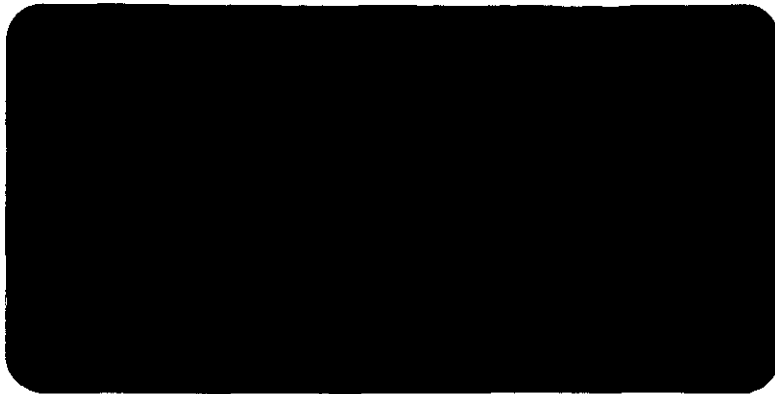




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HAZMAT
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Industrial Compliance

9719 Lincoln Village Drive, Suite 310 Sacramento, CA 95827 916/369-8971 FAX 916/369-8370

9-2-94

**SOIL AND GROUND WATER
INVESTIGATION REPORT**

**Southern Pacific Transportation Company
5th Avenue and 7th Street
Oakland, California**

IC Project No. 05100269

Prepared For:

**Southern Pacific Transportation Company
One Market Plaza
San Francisco, CA 94105**

September 2, 1994

Dedicated to solving your environmental problems

ASSOCIATION OF ENVIRONMENTAL CONSULTANTS





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INCC
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September 2, 1994

IC Project No. 05100269

Ms. Jennifer Eberle
Alameda County Health Care Services Agency
Department of Environmental Health
Division of Hazardous Materials
1131 Harbor Bay Parkway
Alameda, California 94502

VIA OVERNIGHT MAIL

**Re: Submittal of Soil and Ground Water Investigation Report
Southern Pacific Transportation Company
5th Avenue and 7th Street - Oakland, California**

Dear Ms. Eberle:

Industrial Compliance (IC), on behalf of Southern Pacific Transportation Company (SPTCo), has prepared the attached soil and ground water investigation report for the SPTCo property located at 5th Avenue and 7th Street, Oakland, California.

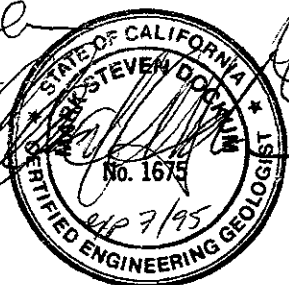
If you should have any questions regarding this information, or if you would like to discuss this material in greater detail, please do not hesitate to contact either of the undersigned at (916) 369-8971 or Mr. Mike Grant of SPTCo at (415) 541-2838.

Sincerely,

INDUSTRIAL COMPLIANCE

[Handwritten signature]
James G. Jensen, R.G.
Project Geologist

[Handwritten signature]
Mark S. Dockum, C.E.G.
Project Manager



JGJ/MSD/dao

Attachment

cc: Mr. Mike Grant, Southern Pacific Transportation Company (with attachment)
Mr. Darrell Maxey, Oakland Program Office, Southern Pacific Transportation Company (with attachment)



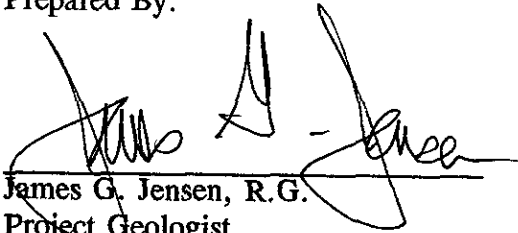
Ms. Jennifer Eberle
September 2, 1994
Page 2

bcc: Mr. R. Webb Garey, Industrial Compliance (without attachment)
Mr. Carl Taylor, Industrial Compliance (with attachment)

**SOIL AND GROUND WATER
INVESTIGATION REPORT**

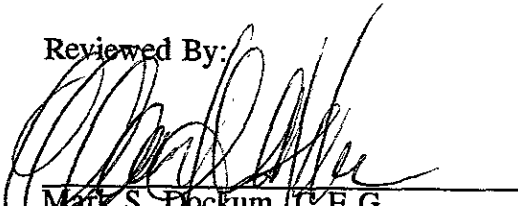
**Southern Pacific Transportation Company
5th Avenue and 7th Street
Oakland, California**

Prepared By:



James G. Jensen, R.G.
Project Geologist

Reviewed By:



Mark S. Dockum, C.E.G.
Project Manager

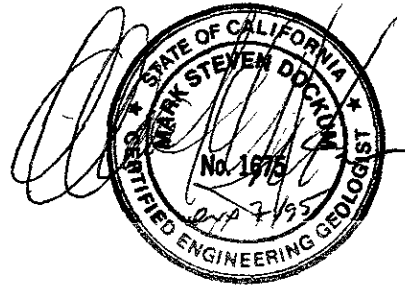


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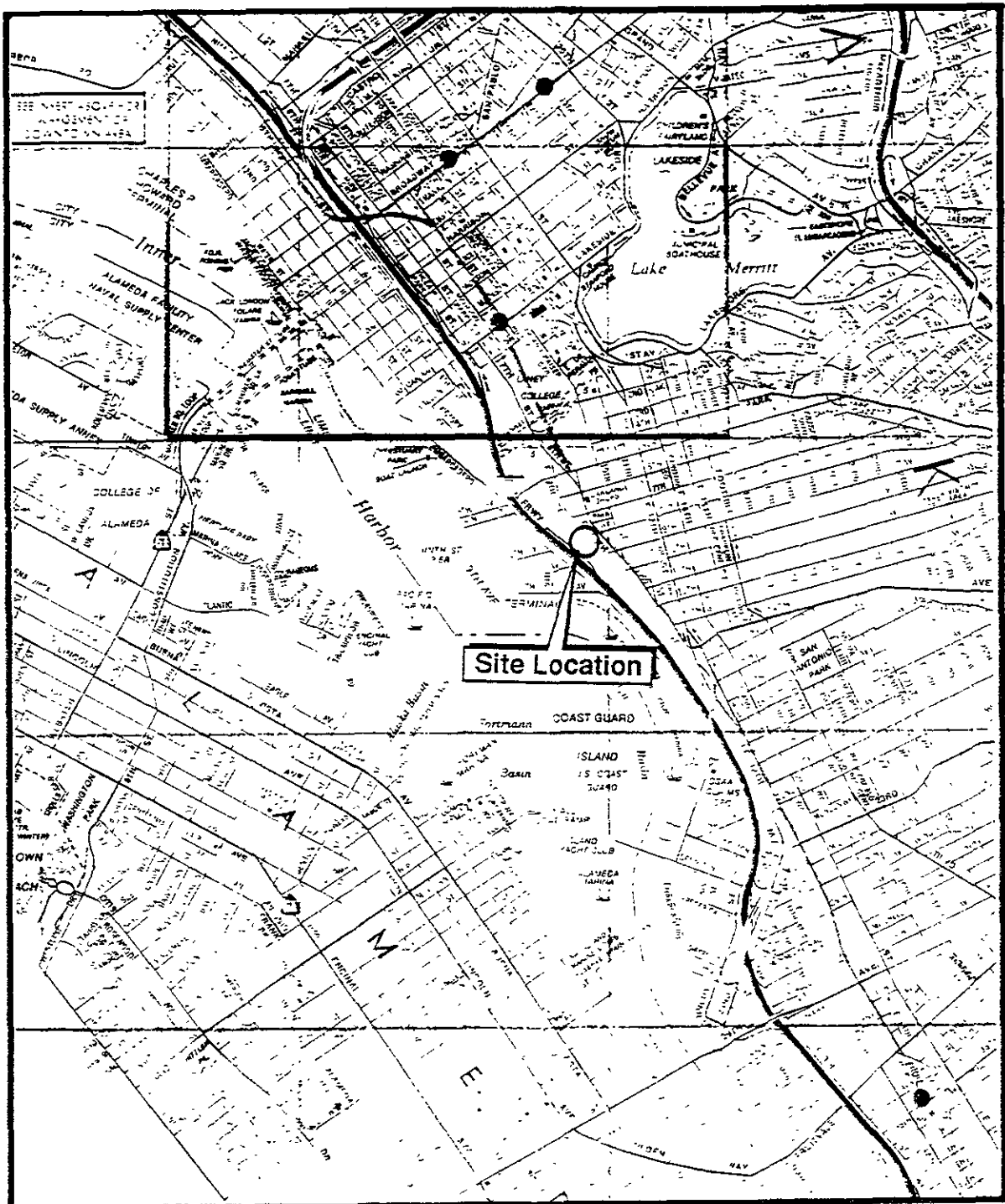
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1.0 INTRODUCTION

Industrial Compliance (IC), on behalf of Southern Pacific Transportation Company (SPTCo), has performed a preliminary site assessment at the SPTCo property located on a portion of the East Oakland Yard at 5th Avenue and 7th Street in Oakland, California. Figure 1 shows the site location. The site was formerly the location of 4 underground fuel storage tanks. Figure 2 shows the site layout. Field activities at the site were conducted from April 13 to April 28, 1994 in accordance with a workplan dated June 18, 1992 (workplan entitled: *Preliminary Site Assessment Workplan, Southern Pacific Transportation Company, 5th Avenue and 7th Street, Oakland, California*).



Approximate Scale in Feet
 0 2000

Reference
 Map of Oakland, Berkeley, Alameda
 American Automobile Association



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**SITE LOCATION MAP
 SOUTHERN PACIFIC TRANSPORTATION COMPANY
 5TH AVENUE AND 7TH STREET PROPERTY
 OAKLAND, CALIFORNIA**

Project No.	05100269	Date	08/03/94
Drawn By	Patti Decker	Checked By	James G. Jensen

Figure	1
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Note:
Location of utilities based on SPTCo
base map, utility sublocator map, and
field observations.

Approximate Scale in Feet
0 100'

LEGEND

- SPTCo Property Boundary
- ▨ Approximate Former Location of USTs
- ▨ Building
- Road
- Overhead Lines
- +— Railroad Tracks
- - - - - Electrical Line
- · - · - MCI/SP Telecom Line
- - - - - SFPP Pipeline

I-880 FREEWAY

Office/
Locker
Room

Road

Former
USTs Site

BART Tracks

Parkway

East 8th Street

8th Avenue



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SITE LAYOUT MAP
SOUTHERN PACIFIC TRANSPORTATION COMPANY
5TH AVENUE AND 7TH STREET PROPERTY
OAKLAND, CALIFORNIA

Project No	05100269	Date	08/01/94
Drawn By	Patti Decker	Checked By	James G. Jensen

Figure

2

Page No

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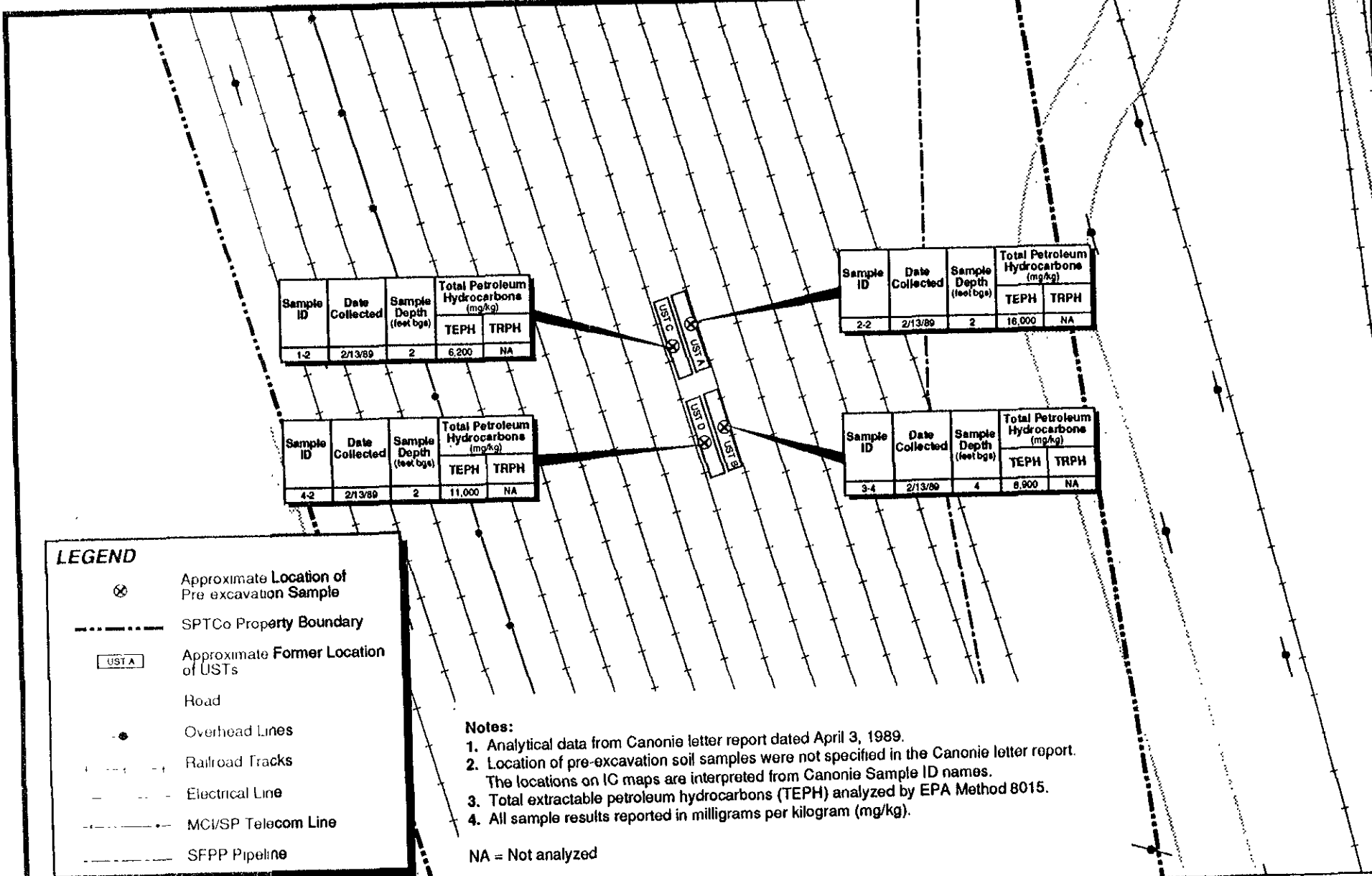
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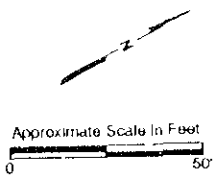
2.0 BACKGROUND

In February, 1989, Canonie Environmental Services Corporation (Canonie) prepared to remove 4 underground storage tanks (USTs) from the site: two 7,000-gallon diesel USTs (which Canonie referred to as Tanks A and Tank B) and two 7,000-gallon Bunker "C" oil USTs (which Canonie referred to as Tanks C and D). Prior to removal of the USTs, Canonie collected 4 subsurface soil samples from locations adjacent to the perimeter of the USTs (see Figure 3). The sample locations were not specified in Canonie's report and are approximate locations on IC's maps. This preliminary collection of samples was required by Alameda County Health Care Services Agency - Department of Environmental Health, Division of Hazardous Materials (Alameda County) to verify that Canonie's tank removal activities would not further impact the site. Laboratory analyses performed on these soil samples reported a maximum concentration of total extractable petroleum hydrocarbons of 16,000 parts per million (ppm). The results of laboratory analyses for the soil samples are summarized on Table 1 and included in Exhibit A. The results of these sampling activities were summarized in a Canonie letter report dated February 15, 1989 (letter report entitled: *Soil Sampling Report and Records of Correspondence with Regulatory Agencies, Southern Pacific Transportation Company Railyard, Fifth Avenue and Seventh Street, Oakland, California*).

On February 20, 1989, Canonie began the excavation and removal of the 4 USTs. Soil was removed from the excavation to a depth of approximately 12 feet below ground surface (bgs). According to the Canonie report, no water entered the excavation in the three days that it remained open. Soil in the excavation did not appear impacted (by visual observation), according to the Canonie report. Canonie reported approximately 500 cubic yards (cy) of soil was generated from the USTs excavation and was stockpiled on plastic sheeting onsite.



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IC Industrial Compliance
 A Subsidiary of SP Environmental Systems, Inc.

Project No.: 05100269	Date: 08/01/94
Drawn By: Patti Decker	Checked By: James G. Jensen

**LOCATION OF PRE-EXCAVATION SOIL SAMPLES
 FEBRUARY, 1989 REMOVAL ACTIVITIES
 SOUTHERN PACIFIC TRANSPORTATION COMPANY
 5TH AVENUE AND 7TH STREET PROPERTY
 OAKLAND, CALIFORNIA**

Figure:	3
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TABLE 1
ANALYTICAL RESULTS
UNDERGROUND STORAGE TANK SOIL SAMPLES
FEBRUARY, 1989 - REMOVAL ACTIVITIES

Sample Location	Sample ID ^a	Date Collected	Sample Depth (feet bgs)	TEPH ^b (mg/kg)	TRPH ^c (mg/kg)	Benzene ^d (mg/kg)	Toluene ^d (mg/kg)	Ethylbenzene ^d (mg/kg)	Xylenes ^d (mg/kg)	PCBs ^e (mg/kg)	
Pre-excavation Perimeter of USTs	Sample 1-2	02/13/89	2	6,200	NA	NA	NA	NA	NA	NA	
	Sample 2-2		2	16,000	NA	NA	NA	NA	NA	NA	
	Sample 3-4		4	8,900	NA	NA	NA	NA	NA	NA	
	Sample 4-2		2	11,000	NA	NA	NA	NA	NA	NA	
UST Excavation	N-12	02/23/89	12	<10	8	<0.025	<0.025	<0.025	<0.025	NA	
	NE-12		12	<10	12	<0.025	<0.025	<0.025	<0.025	NA	
	NW-12		12	12	21	<0.025	<0.025	<0.025	<0.025	NA	
	S-12		12	<10	11	<0.025	<0.025	<0.025	<0.025	NA	
	SE-12		12	<10	43	<0.025	<0.025	<0.025	<0.025	NA	
	SW-12		12	<10	12	<0.025	<0.025	<0.025	<0.025	NA	
	Composite S-12, SE-12, and SW-12		12	NA	NA	NA	NA	NA	NA	NA	ND
	Composite N-12, NE-12, and NW-12		12	NA	NA	NA	NA	NA	NA	NA	ND

a See Figures 3 and 4 for approximate location of soil samples. These locations were not specified in the Canonic reports. The locations on IC maps are interpreted from Canonic's sample ID numbers.

b Total extractable petroleum hydrocarbons (TEPH) analyzed by EPA Method 8015 (California Regional Water Quality Control Board Guidelines, September, 1985)

c Total recoverable petroleum hydrocarbons (TRPH) analyzed by EPA Method 418.1

d Benzene, toluene, ethylbenzene, and xylenes (BTEX) analyzed by EPA Method 8020.

e Polychlorinated biphenyls (PCBs) analyzed by EPA Method 8080.3.

mg/kg Milligrams per kilogram, approximately equal to parts per million (ppm).

