

A Report Prepared for

The City of Oakland  
Real Estate Division  
One City Hall Plaza  
Oakland, California 94612

SOIL AND GROUND-WATER  
CONTAMINATION INVESTIGATION  
569 HIGH STREET  
OAKLAND, CALIFORNIA

HLA Job No. 9382,006.01

POSSIBLY RELATED TO RELEASE AT  
3925 Alameda Ave 94601  
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July 24, 1987

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## INTRODUCTION

This report presents the results and conclusions of the soil and ground-water contamination investigation conducted by Harding Lawson Associates (HLA) at 569 High Street, Oakland, California, for the City of Oakland (City). The property is the location of a former landscape supply business and is now owned by the City. The northwest corner of the property is to be transferred to a new owner and the investigation was confined to this area. HLA conducted this investigation in accordance with procedures contained in the Scope of Work and Drilling and Sampling Procedures of our proposal dated April 21, 1987.

## SITE CONDITIONS

The property at 569 High Street consists of a relatively flat asphalt-covered lot. Plate 1 contains the Site Plan for this investigation. The lot is fenced with double gates located at the northwest and southeast corners. Structures on the lot consists of a 3- to 4-foot-high elevated concrete foundation along the central portion of the northern property line.

Businesses adjacent to the property consist of a fire protection company to the west, a trucking firm to the north, and a paint store to the east. <sup>(325 Alameda Ave.)</sup> High Street bounds the property to the south. The southern portion of the property is used for employee parking by the surrounding businesses.

The area of investigation lies between the elevated concrete foundation and the western property boundary. It extends 100 feet south of the northern property boundary as shown on Plate 1.

Three oil-stained areas, which indicate that surface spills have occurred, are located along the western property boundary in the area of investigation. The northern and southern spills consist of heavy accumulations of oil, grease, and soil approximately 1/4-inch thick. The spill in the central area consists of a light accumulation of oil, grease, and soil generally less than 1/16-inch thick. See Plate 1, Site Plan for spill locations. No known underground tanks exist in the area.

#### FIELD EXPLORATION

Four borings, designated B-1, B-2, B-3, and B-3B, were drilled on June 30, 1987, in the area of investigation. All borings were drilled using a truck-mounted CME-55 hollow-stem auger rig with 6-inch outside diameter augers. Soil samples were collected from just below the asphalt and at 5-foot intervals thereafter, with a 3-inch outside diameter Sprague and Henwood modified California sampler, equipped with 2.40-inch inside diameter stainless steel liners.

All drilling and sampling equipment was decontaminated prior to use. The augers were steam cleaned by the drillers prior to mobilization to the site. Sufficient pre-cleaned augers were available to preclude their use in more than one boring. The auger bit was cleaned in an Alconox solution and rinsed in fresh water between borings. Soil sampling equipment was cleaned

in an Alconox solution and rinsed in fresh water between soil samples and borings.

Boring B-1 was drilled in the central portion of the area of investigation at a location free of surface spills. Boring B-2 was drilled in the northern spill area. Boring B-3 and B-3B were drilled in the southern spill area. Boring B-3B was drilled 2 feet south of Boring B-3 to obtain soil samples not recovered in Boring B-3.

Prior to drilling in the spill areas, the surface accumulation of oil, grease, and soil was cleared from the boring location. All borings and samples were logged by an HLA geologist according to the Unified Soil Classification system. Boring logs are presented on Plates 3 through 5. Each sample was screened with a Gastech Model 1314 explosimeter adjusted to detect parts per million of flammable hydrocarbons. Screening was conducted by removing the sample liners from the sampler and separating them. The Gastech probe was then placed next to the ends of each tube and monitored until the reading stabilized. After screening, the ends of the samples to be retained were covered with aluminum foil-lined plastic caps which were taped to the liner to reduce moisture loss and chemical volatilization. The samples were then placed in zip lock bags and stored in a cooler with blue ice.

Ground-water samples were collected from each boring. Once the boring had been drilled to total depth (approximately 18 feet), the augers were pulled back to a depth of 10 feet. Ground water was allowed to flow into the open borehole and samples were collected with a stainless steel bailer.

The bailer was cleaned in an Alconox solution and rinsed in fresh water between borings. Two 1-liter and two 40-milliliter VOA-vial samples were collected from each boring. These samples were labeled and stored in a cooler with blue ice. Duplicate ground-water samples were collected from Boring B-1. After ground-water samples were collected, the augers were removed from the borehole, which was then backfilled with neat cement.

