

FINAL ENVIRONMENTAL INVESTIGATION REPORT  
INDUSTRIAL ASPHALT FACILITY  
EASTERN ALAMEDA COUNTY, CALIFORNIA

May 18 1987

**J. H. KLEINFELDER & ASSOCIATES**  
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING  
LAND AND WATER RESOURCES



1 INTRODUCTION

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This report summarizes the evaluation of soil conditions and associated impacts of a diesel product leak identified following the removal of two underground storage tanks at the Industrial Asphalt facility located in eastern Alameda County, California (see Plate 1). Information presented in this report includes a description of field activities, analytical testing and our conclusions and recommendations.



## 2 BACKGROUND

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The following information was provided by Industrial Asphalt and forms the basis for the scope of work which was conducted at the facility.

- o During February 1987, one 6,700 and one 4,920 gallon diesel tank were excavated and removed from the facility.
- o Following the removal of the tanks, diesel product was observed in the bottom of the excavation.
- o Analysis of the product indicated the presence of total petroleum hydrocarbons (TPH) as diesel at a concentration of 340,000 mg/kg and polychlorinated biphenyls (PCB's) at a concentration of 12 mg/kg.
- o A portion of the diesel product was removed and disposed of at a Class I disposal facility.
- o Six asphalt tanks are located adjacent to the previously removed diesel tanks and appear to have been installed in backfill common to the diesel tanks. Two of the asphalt tanks adjacent to the diesel tanks have also been excavated (see Plate 2).

Additional information provided by Industrial Asphalt indicates that the diesel product was purchased during 1983 and 1984 and was used as a burner fuel in its batch plant. Following 1984, the plant began utilizing natural gas due to its lower cost. In 1985, a leaking fill pipe serving the diesel tanks was identified and repaired.



### 3 PURPOSE AND SCOPE

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The purpose of this environmental investigation was to evaluate the lateral extent of diesel product in the adjoining asphalt tank backfill and the impact of the product on local soil quality adjacent to the tank area.

The following scope of work was performed to accomplish these objectives:

1. Drilling permits were obtained from Alameda County Flood Control and Water Conservation District, Zone 7, (ACFCWCD)
2. Seven exploratory borings were completed at the locations shown on Plate 2
3. Soil samples were collected at 5 foot intervals to a depth of 45 feet unless free product was encountered
4. Soil samples were field screened for the presence of hydrocarbons using a portable photoionization detector (PID)
5. Analyses of composite and individual soil samples for the presence of diesel and PCB's using EPA Test Methods 8015 and 8080, respectively
6. Preparation of a written report summarizing field activities, chemical analyses, conclusions, and recommendations.



#### 4 FIELD INVESTIGATION

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On March 25, 26, and 27, 1987, seven (7) soil borings were drilled and sampled using a J. H. Kleinfelder & Associates' CME 75 drill rig equipped with 6-inch hollow stem augers. All augers were steam cleaned between borings. A geologist was onsite to supervise the drilling operations and visually log the soils encountered. Plates 4 through 10 present the log of borings and Plate 3 provides a summary of the Unified Soil Classification System used to classify the soils. A two-inch, ID, modified California sampler equipped with clean unused brass liners was used to collect the soil samples. Five of the seven borings were advanced around the perimeter of the tank area. Soil samples were collected in these borings at 5 foot intervals to a total depth of 45 feet. The remaining two borings were completed in the tank backfill and soil and backfill samples were collected at 5 foot intervals to a depth of 15 to 18 feet. Plate 2 identifies the location of the borings.

Following collection, each sample was placed in a zip lock type plastic bag and a PID was inserted into the bag to monitor for the presence of hydrocarbons in the sample. The concentration levels measured are also noted on the logs of borings. The sample was then sealed with aluminum foil lined plastic lids, labeled, refrigerated, and transported under chain of custody control to Med-Tox Laboratories in Pleasant Hill, California.

All soil samples submitted to the analytical laboratory were analyzed for PCB's and TPHs per EPA Test Methods 8080 and 8015, respectively. Soil samples with no product observed, either visually or with the PID, were composited by the laboratory prior to analyses.



5 SUBSURFACE CONDITIONS

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Two of the soil borings, identified as boring nos. B-1 and B-3, penetrated backfill material consisting of 1/4 to 1/2-inch subrounded pea gravel to a depth of 15 feet. Borings nos. B-1 and B-3 were terminated in a brown silty clay underlying the backfill material.

The remaining five borings identified as boring nos. B-2, B-4, B-5, B-6, and B-7 were advanced to a depth of 45 feet. Materials encountered in these borings were fairly continuous and correlate well between the borings. Plates 12 and 13 are geologic cross sections which show the soil conditions within the tank backfill and soil stratigraphy adjacent to the tank backfill area. Plate 11 shows the location of the sections.

As indicated in Plate 13, relatively fine grained sediment consisting of silty clays and silt were encountered to a depth of approximately 25 feet below grade. Underlying these fine grained sediments, coarser materials consisting of sandy gravels and gravelly sands were encountered to the total depth of the borings. Some limited clayey gravels were also observed. The sand was primarily medium to coarse grained and poorly graded. The gravels encountered were typically subrounded to well rounded and ranged from 1 to 2 inches in diameter. Ground water was not encountered in any of the seven borings. Review of records from the ACFCWCD indicates the presence of ground water in nearby industrial wells at approximately 80 feet below grade.

During drilling free product was observed in samples from boring nos. B-2, B-5, and B-6 at depths ranging from 35 to 45 feet, see Plate 13. Product was not observed in boring no. B-4. Free product was also observed in samples of the tank backfill material collected in boring nos. B-1 and B-3 (see Plate 12).

## 6 LABORATORY ANALYSES

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Table 6-1 presents a summary of the analytical results. A copy of the laboratory report is attached as Appendix A to this report. In addition, the analytical results are shown on Plates 12 and 13.