ND Not detected at or above the practical quantitation limit for analyte analyzed for. See laboratory sheets in Appendix A.

< Indicates the constituent was not detected at a concentration at or above the method practical quantitation limit as listed.

Prior to backfilling the excavation, a total of 12 soil samples were collected from the excavation. Six soil samples were taken from the bottom of the excavation at a depth of 12 feet bgs and 6 soil samples were taken from 2 feet below the bottom of the excavation (or at 14 feet bgs). Laboratory analyses performed on the soil samples collected at 12 feet bgs identified maximum concentrations of 12 ppm of TEPH and 43 ppm of total recoverable petroleum hydrocarbons (TRPH). The Canonie report indicated that due to the low concentrations of hydrocarbons in the soil, the 6 samples collected from 14 feet bgs were not analyzed. In addition, the six samples at 12 feet bgs were composited into 2 samples and analyzed for polychlorinated biphenyls (PCBs). Laboratory analysis did not identify any concentrations of PCBs at or above the method practical quantitation limit. The locations of the soil samples collected from the excavation are shown on Figure 4. The sample locations were not specified in Canonie's report. The approximate location on IC's maps are interpreted from Canonie's sample identification (ID) name. The results of the laboratory analyses for the soil samples are summarized on Table 1 and included in Exhibit A.

The excavation was backfilled with clean imported fill material. The procedures and results of this work were presented in a Canonie report dated April 3, 1989 (report entitled: *Completion Report, Underground Storage Tank Removal, Southern Pacific Transportation Company Facility, Oakland, California*).

In a letter dated April 29, 1992 (letter entitled: *Southern Pacific Railroad Site at 5th Avenue and 7th Street, Oakland, California*), Alameda County requested SPTCo to submit a workplan for a preliminary site assessment which would include initiating a ground water investigation and quarterly monitoring program and evaluating the lateral and vertical extent of both potentially-impacted soil and ground water. In response to the County's request, IC, on behalf of SPTCo, prepared and submitted a workplan to the County (workplan dated June 18, 1992 and entitled: *Preliminary Site Assessment Workplan, Southern Pacific Transportation Company, 5th Avenue and 7th Street, Oakland, California*). This workplan

Sample ID	Date Collected	Sample Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)		Volatile Organic Compounds (mg/kg)			
			TEPH	TRPH	Benzene	Toluene	Ethylbenzene	Xylenes
NW-12	2/23/89	12	12	21	<0.025	<0.025	<0.025	<0.025
NW-14	2/23/89	14	NA	NA	NA	NA	NA	NA

Sample ID	Date Collected	Sample Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)		Volatile Organic Compounds (mg/kg)			
			TEPH	TRPH	Benzene	Toluene	Ethylbenzene	Xylenes
SW 12	2/23/89	12	<10	12	<0.025	<0.025	<0.025	<0.025
SW 14	2/23/89	14	NA	NA	NA	NA	NA	NA

Sample ID	Date Collected	Sample Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)		Volatile Organic Compounds (mg/kg)			
			TEPH	TRPH	Benzene	Toluene	Ethylbenzene	Xylenes
S 12	2/23/89	12	<10	11	<0.025	<0.025	<0.025	<0.025
S 14	2/23/89	14	NA	NA	NA	NA	NA	NA

Sample ID	Date Collected	Sample Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)		Volatile Organic Compounds (mg/kg)			
			TEPH	TRPH	Benzene	Toluene	Ethylbenzene	Xylenes
N-12	2/23/89	12	<10	8	<0.025	<0.025	<0.025	<0.025
N-14	2/23/89	14	NA	NA	NA	NA	NA	NA

Sample ID	Date Collected	Sample Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)		Volatile Organic Compounds (mg/kg)			
			TEPH	TRPH	Benzene	Toluene	Ethylbenzene	Xylenes
NE-12	2/23/89	12	<10	12	<0.025	<0.025	<0.025	<0.025
NE-14	2/23/89	14	NA	NA	NA	NA	NA	NA

Sample ID	Date Collected	Sample Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)		Volatile Organic Compounds (mg/kg)			
			TEPH	TRPH	Benzene	Toluene	Ethylbenzene	Xylenes
SE-12	2/23/89	12	<10	43	<0.025	<0.025	<0.025	<0.025
SE-14	2/23/89	14	NA	NA	NA	NA	NA	NA

Former US's Site

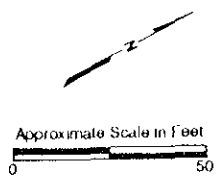
LEGEND

- X Approximate Location of Excavation Sample
- SPTCo Property Boundary
- ▨ Approximate Limits of Excavation
- Road
- Overhead Lines
- +— Railroad Tracks
- Electrical Line
- MCI/SP Telecom Line
- SFPP Pipeline

Notes:

- Analytical data from Canonie letter report dated April 3, 1989.
- Location of post-excavation soil samples were not specified in the Canonie letter report. The locations on IC maps are interpreted from Canonie Sample ID names.
- Total extractable petroleum hydrocarbons (TEPH) analyzed by EPA Method 8015.
- Total recoverable petroleum hydrocarbons (TRPH) analyzed by EPA Method 418.1.
- Volatile organic compounds analyzed by EPA Method 8020.
- All sample results reported in milligrams per kilogram (mg/kg).
- < = Indicates concentration not detected at or above method practical quantitation limit as noted.

NA = Not analyzed.



IC Industrial Compliance
A Subsidiary of SP Environmental Systems, Inc.

Project No.: 05100269 Date: 08/01/94
Drawn By: Patti Decker Checked By: James G. Jensen

**LOCATION OF POST-EXCAVATION SOIL SAMPLES
FEBRUARY, 1989 REMOVAL ACTIVITIES
SOUTHERN PACIFIC TRANSPORTATION COMPANY
5TH AVENUE AND 7TH STREET PROPERTY
OAKLAND, CALIFORNIA**

Figure: 4
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proposed drilling 1 soil boring, installing 1 monitoring well, collecting soil samples from the UST excavation stockpile, and conducting quarterly ground water sampling.

In a letter dated August 7, 1992, (letter entitled: *Workplan for the Preliminary Site Assessment for the SP Transportation Company at 5th Avenue and 7th Street, Oakland*), Alameda County approved the workplan and requested additional information regarding location of Canonie's excavation soil samples and ground water gradient data from any nearby sites to establish the downgradient direction for monitoring well placement.

IC submitted a workplan addendum to Alameda County in a letter dated October 26, 1992 (letter entitled: *Workplan Addendum, Southern Pacific Transportation Company, 5th Avenue and 7th Street Property, Oakland, California*) to place the proposed monitoring well in a downgradient direction based on gradient information from a site 1,500 feet southeast of the SPTCo site.

In a letter dated November 16, 1992 (letter entitled: *5th Avenue and 7th Street, Oakland, California 94606*), Alameda County accepted the workplan provided that the workplan be modified to include at least 3 monitoring wells around the location of the former USTs.

IC submitted a proposed schedule for the site investigation and quarterly ground water monitoring and sampling to Alameda County in a letter dated October 4, 1993 (letter entitled: *Oakland Projects - Schedules, Southern Pacific Transportation Company, Oakland, California*).

In a letter to Alameda County dated March 2, 1994 (letter entitled: *Status Report - Preliminary Site Assessment at 5th Avenue and 7th Street Property, Southern Pacific Transportation Company, Oakland, California*), IC discussed the revised schedule for the site investigation and ground water monitoring activities

In a letter to Alameda County dated April 7, 1994 (letter entitled: *Status Report - Preliminary Site Assessment of 5th Avenue and 7th Street Property, Southern Pacific Transportation Company, Oakland, California*), IC recommended revision of the previously proposed analytical methods for ground water samples. This recommendation was approved by Alameda County in a telephone discussion on April 7, 1994.

In accordance with the approved scope of work, IC conducted a preliminary site assessment at the site in April, 1994. The results of this investigation are presented in this report.

3.0 FIELD INVESTIGATION

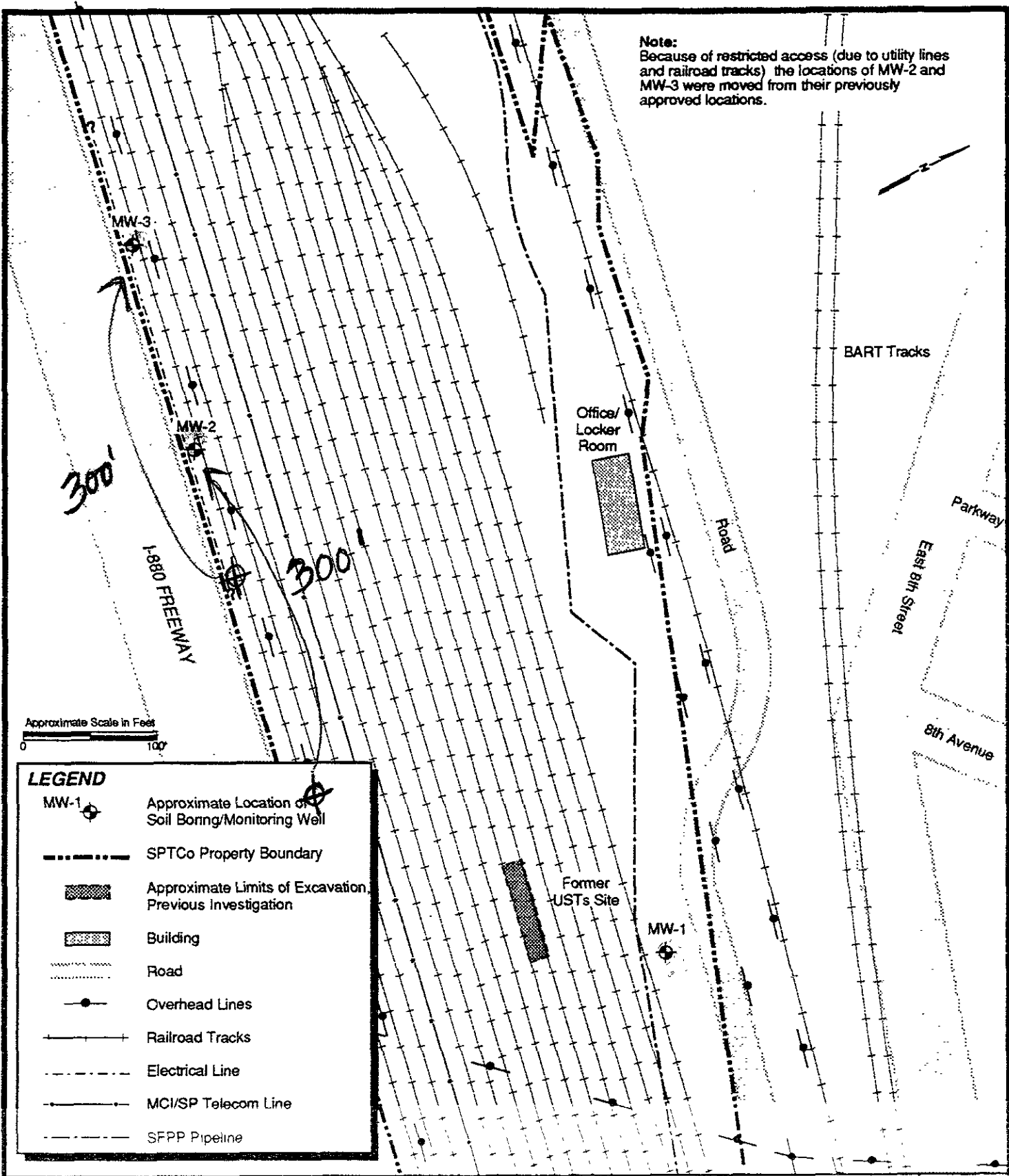
This section describes the field methods used to drill the soil borings, install the ground water monitoring wells, and collect the soil and ground water samples in accordance with the IC's workplan dated June 18, 1992 (workplan entitled: *Preliminary Site Assessment Workplan, Southern Pacific Transportation Company, 5th Avenue and 7th Street, Oakland, California*) and amended by the following:

- * IC workplan addendum letter of October 26, 1994 (letter entitled: *Workplan Addendum, Southern Pacific Transportation Company, 5th Avenue and 7th Street Property, Oakland, California*).
- * Alameda County letter of November 16, 1992 (letter entitled: *5th Avenue and 7th Street, Oakland, California 94606*)
- * IC letter of April 7, 1994 (letter entitled: *Status Report-Preliminary Site Assessment of 5th Avenue and 7th Street Property, Southern Pacific Transportation Company, Oakland, California*)

3.1 Soil Borings

A total of 3 soil borings (MW-1, MW-2, and MW-3) were drilled and sampled at the site by IC field personnel on April 13, 1994. Because of restricted access (due to utility lines and railroad tracks), the locations for 2 of the monitoring wells (MW-2 and MW-3) were moved in a westerly direction from their previously approved location. Figure 5 shows the approximate location of the soil borings relative to the existing structures and USTs excavation at the site. The borings were drilled to an average depth of 15 feet below the

Note:
 Because of restricted access (due to utility lines and railroad tracks) the locations of MW-2 and MW-3 were moved from their previously approved locations.



LEGEND

- MW-1 Approximate Location of Soil Boring/Monitoring Well
- SPTCo Property Boundary
- Approximate Limits of Excavation, Previous Investigation
- Building
- Road
- Overhead Lines
- Railroad Tracks
- Electrical Line
- MCI/SP Telecom Line
- SFPP Pipeline

Project No	05100269
Date	08/01/94
Drawn By	Patti Decker
Checked By	James G. Jensen

**LOCATION OF SOIL BORINGS AND MONITORING WELLS
 SOUTHERN PACIFIC TRANSPORTATION COMPANY
 5TH AVENUE AND 7TH STREET PROPERTY
 OAKLAND, CALIFORNIA**

Figure	5
Page No	12
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existing ground surface with a Mobile B-61, truck-mounted drilling rig utilizing 8-inch (nominal outside diameter), hollow-stem augers as the drilling method.

Soil samples for laboratory analysis were collected by driving a California-modified split-spoon sampler (split-spoon sampler) through the annulus of the hollow-stem augers and into the relatively undisturbed soil at approximately 5-foot intervals until the water table was encountered. The first sample was collected at approximately 0.5 feet bgs. Precleaned brass liners (2-inch diameter by 6-inch long) were placed inside the sampler to aid in sample retention. The sampler was driven to the desired depth using a 140-pound drive hammer free-falling approximately 30 inches. The number of blows required to drive the split-spoon sampler every 6 inches into the soil was recorded on the soil boring logs. After the split-spoon sampler was driven into the soil approximately 18 inches at each drive interval, the split-spoon sampler was extracted and the brass liners removed. One of the brass liners at each drive interval was prepared for shipment to the analytical laboratory. The preparation process entailed covering both ends of the brass tube with Teflon sheets and tight-fitting plastic caps. The samples were labeled with a unique sample number, the site name, date of collection, time of collection, initials of collector, and any other pertinent information. The samples were then placed in a clean resealable plastic bag and stored in a chilled ice chest for transport to Coast-to-Coast Analytical Services, Inc. (Coast-to-Coast), a state-certified laboratory, located in San Jose, California, for analysis. A chain-of-custody document was completed concurrently with sample collection and accompanied the samples upon transport to the laboratory. Chain-of-custody documents are included as Appendix B.

Soil samples for lithologic description were collected beginning at approximately 2 feet bgs using a 5-foot long continuous core barrel inserted within the hollow stem of the lead auger. The continuous core barrel extended approximately 4 to 6 inches below the lead auger to collect relatively undisturbed soil samples. The continuous soil cores collected were logged by an IC field geologist. Soil samples were described in accordance with the American

Society for Testing and Materials (ASTM) Method D2488 for the visual description of soils. Soil borings logs are included in Appendix C.

Soil samples were screened with the photoionization detector (PID), which measures ionized volatile organic vapors and gives a direct readout in parts per million by volume in air (ppmv). The PID does not differentiate between organic compounds, but provides a qualitative measurement of the total volatile organic compounds (VOCs) present. The samples for PID screening were taken from the continuous soil core at approximately 5-foot intervals, beginning at approximately 1.0 feet bgs, and were placed in resealable plastic bags and allowed to sit in direct sunlight for approximately 15 minutes after which the probe of the PID was quickly inserted and a reading taken.

An average of 2 headspace samples from each boring were measured. PID readings were 0.0 ppm for all soil headspace samples collected from the 3 borings. PID readings were recorded on the soil boring logs (see Appendix C).

After the 3 borings had been drilled and logged, the borings were converted into monitoring wells MW-1, MW-2, and MW-3 as discussed in Section 3.2 below.

All down-hole drilling equipment was cleaned prior to arrival on-site. Hollow-stem augers were cleaned between boring locations using a steam cleaner. The split-spoon sampler and the 5-foot long continuous core barrel were cleaned between sampling intervals using an Alconox wash and then triple rinsing with potable water.

The residuals generated from the drilling (soil and steam-cleaning water) were stored in 55-gallon Department of Transportation (DOT)-approved drums appropriate for the storage and transport of hazardous waste. The drums were labeled and a drum inventory was compiled containing the date generated, contents of the drum, and the borings from which

the contents were derived. The drums were placed near the building onsite for temporary storage. The drum inventory list is included as Appendix D. Disposition of the drummed soil residuals is discussed in Section 5.2 of this document.

3.2 Ground Water Monitoring Well Installation

After each boring was drilled and logged, the 8-inch diameter augers were retracted and the boring overdrilled with 10-inch diameter hollow-stem augers for the purpose of constructing monitoring wells. Well construction procedures were modified slightly from the procedures described in the workplan due to the shallow level of the ground water. The top of the well screen in monitoring well MW-2 was installed approximately 1 foot above the ground water level. The intent of the modification was to provide maximum amount of grout surface seal to protect the shallow aquifer.

The wells were constructed of 4-inch (inside diameter), Schedule 40 polyvinyl chloride (PVC) casing. Ten feet of slotted (0.020-inch machine cut) well screen was installed in MW-1 and MW-3 from the bottom of the boring (at approximately 15 feet bgs) to approximately 1.0 feet above the water table (at approximately 5 feet bgs) as measured during the time of drilling. Ten feet of slotted well screen (0.020-inch machine cut) was installed in MW-2 from the bottom of the boring (at approximately 15 feet bgs) to approximately 1 foot below the water table (measured during the time of drilling at approximately 3 feet bgs). The remaining portion of the well was constructed of blank (non-slotted) casing. The artificial filter pack consisted of a 1C Monterey sand. The sand was added down the hollow stem of the drilling augers (between the inner annulus of the augers and the PVC casing) until there was approximately 4 feet of sand within the augers. At this time, the augers were extracted at 1- to 2-foot intervals which allowed the sand to flow out of the augers, between the PVC well screen and the boring wall. This process

continued until a sand pack had been emplaced approximately 0.5 feet above the slotted casing.

An approximate 0.5-foot thick bentonite seal, consisting of 3/8-inch bentonite pellets, was placed above the filter pack and hydrated with approximately 1 gallon of potable water. The remaining annular space was filled with a cement/bentonite grout consisting of approximately 2 pounds of powdered bentonite, 6.5 to 7 gallons of water obtained from the site, and 94 pounds (1 bag) of portland cement. The bentonite was added to the water and allowed to hydrate by homogenizing the mixture through a cement mixer. The cement was then added to the bentonite/water mixture and mixed thoroughly.