#### SUBSURFACE CONDITIONS

Borings in the area of investigation indicate the subsurface soils consist of: 1) sand and clayey sand or gravel fill to a depth of 2.5 to 3.5 feet; 2) dark gray or green gray clay or silty clay to a depth of 10 to 15.5 feet; and 3) sand or clayey sand or gravel to the bottom of the borings (approximately 18 feet). Ground water was encountered at 12.5 to 13.5 feet below the ground surface.

Ground-water samples collected in Borings B-1 and B-2 were free of petroleum odor or sheen. The ground-water sample from Boring B-3 had a strong petroleum odor and a sheen of floating petroleum product.

Selected soil samples and all of the water samples were transported to WESCO Laboratories of Novato, California, for chemical analysis. The sample intervals and parameters analyzed and the results of the analyses are included in the Appendix. In general, soil samples were analyzed for total petroleum hydrocarbons (quantified as both diesel and motor oil), total oil and grease, organochlorine pesticides, and PCBs. Ground-water samples were analyzed for total petroleum hydrocarbons (as diesel), benzene, toluene, xylenes, organochlorine pesticides, and PCBs.

## LABORATORY RESULTS

None of the soil samples analyzed contained detectable concentrations of any of the suspected substances. Analysis of ground-water samples from B-1 and B-2 indicate that the samples contain detectable concentrations of benzene, toluene, xylenes, and diesel. Ground water from B-3 contained detectable concentrations of all the above constituents except benzene. The following summarizes the substances and concentrations detected in parts per million (ppm).

<u>Boring No.</u>	<u>Chemicals Detected in Ground Water (ppm)</u>			
	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Diesel</u>
B-1	2.1	2.9	7.2	19
B-2	8.7	18	420	600
B-3	ND	.021	.005	5.8
Duplicate of B-1	NA	NA	NA	20

*in area w/o stains*

ND = Not detected

NA = Not analyzed

No pesticides or PCBs were detected by the ground-water analyses.

Copies of the complete laboratory results are included in the appendix to this report.

## CONCLUSIONS

Chemical analyses of the soil samples from the area investigated did not detect petroleum products, pesticides, or PCBs. Chemical analyses of the ground-water samples taken during the investigation did detect significant concentrations of benzene, toluene, xylene, and diesel. The chemical

concentrations in the ground water were highest in the northern part of the area investigated and lowest in the southern part. Gastech screening measurements taken of the soil samples were in every case very low and possibly due to soil moisture. Petroleum odors detected in the soil samples may be due to the odor threshold (concentration at which a substance can be smelled) of diesel fuel being lower than the detection limit of the analysis.

The data collected to date indicate that the chemicals found in the ground water are coming from off the site. The absence of detectable concentrations of chemicals in the soil and the high concentrations in the ground water (near the northern site boundary) are good indications that the chemicals are entering the site via ground water, and probably from a northerly direction, which is the assumed upgradient direction.

PLATES

- Plate 1 Site Plan
- Plate 2 Soil Classification Chart and Key to Test Data
- Plate 3 Log of Boring B-1
- Plate 4 Log of Boring B-2
- Plate 5 Log of Boring B-3



MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP		POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC		CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP		POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS	ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS	
		CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS	
		OL		ORGANIC SILTS OR CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%	MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
		CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
		OH		ORGANIC SILTS OR CLAYS OF MEDIUM TO HIGH PLASTICITY	
HIGHLY ORGANIC SOILS		Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS	

UNIFIED SOIL CLASSIFICATION - ASTM D2487-85

Perm	—	Permeability	Shear Strength (psf)	Confining Pressure
Consol	—	Consolidation	TxUU 3200 (2600)	Unconsolidated Undrained Triaxial Shear (field moisture or saturated)
LL	—	Liquid Limit (%)	(FM) or (S)	
PI	—	Plastic Index (%)	TxCU 3200 (2600)	Consolidated Undrained Triaxial Shear (with or without pore pressure measurement)
G <sub>s</sub>	—	Specific Gravity	(P)	
MA	—	Particle Size Analysis	TxCD 3200 (2600)	Consolidated Drained Triaxial Shear
■	—	"Undisturbed" Sample	SSCU 3200 (2600)	Simple Shear Consolidated Undrained (with or without pore pressure measurement)
⊠	—	Bulk or Classification Sample	(P)	
			SSCD 3200 (2600)	Simple Shear Consolidated Drained
			DSCD 2700 (2000)	Consolidated Drained Direct Shear
			UC 470	Unconfined Compression
			LVS 700	Laboratory Vane Shear

