KLEINFELDER

September 14, 1988
File: 10-1682-03

Mr. Greg Zentner
California Regional Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street, Room 6040
Oakland, California 94507

SUBJECT: Project Status Report No. 3, Environmental Engineering Services, Industrial Asphalt Facility, 1645 Stanley Blvd., Pleasanton, California

Dear Mr. Zentner:

Kleinfelder is pleased to submit our Project Status Report No. 2, dated September 7, 1988, on the Industrial Asphalt Facility located in Pleasanton, California. This report is being submitted on behalf of Industrial Asphalt to the Regional Water Quality Control Board as lead agency reviewing this site investigation. As indicated below, copies of this report are also provided to Alameda County Environmental Health Services and to Alameda County Flood Control and Water Conservation District for their files.

Should you have any questions, please do not hesitate to contact us.

Very truly yours,

KLEINFELDER

Dennis M. Laduzinsky
Project Geologist

Elaine J. Hanford, R.G.
Senior Project Geologist

DML:EJH:cd

cc: Lowell Miller, Alameda County
Jerry Killingstad, Zone 7
Dennis Hunt, Industrial Asphalt
Dwight Beavers, Industrial Asphalt

(8)C88-219

PROJECT STATUS REPORT NO. 3
ENVIRONMENTAL ENGINEERING SERVICES
INDUSTRIAL ASPHALT FACILITY
1645 STANLEY BLVD.
PLEASANTON, CALIFORNIA

September 7, 1988

A Report Prepared for:

Industrial Asphalt
6623 Calle Eva Miranda
Irwindale, California 91706

PROJECT STATUS REPORT NO. 3
ENVIRONMENTAL ENGINEERING SERVICES
INDUSTRIAL ASPHALT FACILITY
PLEASANTON, CALIFORNIA

Kleinfelder Job No. 10-1682-03

by

Dennis M. Laduzinsky
Project Geologist

Elaine J. Hanford, R.G.
Project Director

REGISTERED GEOLOGIST
ELAINE J. HANFORD
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September 7, 1988

1 SUMMARY

This progress report on the environmental engineering services at the Industrial Asphalt facility provides status information on soil gas vapor survey, installation of five new wells and monitoring of the eight onsite wells with associated analytical testing.

Monitoring of product thickness and analytical testing for total petroleum hydrocarbon and polychlorinated biphenyl concentrations in the ground water in the onsite wells has been conducted on a monthly basis. Total petroleum hydrocarbon concentrations are generally less than 350 parts per million. Polychlorinated biphenyl concentrations are generally less than ten parts per billion. Free product, if present in the wells, ranges typically from one to eight feet in thickness.

Methane and carbon dioxide, a degradation products of diesel, were detected during a soil gas vapor survey. Methane concentrations were used as an aid in delineating the contaminant plume. The approximate extent of the plume was confirmed by the installation of three additional ground water monitoring wells following completion of the soil gas vapor survey.

2 RECOMMENDATIONS

Based on our analysis of the data and work completed to date, and the "Guidelines for Addressing Fuel Leaks" issued by the California Regional Water Quality Control Board, we make the following recommendations:

1) Monitoring Well Observation

   Monthly monitoring of onsite wells should be continued to evaluate depth to ground water and any changes in free product thickness and distribution.

2) Free Product Extraction Feasibility

   Currently available technologies for free product extraction should be evaluated as to their effectiveness considering site conditions and free product character. If free product can be effectively removed, then the impact of the contaminant plume can be minimized.

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

3 PROJECT DESCRIPTION

3.1 INTRODUCTION

This report presents a status report on the results of our on-going phase of environmental engineering services at the Industrial Asphalt facility in Pleasanton, California (Plate 1). This work included monitoring of onsite ground water monitoring wells, associated ground water sample collection and laboratory analysis, soil gas vapor survey, and installation of five additional monitoring wells.

Results of our previous phases of site investigation were presented in our reports entitled:

- "Final Environmental Investigation Report, Industrial Asphalt Facility, Eastern Alameda County, California", dated May 18, 1987.

- "Project Status Report: Environmental Engineering Services, Industrial Asphalt Facility, Pleasanton, California", dated September 4, 1987.

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

3.2 PURPOSE AND SCOPE OF SERVICES

In accordance with our recommendations presented in our Progress Reports and our proposed workplans for additional site assessment, this continuing phase of our investigation is being conducted to provide site characterization to serve as a basis for site remediation. This progress report provides documentation of tasks completed to date.

The following scope of work has been completed to date toward these objectives:

1) Permit and drill five additional borings to encounter ground water.

2) Complete and develop each boring as a water monitoring well.

3) Conduct soil gas vapor survey.

4) Conduct level survey to measure depth to ground water and thickness of free product, if present, in onsite monitoring wells on a monthly basis.

5) Collect and analyze ground water samples in onsite monitoring wells for total petroleum hydrocarbons (TPH) as diesel and for polychlorinated biphenyls (PCBs)

6) Prepare status report summarizing field investigations and analytical data, and provide recommendations for further site investigation.

4 FIELD ACTIVITIES AND OBSERVATIONS

4.1 INTRODUCTION

Five additional soil borings were drilled and completed as ground water monitoring wells. Eight monitoring wells are present onsite at the locations shown on Plate 2. Logs of the monitoring wells are presented on Plates 3 through 7. The previous location of the underground storage tanks is also shown on Plate 2.

4.2 DRILLING

On March 24 through March 29, 1988, two borings (B-4 and B-5) were drilled using a Drilltek D40K rig equipped with a 9-inch drive shoe. These borings were located in upgradient and downgradient directions from the contaminant plume based on the results of our previous soil gas vapor feasibility study.

On June 15 through June 22, 1988, three borings (B-6, B-7 and B-8) were drilled using the Drilltek D40K. These borings were located to confirm the results of our soil gas vapor survey (see Section 4.7).

A Kleinfelder geologist supervised the drilling and logged the borings by visually classifying the soils encountered in accordance with the Unified Soil Classification System (USCS) as outlined on Plate 8. Each of these borings was completed as a ground water monitoring well as described in the following section.

4.3 WELL INSTALLATION

The soil borings, B-4 through B-8, were completed as monitoring wells MW-4 through MW-8, respectively. Construction details for these 4-inch monitoring wells are presented on the respective Boring and Monitoring Well Data Sheets and Boring Logs (Plates 3 through 7).

4.4 MONITORING WELL OBSERVATIONS

On a monthly basis, measurements of depth to ground water and product thickness have been made and recorded. Following installation of wells MW-6 through MW-8, these wells were sampled instead of wells MW-1 through MW-3 to monitor ground water quality near the margin of the plume. After measurements were recorded, samples of the ground water were collected for analytical testing. The approximate extent of the free product plume is shown on Plate 9 based on observations made in June of 1988.

Ground water samples were collected with a bailer. Prior to sampling, the bailer was steam cleaned to minimize the potential for cross contamination. 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 a one liter glass bottle and 40 milliliter glass volatile organic analysis (VOA) vials. The samples were labelled and immediately placed in refrigerated storage for transport to the analytical laboratory.

4.5 FREE PRODUCT SAMPLING

On July 15, 1988, a sample of the free product was collected from monitoring well MW-2 using a teflon bailer. Prior to sampling, the bailer was steam cleaned to minimize the potential for cross contamination. To collect the sample, the bailer was lowered into the well into the free product layer. The bailer was then retrieved and the product sample was decanted into one liter glass bottles. One sample was then prepared for shipment to the analytical laboratory. Additional samples were submitted to technical equipment suppliers for evaluation of extraction feasibility.

4.6 CHAIN-OF-CUSTODY

All samples were labelled and transported under chain-of-custody control to the state certified analytical laboratory. All ground water and product samples were submitted to Med-Tox Associates, Inc., in Pleasant Hill, California. Copies of the chain-of-custody forms are included in the appendices of this report.

4.7 SOIL GAS VAPOR SURVEY

A soil gas vapor survey was conducted to aid in plume definition. Kleinfelder supervised and directed the soil gas vapor study conducted on June 4, 1988, by Tracer Research Corporation (TRC) of Tucson, Arizona. Soil gas vapor samples were obtained by vacuum pumping through a probe that had been hydraulically driven into the soil. The locations of the eleven sampling points are shown on Plate 2.

Soil gas samples were analyzed by TRC using gas chromatography methods, with results calibrated to an analytical standard. Analyses were conducted for total hydrocarbons, methane benzene, toluene, total xylenes and carbon dioxide.

5 ANALYTICAL TESTING

5.1 SOIL GAS VAPOR SURVEY RESULTS

Analytical test results for the soil gas vapor survey conducted on June 4, 1988, are included as Appendix A of this report. The results are summarized in Table 5-1 and the approximate boundary of the vapor plume is shown on Plate 9. It should be noted that the results for feasibility samples SG-01 through SG-06 collected on October 10, 1987, may not be directly correlative with results for survey samples SG-07 through SG-19 due to different dates of sampling and varying site conditions over time. Concentrations measured at SG-17 are believed to be a result of surface soil contamination from the application of diesel to truck beds as an asphalt release agent. Use of diesel as an asphalt release agent was discontinued in 1985.

5.2 ANALYTICAL RESULTS FOR FREE PRODUCT

Analytical test results for the free product analyses are presented in Appendix B of this report. Hydrocarbon characterization analysis indicated that the gross composition of the free product is comparable to a diesel standard. Analysis for polychlorinated biphenyls (PCB's) using EPA Method 8080 indicated a concentration of 25 milligrams per kilogram (mg/kg); this is comparable to analytical results for a sample analyzed on August 7, 1987, which indicated 18 mg/kg of PCB's in the free product.

5.3 ANALYTICAL RESULTS FOR WATER SAMPLES

Ground water samples were analyzed for Total Petroleum Hydrocarbons (TPH) as diesel using EPA Method 8015 and for polychlorinated biphenyls (PCB's) using EPA Method 608. Analytical laboratory reports for these analyses are presented in Appendix C of this report; results are summarized in Table 5-2.

Typically, TPH concentrations in ground water samples were less than 100 parts per million (ppm), with PCB concentrations less than 6.0 parts per billion (ppb). No concentrations of TPH or PCB's have been detected in monitoring wells MW-4 and MW-5.

TABLE 5-1

SOIL GAS VAPOR DATA

Sample	Depth (feet)	Date	Carbon Dioxide (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Total Xylenes (ug/l)	Total Hydrocarbons (ug/l)	Methane (ug/l)
SG-01	6	10-10-87	--	<0.02	--	--	--	2
SG-02	7	10-10-87	--	<0.02	--	--	--	0.2
SG-03	4	10-10-87	--	<0.02	--	--	--	6
SG-04	4	10-10-87	--	<0.02	--	--	--	7
SG-05	1.5	10-10-87	--	0.04	--	--	--	7
SG-06	1.5	10-10-87	--	<0.02	--	--	--	5
SG-07	6	06-04-88	130,000	<0.04	<0.04	<0.04	0.2	8
SG-08	6	06-04-88	210,000	<0.04	<0.04	<0.04	0.8	2
SG-09	6	06-04-88	200,000	<0.04	<0.04	<0.04	0.2	30
SG-10	6	06-04-88	180,000	<0.04	<0.04	<0.04	0.1	10
SG-11	6	06-04-88	160,000	<0.04	<0.04	<0.04	<0.08	1
SG-12	6	06-04-88	100,000	<0.04	<0.04	<0.04	<0.08	1
SG-14	7	06-04-88	56,000	<0.04	<0.04	<0.04	0.1	4
SG-15	7	06-04-88	90,000	<0.04	<0.04	<0.04	0.09	8
SG-16	6	06-04-88	100,000	<0.04	<0.04	<0.04	<0.08	1
SG-17	7	06-04-88	120,000	<0.4	6	0.8	18	530
SG-19	6	06-04-88	160,000	<0.04	<0.04	<0.04	<0.08	0.4

ug/l = micrograms per liter (parts per billion)

TABLE 5-2

ANALYTICAL DATA FOR GROUND WATER SAMPLES

Well	Date	Depth to Water	Product Thickness	TPH (ppm)	PCB (ppb)
MW-1	6-11-87	75.0	NE	NT	NT
	7-9-87	75.9	<0.1	NT	NT
	8-6-87	79.1	3.2	350	5.7
	9-29-87	79.3	1.84	510*	22*
	10-30-87	78.23	0.95	780*	22*
	11-30-87	77.68	1.10	1800*	56*
	12-21-87	79.53	2.52	55	1
	1-25-88	77.88	1.63	96	ND(2)
	2-25-88	79.46	2.49	120	ND(2)
	3-18-88	81.61	2.93	3.6	ND(2)
	4-27-88	81.10	2.29	23	ND(2)
	5-20-88	82.97	2.29	NT	NT
	6-22-88	83.48	0.93	NT	NT
	7-26-88	85.78	0.99	--	--
MW-2	8-6-87	NE	14.0+	NT	NT
	9-29-87	NE	12.05+	NT	NT
	10-30-87	82.76	5.34	1100*	14*
	11-30-87	84.12	7.79	1100*	33*
	12-21-87	84.28	7.31	27	2
	1-25-88	84.26	8.07	150	ND(2)
	2-25-88	84.21	7.28	15	ND(2)
	3-18-88	86.18	7.56	3.6	ND(2)
	4-27-88	85.57	6.93	6.1	ND(2)
	5-20-88	88.48	6.93	NT	NT
	6-22-88	87.30	4.52	NT	NT
	7-26-88	NE	5.02+	--	--
MW-3	8-6-87	75.0	NE	0.6	ND(0.5)
	9-29-87	78.77	1.84	7.6	2.7
	10-30-87	78.44	2.11	1100*	24*
	11-30-87	77.76	2.22	340*	62*
	12-21-87	77.88	1.68	46	2
	1-25-88	76.88	1.21	27	ND(2)
	2-25-88	77.80	1.60	6	ND(2)
	3-18-88	80.50	2.59	3.8	ND(2)
	4-27-88	79.40	1.32	4.5	ND(2)
	5-20-88	81.48	1.73	14	4.7
	6-22-88	82.14	0.53	44	4.3
	7-26-88	84.36	0.54	--	--

TABLE 5-2 (cont.)

ANALYTICAL DATA FOR GROUND WATER SAMPLES

Well	Date	Depth to Water	Product Thickness	TPH (ppm)	PCB (ppb)
MW-4	4-6-88	76.59	NE	ND(0.2)	ND(0.5)
	4-27-88	75.96	NE	NT	NT
	5-20-88	77.71	NE	ND(0.5)	ND(0.5)
	6-22-88	79.41	NE	ND(1)	ND(0.5)
	7-26-88	81.74	NE	ND(10)	ND(0.5)
MW-5	4-6-88	86.76	NE	ND(0.2)	ND(0.5
	4-27-88	82.34	NE	NT	NT
	5-20-88	84.38	NE	ND(0.5)	ND(0.5)
	6-22-88	86.00	NE	ND(1)	ND(0.5)
	7-26-88	88.84	NE	ND(10)	ND(0.5)
MW-6	6-22-88	82.11	NE	17	ND(0.5)
	7-1-88	82.38	Sheen	ND(6)	ND(0.5)
	7-26-88	84.37	Sheen	ND(10)	ND(0.5)
MW-7	6-22-88	82.20	NE	140	ND(0.5)
	7-1-88	82.60	Sheen	17	ND(0.5)
	7-26-88	84.65	Sheen	ND(10)	ND(0.5)
MW-8	6-22-88	81.70	NE	NT	NT
	7-1-88	82.00	Sheen	ND(6)	ND(0.5)
	7-26-88	86.19	2.44	87	ND(0.5)

Depth given as feet below top of casing; product thickness in feet.

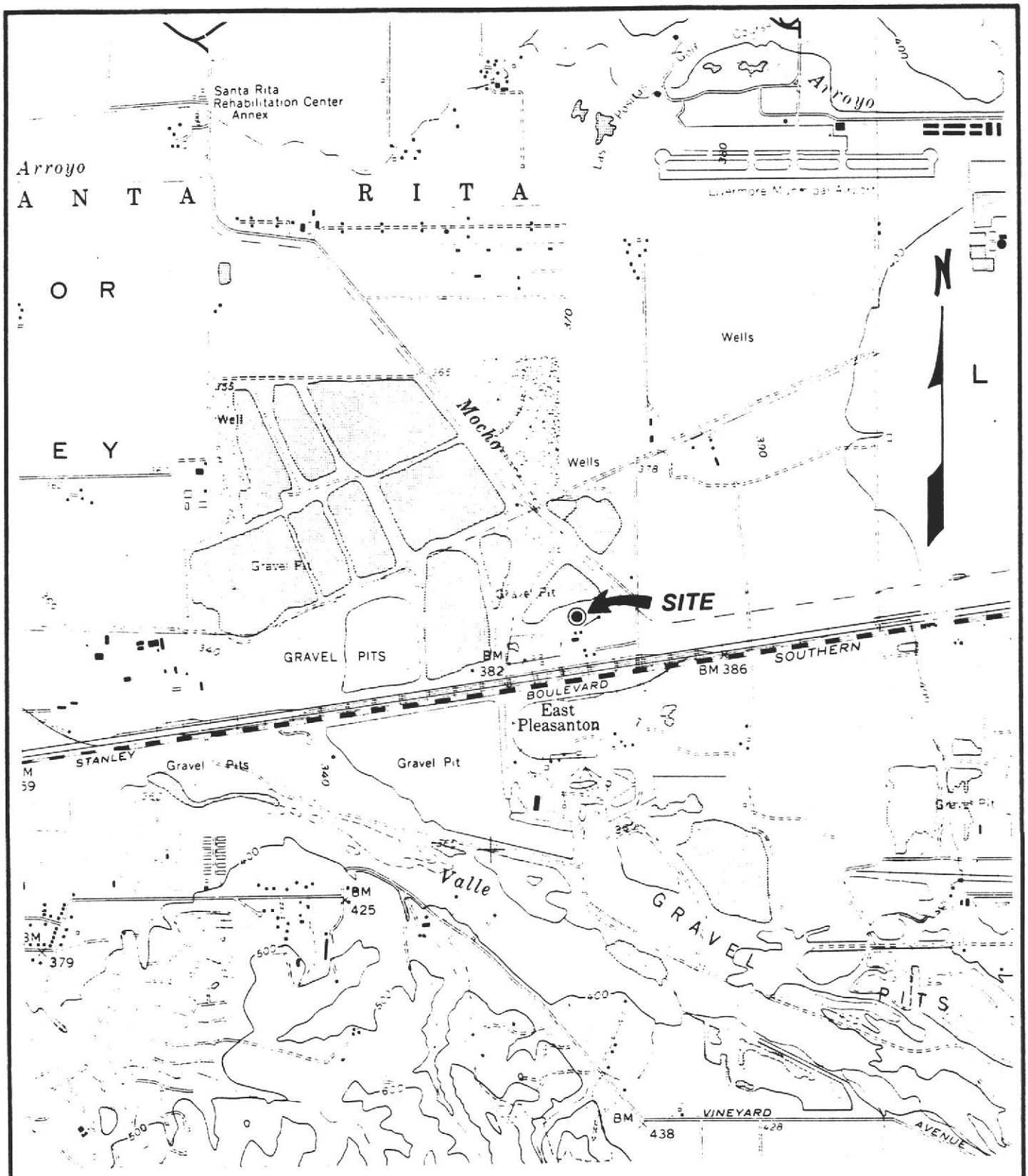
TPH = Total Petroleum Hydrocarbons as diesel in water
PCB = Polychlorinated Biphenyls as Arochlor 1260 in water
NE = Not Encountered
NT = Not Tested
ND = Not Detected at given detection limit
* = These samples may have been contaminated; analytical results may therefore be suspect.
+ = Minimum thickness of product based on no water encountered within total depth of well.

NOTE: Sampling and testing of ground water in MW-1 and MW-3 terminated due to installation of MW-6, MW-7 and MW-8 as of July 1, 1988.

6 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 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 subsequent phases in order to evaluate compliance with the recommendations.



