

9/21/89



September 10, 1989  
File: 10-1682-04/48

Mr. Gil Wistar  
Alameda County Department of Environmental Health  
Hazardous Materials Program  
80 Swan Way, Room 200  
Oakland, CA 94621

**SUBJECT: Additional Ground Water Assessment Report, Industrial Asphalt, Pleasanton, California**

Dear Mr. Wistar:

This additional ground water assessment report is being submitted by Kleinfelder, Inc., on behalf of Industrial Asphalt to the Alameda County Department of Environmental Health (ACDEH).

The investigation workplan was developed by Kleinfelder and proposed in our "Workplan for Additional Ground Water Assessment, Industrial Asphalt Facility, Pleasanton, California" dated June 9, 1989. This workplan was presented to the ACDEH in response to their letter dated May 22, 1989. This report summarizes all activities and data collected during the additional ground water assessment investigation.

If you have any questions, please contact the undersigned.

Sincerely,

**KLEINFELDER, INC.**

Krzysztof (Krys) S. Jesionek  
Project Manager

Lloyd C. Venburg, R.G.  
Senior Hydrogeologist

cc: Mr. Dennis Hunt - Industrial Asphalt

KSJ:LCV;jwh

September 10, 1989  
File: 10-1682-04/48

Mr. Dennis Hunt  
Industrial Asphalt  
P.O. Box 636  
52 El Charro Road  
Pleasanton, CA 94566

**SUBJECT: Additional Ground Water Assessment Report, Industrial Asphalt,  
Pleasanton, California**

Dear Mr. Hunt:

We are pleased to submit our report discussing the additional ground water assessment investigation performed for Industrial Asphalt at their site in Pleasanton, California.

The investigation workplan was developed by Kleinfelder, Inc., and proposed in our "Workplan for Additional Ground Water Assessment, Industrial Asphalt Facility, Pleasanton, California", dated June 9, 1989. This workplan was presented to the Alameda County Department of Environmental Health in response to their letter dated May 22, 1989. The report summarizes all activities and data collected during the additional ground water assessment investigation.

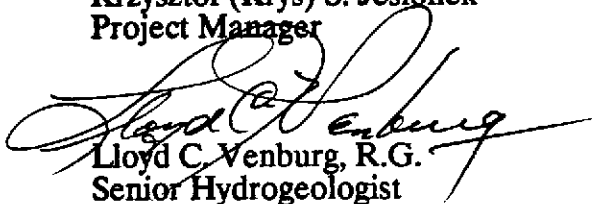
If you have any questions, please call us.

Sincerely,

**KLEINFELDER, INC.**



Krzysztof (Krys) S. Jesionek  
Project Manager



Lloyd C. Venburg, R.G.  
Senior Hydrogeologist

cc: Mr. Dwight Beavers, Industrial Asphalt  
Mr. Gil 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

**ADDITIONAL GROUND WATER  
ASSESSMENT, INDUSTRIAL  
ASPHALT, PLEASANTON,  
CALIFORNIA**

September 10, 1989

A Report Prepared for:

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

**ADDITIONAL GROUND WATER ASSESSMENT  
INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA**

Kleinfelder Job No. 10-1682-04

by

*Jett (for)*

Guy A. Jett  
Staff Geologist

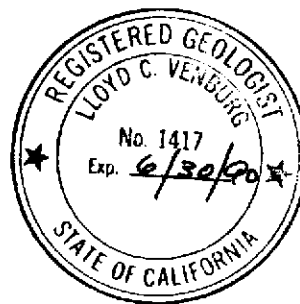
*Jesionek*

Krzysztof (Krys) S. Jesionek  
Project Geohydrologist

*Lloyd C. Venburg*  
Lloyd C. Venburg, R.G.  
Senior Hydrogeologist

**KLEINFELDER, INC.**  
California Plaza, Suite 570  
2121 North California Boulevard  
Walnut Creek, California 94596  
(415) 938-5610

September 10, 1989



## TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
<b>1 SUMMARY</b> .....	1
<b>2 CONCLUSIONS AND RECOMMENDATIONS</b> .....	2
2.1 Conclusions .....	2
2.2 Recommendations .....	3
<b>3 INTRODUCTION</b> .....	5
3.1 Project Background.....	5
3.2 Purpose and Scope of Work.....	6
<b>4 FIELD INVESTIGATION</b> .....	7
4.1 Drilling and Well Installation .....	7
4.2 Monitoring Well Development.....	9
4.3 Monitoring Well Sampling .....	10
4.4 Well Head and Water Level Survey .....	11
<b>5 SUPPLEMENTAL DATA REVIEW</b> .....	14
5.1 Ground Water Levels and Free Product Thickness .....	14
5.2 Ground Water Gradient .....	20
<b>6 ANALYTICAL RESULTS</b> .....	21
6.1 Soil Samples.....	21
6.2 Water Samples.....	22
<b>7 LIMITATIONS</b> .....	23
<b>8 REFERENCES</b> .....	24

### PLATES

1	Site Location Map
2	Monitoring Well Location Map
3	Boring Log Legend
4	Boring Log MW-9
5	Boring Log MW-10
6	Boring Log MW-11
7	Ground Water Potentiometric Map - August 15, 1989
8	Ground Water Potentiometric Map - June 1, 1989
9	Ground Water Potentiometric Map - July 5, 1989
10	Depth to Water and Free Product Hydrographs for Well MW-1
11	Depth to Water and Free Product Hydrographs for Well MW-2
12	Depth to Water and Free Product Hydrographs for Well MW-3
13	Depth to Water and Free Product Hydrographs for Well MW-4
14	Depth to Water and Free Product Hydrographs for Well MW-5

**PLATES (cont.)**

- 15 Depth to Water and Free Product Hydrographs for Well MW-6
- 16 Depth to Water and Free Product Hydrographs for Well MW-7
- 17 Depth to Water and Free Product Hydrographs for Well MW-8
- 18 TPH as Diesel and PCBs Concentrations - Time Data for Well MW-1
- 19 TPH as Diesel and PCBs Concentrations - Time Data for Well MW-2
- 20 TPH as Diesel and PCBs Concentrations - Time Data for Well MW-3
- 21 TPH as Diesel and PCBs Concentrations - Time Data for Well MW-4
- 22 TPH as Diesel and PCBs Concentrations - Time Data for Well MW-5
- 23 TPH as Diesel and PCBs Concentrations - Time Data for Well MW-6
- 24 TPH as Diesel and PCBs Concentrations - Time Data for Well MW-7
- 25 TPH as Diesel and PCBs Concentrations - Time Data for Well MW-8
- 26 Inferred Outline of Contamination Plume

**TABLES**

- 1 Monitoring Well Construction Summary
- 2 Monitoring Well Coordinates
- 3 Ground Water Elevation Data - August 15, 1989
- 4 Monitoring Parameters
- 5 Analytical Results - Soil Samples

**APPENDICES**

- A Chain of Custody Records
- B Analytical Laboratory Results

## 1 SUMMARY

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Industrial Asphalt maintained six underground asphalt and two underground diesel tanks at their facility in Pleasanton, California. By September 1987, all the tanks had been removed. Contaminated backfill was also excavated and recycled.

Ten monitoring wells and one observation well were installed onsite in order to identify the extent of the contamination plume. All wells have been monitored for depth to water and product thickness on a monthly basis since their installation. Collected ground water samples have been analyzed for the target compounds including total petroleum hydrocarbons as diesel (TPH-D) and polychlorinated biphenyls (PCBs). Samples from the wells, which have had sufficient water to obtain a representative sample, were also analyzed for benzene, toluene, xylenes, and ethylbenzene (BTXE).

Results of the monthly monitoring show that ground water levels beneath the site and free product thickness (FPT) show a consistent decreasing trend. Similarly, dissolved TPH-D and PCBs concentrations have decreased.

Analytical test results on the soil samples collected from boreholes MW-9, MW-10, and MW-11 confirmed our previous hypothesis (Ref. 5) that the heavier hydrocarbons viscosity may aid in the retention of some released diesel and waste oil in the unsaturated zone.

Analysis of the ground water potentiometric maps indicate a very complex hydraulic regime beneath the project site, possibly due to water pumping in the gravel pits or at nearby high yield irrigation/industrial water wells.

A staff gauge has been installed in the gravel pit located north of the site. Collected data indicate that surface water elevation in the pit is approximately 15 feet higher than elevation of ground water at the site.

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## 2 CONCLUSIONS AND RECOMMENDATIONS

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### 2.1 CONCLUSIONS

Based upon the results of this phase of our field investigation, and in conjunction with the previously collected data, we have developed the following conclusions:

- Ground water and soil underlying the site have been impacted by heavier hydrocarbons (including diesel, waste oil) and polychlorinated biphenyls (PCBs).
- Soil samples collected from the borehole MW-11 indicate the presence of total petroleum hydrocarbons as diesel (TPH-D) in concentrations below 100 mg/kg.
- Soil samples collected from boreholes MW-9 and MW-10 indicate the presence of TPH as waste oil in concentrations of 90 and 120 mg/kg, respectively.
- Results of chemical analyses on ground water samples collected from two new wells (MW-9 and MW-10) indicate there is no presence of dissolved hydrocarbons or PCBs at these locations.
- No detectable levels of PCBs have been measured in the ground water samples collected from monitoring wells MW-4, MW-5, MW-6, and MW-7.
- Water samples collected from all onsite monitoring wells except MW-5, MW-9, MW-10, and MW-11 have indicated the presence of dissolved hydrocarbons (TPH-D).



- No free product was detected in either new monitoring well. In addition, no free product was observed in the observation well MW-11. This may indicate that there is no free product on the clayey layer beneath the site as was hypothesized. Apparently, released product was trapped by the formation material or is moving downward towards the ground water table.
- Free product thickness (FPT) in the wells shows a consistent decreasing trend. However, no FPT has ever been detected in monitoring wells MW-4, MW-5, MW-6, MW-7, MW-9, MW-10, and MW-11.
- During the last sampling round (August 15, 1989) sheen was noted to be floating on the water surface in only one monitoring well, MW-8.
- Ground water table elevation at the site declines. Water level dropped from approximately 11 feet in wells MW-6 and MW-8 and approximately 14-15 feet in wells MW-3 and MW-4 since the well installation. Three onsite wells, MW-1, MW-2, and MW-3 have been dry for the past several months and water samples have not been collected from these wells.
- Several ground water potentiometric maps developed for the site indicate a very complex hydraulic regime beneath the site. During the last two years, ground water flow has been in nearly every possible direction.
- The surface water elevation in the gravel pit located north of the site is approximately 14 feet higher than the elevation of the ground water surface beneath the site. This may create a natural hydraulic barrier for the movement of free product.

## 2.2 RECOMMENDATIONS

Three monitoring wells (MW-1, MW-2, and MW-3) were installed more than two years ago. These wells have been dry throughout much of this year and no data were collected at these locations. However, during September's monthly monitoring event, the water table has risen and these wells are now available for sampling. Therefore, it is recommended that these three wells be sampled on a monthly basis for the next four months and then bi-monthly. The remaining wells should be sampled on a bi-monthly basis.

Depth to water and free product thickness should be monitored on a monthly basis. 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.

### 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).

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. Monitoring wells MW-1, MW-2, and MW-3 have had an insufficient volume of water to obtain representative samples and as such, were only monitored for depth to water and product thickness. Detailed descriptions of the field activities described above were presented in previous Kleinfelder status reports (References 1, 2, 3, 4, and 5). Reports describing monthly monitoring activities at the site have been issued since October 1987.

On May 22, 1989, Alameda County Department of Environmental Health (ACDEH), in their letter to Industrial Asphalt (Ref. 6), requested that the extent of the contamination plume be defined and a remediation plan prepared. In response, Kleinfelder, on behalf of Industrial Asphalt, submitted to ACDEH a workplan for further ground water investigation at the facility (Ref. 7).

### 3.2 PURPOSE AND SCOPE OF WORK

The primary objective of this phase of ground water investigation discussed herein was to assess the extent of the contamination plume both in ground water and soils beneath the project site. In addition, this phase of work was conducted to delineate ground water flow direction and to assess hydraulic communication between the gravel pit and the subject aquifer. Therefore, work conducted by Kleinfelder included the following services:

- Obtaining well permits
- Drilling of three borings to depths ranging from 76 to 113.5 feet below existing grade
- Collection of soil samples for lithologic logging and analytical testing
- Completion of the three exploratory borings as ground water monitoring wells (MW-9 and MW-10) and as a TPH observation well (MW-11)
- Development, purging, and sampling of the monitoring wells
- Chemical analyses of ground water and soil samples
- Installation of a stage gauge in the gravel pit
- Surveying of the stage gauge and three new well reference points to a USGS datum
- Water level measurements and relative ground water elevation reevaluation
- Report preparation

## 4 FIELD INVESTIGATION

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In order to better define the extent of the contamination plume beneath the site, three additional soil borings were drilled and completed as ground water monitoring and observation wells.

### 4.1 DRILLING AND WELL INSTALLATION

On July 7, 1989, one soil boring was drilled on the property at the location shown on Plate 2 (MW-11). Location of this boring was based on the findings from previous phases of our investigation. In particular, ground water samples collected from monitoring well MW-8 have contained the highest concentrations of dissolved hydrocarbons. Therefore, well MW-11 was installed next to well MW-8.

The soil boring was drilled using a CME-75 truck-mounted drilling rig equipped with 8-inch diameter continuous flight hollow stem augers. The boring was drilled to an approximate depth of 76 feet to detect free product that may exist at a gravelly clay/clayey gravel layer. This less permeable layer has been detected at depths of 60-70 feet in some boreholes drilled earlier at the site (Ref. 4, Plate 6).

A Kleinfelder geologist supervised drilling of the soil boring and logged the collected soil samples, which were obtained at approximately 5 feet intervals.

Recovered samples were logged in accordance with the Unified Soils Classification System (USCS) and inspected for discoloration and odor. Drilling equipment was steam cleaned prior to arrival onsite.

Soil samples were obtained by advancing the boring to a point immediately above the sampling interval, and then driving a modified California or split spoon sampler with a 140 pound weight falling a distance of 30 inches. Samples retrieved with the split spoon sampler were used for soils logging purposes only. However, the modified California sampler was lined with clean brass sampling tubes and selected samples capped with Teflon

film lined plastic end caps. These samples were placed in refrigerated storage and delivered to a State-certified analytical laboratory under chain-of-custody records (Appendix A).

Following drilling, the soil boring for well MW-11 was completed as an observation well. The well was constructed of 2-inch diameter schedule 40 PVC pipe with a slip cap at the top and a threaded cap at the bottom. The perforated section of the PVC casing (well screen) was factory slotted with 0.040-inch size slots. The annular space surrounding the well screen was backfilled with Lonestar Aquarium sand to approximately four feet above the screened interval. A bentonite seal, approximately four feet thick, was placed above the sand pack and the remainder of the borehole was backfilled to the surface with a neat Portland cement/bentonite grout. The well head was finished near surface grade with a G-5 Christy box. No solvents or glues were used during monitoring well construction. Pertinent drilling data, sample intervals, and a lithologic log for the borehole are shown on the logs of boring (Plate 6). A boring log legend is presented on Plate 3.

On July 11 through 13, 1989, two additional borings (MW-9 and MW-10) were drilled using a Drilltek D40K rig equipped with a 9-inch drive shoe using the dual tube percussion method of drilling which provides an open casing and continuous, uncontaminated soil samples.

A Kleinfelder geologist supervised the drilling and logged the borings by visually classifying the soils encountered in accordance with the USCS. In addition, soil samples were collected using a modified California sampler lined with unused brass tubes. The tubes were immediately sealed with Teflon film lined plastic end caps, labelled with a unique sample number, and placed in an ice packed cooler for transport to the analytical laboratory under chain-of-custody records (Appendix A). The samples were collected at approximate depths of 70 and 75 feet below grade (in boreholes MW-9 and MW-10, respectively). These depths correspond to depths of clayey materials encountered in either borehole.

Following drilling, the two boreholes were completed as ground water monitoring wells under supervision of the Kleinfelder geologist. The wells were constructed of 4-inch diameter schedule 40 PVC pipe with slip caps at the top and threaded caps at the bottom. The PVC well screen was factory slotted with 0.020-inch size slots. The annular space surrounding the well screen was backfilled with Lonestar #2/12 sand. A bentonite seal

was placed above the sand pack and the remainder of the borehole was backfilled to the surface with a neat Portland cement/bentonite grout. The well head was finished near surface grade with a G-5 Christy box. No solvents or glues were used during monitoring well construction. Well construction details, sample intervals, and a lithologic log for the boreholes MW-9 and MW-10 are shown on the logs of Borings, Plates 4 and 5, respectively. A boring log legend is presented on Plate 3. A summary of well construction details for all onsite wells is included in Table 1.

**TABLE 1  
MONITORING WELL CONSTRUCTION SUMMARY  
INDUSTRIAL ASPHALT**

Monitoring Well No.	Total Depth <sup>(1)</sup> (feet)	Well Diameter <sup>(2)</sup> (inches)	Screened Interval <sup>(3)</sup> (feet)	Sand Pack <sup>(3)</sup> (feet)
MW-1	88	2	58-88	56-88
MW-2	90	4	65-90	62-90
MW-3	90	4	65-90	62-90
MW-4	95	4	55-95	52-95
MW-5	110	4	57-107	53-107
MW-6	109	4	69-109	64-109
MW-7	109	4	69-109	64-109
MW-8	109	4	69-109	64-109
MW-9	108	4	78-108	75.4-108.5
MW-10	111	4	81-111	78.2-113.7
MW-11	75	2	55-75	53-76

**NOTE:**

- (1) - Total depth of borehole below ground surface
- (2) - Nominal casing/screen diameter
- (3) - Below ground surface

#### 4.2 MONITORING WELL DEVELOPMENT

Following construction, ground water monitoring wells MW-9 and MW-10 were developed by the Water Development Company on July 17, 1989. A surge block, bailer, and a pump were used to remove suspended sediment within the well water and to settle the well sand pack. The wells were developed until discharged ground water was relatively free of suspended sediment, and turbidity was within acceptable limits.