KEY TO TEST DATA

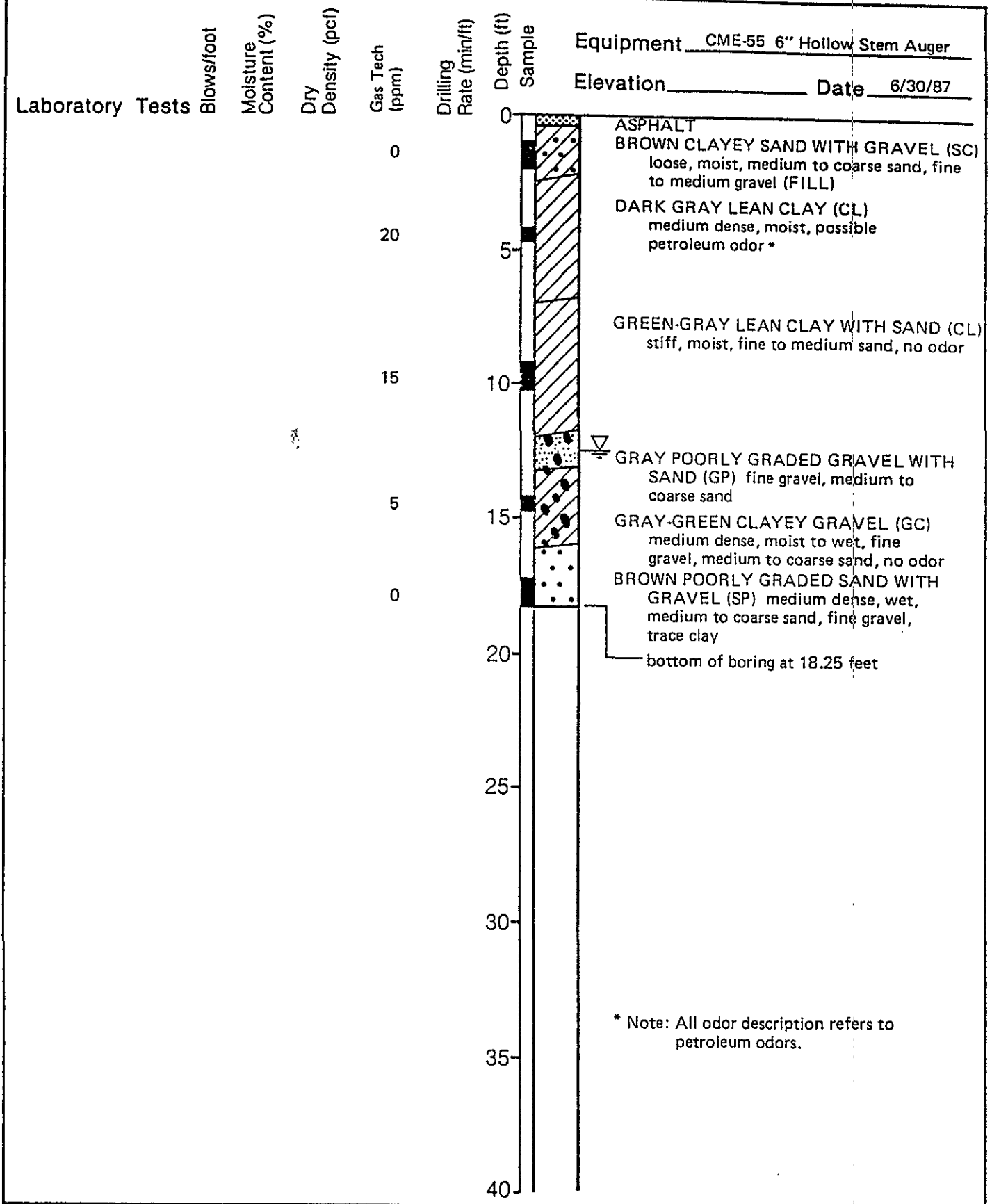


**Harding Lawson Associates**  
Engineers and Geoscientists

**Soil Classification Chart and Key to Test Data**  
High Street and Alameda Avenue  
City of Oakland, California

PLATE

**2**



\* Note: All odor description refers to petroleum odors.