The cement/bentonite mixture was emplaced between the inner annulus of the augers and the PVC casing. The augers were filled to capacity with the cement/bentonite grout and then extracted at 1- to 2-foot intervals, following which additional grout was added to fill the annulus until the grout was at the original ground surface. The well was finished with a water-tight, locking well cap housed within a flush-mounted traffic box. The traffic box was installed approximately 2 inches above grade as protection against surface drainage. Well construction logs showing monitoring well construction details are included in Appendix C.

After completion of the monitoring wells, the wells were surveyed by a licensed surveyor. The top of the well casing was marked on each well and the surveyor assessed the elevation of the top of each well casing in relation to mean sea level (MSL) and also measured the horizontal distances between all monitoring wells.

The residuals generated from the overdrilling and well installation were stored in 55-gallon DOT-approved drums, appropriate for the storage and transportation of hazardous wastes. The drums were labeled and a drum inventory was compiled containing the date generated, contents of the drum, and boring from which the contents originated for each drum. The

drums were placed near the building onsite for temporary storage. The drum inventory list is included as Appendix D. Disposition of these soil residuals is discussed in Section 5.2 of this document.

3.3 Ground Water Monitoring Well Development and Sampling

The wells were developed on April 22, 1994, after well installation was completed and the well seals had set for a minimum of 24 hours. Prior to well development, the depth to ground water was measured in each monitoring well (relative to a surveyed reference point of known elevation at the top of each well casing) using a water level indicator with an accuracy to 0.01 feet. After measurement of the ground water level in each well, the saturated well volume was calculated by subtracting the depth to ground water from the total depth of the well and multiplying the resultant number by the number of gallons per foot of casing. Development initially was performed by using a bailer to remove coarse sediments that had entered the well, after which a 4-inch surge block was inserted into the casing. Surging was performed by raising and lowering the surge block across the saturated portion of the screen approximately 20 times. The surge block was then removed and the bailer used to remove coarse sediments. After surging, a bailer was used to remove a minimum of 5 times the saturated well volume in the well, except for MW-1 which dewatered after 3 saturated well volumes were removed. Ground water characterization data, consisting of electrical conductivity, temperature, and pH measurements were measured at least 4 times during well development. The ground water was assumed to be representative of the formation when 3 consecutive readings of the parameters indicated:

- * < 10 percent change in electrical conductivity,
- * < 10 percent change in temperature, and
- * < 10 percent unit change in pH.

Well development field data sheets are included in Appendix E.

Ground water level measurements and samples were collected on April 28, 1994. Prior to purging, the depth to ground water and the total depth of the well was measured (using a water level indicator with an accuracy to 0.01 feet) relative to a surveyed reference point of known elevation at the top of each well casing in each monitoring well. After measurement of the ground water level in each well, the saturated well volume was calculated by subtracting the depth to ground water from the total depth of the well and multiplying the resultant number by the number of gallons per foot of casing. Monitoring well ground water elevation data are summarized in Table 2.

Prior to sample collection, each well was purged to ensure that the water sample obtained from the well was representative of the formation water. Each well was purged by hand-bailing until the total quantity of water removed was a minimum of 3 times the saturated volume in the well. Purging equipment was cleaned with Alconox and rinsed with deionized (DI) water prior to each use. Ground water characterization data, consisting of electrical conductivity, temperature, and pH measurements, were recorded at least 4 times during purging. The ground water in each well was assumed to be representative of the formation when 3 well volumes had been removed and 3 consecutive parameter readings were within 10 percent of the previous reading. Monitoring well ground water purge characterization parameters are summarized in Table 3. Monitoring well purge characterization and sample log field data sheets are included in Appendix E.

After purging and before sample collection, each monitoring well was allowed to recharge to at least 90 percent of its pre-purge water level. Ground water samples were then collected using new, disposable polyethylene bailers. The water sample from the bailer was transferred to laboratory-supplied containers of appropriate volumes and required preservatives for the intended analyses. Total petroleum hydrocarbons as diesel (TPH-D)

TABLE 2
MONITORING WELL GROUND WATER ELEVATION DATA

Monitoring Well^a	Date Measured	Time Measured	Reference Casing Elevation^b (feet MSL)	Depth to Ground Water^c (feet bgs)	Ground Water Elevation^d (feet MSL)
MW-1	04/28/94	0900	8.20	4.68	3.52
MW-2	04/28/94	0913	6.36	2.01	4.35
MW-3	04/28/94	0920	6.84	2.99	3.85

a See Figure 5 for approximate location of monitoring wells.

b Reference casing elevation is a surveyed point marked on the top of the well casing.

c Depth to ground water measured from reference casing elevation to the top of water.

d Ground water elevation in feet above mean sea level (MSL). Ground water elevation calculated by subtracting the depth to ground water from the reference casing elevation.

MSL Mean sea level

bgs Below ground surface



TABLE 3
GROUND WATER PURGE CHARACTERIZATION DATA

Monitoring Well ^a	Date Measured	Purge Volume (gallons)	Electrical Conductivity (μ mhos)	Temperature ($^{\circ}$ F)	Field pH (units)
MW-1	04/28/94	1	634	67.7	6.90
		6	650	69.3	6.80
		11	660	68.5	6.62
		18	634	69.0	6.68
MW-2	04/28/94	4	1,200	69.6	7.18
		7	889	69.2	7.18
		14	702	68.8	7.14
		21	501	67.8	7.08
MW-3	04/28/94	1	990	69.0	6.96
		7	882	67.0	6.93
		14	838	68.8	6.79
		21	803	68.5	6.78

a See Figure 5 for approximate monitoring well locations.

μ mhos Micromhos

$^{\circ}$ F Degrees Fahrenheit

Note: Purge characterization data sheets included as Appendix E.

and volatile organic analysis (VOA) sample containers consisted of 40-milliliter glass vials preserved with hydrochloric acid. The TPH as motor oil sample container consisted of a 1-liter amber glass bottle. Salinity and total dissolved solids (TDS) sample containers consisted of a 1-liter amber glass bottle. TPH-D and VOA sample containers were filled to capacity, sealed with Teflon-lined lids, and checked for air bubbles. If air bubbles were detected, the vial was re-opened, additional sample water added, and the vial resealed.

After sample collection was completed, each sample was labeled with a unique sample number, the site name, date of collection, time of collection, initials of collector, and any other pertinent information. The samples were then placed in a chilled ice chest for transport to Coast-to-Coast. A chain-of-custody document was completed concurrently with sample collection and accompanied the samples upon transport to the laboratory. Chain-of-custody documents are included in Appendix B.

Development and purge water from all monitoring wells was collected in 55-gallon DOT-approved drums appropriate for the storage and transportation of hazardous wastes. The drums were labeled and a drum inventory was compiled containing the date generated, contents of the drum, and monitoring well from which the contents originated. The drums were placed near the building onsite for temporary storage. The drum inventory list is included as Appendix D. Disposition of the development and purge water is discussed in Section 5.2 of this document.

3.4 Quality Assurance/Quality Control

As part of the Quality Assurance/Quality Control (QA/QC) procedures, the following were collected during sampling activities and submitted to the laboratory for analysis in addition to the ground water samples.

- * One field blank was prepared in the field by pouring DI water through clean well sampling equipment into the sample containers. The field blank was submitted to the laboratory for analysis for total petroleum hydrocarbons as diesel (TPH-D), benzene, toluene, ethylbenzene and xylenes (BTEX), 1,2-dichloroethane (1,2-DCA), and ethylene dibromide (EDB) only.

- * One trip blank consisting of DI water was prepared in the laboratory, transported to the sampling location (in the ice chest to be used for the transport of all samples), and accompanied the ground water samples during shipment. The trip blank was submitted to the laboratory for analysis for TPH-D, BTEX, 1,2-DCA, and EDB only.

3.5 Laboratory Analyses

A total of 3 soil boring soil samples (1 sample each from borings MW-1, MW-2, and MW-3), 3 monitoring well ground water samples (1 sample each from monitoring well MW-1, MW-2, and MW-3), and 2 QA/QC ground water samples (1 field blank and 1 trip blank) were delivered to the analytical laboratory. The samples were submitted for analysis as follows:

<u>Sample Location</u>	<u>Matrix</u>	<u>Constituent</u>	<u>Analytical Method</u>
Soil Boring Samples	Soil	Total petroleum hydrocarbons as diesel (TPH-D) TPH as motor oil	EPA Method 8270 EPA Method 8270
Monitoring Well Samples	Water	TPH-D Benzene, toluene, ethylbenzene, and xylenes (BTEX), 1,2-dichloroethane (1,2-DCA), and ethylene dibromide (EDB) TPH as motor oil Sodium chloride Total dissolved solids (TDS)	EPA Method 8260 Modified EPA Method 8260 Modified EPA Method 8270 Calculation EPA Method 160.1
QA/QC Samples	Water	TPH-D BTEX, 1,2-DCA, EDB	EPA Method 8260 Modified EPA Method 8260 Modified

Chain-of-custody documents are included as Appendix B. Laboratory analytical results for soil samples are included as Appendix F. Laboratory analytical results for ground water and QA/QC samples are included as Appendix G.

4.0 RESULTS

This section presents the results of the investigation. The information acquired from logging the soil borings is presented in Section 4.1 - Hydrogeology. The results of the laboratory analyses for the soil boring soil samples, monitoring well ground water samples, and QA/QC samples are presented in Section 4.2 - Analytical Results.

4.1 Hydrogeology

The site is located approximately 800 feet north of the Oakland Inner Harbor, in the Coast Ranges geomorphic province, at an approximate elevation of 7 feet above MSL. The area surrounding the site generally consists of imported fill material and Quaternary marine and non-marine terrace deposits (primarily sands, silts, and clays) which are underlain by bedrock consisting of Mesozoic sedimentary and volcanic rocks found throughout the Coast Ranges. The local soil stratigraphy encountered beneath the site generally consists of:

- * sandy silt and gravelly sandy silt from the ground surface to a depth of approximately 4 feet bgs;
- * moderately to well graded silty sand from 4 feet bgs to 6 feet bgs;
- * firm and sticky gray clay from 6 feet bgs to 8 feet bgs;
- * sandy clay and silty clay from 8 feet bgs to 11 feet bgs;
- * firm, sticky gray clay with traces of shell fragments from 11 feet bgs to 14 feet bgs; and

* moderately graded clayey sand from 14 feet bgs to 15 feet bgs.

The maximum depth reached in any boring was 15 feet bgs. Figure 6 is a cross-section index map and Figure 7 is a geologic cross-section which illustrates the subsurface soil stratigraphy and ground water surface at the site. The sandy silt, gravelly sandy silt, and silty sand are interpreted to be imported material used to cover the former mud flats on the margin of the Oakland Inner Harbor. The gray clay, sandy clay, silty clay, and clayey sand units, locally known as the bay mud¹, are generally gray to brown, mottled in part, and contain traces of calcareous shell fragments. The sand units, when present, are moderately well graded. Soil descriptions are summarized from the boring logs included in Appendix C.

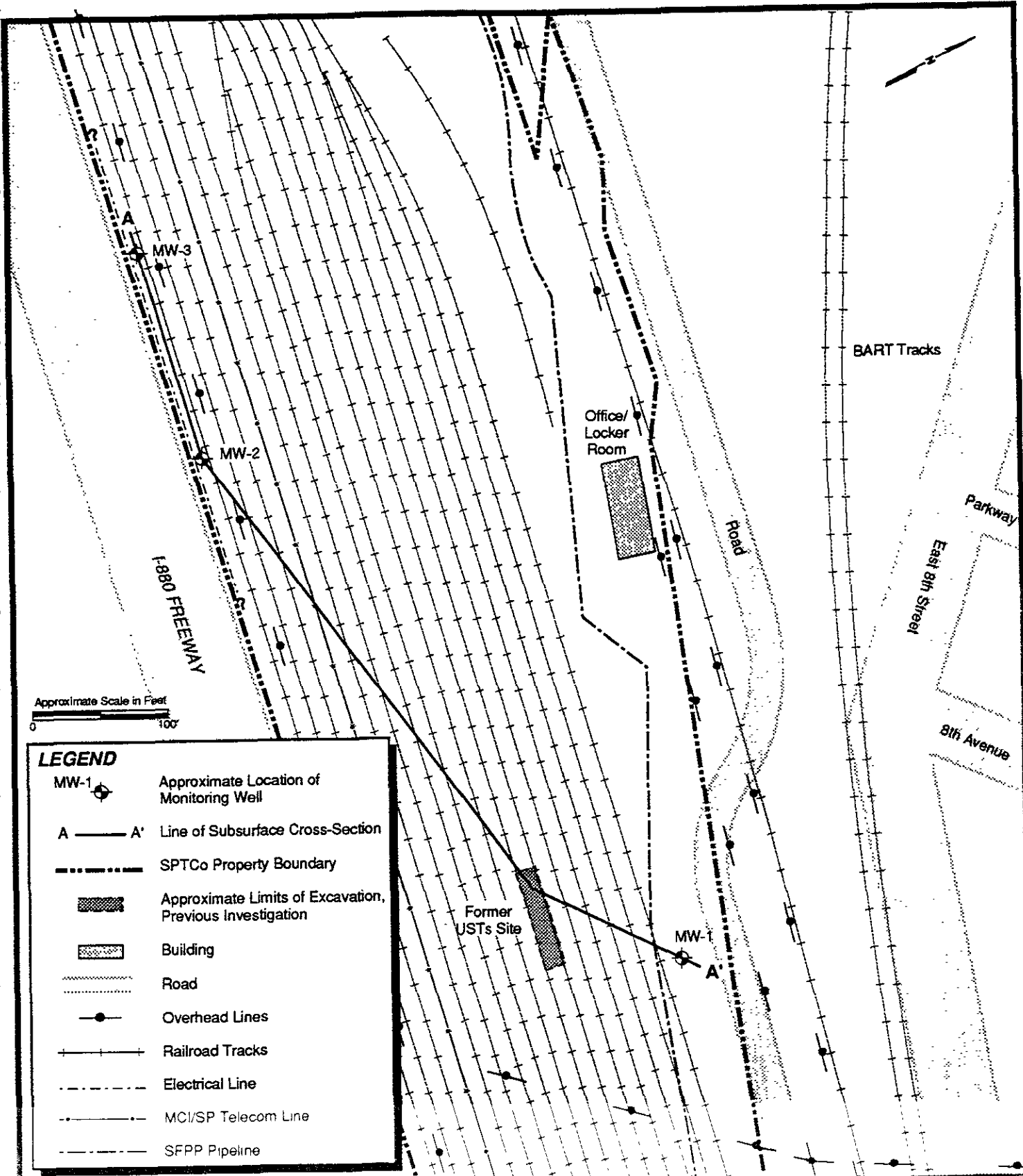
Ground water was encountered at depths ranging from 2.01 feet bgs to 4.68 feet bgs. The local hydraulic gradient, as measured on April 28, 1994, is approximately 0.01 feet per foot in a northerly direction.² Figure 8 is a ground water elevation contour map depicting the approximate direction of ground water flow for the initial ground water monitoring event. Ground water elevation data is summarized in Table 2. Figure 9 is a representation of ground water elevations over time for the first sampling event.

4.2 Analytical Results

The results of laboratory analyses of soil samples collected from the soil borings are summarized in Table 4. Figure 10 is a chemical distribution map for constituents which were analyzed for in soil samples collected during the investigation activities conducted at the site. The results of laboratory analyses of ground water samples collected from the

1 Schlocker, Julius, 1974, Geology of the San Francisco North Quadrangle, California: U.S. Geological Survey Professional Paper 782, p. 83-85

2 The hydraulic gradient was calculated using a standard 3-point problem incorporating ground water data from MW-1, MW-2, and MW-3



LEGEND

- MW-1 Approximate Location of Monitoring Well
- A ——— A' Line of Subsurface Cross-Section
- SPTCo Property Boundary
- Approximate Limits of Excavation, Previous Investigation
- Building
- Road
- Overhead Lines
- Railroad Tracks
- Electrical Line
- MCI/SP Telecom Line
- SFPP Pipeline

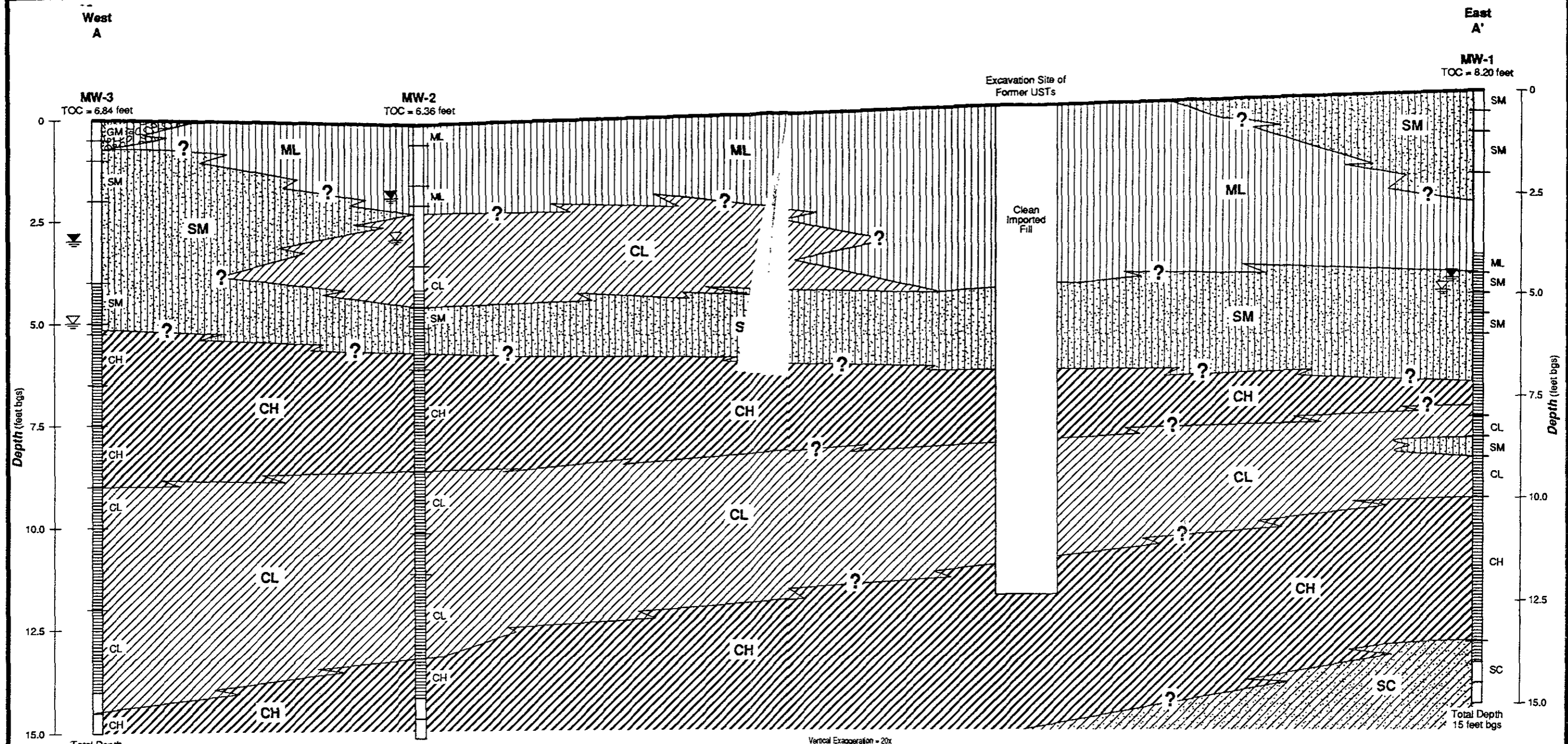
Industrial Compliance
 A Subsidiary of SP Environmental Systems, Inc.