SCALE 1:24000

Source: USGS 7.5 minute Livermore Quadrangle

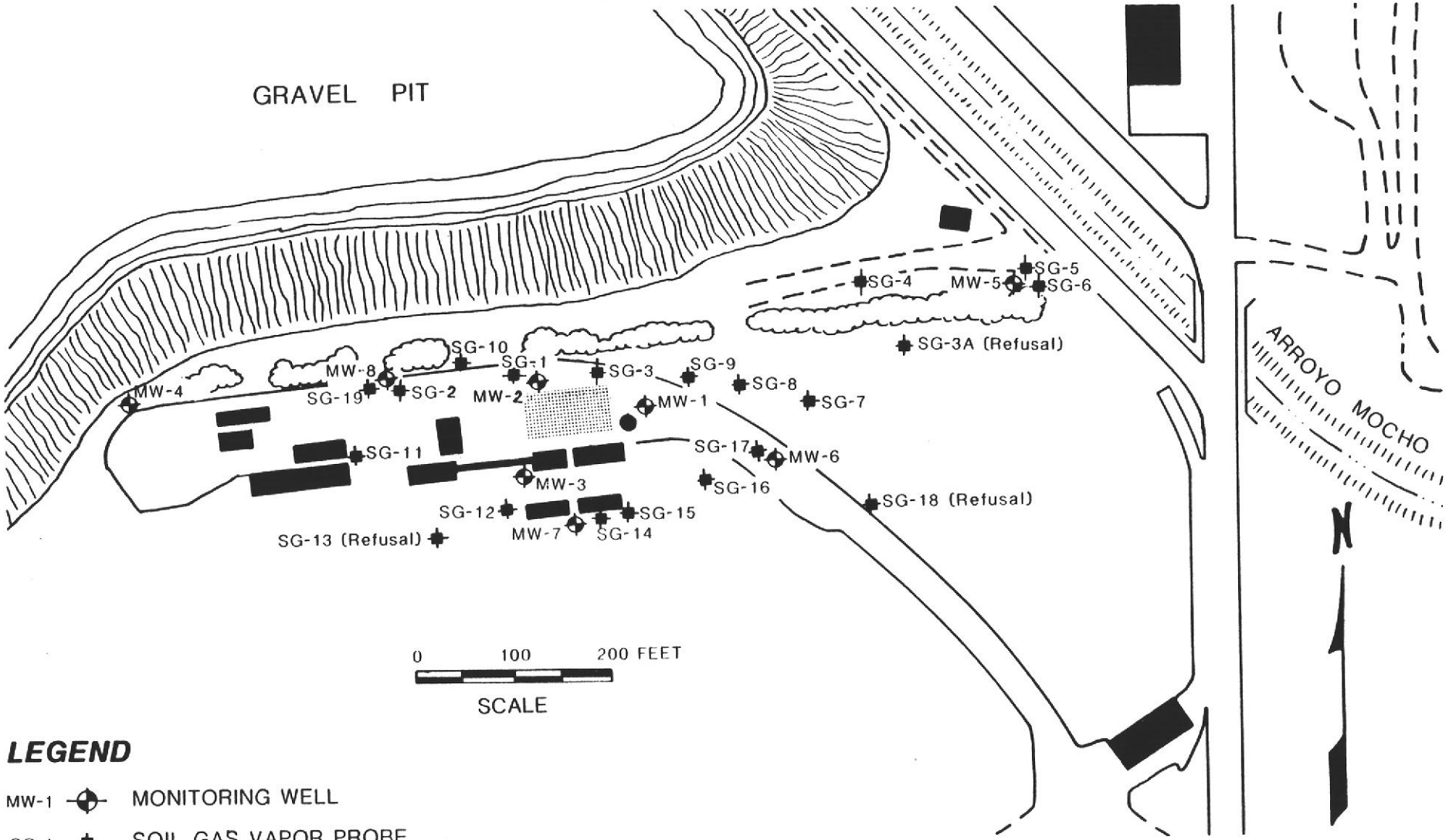
KLEINFELDER

PROJECT NO. 10-1682-03

SITE LOCATION MAP

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
1



LEGEND

MW-1 — MONITORING WELL

SG-1 — SOIL GAS VAPOR PROBE

APPROXIMATE EXTENT OF TANK EXCAVATION

KLEINFELDER

PROJECT NO. 10-1682-03

SITE PLAN

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE
2

KLEINFELDER

BORING AND MONITORING-WELL DATA SHEET

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	
Total Depth	95 feet	MW-4
Sheet	1 of 5	

Location

Owner & Mailing Information	Township/Range/Section
Industrial Asphalt 1645 Stanley Blvd. Pleasanton, CA	Other Identifiers
Site Location (if different)	

Well Location

Show coordinates or distances from surveyed reference point.

Drilling Operations

Drilling Company The Water Development Corp	Driller/Crew T. Moreland/S. Fox
Rig Make/Model DrillTek D 40K	
Bit & Size 9-inch Drive Shoe	
Hammer Data Wt. Drop	

Task	Start (Date, Time)		Finish (Date, Time)	
Drilling	0930	3-24-88	3-24-88	1445
Completion	1500	3-24-88	3-24-88	1845
Development	1030	3-29-88	3-29-88	1340

Well Development and Construction

Monumentation	Development Info.	Well Design	Size & Type	Top	Bottom
Ref. Pt. Description		Surface Casing			
		Casing	4",Schedule 40	+2 feet	55 feet
Elevations Ref. Pt. Ground		Well Screen	4", 0.020 Slot	55 feet	95 feet
Datum		Gravel Pack	#3 Sand	52 feet	95 feet
Markings		Bentonite	Pellets	48 feet	95 feet
		Concrete	Grout	0 feet	48 feet

Field Hydrologic Operations

Weather Sunny	Date	Time	Water Level	Other Observations
Recent Rainfall? Irrigation? No	3-24-88		84.00	Depth below ground surface.
Nearby Wells Pumping? No				
Ditches? Utility Courses? Nearby settling pond				

Remarks

Plate 3

Date: 5-9-88

Revision Date:

KLEINFELDER

LOG OF BORING

Project Industrial Asphalt	Boring No. MW-4
Number 10-1682-03	
Total Depth 95 feet	
Sheet 2 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
2						SANDY GRAVEL- fill		
4					CL	SILTY CLAY- light brown and green, low plasticity, medium stiff to stiff, dry, NOSC	poor recovery from the cyclone	
6								
8								
10								
12								
14								
16								
18								
20								
22								
24					GP	CLAYEY SANDY GRAVEL- light brown to brown, medium to very dense, moist, fine to coarse sand, subangular gravel to 4-inch diameter		
26								
28						increase in coarse sand, 5 to 10% fines		
30								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by S. Fox	Date: 3-24-88	Plate 3a
Drafted by L. Sue	Date: 5-9-88	
Supervised by E. Hanford		

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	
Total Depth	95 feet	MW-4
Sheet	3 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
32						CLAYEY SANDY GRAVEL - as above		
34								
36								
38								
40						5 to 10 % silts and clays present, gravel subrounded to rounded		
42								
44						10 to 20 % silts and clays present, cobbles to 6-inch diameter		
46								
48								
50					GP	SANDY GRAVEL- varicolored, moist, coarse sand, little fines, gravel to 1/4-inch diameter, NOSC		
52						gravel to 3 inch diameter		
54								
56								
58								
60								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by S. Fox	Date: 3-24-88	Plate 3b
Drafted by L. Sue	Date: 5-9-88	
Supervised by E. Hanford		

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt
Number	10-1682-03
Total Depth	95 feet
Sheet	4 of 5
Boring No.	MW-4

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
62						SANDY GRAVEL - as above		
64					GP	CLAYEY SILTY SANDY GRAVEL- moist to wet, gravel to 4 inch diameter, 40-45% clay and silty fine sand		
66								
68								
70								
72								
74								
76								
78								
80					GP	SANDY CLAYEY GRAVEL - brown, slightly plastic, wet, coarse sand, gravel to 1-1/2-inch diameter, subrounded to subangular		
82								
84						gravel to 1-inch diameter	▼ 3-24-88	
86								
88								
90								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by S. Fox	Date: 3-24-88	Plate 3c
Drafted by L. Sue	Date: 5-9-88	
Supervised by E. Hanford		

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LOG OF BORING

Project	Industrial Aspahlt	Boring No.
Number	10-1682-03	MW-4
Total Depth	95 feet	
Sheet	5 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
92						SANDY CLAYEY GRAVEL - as above		
94								
96								
98								
100								
102								
104								
106								
108								
110								
112								
114								
116								
118								
120								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by S. Fox	Date: 3-24-88	Plate 3d
Drafted by L. Sue	Date: 5-9-88	
Supervised by E. Hanford		

KLEINFELDER

BORING AND MONITORING-WELL DATA SHEET

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	MW-5
Total Depth	110 feet	
Sheet	1 of 5	

Location

Owner & Mailing Information	Township/Range/Section
Industrial Asphalt 1645 Stanley Blvd. Pleasanton, CA	Other Identifiers
Site Location (if different)	

Well Location

Show coordinates or distances from surveyed reference point.

Drilling Operations

Drilling Company	Driller/Crew
The Water Development Corp	T. Moreland/S. Fox
Rig Make/Model: DrillTek D 40K	
Bit & Size: 9-inch Drive Shoe	
Hammer Data Wt. Drop	

Task	Start (Date, Time)	Finish (Date, Time)
Drilling	3-25-88 0830	3-28-88 0915
Completion	3-28-88 1030	3-28-88 1445
Development	3-29-88 1440	3-29-88 1710

Well Development and Construction

Monumentation	Development Info.	Well Design	Size & Type	Top	Bottom
Ref. Pt. Description		Surface Casing			
Elevations Ref. Pt. Ground		Casing	4",Schedule 40	0 feet	57 feet
Datum		Well Screen	4", 0.020 Slot	57 feet	107 feet
Markings		Gravel Pack	#3 Sand	53 feet	107 feet
		Bentonite	Pellets	49 feet	53 feet
		Concrete	Grout	0 feet	49 feet

Field Hydrologic Operations

Weather	Date	Time	Water Level	Other Observations
Sunny				
Recent Rainfall? Irrigation? No				
Nearby Wells Pumping? No				
Ditches? Utility Courses? Nearby settling pond				

Remarks

Plate 4

Date: 5-9-88

Revision Date: _____

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	MW-5
Total Depth	110 feet	
Sheet	2 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
2						SANDY GRAVEL - fill		
4					CL	SILTY CLAY - green brown, low plasticity, medium stiff to stiff, dry		
6								
8								
10						some angular gravel (5–10%) to 1-inch diameter		
12						some angular coarse sand present		
14						possible fill		
16								
18						increase in gravel (20%)		
20					CL	GRAVELLY CLAY - light brown gray, medium to very dense, dry, medium to coarse sand, subangular to rounded gravel to 1 inch diameter, NOSC		
22								
24					GP	SANDY GRAVEL - dry, subrounded to rounded gravel to 2.5 inch diameter, increase in sand content		
26								
28						some subrounded to rounded cobbles greater than 6 inches in diameter		
30					SP	GRAVELLY SAND - brown, medium to very dense, dry, medium to coarse grained, gravel to 1/2-inch diameter, NOSC		

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by S. Fox	Date:	Plate 4a
Drafted by B. Dzugaj	Date: 5-6-88	
Supervised by E. Hanford		

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	MW-5
Total Depth	110 feet	
Sheet	3 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
32						GRAVELLY SAND - as above		
						5 - 10 % fines		
34						becomes moist increase in grain size, coarse sand, gravel to 3-inch diameter		
36								
38								
						becomes moist to damp		
40						subrounded to rounded gravel		
42								
44						increase in fines to 15 to 20%		
46								
48							problems with clays binding up on pipe	
50								
52								
						subangular to rounded sand		
54						subrounded to subangular gravel to 3-inch diameter		
56						some cobbles to 5-inch diameter		
58					SP	SAND - gray, medium dense, well sorted, coarse grained sand		
60								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by S. Fox Date:	Plate 4b
Drafted by B. Dzugaj Date: 5-6-88	
Supervised by E. Hanford	

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt
Number	10-1682-03
Total Depth	110 feet
Sheet	4 of 5
Boring No.	MW-5

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
						SAND - as above		
62					GP	CLAYEY SANDY GRAVEL - up to 30% fines		
64								
66								
68								
70						some cobbles to 5-inch diameter, some medium grained sand		
72								
74						decrease in fines to 5 to 10%		
76								
78								
80							no product	
82								
84					GP	SILTY SAND GRAVEL - light brown and gray, dense, wet, medium to coarse grained sand, subangular to rounded gravel, well rounded cobbles to 5-inch diameter		
86								
88								
90								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by S. Fox	Date:
Drafted by B. Dzugaj	Date: 5-6-88
Supervised by E. Hanford	

Plate 4C

KLEINFELDER

LOG OF BORING

Project	Industrial Aspahlt	Boring No.
Number	10-1682-03	MW-5
Total Depth	110 feet	
Sheet	5 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
92					GP	SANDY GRAVEL - subrounded to rounded gravel to 1-inch diameter, medium to coarse sand, 5 to 10% fines		
94						some angular grave to 3-inch diameter		
96						rounded cobbles to 5-inch diameter		
98								
100								
102						medium to coarse grained sand		
104								
106						some cobbles to 6-inch diameter		
108								
110								
112								
114								
116								
118								
120								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by S. Fox Date:
Drafted by B. Dzugaj Date: 5-6-88
Supervised by E. Hanford

Plate 4d

KLEINFELDER

BORING AND MONITORING-WELL DATA SHEET

Project Industrial Asphalt	Boring No.
Number 10-1682-03	MW-6
Total Depth 109 feet	
Sheet 1 of 5	

Location

Owner & Mailing Information	Township/Range/Section
Industrial Asphalt 1645 Stanley Blvd. Pleasanton, CA	Other Identifiers
Site Location (if different)	

Well Location

Show coordinates or distances from surveyed reference point.

Drilling Operations

Drilling Company	Driller/Crew
The Water Development Corp	Bill Gourdin, Brian Gallivan, William Girard
Rig Make/Model DrillTek D 40K	
Bit & Size 9 7/8 O.D.	
Hammer Data Wt. Drop Non-standard	

Task	Start (Date, Time)		Finish (Date, Time)	
Drilling	6-14-88	1030	6-14-88	1620
Completion	6-14-88	1630	6-15-88	1230
Development	6-22-88	1630	6-22-88	1800

Well Development and Construction

Monumentation	Development Info.	Well Design	Size & Type	Top	Bottom
Ref. Pt. Description	Removed110 gals. to recover drill water. Sheen at 110 gals. Stopped development.	Surface Casing			
Elevations Ref. Pt. Ground		Casing	4",Schedule 40	0 feet	69 feet
Datum		Well Screen	4", 0.020 Slot	69 feet	109 feet
Markings		Gravel Pack	2/12	64 feet	109 feet
		Bentonite	Gel	61 feet	64 feet
		Concrete	Portland Neat	0 feet	61 feet

Field Hydrologic Operations

Weather High Clouds, 90 degrees (Fahrenheit)	Date	Time	Water Level	Other Observations
Recent Rainfall? Irrigation? No	3-24-88		84.00	Depth below ground surface.
Nearby Wells Pumping? No				
Ditches? Utility Courses? Nearby settling pond				

Remarks

Plate 5

Date: 5-9-88

Revision Date:

KLEINFELDER

LOG OF BORING

Project Industrial Asphalt	Boring No. MW-6
Number 10-1682-03	
Total Depth 109 feet	
Sheet 2 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
2	S-2	G			GM	Fill - SANDY SILTY GRAVEL - olive brown to light brown, dry, fine to coarse grained subangular sand to 2-inch diameter, 5 to 10% gravel, NOSC		
4					ML	SILT - dark yellowish brown, slightly damp, rare well rounded gravel clasts, minor clay near top but increases with depth		
6	S-6	G						
8								
10								
12						minor clay		
14						becomes firm		
16								
18								
20								
22					GP	GRAVEL - gray, dry, gravel to 1-inch diameter, NOSC		
24	S-23	G				sandier with minor fine gravel becoming coarse with gravel to 3-inch diameter, clasts predominantly quartzite and some diorite		
26								
28						interstratified sandy gravel and coarse gravel with quartzite gravel clasts to 5-inch diameter		
30								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88	Plate 5a
Drafted by L. Sue Date: 7-5-88	
Supervised by E. Hanford, RG 3553	

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	
Total Depth	109 feet	MW-6
Sheet	3 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
32	S-32	G			GP	GRAVEL - as above		
34					SP/GP	GRAVELLY SAND and SANDY GRAVEL - brown, slightly damp to moist, moist grains coated with clayey matrix, 75% gravelly sand interstratified with sandy gravel layers 0.5 to 2-feet thick, sandy layers mostly poorly graded; subangular to well rounded quartzite gravel to 5-inch diameter, NOSC		
36								
38								
40								
42								
44								
46								
48								
50						quartzite gravel to 4-inch diameter in layer 0.5 to 1-foot thick		
52								
54						gravel to 5-inch diameter in layer 0.5-foot thick		
56						well-graded gravel layer, 0.5-foot thick		
58								
60								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88
Drafted by L. Sue Date: 7-5-88
Supervised by E. Hanford, RG 3553

Plate 5b

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	
Total Depth	109 feet	MW-6
Sheet	4 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
62						GRAVELLY SAND and SANDY GRAVEL - as above, increasing clay		
64								
66						poorly graded, fine gravel layer, no sand		
68								
70								
72	S-72	G			GP/ SP	CLAYEY SANDY GRAVEL and GRAVELLY SAND - yellow brown, damp, subrounded to well rounded quartzite clasts to 3-inch diameter, gravel layers interstratified with layer of gravelly coarse sand and claY, NOSC		
74								
76								
78								
80	S-79		40	24			nonstandard test, approximately 150 lbs with 24 inch drop	
82						interstratified, well rounded quartzite gravel to 3-inch diameter		
84								
86								
88								
90							▼ 6-16-88, very turbid ground water, NOSC	

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88
Drafted by L. Sue Date: 7-5-88
Supervised by E. Hanford, RG 3553

Plate 5C

KLEINFELDER

LOG OF BORING

Project	Industrial Aspahlt	Boring No.
Number	10-1682-03	MW-6
Total Depth	109 feet	
Sheet	5 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
92						flat, well rounded quartzite, 1 to 2-inch diameter	suggests imbricated layer	
94								
96								
98								
100							water added by driller	
102								
104								
106								
108						quartzite gravel to 3-inch diameter		
110								
112								
114								
116								
118								
120								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88
Drafted by L. Sue Date: 7-5-88
Supervised by E. Hanford, RG 3553

Plate 5d

KLEINFELDER

BORING AND MONITORING-WELL DATA SHEET

Project Industrial Asphalt	Boring No.
Number 10-1682-03	MW-7
Total Depth 109 feet	
Sheet 1 of 5	

Location

Owner & Mailing Information	Township/Range/Section
Industrial Asphalt 1645 Stanley Blvd. Pleasanton, CA	Other Identifiers
Site Location (if different)	

Well Location

Show coordinates or distances from surveyed reference point.

Drilling Operations

Drilling Company	Driller/Crew
The Water Development Corp	T. Moreland/S. Fox
Rig Make/Model: DrillTek D 40K	
Bit & Size: 9 7/8 O.D.	
Hammer Data Wt. Drop: Non-standard	

Task	Start (Date, Time)		Finish (Date, Time)	
Drilling	6-15-88	1430	6-15-88	1830
Completion	6-16-88	0745	6-16-88	1400
Development	6-22-88	1415	6-22-88	1620

Well Development and Construction

Monumentation	Development Info.
Ref. Pt. Description	Removed 112 gals. to recover drill water. Sheen at 112 gals. Stopped development.
Elevations: Ref. Pt. Ground	
Datum	
Markings	

Well Design	Size & Type	Top	Bottom
Surface Casing			
Casing	4",Schedule 40	0 feet	69 feet
Well Screen	4", 0.020 Slot	69 feet	109 feet
Gravel Pack	#3 Sand	64 feet	109 feet
Bentonite	Gel	61 feet	64 feet
Concrete	Portland Neat	0 feet	61 feet

Field Hydrologic Operations

Weather: High Clouds, 90 degrees (Fahrenheit)	Date	Time	Water Level	Other Observations
Recent Rainfall? Irrigation? No				
Nearby Wells Pumping? No				
Ditches? Utility Courses?				