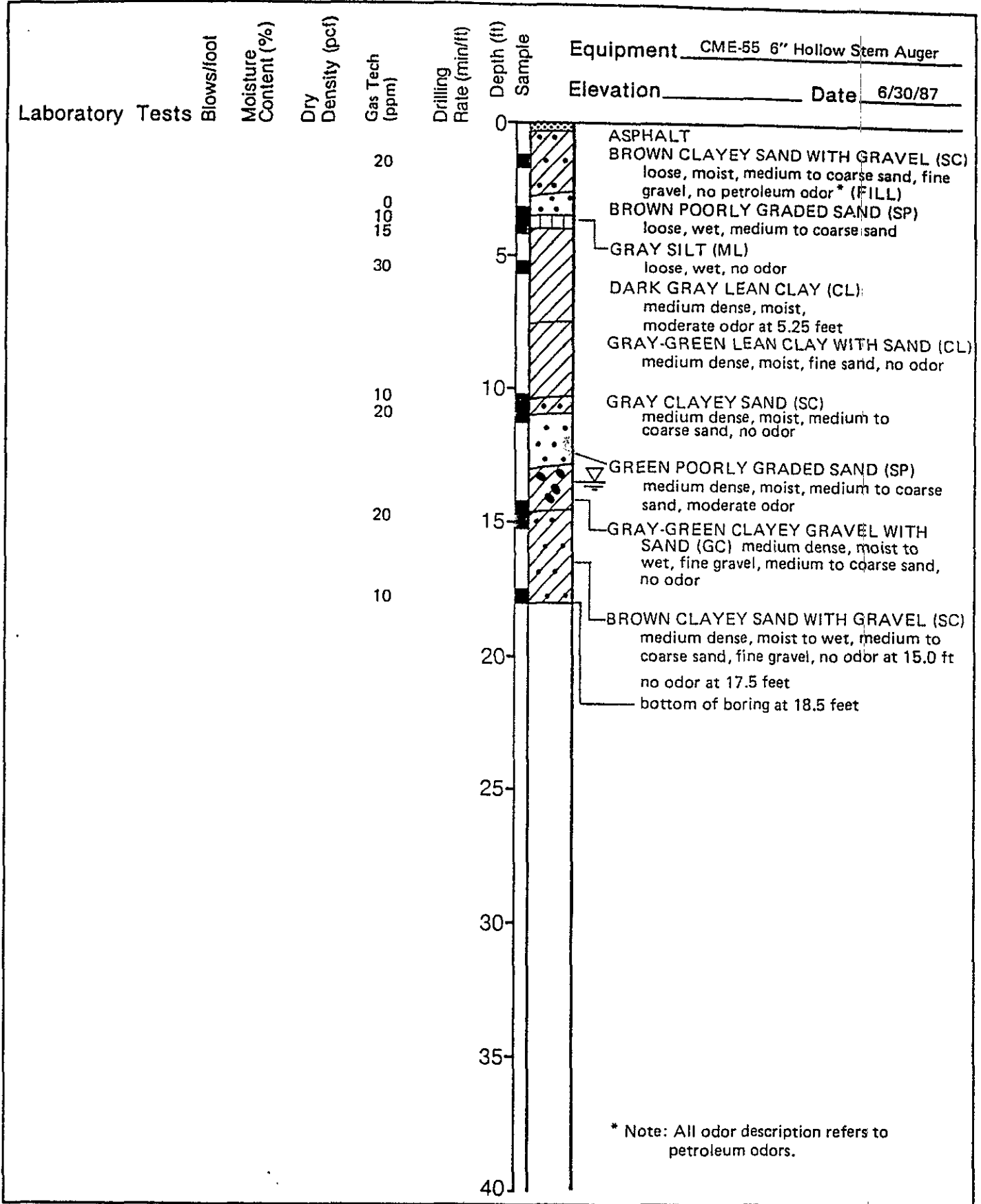
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**Log of Boring B-1**  
High Street and Alameda Avenue  
City of Oakland, California

PLATE

**3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
CSN	9382.006.01		7/87		



\* Note: All odor description refers to petroleum odors.