Project No: 05100269 Date: 08/01/94

Drawn By: Patti Decker Checked By: James G. Jensen

**CROSS-SECTION INDEX MAP
 SOUTHERN PACIFIC TRANSPORTATION COMPANY
 5TH AVENUE AND 7TH STREET PROPERTY
 OAKLAND, CALIFORNIA**

Figure	6
Page No	26
Scale	as shown

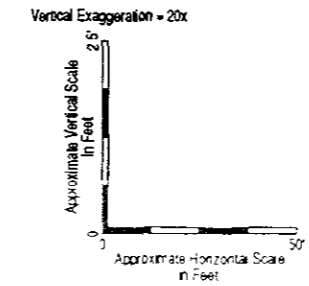


LEGEND	
	Silty Gravel Zones (GM)
	Silty Sand Zones (SM)
	Clayey Sand Zones (SC)
	Sandy Silt Zones (ML)
	Sandy and Silty Clay Zones (CL)
	Clay Zones (CH)
	Well Casing
	Well Screen
	Ground Water Level at Time of Drilling (in feet bgs)
	Static Ground Water Level (in feet bgs)

Notes:

1. All lithologic depths were measured from the ground surface. No attempt was made to correct depths for differences in ground surface elevation.
2. Top of casing (TOC) elevations were surveyed in relation to mean sea level.
3. See Figure 6 for approximate location of cross-section.
4. The contact lines between the various lithologies depicted on this cross-section are interpretations and are therefore only approximations of the geologic conditions. The contact lines should only be considered reasonably accurate where soil samples were visually analyzed (at boring locations).
5. Static ground water levels were recorded on April 28, 1994.

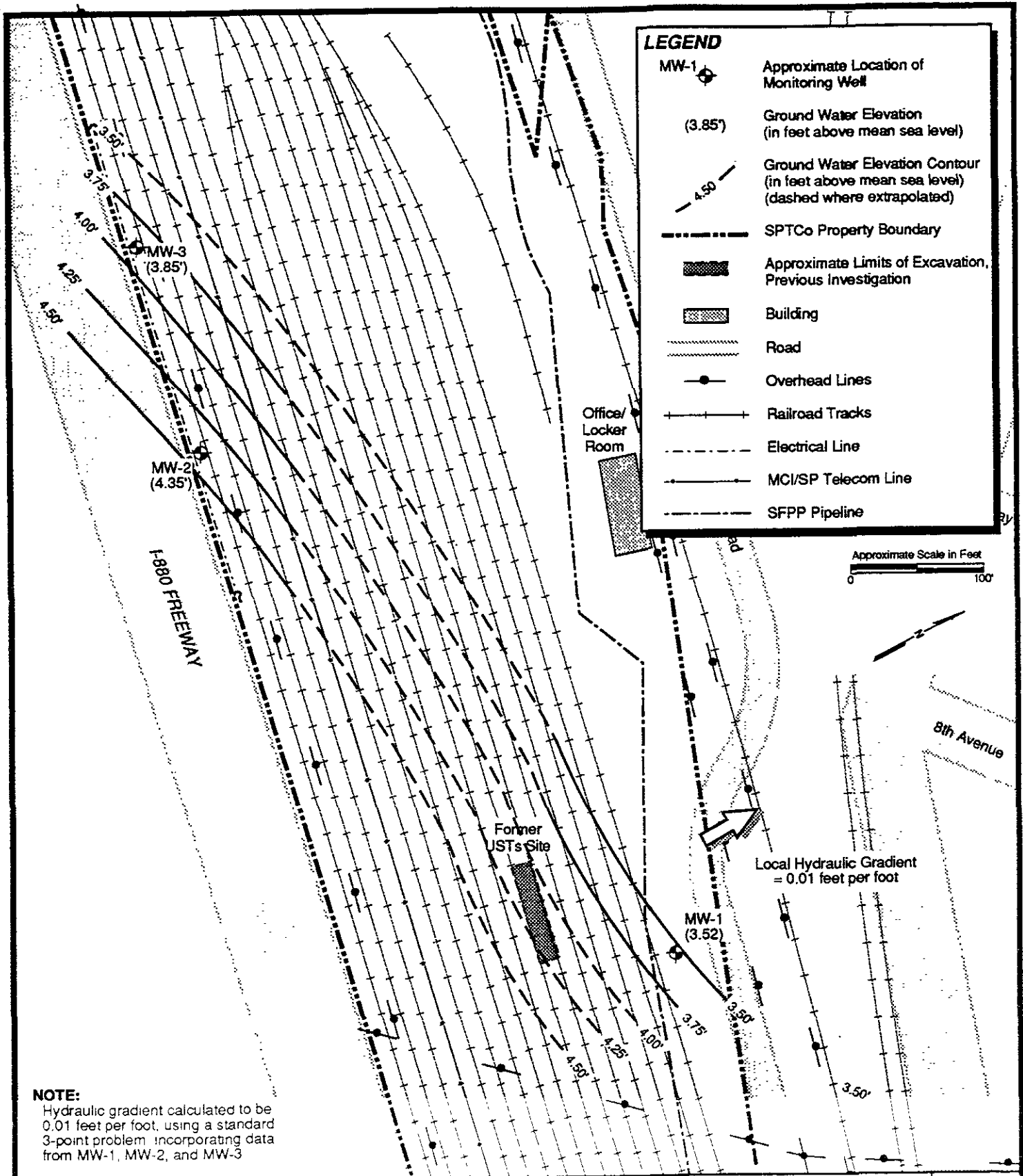
bgs = below ground surface
TOC = Top of casing elevation, as measured by surveyor



Project No. 05100269	Date 08/02/94
Drawn By Patti Decker	Checked By James G. Jensen

SUBSURFACE GEOLOGY CROSS-SECTION A-A'
SOUTHERN PACIFIC TRANSPORTATION COMPANY
 5TH AVENUE AND 7TH STREETS
 OAKLAND, CALIFORNIA

Figure 7
Page No 27
Scale as shown



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**CONTOUR MAP OF GROUND WATER ELEVATIONS WITH HYDRAULIC GRADIENT, APRIL, 1994
SOUTHERN PACIFIC TRANSPORTATION COMPANY
5TH AVENUE AND 7TH STREET PROPERTY
OAKLAND, CALIFORNIA**

Project No.	05100269	Date	08/01/94
Drawn By	Patti Decker	Checked By	James G. Jensen

Figure

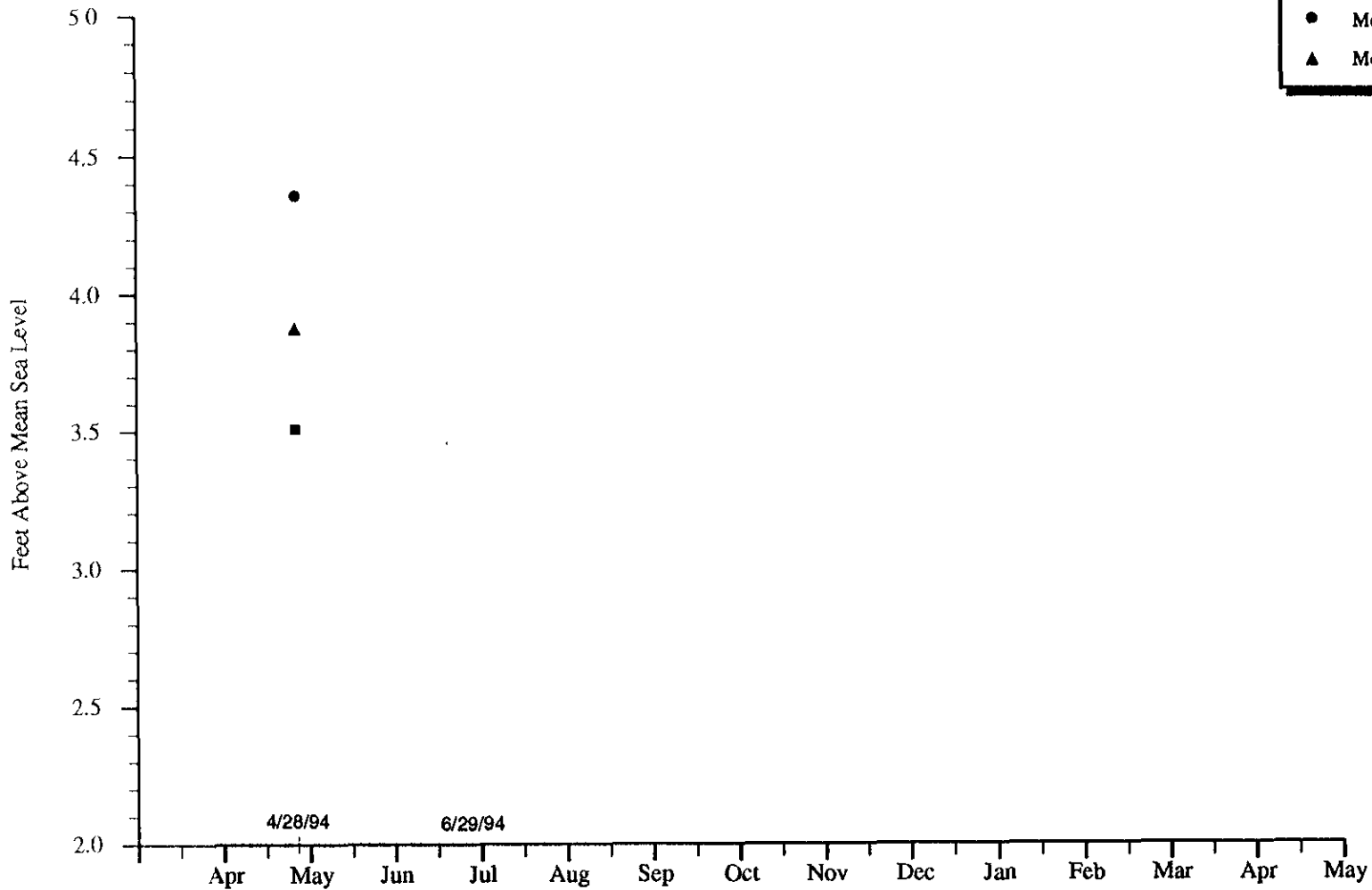
8

Page No

28

Scale

as shown



LEGEND

- Monitoring Well MW-1
- Monitoring Well MW-2
- ▲ Monitoring Well MW-3

	Industrial Compliance A Subsidiary of SP Environmental Systems, Inc.	
	Project No.: 05100269	Date: 08/02/94
Drawn By: Patti Decker	Checked By: James G. Jensen	

REPRESENTATION OF GROUND WATER ELEVATIONS OVER TIME
SOUTHERN PACIFIC TRANSPORTATION COMPANY
5th AVENUE AND 7th STREET PROPERTY
OAKLAND, CALIFORNIA

Figure:	9
Page No.:	29
Scale:	as shown

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**TABLE 4
ANALYTICAL RESULTS
SOIL BORING SOIL SAMPLES**

Soil Boring Number ^a	Date Collected	Sample Depth ^b (feet bgs)	Total Petroleum Hydrocarbons ^c (mg/kg)	
			Diesel	Motor Oil
MW-1 ✓	04/13/94 ✓	1	<10 ^d	<10 ^d ✓
MW-2	04/13/94	1.5	<5	<5 ✓
MW-3	04/13/94	1	<5	<5 ✓

a See Figure 8 for approximate boring locations.

b Sample depth measured in feet below ground surface (bgs).

c Analyzed by EPA Method 8270.

d High practical quantitation limit (PQL) due to sample viscosity.

mg/kg Milligrams per kilogram

< Indicates the analyte was not detected at a concentration at or above the method practical quantitation limit (PQL) as listed.

Notes:

1. Total petroleum hydrocarbons (TPH) as diesel and TPH as motor oil analyzed by EPA Method 8270.
2. All sample results reported in milligrams per liter (mg/kg).
3. < = indicates concentration not detected at or above method practical quantitation limit as noted.

Date Sampled	Sample Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)	
		Diesel	Motor Oil
4/13/94	1	<5	<5

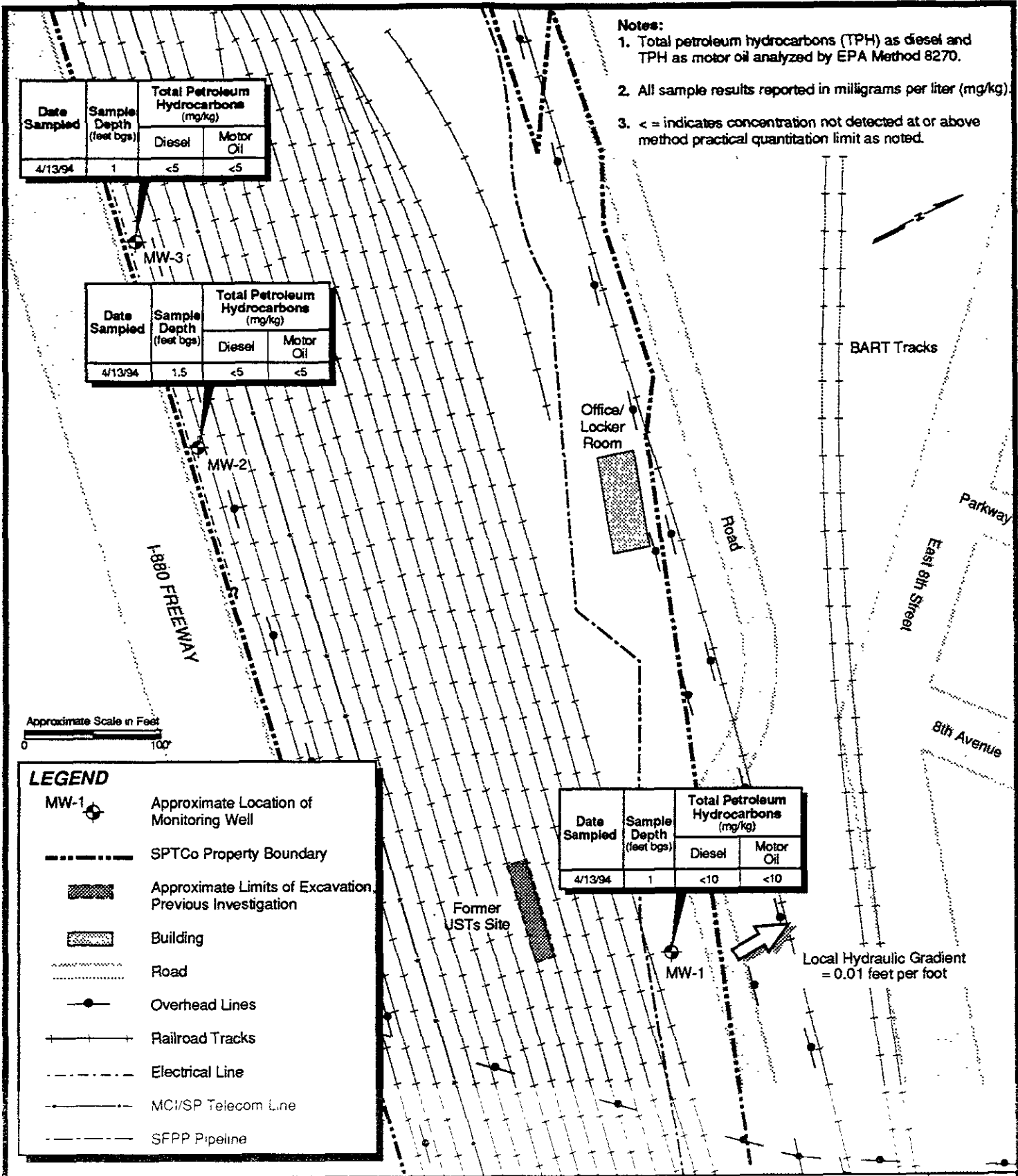
Date Sampled	Sample Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)	
		Diesel	Motor Oil
4/13/94	1.5	<5	<5

Date Sampled	Sample Depth (feet bgs)	Total Petroleum Hydrocarbons (mg/kg)	
		Diesel	Motor Oil
4/13/94	1	<10	<10



LEGEND

- MW-1 Approximate Location of Monitoring Well
- SPTCo Property Boundary
- Approximate Limits of Excavation, Previous Investigation
- Building
- Road
- Overhead Lines
- Railroad Tracks
- Electrical Line
- MCI/SP Telecom Line
- SFPP Pipeline



Local Hydraulic Gradient = 0.01 feet per foot

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Project No. 05100269 Date 08/01/94
 Drawn By Patti Decker Checked By James G. Jensen

CHEMICAL DISTRIBUTION MAP FOR CONSTITUENTS IN SOIL BORING SOIL SAMPLES SOUTHERN PACIFIC TRANSPORTATION COMPANY 5TH AVENUE AND 7TH STREET PROPERTY OAKLAND, CALIFORNIA

Figure	10
Page No	31
Scale	as shown

monitoring wells and the QA/QC samples are summarized in Table 5. Figure 11 is a chemical distribution map for constituents which were analyzed for in ground water samples collected as part of the ground water investigation. The laboratory analytical reports for soil samples and ground water samples analyzed as part of this investigation are included in Appendix F and Appendix G, respectively.

4.2.1 Soil Boring Soil Sample Results

The results of the laboratory analyses performed on the soil samples collected from the soil borings did not identify any concentrations of TPH-D or TPH as motor oil at or above the method PQL.

4.2.2 Ground Water Sample Results

The results of the laboratory analyses performed on the ground water samples collected from the monitoring wells did not identify any concentrations of TPH-D, TPH as motor oil, or petroleum hydrocarbon constituents at or above the respective method PQLs.

Sodium chloride was identified in ground water samples collected from the 3 monitoring wells, with concentrations ranging from 61 milligrams per liter (mg/L) in MW-1 to 300 mg/L in MW-3 (average concentration equals 146 mg/L).

Total dissolved solids in the ground water samples collected from the 3 monitoring wells ranged from 460 mg/L in MW-2 to 680 mg/L in MW-3 (average concentration equals 557 mg/L).

