



Industrial Compliance

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3-1-95

**THIRD QUARTER 1994
GROUND WATER MONITORING 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**

March 1, 1995





Industrial Compliance

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916/369-8971 FAX 916/369-8370

March 1, 1995

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 94501

VIA OVERNIGHT MAIL

**Re: Third Quarter 1994 Ground Water Monitoring Report
Southern Pacific Transportation Company
5th Avenue and 7th Street Property - Oakland, California**

Dear Ms. Eberle:

Industrial Compliance (IC), on behalf of Southern Pacific Transportation Company (SPTCo), has prepared the attached Third Quarter 1994 Ground Water Monitoring Report for the SPTCo property located in the East Oakland Yard at 5th Avenue and 7th Street, Oakland, California.

If you should have any questions regarding this report, please contact either of the undersigned at (510) 238-9540 or (916) 369-8971.

Sincerely,

INDUSTRIAL COMPLIANCE

James B. Ackerman
Project Geologist

Richard L. Bateman, R.G.
Principal Hydrogeologist

ENVIRONMENTAL
PROTECTION
95 FEB 30 AM 8:22

JBA/RLB/ekw

Attachment

- cc: Mr. Greg Shepherd, Southern Pacific Transportation Company (with attachment)
- Mr. Darrell J. Maxey, Oakland Program Office, Southern Pacific Transportation Company (with attachment)
- Ms. Gina Kathuria, California Regional Water Quality Control Board, San Francisco Region (with attachment)

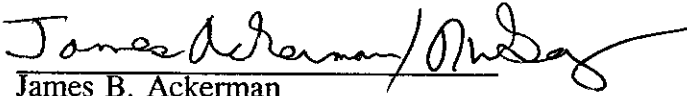
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**THIRD QUARTER 1994
GROUND WATER MONITORING REPORT**

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

Prepared By:


James B. Ackerman
Project Geologist

Reviewed By:



Richard L. Bateman, R.G.
Principal Hydrogeologist

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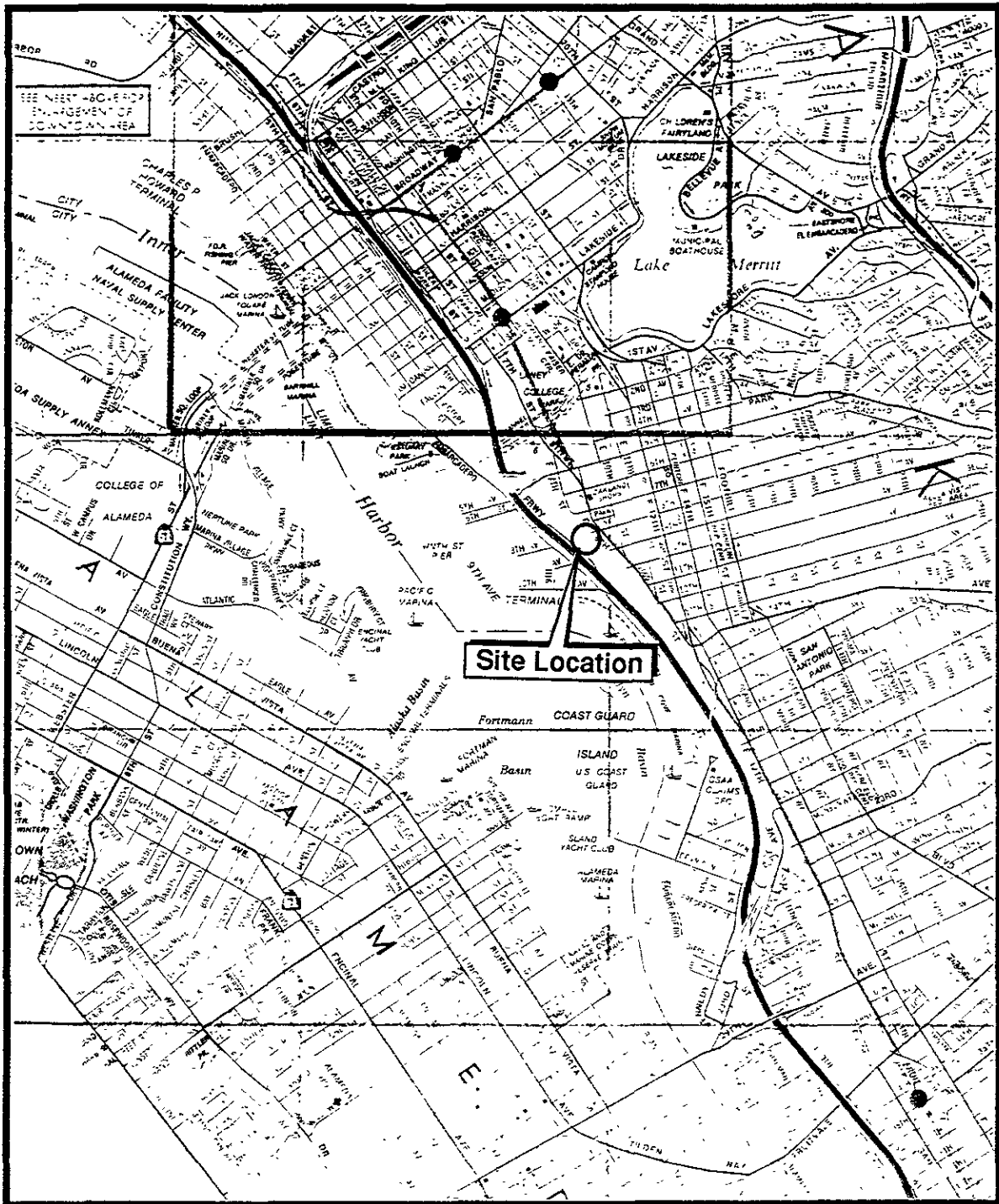
- Appendix A Purge Characterization and Sample Log Field Data Sheets
- Appendix B Chain-of-Custody Documents
- Appendix C Analytical Laboratory Reports, Ground Water Samples



