
MW-7	04A	ND
Detection Limit		0.3
Method		8015

See attached for remaining results

Michael Lynch, Manager
Organic Laboratory

Results FAXed to Dennis Laduzinsky 02/14/89

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: MW-5
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 01/26/89
DATE RECEIVED: 01/26/89

MED-TOX LAB NO: 8901157-01A
MED-TOX JOB NO: 8901157
DATE EXTRACTED: 02/02/89
DATE ANALYZED: 02/02/89
REPORT DATE: 02/22/89

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

ND = Not detected at or above indicated method detection limit

Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: MW-4
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 01/26/89
DATE RECEIVED: 01/26/89

MED-TOX LAB NO: 8901157-02A
MED-TOX JOB NO: 8901157
DATE EXTRACTED: 02/02/89
DATE ANALYZED: 02/02/89
REPORT DATE: 02/22/89

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

ND = Not detected at or above indicated method detection limit

Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: MW-6
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 01/26/89
DATE RECEIVED: 01/26/89

MED-TOX LAB NO: 8901157-03A
MED-TOX JOB NO: 8901157
DATE EXTRACTED: 02/02/89
DATE ANALYZED: 02/02/89
REPORT DATE: 02/22/89

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

ND = Not detected at or above indicated method detection limit

Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: MW-7
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 01/26/89
DATE RECEIVED: 01/26/89

MED-TOX LAB NO: 8901157-04A
MED-TOX JOB NO: 8901157
DATE EXTRACTED: 02/02/89
DATE ANALYZED: 02/02/89
REPORT DATE: 02/22/89

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

ND = Not detected at or above indicated method detection limit

Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

MED-TOX ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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LABORATORY ANALYSIS REPORT

J.H. KLEINFELDER & ASSOCIATES
2121 N. CALIFORNIA BLVD. STE. 570
WALNUT CREEK, CA 94596

ATTN: ADAM KLEIN

REPORT DATE: 03/22/89

DATE SAMPLED: 03/02/89

DATE RECEIVED: 03/02/89
DATE EXTRACTED: 03/06/89
DATE ANALYZED: 03/06-16/89

CLIENT PROJECT ID: 10-1682-03

MED-TOX JOB NO: 8903019

ANALYSIS OF: FOUR WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AND POLYCHLORINATED BIPHENYLS (PCBs)

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client Id.	Lab No.	Total Petroleum Hydrocarbons as Diesel (mg/L)	Total Petroleum Hydrocarbons as Waste Oil (mg/L)
10031 MW-6	01A	ND	ND
09971 MW-7	02A	22	9
09966 MW-4	03A	ND	ND
09963 MW-5	04A	ND	ND
Detection limit		0.5	1

Michael Lynch, Manager
Organic Laboratory

Results FAXed to Adam Klein 03/17/89

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: 10033 MW-6
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 03/02/89
DATE RECEIVED: 03/02/89

MED-TOX LAB NO: 8903019-01C
MED-TOX JOB NO: 8903019
DATE EXTRACTED: 03/06/89
DATE ANALYZED: 03/10/89
REPORT DATE: 03/22/89

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

ND = Not detected at or above indicated method detection limit

Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: 09973 MW-7
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 03/02/89
DATE RECEIVED: 03/02/89

MED-TOX LAB NO: 8903019-02C
MED-TOX JOB NO: 8903019
DATE EXTRACTED: 03/06/89
DATE ANALYZED: 03/10/89
REPORT DATE: 03/22/89

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

ND = Not detected at or above indicated method detection limit

Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: 09968 MW-4
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 03/02/89
DATE RECEIVED: 03/02/89

MED-TOX LAB NO: 8903019-03C
MED-TOX JOB NO: 8903019
DATE EXTRACTED: 03/06/89
DATE ANALYZED: 03/10/89
REPORT DATE: 03/22/89

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

ND = Not detected at or above indicated method detection limit

Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: 09961 MW-5
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 03/02/89
DATE RECEIVED: 03/02/89

MED-TOX LAB NO: 8903019-04C
MED-TOX JOB NO: 8903019
DATE EXTRACTED: 03/06/89
DATE ANALYZED: 03/10/89
REPORT DATE: 03/22/89

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aroclor 1016	12674-11-2	ND	0.5
Aroclor 1221	11104-28-2	ND	0.5
Aroclor 1232	11141-16-5	ND	0.5
Aroclor 1242	53469-21-9	ND	0.5
Aroclor 1248	12672-29-6	ND	0.5
Aroclor 1254	11097-69-1	ND	0.5
Aroclor 1260	11096-82-5	ND	0.5

ND = Not detected at or above indicated method detection limit

Analytical Method: EPA 8080, SW-846 3rd Edition, 1986