As indicated in Table 6-1 and Plate 13, diesel product was identified in deep boring nos. B-2, B-5, and B-6 at a depth of 45 feet. Boring nos. B-2 and B-6 also identified low concentrations of PCB's at this same sample interval. Composite samples collected and analyzed from shallow soils in these same borings levels of diesel or PCB's above detection limits to a depth of 20 to 25 feet.

Results of the soil samples collected below the tank cavity in the silty clay (boring nos. B-1 and B-3, Plate 12), indicate the presence of diesel at a concentration of 170 ppm in B-1. Diesel was not detected in B-3. No PCB's were identified in either of the samples analyzed in B-1 or B-3.

Samples collected from boring no. B-4 were not analyzed due to the absence of any visual product and non-detectable PID readings during field screening of the samples.

TABLE 6-1  
 SUMMARY OF SOIL ANALYSES  
 (concentrations in mg/kg - ppm)

Boring Number	Depth	Total Petroleum Hydrocarbons (TPH)	Poly-Chlorinated Biphenyls (PCB)
B-1	17	170	ND
B-2	5-25 <u>a</u> /	ND	ND
B-2	45	4600	0.030
B-3	15	ND	ND
B-5	5-20 <u>b</u> /	ND	ND
B-5	45	1800	ND
B-6	5-20 <u>b</u> /	ND	ND
B-6	45	1000	0.073
B-7	5-20 <u>b</u> /	ND	ND
B-7	45	ND	ND

a/ Composite sample from depths 5, 10, 15, 20, and 25 feet.

b/ Composite sample from depths 5, 10, 15, and 20 feet.



7 CONCLUSIONS

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Past operations at the underground storage tank area at the site resulted in the release of petroleum hydrocarbons containing low levels of PCB's and the contamination of soil beneath the tank excavation and existing asphalt tank area. The probable source of this contamination was apparently the result of leaking storage tanks or associated piping and plumbing in the tank excavation. The two diesel tanks have been removed and disposed of per state and local regulatory requirements. Analysis of soil samples taken during the drilling program indicate non-detectable levels of diesel and PCB's in the upper 20 to 25 feet of soil surrounding the tank area and the presence of diesel fuel and low levels of PCBs at a depth of 45 feet.

Based on these results, it appears the diesel product has migrated vertically beneath the tank excavation and has dispersed laterally at depth. In addition, diesel product was observed in the tank excavation and in the tank cavity backfill samples collected during drilling in boreholes B-1 and B-3.



8 RECOMMENDATIONS

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Based upon our analysis of the data and the work completed to date, we recommend the following work be completed to comply with the "Guidelines for Addressing Fuel Leaks" issued by the California Regional Water Quality Control Board, San Francisco Bay Region.

1. The remaining existing asphalt tanks should be excavated and disposed of to an appropriate disposal facility. Following removal of the tanks, any free product observed in the excavation should be removed and disposed of at a Class I disposal facility. Additionally, any visually diesel saturated backfill or native soil materials should be excavated. Soil samples should be collected along the bottom of the excavation to verify that the contaminated material has been removed.
2. Three ground water monitoring wells should be installed around the tank area to assess the impact, if any, of the diesel leak on the local ground water quality.

Following the "Guidelines for Addressing Fuel Leaks" issued by the CRWQCB, the installation of ground water monitoring well is required if hydrocarbons are observed at concentrations above 100 ppm at a depth of 45 feet. Also we recommend that water samples be collected from the monitoring wells and analyzed for benzene, toluene, xylene, total petroleum hydrocarbons and PCB's. Further, it is recommended that an investigation be performed to evaluate beneficial usage of the ground water in the area if diesel product is identified in the ground water.