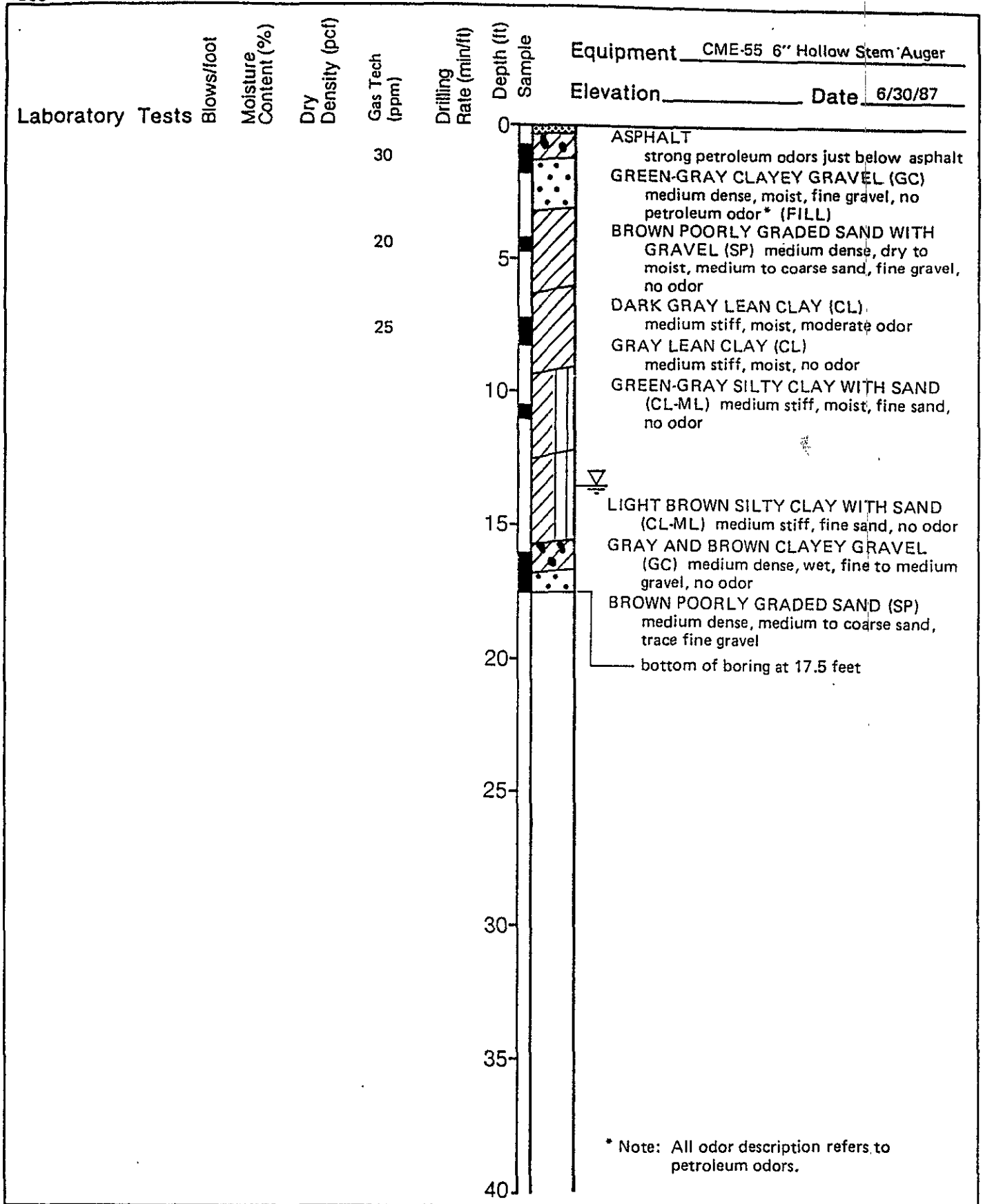
**Harding Lawson Associates**  
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**Log of Boring B-2**  
High Street and Alameda Avenue  
City of Oakland, California

PLATE

**4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
CSN	9382,006.01		7/87		



\* Note: All odor description refers to petroleum odors.