1.0 INTRODUCTION


Industrial Compliance (IC), on behalf of Southern Pacific Transportation Company (SPTCo), is conducting quarterly ground water monitoring at the SPTCo property located on a portion of the East Oakland Yard at 5th Avenue and 7th Street in Oakland, California (Figure 1).

The site was formerly the location of four underground fuel storage tanks (Figure 2). Third quarter monitoring and sampling activities were performed on August 16, 1994. This report presents the results of that monitoring event.



Approximate Scale in Feet
 0 2000'

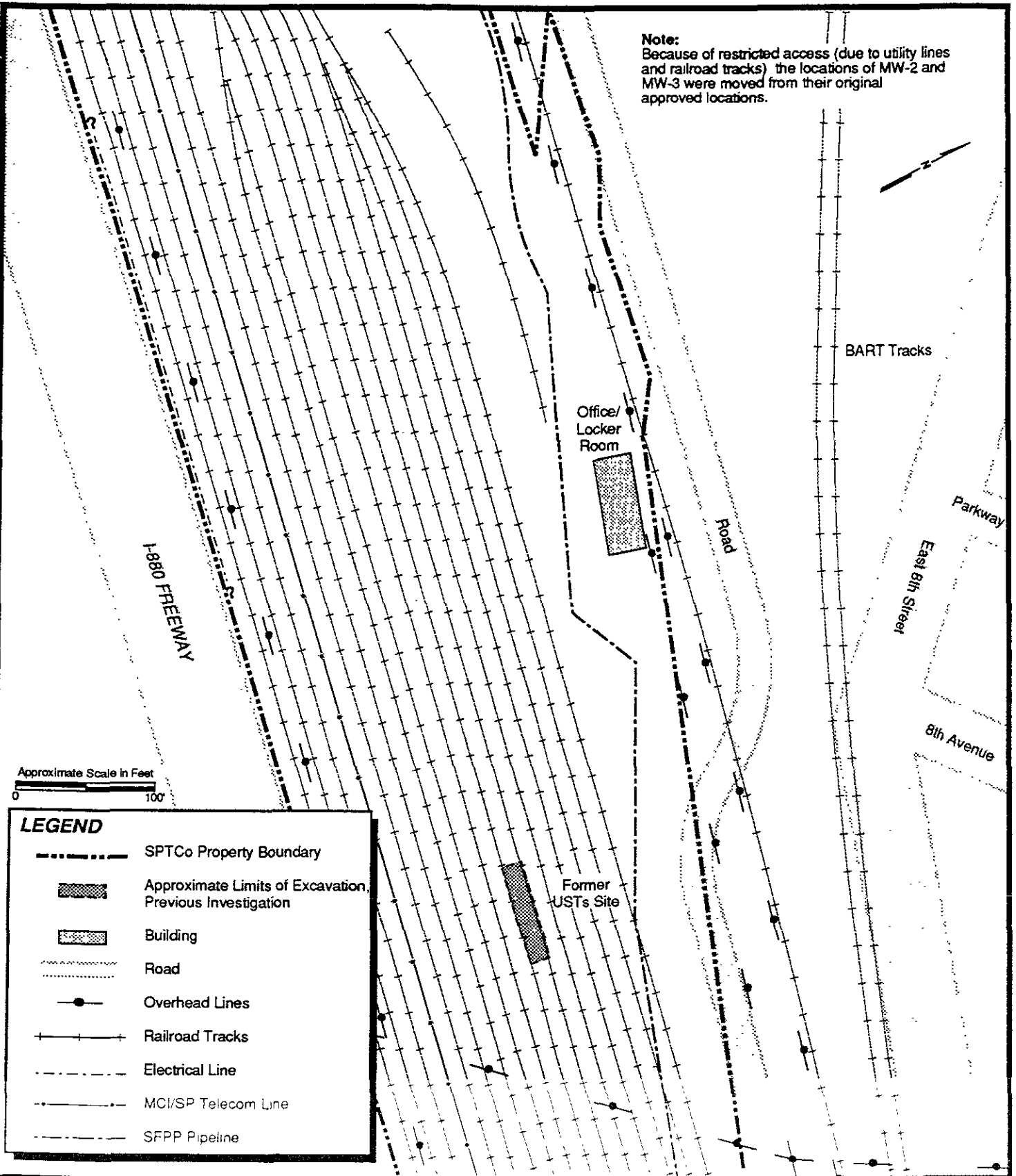
Reference
 Map of Oakland Berkeley, Alameda
 American Automobile Association

	
Project No	05100269
Date	12/01/94
Drawn By	Patti Decker
Checked By	James Ackerman

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

Figure	1
Page No	2
Scale	as shown

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



Approximate Scale in Feet
0 100'

LEGEND

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

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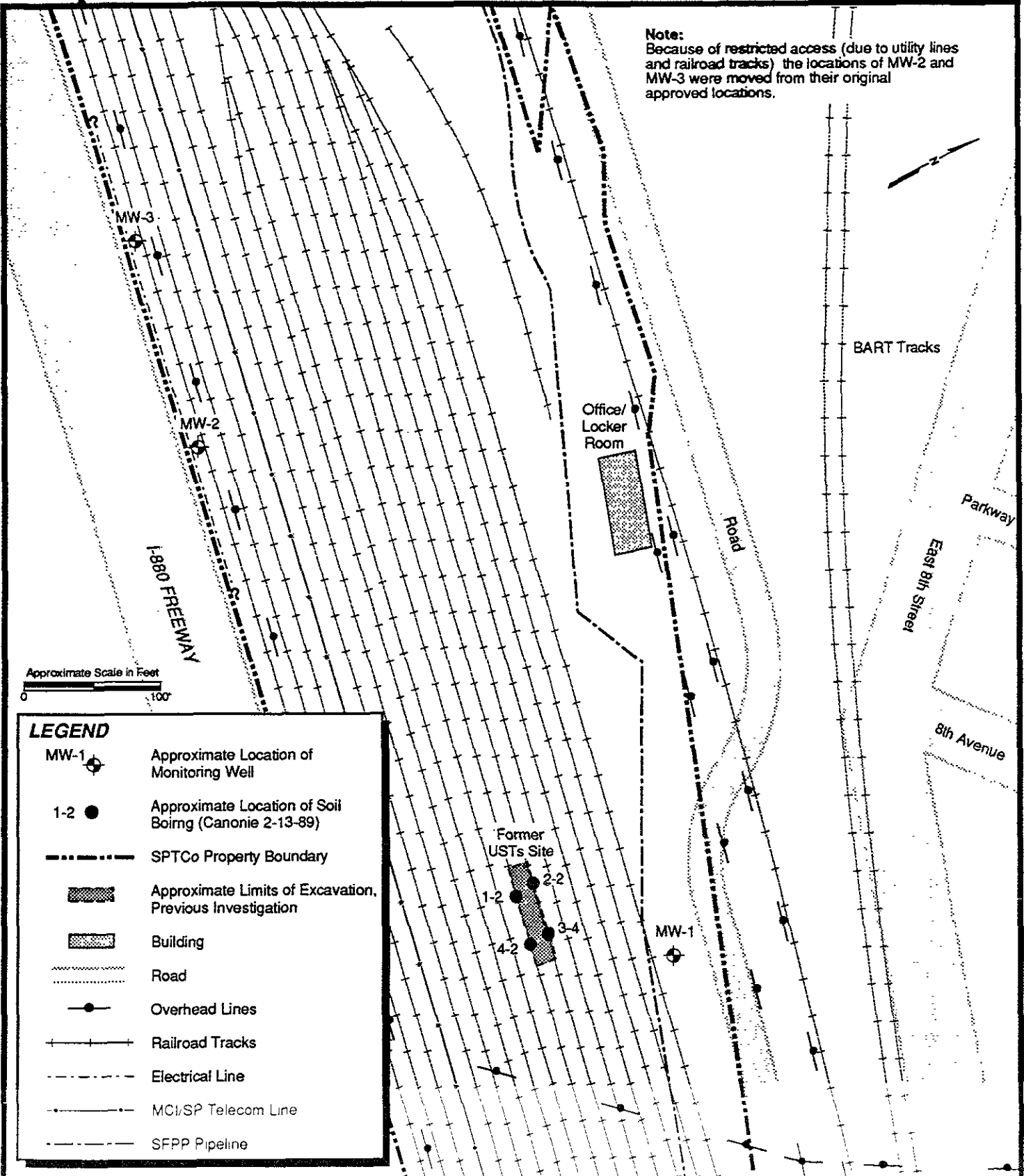
Project No: 05100269 Date: 12/01/94