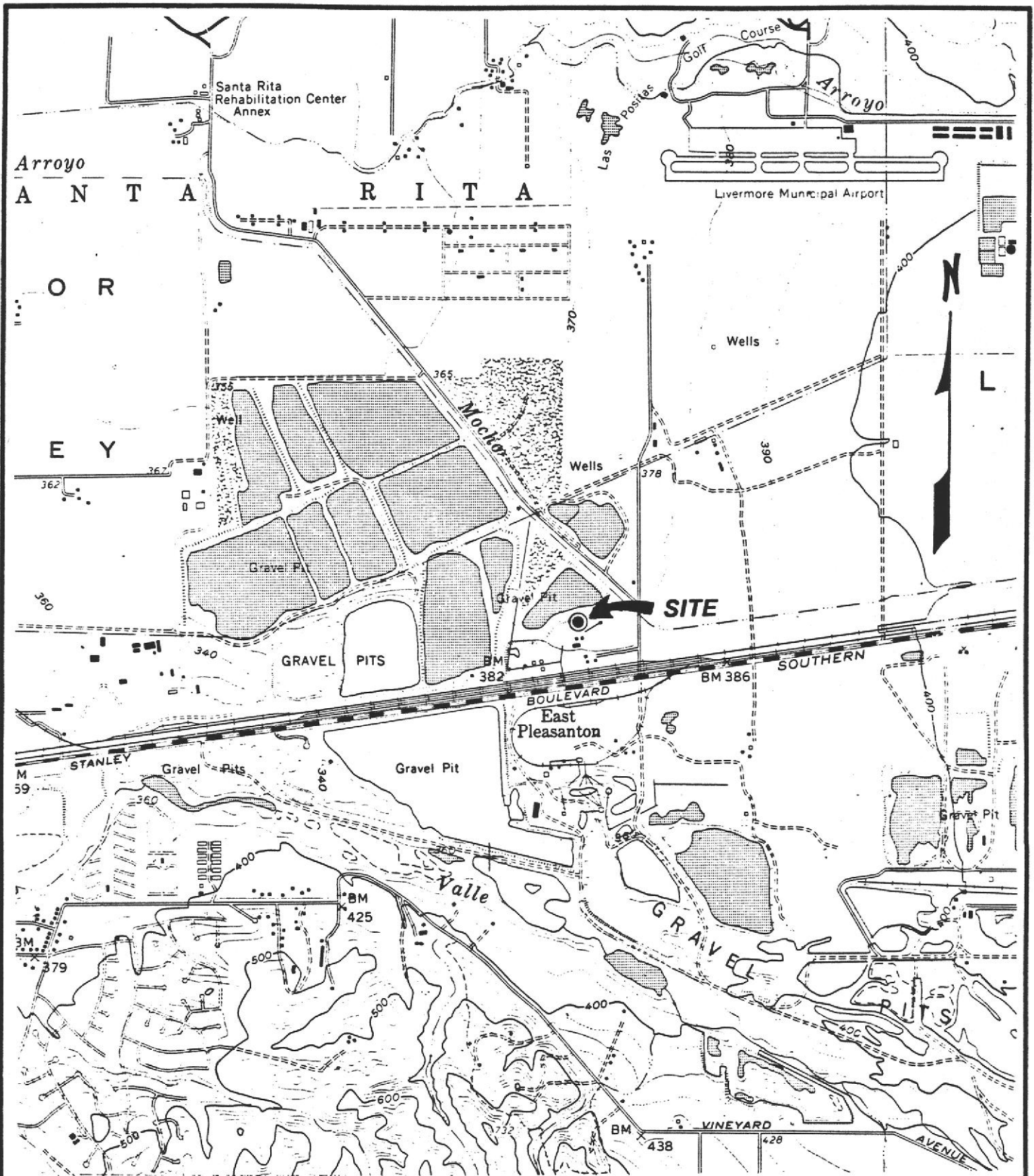
9 LIMITATIONS

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

Our firm has prepared this report for the client's exclusive use for this particular project and in accordance with generally accepted engineering practices within the area at the time of our investigation. No other warranties, expressed or implied, as to the professional advice provided are made. The recommendations provided in this report are based on the assumption that an adequate program of tests and field observations will be conducted by our firm during any subsequent phases in order to evaluate compliance with the recommendations.





SCALE 1:24000

Source: USGS 7.5 minute Livermore Quadrangle

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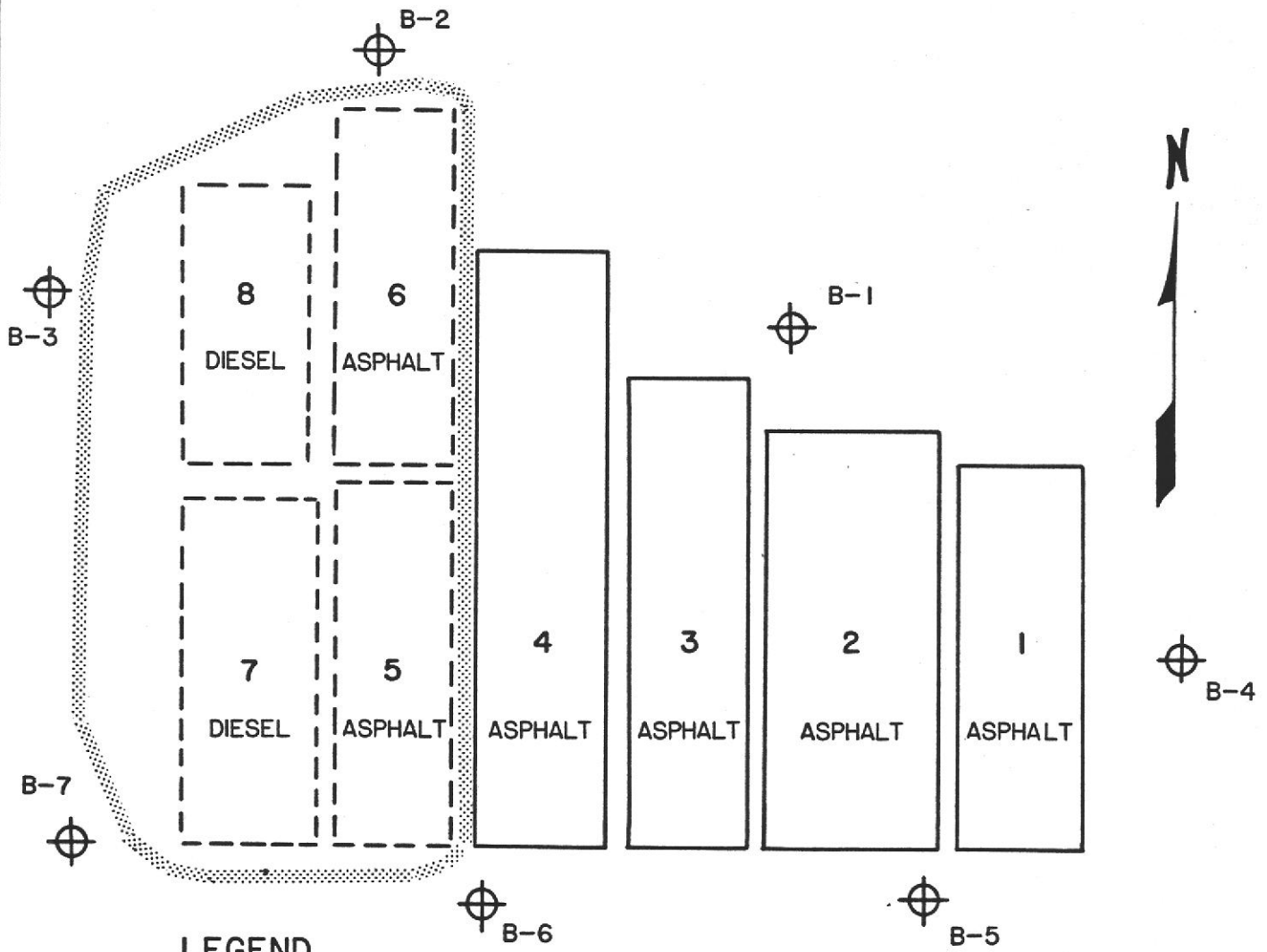