Remarks

Plate 6

Date: 5-9-88

Revision Date:

KLEINFELDER

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	MW-7
Total Depth	109 feet	
Sheet	2 of 5	

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
0						Fill - asphalt, sand, some gravel		
4	S-4-6	G			ML	SILT - red brown, dry, subrounded quartzite clasts to 0.5-inch diameter, minor fine grained sand and clay, NOSC		
10						increasing clay content to 21 feet		
16	S-17	G				SILTY CLAY - as above, no gravel		
18						*gradational contact*		
20					GP	SANDY GRAVEL - yellow brown, dry, subangular to well rounded quartzite gravel clasts, fine to coarse grained sand, minor silt and clay, NOSC		
22	S-23	G				coarse gravel to 4-inch diameter; subangular, gray, quartzite clasts; 0.5-foot thick layer		
26	S-27	G				coarse sand to fine gravel layer 1 to 2 feet thick		
28						coarse gravel to 4-inch diameter, subangular to well rounded clasts		
30	S-30	G						

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88	Plate 6a
Drafted by L. Sue Date: 7-5-88	
Supervised by E. Hanford, RG 3553	

KLEINFELDER

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	
Total Depth	109 feet	MW-7
Sheet	3 of 5	

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
32	S-30	G			SP	interstratified GRAVELLY SAND and CLAYEY GRAVEL - brown to yellow brown, slightly damp, thin zones of coarse gravel, unit poorly graded except as noted, fine gravelly sand, grain coated with clay, NOSC		
34						coarse gravel layer, very well rounded, possibly imbricated		
36						interstratified coarse and fine grained gravel layers, well graded		
38						moisture content increases		
40								
42	S-42	G				*gradational contact* CLAYEY GRAVELLY SAND - medium to high plasticity clay, NOSC		
44					GP	thin gravel layer, well rounded, clay-coated quartzite clasts to 4-inch diameter		
46								
48						thin gravel layer		
50						increasing clay content		
52								
54						coarse gravel layer decreasing clay content, damp		
56								
58								
60						fine gravel, poorly graded, few fines		

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88
Drafted by L. Sue Date: 7-5-88
Supervised by E. Hanford, RG 3553

Plate 6b

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	MW-7
Total Depth	109 feet	
Sheet	4 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
62					GP	CLAYEY SANDY GRAVEL - as above		
						abundant clay, wet to water table below		
64						mostly fine quartzite gravel, minor sand, NOSC	drill string plugged at 64 feet	
66								
68						gravel clasts to 2-inch diameter, 1-foot thick layer	plug cleared out from rig	
70								
72								
74						coarse gravel layer, wet		
76								
78			*				nonstandard test, approximately 150 lbs with 24 inch drop	
80						coarse gravel, quartzite clasts to 2 to 3-inch diameter		
82								
84								
86						wet, NOSC		
88							▼ 6-16-88, ground water very turbid	
90								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88	Plate 6C
Drafted by L. Sue Date: 7-5-88	
Supervised by E. Hanford, RG 3553	

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	MW-7
Total Depth	109 feet	
Sheet	5 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
92					GP	CLAYEY SANDY GRAVEL - as above		
94								
96							very hard driling, driller added water	
98						interstratified gravels with occasional rounded to well rounded quartzite clasts to 4-inch diameter in thin layers		
100								
102								
104								
106								
108								
110								
112								
114								
116								
118								
120								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington	Date: 6-16-88	Plate 6d
Drafted by L. Sue	Date: 7-5-88	
Supervised by E. Hanford, RG 3553		

KLEINFELDER

BORING AND MONITORING-WELL DATA SHEET

Project Industrial Asphalt	Boring No.
Number 10-1682-03	
Total Depth 109 feet	MW-8
Sheet 1 of 5	

Location

Owner & Mailing Information	Township/Range/Section
Industrial Asphalt 1645 Stanley Blvd. Pleasanton, CA	Other Identifiers
Site Location (if different)	

Well Location

Show coordinates or distances from surveyed reference point.

Drilling Operations

Drilling Company	Driller/Crew			
The Water Development Corp	Bill Gourdin, Brian Gallivan, William Girard			
Rig Make/Model	Task	Start (Date, Time)		Finish (Date, Time)
DrillTek D 40K	Drilling	6-16-88	1530	6-16-88 1800
Bit & Size	Completion	6-17-88	0930	6-17-88 1600
9 7/8 O.D.	Development	6-22-88	1015	6-22-88 1400
Hammer Data Wt. Drop Non-standard				

Well Development and Construction

Monumentation	Development Info.	Well Design	Size & Type	Top	Bottom
Ref. Pt. Description	Removed 430 gals. to recover drill water and improve clarity. NOSC.	Surface Casing			
Elevations Ref. Pt. Ground		Casing	4",Schedule 40	0 feet	69 feet
Datum		Well Screen	4", 0.020 Slot	69 feet	109 feet
Markings		Gravel Pack	2/12	64 feet	109 feet
		Bentonite	Gel	61 feet	64 feet
		Concrete	Portland Neat	0 feet	61 feet

Field Hydrologic Operations

Weather	Date	Time	Water Level	Other Observations
High Clouds, 90 degrees (Fahrenheit)				
Recent Rainfall? Irrigation? No				
Nearby Wells Pumping? No				
Ditches? Utility Courses?				

Remarks

Plate 7

Date: 5-9-88

Revision Date: _____

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	MW-8
Total Depth	109 feet	
Sheet	2 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
						Asphalt	No return first 9 feet. Asphalt core cut inside first string and is pushing formatioin aside.	
2					CL	SILTY CLAY - red brown, medium plasticity, soft to stiff, slightly damp, NOSC		
4								
6	S-2-19	G						
8								
10								
12							Stopped to unclog at 12'	
14								
16						decrease in moisture content to dry		
18								
20								
22						some small gravel		
24	S-24.5	G			SP	GRAVELLY SAND - yellow brown, dry, gravel to 2-inch diameter, angular to sub-rounded, quartzite gravel, NOSC.		
26								
28								
30								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88	Plate 7a
Drafted by M. Dzugaj Date: 7-8-88	
Supervised by E. Hanford, RG 3553	

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt
Number	10-1682-03
Total Depth	109 feet
Sheet	3 of 5

Boring No. MW-8

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
32					SP	GRAVELLY SAND - as above with increasing gravel content		
34	S-34	G			GP	CLAYEY GRAVEL - brown, medium dense to dense, gravel to 5-inch diamter		
36								
38								
40	S-39	G						
42								
44								
46								
48								
50						layers with increasing clay and sand content		
52								
54					GP	GRAVEL - angular to well rounded gravel to 0.5-inch diameter, some fines		
56	S-54-57	G						
58						1 foot thick layer of coarse gravel to 5-inch diameter		
60								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88
Drafted by M. Dzugaj Date: 7-8-88
Supervised by E. Hanford, RG 3553

Plate 7b

KLEINFELDER

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	MW-8
Total Depth	109 feet	
Sheet	4 of 5	

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
62								
64	S-64	G			GC	CLAYEY GRAVEL - brown, medium dense to dense		
66								
68								
70								
72						color change to olive-brown minor orange-brown mottling in interstratified sandy clay layers	Possible top of seasonable water table	
74								
76								
78	S-78	G				NOSC		
80								
82								
84								
86						SANDY GRAVEL - interstratified, poorly graded to well-graded gravels, sub-angular to well-rounded, abundant clay typically coating grains, NOSC		
88								
90							▼ 6-16-88, very turbid ground water	

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88	Plate 7C
Drafted by M. Dzugaj Date: 7-8-88	
Supervised by E. Hanford, RG 3553	

KLEINFELDER

LOG OF BORING

Project	Industrial Asphalt	Boring No.
Number	10-1682-03	MW-8
Total Depth	109 feet	
Sheet	5 of 5	

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Ft.	USCS	Description	Remarks	Well Construction
92					GP	SANDY GRAVEL - as above	Driller added water to total depth	
94								
96								
98								
100								
102								
104								
106								
108								
110								
112								
114								
116								
118								
120								

Designated Purpose(s) of Log
Environmental Assessment

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

Logged by R. Harrington Date: 6-16-88
Drafted by M. Dzugaj Date: 7-8-88
Supervised by E. Hanford, RG 3553

Plate 7d

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.		SILTS AND CLAYS LL > 50	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.			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-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


Shelby tube sample

G — Grab sample


Water level observed in boring

* — No recovery

NFWE — No free water encountered

NOSC — No odor, scent, or fluid cut


Blank casing


Screened casing


Cement grout


Bentonite


Sand pack or gravel pack

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

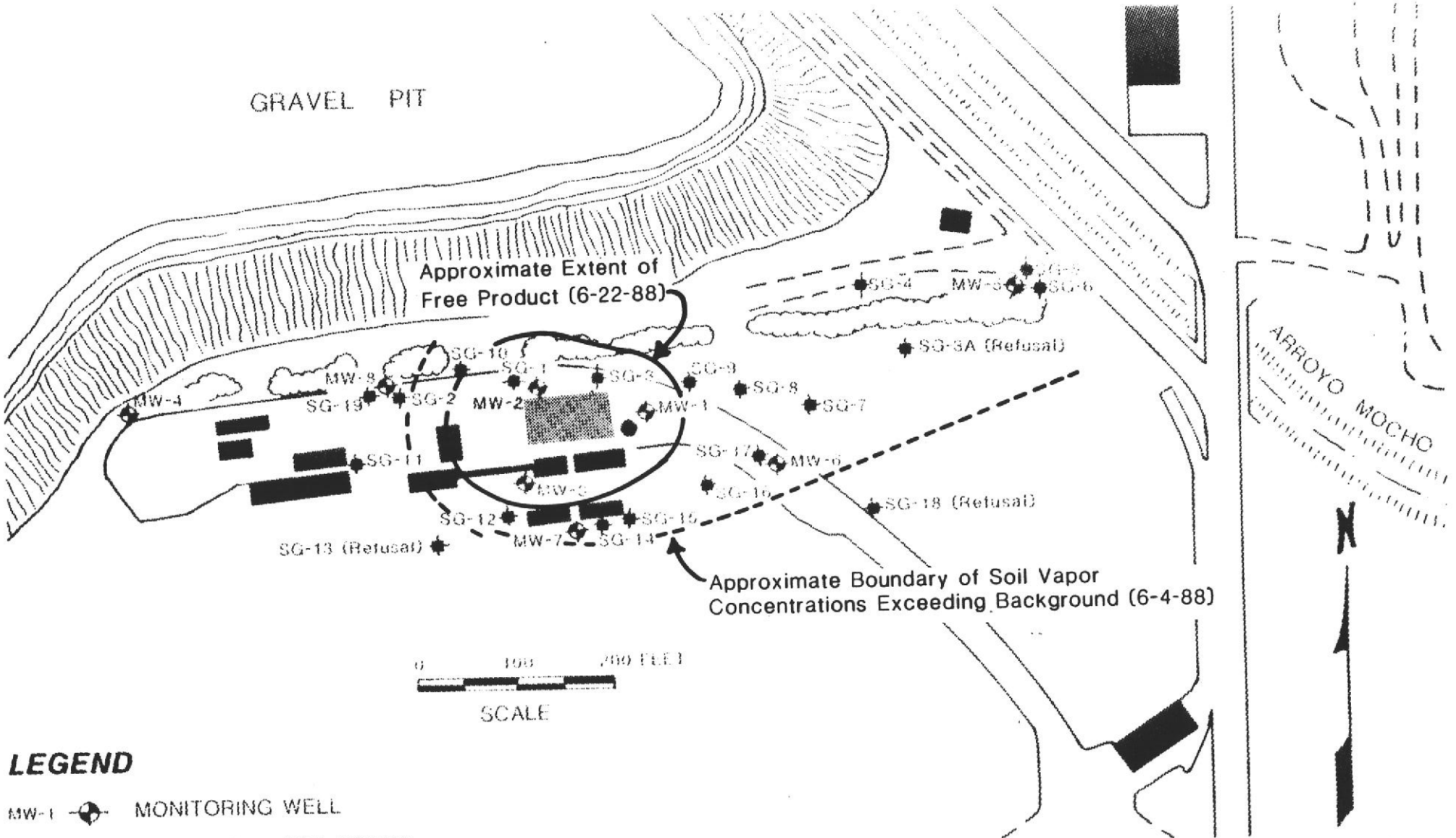
KLEINFELDER

PROJECT NO. 10-1682-03

BORING LOG LEGEND

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE 8



LEGEND

- MW-1 — MONITORING WELL
- SG-1 — SOIL GAS VAPOR PROBE
- APPROXIMATE EXTENT OF TANK EXCAVATION

KLEINFELDER

PROJECT NO. 10-1682-03

APPROXIMATE EXTENT OF FREE PRODUCT AND VAPOR PLUMES

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

PLATE 9

Tracer Research Corporation

SHALLOW SOIL GAS INVESTIGATION
AT THE
INDUSTRIAL ASPHALT FACILITY
PLEASANTON, CALIFORNIA

JUNE 1988

PREPARED FOR:

KLEINFELDER
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Walnut Creek, California 94596

SUBMITTED BY:

Tracer Research Corporation

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INTRODUCTION

A shallow soil gas investigation was performed by Tracer Research Corporation (TRC) at the Industrial Asphalt Facility in Pleasanton, California. The investigation was conducted on June 4, 1988 under contract to Kleinfelder & Associates. The purpose of the investigation was to characterize and delineate the distribution of volatile diesel compounds in the subsurface.

For this survey, a total of 11 soil gas samples were collected and analyzed for the following compounds:

methane
benzene
toluene
xylenes
total hydrocarbons
carbon dioxide (CO2)

Measurements of CO2 in the soil gas have recently been used to characterize the extent of petroleum hydrocarbons in the subsurface. Increased CO2 concentrations in the soil gas are thought to be a result of the oxidation and microbial degradation of organic carbon. CO2 was added to the list of target compounds so that TRC could test this theory.

Xylenes are reported as the total of the three xylene isomers and total hydrocarbons are approximately C4-C9 aliphatic, alicyclic and aromatic compounds.

BACKGROUND ON THE METHODOLOGY

The presence of volatile organic chemicals (VOCs) in shallow soil gas indicates the observed compounds may either be in the vadose zone near the probe or in groundwater below the probe. The soil gas technology is most effective in mapping low molecular weight halogenated solvent chemicals and petroleum hydrocarbons possessing high vapor pressures and low aqueous solubilities. These compounds readily partition out of the groundwater and into the soil gas as a result of their high gas/liquid partitioning coefficients. Once in the soil gas, VOCs diffuse vertically and horizontally through the soil to the ground surface where they dissipate into the atmosphere. The contamination acts as a source and the above ground atmosphere acts as a sink, and typically a concentration gradient develops between the two. The concentration gradient in soil gas between the source and ground surface may be locally distorted by hydrologic and geologic anomalies (e.g. clays, perched water); however, soil gas mapping generally remains effective because distribution of the contamination is usually broader in areal extent than the local geologic barriers and is defined using a large data base. The presence of geologic obstructions on a small scale tends to create anomalies in the soil gas-groundwater correlation, but generally does not obscure the broader areal picture of the contaminant distribution.

SAMPLING AND ANALYTIC PROCEDURES

Tracer Research Corporation utilized an analytical field van which was equipped with two gas chromatographs and two Spectra Physics SP4270 computing integrators. In addition, the van has two built-in gasoline powered generators which provide the electrical power (110 volts AC) to operate all of the gas chromatographic instruments and field equipment. A specialized hydraulic mechanism consisting of two cylinders and a set of jaws was used to drive and withdraw the sampling probes. Probes consist of 7-foot lengths of 3/4 inch diameter steel pipe which are fitted with detachable drive points. A hydraulic hammer was used to assist in driving probes past cobbles and through unusually hard soil.

Soil gas samples were collected by driving a hollow steel probe to a depth between 6 and 7 feet into the ground. The above-ground end of the sampling probes were fitted with a steel reducer and a length of polyethylene tubing leading to a vacuum pump. Five to 10 liters of gas was evacuated with a vacuum pump. During the soil gas evacuation, samples were collected by inserting a syringe needle through a silicone rubber segment in the evacuation line and down into the steel probe. Ten milliliters of gas were collected for immediate analysis in the TRC analytical field van. Soil gas was subsampled (duplicate injections) in volumes ranging from 1 µL to 2 mL, depending on the VOC concentration at any particular location.

A gas chromatograph equipped with an thermal conductivity detector was used for analysis of carbon dioxide. Hydrogen was used as the carrier gas. A second gas chromatograph, equipped with a flame ionization detector, was used for analyses of benzene, toluene, xylenes, and total hydrocarbons.

Detection limits are a function of the injection volume as well as the detector sensitivity for individual compounds. Thus, the detection limit varies with the sample size. Generally, the larger the injection size the greater the sensitivity. However, peaks for compounds of interest must be kept within the linear range of the detector. If any compound has a high concentration, it is necessary to use small injections, and in some cases to dilute the sample to keep it within linear range. This may cause decreased detection limits for other compounds in the analyses. The detection limits range down to 0.02 µg/L for compounds such as methane and benzene depending on the conditions of the measurement, in particular, the sample size. If any component being analyzed is not detected, the detection limit for that compound in that analysis is given as a "less than" value (e.g. <0.02 µg/L). This number is calculated from the current response factor, the sample size, and the estimated minimum peak size (area) that would have been visible under the conditions of the measurement.

QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

Tracer Research Corporation's normal quality assurance procedures were followed in order to prevent any cross-contamination of soil gas samples.

- Steel probes are used only once during the day and then washed with high pressure soap and hot water spray or steam-cleaned to eliminate the possibility of cross-contamination. Enough probes are carried on each van to avoid the need to reuse any during the day.

- Probe adaptors (steel reducer and tubing) are used once during the course of the day and cleaned at the end of each working day by baking in the GC oven. The tubing is replaced periodically as needed during the job to insure cleanliness and good fit.

- Silicone tubing (connecting the adaptor to the vacuum pump) is replaced as needed to insure proper sealing around the syringe needle. This tubing does not directly contact soil gas samples.

- Glass syringes are usually used for only one sample per day and are washed and baked out at night. If they must be used twice, they are purged with carrier gas (nitrogen) and baked out between probe samplings.

- Septa through which soil gas samples are injected into the chromatograph are replaced on a daily basis to prevent possible gas leaks from the chromatographic column.

- Analytical instruments are calibrated each day by the use of chemical standards prepared in water by serial dilution from commercially available pure chemicals. Calibration checks are also run after approximately every five soil gas sampling locations.

- 2 cc subsampling syringes are checked for contamination prior to sampling each day by injecting nitrogen carrier gas into the gas chromatograph.

- Prior to sampling each day, system blanks are run to check the sampling apparatus (probe, adaptor, 10 cc syringe) for contamination by drawing ambient air from above ground through the system and comparing the analysis to a concurrently sampled air analysis.

- All sampling and 2 cc subsampling syringes are decontaminated each day and no such equipment is reused before being decontaminated. Microliter size subsampling syringes are reused only after a nitrogen carrier gas blank is run to insure it is not contaminated by the previous sample.

- Soil gas pumping is monitored by a vacuum gauge to insure that an adequate gas flow from the vadose zone is maintained. A negative pressure (vacuum) of 2 in. Hg less than the maximum capacity of the pump (evacuation rate >0.02 cfm) usually indicates that a reliable gas sample cannot be obtained because the soil has a very low air permeability.

APPENDIX A: CONDENSED DATA

KLEINFELDER/INDUSTRIAL ASPHALT FACILITY/PLEASANTON, CALIFORNIA

Sample	Depth	Date	CO2 (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Xylenes (ug/l)	Total Hydroc. (ug/l)	CH4 (ug/l)
SG-07	6'	06/04	190,000	<0.04	<0.04	<0.04	0.2	8
SG-08	6'	06/04	210,000	<0.04	<0.04	<0.04	0.6	2
SG-09	6'	06/04	200,000	<0.04	<0.04	<0.04	0.2	30
SG-10	6'	06/04	180,000	<0.04	<0.04	<0.04	0.1	10
SG-11	6'	06/04	160,000	<0.04	<0.04	<0.04	<0.08	1
SG-12	6'	06/04	100,000	<0.04	<0.04	<0.04	<0.08	1
SG-14	7'	06/04	56,000	<0.04	<0.04	<0.04	0.1	4
SG-15	7'	06/04	90,000	<0.04	<0.04	<0.04	0.09	8
SG-16	6'	06/04	100,000	<0.04	<0.04	<0.04	<0.09	1
SG-17	7'	06/04	120,000	<0.4	6	0.8	18	530
SG-19	6'	06/04	160,000	<0.04	<0.04	<0.04	<0.08	0.4

Notations:
I interference with adjecent peaks
NA not analyzed

Analyzed by J. Sherard

Checked by K. Suess

Proofed by L. Laplander

Tracer Research Corporation

Column OV-101	Detector F.I.D.
Length 3'	Voltage
Dia. 1/8"	Sensit. 15
Liquid Phase	Flow Rates, ml/min
Wt. %	H2 25 Air 250
Support	Sample
Mesh	Split
Carrier Gas N2	Temperature, °C 55
Rotameter	250 Inj. 200
Inlet Press psig	Col. Initial
Rate 30 ml/min	Final
CHART SPEED	Rate
SAMPLE	Solvent SDE
Size	Concn. CHROMATOGRAM
Operator S. SHEPARD	Date 6/4/88

```
  READY
DATE " 6/4/88
TIME " 07:32:00
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TIME        FUNCTION  VALUE
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TT= .01     TF=" PM   TV= 1
TT=

METHOD NUMBER:MN=

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TIME        FUNCTION  VALUE
TT=

METHOD NUMBER:MN=

END OF DIALOG

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              AZ 1

NO DATA. CHANNEL A

CHANNEL A     INJECT  06/04/88 08:19:37
              AZ 1

KLEINFELDER                   06/04/88 08:19:37     CH= "A"  PS=  1.

FILE  1.     METHOD  0.     RUN   2     INDEX   2

PEAK#     AREA%        RT       AREA BC

    1     100.       0.14  6101020 01

TOTAL     100.             6101020

CHANNEL A     INJECT  06/04/88 08:22:56
              AZ 1

CHANNEL A     INJECT  06/04/88 08:24:59
              AZ 1
```

1000 ml METHANE (gx) STD

643 mg/L

.14

City

1000 ml METHANE (gx) STD

NA

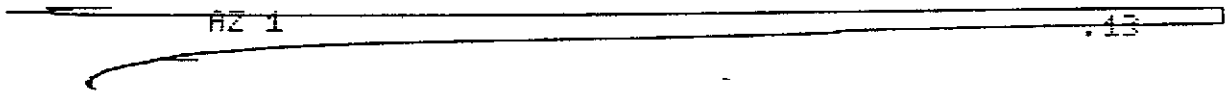
KLEINFELDER 06/04/88 08:24:59 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 3 INDEX 3

PEAK#	AREA%	RT	AREA BC
1	100.	0.14	6062416 01
TOTAL	100.		6062416

1000 µl METHANE STD (gas)

CHANNEL A INJECT 06/04/88 08:29:07



KLEINFELDER 06/04/88 08:29:07 CH= "A" PS= 1.