Approximately 165 gallons of water were removed from each well during the development. Development water was contained in 55-gallon drums and left onsite for disposal by Industrial Asphalt, pending laboratory results.

#### 4.3 MONITORING WELL SAMPLING

The Kleinfelder technician collected ground water samples from the onsite wells on August 15 through 17, 1989. Prior to purging, water level measurements were taken and observations completed for floating free product. Wells MW-1, MW-2, MW-3, and MW-11 were not sampled since they were dry or had insufficient water to obtain representative samples.

During purging, pump discharge water was monitored for temperature, electrical conductance, turbidity, and pH. The well was pumped or bailed until these parameters had stabilized or at least four well water volumes had been removed and the water was reasonably free of suspended sediment. Purged water was collected in 55-gallon drums and left onsite for later disposal by Industrial Asphalt. At this time, the disposal option (recycling in the asphalt manufacture) is being reviewed by the State Department of Health Services. The wells were purged using a submersible pump or a Teflon bailer. The wells were sampled using a Teflon bailer. Between each well, the pump and bailer was steam cleaned to minimize potential for cross contamination.

Water samples were collected from each monitoring well just after purging, placed in appropriate containers supplied by the contract analytical laboratory, labelled, and placed in a cold ice chest.

Samples were delivered to Med-Tox Associates, Inc., of Pleasant Hill, California, an analytical laboratory State-certified for analyses performed. A Kleinfelder job number was referenced on the chain-of-custody form to maintain client confidentiality. Chain-of-custody records are included in Appendix A.



#### 4.4 WELL HEAD AND WATER LEVEL SURVEY

The tops of casings of three newly installed wells MW-9, MW-10, and MW-11 were surveyed with respect to the USGS datum on August 17, 1989, by a licensed land surveyor. Additionally, horizontal location of each well with respect to the existing monitoring wells was surveyed at the same time.

On August 23, 1989, a stage gauge was installed in the gravel pit north of the site. Monitoring of the surface water elevation in the pit in conjunction with the water level data from the ground water wells may help in assessing any hydraulic communication between surface and ground water at the project site. After installation, elevation of the reference point on the staff gauge was surveyed by the licensed land surveyor.

A ground water level survey was conducted on all monitoring wells on August 15, 1989, using an electric water level indicator. The product thickness was measured with an interface probe. The results of the survey are presented on Table 2 along with appropriate data for all other existing onsite wells.

TABLE 2  
MONITORING WELL COORDINATES  
INDUSTRIAL ASPHALT

Well No.	X <sup>(1)</sup>	COORDINATE Y <sup>(1)</sup>	Z <sup>(2)</sup>
MW-1	1,337.32	2,369.87	379.41 <sup>(3)</sup>
MW-2	1,204.66	2,414.29	379.80 <sup>(3)</sup>
MW-3	1,200.25	2,290.74	378.54 <sup>(3)</sup>
MW-4	823.79	2,373.63	376.26 <sup>(3)</sup>
MW-5	1,709.68	2,500.29	382.55 <sup>(3)</sup>
MW-6	1,309.27	2,243.12	379.15 <sup>(3)</sup>
MW-7	1,520.51	2,300.50	378.94 <sup>(3)</sup>
MW-8	1,118.22	2,404.61	378.56 <sup>(3)</sup>
MW-9	1,528.65	2,444.38	377.40 <sup>(3)</sup>
MW-10	1,048.85	2,309.49	378.04 <sup>(3)</sup>
MW-11	1,141.25	2,403.64	379.02 <sup>(3)</sup>
STAFF GAUGE	NS	NS	300.00 <sup>(4)</sup>

## NOTE:

- (1) Coordinates are on assumed datum  
(2) Elevation in feet above mean sea level (USGS Datum)  
(3) Elevation of the top of a PVC casing  
(4) Elevation of the "O" mark on the staff  
NS Not Surveyed

Table 3 presents ground water level measurements completed on August 15, 1989. Ground water elevation contour lines and the estimated average ground water flow direction beneath the site, which have been developed from the data, are shown graphically on Plate 9.

**TABLE 3**  
**GROUND WATER ELEVATION DATA - 8/15/89**  
**INDUSTRIAL ASPHALT**

Well No.	Well Casing Top Elevation <sup>(1)</sup> (feet)	Depth to Ground Water (feet)	Ground Water Elevation <sup>(1)</sup> (feet)
MW-1	379.41	DRY	NA
MW-2	379.80	DRY	NA
MW-3	378.54	DRY	NA
MW-4	376.26	90.68	285.58
MW-5	382.55	98.93	283.62
MW-6	379.15	93.28	285.87
MW-7	378.94	94.28	284.66
MW-8	378.56	93.08	285.48
MW-9	377.40	92.95	284.45
MW-10	378.04	92.40	285.64
MW-11	379.02	DRY	NA
SG	300.00 <sup>(2)</sup>	NA	299.66 <sup>(3)</sup>

**NOTES:**

- (1) Feet above mean sea level (USGS Datum)
- (2) Elevation of the "O" mark on the staff gauge
- (3) Surface water elevation in the pit on August 24, 1989
- NA Not applicable
- SG Staff Gauge

## 5 SUPPLEMENTAL DATA REVIEW

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### 5.1 GROUND WATER LEVELS AND FREE PRODUCT THICKNESS

Ground water levels hydrographs for monitoring wells MW-1 through MW-8 are presented on Plates 10 through 17. 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. However, 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 our Status Report No. 4 (Ref. 5), it is possible that ground water levels in the area are affected by water pumping in gravel pits or at nearby high yield irrigation/industrial water wells.

Free product thickness (FPT) in the monitoring well onsite also shows a consistent decreasing trend. As shown in Table 4 and in Plates 10 through 17, no FPT has ever been detected in monitoring wells MW-4, MW-5, MW-6, MW-7, MW-9, MW-10, and MW-11. Due to significant drop in the ground water surface beneath the site, monitoring wells MW-1, MW-2, and MW-3 have not been recently sampled.

TABLE 4  
MONITORING PARAMETERS  
INDUSTRIAL ASPHALT

Well	Date	Depth to Water <sup>(1)</sup> (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 <sup>(2)</sup>	22 <sup>(2)</sup>
	10-30-87	78.23	0.95	780 <sup>(2)</sup>	22 <sup>(2)</sup>
	11-30-87	77.68	1.10	1800 <sup>(2)</sup>	56 <sup>(2)</sup>
	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 <sup>(5)</sup>	NT <sup>(5)</sup>
	06-22-88	83.48	0.93	NT	NT
	07-26-88	85.78	0.99	NT	NT
	08-11-88 <sup>(4)</sup>	84.55	0.05	NT	NT
	08-15-88 <sup>(4)</sup>	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
	04-07-89	dry	NE	NT	NT
	05-08-89	dry	NE	NT	NT
	06-01-89	dry	NE	NT	NT
	07-05-89	dry	NE	NT	NT
	08-15-89	dry	NE	NT	NT

TABLE 4 (continued)

Well	Date	Depth to Water <sup>(1)</sup> (ft.)	Product Thickness (ft.)	TPH as Diesel (mg/l)	PCBs (ug/l)	
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 <sup>(2)</sup>	14 <sup>(2)</sup>	
	11-30-87	84.12	7.79	1100 <sup>(2)</sup>	33 <sup>(2)</sup>	
	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 <sup>(5)</sup>	NT <sup>(5)</sup>	
	06-22-88	87.30	4.52	NT	NT	
	07-26-88	NE	5.02 <sup>(3)</sup>	NT	NT	
	08-11-88 <sup>(4)</sup>	88.70	1.40	NT	NT	
	08-15-88 <sup>(4)</sup>	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	
	04-07-89	86.68	0.01	NT	NT	
	05-08-89	dry	NE	NT	NT	
	06-01-89	dry	NE	NT	NT	
	07-05-89	dry	NE	NT	NT	
	08-15-89	dry	NE	NT	NT	
	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 <sup>(2)</sup>	24 <sup>(2)</sup>	
11-30-87		77.76	2.22	340 <sup>(2)</sup>	62 <sup>(2)</sup>	
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 <sup>(5)</sup>	NT <sup>(5)</sup>	
08-11-88 <sup>(4)</sup>		86.45	0.50	NT	NT	
08-15-88 <sup>(4)</sup>		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	
04-07-89		85.31	Sheen	NT	NT	
05-08-89		88.35	Sheen	NT	NT	
06-01-89		89.67	Sheen	NT	NT	
07-05-89		89.52	Sheen	NT	NT	
08-15-89		DRY	NE	NT	NT	

TABLE 4 (continued)

Well	Date	Depth to Water <sup>(1)</sup> (ft.)	Product Thickness (ft.)	TPH as Diesel (mg/l)	PCBs (ug/l)
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 <sup>(4)</sup>	83.80	NE	NT	NT
	08-15-88 <sup>(4)</sup>	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
	04-07-89	83.22	NE	ND	ND
	05-08-89	86.18	NE	NT	NT
	06-01-89	87.78	NE	ND	ND
	07-05-89	89.86	NE	ND	ND
	08-15-89	90.68	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 <sup>(4)</sup>	91.70	NE	NT	NT
	08-15-88 <sup>(4)</sup>	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
	04-07-89	87.95	NE	ND	ND
	05-08-89	91.56	NE	NT	NT
	06-01-89	94.85	NE	ND	ND
	07-05-89	96.91	NE	ND	ND
	08-15-89	98.93	NE	ND	ND

TABLE 4 (continued)

Well	Date	Depth to Water <sup>(1)</sup> (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 <sup>(4)</sup>	86.46	Sheen	NT	NT
	08-15-88 <sup>(4)</sup>	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
	04-07-89	85.57	NE	ND	ND
	05-08-89	88.60	NE	NT	NT
	06-01-89	90.30	NE	ND	ND
	07-05-89	92.35	NE	ND	ND
08-15-89	93.28	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 <sup>(4)</sup>	86.94	Sheen	NT	NT
	08-15-88 <sup>(4)</sup>	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
	04-07-89	84.97	NE	4	ND
	05-08-89	88.39	NE	NT	NT
	06-01-89	91.56	NE	ND	ND
	07-05-89	92.75	NE	1.6	ND
08-15-89	94.28	NE	0.5	ND	



TABLE 4 (continued)

Well	Date	Depth to Water <sup>(1)</sup> (ft.)	Product Thickness (ft.)	TPH as Diesel (mg/l)	PCBs (ug/l)
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 <sup>(4)</sup>	87.22	1.27	NT	NT
	08-15-88 <sup>(4)</sup>	87.02	2.12	NT	NT
	08-26-88	87.40	0.75	ND	1.2
	10-04-88	88.93	0.43	NT <sup>(5)</sup>	NT <sup>(5)</sup>
	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
	04-07-89	86.41	0.01	NT	NT
	05-08-89	88.45	0.01	NT	NT
	06-01-89	90.29	0.02	81	5
	07-05-89	92.22	0.03	8.8	ND
	08-15-89	93.08	Sheen	12	0.9
MW-9 <sup>(6)</sup>	08-15-89	92.95	NE	ND	ND
MW-10 <sup>(7)</sup>	08-15-89	92.40	NE	ND	ND
MW-11 <sup>(8)</sup>	08-15-89	DRY	NE	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.
- (6) Well installed on July 13, 1989
- (7) Well installed on July 12, 1989
- (8) Well installed on July 7, 1989

## NOTES (cont.):

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

Documented maximum FPT at the site was 14 feet in monitoring well MW-2 on August 6, 1987, following the well's installation. Recently, only trace levels of free product appear to be present in the wells. During the last sampling round conducted on August 15, 1989, only one monitoring well MW-8 contained sheen (film) floating on the water surface. However, as indicated before, several onsite wells are dry and, therefore, do not provide any data.

## 5.2 GROUND WATER GRADIENT

Several ground water potentiometric maps have been developed from selected data in the past (Ref. 7). These maps allowed for an estimate of an average ground water flow direction and the hydraulic gradient beneath the project site. Plates 7, 8, and 9 present additional ground water contour line maps developed based on data collected in June, July, and August 1989, respectively.

Interpretation of the data collected on June 1, 1989 indicates that ground water flowed towards the north and southeast with a ground water divide beneath the site.

An analogous piezometric map was previously developed using the January 1989 data (Ref. 7). Again, one possible explanation for the existence of this divide is a large pumping rate from wells and gravel pits or discharge into the pits located around the project site.

A ground water potentiometric map for July 5, 1989, data indicates ground water flow towards north and northeast at an approximate hydraulic gradient of 0.37%.

A map developed from the data collected on August 15, 1989 (Section 4.4), indicates that ground water flows northeast/east at an approximate hydraulic gradient of 0.54%.

## 6 ANALYTICAL RESULTS

### 6.1 SOIL SAMPLES

A total of five soil samples for chemical testing have been collected during bore hole drilling for monitoring wells MW-9 and MW-10 and for an observation well MW-11 (Section 4.1). However, two samples collected from the borehole MW-11 were composited on an equal weight basis prior to analysis by the chemical laboratory.

Required analysis on all soil samples included total petroleum hydrocarbons (TPH) using EPA Method 8015 (extraction). Table 5 presents a summary of the analytical results obtained from the samples. Complete laboratory reports are presented in Appendix B of this report.

**TABLE 5  
ANALYTICAL RESULTS - SOIL SAMPLES  
INDUSTRIAL ASPHALT**

Sample No.	Concentration (mg/kg) TPH as Diesel	TPH as Waste Oil
MW-9 (70)	ND	90
MW-10 (75)	ND	120
MW-11 (65/70) <sup>(1)</sup>	21	ND
MW-11 (75)	50	ND

**NOTES:**

<sup>(1)</sup> Composite Sample

ND Not detected at or above laboratory detection limits (See Appendix B for details)

## 6.2 WATER SAMPLES

Following installation, monitoring wells MW-9 and MW-10 were sampled on August 16 and 17, 1989 (Section 4.3). At this same time, all remaining onsite monitoring wells were sampled as part of the monthly monitoring program. Therefore, all water samples were analyzed for TPH as diesel and PCBs. In addition, samples obtained from monitoring wells MW-9 and MW-10 were analyzed for BTXE (benzene, toluene, xylenes, and ethylbenzene). The BTXE analysis for ground water samples collected from the other onsite wells were performed in July, 1989. This analysis, requested by the ACDEH, will not be repeated as part of future monthly sampling since all the laboratory results indicate no presence of the subject compounds in the ground water samples.

Ground water samples were analyzed by Med-Tox Associates, Inc., of Pleasant Hill, California. This laboratory is State-certified for the analysis requested. Analytical data are presented in Table 4 and graphically on Plates 18 through 25. Complete analytical laboratory reports are included in Appendix B.

No detectable levels of polychlorinated biphenyls (PCBs) have been detected in the ground water samples collected from monitoring wells MW-4, MW-5, MW-6, MW-7, MW-9, and MW-10.

Monitoring wells MW-1, MW-2, and MW-3, located next to the tank pit excavation, have not been sampled since May 20, 1988. The wells have not been tested since that time due to the presence of free product in the well or an insufficient volume of water in the well to obtain a representative sample.

Analyses on the most recently collected ground water samples indicate no dissolved hydrocarbons (TPH-D) or PCBs in wells MW-4, MW-5, MW-6, MW-9, and MW-10. Samples collected from wells MW-7 and MW-8 contained low concentrations of TPH-D of 0.5 mg/l and 12 mg/l, respectively. Plate 26 presents inferred outline of contamination plume.

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## 7 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.

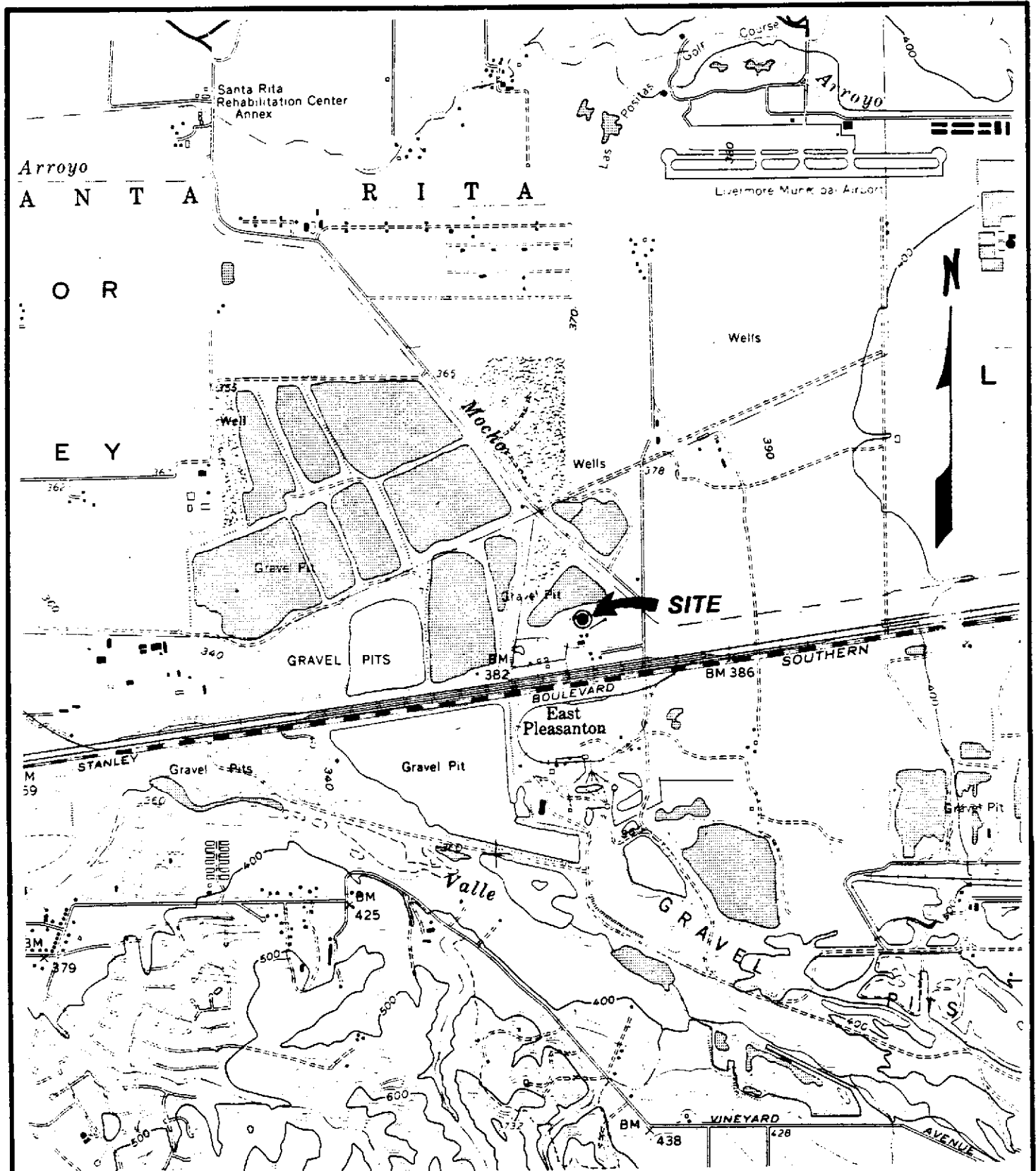
Our firm has prepared this report for the Client's exclusive use for this particular project and in accordance with generally accepted engineering practices within the area at the time of our investigation. No other warranties, expressed or implied, as to the professional advice provided are made.