INDUSTRIAL ASPHALT  
 PLEASANTON, CALIFORNIA

PLATE  
 1










PROJECT NO. 10-1682-01

SITE LOCATION MAP



## 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, sand, clays, silty clays, lean clays.	
		GM	Silty gravels, gravel-sand-clay mixtures.			OL	Organic silts and organic silt-clays of low plasticity	
		GC	Clayey gravels, gravel-sand-clay mixtures.			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
	SAND AND SANDY SOILS	SW	Well-graded sands or gravelly sands, little or no fines.		SILTS AND CLAYS LL>50	CH	Inorganic clays of high plasticity, fat clays.	
		SP	Poorly-graded sands or gravelly sands, little or no fines.			OH	Organic clays of medium to high plasticity.	
		SM	Silty sands, sand-silt mixtures.			HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils.
		SC	Clayey sands, sand-clay mixtures.					

- |   |   |
|---|---|
| <p> Standard penetration split spoon sample</p> <p> Modified California (Porter) Sampler</p> <p> Shelby tube sample</p> <p> Water level observed in boring</p> <p> No recovery</p> <p>NFWE No free water encountered</p> <p>NOSC No odor, scent, or fluid cut</p> <p>NOTE: Blow count represents the number of blows of a 140-pound hammer falling 30 inches per blow required to drive a sampler through the last 12 inches of an 18-inch penetration.</p> <p>NOTE: The line 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.</p> | <p> Blank casing</p> <p> Screened casing</p> <p> Cement grout</p> <p> Bentonite</p> <p> Sand pack or gravel pack</p> |
|---|---|



Blow/ Ft.	Sample No.	USCS	Description	Well Const
0				
2		GP	SANDY GRAVEL - greyish brown, medium sand, sub-angular gravel, 1/4-inch, fill, tip reading 800 (ppm)	
4				
12	No Recovery			
6				
8				
10	18			
12	S-B1-10		- visible hydrocarbons (oily), tip reading 1000 (ppm)	
14				
16	9	CL	SILTY CLAY - greenish brown, dry to moist, medium plasticity, stiff, some product staining (oily), tip reading 240 (ppm)	
18	S-B1-15			
18	9		- no product at 17' depth sample	
18	S-B1-17			
20			Total depth = 18.5 feet logged by K. Reynolds 3/25/87	
22			Background tip reading = -2.9 (ppm)	
24				



Depth (feet)	Blow/ Ft.	Sample No.	USCS	Description	Well Const
0					
2			ML	CLAYEY SILT, brown, dry, non-plastic, some sub-angular grains present, NOSC	
4					
6	13	S-B2-5			
8					
10	9	S-B2-10		- NOSC	
12					
14					
16	21	S-B2-15	CL	SILTY CLAY - dry, non plastic, very stiff, NOSC	
18					
20	22	S-B2-20		- dry, some well rounded sand grains up to 1/4 inch, NOSC	
22					
24					
26	46	S-B2-25	GW	SANDY GRAVEL - grey brown, dry, medium grained sand, very hard, well rounded gravel, NOSC	
28					
30	41	S-B2-30		- rounded gravel greater than 3 inches, medium to coarse grained sand, NOSC	
32					

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INDUSTRIAL ASPHALT  
 1645 STANLEY BLVD.  
 PLEASANTON, CALIFORNIA


BORING LOG NO. B-2

PLATE

5a

PROJECT NO. 10-1682-01



Blow/ Ft.	Sample No.	USCS	Description	Well Const
32	S-B2-35	GW	- dry to moist, some fine-grained sand present, NOSC, sample is primarily rocks, NOSC	
34				
36	No recovery		- some sample in sampler bit, some product clinging to gravel	
38				
40	S-B2-45		- product visible in rounded gravel; unable to drive sample	
42				
44			Total depth = 46 feet logged by S. Fox 3/26/87	
46				
48				
50				



Depth (feet)	Blow/ Ft.	Sample No.	USCS	Description	Well Const
0				SANDY GRAVEL - dry, 1/4 inch, subangular gravel, fill	
2			GM		
6	24	S-B3-5		- 1 tube recovered	
8					
10	13	S-B3-10		- 1 tube recovered, some product	
12					
14					
16	12	S-B3-15	CL/ ML	SILTY CLAY - brown, dry, non-plastic, firm, NOSC, tip reading ND	
18				Total Depth = 16.0 feet logged by S. Fox 3/27/87	
20					

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 PLEASANTON, CALIFORNIA

PROJECT NO. 10-1682-01

BORING LOG NO. B-3

PLATE

6

Depth (feet)	Blow/ Ft.	Sample No.	USCS	Description	Well Const
0					
2			GM	SANDY GRAVEL - grey, brown, fine to medium grained sand, dry, sub-angular grains up to ½ inch, fill	
4				- background tip reading (ND) - NOSC	
6	17	S-B4-5			
8					
10			CL	SILTY CLAY - greenish brown, dry, low plasticity, soft	
12				- background tip reading (ND) - NOSC	
14	8	S-B4-10			
16					
18					
20			SW	GRAVELLY SAND - grey brown, dry, rounded gravel up to ½ inch, medium grained sand hard, some clay	
22				- background tip reading (ND)	
24	25	S-B4-20			
26				- very hard, background tip reading (ND) rounded gravels up to 2 inches, NOSC	
28	50	S-B4-25			
30				- some silty material present (ND) - background tip reading, NOSC	
32	51	S-B4-30			

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BORING LOG NO. B-4

PLATE

7a

PROJECT NO. 10-1682-01

Blow/ Ft.	Sample No.	USCS	Description	Well Const
34				
36	32			
	S-B4-35	SW	- moist, coarse grained sand, 1 tube recovered - background tip reading, NOSC	
38				
40				
	S-B4-40		- moist to damp, rounded gravel greater than 3 inches, used 25 feet drop with rod to recover sample	
42			- background tip reading, NOSC	
44				
	S-B4-45		NOSC, background tip reading	
			Total depth = 45.5 feet logged by S. Fox 3/25/87	

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 PLEASANTON, CALIFORNIA

BORING LOG NO. B-4

PLATE

7b

PROJECT NO.