**TABLE 5
ANALYTICAL RESULTS
MONITORING WELL GROUND WATER SAMPLES**

Sample Location ^a	Date Sampled	Total Petroleum Hydrocarbons (µg/L)		Volatile Organic Compounds ^b (µg/L)						Sodium Chloride ^d (mg/L)	Total Dissolved Solids ^e (mg/L)
		Diesel ^b	Motor Oil ^c	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-DCA	Ethylene Dibromide		
MW-1	04/28/94	<50	<200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	61	530
MW-2	04/28/94	<50	<200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	77	460
MW-3	04/28/94	<50	<200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	300	680
Field Blank	04/28/94	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA
Trip Blank	04/28/94	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA
Cal DHS MCLs ^f		NE	NE	1	100 ^g	680	1,750	0.5	0.02	NE	500

a See Figure 8 for approximate locations of monitoring wells.

b Analyzed by EPA Method 8260 Modified.

c Analyzed by EPA Method 8270

d Sodium chloride concentrations determined by calculation, after analyzing for sodium and chloride separately

e Total dissolved solids analyzed by EPA Method 160.1.

f California Department of Health Services (DHS) Maximum Contaminant Levels (MCLs) for drinking water (California RWQCB, May, 1993, Compilation of Water Quality Goals).

g California DHS action level for drinking water (California RWQCB, May, 1993, Compilation of Water Quality Goals)

1,2-DCA 1,2-Dichloroethane

NA Not analyzed.

NE No MCL established.

mg/L Milligrams per liter

µg/L Micrograms per liter

< Indicates the constituent was not detected at a concentration at or above the method practical quantitation limit as listed.



Notes:

1. Total petroleum hydrocarbons (TPH) as diesel and volatile organic compounds analyzed by EPA Method 8260 modified.
2. TPH as motor oil analyzed by EPA Method 8270.
3. All sample results reported in micrograms per liter (µg/L) or in milligrams per liter (mg/L).
4. <= Indicates concentration not detected at or above method practical quantitation limit as noted.

Date Sampled	TPH (µg/L)		Volatile Organic Compounds (µg/L)						Sodium Chloride (mg/L)	Total Dissolved Solids (mg/L)
	Diesel	Motor Oil	Benzene	Toluene	Ethyl-benzene	Xylenes	1,2-Dichloroethane	Ethylene Dibromide		
4/28/94	<50	<200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	300	680

Date Sampled	TPH (µg/L)		Volatile Organic Compounds (µg/L)						Sodium Chloride (mg/L)	Total Dissolved Solids (mg/L)
	Diesel	Motor Oil	Benzene	Toluene	Ethyl-benzene	Xylenes	1,2-Dichloroethane	Ethylene Dibromide		
4/28/94	<50	<200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	77	460

Date Sampled	TPH (µg/L)		Volatile Organic Compounds (µg/L)						Sodium Chloride (mg/L)	Total Dissolved Solids (mg/L)
	Diesel	Motor Oil	Benzene	Toluene	Ethyl-benzene	Xylenes	1,2-Dichloroethane	Ethylene Dibromide		
4/28/94	<50	<200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	61	530



LEGEND

- MW-1 Approximate Location of Monitoring Well
- SPTCo Property Boundary
- Approximate Limits of Excavation, Previous Investigation
- Building
- Road
- Overhead Lines
- Railroad Tracks
- Electrical Line
- MCI/SP Telecom Line
- SFPP Pipeline

Former USTs Site

Local Hydraulic Gradient = 0.01 feet per foot

Industrial Compliance
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Project No: 05100269 Date: 08/01/94

Drawn By: Patti Decker Checked By: James G. Jensen

CHEMICAL DISTRIBUTION MAP FOR CONSTITUENTS IN MONITORING WELL GROUND WATER SAMPLES SOUTHERN PACIFIC TRANSPORTATION COMPANY 5TH AVENUE AND 7TH STREET PROPERTY OAKLAND, CALIFORNIA

Figure No	11
Page No	34
Scale	as shown

4.2.3 Quality Assurance/Quality Control Sample Results

The analytical results for the field blank identified no concentrations of any constituents analyzed at or above the method PQL.

The analytical results for the trip blank identified no concentrations of any constituents analyzed at or above the method PQL.

5.0 DISCUSSION

The objective of the workplan was to perform a preliminary site assessment at the site. These objectives were accomplished as described in the following sections.

5.1 Site Assessment

Constituents of concern at the site consist of diesel fuel and Bunker "C" oil. Soil samples collected during Canonie's 1989 remedial activities identified a maximum concentration of petroleum fuel hydrocarbons of 16,000 ppm of TEPH at a depth of 2 feet bgs. These samples were collected adjacent to the perimeter of the USTs and prior to the excavation activities. After removal of the USTs and subsequent excavation, additional soil samples were collected. Soil samples collected at the base of the UST excavation at 12 feet bgs identified maximum concentrations of 12 ppm of TEPH and 43 ppm of TRPH. No concentrations of VOC constituents (benzene, toluene, ethylbenzene, or xylenes) or polychlorinated biphenyls (PCBs) were identified in soil samples collected from the excavation. Based on data collected during the present investigation at the site, no chemical constituents were identified in either soil boring soil samples or in monitoring well ground water samples. The petroleum hydrocarbon concentration in soil and ground water samples is depicted on Figures 12 and 13, respectively. ~~The analytical results appear to indicate that no lateral or vertical migration of petroleum hydrocarbon constituents has occurred.~~

The anticipated hydraulic gradient for this area is to the west, towards the Oakland Inner Harbor. The calculated gradient from the monitoring wells at the site is to the north. This difference could be due to the fact that only one set of ground water elevation data are being evaluated and that this area may be influenced by tidal fluctuations.

Note:
Soil samples collected at 1 foot bgs in MW-1 and
MW-3 and at 1.5 foot bgs in MW-2.

Approximate Scale in Feet
0 100'

BART Tracks

Parkway

East 8th Street

5th Avenue

Office/
Locker
Room

Road

Former
USTs Site

Local Hydraulic Gradient
= 0.01 feet per foot








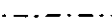
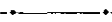
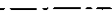
MW-1
(<10)

I-880 FREEWAY

MW-3
(<5)

MW-2
(<5)

LEGEND

- MW-1  Approximate Location of Monitoring Well
- (<5) Concentration of TPH (in parts per million)
-  SPTCo Property Boundary
-  Approximate Limits of Excavation, Previous Investigation
-  Building
-  Road
-  Overhead Lines
-  Railroad Tracks
-  Electrical Line
-  MCI/SP Telecom Line
-  SFPP Pipeline



Industrial Compliance

A Subsidiary of SP
Environmental Systems, Inc.



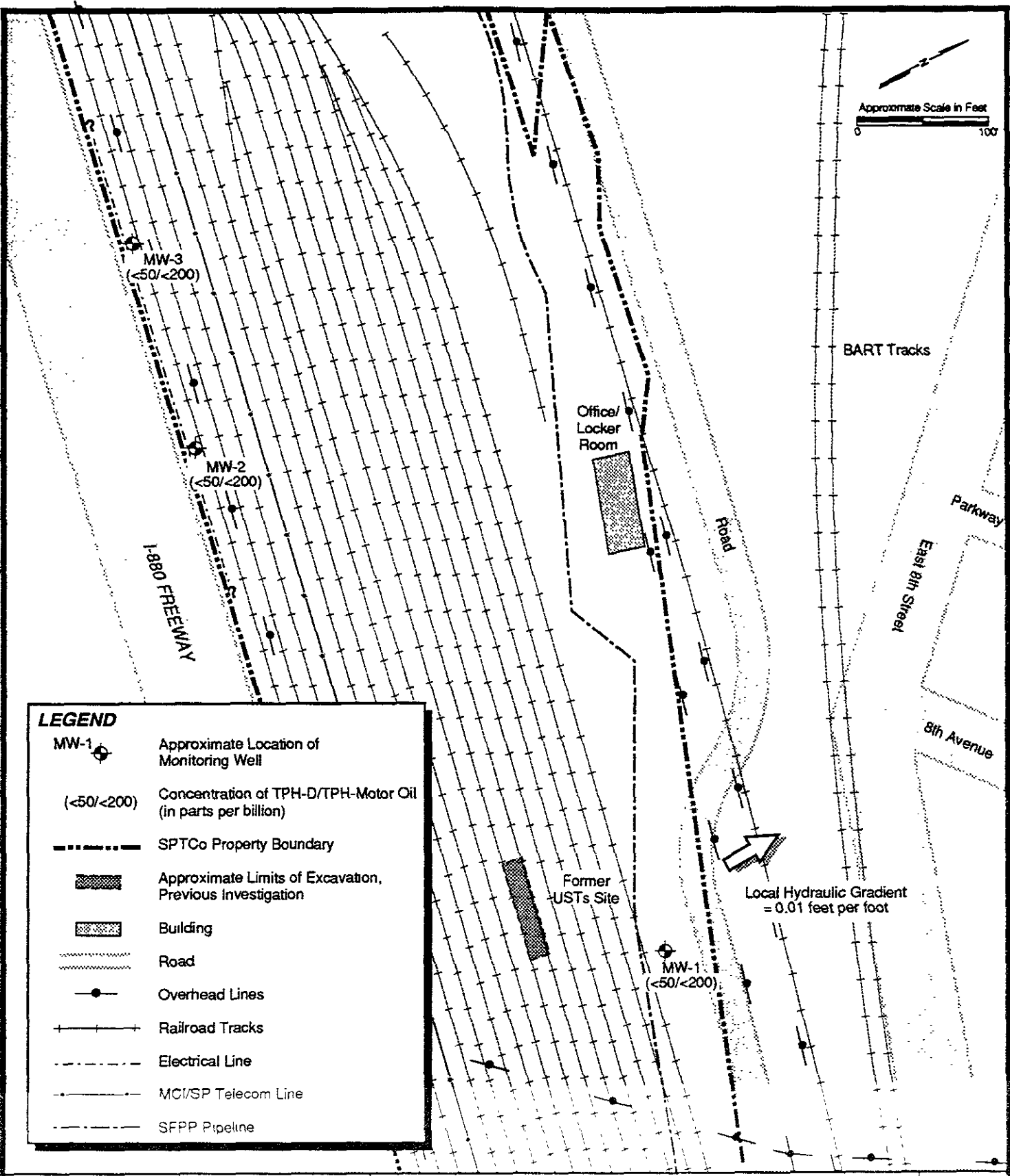
TPH CONCENTRATION IN SOIL SAMPLES
COLLECTED FROM SOIL BORINGS
SOUTHERN PACIFIC TRANSPORTATION COMPANY
5TH AVENUE AND 7TH STREET PROPERTY
OAKLAND, CALIFORNIA

Figure
12

Page No
37

Scale
as shown

Project No	05100269	Date	08/01/94
Drawn By	Patti Decker	Checked By	James G. Jensen



Approximate Scale in Feet
 0 100

LEGEND

- MW-1 Approximate Location of Monitoring Well
- (<50/<200) Concentration of TPH-D/TPH-Motor Oil (in parts per billion)
- SPTCo Property Boundary
- Approximate Limits of Excavation, Previous Investigation
- Building
- Road
- Overhead Lines
- Railroad Tracks
- Electrical Line
- MCI/SP Telecom Line
- SFPP Pipeline

Project No	05100269
Date	08/01/94
Drawn By	Patti Decker
Checked By	James G. Jensen

TPH CONCENTRATION IN GROUND WATER SAMPLES COLLECTED FROM MONITORING WELLS SOUTHERN PACIFIC TRANSPORTATION COMPANY 5TH AVENUE AND 7TH STREET PROPERTY OAKLAND, CALIFORNIA

Figure	13
Page No	38
Scale	as shown

The potential impact at the site is interpreted to be low, based on the following:

- * The apparent impacted soil was removed during Canonie's February, 1989 remedial activities;
- * the remaining soil beneath the site contains very low concentrations of petroleum hydrocarbons;
- * soil samples collected from the borings did not contain any concentrations of petroleum hydrocarbons at or above the method PQL;
- * ground water samples collected from the monitoring wells did not contain any concentrations of petroleum hydrocarbons at or above the method PQL;
- * the non-volatile nature of the constituents of concern and the presence of fine-grained material (silty sands, silty clays, sandy clays, and clays) in the subsurface beneath the site will restrict migration of the constituents of concern.

A program of quarterly ground water monitoring and sampling will be conducted for a period of one year. The monitoring program will be evaluated and additional recommendations made at the end of 4 quarters of sampling.

5.2 Disposition of Investigation-Derived Residuals

Soil stockpiled from Canonie's February, 1989 remedial activities was to have been sampled and the samples submitted for analysis for semivolatile hydrocarbons with a fuel ID using EPA Method 8270. The stockpiled soil was not present at the site during the April, 1994 field activities. The disposition of the soil is unknown.

Laboratory analysis of soil samples from the soil borings reported no concentrations of TPH-D or TPH as motor oil at or above the method PQL. Therefore, the soil has been reused as part of the Interstate 880 (I-880) project. *de*

Laboratory analysis of ground water samples from monitoring wells MW-1, MW-2, and MW-3 reported no concentrations of TPH-D, TPH as motor oil, or petroleum hydrocarbon constituents. Drums containing development and purge water have been disposed of at SPTCo's industrial wastewater treatment plant in the West Oakland Yard. *de*

**APPENDIX A
ANALYTICAL LABORATORY REPORTS
FOR FEBRUARY, 1989, REMOVAL ACTIVITIES**

Laboratory Report for

Mr. Brian Wetzsteon
Canonie Environmental
1825 S. Grant Street, Suite 260
San Mateo, CA 94402

February 15, 1989

By

Canonie Environmental
212 Frank West Circle, Suite A
Stockton, CA 95206
(209) 983-1340

88-149-07-6129

SA 117507

Canonie Environmental

Table 1
Codes of Samples Received
From SPT. Co. East Oakland
Project: 88-149-07

<u>Sampler ID</u>	<u>Date Sampled</u>	<u>Date Received</u>	<u>Lab ID#</u>	<u>Sample Type</u>	<u>Container</u>
Analysis: Total Ext. Petroleum Hydrocarbons					
Sample 1-2'	02-13-89	02-14-89	835229	Soil	Brass Tube
Sample 2-2'	02-13-89	02-14-89	835230	Soil	Brass Tube
Sample 3-4'	02-13-89	02-14-89	835231	Soil	Brass Tube
Sample 4-2'	02-13-89	02-14-89	835232	Soil	Brass Tube

SA 117508

Table 2
 Results of Total Ext. Petroleum Hydrocarbons Analysis on Soil
 Samples Received From SPT. Co. East Oakland
 Results in mg/kg

02-15-1989
 88-149-07-6129
 Page 2

Sampler ID:	Sample 1-2'	Sample 2-2'	Sample 3-4'	Sample 4-2'
Lab ID#:	035229	035230	035231	035232
<u>Analyte(s)</u>				
Total Extractable Petroleum Hydrocarbons	6200.	16000.	8900.	11000.

BAS DT
 Analyst Checked by

Note:

ND X denotes none detected to a level of X.

//ND X denotes none detected to a level of X due to an interfering peak.

SA 117509

Project # 88-149-07-6129

Date Completed 2-15-1989

Reference Methods

Total Extractable Hydrocarbons

	<u>Preparation</u>	<u>Analysis</u>
Water	<input type="checkbox"/> EPA 3510 <input type="checkbox"/> EPA 3520	<input checked="" type="checkbox"/> Guidelines for Addressing Fuel Leaks ¹
Soil	<input type="checkbox"/> EPA 3540 <input checked="" type="checkbox"/> EPA 3550	

- 1) Eisenberg, Don M., et al, "Guidelines for Addressing Fuel Leaks", California Regional Water Quality Control Board, San Francisco Bay Region. Sept. 1985.

ANALYST BTS

SA 117510

Laboratory Report for

Mr. Brian Wetzsteon
Canonie Environmental
1825 S. Grant Street, Suite 260
San Mateo, CA 94402

March 3, 1989

By

Canonie Environmental
212 Frank West Circle, Suite A
Stockton, CA 95206
(209) 983-1340

88-150-07-6194

SA 117512

Table 1
Codes of Samples Received
From SPT. Co. East Oakland
Project: 88-150-07

<u>Sampler ID</u>	<u>Date Sampled</u>	<u>Date Received</u>	<u>Lab ID#</u>	<u>Sample Type</u>	<u>Container</u>
Analysis: Benzene-Toluene-Et-Benzene-Xylene					
N-12	02-23-89	02-24-89	835684	Soil	Brass Tube
NE-12	02-23-89	02-24-89	835682	Soil	Brass Tube
NW-12	02-23-89	02-24-89	835680	Soil	Brass Tube
S-12	02-23-89	02-24-89	835686	Soil	Brass Tube
SE-12	02-23-89	02-24-89	835688	Soil	Brass Tube
SW-12	02-23-89	02-24-89	835690	Soil	Brass Tube
Analysis: Total Ext. Petroleum Hydrocarbons					
N-12	02-23-89	02-24-89	835684	Soil	Brass Tube
NE-12	02-23-89	02-24-89	835682	Soil	Brass Tube
NW-12	02-23-89	02-24-89	835680	Soil	Brass Tube
S-12	02-23-89	02-24-89	835686	Soil	Brass Tube
SE-12	02-23-89	02-24-89	835688	Soil	Brass Tube
SW-12	02-23-89	02-24-89	835690	Soil	Brass Tube

SA 117513

Table 2
 Results of Benzene-Toluene-Et-Benzene-Xylene Analysis on Soil
 Samples Received From SPT. Co. East Oakland
 Results in mg/kg

03-02-1989
 88-150-07-6194
 Page 2

Sampler ID:	N-12	NE-12	NW-12	S-12	SE-12
Lab ID#:	<u>835684</u>	<u>835682</u>	<u>835680</u>	<u>835686</u>	<u>835688</u>
Analyte(s)					
Benzene	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025
Toluene	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025
Ethyl Benzene	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025
Xylene	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025

JA DJ
 Analyst Checked by

SA 117514

Note:
 ND X denotes none detected to a level of X
 #ND X denotes none detected to a level of X due to an interfering peak

Table 2 (Cont.)
Results of Benzene-Toluene-Et-Benzene-Xylene Analysis on Soil
Samples Received From SPT. Co. East Oakland
Results in mg/kg

03-02-1989
88-150-07-6194
Page 3

Sampler ID:	SW-12
Lab ID#:	<u>835690</u>
<u>Analyte(s)</u>	
Benzene	ND 0.025
Toluene	ND 0.025
Ethyl Benzene	ND 0.025
Xylene	ND 0.025
<u>AA</u>	<u>PJ</u>
Analyst	Checked by

SA 117515

Note:

ND X denotes none detected to a level of X.

#ND X denotes none detected to a level of X due to an interfering peak.

Table 3
 Results of Total Ext. Petroleum Hydrocarbons Analysis on Soil
 Samples Received From SPT. Co. East Oakland
 Results in mg/kg

03-02-1989
 88-150-07-6194
 Page 4

Sampler ID.	N-12	NE-12	NW-12	S-12	SE-12
Lab ID#:	<u>835684</u>	<u>835682</u>	<u>835680</u>	<u>835686</u>	<u>835688</u>
Analyte(s)					
Total Extractable Petroleum Hydrocarbons	ND 10.	ND 10.	*ND 10.	ND 10.	ND 10.

BFS/PEG PJ
 Analyst Checked by

*Extractable Hydrocarbons 12.

Note:
 ND X denotes none detected to a level of X
 //ND X denotes none detected to a level of X due to an interfering peak

SA 117516

Table 3 (Cont.)
Results of Total Ext. Petroleum Hydrocarbons Analysis on Soil
Samples Received From SPT. Co. East Oakland
Results in mg/kg

03-02-1989
88-150-07-6194
Page 5

Sampler ID:	SW-12
Lab ID#:	<u>835690</u>
<u>Analyte(s)</u>	
Total Extractable Petroleum Hydrocarbons	ND 10.
<u>BTS/EC</u>	<u>DT</u>
Analyst	Checked by

SA 117517

Note:

ND X denotes none detected to a level of X.