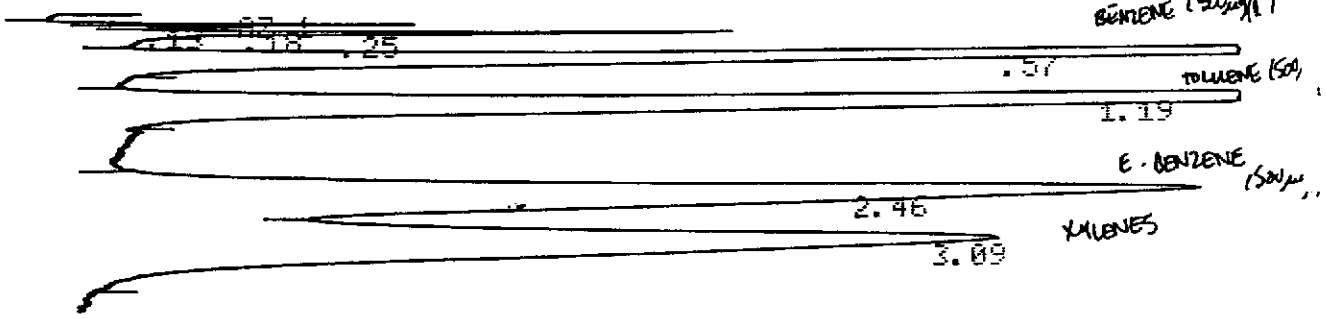
FILE 1. METHOD 0. RUN 4 INDEX 4

PEAK#	AREA%	RT	AREA BC
1	100.	0.13	5988813 01
TOTAL	100.		5988813

AT= 2

5µl BTEX STD

CHANNEL A INJECT 06/04/88 08:32:09



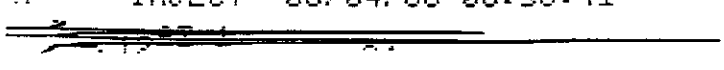
KLEINFELDER 06/04/88 08:32:09 CH= "A" PS= 1.

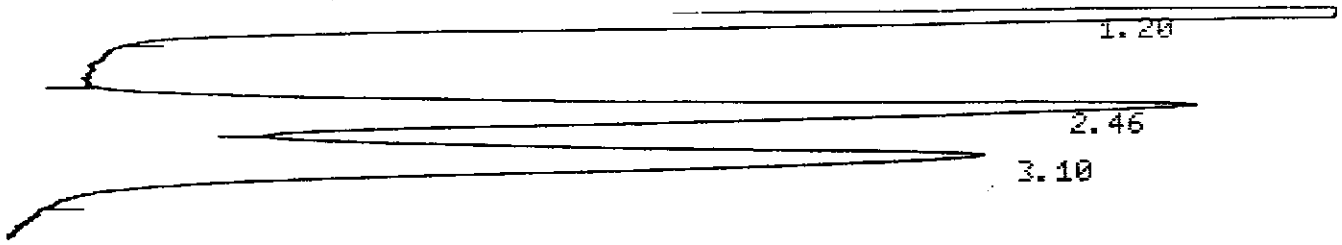
FILE 1. METHOD 0. RUN 5 INDEX 5

PEAK#	AREA%	RT	AREA BC
1	0.414	0.13	1074 02
2	0.327	0.18	848 02
3	1.695	0.25	4398 03
4	25.724	0.57	66730 01
5	24.239	1.19	62878 01
6	23.237	2.46	60279 02
7	24.364	3.09	63201 03
TOTAL	100.		259408

5µl BTEX STD

CHANNEL A INJECT 06/04/88 08:36:41





KLEINFELDER 06/04/88 08:36:41 CH= "A" PS= 1.

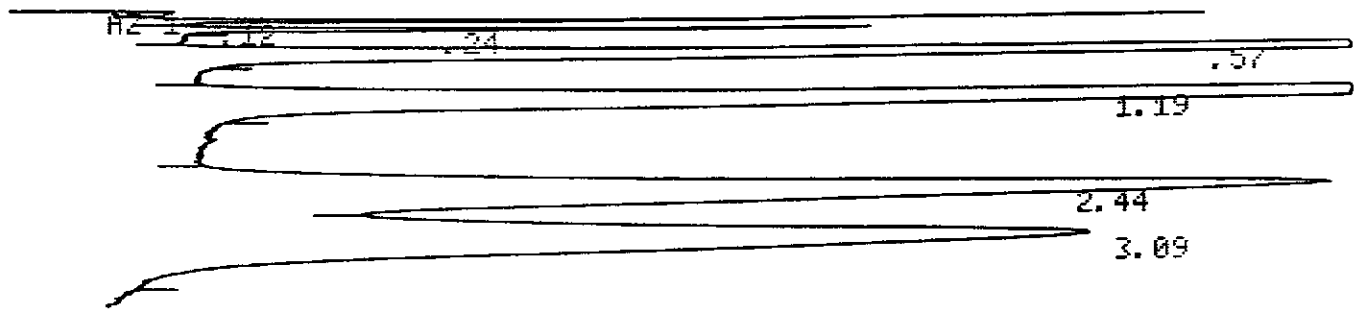
FILE 1. METHOD 0. RUN 6 INDEX 6

PEAK#	AREA%	RT	AREA	BC
1	0.79	0.12	2094	02
2	1.707	0.24	4526	03
3	25.181	0.57	66753	01
4	24.364	1.2	64588	01
5	23.454	2.46	62175	02
6	24.503	3.1	64955	03

TOTAL 100. 265091

5µl BTEX STD

CHANNEL A INJECT 06/04/88 08:41:12



KLEINFELDER 06/04/88 08:41:12 CH= "A" PS= 1.

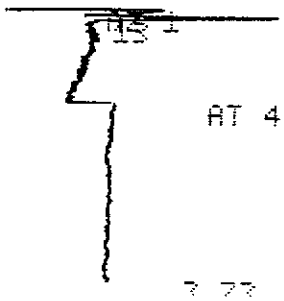
FILE 1. METHOD 0. RUN 7 INDEX 7

PEAK#	AREA%	RT	AREA	BC
1	1.382	0.12	3657	02
2	1.69	0.24	4470	03
3	25.037	0.57	66236	01
4	24.155	1.19	63903	01
5	23.711	2.44	62727	02
6	24.025	3.09	63560	03

TOTAL 100. 264553

N_2 BLANK 1000µl

CHANNEL A INJECT 06/04/88 08:48:34



KLEINFELDER 06/04/88 08:48:34 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 8 INDEX 8

PEAK#	AREA%	RT	AREA	BC
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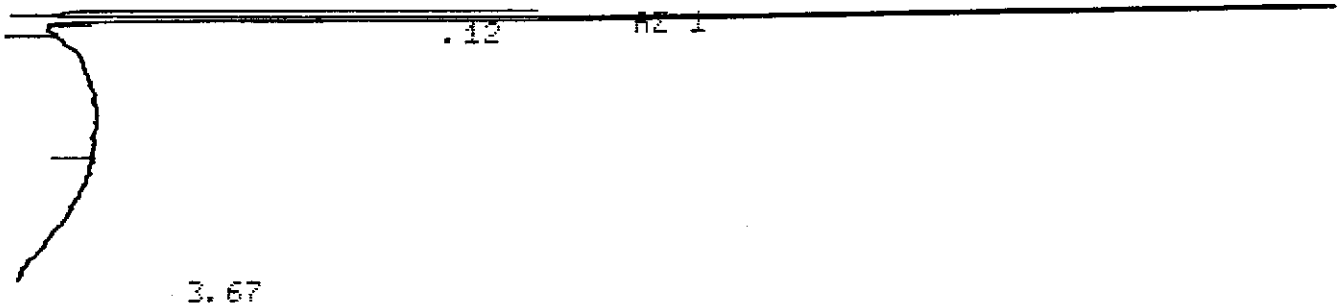
TOTAL	100.		868	

AIR SAMPLE 1000µl

CHANNEL A INJECT 06/04/88 08:56:46



KLEINFELDER 06/04/88 08:56:46 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 9 INDEX 9

PEAK#	AREA%	RT	AREA	BC
1	100.	0.12	55073	01
TOTAL	100.		55073	

FI= 1. FE= 1. MN= 0.
PRESS 'ENTER' TO SKIP ENTRY
FILE NAME="
TIME FUNCTION VALUE
TT= 4 TF=" ER TV= 1
TT= #

METHOD NUMBER:MN=

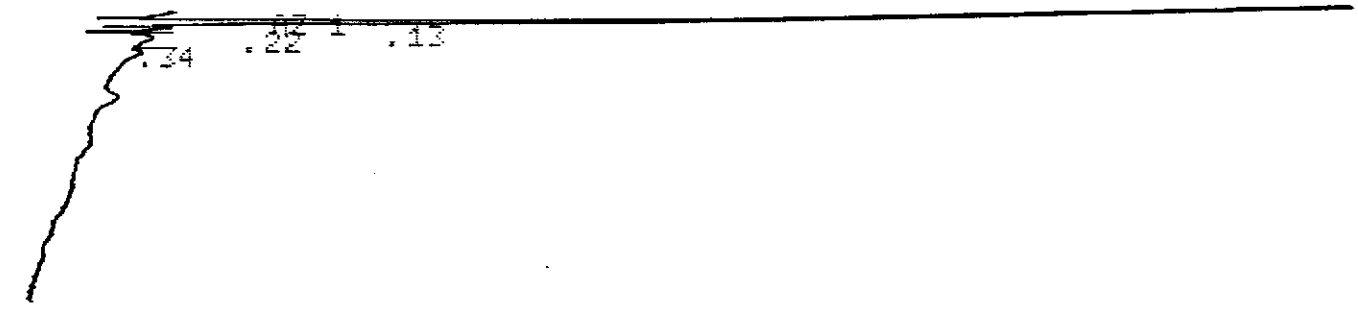
END OF DIALOG

SYS. BLANK 1000µl

CHANNEL A INJECT 06/04/88 09:01:58

NO DATA, CHANNEL A

CHANNEL A INJECT 06/04/88 09:02:39



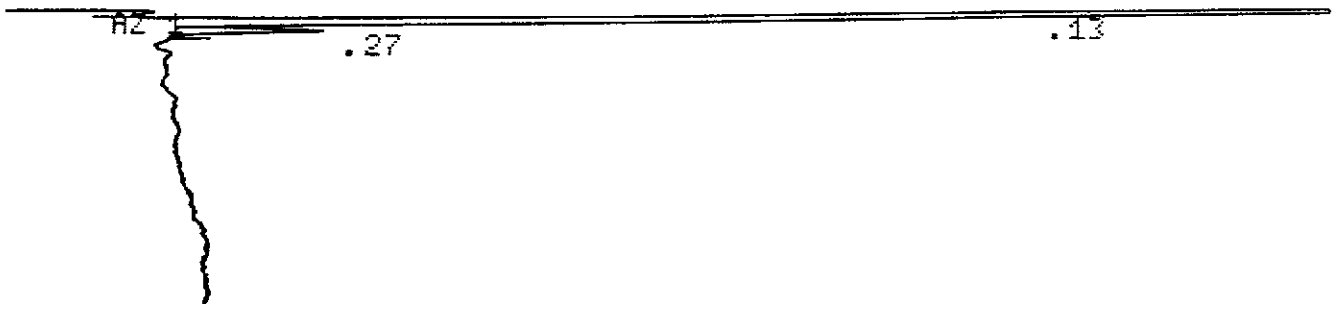
KLEINFELDER 06/04/88 09:02:39 CH= "A" PS= 1.

FILE 1 METHOD 0 RUN 11 INDEX 11

PEAK#	AREA%	RT	AREA BC
1	96.592	0.13	37437 02
2	1.406	0.22	545 03
3	2.002	0.34	776 01
TOTAL	100.		38758

SG-07-6' 1000µl

CHANNEL A INJECT 06/04/88 09:19:52



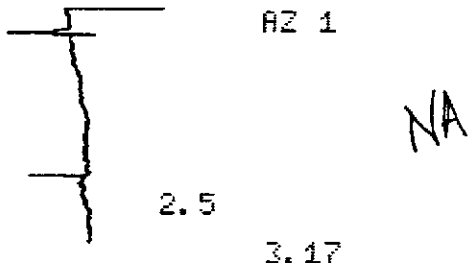
KLEINFELDER 06/04/88 09:19:52 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 12 INDEX 12

PEAK#	AREA%	RT	AREA BC
1	94.978	0.13	73159 02
2	5.022	0.27	3868 03
TOTAL	100.		77027

SG-07-6' 1000µl

CHANNEL A INJECT 06/04/88 09:24:51

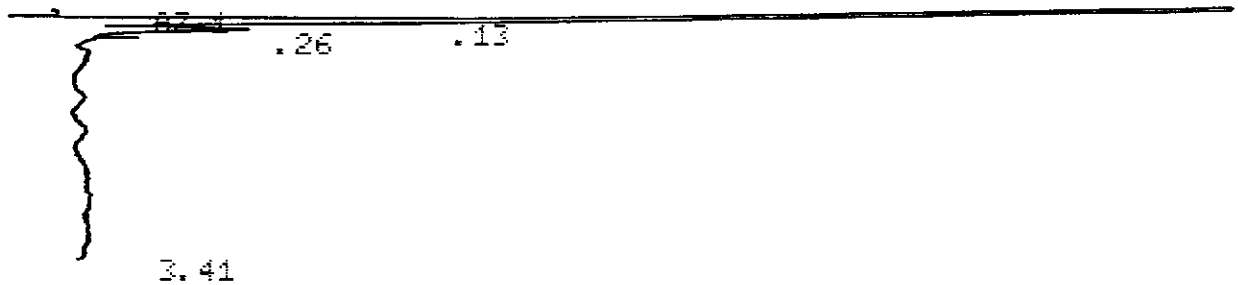


NA

NO DATA, CHANNEL A

SG-07-6' 1000µl

CHANNEL A INJECT 06/04/88 09:28:22



KLEINFELDER 06/04/88 09:28:22 CH= "A" PS= 1.

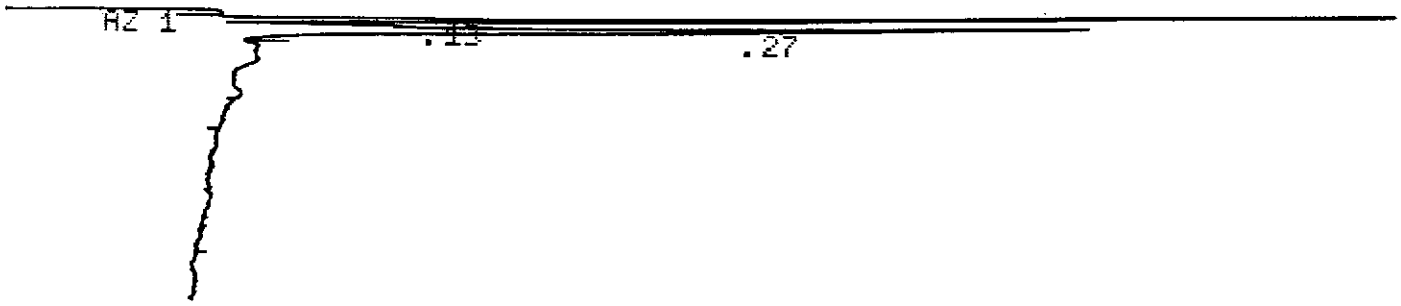
FILE 1. METHOD 0. RUN 14 INDEX 14

PEAK#	AREA%	RT	AREA BC

[illegible]	[illegible]	0.26	4182 03
TOTAL	100.		75530

SG-08-6' 1000µl

CHANNEL A INJECT 06/04/88 09:54:02



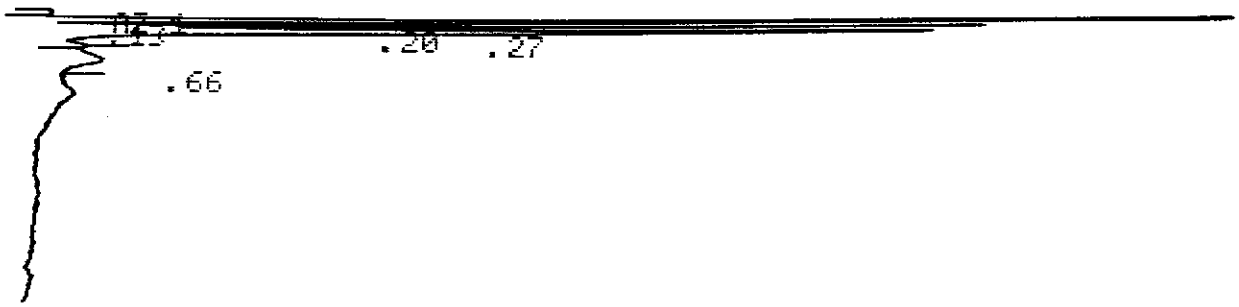
KLEINFELDER 06/04/88 09:54:02 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 15 INDEX 15

PEAK#	AREA%	RT	AREA BC
1	47.552	0.13	17793 02
2	52.448	0.27	19625 03
TOTAL	100.		37418

SG-08-6' 1000µl

CHANNEL A INJECT 06/04/88 09:58:30



KLEINFELDER 06/04/88 09:58:30 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 16 INDEX 16

PEAK#	AREA%	RT	AREA BC
1	46.747	0.13	20126 02
2	8.896	0.2	3830 02
3	40.768	0.27	17552 03
4	3.589	0.66	1545 01
TOTAL	100.		43053

SG-09-6' 1000µl

CHANNEL A INJECT 06/04/88 10:23:06

KLEINFELDER 06/04/88 10:23:06 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 17 INDEX 17

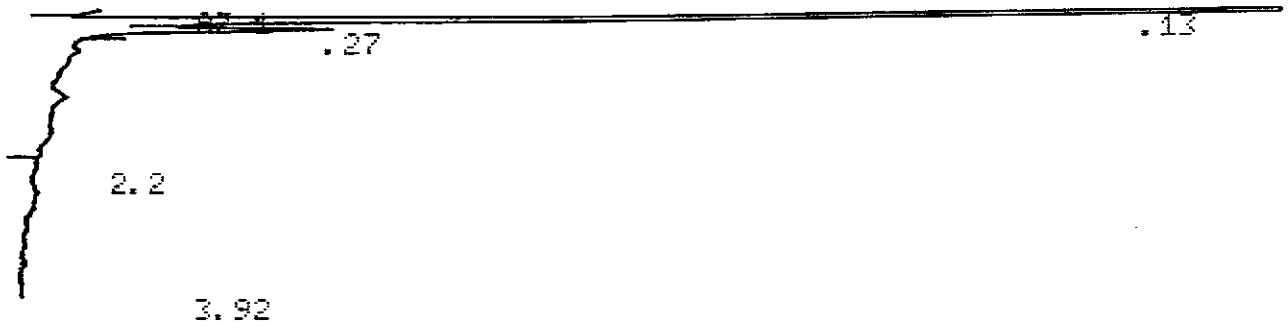
PEAK#	AREA%	RT	AREA BC
1	97.561	0.13	319231 02
2	2.439	0.27	7982 03
TOTAL	100.		327213

Sq-09-6' 1000 µl

CHANNEL A INJECT 06/04/88 10:27:10 NA - WRONG INJECTOR PORT

AZ 1

CHANNEL A INJECT 06/04/88 10:28:17



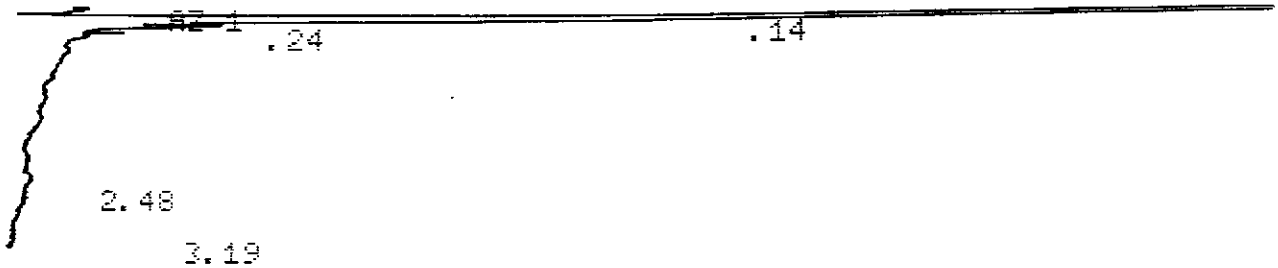
KLEINFELDER 06/04/88 10:28:17 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 18 INDEX 18