Drawn By: Patti Decker Checked By: James Ackerman

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

Figure 2
Page No 3
Scale as shown

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



LEGEND

- MW-1 Approximate Location of Monitoring Well
- 1-2 Approximate Location of Soil Boring (Canonie 2-13-89)
- SPTCo Property Boundary
- Approximate Limits of Excavation, Previous Investigation
- Building
- Road
- Overhead Lines
- Railroad Tracks
- Electrical Line
- MCI/SP Telecom Line
- SFPP Pipeline

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Project No. 05100269 Date 12/01/94

Drawn By Patti Decker Checked By James Ackerman

LOCATION OF SOIL BORINGS AND MONITORING WELLS INSTALLED DURING PREVIOUS SITE INVESTIGATION SOUTHERN PACIFIC TRANSPORTATION COMPANY 5TH AVENUE AND 7TH STREET PROPERTY OAKLAND, CALIFORNIA

Figure	3
Page No	5
Scale	as shown

at 14 feet bgs). Laboratory analyses performed on the soil samples collected at 12 feet bgs identified maximum concentrations of 12 ppm of total extractable petroleum hydrocarbons (TEPH) and 43 ppm of total recoverable petroleum hydrocarbons (TRPH). The six samples at 12 feet bgs were composited into two samples and analyzed for polychlorinated biphenyls (PCBs). Laboratory analysis did not identify PCBs at or above the method practical quantitation limit. 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*).

At the request of Alameda County, IC conducted a preliminary site assessment at the site in April, 1994. A total of three soil borings were drilled at the site, which were then converted to monitoring wells (MW-1, MW-2, and MW-3). Because of restricted access (due to utility lines and railroad tracks), the locations for two of the monitoring wells (MW-2 and MW-3) were moved in a westerly direction from their previously approved location. After a period of approximately nine days, these wells were developed, and subsequently sampled six days thereafter. The procedures and results of this work were presented in an IC report dated September 2, 1994 (report entitled: *Soil and Ground Water Investigation Report, Southern Pacific Transportation Company, 5th Avenue and 7th Street, Oakland, California*).

Figure 3 shows the approximate location of the soil borings and monitoring wells installed by Canonie and IC during previous investigations.

In August of 1994, IC initiated quarterly ground water monitoring and sampling activities with the monitoring wells installed during the April 1994 field activities. The results of that third quarter, 1994 sampling event are presented in this report.