#ND X denotes none detected to a level of X due to an interfering peak.

LP NO: 6194
 DATE: 2/23/89
 SAMPLERS (Signature): Brian Wetzstein

NO OF CONTAINERS

ANALYSIS (check)
 TEPH (SSTO)
 PTXE (BOTO)

Walk in

DATE	SAMPLE ID	NO OF CONTAINERS
2/23/89	11W-12'	1
	NW-14'	1
	NE-12'	1
	NE-14'	1
	N-12'	1
	N-14'	1
	S-12'	1
	S-14'	1
	SE-12'	1
	SE-14'	1
	SW-12'	1
	SW-14'	1

BRASS TUBE

Report - call on results asap to Brian Wetzstein San Mateo office

SA 117518

Relinquished by (Signature): Brian Wetzstein
 Date/Time: 2/23/89 4:15
 Relinquished by (Signature):
 Date/Time:
 Relinquished by (Signature):
 Date/Time: 2/24/89 9:30 AM

Received by (Signature):
 Received by (Signature):
 Received for Laboratory by (Signature):
 Date/Time: 2/24/89 9:30 AM

Remarks: 2 WEEK T.A.T. 1 week TAT
 REPORT TO BRIAN WETZSTEIN IN SAN MATEO
 TEST ALL 12' SAMPLES FIRST (6), REPORT TO BRIAN BEFORE TESTING 14' SAMPLES

Project # _____

Date Completed _____

Reference Methods
Volatile Organic Analysis

	<u>Preparation</u>	<u>Analysis</u>
Water		<input type="checkbox"/> EPA 601 <input type="checkbox"/> EPA 602 <input type="checkbox"/> EPA 624 <input type="checkbox"/> Methanol in Water
Soil	<input checked="" type="checkbox"/> EPA 5030	<input type="checkbox"/> EPA 8010 <input type="checkbox"/> EPA 8015 <input checked="" type="checkbox"/> EPA 8020 <input type="checkbox"/> EPA 8240 <input type="checkbox"/> Methanol in Soil <input type="checkbox"/> Guidelines for Addressing Fuel Leaks 1

ANALYST AA

- 1) Eisenberg, Don M., et al, "Guidelines for Addressing Fuel Leaks", California Regional Water Quality Control Board, San Francisco Bay Region, Sept. 1985.

SA 117519

Project # _____
Date Completed _____

Reference Methods

Total Extractable Hydrocarbons

	<u>Preparation</u>	<u>Analysis</u>
Water	<u> </u> EPA 3510 <u> </u> EPA 3520	<input checked="" type="checkbox"/> Guidelines for Addressing Fuel Leaks ¹
Soil	<u> </u> EPA 3540 <input checked="" type="checkbox"/> EPA 3550	

1) Eisenberg, Don M., et al. "Guidelines for Addressing Fuel Leaks", California Regional Water Quality Control Board, San Francisco Bay Region, Sept. 1985.

ANALYST _____

SA 117520

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

METHOD 503E/418.1

RECEIVED

MAR 7 1989

Ans'd.....

March 3, 1989
Lab No. 13125-1

Client: #03-8624
Canonie
Mr. Brian Wetzsteon
1825 S. Grant Street, Suite 260
San Mateo, CA 94402

Project #88-150-07

Sample Description: N-12

Sampled by: Brian Wetzsteon
Date Sampled: February 23, 1989
Date Received: February 27, 1989

REPORT OF ANALYSIS

<u>Parameter</u>	<u>Test Results</u>	<u>Reporting Unit</u>	<u>Detection Limit</u>
TPH (418.1)	8	mg/kg	5

ND = Not detected at or above the
concentration of the detection limit.

mg/kg = ppm

Maximum contaminant levels/action levels are dependent upon local conditions. Please check with your local Environmental Health office for this information.

Very truly yours,

Nicki Heath
NICKI HEATH
Environmental Chemist

John F. Quinn
JOHN F. QUINN, Ph.D.
Laboratory Director

NH/JFQ:cat

SA 117521

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

METHOD 503E/418.1

March 3, 1989
Lab No. 13125-2

Client: #03-8624
 Canonie
 Mr. Brian Wetzsteon
 1825 S. Grant Street, Suite 260
 San Mateo, CA 94402

Project #88-150-07

Sample Description: S-12

Sampled by: Brian Wetzsteon
Date Sampled: February 23, 1989
Date Received: February 27, 1989

REPORT OF ANALYSIS

<u>Parameter</u>	<u>Test Results</u>	<u>Reporting Unit</u>	<u>Detection Limit</u>
TPH (418.1)	11	mg/kg	5

ND = Not detected at or above the
concentration of the detection limit.

mg/kg = ppm

Maximum contaminant levels/action levels are dependent upon local conditions. Please check with your local Environmental Health office for this information.

Very truly yours,

Nicki Heath

NICKI HEATH
Environmental Chemist

NH/JFQ:cat

John F. Quinn
JOHN F. QUINN, Ph.D.
Laboratory Director

SA 117522

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

METHOD 503E/418.1

March 3, 1989
Lab No. 13125-3

Client: #03-8624
 Canonie
 Mr. Brian Wetzsteon
 1825 S. Grant Street, Suite 260
 San Mateo, CA 94402

Project #88-150-07

Sample Description: NE-12

Sampled by: Brian Wetzsteon
Date Sampled: February 23, 1989
Date Received: February 27, 1989

REPORT OF ANALYSIS

<u>Parameter</u>	<u>Test Results</u>	<u>Reporting Unit</u>	<u>Detection Limit</u>
TPH (418.1)	12	mg/kg	5

ND = Not detected at or above the
concentration of the detection limit.

mg/kg = ppm

Maximum contaminant levels/action levels are dependent upon local conditions. Please check with your local Environmental Health office for this information.

Very truly yours,

Nicki Heath

NICKI HEATH
Environmental Chemist

John F. Quinn
JOHN F. QUINN, Ph.D.
Laboratory Director

NH/JFO:cat

SA 117523

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

METHOD 503E/418.1

March 3, 1989
Lab No. 13125-4

Client: #03-8624
Canonie
Mr. Brian Wetzsteon
1825 S. Grant Street, Suite 260
San Mateo, CA 94402

Project #88-150-07

Sample Description: NW-12

Sampled by: Brian Wetzsteon
Date Sampled: February 23, 1989
Date Received: February 27, 1989

REPORT OF ANALYSIS

<u>Parameter</u>	<u>Test Results</u>	<u>Reporting Unit</u>	<u>Detection Limit</u>
TPH (418.1)	21	mg/kg	5

ND = Not detected at or above the
concentration of the detection limit.

mg/kg = ppm.

Maximum contaminant levels/action levels are dependent upon local conditions. Please check with your local Environmental Health office for this information.

Very truly yours,

Nicki Heath
NICKI HEATH
Environmental Chemist

John F. Quinn
JOHN F. QUINN, Ph.D.
Laboratory Director

NH/JFO:cat

SA 117524

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

METHOD 503E/418.1

March 3, 1989
Lab No. 13125-5

Client: #03-8624
Canonie
Mr. Brian Wetzsteon
1825 S. Grant Street, Suite 260
San Mateo, CA 94402

Project #88-150-07

Sample Description: SE-12

Sampled by: Brian Wetzsteon
Date Sampled: February 23, 1989
Date Received: February 27, 1989

REPORT OF ANALYSIS

<u>Parameter</u>	<u>Test Results</u>	<u>Reporting Unit</u>	<u>Detection Limit</u>
TPH (418.1)	43	mg/kg	5

ND = Not detected at or above the
concentration of the detection limit.

mg/kg = ppm

Maximum contaminant levels/action levels are dependent upon local conditions. Please check with your local Environmental Health office for this information.

Very truly yours,

Nicki Heath
NICKI HEATH
Environmental Chemist

John F. Quinn
JOHN F. QUINN, Ph.D.
Laboratory Director

NH/JFQ:cat

SA 117525

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

METHOD 503E/418.1

March 3, 1989
Lab No. 13125-6

Client: #03-8624
Canonie
Mr. Brian Wetzsteon
1825 S. Grant Street, Suite 260
San Mateo, CA 94402

Project #88-150-07

Sample Description: SW-12

Sampled by: Brian Wetzsteon
Date Sampled: February 23, 1989
Date Received: February 27, 1989

REPORT OF ANALYSIS

<u>Parameter</u>	<u>Test Results</u>	<u>Reporting Unit</u>	<u>Detection Limit</u>
TPH (418.1)	12	mg/kg	5

ND = Not detected at or above the
concentration of the detection limit.

mg/kg = ppm.

Maximum contaminant levels/action levels are dependent upon local conditions. Please check with your local Environmental Health office for this information.

Very truly yours,

Nicki Heath
NICKI HEATH
Environmental Chemist

John F. Quinn
JOHN F. QUINN, Ph.D.
Laboratory Director

NH/JFQ:cat

SA 117526

Laboratory Report for

Mr. Brian Wetzsteon
Canonie Environmental
1825 S. Grant Street, Suite 260
San Mateo, CA 94402

March 20, 1989

By

Canonie Environmental
212 Frank West Circle, Suite A
Stockton, CA 95206
(209) 983-1340

88-150-07-6328

SA 117527

Table 1
Codes of Samples Received
From S.P. Oakland
Project: 88-150-07

<u>Sampler ID</u>	<u>Date Sampled</u>	<u>Date Received</u>	<u>Lab ID#</u>	<u>Sample Type</u>	<u>Container</u>
Analysis: PCB					
S-12, SE-12, SW-12	02-23-89	02-24-89	835686	Soil	Brass Tube

SA 117528

Table 2
Results of PCB Analysis on Soil
Samples Received From S.P. Oakland
Results in mg/kg

03-20-1989
88-150-07-6328
Page 2

Sampler ID:	S-12, SE-12- , SW-12
Lab ID#:	<u>835686</u>
<u>Analyte(s)</u>	
Aroclor 1016	ND 0.05
Aroclor 1221	ND 0.05
Aroclor 1232	ND 0.05
Aroclor 1242	ND 0.05
Aroclor 1248	ND 0.05
Aroclor 1254	ND 0.10
Aroclor 1260	ND 0.10

ML PJ
Analyst Checked by

SA 117529

Note.

ND X denotes none detected to a level of X.

#ND X denotes none detected to a level of X due to an interfering peak.

Canonie Environmental

PROJECT NO. [] NAME []
88-15001 Southern Pacific Oakland

IP NO 6378
SAMPLES (Signature)

DATE SAMPLE ID

2-23-81	S-12'	835686
I	SE-12'	835688
	SW-12'	835690

NO. OF CONTAINERS

3

ANALYSIS
A/Bs

X

W-IN

BRASS TUBES

REMARKS

Composite into 1 sample

Relinquished by (Signature)

Date/Time

Received by: (Signature)

Relinquished by (Signature)

Date/Time

Received by: (Signature)

Relinquished by (Signature)

Date/Time

Received for Laboratory by: (Signature)

Remarks

Composite Samples from Jp 6194
for A/Bs per S. Pierson/B. Wetyston

SA 117530

Canon Environmental, 212 Frank West Circle, Suite A, Stockton, CA 95206

No 09808

Reference Methods
PCB'S

	<u>Preparation</u>	<u>Analysis</u>
Water	<input type="checkbox"/> EPA 3510 <input type="checkbox"/> EPA 3520	<input type="checkbox"/> EPA 608.3 <input type="checkbox"/> EPA 625 <input type="checkbox"/> EPA 680
Soil	<input type="checkbox"/> EPA 3540 <input type="checkbox"/> EPA 3550 <input type="checkbox"/> EPA 1310	<input checked="" type="checkbox"/> EPA 8080.3 <input type="checkbox"/> EPA 8270
Oil	<input type="checkbox"/> EPA Test Method "The Determination of Polychlorinated Biphenyls in Transformer Fluid and Waste Oils."	

ANALYST *Asil*

SA 117531

Laboratory Report for

Mr. Brian Wetzsteon
Canonie Environmental
1825 S. Grant Street, Suite 260
San Mateo, CA 94402

March 20, 1989

By

Canonie Environmental
212 Frank West Circle, Suite A
Stockton, CA 95206
(209) 983-1340

88-150-07-6239

SA 117532

Table 1
Codes of Samples Received
From SPT.Co. East Oakland
Project: 88-150-07

<u>Sampler ID</u>	<u>Date Sampled</u>	<u>Date Received</u>	<u>Lab ID#</u>	<u>Sample Type</u>	<u>Container</u>
Analysis: PCB					
NW-12	02-23-89	02-24-89	835680	Soil	Brass Tube
NE-12	02-23-89	02-24-89	835682	Soil	Brass Tube
N-12	02-23-89	02-24-89	835684	Soil	Brass Tube

SA 117533

Table 2
Results of PCB Analysis on Soil
Samples Received From SPT.Co. East Oakland
Results in mg/kg

03-20-1989
88-150-07-6239
Page 2

Sampler ID:	Composite
Lab ID#:	835680
<u>Analyte(s)</u>	
Aroclor 1016	ND 0.05
Aroclor 1221	ND 0.05
Aroclor 1232	ND 0.05
Aroclor 1242	ND 0.05
Aroclor 1248	ND 0.05
Aroclor 1254	ND 0.10
Aroclor 1260	ND 0.10

MA DJ
Analyst Checked by

SA 117534

Note.

ND X denotes none detected to a level of X.

#ND X denotes none detected to a level of X due to an interfering peak.

Canonie Environmental

83-15007 SPT (N E OAKLAND)
LP NO. 6239
SAMPLERS (Signature)

DATE	SAMPLE ID
2/28/89	NW-12
1	NE-12
	N-12

NO. OF CONTAINERS

ANALYSIS
PUC

1 Sample Composite

LAB ID. #
835680
835682
835684

REMARKS

CONSTRUCT

SA 117535

Relinquished by (Signature)	Date/Time	Received by (Signature)
Relinquished by (Signature)	Date/Time	Received by (Signature)
Relinquished by (Signature)	Date/Time	Received for Laboratory by (Signature)

Remarks
1) SAMPLE FROM LPT# 6194
2) SAMPLES DUE BY 3-10-89 PER SHARON PETERSON

Reference Methods

PCB'S

	<u>Preparation</u>	<u>Analysis</u>
Water	<u> </u> EPA 3510 <u> </u> EPA 3520	<u> </u> EPA 608.3 <u> </u> EPA 625 <u> </u> EPA 680
Soil	<u> </u> EPA 3540 <u> </u> EPA 3550 <u> </u> EPA 1310	<input checked="" type="checkbox"/> EPA 8080.3 <u> </u> EPA 8270
Oil	<u> </u> EPA Test Method "The Determination of Polychlorinated Biphenyls in Transformer Fluid and Waste Oils."	

ANALYST

SA 117536

APPENDIX B
CHAIN-OF-CUSTODY DOCUMENTS



Industrial Compliance

A Subsidiary of SP Environmental Systems, Inc.



CHAIN-OF-CUSTODY RECORD

No. 13644

Industrial Compliance • 9719 Lincoln Village Drive, Ste. 310 • Sacramento, CA 95827 • Phone 916-369-8971 • FAX 916-369-8370

PROJECT NAME <i>Storage at Mill</i>		PROJECT LOCATION <i>(AKL) Mill</i>		NUMBER OF CONTAINERS	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)
PROJ NO <i>1511219</i>	PROJECT CONTACT <i>JAMES C. JOHNSON</i>	PROJECT TELEPHONE NO <i>(916) 275-8971</i>			
CLIENT'S REPRESENTATIVE <i>Green Services</i>		PROJECT MANAGER/SUPERVISOR <i>Mark D. ...</i>			

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE LOCATION (INCLUDE MATRIX AND POINT OF SAMPLE)	REMARKS
1	MW-1 (S)	4/12/94	1010		X	Basin (1) MW-1	Soil
2	MW-2 (S)	4/12/94	1305		X	Basin (2) MW-1	Soil
3	MW-3 (S)	4/12/94	1525		X	Basin (1) MW-3	Soil
4							2
5							3
6							
7							
8							
9							
10							

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-2	<i>[Signature]</i>	<i>[Signature]</i>	4/12/94	1300	Handwritten notes
2						
3						
4						

REMARKS
 Handwritten notes including:
 "Handwritten notes" (repeated)
 "for removal to the firm" (repeated)
 "916 275 8970"
 "but not carbon sampling (in turn by)"
 "to identify hydrocarbons."
 SAMPLER'S NAME: _____
 SAMPLER'S SIGNATURE: _____



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CHAIN-OF-CUSTODY RECORD

1 of 2
No. 13673

Industrial Compliance • 9719 Lincoln Village Drive, Ste. 310 • Sacramento, CA 95827 • Phone 916-369-8971 • FAX 916-369-8370

PROJECT NAME		PROJECT LOCATION				NUMBER OF CONTAINERS	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)										REMARKS
EAST OAKLAND YARD		EAST OAKLAND					<div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> TPH-400 / TPH-826 TPH-400 - 8270 TDS - NAC1 </div>										
PROJ. NO.	PROJECT CONTACT	PROJECT TELEPHONE NO.															
05100267	CARL TAYLOR	510 238-9540															
CLIENT'S REPRESENTATIVE					PROJECT MANAGER/SUPERVISOR												
ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	SAMPLE LOCATION (INCLUDE MATRIX AND POINT OF SAMPLE)											
1	MW-1	4-28	12:40			GROUNDWATER - EAST OAKLAND YARD WELL MW-1 - HOME	2	X									-1
2	MW-1	4-28-94					1		X								
3	MW-1	4-28-94					1			X							
4	MW-2	4-28-94	11:45			GROUNDWATER - EAST OAKLAND YARD WELL MW-2 HOME	2	X									-2
5	MW-2	4-28-94					1		X								
6	MW-2	4-28-94					1			X							
7	MW-3	4-28-94	10:45			GROUNDWATER EAST OAKLAND YARD WELL MW-3 HOME	2	X									-3
8	MW-3	4-28-94					1		X								
9	MW-3	4-28-94					1			X							
10																	RECEIVED

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1 THROUGH 9	<i>Stohs</i>	<i>Moffitt</i>	4/29/94	12:45	Temp. of cooler upon receipt: 37°F
2						
3						
4						Cool intact SAMPLER'S NAME: J. CARNAUGH SAMPLER'S SIGNATURE: <i>J. Carnaugh</i>

SEP 1 1994 11:15 FROM SP 1-888 FIELD OFFICE PAGE 007



Industrial Compliance

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CHAIN-OF-CUSTODY RECORD

No. 13674

SEP 1 1994 11:15 FROM SP I-880 FIELD OFFICE

Industrial Compliance • 9719 Lincoln Village Drive, Ste. 310 • Sacramento, CA 95827 • Phone 916-369-8971 • FAX 916-369-8370

PROJECT NAME		PROJECT LOCATION		ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)										
EAST OAKLAND YP		EAST OAKLAND YARD												
PROJ. NO.	PROJECT CONTACT	PROJECT TELEPHONE NO.												
05100269	CARL TAYLOR	(510) 238 9546		5260 - TR-1/BTEX/PAH JKI399 REMARKS										
CLIENT'S REPRESENTATIVE		PROJECT MANAGER/SUPERVISOR												
		CARL TAYLOR												
ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE LOCATION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS					REMARKS		
1	TRIP	4-26-94			✓	TRIP FRANK HORN	1	X					4	EXTEND RUN FOR GRAVIMETRIC DETERMINATIONS
2	EQUIPT	4-26-94	12:45		✓	EQUIPMENT BURN HORN	1	X					5	
3														
4														
5														
6														
7														
8														
9														
10														

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1+2	<i>John C.</i>	<i>Jeff P.</i>	4/26/94	12:45	
2						
3						
4						

SAMPLER'S NAME: *John Cavanaugh* SAMPLER'S SIGNATURE: *John Cavanaugh*

TRANSFER 3

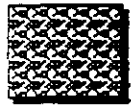
** TOTAL PAGE.008 **

PAGE.008

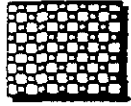
APPENDIX C
SOIL BORING AND WELL CONSTRUCTION LOGS

Boring Log Key

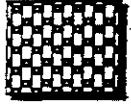
LITHOLOGY



GW Well graded gravels, gravel and sand mixtures.