PEAK#	AREA%	RT	AREA BC
1	97.719	0.13	240834 02
2	2.281	0.27	5622 03
TOTAL	100.		246456

Sq-10-6' 1000 µl

CHANNEL A INJECT 06/04/88 10:40:49



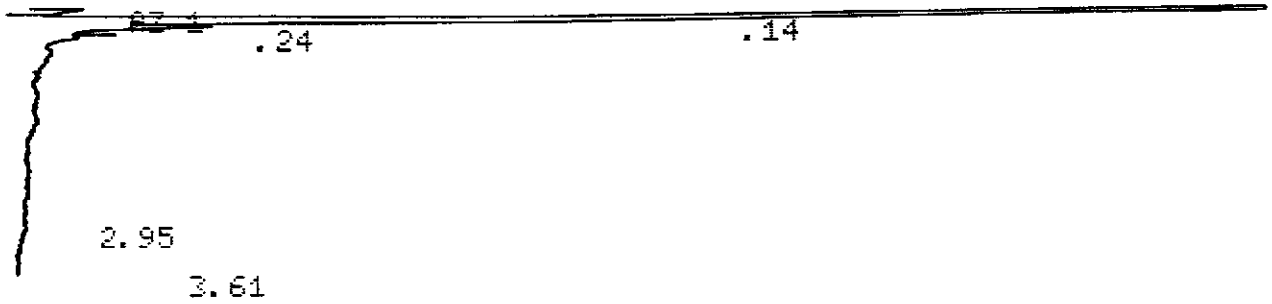
KLEINFELDER 06/04/88 10:40:49 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 19 INDEX 19

PEAK#	AREA%	RT	AREA BC
1	97.087	0.14	93528 02
2	2.913	0.24	2806 03
TOTAL	100.		[illegible]

Sq-10-6' 1000 µl

CHANNEL A INJECT 06/04/88 10:44:45



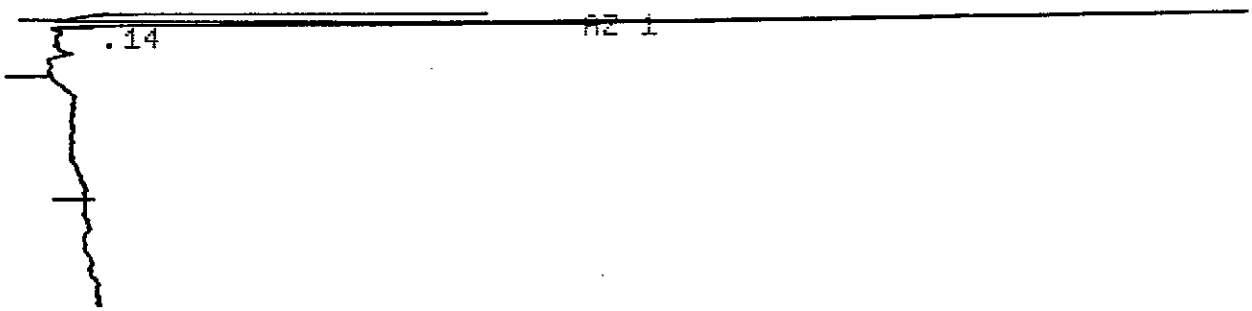
KLEINFELDER 06/04/88 10:44:45 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 20 INDEX 20

PEAK#	AREA%	RT	AREA BC
1	97.144	0.14	93588 02
2	2.856	0.24	2751 03
TOTAL	100.		96339

SG-11-6' 100ml

CHANNEL A INJECT 06/04/88 10:59:35



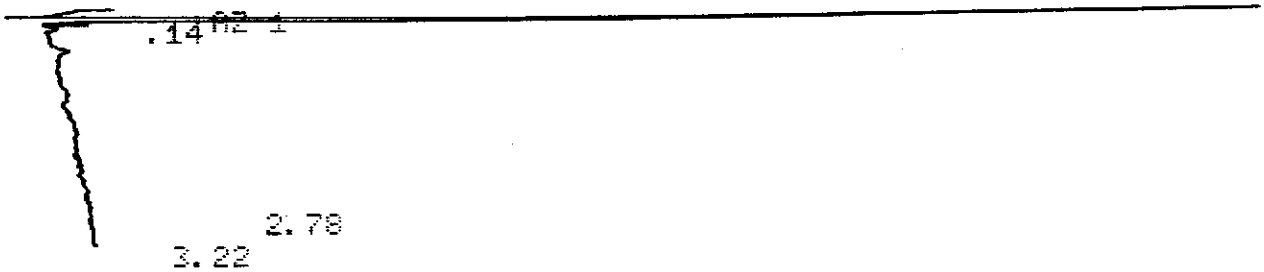
KLEINFELDER 06/04/88 10:59:35 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 21 INDEX 21

PEAK#	AREA%	RT	AREA BC
1	100.	0.14	11828 01
TOTAL	100.		11828

SG-11-6' 100ml

CHANNEL A INJECT 06/04/88 11:04:08



KLEINFELDER 06/04/88 11:04:08 CH= "A" PS= 1.

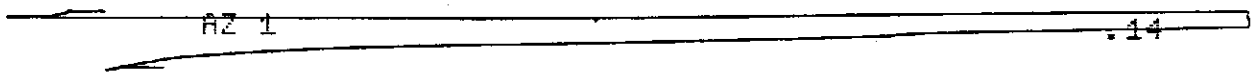
FILE 1. METHOD 0. RUN 22 INDEX 22

PEAK#	AREA%	RT	AREA BC

GAS STD
METHANE 1000 µl

TOTAL 100. 14579

CHANNEL A INJECT 06/04/88 11:08:31



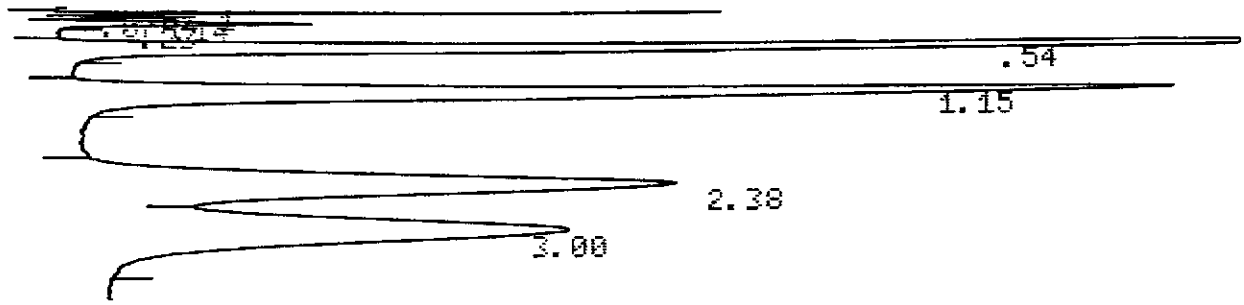
KLEINFELDER 06/04/88 11:08:31 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 23 INDEX 23

PEAK#	AREA%	RT	AREA BC
1	100.	0.14	6113764 01
TOTAL	100.		6113764

5µl BPER STD

CHANNEL A INJECT 06/04/88 11:09:35



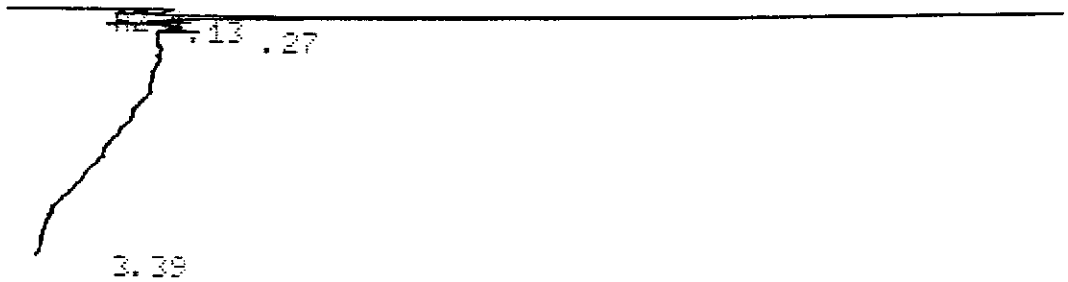
KLEINFELDER 06/04/88 11:09:35 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 24 INDEX 24

PEAK#	AREA%	RT	AREA BC
1	1.352	0.07	3567 02
2	0.397	0.14	1048 02
3	1.702	0.23	4491 03
4	24.895	0.54	65676 01
5	23.996	1.15	63303 01
6	23.611	2.38	62289 02
7	24.046	3.	63436 03
TOTAL	100.		263810

SG-12-6
1000µl

CHANNEL A INJECT 06/04/88 11:26:03



KLEINFELDER 06/04/88 11:26:03 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 25 INDEX 25

1	94.327	0.13	8065 01
2	5.673	0.27	485 01
TOTAL	100.		8550

SG-12-6' 1000µl

CHANNEL A INJECT 06/04/88 11:30:08

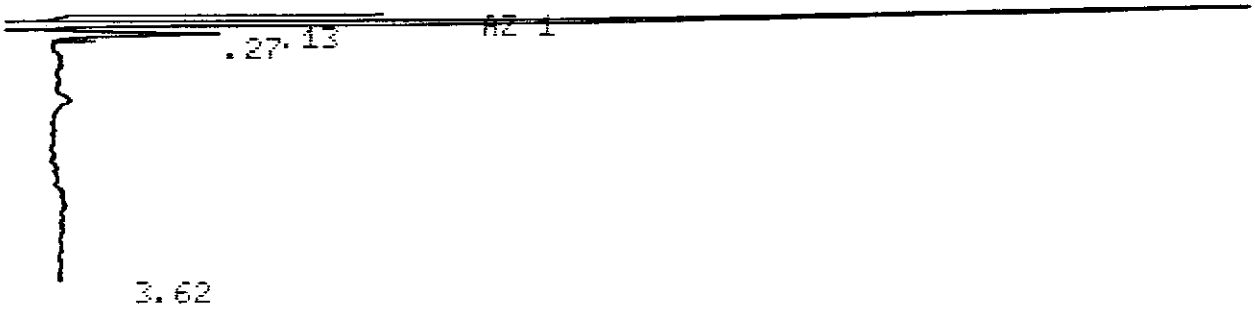
KLEINFELDER 06/04/88 11:30:08 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 26 INDEX 26

PEAK#	AREA%	RT	AREA BC
1	100.	0.13	11850 01
TOTAL	100.		11850

SG-13-7' 1000µl

CHANNEL A INJECT 06/04/88 11:57:50



KLEINFELDER 06/04/88 11:57:50 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 27 INDEX 27

PEAK#	AREA%	RT	AREA BC
1	91.162	0.13	33554 02
2	8.838	0.27	3253 03
TOTAL	100.		36807

SG-14-7' 1000µl

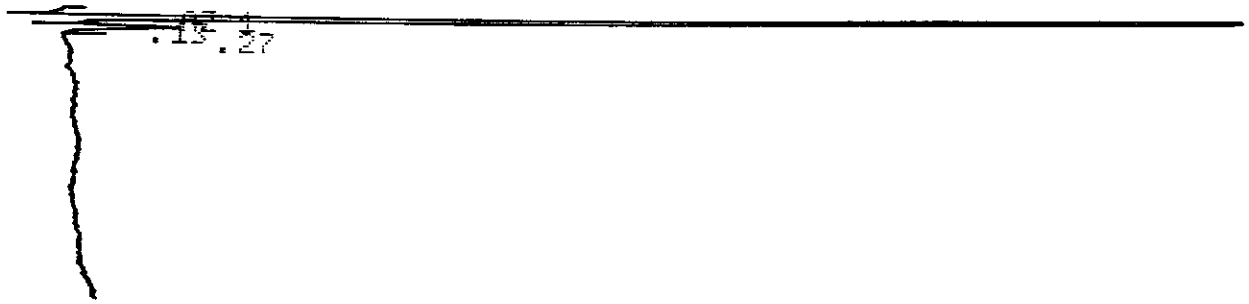
CHANNEL A INJECT 06/04/88 12:01:42

FILE 1. METHOD 0. RUN 28 INDEX 28

PEAK#	AREA%	RT	AREA BC
1	90.737	0.13	33088 02
2	9.263	0.27	3378 03
TOTAL	100.		36466

Sa-15-7' 1000ml

CHANNEL A INJECT 06/04/88 12:24:31



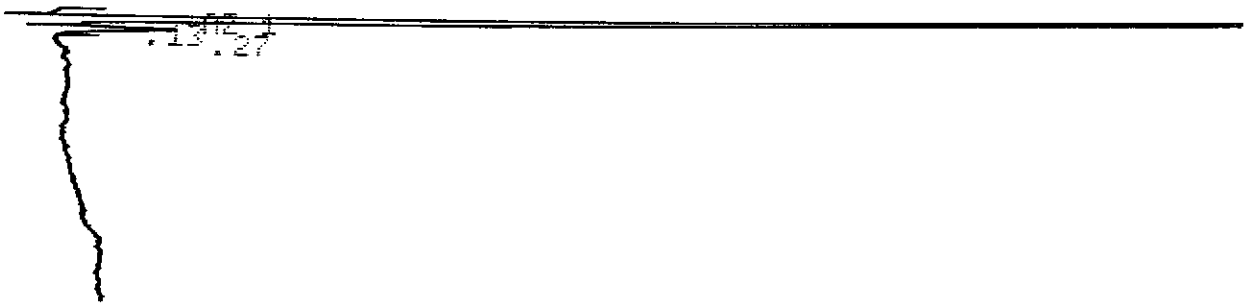
KLEINFELDER 06/04/88 12:24:31 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 29 INDEX 29

PEAK#	AREA%	RT	AREA BC
1	97.023	0.13	77113 02
2	2.977	0.27	2366 03
TOTAL	100.		79479

Sa-15-7' 1000ml

CHANNEL A INJECT 06/04/88 12:29:04



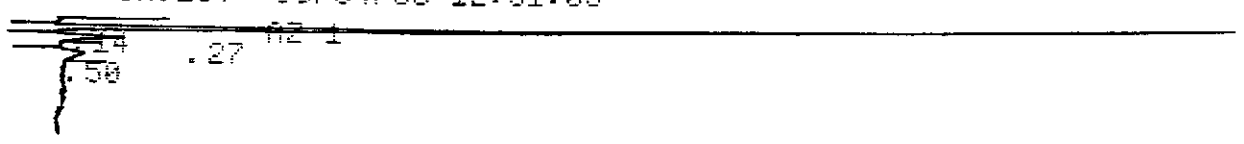
KLEINFELDER 06/04/88 12:29:04 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 30 INDEX 30

PEAK#	AREA%	RT	AREA BC
1	96.944	0.13	76362 02
2	3.056	0.27	2407 03
TOTAL	100.		78769

Sa-16-6' 1000ml

CHANNEL A INJECT 06/04/88 12:51:05



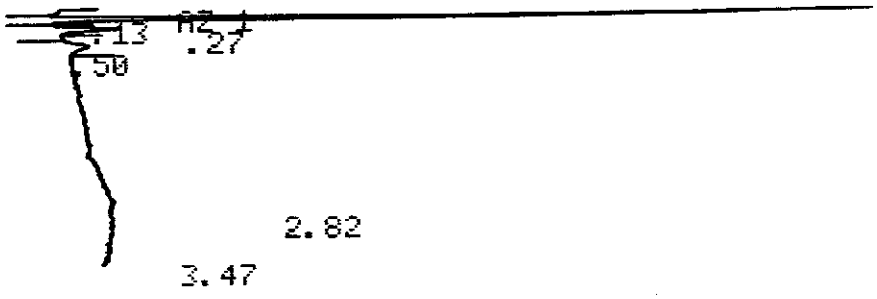
KLEINFELDER 06/04/88 12:51:05 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 31 INDEX 31

PEAK#	AREA%	RT	AREA BC
1	84.068	0.14	10390 02
2	10.575	0.27	1307 03
3	5.356	0.5	662 01
TOTAL	100.		12359

SG-16-6' 100ml

CHANNEL A INJECT 06/04/88 12:55:28



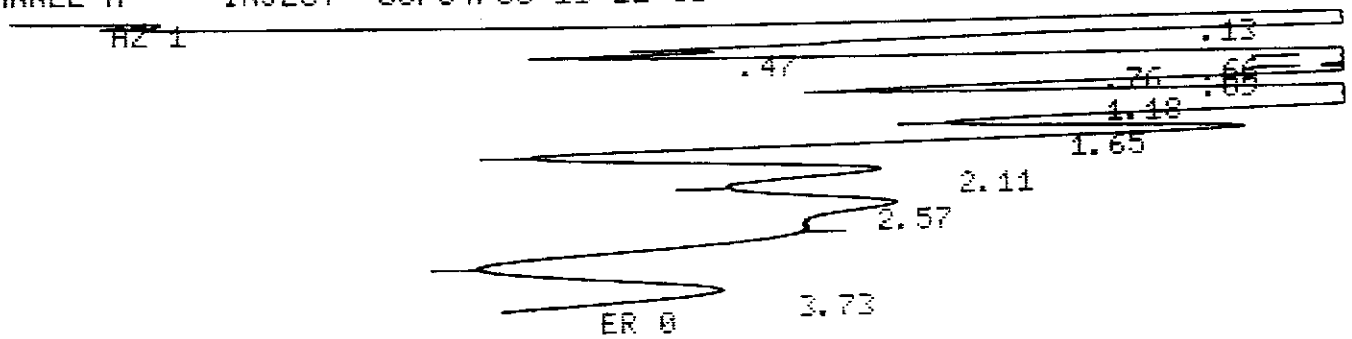
KLEINFELDER 06/04/88 12:55:28 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 32 INDEX 32

PEAK#	AREA%	RT	AREA BC
1	81.629	0.13	8260 01
2	11.819	0.27	1196 01
3	6.552	0.5	663 01
TOTAL	100.		10119

SG-17-7' 100ml

CHANNEL A INJECT 06/04/88 13:21:53



KLEINFELDER 06/04/88 13:21:53 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 33 INDEX 33

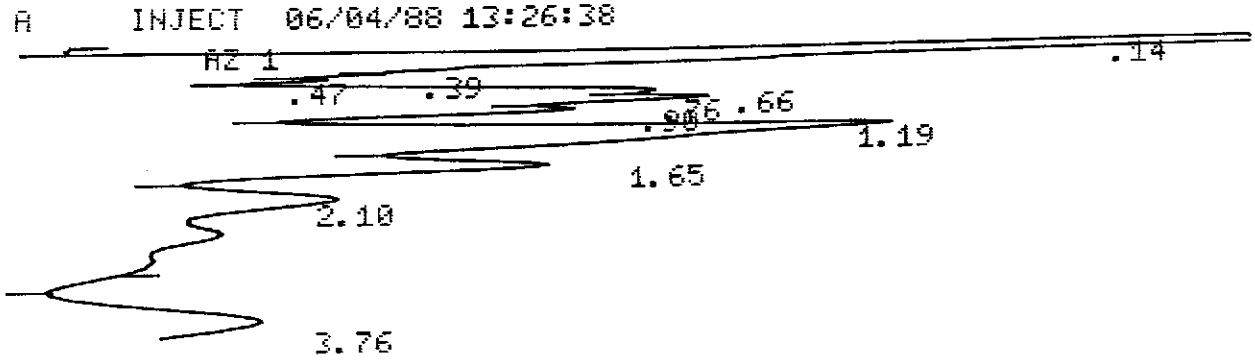
PEAK#	AREA%	RT	AREA BC
1	91.017	0.13	4894649 02
2	0.22	0.47	11807 02
3	1.076	0.66	57872 02

5	1.067	0.89	57380 02
6	3.149	1.18	169360 02
7	1.107	1.65	59529 02
8	0.494	2.11	26562 02
9	0.402	2.57	21615 03
10	0.39	3.73	20977 01

SG-17-7' 500ml

TOTAL 100. 5377735

CHANNEL A INJECT 06/04/88 13:26:38



KLEINFELDER 06/04/88 13:26:38 CH= "A" PS= 1.