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## 8 REFERENCES

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1. J. H. Kleinfelder & Associates, 1987. Final Environmental Investigation Report, Industrial Asphalt Facility, Eastern Alameda County, California. May 18, 1987.
2. Kleinfelder, Inc., 1988. Project Status Report No. 2, Environmental Engineering Services, Industrial Asphalt Facility, Pleasanton, California. March 22, 1988.
3. J. H. Kleinfelder & Associates, 1987. Project Status Report: Environmental Engineering Services, Industrial Asphalt Facility, Pleasanton, California. September 4, 1987.
4. Kleinfelder, Inc., 1988. Project Status Report No. 3, Environmental Engineering Services, Industrial Asphalt Facility, Pleasanton, California. September 7, 1988.
5. Kleinfelder, Inc., 1989. Project Status Report No. 4, Environmental Engineering Services, Industrial Asphalt Facility, Pleasanton, California. April 19, 1989.
6. Alameda County Department of Environmental Health, 1989. Free Product and Ground Water Contamination at the Industrial Asphalt Facility, 1645 Stanley Blvd., Pleasanton, California. May 22, 1989.
7. Kleinfelder, Inc., 1989. Workplan for Additional Ground Water Assessment, Industrial Asphalt Facility, Pleasanton, California. June 9, 1989.



SCALE 1:24000

Source: USGS 7.5 minute Livermore Quadrangle

**KLEINFELDER**

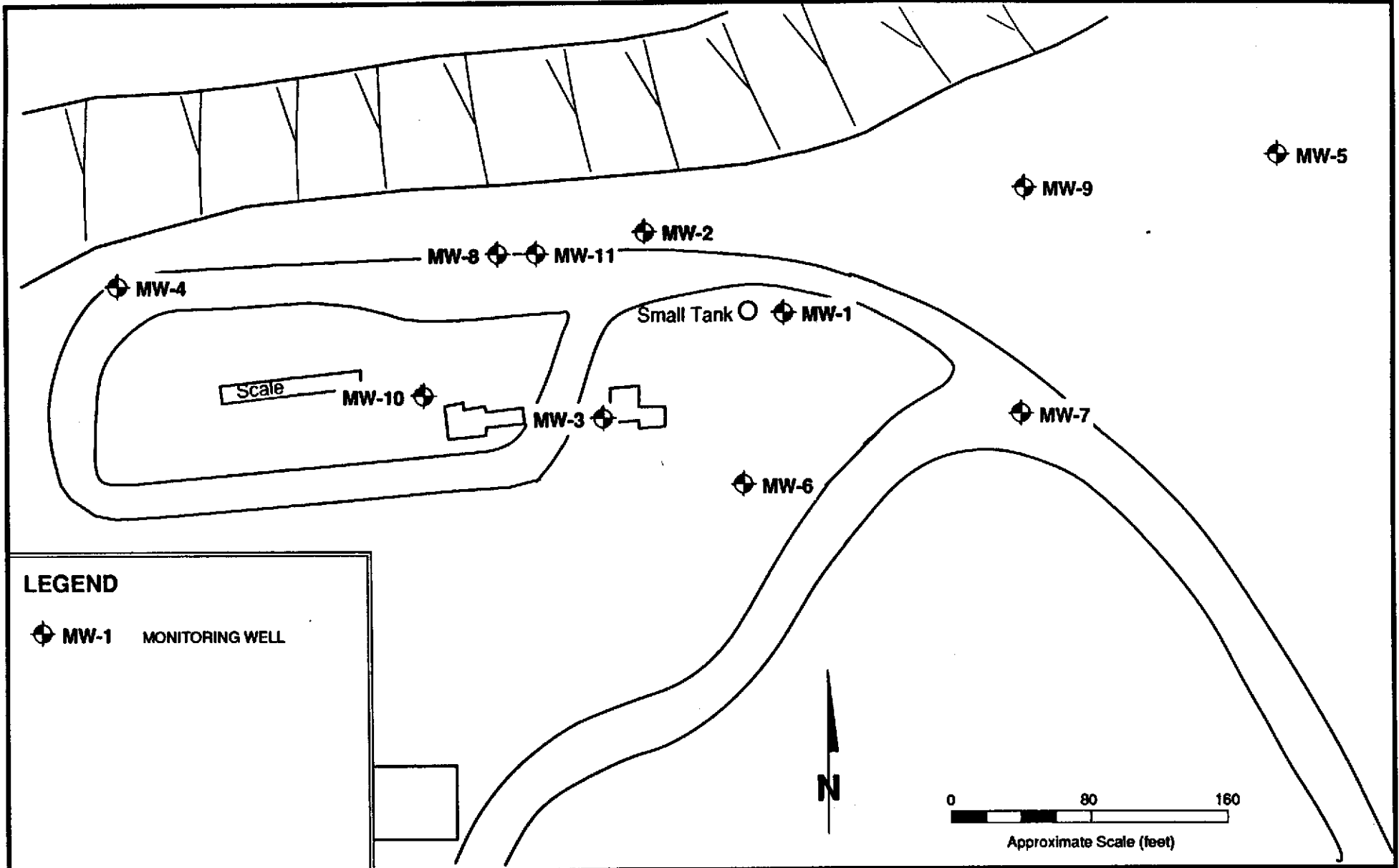
PROJECT NO. 10-1682-04

**SITE LOCATION MAP**

**INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA**

PLATE

**1**



**LEGEND**

⊕ MW-1 MONITORING WELL

**KH KLEINFELDER**

**MONITORING WELL LOCATIONS**

PLATE

DRAFTED BY: L. Sue

DATE: 8-31-89

INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA

2

CHECKED BY: K. Jesionek

DATE: 9-5-89

PROJECT NO. 10-1682-04



**UNIFIED SOIL CLASSIFICATION SYSTEM**

MAJOR DIVISIONS		LTR	DESCRIPTION	MAJOR DIVISIONS		LTR	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel sand mixtures, little or no fines.	FINE GRAINED SOILS	SILTS AND CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
		GP	Poorly-graded gravels or gravel sand mixture, little or no fines.			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		GM	Silty gravels, gravel-sand-silt mixtures.			OL	Organic silts and organic silt-clays of low plasticity.
		GC	Clayey gravels, gravel-sand-clay mixtures.			MH	Inorganic silts, micaceous or diatomaceous fine or silty soils, elastic silts.
	SAND AND SANDY SOILS	SW	Well-graded sands or gravelly sands, little or no fines.		SILTS AND CLAYS LL > 50	CH	Inorganic clays of high plasticity, fat clays.
		SP	Poorly-graded sands or gravelly sands, little or no fines.			OH	Organic clays of medium to high plasticity.
		SM	Silty sands, sand, and silt mixtures.				
		SC	Clayey sands, and clay mixtures.				
					HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils.



Standard penetration split spoon sample



Modified California (Porter) sample

G

Grab sample



Water level observed in boring



Stabilized water level

\*

No recovery

NFWE

No free water encountered

NOSC

No odor, scent, or fluid cut

TIP

Total organic vapors (parts per million) measured by a Photovac™ "TIP" photoionization device

**NOTES:**

Blow counts represent the number of blows of a 140-pound hammer falling 30 inches required to drive a sampler through the last 12 inches of an 18-inch penetration.

The lines separating strata on the logs represent approximate boundaries only. The actual transition may be gradual. No warranty is provided as to the continuity of soil strata between borings. Logs represent the soil section observed at the boring location on the date of drilling only.



Blank casing



Screened Casing



Cement grout



Bentonite



Sand pack or gravel pack



**KLEINFELDER**

**BORING LOG LEGEND**

INDUSTRIAL ASPHALT  
52 EL CHARRO ROAD  
PLEASANTON, CALIFORNIA

PLATE

**3**

PROJECT NO. 10-1682-04

Project Industrial Asphalt		Boring No. MW-9
Number 10-1682-04		
Total Depth 108.5 feet	Sheet 1 of 5	

## BORING AND MONITORING-WELL DATA SHEET

### Location

Owner & Mailing Information Industrial Asphalt 52 El Charro Road Pleasanton, CA	Township/Range/Section 3S/1E Other Identifiers
Site Location (if different)	

### Well Location

Show coordinates or distances from surveyed reference point.

### Drilling Operations

Drilling Company Water Development Company	Driller/Crew Bill Gourdin / Rob Campbell / Mark Nelson		
Rig Make/Model Drill-Tech EK-40	Task	Start (Date, Time)	Finish (Date, Time)
Bit & Size 10-inch diam, Dual Tube	Drilling	7/12/89, 17:30	7/13/89, 10:35
Hammer Data NA	Completion	7/13/89, 12:30	7/13/89, 18:00
Wt. Drop	Development <sup>(1)</sup>	7/17/89	7/17/89

### Well Development and Construction

Monumentation	Development Info.	Well Design	Size & Type	Top	Bottom
Ref. Pt. Description Top of monitoring well casing	165 gallons purged <sup>(1)</sup>	Surface Casing			
Elevations Ref. Pt. 377.40 Ground Datum U.S.G.S. benchmark Markings North side of casing		Casing	4-in diam, Sched 40	0	78 feet
		Well Screen	0.020 Slot	78 feet	108 feet
		Gravel Pack	Lonestar #2/12	75.4 feet	108.5 feet
		Bentonite	Slurry <sup>(2)</sup>	70 feet	75.4 feet
		Concrete	Cement/bentonite	2	70 feet

### Field Hydrologic Operations

Weather	Date	Time	Water Level	Other Observations
Clear and warm	7/12/89			NFWE during drilling
Recent Rainfall? Irrigation? No	8/15/89	11:40	92.95 feet	
Nearby Wells Pumping? Unknown				
Ditches? Utility Courses? (3)				

### Remarks

<sup>(1)</sup> Well developed by the Water Development Company

<sup>(2)</sup> Bentonite slurry placed with tremie pipe

<sup>(3)</sup> Gravel pit is located 125 feet north of the well; depth of water in pit is approximately 80 feet below grade.

Most contacts are gradational

Plate  
4a

Date: 7/13/89 GJ

Revision Date: \_\_\_\_\_



KLEINFELDER

Project Industrial Asphalt		Boring No. MW-9
Number 10-1682-04		
Total Depth 108.5 feet	Sheet 2 of 5	

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction							
2	15478	G			ML	SILT - medium to light brown with minor reddish brown mottling, slightly moist, stiff, low plasticity	NOSC								
4					6	8	10		12	14	16	18	20	22	24
22					SM	SILTY SAND - light gray, dry, loose, coarse grained, subrounded to rounded, trace gravel to 2-inches diameter	NOSC								
26						gravel increasing to 3 to 5-inches diameter									
30						becoming slightly damp									

Designated Purpose(s) of Log  
Site Characterization

Logged by G. Jeff	Date: 7-6-89	Plate 4b
Drafted by L. Sue	Date: 7-21-89	
Supervised by K.S. Jesionek		

Note: Logs are to be used only for designated purpose(s).

Project Industrial Asphalt		Boring No.  MW-9
Number 10-1682-04		
Total Depth 108.5 feet	Sheet 3 of 5	

### LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
32						SILTY SAND - as above, slightly damp		
34								
36	15479	G				minor gravel to 2-inches diameter		
38						minor gravel to 3.5-inches diameter		
40						becoming moist, slightly clayey		
42								
44					SP	SILTY SAND - light to medium gray/brown, moist, loose, poorly sorted, fine to medium grained, rounded sand, little well rounded gravel from 2- to 4-inches diameter	NOSC	
46	15480	G						
48								
50								
52								
54								
56	15481	G				gravel to 3-inches diameter		
58								
60								

Designated Purpose(s) of Log

Site Characterization

Logged by G. Jett	Date: 7-6-89	Plate  4C
Drafted by L. Sue	Date: 7-21-89	
Supervised by K.S. Jesionek		

Note: Logs are to be used only for designated purpose(s).



KLEINFELDER

Project Industrial Asphalt		Boring No.  MW-9
Number 10-1682-04		
Total Depth 108.5 feet	Sheet 4 of 5	

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
62					ML	SILTY SAND - as above, very moist, slightly increased clay content, gravel to 5-inches diameter		
64								
66								
68	15482	G			SP	SAND - medium brown, very moist, loose, predominantly medium grained subrounded sand, moderately well sorted	NOSC Plugged blowie line when first encountered.	
70	15483		35	6	GW	GRAVEL - gravel to 1.5-inches, some sand and clay	Poor recovery due to gravel plugging sampler.	
72					SP	CLAYEY SAND - medium brown, very moist, dense, moderately well sorted, rounded sand, little silt and gravel		
74						gravel to 3.5-inches diameter		
76						infer local lenses of moderately clean, medium grained sand between clayey sand with silt from 65 feet		
78								
80								
82	15484	G						
84								
86					GW	GRAVEL - well rounded to rounded gravel from 1- to 2-inches diameter, some sand and clay	Plugged blowie line; began intermittent water injection.	
88								
90								

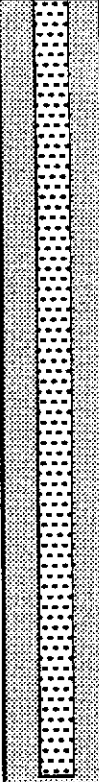
Designated Purpose(s) of Log Site Characterization
---

Logged by G. Jett	Date: 7-6-89	Plate  4d
Drafted by L. Sue	Date: 7-21-89	
Supervised by K.S. Jesionek		

Note: Logs are to be used only for designated purpose(s).

Project <b>Industrial Asphalt</b>		Boring No.  <b>MW-9</b>
Number <b>10-1682-04</b>		
Total Depth <b>108.5 feet</b>	Sheet <b>5 of 5</b>	

### LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
92	15485	G			SW	GRAVEL - as above	Hole making water after connection at 99 feet; unable to tell when first water was encountered due to water injection.	
94						GRAVELLY SAND - rounded, poorly sorted gravel to 2-inches diameter, some silt and clay		
96						gravel to 4-inches diameter		
98						water brown and very turbid		
100								
102								
104					SW	GRAVELLY SAND - light gray, subangular to subrounded to angular, fine sand to fine gravel to 2.5-inches diameter, moderately clean		
106								
108								
110								
112								
114								
116								
118								
120								

Designated Purpose(s) of Log  <b>Site Characterization</b>
--

Logged by <b>G. Jett</b>	Date: <b>7-6-89</b>	Plate  <b>4e</b>
Drafted by <b>L. Sue</b>	Date: <b>7-21-89</b>	
Supervised by <b>K.S. Jesionek</b>		

Note: Logs are to be used only for designated purpose(s).





KLEINFELDER

LOG OF BORING

Project Industrial Asphalt		Boring No.  MW-10
Number 10-1682-04		
Total Depth 113.7 feet	Sheet 2 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
2						Asphaltic concrete and sub-base	No returns; asphaltic concrete plugged dual tubes	
4								
6								
8								
10								
12								
14								
16							Attempt to break up asphaltic concrete with 200-pound hammer	
18								
20								
22								
24								
26					SW	GRAVELLY SILTY SAND- light brown, dry, loose, rounded to well rounded gravel to 3-inch diameter	NOSC	
28	15473	G						
30						gravel to 2-inches diameter		

Designated Purpose(s) of Log Site Characterization
---

Note: Logs are to be used only for designated purpose(s).

Logged by G. Jett	Date: 7-6-89	Plate  5b
Drafted by L. Sue	Date: 7-21-89	
Supervised by K.S. Jesionek		



Project <b>Industrial Asphalt</b>		Boring No. <b>MW-10</b>
Number <b>10-1682-04</b>		
Total Depth <b>113.7 feet</b>	Sheet <b>3 of 5</b>	

### LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/FL	USCS	Description	Remarks	Well Construction
32					SW	GRAVELLY SILTY SAND - as above		
34						gravel to 2-inches diameter		
36						gravel to 3.5-inches diameter		
38	15474	G			SW	GRAVELLY SAND - light to medium brown, damp, loose, well rounded medium to coarse grained sand, slightly silty or clayey, gravel to 2-inches diameter	NOSC	
40								
42						gravel to 2.5-inches diameter; 50% gravel		
44								
46						increasing clay and gravel content; moisture changes from damp to moist; gravel to 3.5-inches diameter		
48								
50								
52								
54						moist; gravel predominantly less than 2-inches diameter, some gravel to 6-inches		
56								
58								
60								

Designated Purpose(s) of Log <b>Site Characterization</b>
--

Logged by <b>G. Jeff</b>	Date: <b>7-6-89</b>	Plate <b>5c</b>
Drafted by <b>L. Sue</b>	Date: <b>7-21-89</b>	
Supervised by <b>K.S. Jesionek</b>		

Note: Logs are to be used only for designated purpose(s).

### LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
62					SW	GRAVELLY SAND - as above		
64					GW	SANDY CLAYEY GRAVEL - well rounded gravel to 3-inches diameter	NOSC	
66					SW	GRAVELLY SAND - as above, gravel to 5-inches diameter		
68							no recovery at 69 feet	
70								
72								
74	15475				SW	CLAYEY SILTY SAND - light to medium brown with dark gray mottling, moist, dense medium to coarse-grained rounded to well rounded gravel,	Slight petroleum-like odor	
76								
78								
80								
82	15476	G			SM	SILTY CLAYEY GRAVELLY SAND - light brown, moist to wet, dense, rare gravel to 3-inches diameter  locally with more or less clay and silt, rounded to well rounded, medium to coarse grained gravel to 6-inches diameter	Plugged blowie line when first encountered	
84								
86								
88								
90								

Designated Purpose(s) of Log  
Site Characterization

Logged by G. Jett	Date: 7-6-89	Plate  5d
Drafted by L. Sue	Date: 7-21-89	
Supervised by K.S. Jesionek		

Note: Logs are to be used only for designated purpose(s).



KLEINFELDER

Project Industrial Asphalt		Boring No.  MW-10
Number 10-1682-04		
Total Depth 113.7 feet	Sheet 5 of 5	

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
92					SM	SILTY CLAYEY GRAVELLY SAND - as above		
94					/ / SM	GRAVELLY SAND - light brown, moist to wet, loose, subrounded to subangular fine to medium grained gravel to 3-inches diameter		
96		G						
98								
100								
102								
104								
106								
108					SW	CLAYEY SILTY SAND - light brown, very moist, medium dense, little gravel		
110							NFWE	
112								
114							Injected water to clear hole	
116								
118								
120								

Designated Purpose(s) of Log Site Characterization
---

Logged by G. Jett	Date: 7-6-89	Plate  5e
Drafted by L. Sue	Date: 7-21-89	
Supervised by K.S. Jesionek		

Note: Logs are to be used only for designated purpose(s).





KLEINFELDER

Project Industrial Asphalt		Boring No.  MW-11
Number 10-1682-04		
Total Depth 76 feet	Sheet 2 of 4	

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
2						Asphaltic concrete and sub-base	NOSC	
4			100	4	ML	SILT - medium brown, slightly moist, medium stiff, low plasticity, trace well rounded medium grained sand and fine gravel		
6						color change to dark brown, abundant fine root holes, trace organic material		
10			100	6				
14			100	7		becoming damp, increasing clay content		
16								
20				16		trace to minor rounded to subrounded fine grained sand		
22								
24							NOSC	
26				33	SW	GRAVELLY SAND - medium to light brown, moist, loose, poorly sorted, fine grained sand, subrounded to rounded gravel to 1.5-inches diameter		
28						subrounded to rounded gravel to 2.5-inches diameter		
30				29		slightly clayey		

Designated Purpose(s) of Log Site Characterization
---

Logged by G. Jett	Date: 7-6-89	Plate  6b
Drafted by L. Sue	Date: 7-21-89	
Supervised by K.S. Jesioneck		

Note: Logs are to be used only for designated purpose(s).

### LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/ft.	USCS	Description	Remarks	Well Construction
32					Sw	GRAVELLY SAND - as above		
34						little silt		
36				37		gravel to 1-inch diameter		
38						SAND - light brown, moist, rounded to subangular, loose, poorly sorted, some gravel and silt	NOSC	
40					SW	gravel to 1.5-inches diameter		
42								
44								
46	15467		100	100		gravel to 1.25-inches diameter		
48								
50	15466		100	100	SP	GRAVELLY SAND - as above, gravel larger than 2-inches diameter		
52						at 52 feet, cuttings indicate increasing clay content		
54								
56	15467		100	100	GP	SANDY GRAVEL - light to medium brown with dark red (brick-colored) mottling, moist to damp	NOSC	
58								
60	15468		100	100	SP	GRAVELLY SAND - as below		

Designated Purpose(s) of Log  
Site Characterization

Logged by G. Jett	Date: 7-6-89	Plate  6c
Drafted by L. Sue	Date: 7-21-89	
Supervised by K.S. Jesionek		

Note: Logs are to be used only for designated purpose(s).

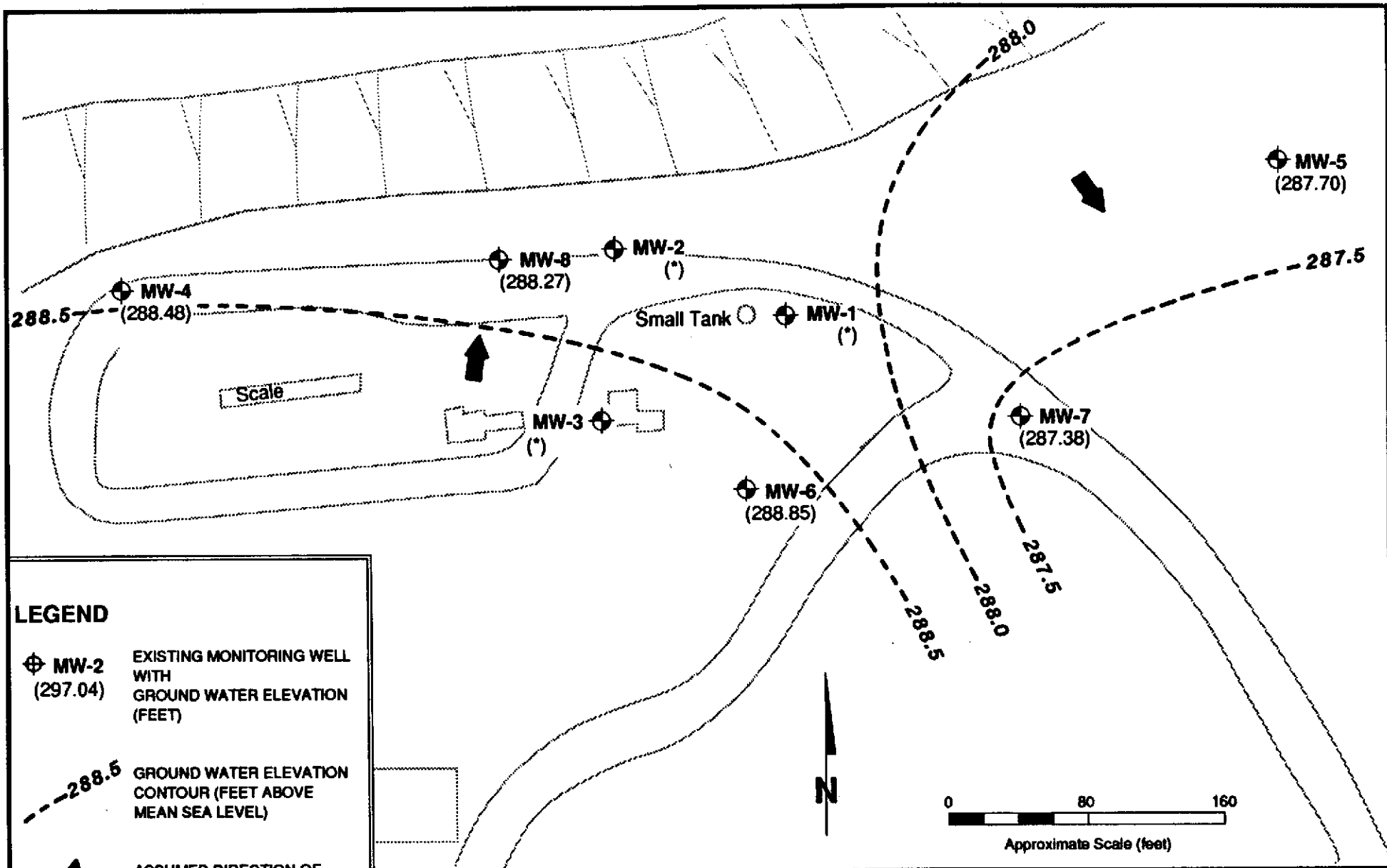
**LOG OF BORING**

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
62					SP	GRAVELLY SAND - medium gray to medium brown, very moist, medium dense, soft to firm, medium grained sand, gravel to 1.5-inches diameter	Slight petroleum-like odor	Well Construction
64	15469		100	72	SP	SAND - light brown to medium dark gray, very moist, fine to medium grained sand, some clay and gravel  increasing clay content at 67 feet	Strong petroleum-like odor	
66								
68							Distinct petroleum-like odors	
70	15470		100	67				
72								
74	15471		100	61	SP	SAND - light brown, very moist, loose, subangular to subrounded, fine to medium grained sand, gravel to 2-inches diameter	NOSC	
76								
78								
80								
82								
84								
86								
88								
90								

Designated Purpose(s) of Log  
Site Characterization

Logged by G. Jett	Date: 7-6-89	Plate  <b>6d</b>
Drafted by L. Sue	Date: 7-21-89	
Supervised by K.S. Jesionek		

Note: Logs are to be used only for designated purpose(s).

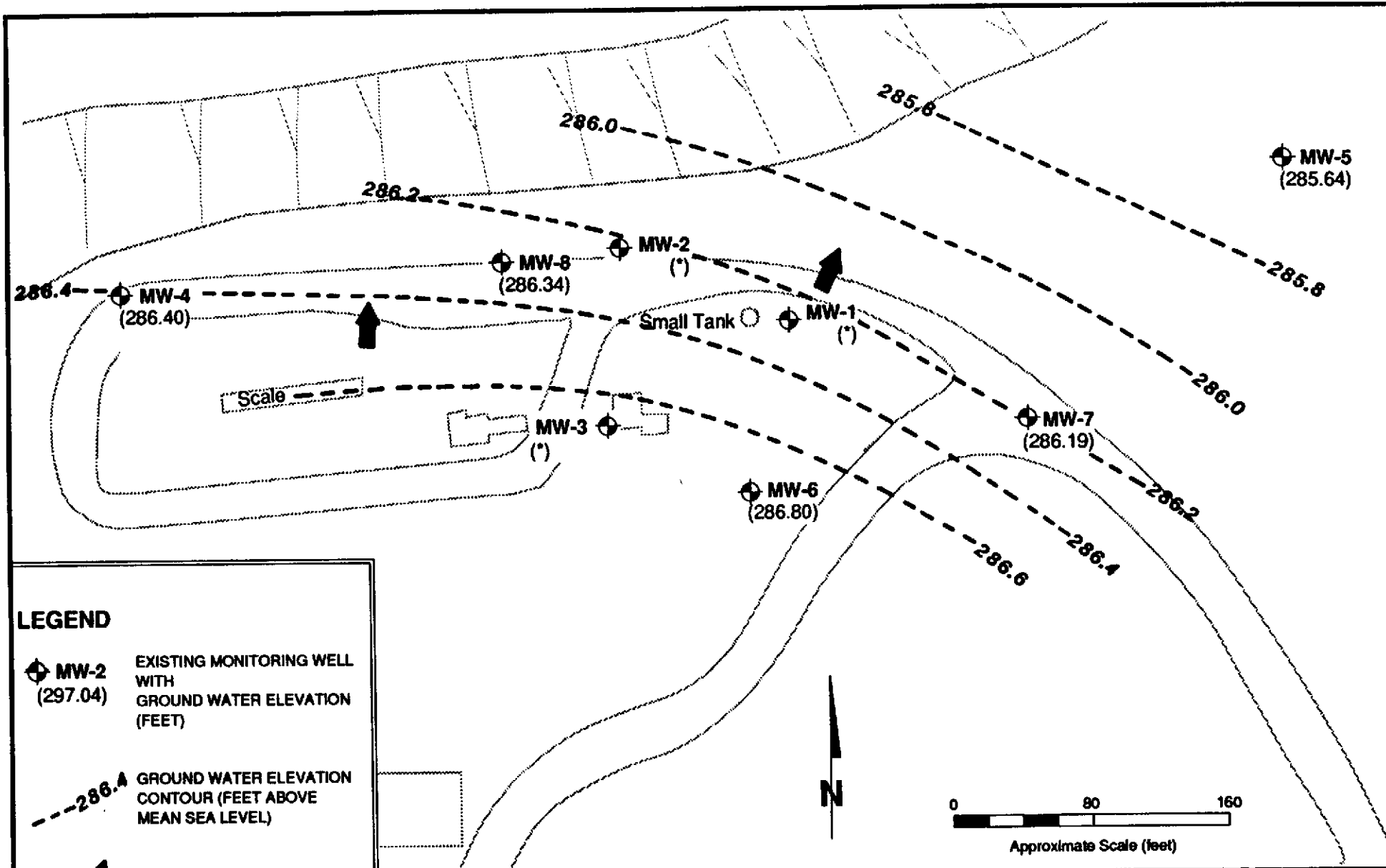


**LEGEND**

- MW-2**  
 (297.04) EXISTING MONITORING WELL WITH GROUND WATER ELEVATION (FEET)
- 288.5** GROUND WATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL)
- ASSUMED DIRECTION OF GROUND WATER FLOW
- (\*) WELL DRY OR NON-EXISTENT


		<b>GROUND WATER POTENTIOMETRIC MAP ON JUNE 1, 1989</b>	PLATE  <b>7</b>
		<b>INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA</b>	
DRAFTED BY: L. Sue	DATE: 8-31-89	PROJECT NO. 10-1682-04	
CHECKED BY: K. Jeslonek	DATE: 9-5-89		





**LEGEND**


**MW-2** (297.04) EXISTING MONITORING WELL WITH GROUND WATER ELEVATION (FEET)


**286.4** GROUND WATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL)

 ASSUMED DIRECTION OF GROUND WATER FLOW

(\*) WELL DRY OR NON-EXISTENT


**KLEINFELDER**

**GROUND WATER POTENTIOMETRIC MAP ON JULY 5, 1989**

**INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA**

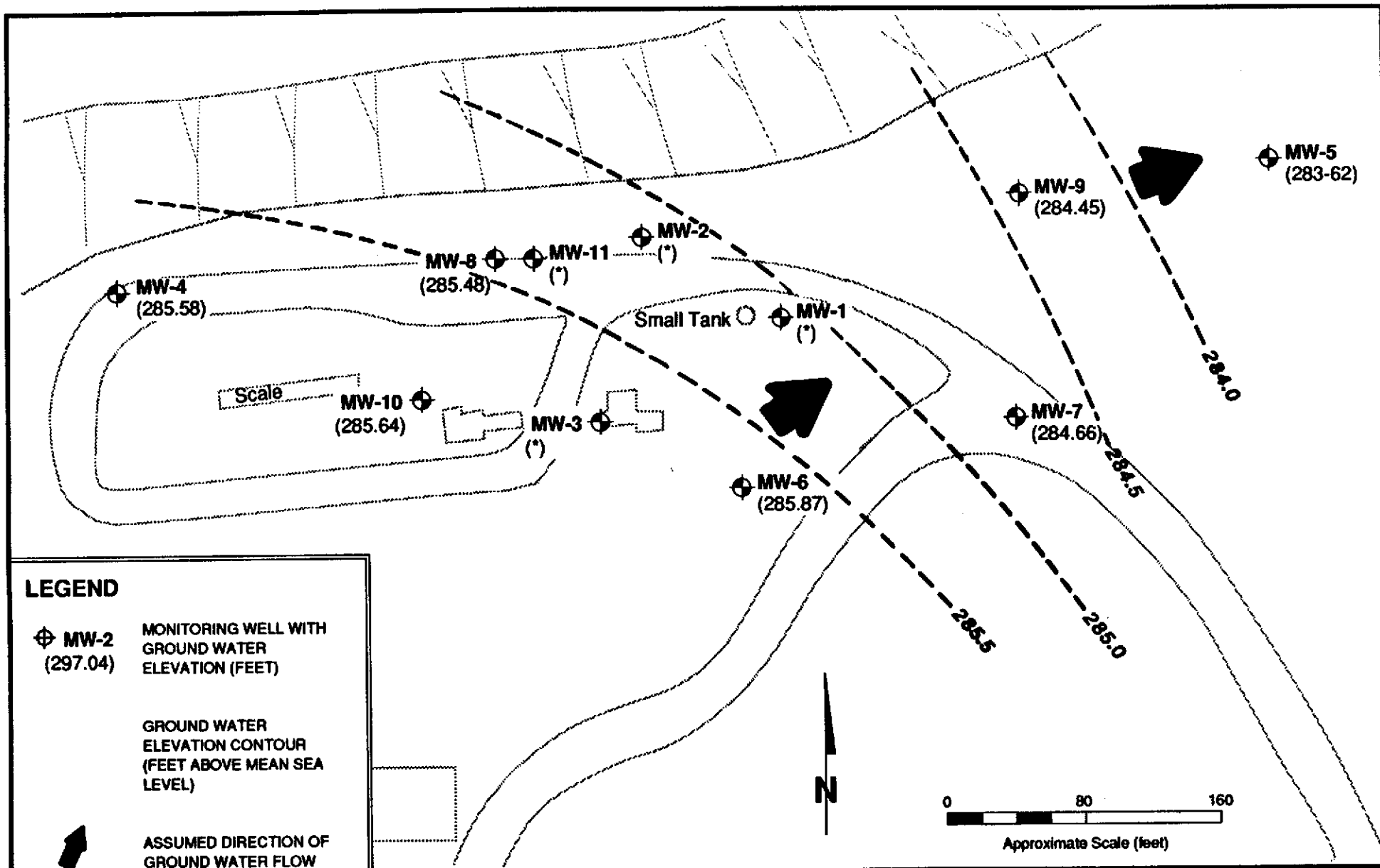
PROJECT NO. 10-1682-04

DRAFTED BY: L. Sue DATE: 8-31-89

CHECKED BY: K. Jesionek DATE: 9-5-89

PLATE

**8**



**LEGEND**

⊕ MW-2 (297.04) MONITORING WELL WITH GROUND WATER ELEVATION (FEET)