Depth (feet)	Blow/ Ft.	Sample No.	USCS	Description	Well Const
0			ML	SILT - brown, dry, non-plastic, soft, slight odor,	
2					
4					
6	4	S-B5-5			
8					
10				SILTY CLAY - brown, moist, low plasticity, NOSC, firm	
12	6	S-B5-10			
14			CL	SILTY CLAY - brown, dry to moist, low plasticity, some fine sand and 1/4-inch rounded grains present, stiff, NOSC	
16	10	S-B5-15			
18					
20				- some grey streaks present, some sand and gravel present	
22	19	S-B5-20			
24					
26	60	S-B5-25	GW	SANDY GRAVEL - grey, brown, dry to moist, medium to coarse grained sands, rounded gravels, NOSC	
28					
30		S-B5-30		- NOSC	
32					

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BORING LOG NO. B-5

PLATE

8a

PROJECT NO. 10-1682-01

Blow/ Ft.	Sample No.	USCS	Description	Well Const
34	48	GW	- product in sample, semi-saturated	
36				
38	7	GW	- brown product in sample, decreased gravel percentage	
40				
42	7	GW	- brown product present	
44				
46				
			Total depth = 46.5 feet logged by S. Fox 3/26/87	

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BORING LOG NO. B-5

PLATE  
**8b**

PROJECT NO. 10-1682-01

Blow/ Ft.	Sample No.	USCS	Description	Well Const
0		GW	SANDY GRAVEL - light brown, dry, coarse sand, fill, NOSC	
2				
4				
6	4	S-B6-5	SILTY CLAY - brown, dry, low plasticity, some rounded gravel present, soft, NOSC	
8		CL		
10				
12	7	S-B6-10		
14				
16	10	S-B6-15	- medium plasticity, dry to moist, NOSC	
18				
20				
22	22	S-B6-20	- NOSC	
24				
26	32	S-B6-25	GRAVELLY SAND - grey, light brown, dry, coarse-grained sand, subangular to rounded gravels, hard, NOSC	
28		SW		
30				
32	64	S-B6-30		

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 PLEASANTON, CALIFORNIA

BORING LOG NO. B-6

PLATE

9a

PROJECT NO. 10-1682-01

Blow/ Ft.	Sample No.	USCS	Description	Well Const
34				
36	58	S-B6-35	SW - sand grading coarser, NO SC	
38				
40		S-B6-40		
42				
44				
46	40	S-B6-45	- product present, product clinging to sand grains	
48			Total Depth = 46 feet Logged by S. Fox 3/26/87	

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PROJECT NO. 10-1682-01

BORING LOG NO. B-6

PLATE

9b



Depth (feet)	Blow/ Ft.	Sample No.	USCS	Description	Well Const
2			CL	SILTY CLAY - greenish-brown, dry, low plasticity, firm, NOSC, background levels, tip reading (ND)	
4					
6	7	S-B7-5			
8					
10	10	S-B7-10	CL	SILTY CLAY - brown, dry to moist, low plasticity, soft to stiff, NOSC, background levels, tip reading (ND)	
12					
14					
16	13	S-B7-15		- background levels, tip reading (ND) NOSC	
18					
20					
22	18	S-B7-20		- NOSC, tip reading (ND)	
24					
26	54	S-B7-25	SW	GRAVELLY SAND - grey brown, fine to medium sands, dry, very hard, well rounded gravels, NOSC, tip reading (ND)	
28					
30	Pushed	S-B7-30		- background levels, tip reading (ND)	
32					

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INDUSTRIAL ASPHALT  
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 PLEASANTON, CALIFORNIA

**BORING LOG NO. B-7**

PLATE

**10a**

PROJECT NO. 10-1682-01

Blow/ Ft.	Sample No.	USCS	Description	Well Const
34				
36	54		- gravels up to 3-4 inches, well rounded, medium to coarse sand, background level tip reading (ND), NOSC, moist	
38				
40	40/6"	GW	- coarse grained sand, moist to damp background levels tip reading (ND) NOSC	
42				
44				
46	80		- background level, tip reading (ND)	
48			Total Depth = 46 feet Logged by S. Fox 3/27/87	
50				