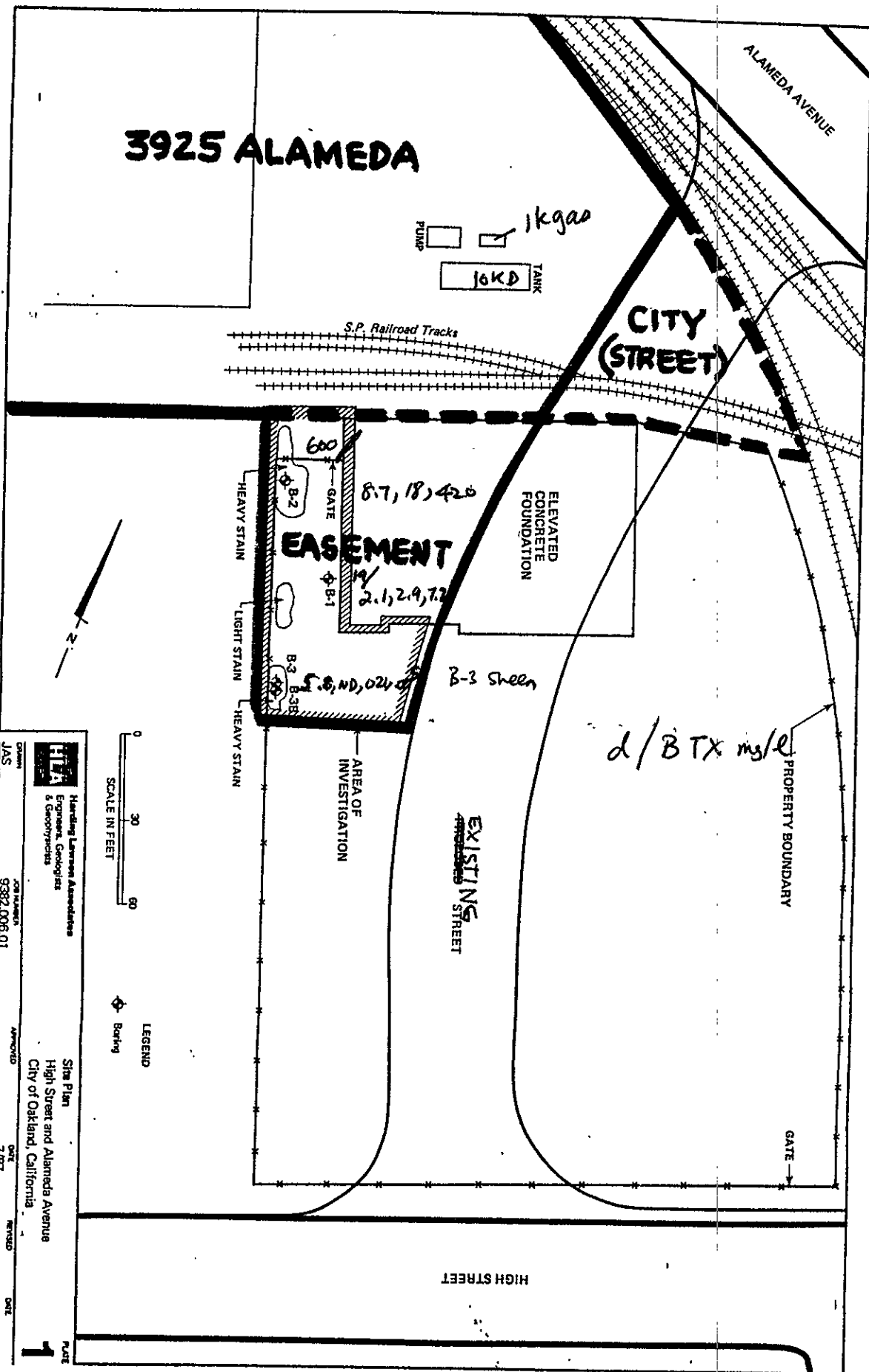
**Harding Lawson Associates**  
Engineers and Geoscientists

**Log of Boring B-3**  
High Street and Alameda Avenue  
City of Oakland, California

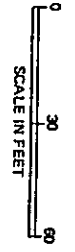
PLATE

**5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
CSN	9382,006.01		7/87		



**HEA**  
 Harding Larsen Associates  
 Engineers, Geologists  
 & Geophysicists  
 JOB NUMBER: 9382,006,01  
 APPROVED: [Signature]  
 DATE: 7/87  
 SITE PLAN  
 High Street and Alameda Avenue  
 City of Oakland, California  
 DATE: [Blank]