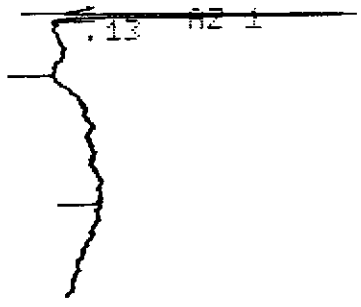
FILE 1. METHOD 0. RUN 34 INDEX 34

PEAK#	AREA%	RT	AREA BC
1	90.605	0.14	2556158 02
2	0.19	0.39	5352 02
3	0.225	0.47	6340 02
4	1.073	0.66	30284 02
5	0.892	0.76	25175 02
6	0.902	0.9	25446 02
7	2.932	1.19	82722 02
8	1.424	1.65	40186 02
9	1.522	2.1	42926 03
10	0.235	3.76	6624 01

SG-19-6' 1000ml

TOTAL 100. 2821213

CHANNEL A INJECT 06/04/88 14:53:18



KLEINFELDER 06/04/88 14:53:18 CH= "A" PS= 1.

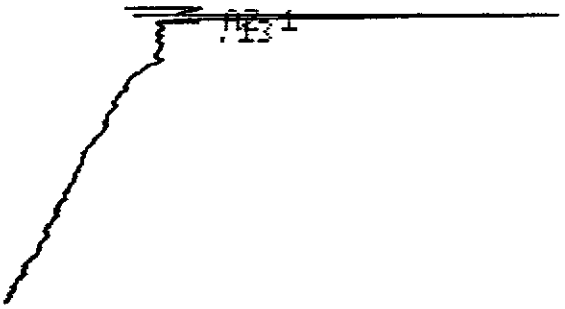
FILE 1. METHOD 0. RUN 35 INDEX 35

PEAK#	AREA%	RT	AREA BC
1	100.	0.13	3198 01

SG-19-6' 1000ml

TOTAL 100. 3198

CHANNEL A INJECT 06/04/88 14:58:50



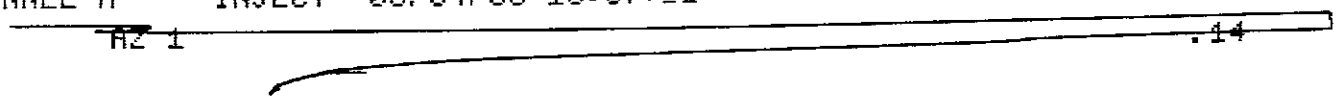
KLEINFELDER 06/04/88 14:58:50 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 36 INDEX 36

PEAK#	AREA%	RT	AREA BC
1	100.	0.13	4191 01
TOTAL	100.		4191

GAS STD 1000 µl METHANE

CHANNEL A INJECT 06/04/88 15:07:31



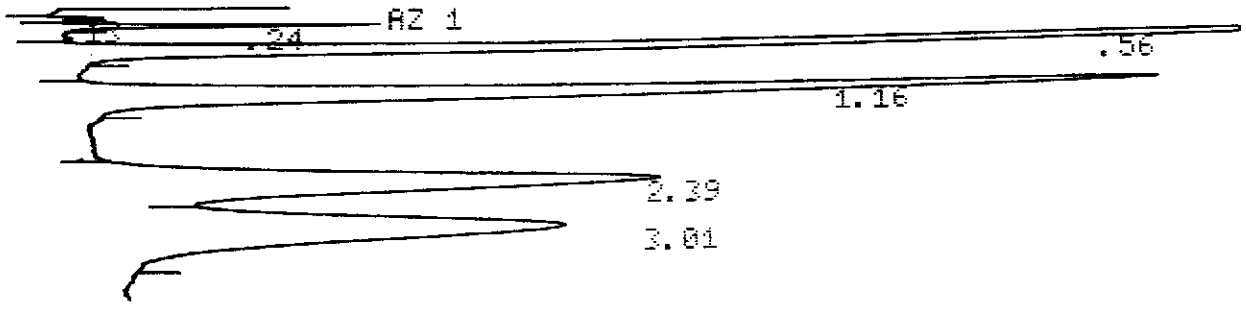
KLEINFELDER 06/04/88 15:07:31 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 37 INDEX 37

PEAK#	AREA%	RT	AREA BC
1	100.	0.14	6131111 01
TOTAL	100.		6131111

5µl BTEX STD

CHANNEL A INJECT 06/04/88 15:12:17



KLEINFELDER 06/04/88 15:12:17 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 38 INDEX 38

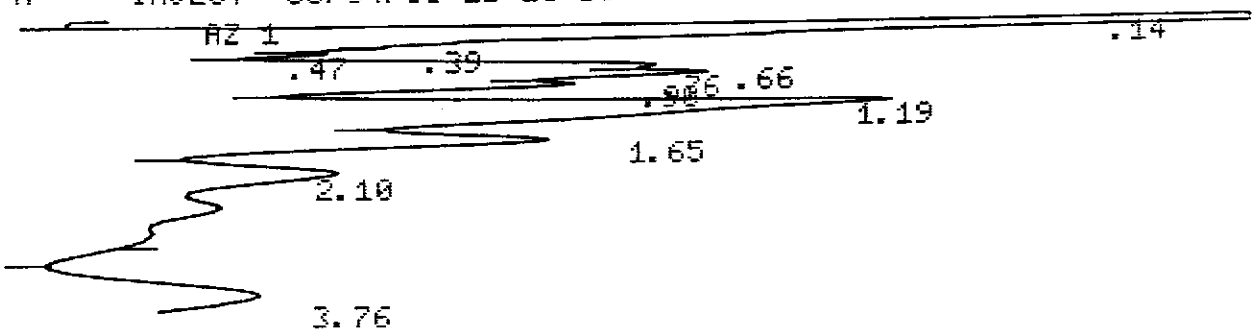
PEAK#	AREA%	RT	AREA BC
1	0.183	0.13	444 01
2	1.618	0.24	3931 01
3	26.041	0.56	63254 01
4	24.865	1.16	60397 01
5	23.479	2.39	57031 02
6	[illegible]	[illegible]	[illegible]

5	1.067	0.89	57380 02
6	3.149	1.18	169360 02
7	1.107	1.65	59529 02
8	0.494	2.11	26562 02
9	0.402	2.57	21615 03
10	0.39	3.73	20977 01

TOTAL 100. 5377735

SG-17-7' 500ml

CHANNEL A INJECT 06/04/88 13:26:38



KLEINFELDER 06/04/88 13:26:38 CH= "A" PS= 1.

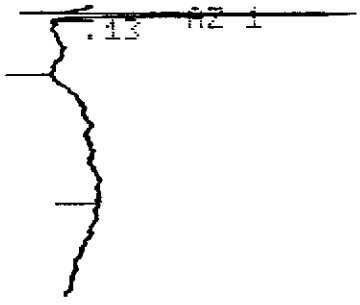
FILE 1. METHOD 0. RUN 34 INDEX 34

PEAK#	AREA%	RT	AREA BC
1	90.605	0.14	2556158 02
2	0.19	0.39	5352 02
3	0.225	0.47	6340 02
4	1.073	0.66	30284 02
5	0.892	0.76	25175 02
6	0.902	0.9	25446 02
7	2.932	1.19	82722 02
8	1.424	1.65	40186 02
9	1.522	2.1	42926 03
10	0.235	3.76	6624 01

TOTAL 100. 2821213

SG-19-6' 1000ml

CHANNEL A INJECT 06/04/88 14:53:18



KLEINFELDER 06/04/88 14:53:18 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 35 INDEX 35

PEAK#	AREA%	RT	AREA BC
1	100.	0.13	3198 01

TOTAL 100. 3198

SG-19-6' 1000ml

TOTAL 100. 242904 Air SAMPLE 1000

CHANNEL A INJECT 06/04/88 15:26:46

AZ 1 .05 .13

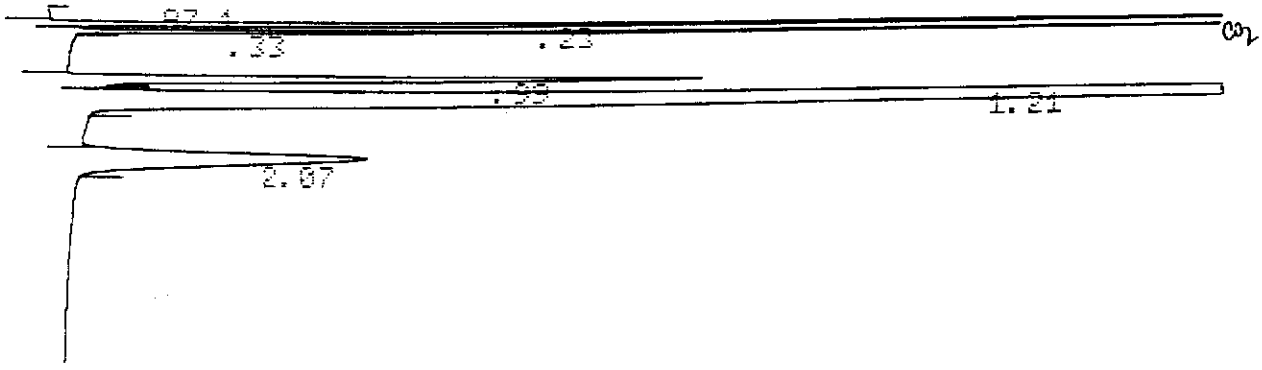
KLEINFELDER 06/04/88 15:26:46 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 39 INDEX 39

PEAK#	AREA%	RT	AREA	BC
1	87.052	0.05	253019	02
2	12.948	0.13	37633	03

TOTAL 100. 290652

```
NO DATA, CHANNEL A


  READY
DATE " 6/4/88
TIME " 07:34:00
FI= 1.       FE= 1.       MN= 0.
PRESS 'ENTER' TO SKIP ENTRY
FILE NAME=" HLA PLEASANTON CA
TIME         FUNCTION   VALUE
TT= .01      TF=" AZ    TV= 1
TT= .01      TF=" PM    TV= 1
TT=

METHOD NUMBER:MN=

END OF DIALOG
AT= 8
0

.A       FAULT     10
OF=15
PT=1000
FI= 1.       FE= 1.       MN= 0.
PRESS 'ENTER' TO SKIP ENTRY
FILE NAME=" KLEINFELDER
TIME         FUNCTION   VALUE
TT=

METHOD NUMBER:MN=

END OF DIALOG

CHANNEL A      INJECT  06/04/88 08:21:09
```




```
KLEINFELDER                        06/04/88 08:21:09      CH= "A"  PS=  1.

FILE  1.      METHOD  0.      RUN   1      INDEX   1

PEAK#      AREA%         RT       AREA BC

    1       30.589       0.23    155646 02
    2        5.2         0.33     26528 03
    3        5.702       0.99     29091 01
    4       58.509       1.21    297504 04
```

TOTAL 100. 510171

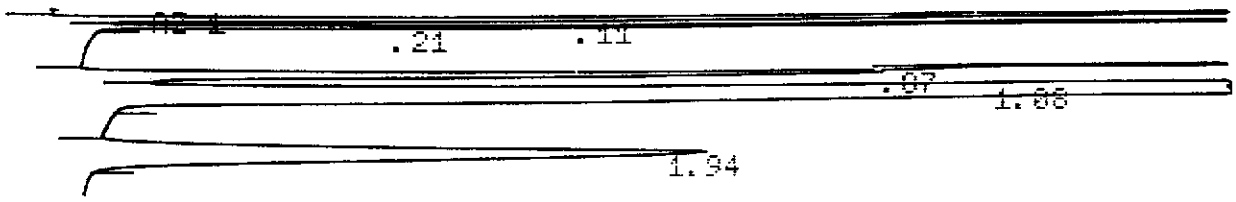
AT= 4
PT=100

CHANNEL A INJECT 06/04/88 08:27:37
AZ 1

1000µl CO_2 (gas std)

NO DATA, CHANNEL A Hitting a recalibration

CHANNEL A INJECT 06/04/88 08:27:44



KLEINFELDER 06/04/88 08:27:44 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 3 INDEX 3

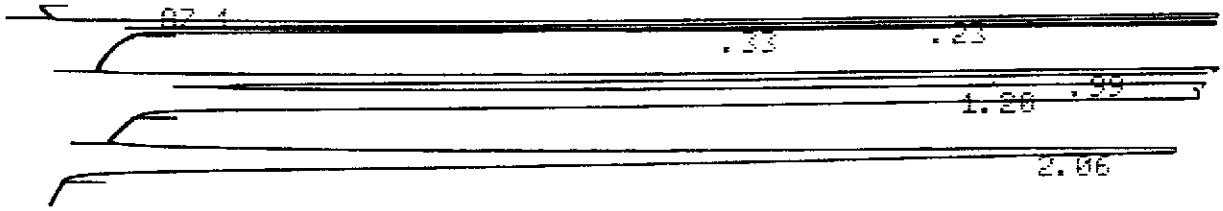
PEAK#	AREA%	RT	AREA BC
1	30.092	0.11	156371 02
2	5.327	0.21	27682 03
3	5.879	0.87	30550 02
4	51.226	1.08	266195 03
5	7.477	1.94	38853 01

TOTAL 100. 519651

1000µl CO_2 (gas std)

AT= 2

CHANNEL A INJECT 06/04/88 08:31:29



KLEINFELDER 06/04/88 08:31:29 CH= "A" PS= 1.

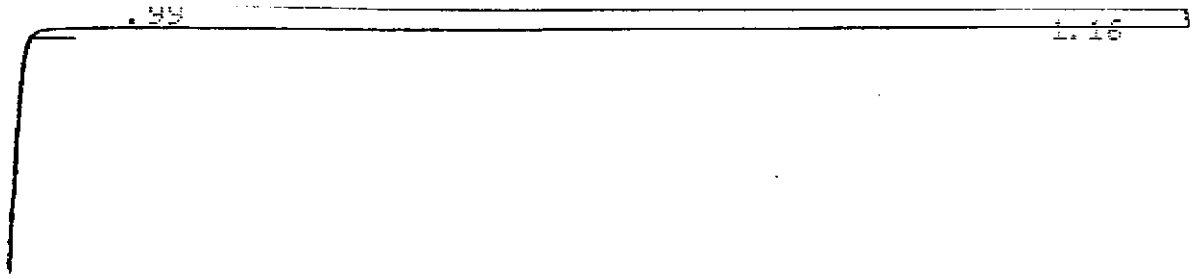
FILE 1. METHOD 0. RUN 4 INDEX 4

PEAK#	AREA%	RT	AREA BC
1	30.176	0.23	154255 02
2	5.339	0.33	27292 03
3	5.888	0.99	30101 02
4	51.107	1.2	261252 03
5	7.49	2.06	38288 01

TOTAL 100. 511188

N_2 BLANK 1000µl

CHANNEL A INJECT 06/04/88 08:46:41



KLEINFELDER 06/04/88 08:46:41 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 5 INDEX 5

PEAK#	AREA%	RT	AREA BC
1	33.062	0.21	187282 01
2	0.114	0.99	647 02
3	66.824	1.16	378532 03
TOTAL	100.		566461

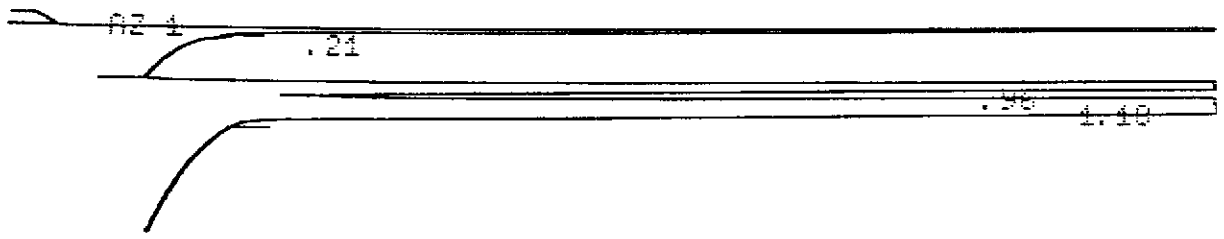
AIR SAMPLE 1000ml

FI= 1. FE= 1. MN= 0.
PRESS 'ENTER' TO SKIP ENTRY
FILE NAME="
TIME FUNCTION VALUE
TT= 3 TF=" ER TV= 1
TT=

METHOD NUMBER:MN=

END OF DIALOG

CHANNEL A INJECT 06/04/88 08:57:53



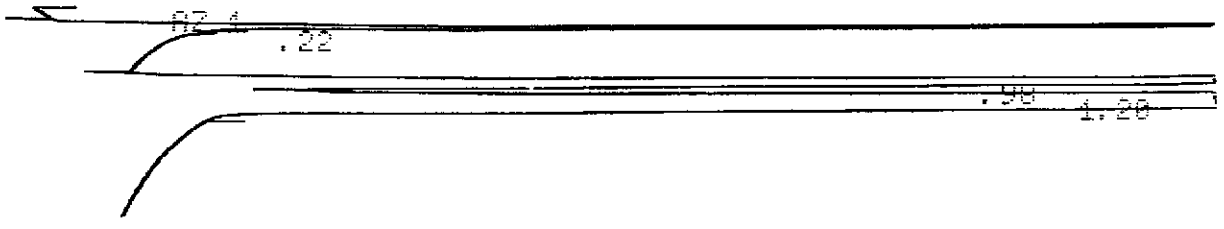
KLEINFELDER 06/04/88 08:57:53 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 6 INDEX 6

PEAK#	AREA%	RT	AREA BC
1	32.367	0.21	186444 01
2	14.213	0.96	81870 02
3	53.42	1.18	307718 03
TOTAL	100.		576032

SYS. BLANK 1000ml

CHANNEL A INJECT 06/04/88 09:04:35



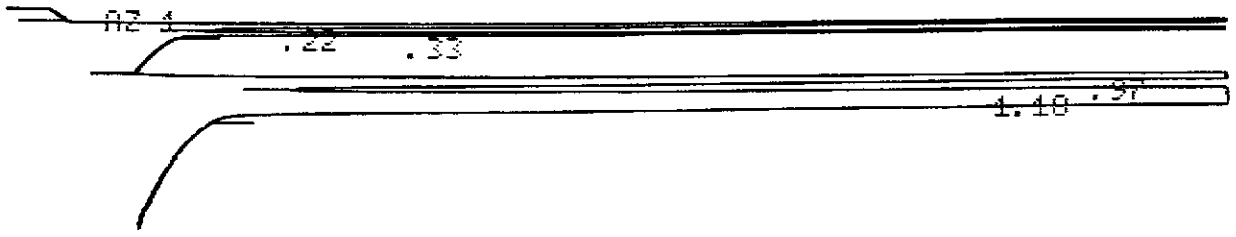
KLEINFELDER 06/04/88 09:04:35 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 7 INDEX 7

PEAK#	AREA%	RT	AREA BC
1	32.617	0.22	185970 01
2	13.653	0.98	77841 02
3	53.73	1.2	306347 03
TOTAL	100.		570158

SG-07-6' 100ppb

CHANNEL A INJECT 06/04/88 09:20:46



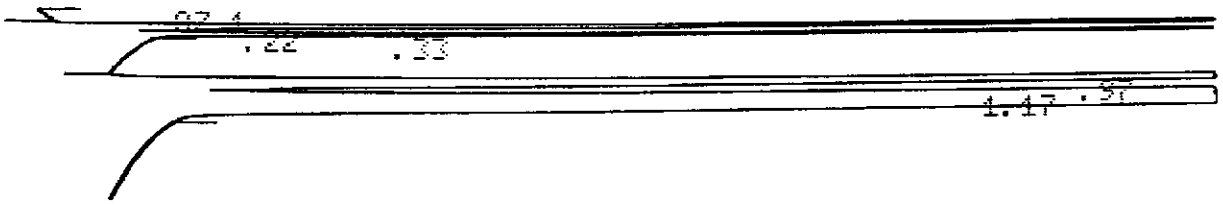
KLEINFELDER 06/04/88 09:20:46 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 8 INDEX 8

PEAK#	AREA%	RT	AREA BC
1	31.457	0.22	172006 02
2	2.462	0.33	13461 03
3	7.22	0.97	39480 02
4	58.862	1.18	321858 03
TOTAL	100.		546805

SG-07-6' 1000ppb

CHANNEL A INJECT 06/04/88 09:25:33



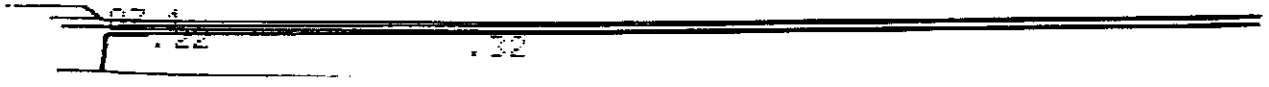
KLEINFELDER 06/04/88 09:25:33 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 9 INDEX 9

PEAK#	AREA%	RT	AREA BC
1	31.595	0.22	175428 02
2	2.362	0.33	13117 03
3	7.468	0.97	41464 02
4	58.575	1.17	325235 03
TOTAL	100.		555244