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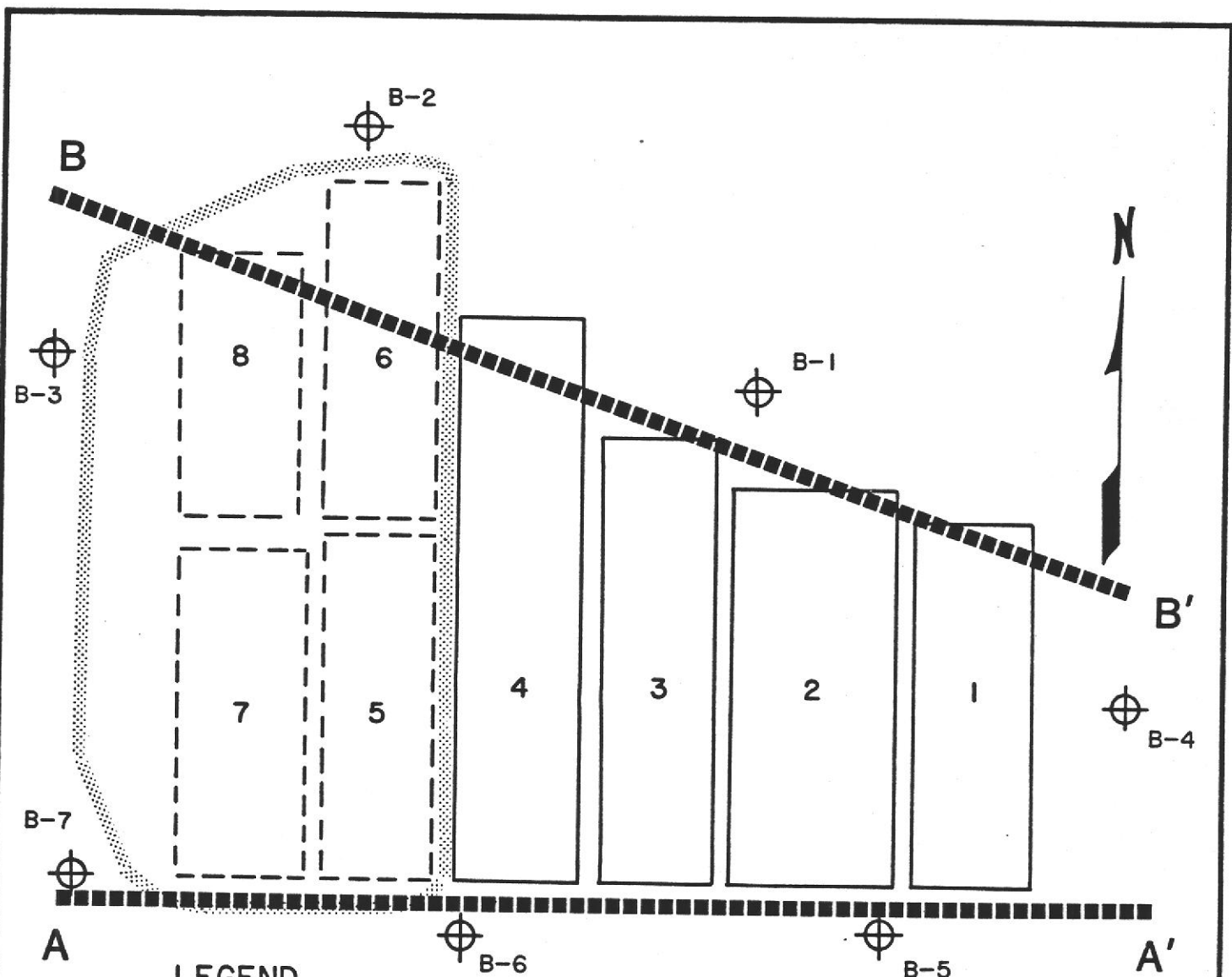
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BORING LOG NO. B-7




PLATE

10b

PROJECT NO. 10-1682-01



**LEGEND**

-  B-1  
SOIL BORING
-  PRE-EXISTING TANK LOCATION
-  EXISTING TANK

TANKS 1-6 CONTAINED OR CONTAIN ASPHALT  
TANKS 7 AND 8 WERE DIESEL TANKS

 APPROXIMATE LIMITS OF EXCAVATION

 LOCATION OF CROSS SECTION  
A A'



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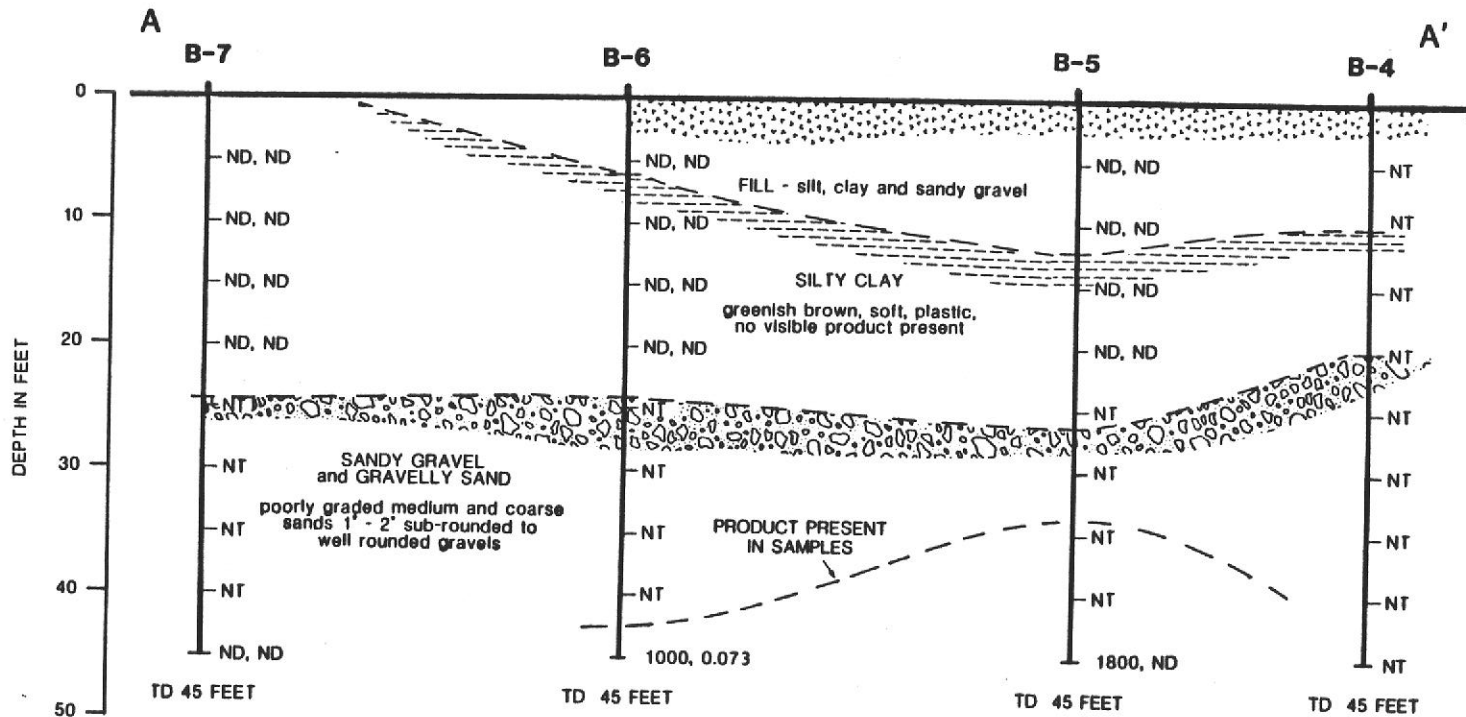
INDUSTRIAL ASPHALT  
PLEASANTON, CALIFORNIA