GROUND WATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL)

➔ ASSUMED DIRECTION OF GROUND WATER FLOW

(\*) WELL DRY OR NON-EXISTENT

**KH KLEINFELDER**

**GROUND WATER POTENTIOMETRIC MAP ON AUGUST 15, 1989**

**INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA**

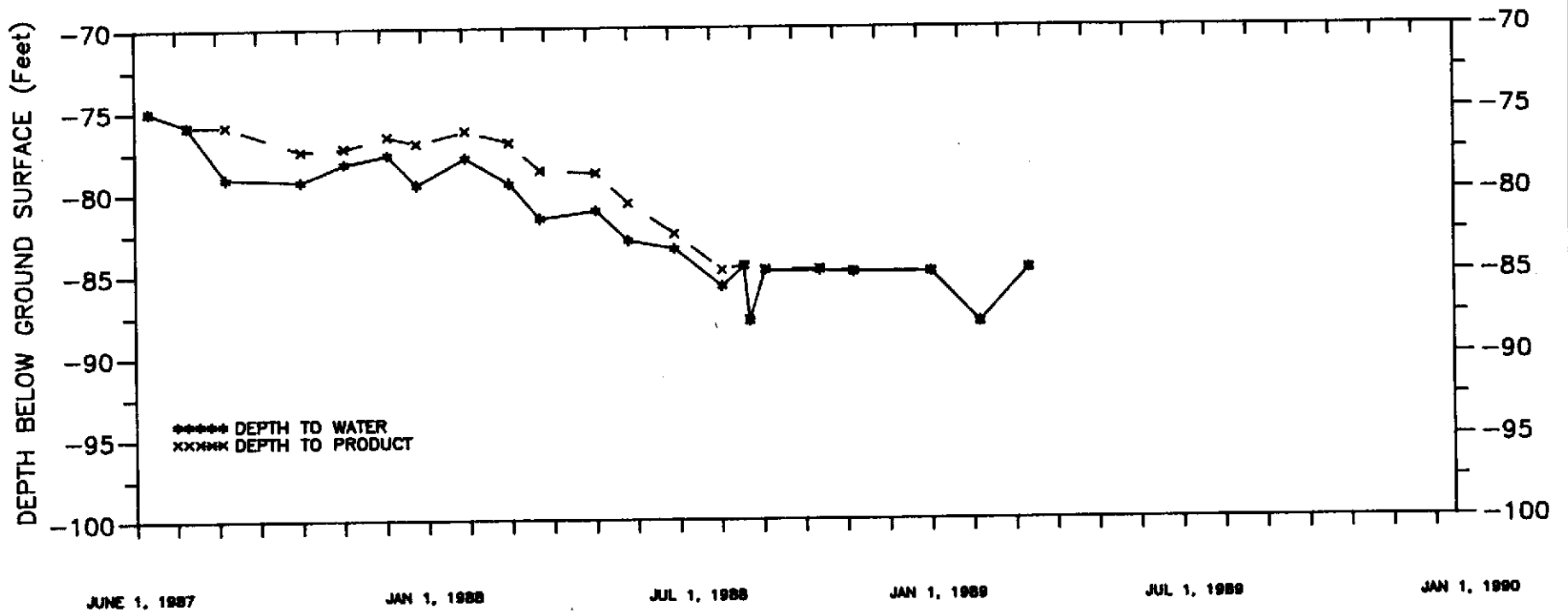
DRAFTED BY: L. Sue DATE: 8-31-89

CHECKED BY: K. Jesionek DATE: 9-5-89

PROJECT NO. 10-1682-04

PLATE

9



**KLEINFELDER**

PROJECT NO. 10-1682-04

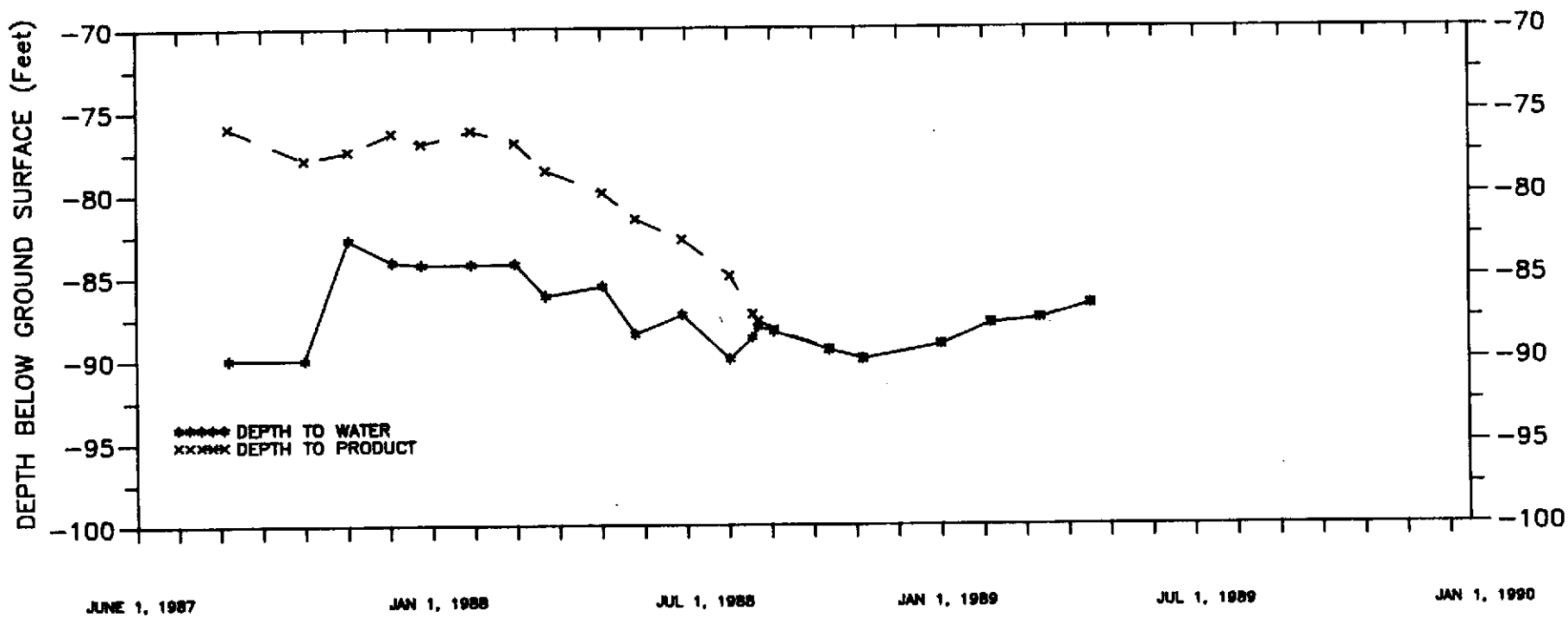
9-89


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

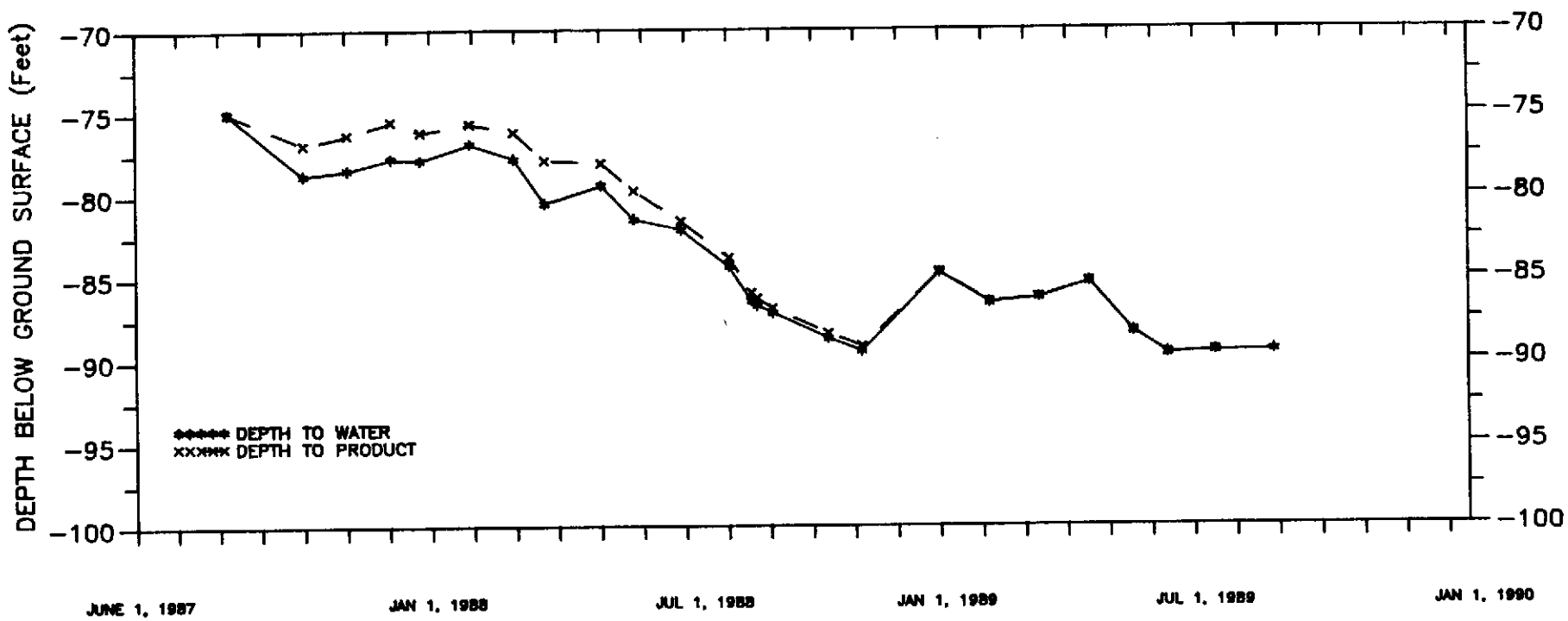
INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA


PLATE

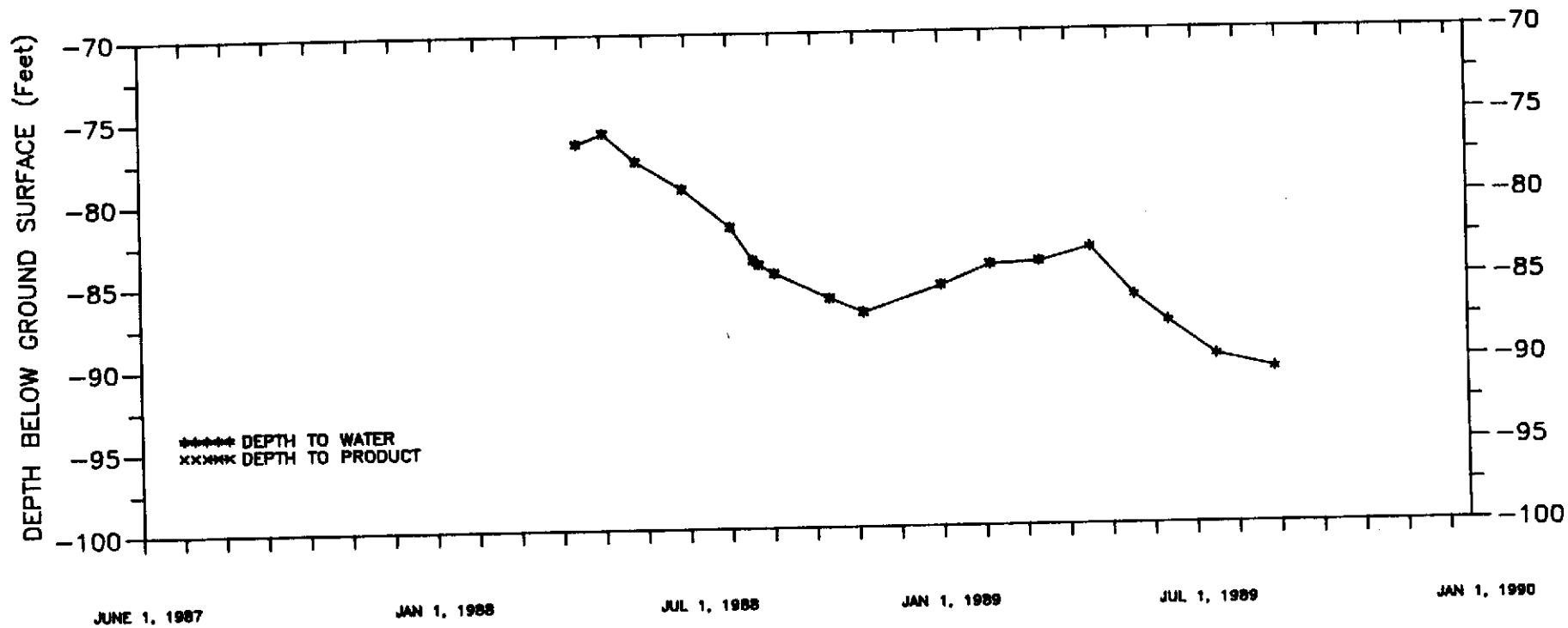
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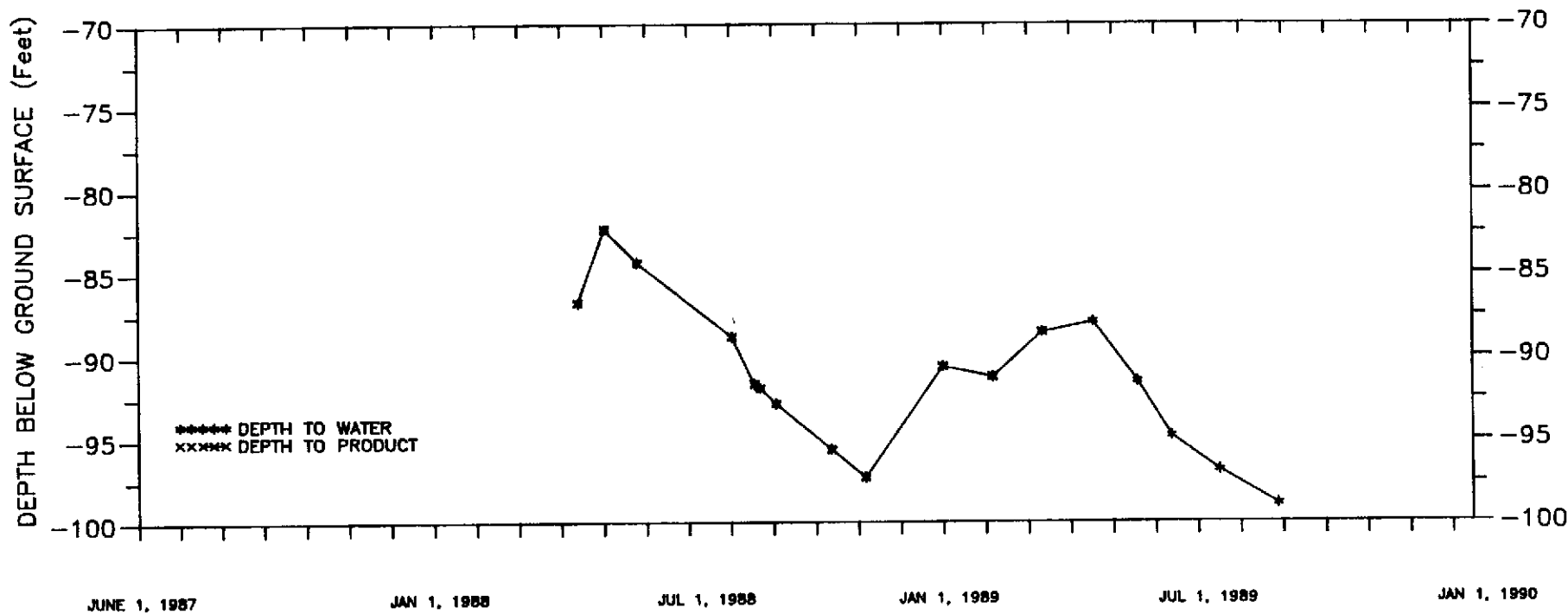
 <b>KLEINFELDER</b>	<b>DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-2</b>	<b>PLATE</b>
	<b>INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA</b>	<b>11</b>
<b>PROJECT NO. 10-1682-04</b>	<b>9-89</b>	



 <b>KLEINFELDER</b>	<b>DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-3</b>	PLATE  <b>12</b>
	PROJECT NO. 10-1682-04	INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA



 <b>KLEINFELDER</b>	<b>DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-4</b>	PLATE  <b>13</b>
	PROJECT NO. 10-1682-04	9-89 <b>INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA</b>