3.0 FIELD INVESTIGATION

This section discusses the procedures and protocol used for the collection of monitoring well water level data and ground water samples for laboratory analyses.

3.1 Monitoring Well Water Level Data

On August 16, 1994, prior to purging, the depth to ground water and the total depth was measured in all wells (MW-1, MW-2, and MW-3). All readings were measured from the top of casing (which had been surveyed by a licensed surveyor relative to mean sea level [MSL]) using a water level indicator with an accuracy of 0.01 feet. Ground water elevations this quarter ranged from -2.30 to 3.78 feet MSL. Monitoring well ground water elevation data are summarized in Table 1. Ground water elevation data were used to construct a ground water elevation contour map (Figure 4). Ground water flow is to the northeast. The local hydraulic gradient is about 0.017 feet per foot.

3.2 Monitoring Well Purging

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 length by the number of gallons per foot of casing. 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 a minimum of three times the saturated casing volume in the well, or until the well was bailed dry (which was the case with wells MW-1 and MW-3). 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, was measured from the initial water removed and at least two times during purging. The ground water in each well was

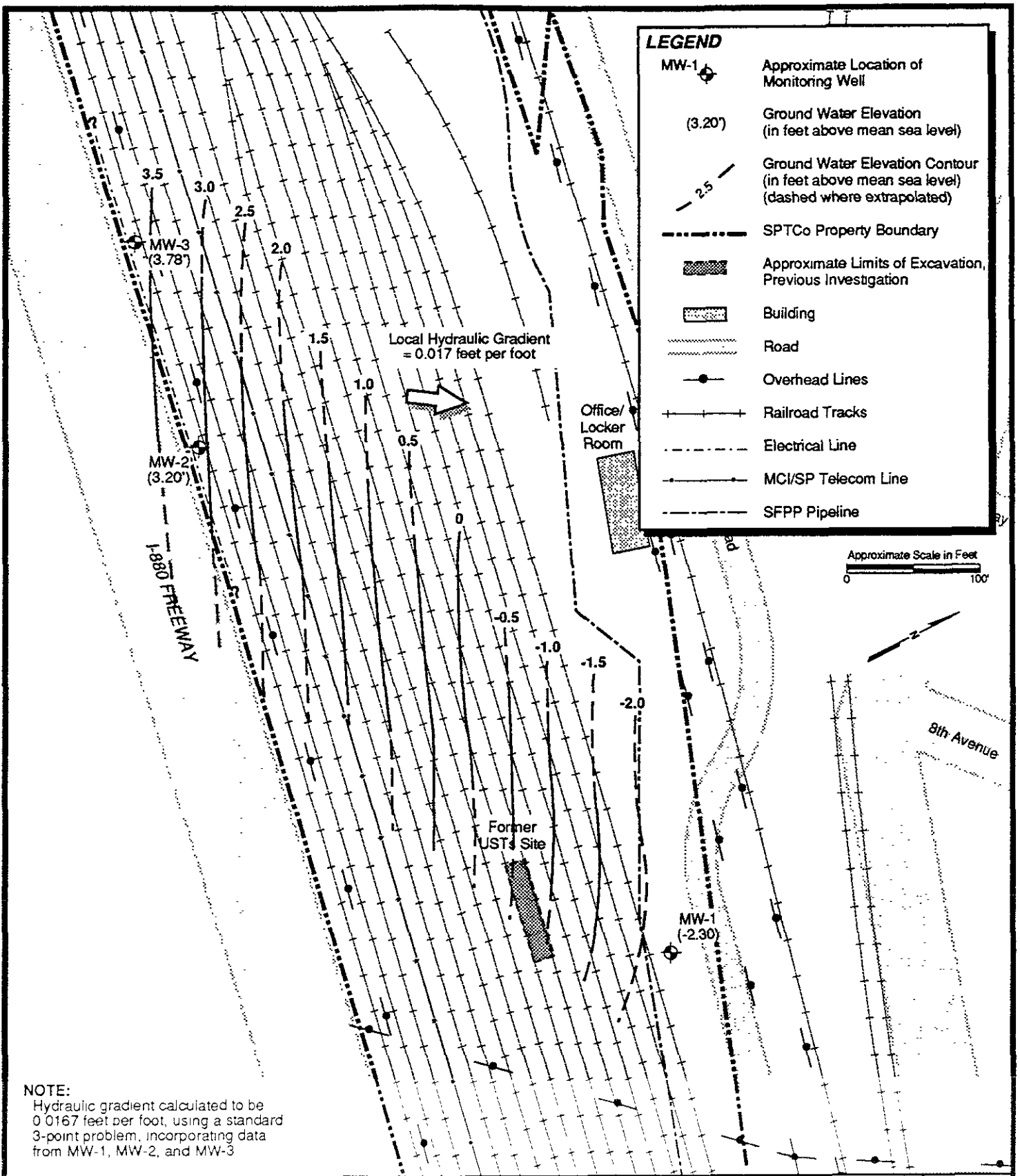


TABLE 1
MONITORING WELL GROUND WATER ELEVATION DATA
AUGUST, 1994

Monitoring Well ^a	Date Measured	Time Measured	Reference Elevation ^b (feet MSL)	Depth to Ground Water ^c (feet TOC)	Ground Water Elevation ^d (feet MSL)
MW-1	08/16/94	0815	8.20	10.50	-2.30 ✓
MW-2	08/16/94	0840	6.36	3.16	3.20 ✓
MW-3	08/16/94	0910	6.84	3.06	3.78 ✓

- a See Figure 3 for approximate location of monitoring wells.
 - b Reference casing elevation is a point marked on the top of the well casing, which has been measured by a licensed surveyor.
 - c Depth to ground water measured from top of casing (TOC).
 - d Ground water elevation calculated by subtracting the depth to ground water from the reference casing elevation.
- MSL Mean sea level
- TOC Top of casing





NOTE:
 Hydraulic gradient calculated to be 0.0167 feet per foot, using a standard 3-point problem, incorporating data from MW-1, MW-2, and MW-3