SG-08-6' 100ppb

CHANNEL A INJECT 06/04/88 09:54:49



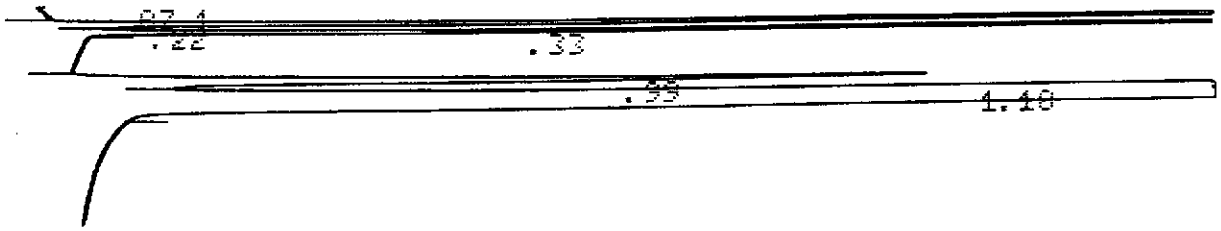
KLEINFELDER 06/04/88 09:54:49 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 10 INDEX 10

PEAK#	AREA%	RT	AREA BC
1	31.301	0.22	157486 02
2	4.34	0.32	21834 03
3	1.304	0.99	6562 02
4	63.055	1.18	317246 03
TOTAL	100.		503128

SH-08-6' 100µl

CHANNEL A INJECT 06/04/88 09:59:19



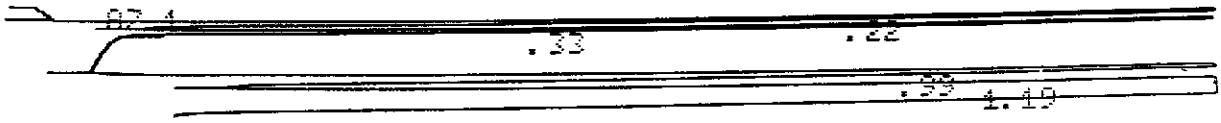
KLEINFELDER 06/04/88 09:59:19 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 11 INDEX 11

PEAK#	AREA%	RT	AREA BC
1	31.204	0.22	159443 02
2	4.189	0.33	21406 03
3	2.157	0.99	11023 02
4	62.45	1.18	319104 03
TOTAL	100.		510976

SH-09-6' 1000µl

CHANNEL A INJECT 06/04/88 10:24:06



KLEINFELDER 06/04/88 10:24:06 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 12 INDEX 12

PEAK#	AREA%	RT	AREA BC
1	31.089	0.22	161621 02
2	3.908	0.33	20317 03
3	3.625	0.99	18847 02
4	61.377	1.19	319079 03
TOTAL	100.		519864

SH-09-6' 1000µl

CHANNEL A INJECT 06/04/88 10:25:57

.22 .33

KLEINFELDER 06/04/88 10:25:57 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 13 INDEX 13

PEAK#	AREA%	RT	AREA BC
1	88.556	0.22	160477 02
2	11.444	0.33	20739 03
TOTAL	100.		181216

Sh-10-4' 1000µl

CHANNEL A INJECT 06/04/88 10:41:33

~~A2 1~~ .23 .34 1.20 .99

KLEINFELDER 06/04/88 10:41:33 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 14 INDEX 14

PEAK#	AREA%	RT	AREA BC
1	31.073	0.23	167266 02
2	3.494	0.34	18807 03
3	7.576	0.99	40780 02
4	57.858	1.2	311454 03
TOTAL	100.		538307

Sh-10-4' 1000µl

CHANNEL A INJECT 06/04/88 10:43:27

~~A2 1~~ .22 .33

KLEINFELDER 06/04/88 10:43:27 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 15 INDEX 15

PEAK#	AREA%	RT	AREA BC
1	89.96	0.22	165964 02
2	10.04	0.33	18523 03
TOTAL	100.		184487

Sh-11-6' 1000µl

CHANNEL A INJECT 06/04/88 11:00:24

~~A2 1~~ .22 .33 1.19 .98

KLEINFELDER 06/04/88 11:00:24 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 16 INDEX 16

PEAK#	AREA%	RT	AREA BC

2	3.12	0.33	16306 03
3	8.202	0.98	42860 02
4	57.512	1.19	300536 03
TOTAL	100.		522559

SK-11-6' 1000µl

CHANNEL A INJECT 06/04/88 11:02:23

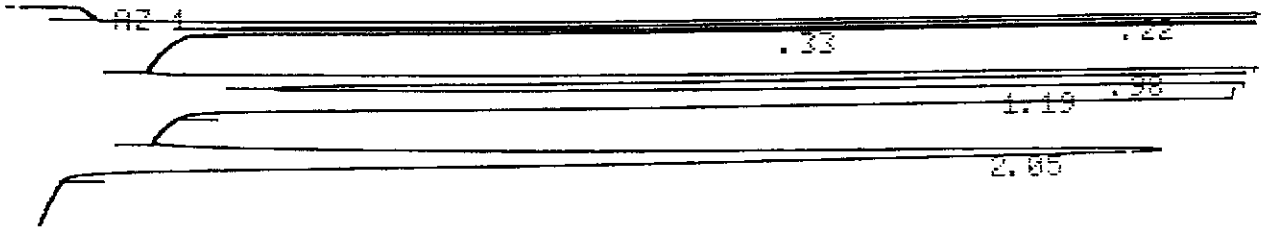
KLEINFELDER 06/04/88 11:02:23 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 17 INDEX 17

PEAK#	AREA%	RT	AREA BC
1	90.929	0.22	162539 02
2	9.071	0.33	16214 03
TOTAL	100.		178753

GAS STD 1000µl

CHANNEL A INJECT 06/04/88 11:08:23



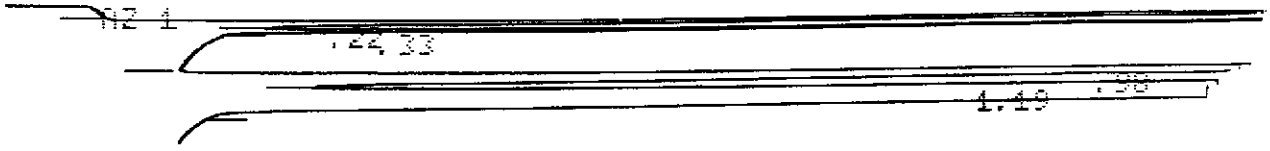
KLEINFELDER 06/04/88 11:08:23 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 18 INDEX 18

PEAK#	AREA%	RT	AREA BC
1	30.497	0.22	157914 02
2	4.926	0.33	25509 03
3	6.639	0.98	34378 02
4	51.077	1.19	264480 03
5	6.86	2.05	35523 01
TOTAL	100.		517804

SK-12-6' 1000µl

CHANNEL A INJECT 06/04/88 11:26:57



KLEINFELDER 06/04/88 11:26:57 CH= "A" PS= 1.

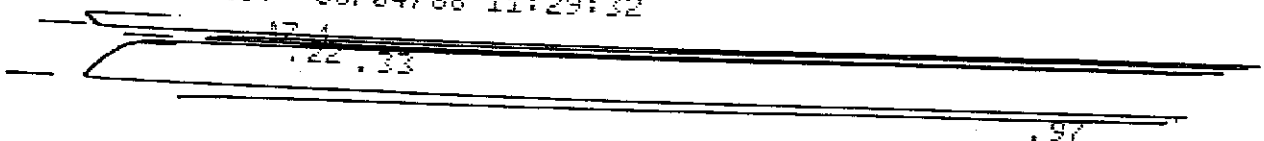
FILE 1. METHOD 0. RUN 19 INDEX 19

PEAK#	AREA%	RT	AREA BC
1	31.748	0.22	170233 02
2	1.955	0.33	10484 03
3	[illegible]	[illegible]	[illegible]

TOTAL 100. 536198

Sh-12-4' 1000 µl

CHANNEL A INJECT 06/04/88 11:29:32



KLEINFELDER 06/04/88 11:29:32 CH= "A" PS= 1.

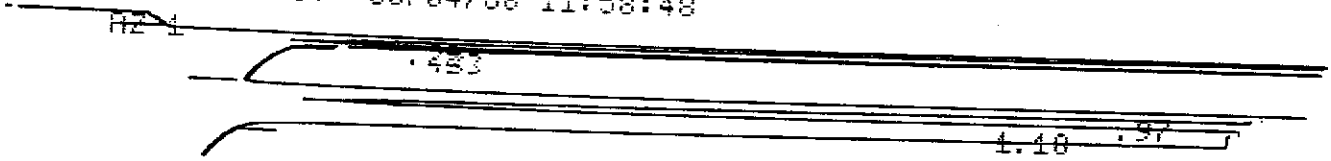
FILE 1. METHOD 0. RUN 20 INDEX 20

PEAK#	AREA%	RT	AREA BC
1	72.647	0.22	170048 02
2	4.444	0.33	10452 03
3	22.908	0.97	53874 01

TOTAL 100. 235174

Sh-13-7' 1000 µl

CHANNEL A INJECT 06/04/88 11:58:48



KLEINFELDER 06/04/88 11:58:48 CH= "A" PS= 1.

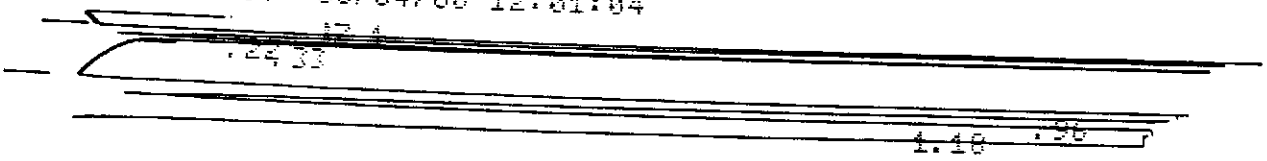
FILE 1. METHOD 0. RUN 21 INDEX 21

PEAK#	AREA%	RT	AREA BC
1	31.915	0.22	180515 02
2	1.049	0.33	5932 03
3	11.126	0.97	62929 02
4	55.91	1.18	316237 03

TOTAL 100. 565613

Sh-14-7' 1000 µl

CHANNEL A INJECT 06/04/88 12:01:04



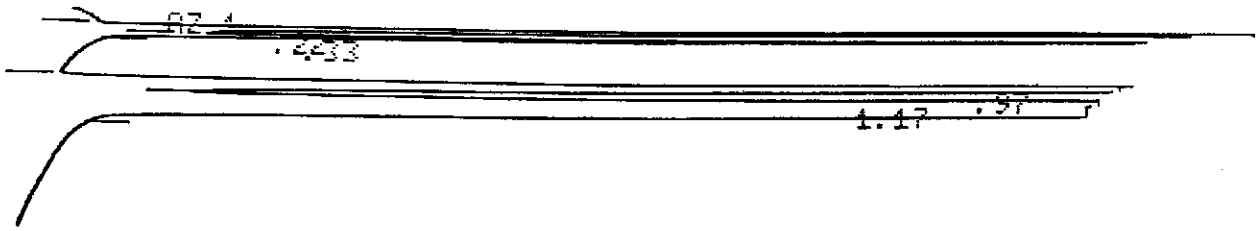
KLEINFELDER 06/04/88 12:01:04 CH= "A" PS=1.

FILE 1. METHOD 0. RUN 22 INDEX 22

PEAK#	AREA%	RT	AREA BC
1	32.49	0.22	178471 02
2	1.006	0.33	5524 03
3	11.623	0.96	63844 02
4	54.882	1.18	301472 03

TOTAL 100. 549311

Sh-15-7' 1000 µl



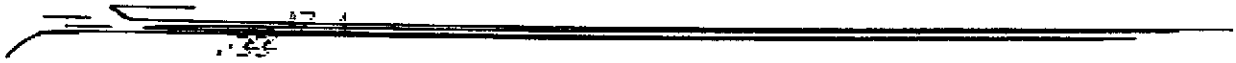
KLEINFELDER 06/04/88 12:25:24 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 23 INDEX 23

PEAK#	AREA%	RT	AREA BC
1	31.668	0.21	175606 02
2	1.698	0.33	9416 03
3	8.494	0.97	47102 02
4	58.139	1.17	322392 03
TOTAL	100.		554516

Sh-15-7 1000/ml

CHANNEL A INJECT 06/04/88 12:29:54



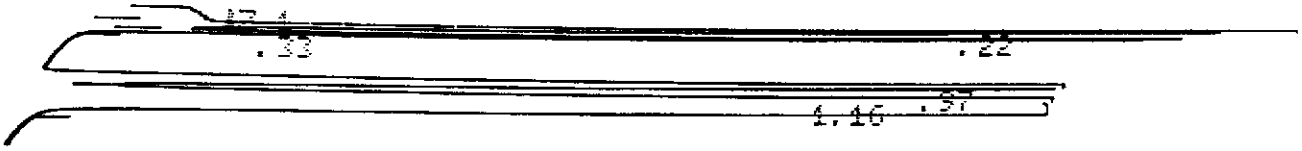
KLEINFELDER 06/04/88 12:2154 CH= "A" PS= 1

FILE 1. METHOD 0. RUN 24 INDEX 24

PEAK#	AREA%	RT	AREA BC
1	95.093	0.22	176364 02
2	4.907	0.33	9101 03
TOTAL	100.		185465

Sh-16-6 1000/ml

CHANNEL A INJECT 06/04/88 12:51:34



KLEINFELDER 06/04/88 12:51:54 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 25 INDEX 25

PEAK#	AREA%	RT	AREA BC
1	31.973	0.22	174909 02
2	1.907	0.33	10434 03
3	5.291	0.97	28945 02
4	60.828	1.16	332758 03
TOTAL	100.		547046

Sh-16-6' 1000/ml

CHANNEL A INJECT 06/04/88 12:54:22

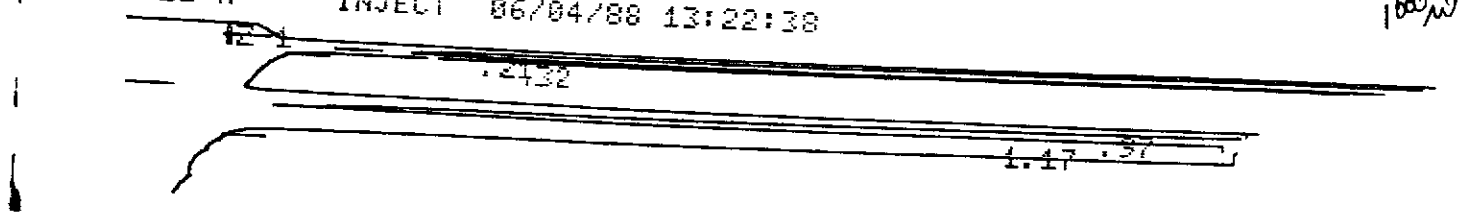
06/04/88 15:22 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 26 INDEX 26

PEAK#	AREA%	RT	AREA BC
1	94.444	0.22	171303 02
2	5.556	0.33	10078 8
TOTAL	100.		181381

SG-17-7' 1000 ml

CHANNEL A INJECT 06/04/88 13:22:38



KLEINFELDER

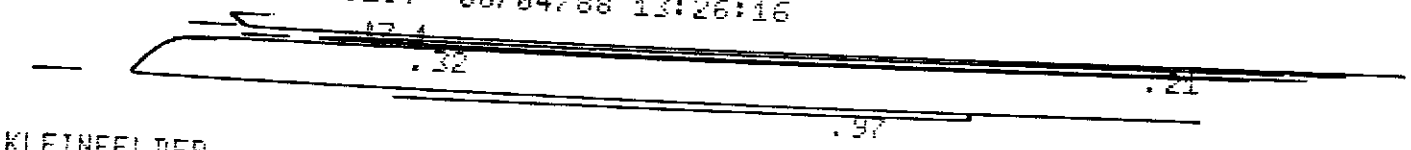
06/04/88 13:22:38 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 27 INDEX 27

PEAK#	AREA%	RT	AREA BC
1	31.319	0.21	176050 02
2	2.165	0.32	12168 03
3	7.338	0.97	41251 02
4	59.178	1.17	332656 03
TOTAL	100.		562125

SG-17-7' 1000 ml

CHANNEL A INJECT 06/04/88 13:26:16



KLEINFELDER

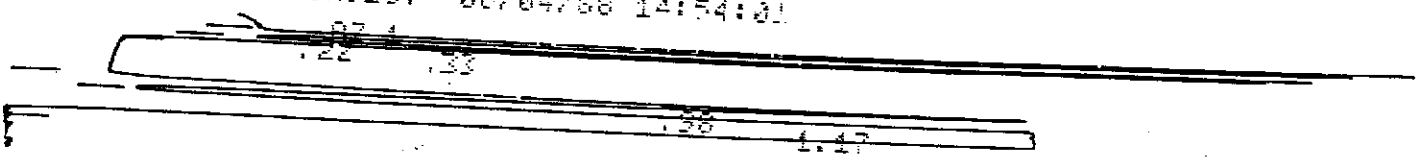
06/04/88 13:26:16 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 28 INDEX 28

PEAK#	AREA%	RT	AREA BC
1	89.471	0.21	174444 02
2	6.17	0.32	12029 03
3	4.359	0.97	8499 01
TOTAL	100.		194972

SG-17-6' 1000 ml

CHANNEL A INJECT 06/04/88 14:54:01



LEINFELDER

06/04/88 14:54:01 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 29 INDEX 29

1	31.891	0.22	16016412
2	3.607	0.3	
3	2.446	1.8	2002
4	62.857	1.1	123805 03
TOTAL	100.		

NA-CAN'T READ AREA

54-19-6' 100µl

CHANNEL A INJECT 06/04/88 15:18

KLEINFELDER 06/04/88 15:18 CH= "A" PS= 1.

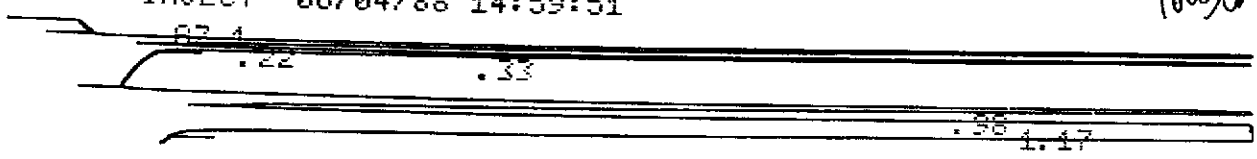
FILE 1. METHOD 0. RUN 30 INDEX 30

PEAK#	AREA%	RT	AREA BC
1	89.606	0.22	
2	10.394	0.3	03
TOTAL	100.		177#

NA - CAN'T READ AREA

54-19-6' 100µl

CHANNEL A INJECT 06/04/88 14:59:51



KLEINFELDER 06/04/88 14:59:51 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 31 INDEX 31

PEAK#	AREA%	RT	AREA BC
1	31.554	0.22	162683 02
2	3.373	0.33	17388 03
3	3.592	0.98	18518 02
4	61.482	1.17	316986 03
TOTAL	100.		515575

54-19-6' 100µl

CHANNEL A INJECT 06/04/88 15:01:54

KLEINFELDER 06/04/88 15:01:54 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 32 INDEX 32

PEAK#	AREA%	RT	AREA BC
1	90.519	0.22	159075 02
2	9.481	0.33	16661 03
TOTAL	100.		175736

GAS STD 100µl CO2

CHANNEL A INJECT 06/04/88 15:08:35

MED-TOX ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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

WORKING COPY

LABORATORY ANALYSIS REPORT

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

ATTN: ELAINE HANFORD

CLIENT ID: 10-1682-03

REPORT DATE: 08/04/88

DATE SAMPLED: 07/15/88

DATE RECEIVED: 07/15/88

MED-TOX JOB NO: 8807093

ANALYSIS OF: ONE DIESEL SAMPLE FOR POLYCHLORINATED BIPHENYLS (PCB) AND HYDROCARBON CHARACTERIZATION.

A gross "hydrocarbon characterization" of this sample was performed per the following protocol:

5g of the sample was placed on a hot plate and held at 100° C for approximately 16 hours. The sample was then re-weighed; it was determined that 41.1% (by weight) of the sample aliquot had been volatilized. When a diesel standard was processed in a similiar manner, 39.5% of the standard was volatilized.

Please contact Mike Jaeger at Med-Tox (415) 930-9090 if you should wish to discuss these characterization results.

See attached for PCB results.

Michael J. Jaeger, Manager
Organic Laboratory

J.H. Kleinfelder & Associates

CLIENT ID: Product
CLIENT JOB NO.: 10-1682-03

DATE SAMPLED: 07/15/88
DATE RECEIVED: 07/15/88

MED-TOX LAB NO.: 8807093-01A
MED-TOX JOB NO.: 8807093
DATE EXTRACTED:
DATE ANALYZED: 07/29/88
REPORT DATE: 08/04/88

EPA METHOD 8080

POLYCHLORINATED BIPHENYLS

AROCLOR	CAS #	CONCENTRATION (mg/kg)	DETECTION LIMIT (mg/kg)
Aroclor 1016	12674-11-2	ND	1
Aroclor 1221	11104-28-2	ND	1
Aroclor 1232	11141-16-5	ND	1
Aroclor 1242	53469-21-9	ND	1
Aroclor 1248	12672-29-6	ND	1
Aroclor 1254	11097-69-1	ND	1
Aroclor 1260	11096-82-5	25	1

NOTES AND DEFINITIONS FOR THIS REPORT:
ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

CHAIN OF CUSTODY RECORD

MED-TOX JOB 8807093

SAMPLERS: (Signature) Brian Ramsey

Phone: 4159385610

SHIP TO: Med Tox

ATTENTION: M Lynch

Phone No.