**KH** KLEINFELDER

PROJECT NO. 10-1682-04

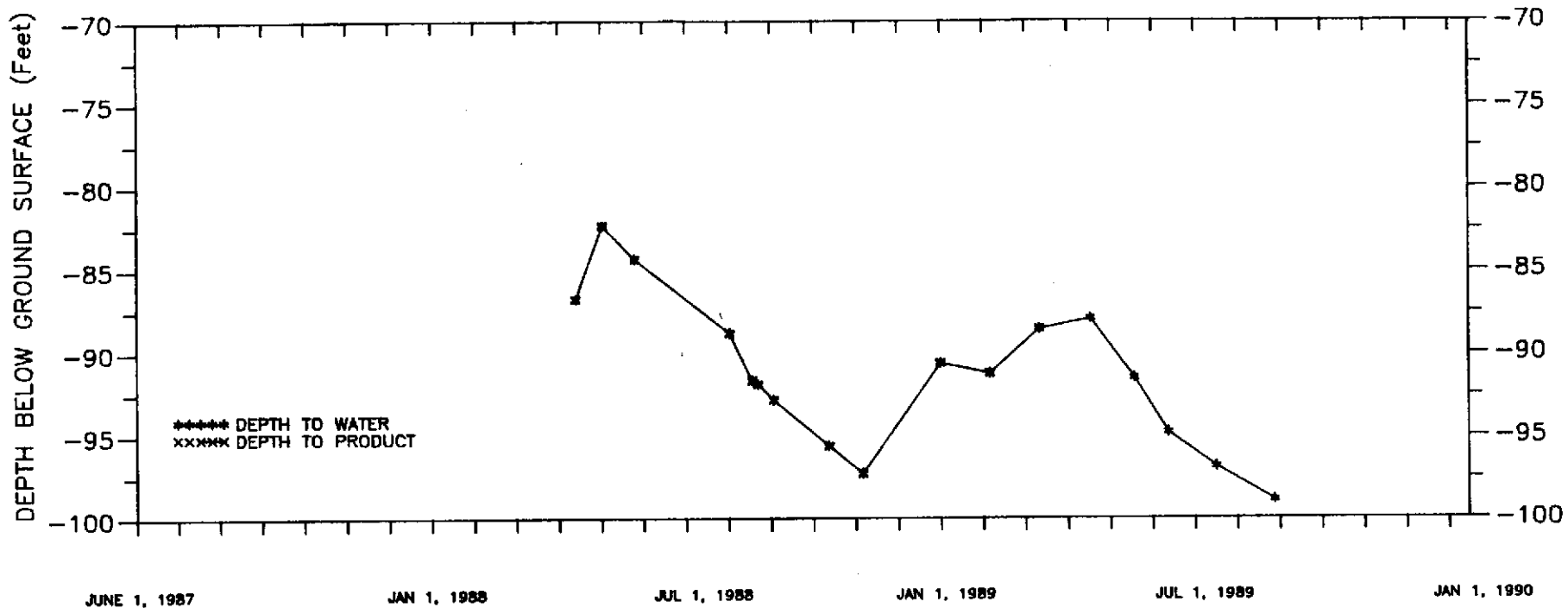
9-89


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

INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA

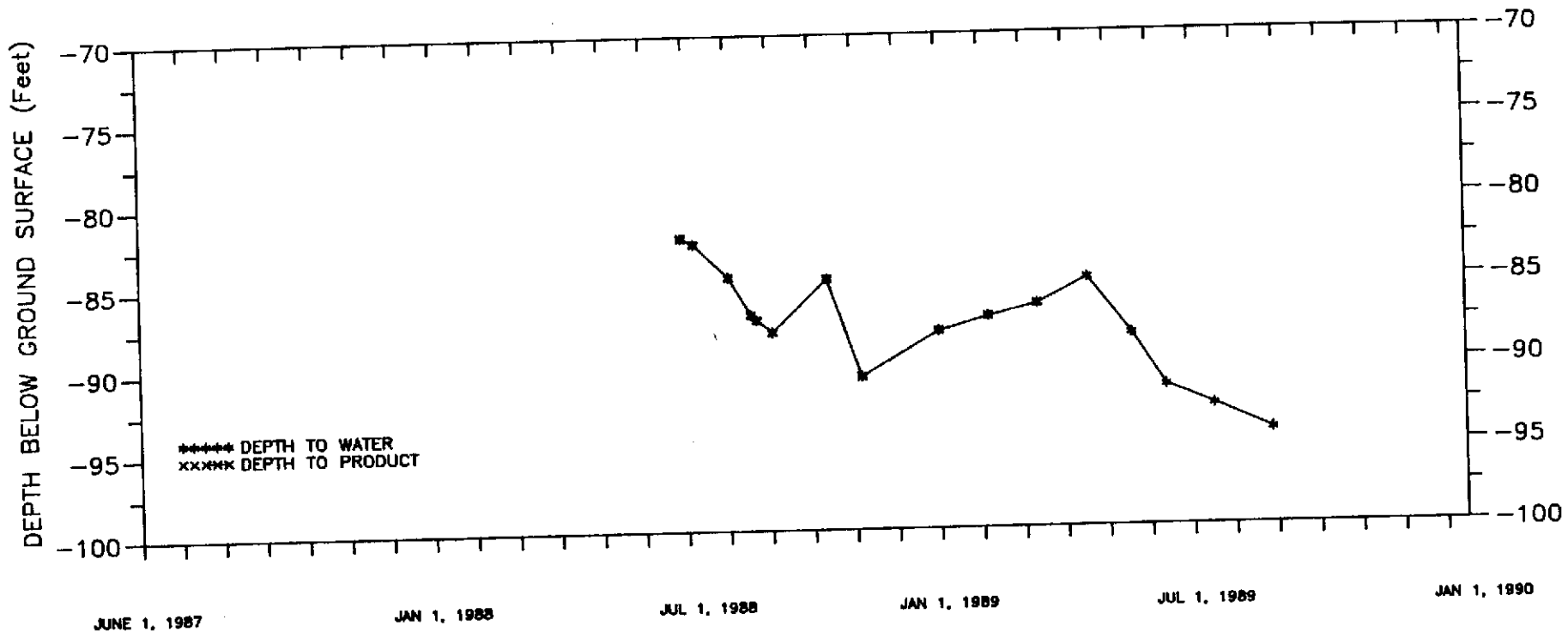
PLATE


14



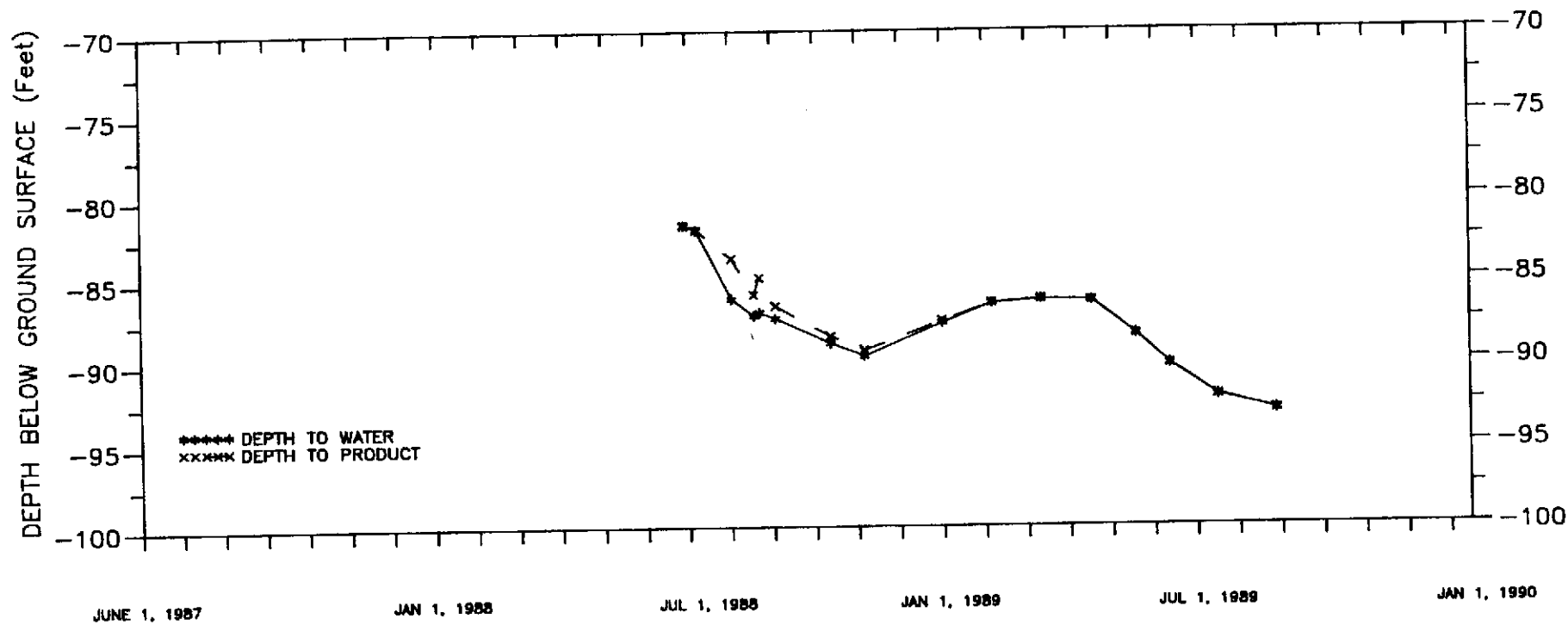
 <b>KLEINFELDER</b>	<b>DEPTH TO WATER AND FREE PRODUCT          HYDROGRAPH FOR WELL MW-6</b>	PLATE <b>15</b>
	INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA	
PROJECT NO. 10-1682-04	9-89	





 <b>KLEINFELDER</b>	<b>DEPTH TO WATER AND FREE PRODUCT HYDROGRAPH FOR WELL MW-7</b>	PLATE  <b>16</b>
	PROJECT NO. 10-1682-04	INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA

9-89



**KLEINFELDER**

PROJECT NO. 10-1682-04

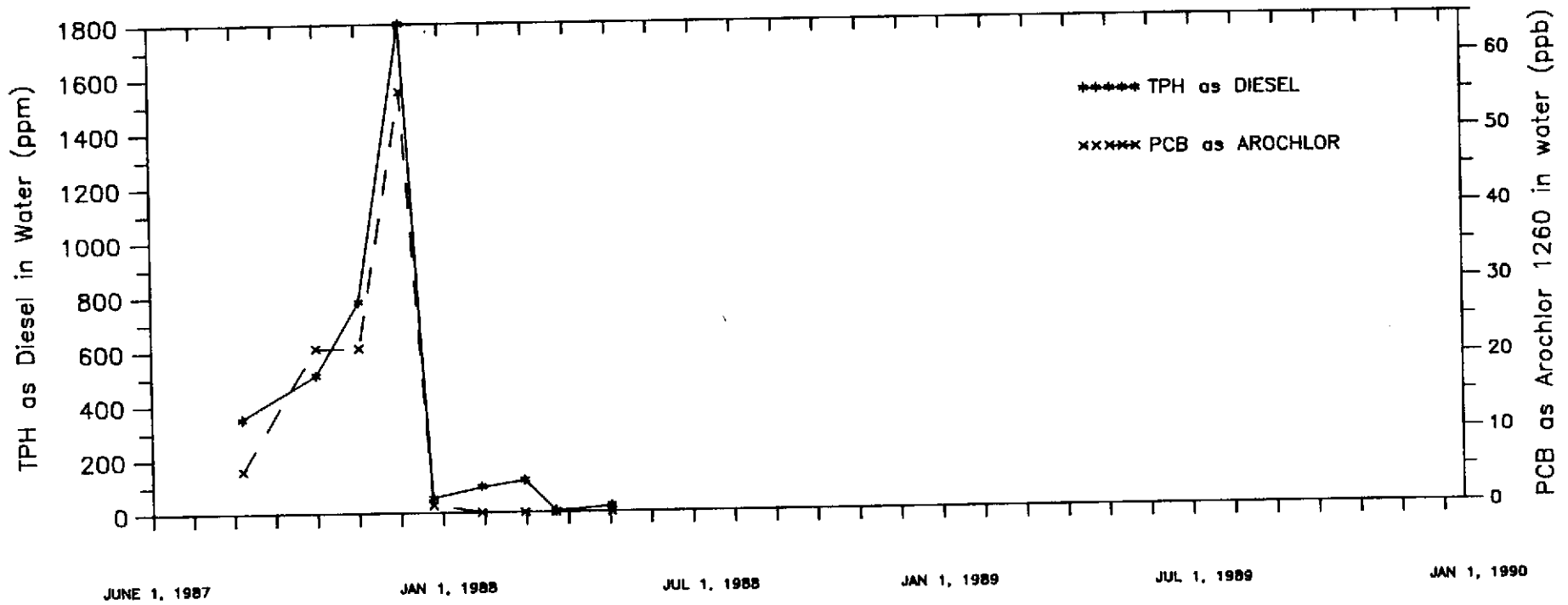
9-89

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

**INDUSTRIAL ASPHALT  
 PLEASANTON, CALIFORNIA**

PLATE

**17**



**KLEINFELDER**

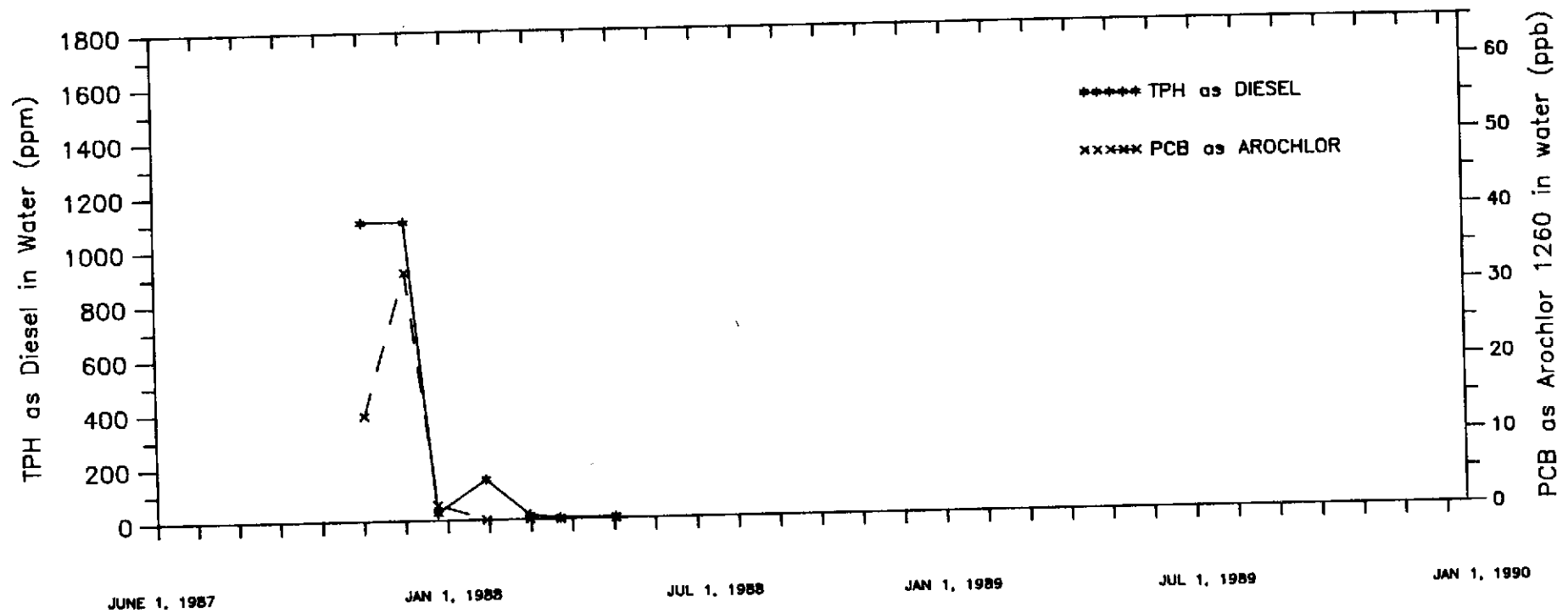
PROJECT NO. 10-1682-04

9-89

TPH AS DIESEL AND PCBs CONCENTRATION  
TIME DATES FOR MW -1

INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA

PLATE  
**18**



**KLEINFELDER**

PROJECT NO. 10-1682-04

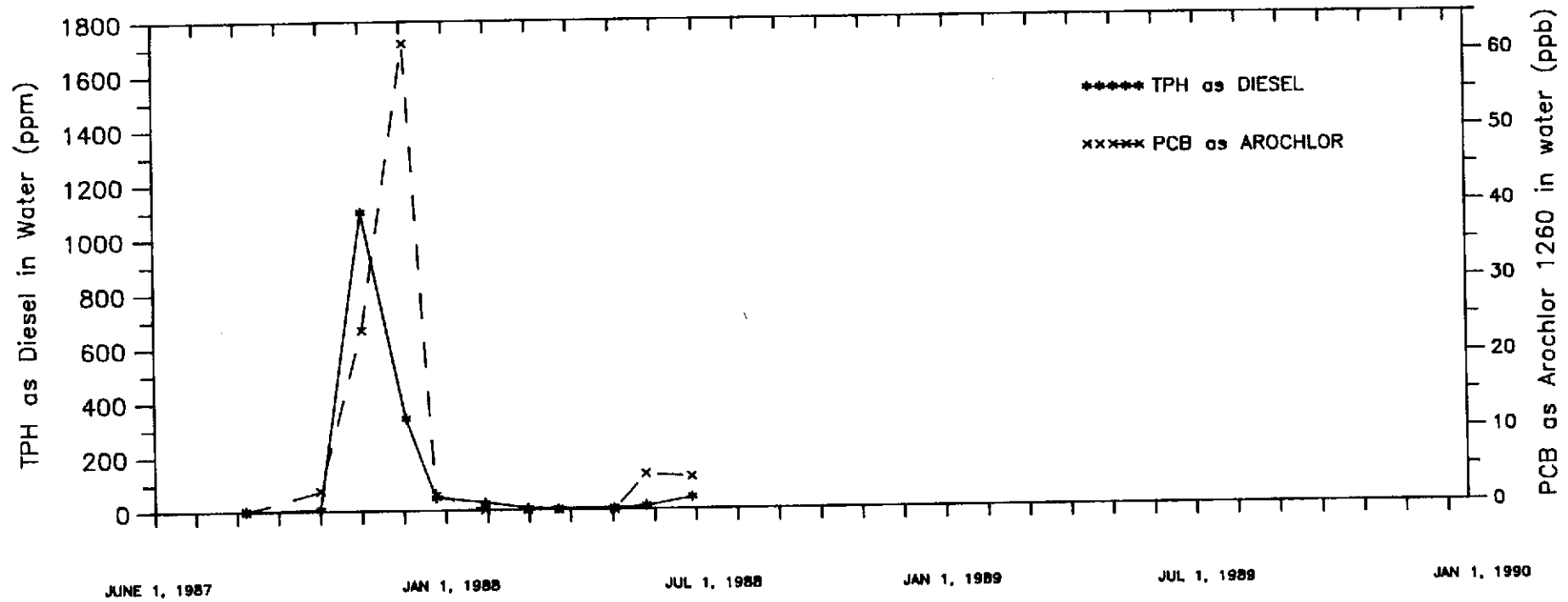
9-89

TPH AS DIESEL AND PCBs CONCENTRATION  
TIME DATES FOR MW -2

INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA

PLATE

19



**KLEINFELDER**

PROJECT NO. 10-1682-04

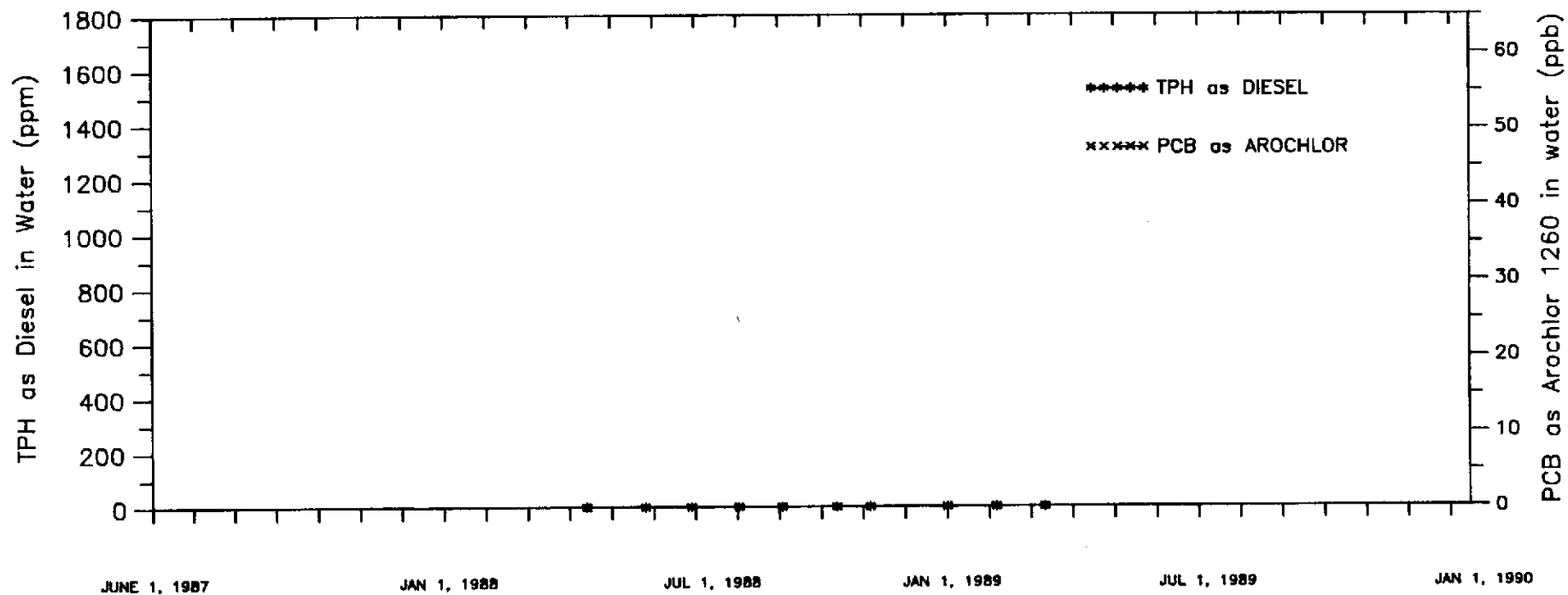
9-89


TPH AS DIESEL AND PCBs CONCENTRATION  
TIME DATES FOR MW -3

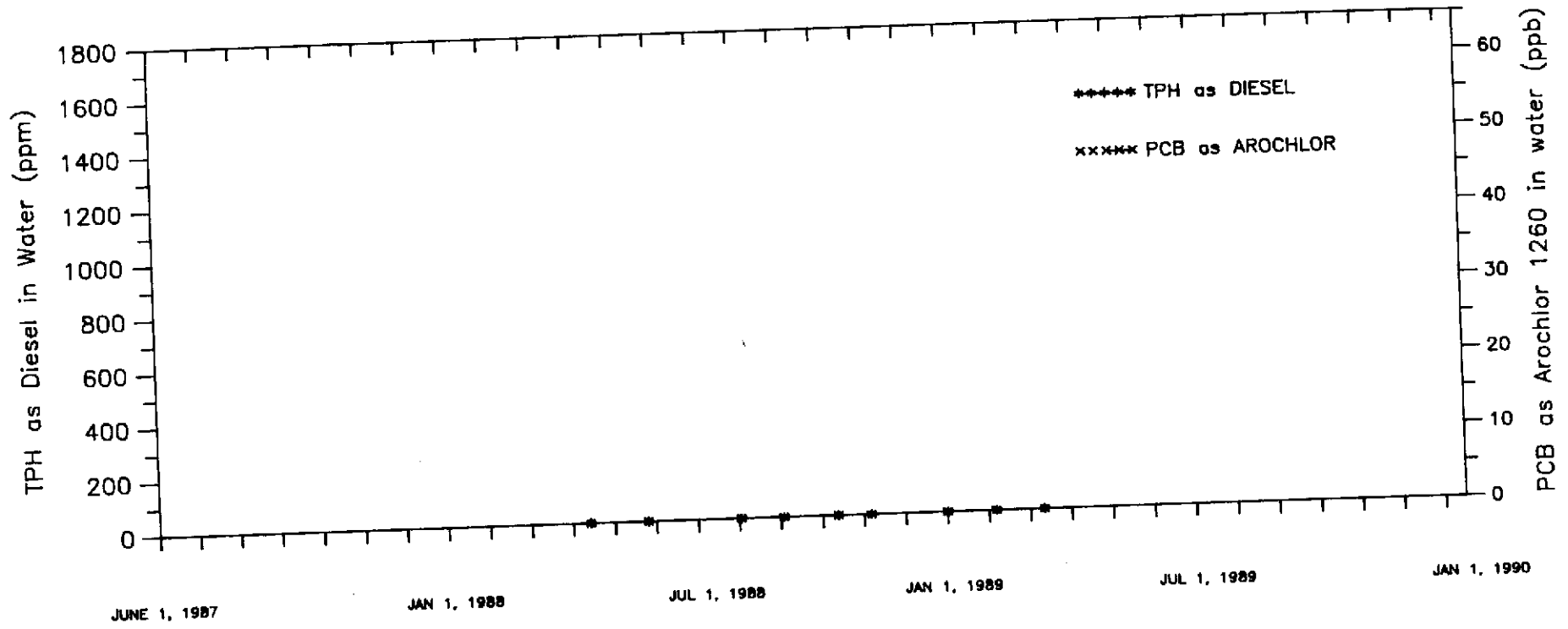
INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA


PLATE

20

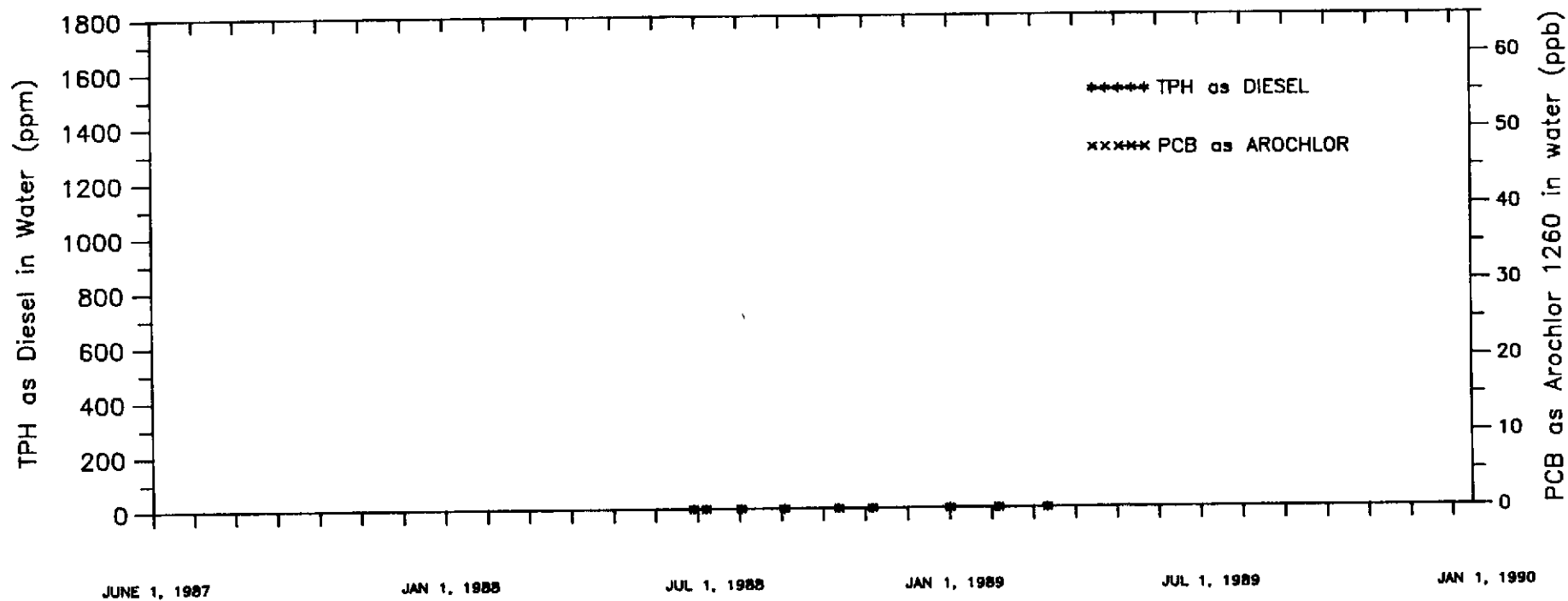



 <b>KLEINFELDER</b>	<b>TPH AS DIESEL AND PCBs CONCENTRATION          TIME DATES FOR MW -4</b>	PLATE
	PROJECT NO. 10-1682-04	INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA



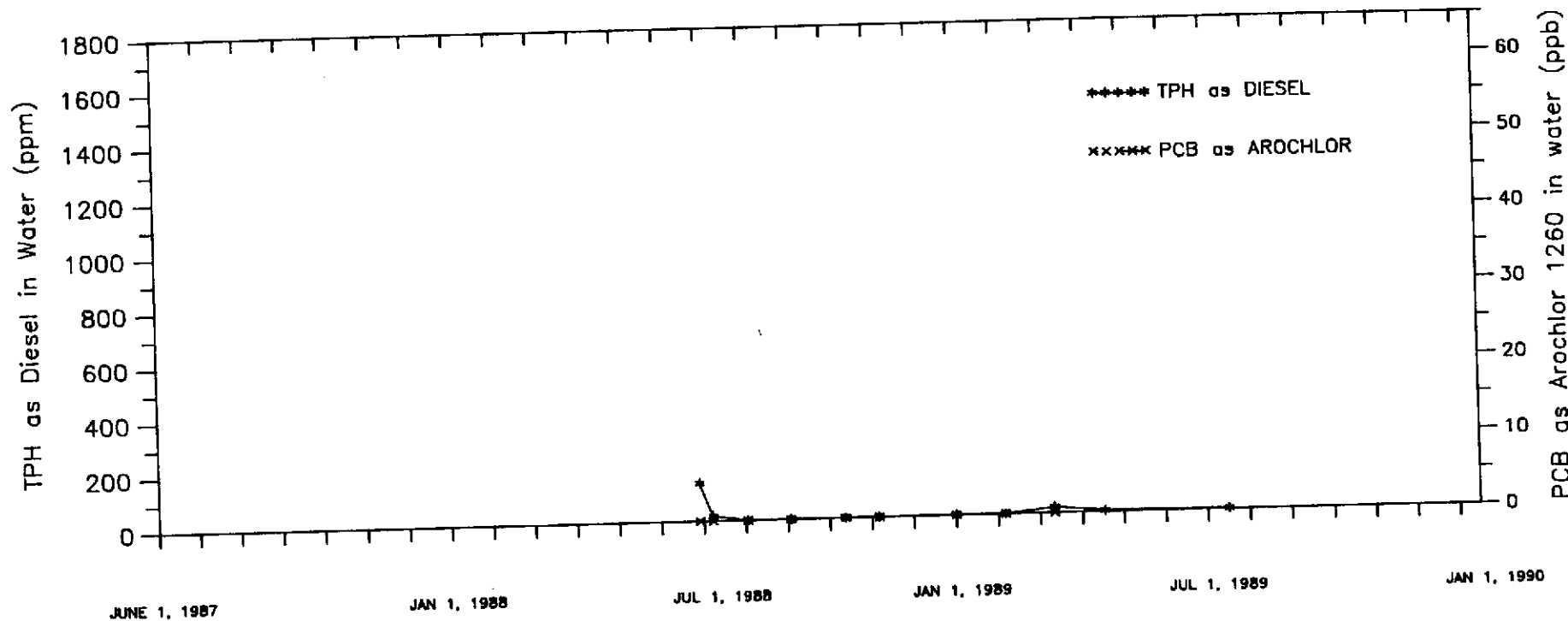
 <b>KLEINFELDER</b>	<b>TPH AS DIESEL AND PCBs CONCENTRATION          TIME DATES FOR MW -5</b>	PLATE  <div style="font-size: 2em; font-weight: bold;">22</div>
	PROJECT NO. 10-1682-04	INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA


9-89



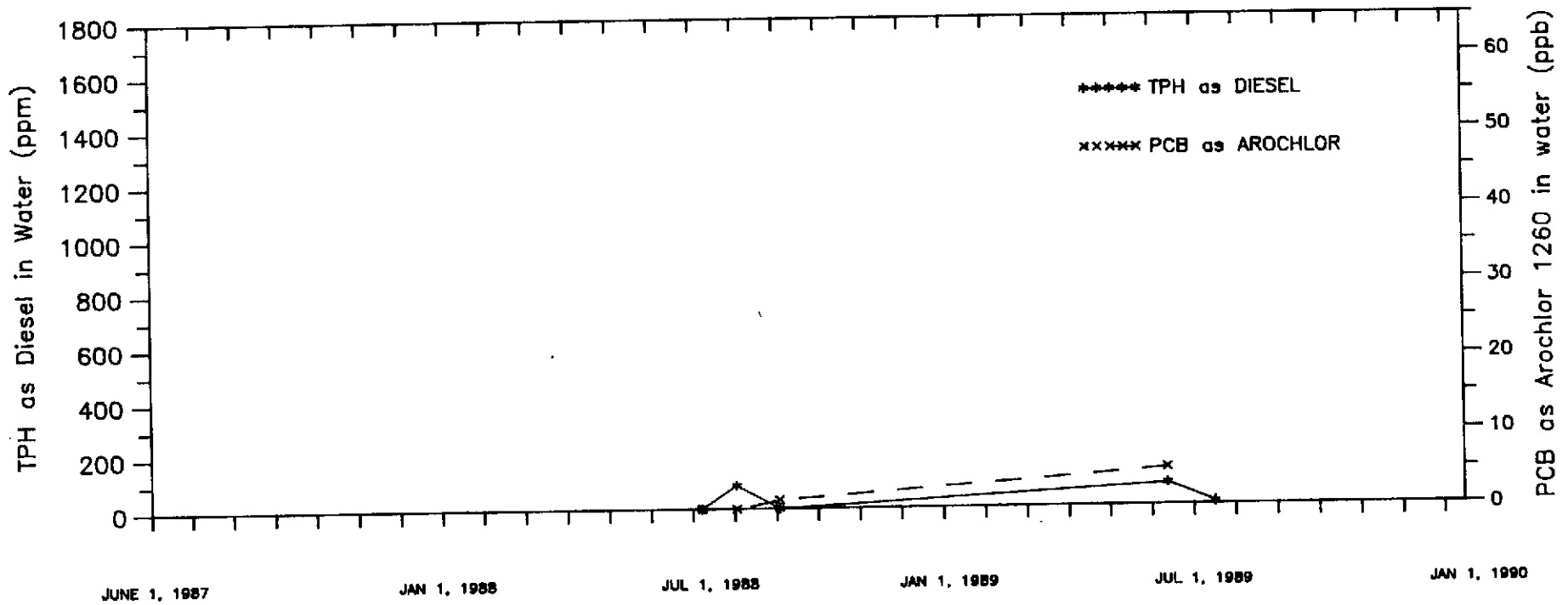
 <b>KLEINFELDER</b>	<b>TPH AS DIESEL AND PCBs CONCENTRATION TIME DATES FOR MW -6</b>	PLATE
	PROJECT NO. 10-1682-04	9-89
INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA		





 <b>KLEINFELDER</b>	<b>TPH AS DIESEL AND PCBs CONCENTRATION          TIME DATES FOR MW -7</b>	PLATE
	PROJECT NO. 10-1682-04	INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA

9-89



**KLEINFELDER**

PROJECT NO. 10-1682-04

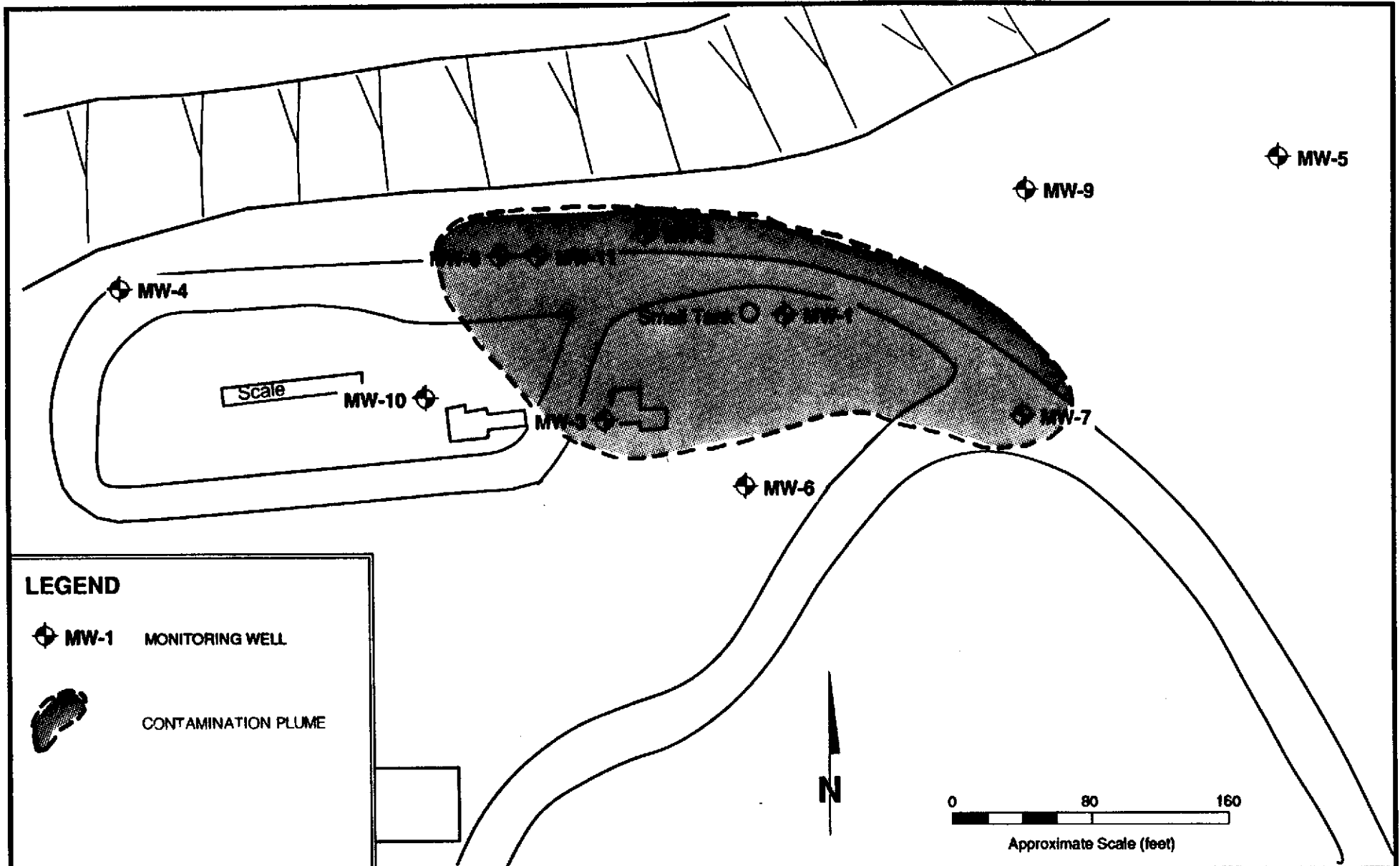
9-89

TPH AS DIESEL AND PCBs CONCENTRATION  
 TIME DATES FOR MW -8

INDUSTRIAL ASPHALT  
 PLEASANTON, CALIFORNIA

PLATE

**25**



**LEGEND**

 MW-1 MONITORING WELL

 CONTAMINATION PLUME



**KLEINFELDER**

**INFERRED OUTLINE OF  
HYDROCARBON CONTAMINATION  
PLUME  
INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA**

PLATE  
**26**

DRAFTED BY: L. Sue      DATE: 8-31-89

CHECKED BY: K. Jesionek      DATE: 9-5-89

PROJECT NO. 10-1682 -04



SAMPLERS: (Signature)

*Sig A Jett*

Phone: 938-5610

SHIP TO:

*M.J. Tox*

ATTENTION: Mike Lynch

Phone No. 930-9690

SHIPPING INFORMATION R-4 5-B

Shipper KA

Address W.C.

Date Shipped 7/7/89

Shipment Service By Land

Airbill No. \_\_\_\_\_

Cooler No. \_\_\_\_\_

Results 1 Van J.

Relinquished by: (Signature) <i>Sig A Jett</i>	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received for laboratory by: (Signature) <i>H. Van J.</i>	Date/Time <i>7-7-89 11:4</i>

\* 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
15466-MW11(50)	10-1682-04	7/6/89	hold 1A	
<del>15467</del>				
15467-MW11(55)			hold 2A	
15468-MW11(60)			<del>TPH (diesel)</del> hold 3A	
15469-MW11(65)			} composite TPH (diesel) 4A	
15470-MW11(70)				
15471-MW11(75)			TPH (diesel) 5A	

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) Site Temperature
- (5) Time

**CHAIN OF CUSTODY RECORD**

SAMPLERS: (Signature)

Doug Heard

Phone: 415 938-5610

SHIP TO: MED TOX

**SHIPPING INFORMATION**

Shipper KleinFelder

Address Walnut Creek

Date Shipped 8-16-89

Shipment Service HAND

Airbill No. \_\_\_\_\_

Cooler No. ATTN KRYS Jesionek

ATTENTION: \_\_\_\_\_

Phone No. \_\_\_\_\_

Relinquished by: (Signature)

Doug Heard

Received by: (Signature)

Date/Time

Relinquished by: (Signature)

Received by: (Signature)

Date/Time

Relinquished by: (Signature)

Received by: (Signature)

Date/Time

Relinquished by: (Signature)

Received for laboratory by: (Signature)

Yvonne Lister

Date/Time

8/16/89 1013

\* 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
43298 MW-5	16-1682-03	8-15-89	{ PCB'S ONLY	> 2x1.0
43295 MW-6	↓	↓		
43293-MW-6	↓	↓	{ TPH as diesel	> 2x1.0
43296-MW-5				

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 form - attached

Thank you!



**CHAIN OF CUSTODY RECORD**

SAMPLERS: (Signature)

*Doug Heard*

Phone:

*415 938-5610*

SHIP TO:

*MED TOX*

**SHIPPING INFORMATION**

Shipper

*Kleinfelder*

Address

*Walnut Creek*

Date Shipped

*8-16-89*

Shipment Service

*HAND*

Airbill No.

Cooler No.

*ATTN KRYS TESIONEK*

ATTENTION:

Phone No.

Relinquished by: (Signature)

Relinquished by: (Signature)

Relinquished by: (Signature)

Relinquished by: (Signature)

Received by: (Signature)

Received by: (Signature)

Received by: (Signature)

Receive for laboratory by: (Signature)

Date/Time

*8-16-89 16:45*

Date/Time

*8/16/89 20:30*

Date/Time

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
<i>43285 MW-7</i>	<i>11-1682-03</i>	<i>8-16-89</i>	<i>PCB'S ONLY</i> ✓	<i>Good</i>
<i>43288 MW-9</i>	}	}	}	
<i>43748 MW-4</i>				
<i>43283 MW-7</i>				
<i>43286 MW-9</i>				
<i>43746 MW-4</i>				
<i>43291 MW-9</i>			<i>BTX &amp; E</i> ✓	

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 TURN-AROUND*

*Thank you!*



**C AIN OF CUSTODY RECORD**

SAMPLERS: (Signature)

*David Heard*

Phone:

*(415) 938-5610*

SHIP TO:

*Med TOX*

**SHIPPING INFORMATION**

Shipper

*Klein Felder*

Address

*Walnut Creek*

Date Shipped

*8-17-89*

Shipment Service

*HAND*

Airbill No.

Cooler No.

*ATTN KRYS Jesionek*

ATTENTION:

Phone 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

*Denise Harrington*

*8/17/89 13:20*

\* 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
<i>43275 MW-10</i>	<i>10-1662-03</i>	<i>8-17-89</i>	<i>TPH as diesel</i>	<i>&gt; 2X1L</i>
<i>43276 MW-10</i>	<i>↓</i>	<i>↓</i>	<i>PCB'S ONLY</i>	<i>&gt; 2X1L</i>
<i>43273 MW-10</i>			<i>BTX+E</i>	<i>&gt; 2X40ml</i>

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 TUNA-CROWN*
- (5)

*THANK YOU!*

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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

LABORATORY ANALYSIS REPORT

KLEINFELDER, INC.  
2121 N. CALIFORNIA BLVD.  
SUITE 570  
WALNUT CREEK, CA 94596

REPORT DATE: 07/31/89  
DATE SAMPLED: 07/11-13/89  
DATE RECEIVED: 07/13/89  
DATE EXTRACTED: 07/21/89  
DATE ANALYZED: 07/22/89

ATTN: KRYS JESIONEK

CLIENT ID: 10-1682-04

MED-TOX JOB NO: 8907074

ANALYSIS OF: TWO SOIL SAMPLES FOR TOTAL PETROLEUM  
HYDROCARBONS

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client Id.	Lab No.	Total Petroleum Hydrocarbons as Diesel (mg/kg)	Total Petroleum Hydrocarbons as Waste Oil (mg/kg)
15475-MW10(75)	01A	ND	120
15484-MW9(70)	02A	ND	90
Detection limit		10	20

ND = Not detected at or above indicated method detection limit

  
Michael Lynch, Manager  
Organic Laboratory

Results FAXed to Krys Jesionek 07/27/89

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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

LABORATORY ANALYSIS REPORT

KLEINFELDER, INC.  
2121 N. CALIFORNIA BLVD.  
SUITE 570  
WALNUT CREEK, CA 94596

REPORT DATE: 07/31/89  
DATE SAMPLED: 07/06/89  
DATE RECEIVED: 07/07/89  
DATE EXTRACTED: 07/14/89  
DATE ANALYZED: 07/15-26/89

ATTN: KRYS JESIONEK

CLIENT ID: 10-1682-04


MED-TOX JOB NO: 8907026

ANALYSIS OF: TWO SOIL SAMPLES FOR TOTAL PETROLEUM  
HYDROCARBONS

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client Id.      Lab No.	Total Petroleum Hydrocarbons as Diesel (mg/kg)	Total Petroleum Hydrocarbons as Waste Oil (mg/kg)
15469-MW11(65) 15470-MW11(70) (COMPOSITE)      04A	21	ND
15471-MW11(75)      05A	50	ND
Detection limit	10	20

ND = Not detected at or above indicated method detection limit

  
Michael Lynch, Manager  
Organic Laboratory

Results FAXed to Krys Jesionek 07/28/89

## ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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### LABORATORY ANALYSIS REPORT

KLEINFELDER, INC.  
2121 N. CALIFORNIA BLVD.  
SUITE 570  
WALNUT CREEK, CA 94596

ATTN: KRYS JESIONEK

CLIENT ID: 10-1682-03

REPORT DATE: 09/12/89

DATE SAMPLED: 08/15/89

DATE RECEIVED: 08/16/89

DATE EXTRACTED: 08/24/89

DATE ANALYZED: 08/27/89

MED-TOX JOB NO: 8908127

ANALYSIS OF: TWO 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)	Total Petroleum Hydrocarbons as Waste Oil (mg/L)
43296MW5	01C	ND	ND
43293MW6	02C	ND	ND
Detection limit		0.3	0.5

ND = Not detected at or above indicated method detection limit

*Lynnea M. Nowak for M.D.*  
Michael Lynch, Manager  
Organic Laboratory

Results FAXed to Krys Jesionek 09/01/89

## KLEINFELDER, INC.

CLIENT ID: 43298MW5  
CLIENT JOB NO: 10-1682-03DATE SAMPLED: 08/15/89  
DATE RECEIVED: 08/16/89MED-TOX LAB NO: 8908127-01A  
MED-TOX JOB NO: 8908127  
DATE EXTRACTED: 08/21/89  
DATE ANALYZED: 08/22/89  
REPORT DATE: 09/12/89

## 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

## KLEINFELDER, INC.

CLIENT ID: 43295MW6  
CLIENT JOB NO: 10-1682-03DATE SAMPLED: 08/15/89  
DATE RECEIVED: 08/16/89MED-TOX LAB NO: 8908127-02A  
MED-TOX JOB NO: 8908127  
DATE EXTRACTED: 08/21/89  
DATE ANALYZED: 08/22/89  
REPORT DATE: 09/12/89EPA 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

## ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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

### LABORATORY ANALYSIS REPORT

KLEINFELDER, INC.  
2121 N. CALIFORNIA BLVD.  
SUITE 570  
WALNUT CREEK, CA 94596

ATTN: KRYS JESIONEK

CLIENT ID: 10-1682-03

REPORT DATE: 09/12/89

DATE SAMPLED: 08/17/89

DATE RECEIVED: 08/17/89

DATE EXTRACTED: 08/26/89

DATE ANALYZED: 08/30/89

MED-TOX JOB NO: 8908146

ANALYSIS OF: ONE WATER SAMPLE FOR TOTAL PETROLEUM  
HYDROCARBONS, BTXE, AND POLYCHLORINATED  
BIPHENYLS

METHOD: EPA 8015 (EXTRACTION)

Sample Identification	Lab No.	Total Petroleum Hydrocarbons as Diesel (mg/L)	Total Petroleum Hydrocarbons as Waste Oil (mg/L)
43275MW10	01A	ND	ND

Detection limit

0.3

0.5

ND = Not detected at or above indicated method detection limit

*Linnea M. Nowak for M.L.*  
Michael Lynch, Manager  
Organic Laboratory

Results FAXed to Krys Jesionek 09/01/89

## KLEINFELDER, INC.

CLIENT ID: 43276MW-10  
CLIENT JOB NO: 10-1682-03MED-TOX LAB NO: 8908146-01C  
MED-TOX JOB NO: 8908146  
DATE EXTRACTED: 08/21/89  
DATE ANALYZED: 08/22/89  
REPORT DATE: 09/12/89DATE SAMPLED: 08/17/89  
DATE RECEIVED: 08/17/89

## 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



KLEINFELDER, INC.

CLIENT ID: 43273MW-10  
CLIENT JOB NO: 10-1682-03

MED-TOX LAB NO: 8908146-01E  
MED-TOX JOB NO: 8908146

DATE SAMPLED: 08/17/89  
DATE RECEIVED: 08/17/89

DATE ANALYZED: 08/26/89  
REPORT DATE: 09/12/89

BTXE

METHOD: EPA 602

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	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene . . . . .	ND	0.5
Toluene . . . . .	ND	0.5
Ethylbenzene. . . . .	ND	0.5
Xylenes . . . . .	ND	2

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ND = Not detected at or above indicated method detection limit

Working Copy

## ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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### LABORATORY ANALYSIS REPORT

KLEINFELDER, INC.  
2121 N. CALIFORNIA BLVD.  
SUITE 570  
WALNUT CREEK, CA 94596

REPORT DATE: 09/12/89  
DATE SAMPLED: 08/16/89  
DATE RECEIVED: 08/16/89  
DATE EXTRACTED: 08/24/89  
DATE ANALYZED: 08/24/89

ATTN: KRYS JESIONEK

CLIENT ID: 10-1682-03

MED-TOX JOB NO: 8908135

ANALYSIS OF: THREE WATER SAMPLES FOR POLYCHLORINATED BIPHENYLS AND TOTAL PETROLEUM HYDROCARBONS;  
ONE WATER SAMPLE FOR POLYCHLORINATED BIPHENYLS, TOTAL PETROLEUM HYDROCARBONS AND BTXE

METHOD: EPA 8015 (EXTRACTION)

Sample Identification		Total Petroleum Hydrocarbons as Diesel (mg/L)	Total Petroleum Hydrocarbons as Waste Oil (mg/L)
Client Id.	Lab No.		
43283MW7	01C	0.5	ND
43286MW9	02C	ND	ND
43746MW4	03C	ND	ND
43278MW8	04C	12	6

Detection limit 0.3 0.5

ND - Not detected at or above indicated method detection limit

*Linnea M. Nowak for M.L.*  
Michael Lynch, Manager  
Organic Laboratory

Results FAXed to Krys Jesionek 09/01/89

## KLEINFELDER, INC.

CLIENT ID: 43285MW7  
CLIENT JOB NO: 10-1682-03DATE SAMPLED: 08/16/89  
DATE RECEIVED: 08/16/89MED-TOX LAB NO: 8908135-01A  
MED-TOX JOB NO: 8908135  
DATE EXTRACTED: 08/24/89  
DATE ANALYZED: 08/25/89  
REPORT DATE: 09/12/89EPA 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

## KLEINFELDER, INC.

CLIENT ID: 43288MW9  
CLIENT JOB NO: 10-1682-03DATE SAMPLED: 08/16/89  
DATE RECEIVED: 08/16/89MED-TOX LAB NO: 8908135-02A  
MED-TOX JOB NO: 8908135  
DATE EXTRACTED: 08/24/89  
DATE ANALYZED: 08/25/89  
REPORT DATE: 09/12/89

## 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

## KLEINFELDER, INC.

CLIENT ID: 43748MW4  
CLIENT JOB NO: 10-1682-03DATE SAMPLED: 08/16/89  
DATE RECEIVED: 08/16/89MED-TOX LAB NO: 8908135-03A  
MED-TOX JOB NO: 8908135  
DATE EXTRACTED: 08/24/89  
DATE ANALYZED: 08/25/89  
REPORT DATE: 09/12/89

## 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

## KLEINFELDER, INC.

CLIENT ID: 43281MW8  
CLIENT JOB NO: 10-1682-03DATE SAMPLED: 08/16/89  
DATE RECEIVED: 08/16/89MED-TOX LAB NO: 8908135-04A  
MED-TOX JOB NO: 8908135  
DATE EXTRACTED: 08/24/89  
DATE ANALYZED: 08/25/89  
REPORT DATE: 09/12/89EPA 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	0.9	0.5

ND = Not detected at or above indicated method detection limit

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

KLEINFELDER, INC.

CLIENT ID: 43291MW9  
CLIENT JOB NO: 10-1682-03

MED-TOX LAB NO: 8908135-02E  
MED-TOX JOB NO: 8908135

DATE SAMPLED: 08/16/89  
DATE RECEIVED: 08/16/89

DATE ANALYZED: 08/26-28/89  
REPORT DATE: 09/12/89

BTXE

METHOD: EPA 602

	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene . . . . .	ND	0.5
Toluene . . . . .	ND	0.5
Ethylbenzene. . . . .	ND	0.5
Xylenes . . . . .	ND	2

ND = Not detected at or above indicated method detection limit