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Project No: 05100269 Date: 12/01/94

Drawn By: Patti Decker Checked By: James Ackerman

CONTOUR MAP OF GROUND WATER ELEVATIONS
AUGUST, 1994
SOUTHERN PACIFIC TRANSPORTATION COMPANY
5TH AVENUE AND 7TH STREET PROPERTY
OAKLAND, CALIFORNIA

Figure	4
Page No	9
Scale	as shown

assumed to be representative of the formation when three well volumes were removed and consecutive parameter readings were within 10 percent. After purging was completed, those wells that readily yield water were allowed to recover to at least 90 percent of the pre-purge water level prior to sampling. Due to the slow recharge rate, wells MW-1 and MW-3 were bailed dry and subsequently sampled before each could recover to 90 percent of its pre-purge water level. Monitoring well ground water purge characterization parameters are summarized in Table 2. Monitoring well purge characterization and sample log field data sheets are included in Appendix A.

3.3 Monitoring Well Sampling

Ground water samples were collected using new, disposable polyethylene bailers. The water samples from the bailers were transferred to laboratory-supplied containers of appropriate volumes and with required preservatives for the intended analyses. Volatile organic analysis (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 PACE Incorporated Environmental Laboratories (PACE). A chain-of-custody document was completed concurrent with sample collection and accompanied the samples upon transport to the laboratory. Chain-of-custody documents are included in Appendix B. All ground water samples were analyzed for the following constituents:

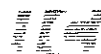


TABLE 2
GROUND WATER PURGE CHARACTERIZATION DATA
AUGUST, 1994

Monitoring Well ^a	Date Measured	Purge Volume (gallons)	Electrical Conductivity (μmhos/cm)	Temperature (°F)	Field pH (units)
MW-1	08/16/94	1	1,157	67.1	7.58
		2	903	70.0	7.20
		4*	933	70.8	6.92
MW-2	08/16/94	1	4,750	76.1	7.60
		6	2,250	76.1	7.23
		13	6,950	74.9	7.09
		20	3,480	76.8	7.14
MW-3	08/16/94	1	7,260	75.8	7.88
		7	5,960	76.6	7.27
		14*	6,690	76.1	6.90

a See Figure 3 for approximate monitoring well locations.

μmhos/cm Micromhos per centimeter

°F Degrees Fahrenheit

***** The well was purged dry and the third casing volume was not recovered.

Note: Purge characterization data sheets included in Appendix A.