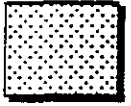
GP Poorly graded gravels, gravel and sand mixtures.



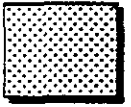
GM Silty gravels, gravel and silt mixtures.



GC Clayey gravels, gravel sand clay mixtures.



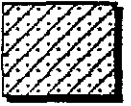
SW Well graded sands, gravelly sands.



SP Poorly graded sands or gravelly sands.



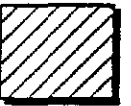
SM Silty sands, sand silt mixture.



SC Clayey sands, sand clay mixtures.



ML Inorganic silts and very fine sands.



CL Inorganic clays.



OL Organic silts and organic silty clays.



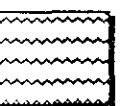
MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils.



CH Inorganic clays of high elasticity.

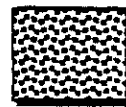


OH Organic clays of medium to high elasticity, organic silts.



PT Peat and or other highly organic soils

WELL CONSTRUCTION



Bentonite/Cement



Bentonite Pellets



Filter Pack



Screen



Ground water level encountered during time of drilling.



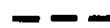
Static ground water level measured within 24 hours of well completion.



Sample interval sent to the laboratory for chemical analysis.



Sample collected for geotechnical analysis.



Gradational contact.



Abrupt contact.

All contacts are approximate.

Notes:

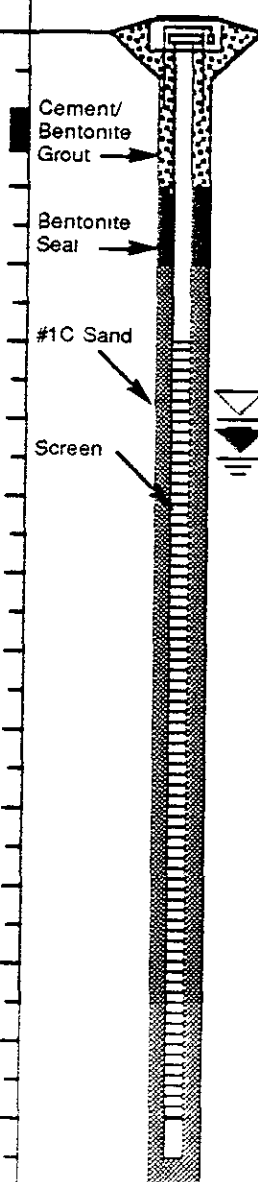
1. < denotes concentration less than detectable level as listed.
2. NA = Not Applicable
3. NM = Not Measured
4. NE = Not Encountered

Well Construction Log

Well Location East Oakland Yard (North of Railroad Tracks)		Well Name MW-1	
Drilling Company West Hazmat (Contractor No. 554979)		Project Name 5th Avenue and 7th Street	
Drilling Method Hollow Stem Auger/Continuous Core		Rig Type Mobile B-61	Project Number 05100269
Hole Diameter 8 & 10 In.	Driller Jeff Smith	Date 4/13/94	Logged By James G. Jensen
Ground Elevation est. 10' AMSL	Water Depth 5' at time of drilling	Total Depth 15' (8" Auger)/15' (10" Auger)	

Well Construction Specifics

Screen Placement	from 14 ft to 4 ft	Slot Size 0.020 inches	Diameter 4 inches	Completion Type:
Blank Casing	from 4 ft to surf ft	Schedule 40 PVC	Diameter 4 inches	Aboveground <input type="checkbox"/>
Filter Pack	from 15 ft to 3 ft	Size 1C (4.5 sx)	Type Lonestar/Monterey	At Grade <input checked="" type="checkbox"/>
Bentonite Pellets	from 3 ft to 2 ft	Type Pellets (2/3 bucket)	Size 3/8 inches	Hydrated <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Cement/Bentonite	from 2 ft to surf ft	Size	Percent Bentonite 2%	

Sample Number	Recov.	Blows/ 6-inches	Depth Feet	Well Detail	Lithology	USCS Log	Sample Description	FID/PID	
MW-1 (0.5')							Ballast material at surface.		
		1'	14 17 17	1	Cement/Bentonite Grout	SM	Gravelly Silty Sand: dark brown, 60% fine grained sand, 30% silt to very fine grained, 10% gravel, loose, damp.	0.0	
		1'	continuous core	2	Bentonite Seal	?			
				3		ML	Sandy Silt: gray, 50% silt to very fine grained, 30% fine grained sand, 20% small gravel, subangular, loose, damp.		
				4	#1C Sand				
				5	Screen			Silty Sand: dark brown, 60% fine grained sand, 30% silt to very fine grained, 10% gravel, subangular, poorly sorted, loose, damp.	0.0
		4"	4 7 7	6		SM	Silty Sand: brown, 60% fine to medium grained sand, 40% silt, subangular, poorly sorted, sticky, wet, 5% dark minerals.		
		2'	continuous core	7		CL	Sandy Clay: orange brown, 60% clay, 40% fine to medium grained sand, subangular, sticky, wet.	0.0	
				8		CL			
				9		SM	Clayey Silty Sand: orange brown, 50% fine to medium grained sand, 25% silt to very fine grained, 25% clay, subangular, poorly sorted, sticky, wet.		
				10		CL	Silty Clay: orange brown, slight gray mottling, 80% clay, 20% silt, firm, sticky, moist.		
		18"	1 1 1	11		CH	Clay: gray, firm, sticky, moist, shell debris at 10 feet, trace fine grained sand in burrows, slight organic odor.		
		3.5'	continuous core	12		CH	Clay: gray, firm, sticky, moist, shell debris at 11.5 feet, medium grained sand at 13 feet, slight organic odor.		
				13		SC	Clayey Sand: gray, mottled with gray green, 70% fine to medium grained sand, 30% clay, subrounded, moderately sorted, firm, moist, trace angular gravel, slight organic odor.		
				14		SC			

Total Depth 15 feet bgs

Well Construction Log

DRAFT

INDUSTRIAL COMPLIANCE

Well Location East Oakland Yard (South of Railroad Tracks)			Well Name MW-2		
Drilling Company West Hazmat (Contractor No. 554979)			Project Name 5th Avenue and 7th Street		
Drilling Method Hollow Stem Auger/Continuous Core		Rig Type Mobile 8-61	Project Number 05100269		
Hole Diameter 8 & 10 In.	Driller Jeff Smith	Date 4/13/94	Logged By James G. Jensen		
Ground Elevation est. 10' AMSL	Water Depth 3' at time of drilling	Total Depth 15' (8" Auger)/14.5 (10" Auger)			

Well Construction Specifics

Screen Placement	from 14 ft to 4 ft	Slot Size 0.020 inches	Diameter 4 inches	Completion Type:
Blank Casing	from 4 ft to surf ft	Schedule 40 PVC	Diameter 4 inches	Aboveground
Filter Pack	from 14.5 ft to 3.5 ft	Size 1C (2.75 sx)	Type Lonestar/Monterey	At Grade <input checked="" type="checkbox"/>
Bentonite Pellets	from 3.5 ft to 3.0 ft	Type Pellets (1/2 bucket)	Size 3/8 inches	Hydrated <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Cement/Bentonite	from 3.0 ft to surf ft	Size	Percent Bentonite 2%	

Sample Number	Recov.	Blows/ 6-inches	Depth Feet	Well Detail	Lithology	USCS Log	Sample Description	FID/PID
MW-2 (0.5')	6"	6 3 5	1	Cement/ Bentonite Grout		ML	Ballast material at surface. Sandy Silt: gray brown, 60% silt to very fine grained, 40% fine grained sand, subangular, poorly sorted, loose, damp.	0.0
			2			?	Gravelly Sandy Silt: gray brown, 50% silt to very fine grained, 30% fine grained sand, 20% small gravel, subrounded, poorly sorted, loose, damp.	
	1.5'	continuous core	3	Bentonite Seal		CL	Sandy Silty Clay: mottled orange brown, 60% clay, 30% fine grained sand, 20% silt to very fine grained, subrounded, sticky, wet.	
			4	#1C Sand		SM	Clayey Silty Sand: brown, 60% medium grained sand, 20% silt to very fine grained, 20% clay, subrounded, poorly sorted, sticky, wet.	
			5	Screen		?	Clay: gray, firm, sticky, mottled with dark gray.	
	4'	continuous core	6			CH		
			7			CL	Sandy Clay: gray, 70% clay, 30% fine grained sand, subrounded, sticky, wet. Clay: orange brown mottled, firm, sticky, moist.	
			8			CL		
			9			CL	Silty Clay: gray, mottled with dark gray streaks, 70% clay, 30% silt, sticky, moist, trace shell fragments, slight organic odor.	
			10			CL	Clay gray, firm, sticky, moist, trace dark gray mottling, trace rounded gravel, moderate organic odor	
	4'	continuous core	11			CL		
			12			CL		
			13			CL		
			14			CL		
			15			CL		

Total Depth 15 feet bgs.

Well Construction Log

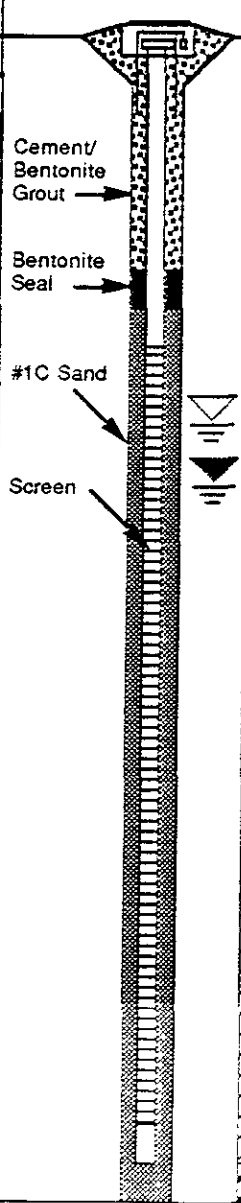
DRAFT

INDUSTRIAL COMPLIANCE

Well Location	East Oakland Yard (South of Railroad Tracks)	Well Name	MW-3
Drilling Company	West Hazmat (Contractor No. 554979)	Project Name	5th Avenue and 7th Street
Drilling Method	Hollow Stem Auger/Continuous Core	Rig Type	Mobile B-61
Hole Diameter	8 & 10 In.	Driller	Jeff Smith
Ground Elevation	est. 10' AMSL	Date	4/13/94
Water Depth	5' at time of drilling	Logged By	James G. Jensen
Total Depth	15' (8" Auger)/15' (10" Auger)		

Well Construction Specifics

Screen Placement	from 14 ft. to 4 ft.	Slot Size	0.020 inches	Diameter	4 inches	Completion Type:	
Blank Casing	from 4 ft. to surf ft.	Schedule	40 PVC	Diameter	4 inches	Completion Type:	Aboveground
Filter Pack	from 15 ft. to 3.5 ft.	Size	1C (4 sx)	Type	Lonestar/Monterey	Completion Type:	At Grade <input checked="" type="checkbox"/>
Bentonite Pellets	from 3.5 ft. to 3.0 ft.	Type	Pellets (1/2 bucket)	Size	3/8 inches	Hydrated	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Cement/Bentonite	from 3.0 ft. to surf ft.	Size		Percent Bentonite	2%		

Sample Number	Recov.	Blows/ 6-inches	Depth Feet	Well Detail	Lithology	USCS Log	Sample Description	FID/PID
							Ballast material at surface.	
MW-3 (0.5')	1'	5 12 15	1	Cement/ Bentonite Grout		GM	Silty Gravel: brown, 60% gravel, 40% silt to very fine grained, subangular, poorly sorted, loose, damp.	0.0
	1'	continuous core	2	Bentonite Seal		SM	Silty Sand: brown, 80% fine to medium grained, 20% silt to very fine grained, subrounded, moderately sorted, loose, moist, trace gravel.	
			3	#1C Sand			Silty Sand: brown with red brown mottling, 60% fine grained, 40% silt, subangular, poorly sorted, firm, moist.	
			4				Silty Sand: brown, 70% fine to medium grained, 30% silt to very fine grained, subrounded, moderately sorted, loose, wet.	0.0
	15"	1 1 1	5	Screen			Clay: gray, firm, sticky, moist, trace dark gray mottling.	
			6			CH	Clay: gray, firm, sticky, moist, trace dark gray mottling, slight organic odor.	
	2.5'	continuous core	7				Sandy Clay: mottled gray and brown, 70% clay, 30% fine grained sand, subrounded, firm, sticky, moist.	
			8					
			9					
			10					
			11					
	3'	continuous core	12			CL	Sandy Silty Clay: mottled orange brown, 50% clay, 25% fine grained sand, 25% silt to very fine grained, firm, sticky, moist.	
			13					
			14				Clay gray, firm, sticky, moist, trace shell fragments, slight organic odor	
			15			CH		

Total Depth 15 feet bgs

APPENDIX D

**DRILLING RESIDUALS, DEVELOPMENT WATER,
AND PURGE WATER DRUM INVENTORY LIST**

APPENDIX D

DRILLING RESIDUALS, DEVELOPMENT WATER,
AND PURGE WATER DRUM INVENTORY LIST

<u>Date</u>	<u>Drum Number</u>	<u>Soil Boring/ Monitoring Well</u>	<u>Contents</u>
04/13/94	1	MW-1	Drilling residuals (soil)
04/13/94	2	MW-2	Drilling residuals (soil)
04/13/94	3	MW-2, MW-3	Drilling residuals (soil)
04/13/94	4	MW-3	Drilling residuals (soil)
04/13/94	5	—	Equipment decontamination water
04/13/94	6	—	Equipment decontamination water
04/22/94 04/28/94	7	MW-1	Purged ground water
04/22/94 04/28/94	8	MW-2	Purged ground water
04/22/94 04/28/94	9	MW-3	Purged ground water

APPENDIX E

**WELL DEVELOPMENT AND GROUND WATER
PURGE CHARACTERIZATION FIELD DATA SHEETS**

PAGE.003
 FROM SP 1-880 FIELD OFFICE
 APR 22 1994 17:31

3083



Industrial Compliance
 A Subsidiary of SP
 Environmental Systems, Inc.

M.W. 1

STORAGE PUMP TO ESAILER

WELL DEVELOPMENT LOG

START Let Recharge

Time	11:15	12:45	4:15	4:20		
Gallons Purged	3 Gal	12 Gal	30 Gal	18 Gal		
Purge Rate	3 Gal. Per Minute	11	11			
pH	5.97	7.25	8.12	7.97		
Conductivity (µmhos)	10.04 x100	9.16 x100	8.17 x100 8.86 x100	9.29 x100		
Temperature (°F)	65.8	65.8	64.9	62.10		
Salinity (0/00)						
Water Level	DTW 5.94	9.51	9.58	12.9		
Dewatered	YES	YES	YES @ 4:20	YES		
Turbidity	VISUAL - APPEARS CLOUDY NPH OVER 200	VISUAL - APPEARS CLOUDY NPH 20/180	VISUAL - APPEARS OVER 200	VISUAL APPEARS OVER 200		
Color						
Comments	F.B.					

** TOTAL PAGE.003 **

Project # 05100 Project Name EAST OAKLAND Total Depth 13.65' INT 13.90' -
 Date 4-22-94 Initials JTC Screen Interval 4-14'

OF 3



Industrial Compliance
A Subsidiary of SP
Environmental Systems, Inc.

M.W. 2

To BARRON

WELL DEVELOPMENT LOG

APR 22 1994 17:30 FROM SP -880 FIELD OFFICE

AWA JIM JENSEN

PAGE 00

Time	2:00	2:10	2:35	2:41	2:55	3:05	3:30	3:40
Gallons Purged	3 Gal.	17 Gal.	20 GAL	35 GAL	38 GAL	48 GAL	60 GAL	60
Purge Rate	3 Gal. per 5 min	"	"	"	"	"	"	
pH	7.12	7.43	8.08	7.55	7.98	7.70	7.88	7.82
Conductivity (µmhos)	3.08 x 1000	5.25 x 1000	9.90 x 1000	3.08 x 1000	10.75 x 1000	1.09 x 1000	18.18 x 1000	8.17 x 1000
Temperature (deg F)	73.3	69.1	68.0	63.3	64.4	63.7	67.9	62.9
Salinity (0/00)								
Water Level	Static 2.45	12.9	2.6	12.9	2.6	12.9	2.6	
Dewatered	2:05	2:20	yes @ 2:41	yes @ 2:45	yes @ 3:00	yes	yes @ 3:40	yes @ 3:40
Turbidity	VISUAL APPRAX OVER 200	VISUAL APPRAX OVER 200	VISUAL APPRAX OVER 200	OVER 200 VISUAL	VISUAL APPRAX OVER 200	VISUAL APPRAX #200	VISUAL APPRAX #200	OVER 200
Color								
Comments								

Project # 05100 269

Project Name EAST CLARKLAND

Total Depth 13.6

Date 4-22-94

Initials JZ

Screen Interval 4-11'

APR 22 '94 17:31 FROM SP 1-888 FIELD OFFICE PAGE 002



Industrial Compliance

A Subsidiary of SP Environmental Systems, Inc.



M.W.3

BAILING

WELL DEVELOPMENT LOG

Time	1:25	1:45	3:50	3:55	4:35	4:40	
Gallons Purged	3 Gal	16 Gal	27 GAL	30 GAL	30 GAL 33 TWT	33 BEAK	
Purge Rate	3 Gal Per Pulse	"	"	"	"		
pH	7.27	7.15	7.95	7.46	8.22	7.6	
Conductivity (umhos)	3.93 X 1000	4.68 X 1000	9.73 ^{umho}	3.33 X 1000	1.33 X 1000	3.55 X 1000	
Temperature (±0.1) F	69.3	67.4	65.5	63.6	64.9	63.2	
Salinity (0/00)							
Water Level	Static 3.3	12.9	2.76	12.9	7.65	12+	
Dewatered		YES	YES @ 3:55	YES	YES @ 4:40	YES	
Turbidity	VISUAL APPEARS OVER 200 NTU	VISUAL APPEARS OVER 200 NTU	VISUAL APPEARS OVER 200 NTU	VISUAL APPEARS ≈ 200	VISUAL APPEARS OVER 200		
Color							
Comments							

Project # 05100269

Project Name FIRST CIFA LCL

Total Depth 13.58

Date 4-22-94

Initials JZ

Screen Interval 4-141

GROUND WATER ELEVATION MEASUREMENT LOG

Project Name: EAST OAKLAND Project No.: 05/00267 Task/Phase: 01
 Date: 4-28-94 Start/Finish: 9:00 - 9:20 Weather: Clear, 132° = 301 = 51.4428

342
236
5.18

Well Number	Reference Elevation (feet msl)	DIW (feet)	PT (feet)	PT x 0.8 (feet)	Adjusted DIW (DIW - (PT x 0.8))	Ground Water Elevation (feet msl)	Comments
MW-1		4.68	—				
MW-2		2.01	—				
MW-3		2.99	—				

DIW = Depth to Water (to 0.01 feet)
 DTP = Depth to Product (to 0.01 feet)
 PT = Product Thickness (to 0.01 feet)

Signature: *John*



Industrial Compliance

A Subsidiary of BP Environmental Services, Inc.