CROSS-SECTION LOCATION MAP

PLATE

11

PROJECT NO. 10-1682-01



**LEGEND**

B-3 BORING LOCATION

ND NON-DETECTED AT LOWER MOST DETECTABLE LEVEL

NT NOT TESTED

1000, 0.073 ANALYZED CONCENTRATION OF DIESEL AND PCB'S, RESPECTIVELY  
(concentrations in mg/kg, ppm)

APPROXIMATE HORIZONTAL SCALE 1" equals 10'

VERTICAL SCALE 1" equals 10'

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LAND AND WATER RESOURCES



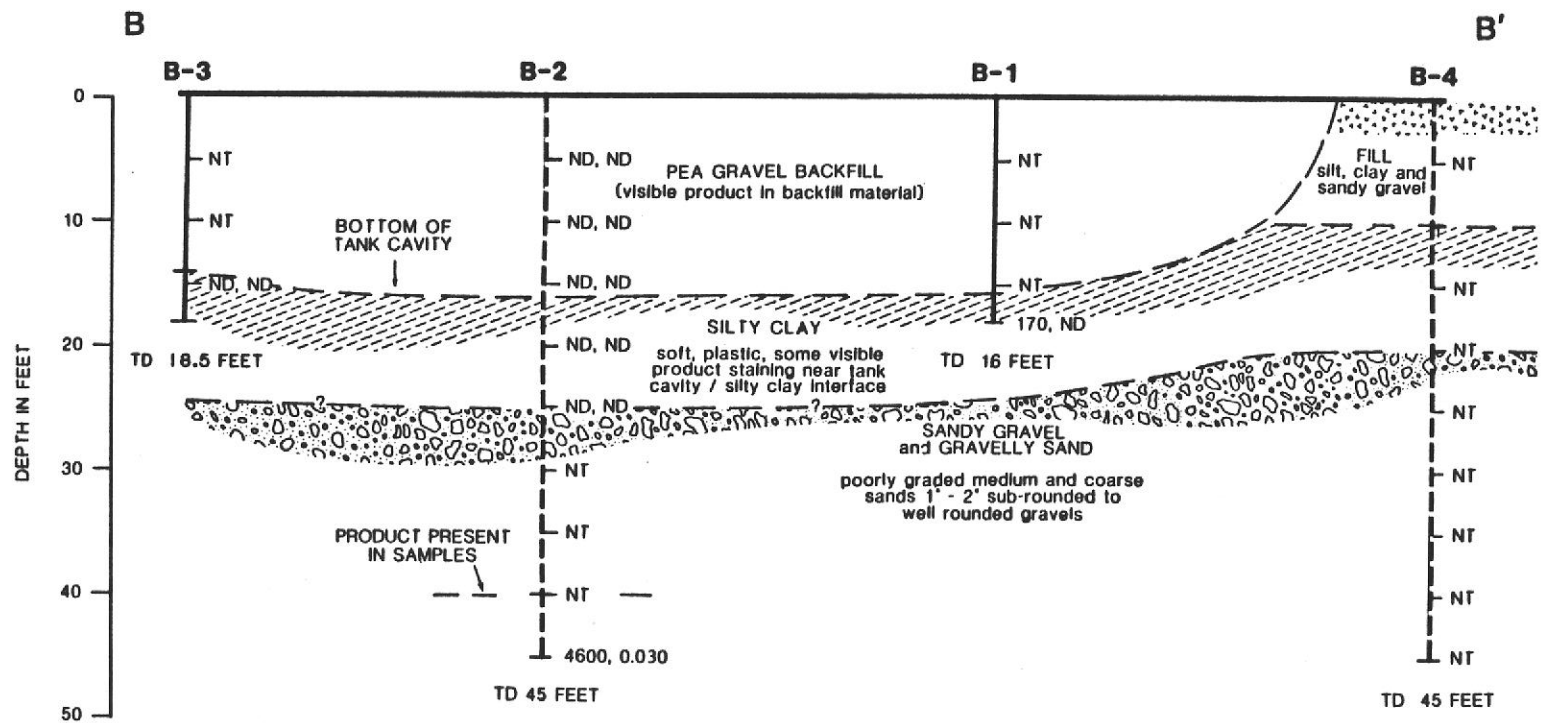
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PLEASANTON, CALIFORNIA

CROSS-SECTION A - A'

PROJECT NO. 10-1682-01

PLATE

12



Note: Boring numbers B-2 and B-4 completed outside of tank cavity

**LEGEND**

- B-3 BORING LOCATION
- ND NON-DETECTED AT LOWER MOST DETECTABLE LEVEL
- NT NOT TESTED
- 4600, 0.030 ANALYZED CONCENTRATION OF DIESEL AND PCB'S, RESPECTIVELY