LEGEND  
 Boring



Appendix

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Date: July 22, 1987

Client Job/P.O. #: 9382.006.01

Client: Harding Lawson Associates

Date Collected: July 1, 1987

Submitted by: Wayne Haden

Date Submitted: July 1, 1987

Report to: Pete Mote

# & Type of Samples: 14 Water 4 Soil

WESCO Job#: HLA 8747-L  
Edited Report

Site: High St. & Alameda Ave, Oakland

Page 1 of 4

Lab No.	Client ID	Benzene mg/l	Toluene mg/l	Xylene mg/l
7-8964	B-1 Water	2.1	2.9	7.2
7-8966	B-2 Water	8.7	18	420
7-8968	B-3 Water	< 0.001	0.021	0.005
7-8970	BLANK	< 0.001	< 0.001	< 0.001

METHOD(S)      Note 1      Note 1      Note 1

NOTES: Note 1: EPA Methods 5020/8020 (SFRWQCB Method I)

*Michael W. L.*  
Analytical supervisor

Lab No.	Client ID	Diesel mg/l	Motor Oil mg/l	Total Oil & Grease mg/l	<i>gas not run?</i>
7-8978	B-1 water	19	NA	NA	
7-8979	B-2 water	600	NA	NA	
7-8980	B-3 water	5.8	NA	NA	
7-8981	diesel duplicate	20	NA	NA	
		mg/kg	mg/kg	mg/kg	
7-8982	B-1 9.25-9.75ft	< 20	NA	NA	
7-8983	B-2 5.25-5.75ft	< 20	< 20	< 10	
7-8984	B-2 10.25-10.75ft	< 20	NA	NA	
7-8985	B-3 10.5-11.0ft	< 20	NA	NA	
	METHOD(S)	Note 2	Note 2	Note 3	
NOTES: Note 2: EPA Methods 3550/8015 (SFRWQCB Methods II)					
Note 3: EPA Methods 3550/APHA Method 503E					
NA - Not Analyzed					

*Michael Will*  
 Analytical supervisor



Lab No.	Client ID	Motor Oil mg/l	Total Oil And Grease mg/l	Endrin aldehyde, Chlordane, 4,4'-DDD 4,4'-DDT mg/l	Endosulfan sulfate, Heptachlor epoxide mg/l
7-8971	B-1 1.5-2.0 ft	NA	NA	< 0.010	< 0.020
7-8972	B-2 1.25-1.75ft	< 20	< 10	< 0.010	< 0.020
7-8973	B-3 1.25-1.75ft	< 20	< 10	< 0.010	< 0.020
				ug/l	ug/l
7-8974	B-1 Water	NA	NA	< 0.050	< 0.10
7-8975	B-2 Water	NA	NA	< 0.050	< 0.10
7-8976	B-3 Water	NA	NA	< 0.050	< 0.10
7-8977	608 Duplicate	NA	NA	< 0.050	< 0.10
	Method(s)	Note 2	Note 3	Note 4	Note 4

NOTES: Note 2: EPA Methods 5020/8020 (SFRWQCB Method II)  
 Note 3: EPA Methods 3550/APHA Method 503E  
 Note 4: EPA Methods 3550/8080  
 NA - Not Analyzed

*M. L. Webb*  
 Analytical supervisor

Lab No.	Client ID	Methoxychlor mg/kg	PCB mg/kg	All other 8080 Compounds mg/kg
7-8971	B-1 1.5-2.0 ft	< 0.10	< 0.20	< 0.005
7-8972	B-2 1.25-1.75ft	< 0.10	< 0.20	< 0.005
7-8973	B-3 1.25-1.75ft	< 0.10	< 0.20	< 0.005
		ug/l	ug/l	ug/l
7-8974	B-1 Water	< 0.05	< 1.0	< 0.020
7-8975	B-2 Water	< 0.05	< 1.0	< 0.020
7-8976	B-3 Water	< 0.05	< 1.0	< 0.020
7-8977	608 Duplicate	< 0.05	< 1.0	< 0.020
	Method(s)	Note 4	Note 4	Note 4

NOTE: Note 4: EPA Methods 3550/8080

*Michael Webb*  
 Analytical supervisor

DISTRIBUTION

SOIL AND GROUND-WATER  
CONTAMINATION INVESTIGATION  
569 HIGH STREET  
OAKLAND, CALIFORNIA  
July 24, 1987

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