PURGE CHARACTERIZATION AND SAMPLE LOG

Project Number: C5700269 Project Name: EAST OAKLAND Date: 4-28-94
 Well Number: MN-1 Sampler: John Cavanaugh Weather: cloudy - sunny

Military Time	9:00	9:50	10:00	10:15	12:20	12:40	
Gallons Purged	0	1	6	11	11	18:95	Depth to bottom (DB): 13.70
Purge Rate	0	Ballin	Ballin	Ballin	-	-	Depth to water (DW): 4.68
pH	-	6.30	6.80	6.62	-	6.68	Height of water column (H) - DB - DW: 9.02
Conductivity	-	6.34 ¹⁰⁰	6.5 ¹⁰⁰	6.6 ¹⁰⁰	-	6.34 ¹⁰⁰	One casing volume (CV) = 11 x multiplier: 5.86
Temperature (°F)	-	67.7	69.3	68.5	-	69.0	Three casing volumes (3CV): 17.59
Salinity (0/00)	-	-	-	-	-	-	Multipliers = 2" well = 0.16 gallons/foot
Turbidity	-	-	MODERATE	LIGHT	-	LIGHT	4" well = 0.65 gallons/foot
Color	-	cloudy	LT BRN	CLAR	-	CLAR	6" well = 1.47 gallons/foot
Water Level Casing	4.68	-	-	-	-	-	8" well = 2.61 gallons/foot
Calibration	pH	-	-	-	-	-	SC:

Sample #	Quantity	Volume	Type	Preserv.	Analysis	Lab	Sample Equip.	Purge Equip.	Field Comments
	2	40 ML	CLEAR	HCO	8260	COMPT	DISPERGABLE	TIE FLOW	NO OPA
	1	1.0	AHBA	NONE	8270	↓	BALLIN	BALLIN	↓
	1	1.0	AHBA	↓	TDS	↓	↓	↓	↓
Cleaning Comments:	PDCRB BAKED WASHED W. EDT ALCOHOL - RINSED WITH DEIONIZED WATER								

Sampler's Signature: John Cavanaugh

PAGE 004
APR 28 '94 15:53 FROM SP 1-888 FIELD OFFICE



Industrial Compliance

A Subsidiary of BP Environmental Systems, Inc.



PURGE CHARACTERIZATION AND SAMPLE LOG

Project Number: 05100262

Project Name: EAST OAKLAND

Date: 4-28-94

Well Number: MW-2

Sampler: JOHN CAVANAUGH

Weather: CLOUDY WINDY

Military Time	9:13	11:05	11:15	11:29	11:45		
Gallons Purged	0	4	7	14	21		Depth to bottom (DB): <u>13.64</u>
Purge Rate	0	BAUER					Depth to water (DW): <u>2.05</u>
pH	--	7.18	7.18	7.14	7.08		Height of water column (H) - DB - DW: <u>11.59</u>
Conductivity	--	1.27	8.87	2.62	5.01		One casing volume (CV) = H x multiplier: <u>6.53</u>
Temperature (°F)	--	63.6	62.2	68.8	67.8		Three casing volumes (3CV): <u>19.59</u>
Salinity (0/00)	--						Multipliers - 2" well = 0.16 gallons/foot
Turbidity	--	HIGH	HIGH	MOD	LOW		4" well = 0.65 gallons/foot
Color	--	M. GRAY	LT GRAY	LT GRAY	CLEAR		6" well = 1.47 gallons/foot
Water Level Casing	2.05						8" well = 2.61 gallons/foot
Calibration	pH						SC:

Sample #	Quantity	Volume	Type	Preserv.	Analysis	Lab	Sample Equip.	Purge Equip.	Field Comments
2	40 ML	AD-CLOR	HCL	8260	COAST	Dispersible Bottle	TB FLOW RATE		Water cloudy - BY HAND
1	1 L	Amure	NOALP	TDS	COAST				
1	1 L	Amure	↓	8270					
Cleaning Comments:									

Sampler's Signature: _____



Industrial Compliance

A Subsidiary of BP Environmental Systems, Inc.



PURGE CHARACTERIZATION AND SAMPLE LOG

Project Number: 05100267 Project Name: EAST OASLAND Date: 4-28-94
 Well Number: MW-3 Sampler: JOHN CAVANAGH Weather: OVERCAST SUNNY

Military Time	9:20	9:30	9:40	10:28	10:40		
Gallons Purged	—	1	7	14	21		Depth to bottom (DB): 13.60
Purge Rate	—	Boiler	—	—	—		Depth to water (DW): 2.99
pH	—	6.96	8.93	6.79	6.79		Height of water column (H) - DB DW: 10.61
Conductivity	—	9.95 ^{µS}	9.82 ^{µS}	8.38 ^{µS}	8.03 ^{µS}		One casing volume (CV) = H x multiplier: 6.20 gallons
Temperature (°F)	—	62.0	67.0	68.8	68.5		Three casing volumes (3CV): 20.62 GALLONS
Salinity (‰)	—	—	—	—	—		Multipliers - 2" well = 0.16 gallons/foot
Turbidity	—	CLEAR	cloudy	LT cloudy	CLEAR		4" well = 0.65 gallons/foot
Color	—	—	LT BRN.	LT BRN	—		6" well = 1.47 gallons/foot
Water Level Casing	2.72						8" well = 2.61 gallons/foot
Calculation	pH:						S.C.:

Sample #	Quantity	Volume	Type	Preserv	Analysis	Lab	Sample Equip.	Purge Equip.	Field Comments
	2	40 ml	AMBER	AMBER	8250	CWST	Ballon - Disk	Teflon 2" Tube	1/4 OPER - CLEAR
	1	10	AMBER	NONE	8270	CWST	↓	↓	↓
	1	10	AMBER	NONE	TDS	CWST	↓	↓	↓
Cleaning	Purge Ballon(s) Rinsed with DEIONIZED WATER								
Comments									

Sampler's Signature: John Cavanagh

PAGE.005
FROM SP I-860 FIELD OFFICE
APR 28 '94 15:54

** TOTAL PAGE.005 **

APPENDIX F
ANALYTICAL LABORATORY REPORTS,
SOIL SAMPLES



COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE
IN ANALYSIS

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Mark Doelium
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1193-1
Project : 05100269, 5th Ave. & 7th
St.
Analyzed : 04/29/94
Analyzed by: DT
Method : EPA 8270

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED	
MW-1 (0.5)	Soil	James Jensen	04/13/94	04/14/94
CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
Tot. SV Petr. Hydrocarbs				1,2
Total Petroleum Hydrocarbons		10.	ND ✓	
Percent Surrogate Recovery			80.	

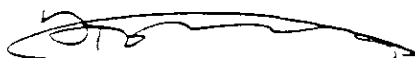
San Jose Lab Certifications: CAELAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

- (1) Sample Preparation on 04/26/94 by AC using EPA 3550
- (2) High PQL due to high dilution because of sample viscosity.

05/06/94
FINB/JK119301
DT/et
TPH-042694SR

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.


Dudley Torres
Organics Manager

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COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE
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2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Mark Dockum
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1193-2
Project : 05100269, 5th Ave. & 7th
St.
Analyzed : 04/29/94
Analyzed by: DT
Method : EPA 8270

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

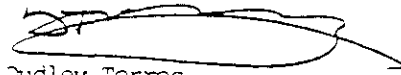
SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED	
MW-2 (0.5)	Soil	James Jensen		04/13/94	04/14/94
CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE	
Tot. SV Petr. Hydrocarbs					1
Total Petroleum Hydrocarbons		5.	ND ✓		
Percent Surrogate Recovery			70.		

San Jose Lab Certifications: CAELAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 04/26/94 by AC using EPA 3550

05/06/94
FIN3/JKL19302
DT/et
TPH-042694SR

Respectfully submitted,
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Dudley Torres
Organics Manager

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Mark Dockum
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1193-3
Project : 05100269, 5th Ave. & 7th
St.
Analyzed : 04/29/94
Analyzed by: DT
Method : EPA 8270

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

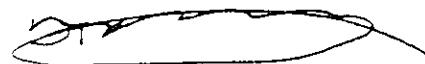
SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED	
MW-3 (0.5)	Soil	James Jensen	04/13/94	04/14/94
CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
Tot. SV Petr. Hydrocarbs				1
Total Petroleum Hydrocarbons		5.	ND	
Percent Surrogate Recovery			105.	

San Jose Lab Certifications: CAELAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit):
(1) Sample Preparation on 04/26/94 by AC using EPA 3550

05/06/94
FIN3/JK119303
DT/et
TPH-042694SR

Respectfully submitted,
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Dudley Torres
Organics Manager

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Coast-to-Coast Analytical Services, Inc.

QC Batch ID: TPH-042694SR

Analyzed : 04/29/94
Analyzed by: DT
Method : EPA 8270

QC SPIKE
REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED	
QC SPIKE	Solid				
CONSTITUENT		*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC NOTE
Tot. SV Petr. Hydrocarbs					
Total Petroleum Hydrocarbons (Diesel #2)		5.	100.	39.	39.

San Jose Lab Certifications: CAELAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit).
(1) Sample Preparation on 04/26/94 by AC using EPA 3550

05/03/94
FIN3/LCS30426S
DT/et
JK1193-3

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.


Audrey Torres
Organics Manager

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: TPH-042694SR

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 04/29/94
Analyzed by: DT
Method : EPA 3270

QC SPIKE REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED		
QC SPIKE DUPLICATE	Solid					
CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	%DIFF	NOTE
Tot. SV Petr. Hydrocarbs Total Petroleum Hydrocarbons (Diesel #2)	5.	100.	94.	94.	5.5	

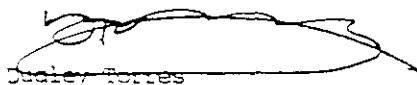
San Jose Lab Certifications: CAELAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit);

(1) Sample Preparation on 04/26/94 by AC using EPA 3550

05/03/94
FIN3/LCS40426S
DT/et
JK1193-3

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.


Dudley Torres
Organics Manager

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APPENDIX G
ANALYTICAL LABORATORY REPORTS,
GROUND WATER SAMPLES



COAST-TO-COAST ANALYTICAL SERVICES, INC.

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IN ANALYSIS

NorthCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Carl Taylor
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1399-1
Project : OS100269, East Oakland
Yard
Analyzed : 05/05/94
Analyzed by: CM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
MW-1	Groundwater	John Cavanaugh	04/28/94 1240	04/29/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			83.	

San Jose Lab Certifications: CAGLAP #1204

*RESULTS listed as 'ND' were not detected at or above the Listed PQL (Practical Quantitation Limit)

(1) EXTRACTED by EPA 5030 (purge-and-trap)

(2) ANALYZED by CAL DES DRAFT TPH, EPA 8260 modified (GC/MS)

RECEIVED

AUG 10 1994

INDUSTRIAL COMPLIANCE

08/05/94
MSD1/2AP09A
YC/et/mcc/cm
MSD1-050594

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Marissa Coronel
Marissa Coronel
Laboratory Director

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San Jose, CA 95131
(408) 955-9077

CLIENT: Carl Taylor
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1399-2
Project : 05100269, East Oakland
Yard
Analyzed : 05/05/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
MW-2	Groundwater	John Cavanaugh	04/28/94 1145	04/29/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			83.	

San Jose Lab Certifications: CAELAP #1204


*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

(1) EXTRACTED by EPA 5030 (purge-and-trap)

(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

08/05/94
MSD1/2AP10A
MC/et/mcc/on
MSD1-050594

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.


Marissa Coronel
Laboratory Director

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San Jose, CA 95131
(408) 955-9077

CLIENT: Carl Taylor
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1399-3
Project : 05100269, East Oakland
Yard
Analyzed : 05/05/94
Analyzed by: CM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
M4-3	Groundwater	John Cavanaugh	04/28/94 1045	04/29/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			83.	

San Jose Lab Certifications: CAELAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

(1) EXTRACTED by EPA 5030 (purge-and-trap)

(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

08/05/94
MSD1/2AP11A
MC/et/mcc/cm
MSD1-050594

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Marissa Coronel
Marissa Coronel
Laboratory Director

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2059 Junction Ave.

San Jose, CA 95131
(408) 955-9071

CLIENT: Carl Taylor
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1399-4
Project : 05100269, East Oakland
Yard
Analyzed : 05/05/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
Trip Blank	Aqueous	John Cavanaugh	04/25/94 1611	04/29/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				L,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			83.	

San Jose Lab Certifications: CAELAP #L204

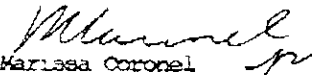
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

(1) EXTRACTED by EPA 5030 (purge-and-trap)

(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

08/05/94
MSD1/2APO4A
MC/et/mcc/on
MSD1-050594

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.


Marissa Coronel
Laboratory Director

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2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Carl Taylor
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1399-5
Project : 05100269, East Oakland
Yard
Analyzed : 05/05/94
Analyzed by: CN
Method : As Listed

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
Equipment Blank	Aqueous	John Cavanaugh	04/28/94 1220	04/29/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			85.	

San Jose Lab Certifications: CDELAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

- (1) EXTRACTED by EPA 5030 (purge-and-trap)
- (2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

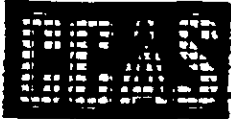
08/05/94
40
MC/et/mcc/cn
MSD1-050594

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Marissa Coronel
Marissa Coronel
Laboratory Director

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IN ANALYSIS

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2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Carl Taylor
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1399-1
Project : 05100269, East Oakland
Yard
Analyzed : 05/11/94
Analyzed by: DT
Method : EPA 8270

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

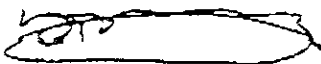
SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
MM-1	Groundwater	John Cavanaugh	04/28/94 1240	04/29/94
CONSTITUENT	(CAS #)	*PQL #G/L	RESULT #G/L	NOTE
Tot. SV Petr. Hydrocarbs				
Total Petroleum Hydrocarbons		200.	ND ✓	
Percent Surrogate Recovery			102.	

San Jose Lab Certifications: CRELAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 05/04/94 by MP using EPA 8210

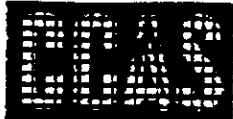
05/11/94
FINE/JK139901
DT/ec
EPA-050494W

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.


Dudley Torres
Organics Manager

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IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

Marcal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Carl Taylor
Industrial Compliance
9719 Lincoln Village Suite 310
Sacramento, CA 95827

Lab Number : JK-1599-2
Project : CS100269, East Oakland
Yard
Analyzed : 05/11/94
Analyzed by: DT
Method : EPA 8270

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
MS-2	Groundwater	John Cavanaugh	04/28/94 1145	04/29/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
Tot. SV Petr. Hydrocarbons				1
Total Petroleum Hydrocarbons		200.	ND ✓	
Percent Surrogate Recovery			110.	


San Jose Lab Certifications: CAELAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

(1) Sample Preparation on 05/04/94 by MP using EPA 3510

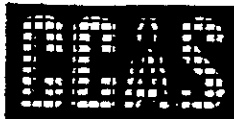
05/11/94
FMS/JKL39902
DT/ec
TEL=050494W

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.


Dudley Torres
Organics Manager

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IN ANALYSIS

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CLIENT: Carl Taylor
Industrial Compliance
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Sacramento, CA 95827

Lab Number : JK-1399-3
Project : 05100289, East Oakland
Yard
Analyzed : 05/11/94
Analyzed by: DT
Method : EPA 8270

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
MP-3	Groundwater	John Cavanaugh	04/28/94 1045	04/29/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
Tot. SV Petr. Hydrocarbs				1
Total Petroleum Hydrocarbons		200.	ND ✓	
Percent Surrogate Recovery			31.	


San Jose Lab Certifications: CMLAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

(1) Sample Preparation on 05/04/94 by MP using EPA 3510

05/11/94
FNG/JK139903
DT/et
TPI-050494W

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.


Dudley Torres
Organics Manager

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Sacramento, CA 95827

Lab Number : JK-1399-1
Project : 05100269, East Oakland
Yard

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED			
MP-1	Groundwater	John Cavanaugh	04/28/94 1240	04/29/94			
CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Sodium Chloride	5.	91.	mg/L	EPA 8010	05/12/94	XP	1
Sodium Chloride	1.	37.	mg/L	EPA 300.0	05/09/94	CL	
Sodium Chloride	1.	61.	mg/L	calc	05/12/94	NG	
Total Dissolved Solids	5.	530.	mg/L	EPA 160.1	05/05/94	CL	

San Jose Lab Certification: CRELAP #1204

*RESULTS Listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

(1) Sample Preparation on 05/10/94 by NT using EPA 3005

05/12/94

NG/nfg/cml
0594051002

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick Gagne

Nick Gagne
Inorganics Manager

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Lab Number : JK-1399-2
Project : 05100269, East Oakland
Yard

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED			
MF-2	Groundwater	John Cavanaugh	04/28/94 1145	04/29/94			
CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Sodium Chloride	5.	72.	mg/L	EPA 5010	05/12/94	JP	1
Sodium Chloride	1.	47.	mg/L	EPA 300.0	05/09/94	CL	
Sodium Chloride	1.	77.	mg/L	calc	05/12/94	NG	
Total Dissolved Solids	5.	460.	mg/L	EPA 160.1	05/05/94	CM	

San Jose Lab Certification: CMLAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit);

(1) Sample Preparation on 05/10/94 by NT using EPA 3005

05/12/94

NG/nbg/cal
0594051002

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick J. Gagne

Nick Gagne
Inorganic Manager

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Project : 05100269, East Oakland
Yard

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED		
M-3	Groundwater	John Cavanaugh	04/28/94 1045	04/29		
CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY
Sodium	5.	180.	mg/L	EPA 6010	05/12/94	NT
Chloride	1.	190.	mg/L	EPA 300.0	05/09/94	CL
Sodium Chloride	1.	300.	mg/L	calc	05/12/94	NT
Total Dissolved Solids	5.	680.	mg/L	EPA 160.1	05/05/94	TL

San Jose Lab Certifications: CAGLAP #1204

*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation)

(1) Sample Preparation on 05/10/94 by NT using EPA 3005

05/12/94

NG/nfg/cml
0594051002

Respectfully submitted,
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Nick J. Gagne
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