APPROXIMATE HORIZONTAL SCALE 1' equals 10'  
 VERTICAL SCALE 1' equals 10'

<b>J.H. KLEINFELDER &amp; ASSOCIATES</b> GEOTECHNICAL CONSULTANTS • MATERIALS TESTING LAND AND WATER RESOURCES PROJECT NO. 10-1682-01	INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA CROSS-SECTION B - B'	PLATE <b>13</b>
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**APPENDIX A**

## OCCUPATIONAL & ENVIRONMENTAL HEALTH SERVICES

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

### LABORATORY ANALYSIS REPORT

J.H. KLEINFELDER  
1901 OLYMPIC AVENUE  
WALNUT CREEK, CA 94596

DATE: 04/16/87

SAMPLES RECEIVED: 03/27/87

ATTN: KENT REYNOLDS

MED-TOX JOB NO.: 10403

PURCHASE ORDER NO: 10-1682-01

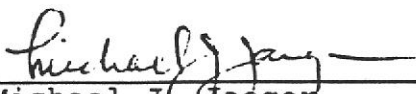
ANALYSIS OF: SOIL SAMPLES FOR CHLORINATED PESTICIDES AND  
POLYCHLORINATED BIPHENYLS

METHOD: EPA 8080

#### SAMPLES ANALYZED:

Client ID	Sample Date	Lab Sample No.
S-B1-17	3/25/87	22485
S-B2-5	3/26/87	22486
S-B2-45	3/26/87	22491
S-B3-15	3/27/87	22492
S-B5-5	3/25/87	22493
S-B5-45	3/26/87	22497
S-B6-5	3/24/87	22498
S-B6-45	3/27/87	22502
S-B7-5	3/27/87	22503
S-B7-45	3/27/87	22507

RESULTS LISTED ON ATTACHED PAGES.

  
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Michael J. Jaeger  
Organic Group Leader

R32-M39

SAN DIEGO

TUSTIN

PLEASANT HILL

SEATTLE

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B1-17  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22485  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	ND	0.020

ND= Not Detected



J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B2-5 (Composite thru S-B2-25)  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22486  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	ND	0.020

ND= Not Detected

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B2-45  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22491  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	0.030	0.020

ND= Not Detected

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B3-15  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22492  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	ND	0.020

ND= Not Detected

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B5-45  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22497  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	ND	0.020

ND= Not Detected

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B5-5 (Composite thru S-B5-20)  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22493  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	ND	0.020

ND= Not Detected

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B6-5 (Composite thru S-B6-20)  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22498  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	ND	0.020

ND= Not Detected

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B7-5 (Composite thru S-B7-20)  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22503  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	ND	0.020

ND= Not Detected

J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B7-45  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22507  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	ND	0.020

ND= Not Detected



J.H. KLEINFELDER & ASSOCIATES

CLIENT ID: S-B6-45  
CLIENT P.O.: 10-1682-01

MED-TOX LAB NO.: 22502  
MED-TOX JOB NO.: 10403

METHOD 8080

ORGANOCHLORINE PESTICIDES AND PCB'S

Compound	CAS#	Concentration (mg/kg)	Detection Limit (mg/kg)
Aldrin	309-00-2	ND	0.005
alpha-BHC	319-84-6	ND	0.005
beta-BHC	319-85-7	ND	0.005
delta-BHC	319-86-8	ND	0.005
gamma-BHC (Lindane)	58-89-9	ND	0.005
Chlordane	57-74-9	ND	0.050
4,4'-DDD	72-54-8	ND	0.010
4,4'-DDE	72-55-9	ND	0.010
4,4'-DDT	50-29-3	ND	0.010
Dieldrin	60-57-1	ND	0.010
Endosulfan I	959-98-8	ND	0.005
Endosulfan II	33212-65-9	ND	0.010
Endosulfan sulfate	1031-07-8	ND	0.010
Endrin	72-20-8	ND	0.010
Endrin aldehyde	7421-93-4	ND	0.010
Heptachlor	76-44-8	ND	0.005
Heptachlor epoxide	1024-57-3	ND	0.005
Toxaphene	8001-35-2	ND	0.020
PCB-1016	12674-11-2	ND	0.010
PCB-1221	11104-28-2	ND	0.010
PCB-1232	11141-16-5	ND	0.010
PCB-1242	53469-21-9	ND	0.010
PCB-1248	12672-29-6	ND	0.010
PCB-1254	11097-69-1	ND	0.020
PCB-1260	11096-82-5	0.073	0.020

ND= Not Detected

## LABORATORY ANALYSIS REPORT

J.H. KLEINFELDER & ASSOCIATES  
1901 OLYMPIC BLVD.  
WALNUT CREEK, CA 94596

DATE: 04/16/87

SAMPLES RECEIVED: 03/27/87

ATTN: KENT REYNOLDS

MED-TOX JOB NO.: 10403

PURCHASE ORDER NO: 10-1682-01

ANALYSIS OF: SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS

METHOD: EPA 8015

Sample Identification Client	Lab No.	Date Sampled	Total Petroleum Hydrocarbons As Diesel (mg/kg)
S-B1-17	22485	3/25/87	170
S-B2-5 (Composite thru S-B2-25)	22486	3/26/87	ND (10)
S-B2-45	22491	3/26/87	4600
S-B3-15	22492	3/27/87	ND (10)
S-B5-5 (Composite thru S-B5-20)	22493	3/25/87	ND (10)
S-B5-45	22497	3/26/87	1800
S-B6-5 (Composite thru S-B6-20)	22498	3/24/87	ND (10)
S-B6-45	22502	3/27/87	1000
S-B7-5 (Composite thru S-B7-20)	22503	3/27/87	ND (10)
S-B7-45	22507	3/27/87	ND (10)

  
Michael J. Jaeger  
Organic Group Leader