SHIPPING INFORMATION

Shipper: Kleinfelder

Address: Walnut Creek

Date Shipped: 7-15-88

Shipment Service: Hand

Airbill No. —

Cooler No. —

Att. E Hanford

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Brian Ramsey	[illegible]	7/15 / 14:[illegible]
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
Product	10-168203	7-15-88	- PCB's	8807093-01A
			- Hydrocarbon characterization	
			Standard Cabinet	

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)

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

JHK&A Form 5010

FILE COPY

MED-TOX ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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

LABORATORY ANALYSIS REPORT

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

ATTN: ELAINE HANFORD

CLIENT PROJECT NO: 10-1682-03

REPORT DATE: 04/06/88

DATE SAMPLED: 03/18/88

DATE RECEIVED: 03/18/88

DATE ANALYZED: 04/01/88

MED-TOX JOB NO: 8803111

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

METHOD: EPA 8015 (PURGE & TRAP)

Sample Identification Client	Lab No.	Total Petroleum Hydrocarbons As As Diesel (mg/L)
MW-1	01A	3.6
MW-2	02A	3.6
MW-3	03A	3.8
Detection Limit		0.5

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

J.H. Kleinfelder & Assoc.

CLIENT ID: MW-1
CLIENT JOB NO.: 10-1682-03

DATE SAMPLED: 03/18/88
DATE RECEIVED: 03/18/88

MED-TOX LAB NO.: 8803111-01C
MED-TOX JOB NO.: 8803111

DATE ANALYZED: 03/31/88
REPORT DATE: 04/06/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

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

NOTES AND DEFINITIONS FOR THIS REPORT:
ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. Kleinfelder & Assoc.

CLIENT ID: MW-2
CLIENT JOB NO.: 10-1682-03

DATE SAMPLED: 03/18/88
DATE RECEIVED: 03/18/88

MED-TOX LAB NO.: 8803111-02C
MED-TOX JOB NO.: 8803111

DATE ANALYZED: 03/31/88
REPORT DATE: 04/06/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

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

NOTES AND DEFINITIONS FOR THIS REPORT:
ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. Kleinfelder & Assoc.

CLIENT ID: MW-3
CLIENT JOB NO.: 10-1682-03

DATE SAMPLED: 03/18/88
DATE RECEIVED: 03/18/88

MED-TOX LAB NO.: 8803111-03C
MED-TOX JOB NO.: 8803111

DATE ANALYZED: 03/31/88
REPORT DATE: 04/06/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

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

NOTES AND DEFINITIONS FOR THIS REPORT:
ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

CHAIN OF CUSTODY RECORD

01A-038 RMB 3.
02A-038
03A-038

SAMPLERS: (Signature) Brian Kamman

Phone: 415-938-5610

SHIP TO: MED-TOX

ATTENTION:

Phone No.

SHIPPING INFORMATION

Shipper: Kleinfelder

Address: Walnut Creek

Date Shipped: 3/18/88

Shipment Service: Hand

Airbill No.

Cooler No.

ATT. E Hannford

		Date/Time
Relinquished by: (Signature) 3/18 1304	Received by: (Signature)	
Relinquished by: (Signature)	Received by: (Signature)	
Relinquished by: (Signature)	Received by: (Signature)	
Relinquished by: (Signature)	Receive for laboratory by: (Signature)	

* 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-1 01 ABC	10-1682-R3	3/18/88	-TPH-Diesel 8015M	cool
MW-2 02 ABC			-608 PCBs	
MW-3 03 ABC				

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 Procedures
(4)
(5)

White - Sampler

Canary - J. H. Kleinfelder & Associates

Pink - Lab Courtesy Copy

[JHK&A Form SC60]

FILE COPY

MED-TOX ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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

LABORATORY ANALYSIS REPORT

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

ATTN: ELAINE HANFORD

CLIENT PROJECT NO: 10-1682-03

REPORT DATE: 04/27/88

DATE SAMPLED: 04/06/88

DATE RECEIVED: 04/07/88

DATE ANALYZED: 04/07/88

MED-TOX JOB NO: 8804041

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

METHOD: EPA 8015 (PURGE & TRAP)

Sample Identification Client	Lab No.	Total Petroleum Hydrocarbons As As Diesel (mg/L)
MW-4	01A	ND
MW-5	02A	ND
Detection Limit		0.2

Michael J. Jaeger, Manager
Organic Laboratory

Partial results reported verbally to Elaine Hanford 04/21/88

J.H. Kleinfelder & Assoc.

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

DATE SAMPLED: 04/06/88
DATE RECEIVED: 04/07/88

MED-TOX LAB NO.: 8804041-01C
MED-TOX JOB NO.: 8804041

DATE ANALYZED: 04/22/88
REPORT DATE: 04/27/88

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 & Assoc.

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

MED-TOX LAB NO.: 8804041-02C
MED-TOX JOB NO.: 8804041

DATE SAMPLED: 04/06/88
DATE RECEIVED: 04/07/88

DATE ANALYZED: 04/22/88
REPORT DATE: 04/27/88

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

CHAIN OF CUSTODY RECORD

SAMPLERS: (Signature) Brian Rowan

Phone: 415-938-5610

SHIP TO:
Med-Tox

ATTENTION:

Phone No.

SHIPPING INFORMATION

Shipper: Kleinfelder
Address: Walnut Creek
Date Shipped: 4/7/88
Shipment Service: Hand
Airbill No.: —
Cooler No.: —
Att. E. Hanford

		Date/Time
Relinquished by: (Signature) Brian Rowan	Received by: (Signature) L. St John	4/7 1220
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	4/6/88	- TPH- Diesel	88044 1 01A
	↓	↓	- PCBs	1B
MW-5				1C
				02A
				2B
				2C

No Product; no strong odor

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) Standard Turnaround

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

JHK&A Form M-6

FILE COPY

MED-TOX ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES
3440 Vincent Road • Pleasant Hill, CA 94523 • (415) 930-9090

LABORATORY ANALYSIS REPORT

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

ATTN: ELAINE HANFORD

CLIENT PROJECT NO: 10-1682-03

REPORT DATE: 05/10/88
DATE SAMPLED: 04/27/88
DATE RECEIVED: 04/27/88
DATE ANALYZED: 05/05/88
MED-TOX JOB NO: 8804170

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

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client	Lab No.	Total Petroleum Hydrocarbons As Diesel (mg/L)
MW-1	01A	23
MW-2	02A	6.1
MW-3	03A	4.5
Detection Limit		2

Michael J. Jaeger, Manager
Organic Laboratory

Results FAXed to Elaine Hanford 05/09/88

J.H. Kleinfelder & Assoc.

CLIENT ID: MW-1
CLIENT JOB NO.: 10-1682-03

DATE SAMPLED: 04/27/88
DATE RECEIVED: 04/27/88

MED-TOX LAB NO.: 8804170-01C
MED-TOX JOB NO.: 8804170

DATE ANALYZED: 05/03/88
REPORT DATE: 05/10/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

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

NOTES AND DEFINITIONS FOR THIS REPORT:
ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. Kleinfelder & Assoc.

CLIENT ID: MW-2
CLIENT JOB NO.: 10-1682-03

MED-TOX LAB NO.: 8804170-02C
MED-TOX JOB NO.: 8804170

DATE SAMPLED: 04/27/88
DATE RECEIVED: 04/27/88

DATE ANALYZED: 05/03/88
REPORT DATE: 05/10/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

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

NOTES AND DEFINITIONS FOR THIS REPORT:
ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. Kleinfelder & Assoc.

CLIENT ID: MW-3
CLIENT JOB NO.: 10-1682-03

DATE SAMPLED: 04/27/88
DATE RECEIVED: 04/27/88

MED-TOX LAB NO.: 8804170-03C
MED-TOX JOB NO.: 8804170

DATE ANALYZED: 05/03/88
REPORT DATE: 05/10/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

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

NOTES AND DEFINITIONS FOR THIS REPORT:
ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

C_AIN OF CUSTODY RECOR( )

R1
5

SAMPLERS: (Signature) Brian Kamer

Phone: 415 938 5610

SHIP TO: Med-Tox

ATTENTION:

Phone No.

SHIPPING INFORMATION

Shipper Kleinfelder

Address Walnut Creek

Date Shipped 4/27/88

Shipment Service Hand

Airbill No.

Cooler No. AH E. Hanford

Relinquished by: (Signature) Brian Kamer	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-1	10-1682.03	4/27/88	TPH-Diesel	8804170-01A
			~~608 & PCB's~~	-01B
MW-2				-01C
				-02A
MW-3				-02B
				-02C
				-03A
				-03B
				-03C

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)

PINK

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

LABORATORY ANALYSIS REPORT

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

ATTN: ELAINE HANFORD

CLIENT PROJECT NO: 10-1682-03

REPORT DATE: 06/08/88

DATE SAMPLED: 05/20/88

DATE RECEIVED: 05/20/88

DATE ANALYZED: 05/25-06/02/88

MED-TOX JOB NO: 8805117

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

METHOD: EPA 8015 (PURGE & TRAP)

Sample Identification Client	Lab No.	Total Petroleum Hydrocarbons As Diesel (mg/L)
MW-3	01A	14
MW-4	02A	ND
MW-5	03A	ND
Detection Limit		0.5

Linnea M. Novak for MJJ
Michael J. Jaeger, Manager
Organic Laboratory

Results FAXed to Elaine Hanford 06/03/88

J.H. Kleinfelder & Assoc.

CLIENT ID: MW-3
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 05/20/88
DATE RECEIVED: 05/20/88

MED-TOX LAB NO: 8805117-01C
MED-TOX JOB NO: 8805117

DATE ANALYZED: 06/02/88
REPORT DATE: 06/08/88

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	4.7	0.5

NOTES AND DEFINITIONS FOR THIS REPORT:
ND = Not Detected
Analytical Method: EPA 8080, SW-846 3rd Edition, 1986

J.H. Kleinfelder & Assoc.

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

DATE SAMPLED: 05/20/88
DATE RECEIVED: 05/20/88

MED-TOX LAB NO: 8805117-02C
MED-TOX JOB NO: 8805117

DATE ANALYZED: 06/03/88
REPORT DATE: 06/08/88

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 & Assoc.

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

DATE SAMPLED: 05/20/88
DATE RECEIVED: 05/20/88

MED-TOX LAB NO: 8805117-03C
MED-TOX JOB NO: 8805117

DATE ANALYZED: 06/02/88
REPORT DATE: 06/08/88

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

CHAIN OF CUSTODY RECORD

8805117

Shelf G

SAMPLERS: (Signature) Brian Ramsey

Phone: 415-939-5610

SHIP TO: Med-Tox

ATTENTION:

Phone No.

SHIPPING INFORMATION

Shipper: Kleinfelder

Address: Walnut Creek

Date Shipped: 5/20/88

Shipment Service: Hand

Airbill No.

Cooler No.: AH E. Hanford

Relinquished by: (Signature) Brian Ramsey	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) H. Van Vliet	Date/Time 5/21/88 1520

* 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-3	10-1682-03	5/20/88	TPH-Diesel	Dirty
MW-4			608/as PCB's	8805117-01A
MW-5				-01B
				-01C
				-02A
				-02B
				-02C
				-02D
				-03A
				-03B
				-03C
				-03D

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)

Canary - J. H. Kleinfelder & Associates

Pink - Lab Courtesy Copy
JHK&A Form

WORKING COPY

MED-TOX ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

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

LABORATORY ANALYSIS REPORT

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

ATTN: ELAINE HANFORD

CLIENT PROJECT NO: 10-1682-03

REPORT DATE: 07/14/88

DATE SAMPLED: 06/22/88

DATE RECEIVED: 06/23/88

DATE ANALYZED: 07/01/88

MED-TOX JOB NO: 8806161

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

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client	Lab No.	Total Petroleum Hydrocarbons As Diesel (mg/L)
MW-3	01A	44
MW-4	02A	ND
MW-5	03A	ND
MW-6	04A	17
MW-7	05A	140
Detection Limit		1

ND = Not Detected

Michael J. Jaeger, Manager
Organic Laboratory

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: MW-3
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 06/22/88
DATE RECEIVED: 06/23/88

MED-TOX LAB NO: 8806161-01A
MED-TOX JOB NO: 8806161

DATE ANALYZED: 07/01/88
REPORT DATE: 07/14/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

ARDCLOR	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	4.3	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: 06/22/88
DATE RECEIVED: 06/23/88

MED-TOX LAB NO: 8806161-02A
MED-TOX JOB NO: 8806161

DATE ANALYZED: 07/01/88
REPORT DATE: 07/14/88

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

MED-TOX ASSOCIATES, INC.

J.H. KLEINFELDER & ASSOCIATES

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

MED-TOX LAB NO: 8806161-03A
MED-TOX JOB NO: 8806161

DATE SAMPLED: 06/22/88
DATE RECEIVED: 06/23/88

DATE ANALYZED: 07/01/88
REPORT DATE: 07/14/88

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. KLEINFELDER & ASSOCIATES

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

DATE SAMPLED: 06/22/88
DATE RECEIVED: 06/23/88

MED-TOX LAB NO: 8806161-04A
MED-TOX JOB NO: 8806161

DATE ANALYZED: 07/01/88
REPORT DATE: 07/14/88

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. KLEINFELDER & ASSOCIATES

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

DATE SAMPLED: 06/22/88
DATE RECEIVED: 06/23/88

MED-TOX LAB NO: 8806161-05A
MED-TOX JOB NO: 8806161

DATE ANALYZED: 07/01/88
REPORT DATE: 07/14/88

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

CHAIN OF CUSTODY RECORD

Med. Tox Job # 8806161

SAMPLERS: (Signature) [signature]

Phone: 415-938-5610

SHIP TO: Med-Tox

ATTENTION:

Phone No.

SHIPPING INFORMATION

Shipper Kleinfelder

Address Walnut Creek

Date Shipped 6/23/88

Shipment Service Hand

Airbill No.

Cooler No.

Att. E Hanford

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
[signature]		
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Receive for laboratory by*: (Signature) [signature]	Date/Time 6/23/88 1520

* 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-3	10-1682-03	6/22/88	TPH - Diesel	Good 01A-01C
			PCB's	~~[illegible]~~
				02A-02C
MW-4				
				03A-03C
MW-5				
				04A-04C
MW-6				
				05A-05C
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
(4) Standard Turnaround
(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 & ASSOC.
2121 N. CALIFORNIA BLVD.
SUITE 570
WALNUT CREEK, CA 94596

ATTN: ELAINE HANFORD

CLIENT PROJECT NO: 10-1682-03

REPORT DATE: 07/21/88

DATE SAMPLED: 07/01/88

DATE RECEIVED: 07/01/88

DATE EXTRACTED: 07/12/88

DATE ANALYZED: 07/12-15/88

MED-TOX JOB NO: 8807010

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

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client	Lab No.	Total Petroleum Hydrocarbons As Diesel (mg/L)
MW-6	01A	ND
MW-7	02A	17
MW-8	03A	ND
Detection Limit		6

Michael J. Jaeger, Manager
Organic Laboratory

Results FAXed to Elaine Hanford 07/19/88

J.H. KLEINFELDER & ASSOCIATES

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

DATE SAMPLED: 07/01/88
DATE RECEIVED: 07/01/88

MED-TOX LAB NO: 8807010-01C
MED-TOX JOB NO: 8807010
DATE EXTRACTED: 07/14/88
DATE ANALYZED: 07/15/88
REPORT DATE: 07/21/88

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: 07/01/88
DATE RECEIVED: 07/01/88

MED-TOX LAB NO: 8807010-02C
MED-TOX JOB NO: 8807010
DATE EXTRACTED: 07/14/88
DATE ANALYZED: 07/15/88
REPORT DATE: 07/21/88

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-8
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 07/01/88
DATE RECEIVED: 07/01/88

MED-TOX LAB NO: 8807010-03C
MED-TOX JOB NO: 8807010
DATE EXTRACTED: 07/14/88
DATE ANALYZED: 07/15/88
REPORT DATE: 07/21/88

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

CHAIN OF CUSTODY RECORD

8801010

SAMPLERS: (Signature)

Phone: 938 5610

SHIP TO: Med Tox

ATTENTION:

Phone No.

SHIPPING INFORMATION

Shipper Klein Felder

Address W.C.

Date Shipped 7-1-88

Shipment Service by H-L-d

Airbill No.

Cooler No.

Attn: Elaine Hansel

		Date/Time
Relinquished by: (Signature)	Received by: (Signature)	
Relinquished by: (Signature)	Received by: (Signature)	
Relinquished by: (Signature)	Received by: (Signature)	
Relinquished by: (Signature)	Receive for laboratory by*: (Signature) William Stine	7/1/88 1430

* 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-6	1.0 1682-03	7-1-88	TPH-Diesel 01A,1B,1C	good
mw-7			608 as PCB's 02A,2B,2C	
mw-8			03A,03C,3D	✓

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)

White - Sampler

Canary - J. H. Kleinfelder & Associates

Pink - Lab Courtesy Copy

JHK&A Form M-6

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 & ASSOC.
2121 N. CALIFORNIA BLVD.
SUITE 570
WALNUT CREEK, CA 94596

ATTN: ELAINE HANFORD

CLIENT PROJECT NO: 10-1682-03

REPORT DATE: 08/10/88

DATE SAMPLED: 07/26/88

DATE RECEIVED: 07/26/88

DATE EXTRACTED: 07/29/88

DATE ANALYZED: 07/29/88

MED-TOX JOB NO: 8807153

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

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client	Lab No.	Total Petroleum Hydrocarbons As Diesel (mg/L)
MW-8	01A	87
MW-7	02A	ND
MW-6	03A	ND
MW-5	04A	ND
MW-4	05A	ND
Detection Limit		10

Michael J. Jagger, Manager
Organic Laboratory

Results FAXed to Elaine Hanford 08/08/88

J.H. KLEINFLEDER & ASSOCIATES

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

DATE SAMPLED: 07/26/88
DATE RECEIVED: 07/26/88

MED-TOX LAB NO: 8807153-01C
MED-TOX JOB NO: 8807153
DATE EXTRACTED: 08/01/88
DATE ANALYZED: 08/05/88
REPORT DATE: 08/10/88

EPA METHOD 608

POLYCHLORINATED BIPHENYLS

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

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: 07/26/88
DATE RECEIVED: 07/26/88

MED-TOX LAB NO: 8807153-02C
MED-TOX JOB NO: 8807153
DATE EXTRACTED: 08/01/88
DATE ANALYZED: 08/05/88
REPORT DATE: 08/10/88

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: 07/26/88
DATE RECEIVED: 07/26/88

MED-TOX LAB NO: 8807153-03C
MED-TOX JOB NO: 8807153
DATE EXTRACTED: 08/01/88
DATE ANALYZED: 08/06/88
REPORT DATE: 08/10/88

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: 07/26/88
DATE RECEIVED: 07/26/88

MED-TOX LAB NO: 8807153-04C
MED-TOX JOB NO: 8807153
DATE EXTRACTED: 08/01/88
DATE ANALYZED: 08/06/88
REPORT DATE: 08/10/88

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-4
CLIENT JOB NO: 10-1682-03

DATE SAMPLED: 07/26/88
DATE RECEIVED: 07/26/88

MED-TOX LAB NO: 8807153-05C
MED-TOX JOB NO: 8807153
DATE EXTRACTED: 08/01/88
DATE ANALYZED: 08/06/88
REPORT DATE: 08/10/88

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

CHAIN OF CUSTODY RECORD

R-1
S-H

SAMPLERS: *(Signature)* [signature]

Phone: 415 628-5610

SHIP TO: Hunt Tox

ATTENTION:

Phone No.

SHIPPING INFORMATION

Shipper: Kleinfelder

Address: Walnut Creek

Date Shipped: 7/26/88

Shipment Service: Hand

Airbill No.

Cooler No.

Att. E Hertford

Relinquished by: *(Signature)*	Received by: *(Signature)*	Date/Time
[signature]		
Relinquished by: *(Signature)*	Received by: *(Signature)*	Date/Time
Relinquished by: *(Signature)*	Received by: *(Signature)*	Date/Time
Relinquished by: *(Signature)*	Receive for laboratory by*: *(Signature)* [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-8	10-1682-03	7/26/88	- TPH-Diesel	01A-01C
MW-7	↓	↓	- PCB	02A-02C
MW-6	↓	↓		03A-03C
MW-5	↓	↓		04A-04C
MW-4	↓	↓		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
(4) Standard Turnaround
(5)

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

JHK&A Form M-60