<u>Constituent</u>	<u>Analytical Method</u>
Total Petroleum Hydrocarbons as Diesel and Motor Oil	EPA Method 8015 Modified
Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)	EPA Method 8020
1,2-Dichloroethane (1,2-DCA)	EPA Method 8010
Sodium Chloride	Calculation ¹
Total Dissolved Solids (TDS)	EPA Method 160.1

3.4 Quality Assurance/Quality Control

To evaluate the integrity of the ground water sample/analysis process, a duplicate ground water sample was collected from MW-2 using the procedures previously described in Section 3.3. The duplicate ground water sample was analyzed for TPH-D, BTEX, 1,2-DCA, TDS and sodium chloride.

To assess the potential for cross-contamination of the ground water samples during transport to the laboratory, one trip blank was prepared on site prior to sample collection with DI water and accompanied the ground water samples during shipment to the laboratory. The trip blank was submitted to the laboratory for TPH-D analysis only.

In addition, one equipment blank was collected by pouring DI water through the sampling equipment into the appropriate sample bottles. The equipment blank was analyzed for TPH-D, BTEX, 1,2-DCA, TDS and sodium chloride.

¹ Sodium chloride concentration obtained by calculation after analyzing for sodium and chloride separately.

4.0 ANALYTICAL RESULTS

Third quarter 1994 ground water samples were analyzed by PACE for the suite of constituents listed in Section 3.3. Analytical results are summarized in Table 3. Figure 5 is a chemical distribution map. Analytical laboratory reports are included as Appendix C. The following is a summary of the third quarter, 1994 analytical results:

- * TPH-D, BTEX, and 1,2-dichloroethane (1,2-DCA) were not detected in any of the wells sampled at or above their respective method detection limits (MDL).
- * TPH as motor oil was detected at the MDL (750 micrograms per liter [$\mu\text{g/L}$]) in MW-2, but was not detected in either MW-1 or MW-3 at or above the MDL.
- * Sodium chloride concentrations ranged from 86 milligrams per liter (mg/L) in MW-1 to 1,200 mg/L in MW-3 (average concentration for all three wells = 485 mg/L).
- * TDS ranged from 600 mg/L in MW-1 to 3,700 mg/L in MW-3 (average concentration for all three wells = 1,663 mg/L).

The analytical results for the duplicate ground water sample collected from MW-2 are similar to those of the original ground water sample.

None of the analyzed constituents were detected at or above their respective MDLs in either the trip blank or the equipment blank.

TABLE 3
GROUND WATER MONITORING WELL ANALYTICAL RESULTS
AUGUST, 1994

Sample Location	Date Sampled	Total Petroleum Hydrocarbons ($\mu\text{g/L}$)		Volatile Organic Compounds ^b ($\mu\text{g/L}$)					Sodium Chloride ^c (mg/L)	Total Dissolved Solids ^d (mg/L)
		Diesel ^a	Motor Oil ^a	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-DCA		
MW-1	08/16/94	<120	<750	<0.3	<0.3	<0.5	<0.5	<0.5	86	600
MW-2	08/16/94	<120	750	<0.3	<0.3	<0.5	<0.5	<0.5	170	690
MW-3	08/16/94	<120	<750	<0.3	<0.3	<0.5	<0.5	<0.5	1200	3700
MW 2 Duplicate	08/16/94	<120	<750	<0.3	<0.3	<0.5	<0.5	<0.5	130	720
Equipment Blank	08/16/94	<120	<750	<0.3	<0.3	<0.5	<0.5	<0.5	<1.0	<5.0
Top Blank	08/16/94	<120	NA	<0.3	<0.3	<0.5	<0.5	<0.5	NA	NA
Cal DHS MCLs ^e		NE	NE	1	100 ^f	680	1,750	0.5	NE	500

a Analyzed by EPA Method 8015 Modified.

b BTEX analyzed by EPA Method 8020, 1,2 DCA analyzed by EPA Method 8010

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

d Total dissolved solids analyzed by EPA Method 160.1.

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

f 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

$\mu\text{g/L}$ 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 analyzed by EPA Method 8015 modified.
2. VOCs analyzed by EPA Method 8010/8020.
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		
4/28/94	<120	<750	<0.3	<0.3	<0.5	<0.5	1200	3700

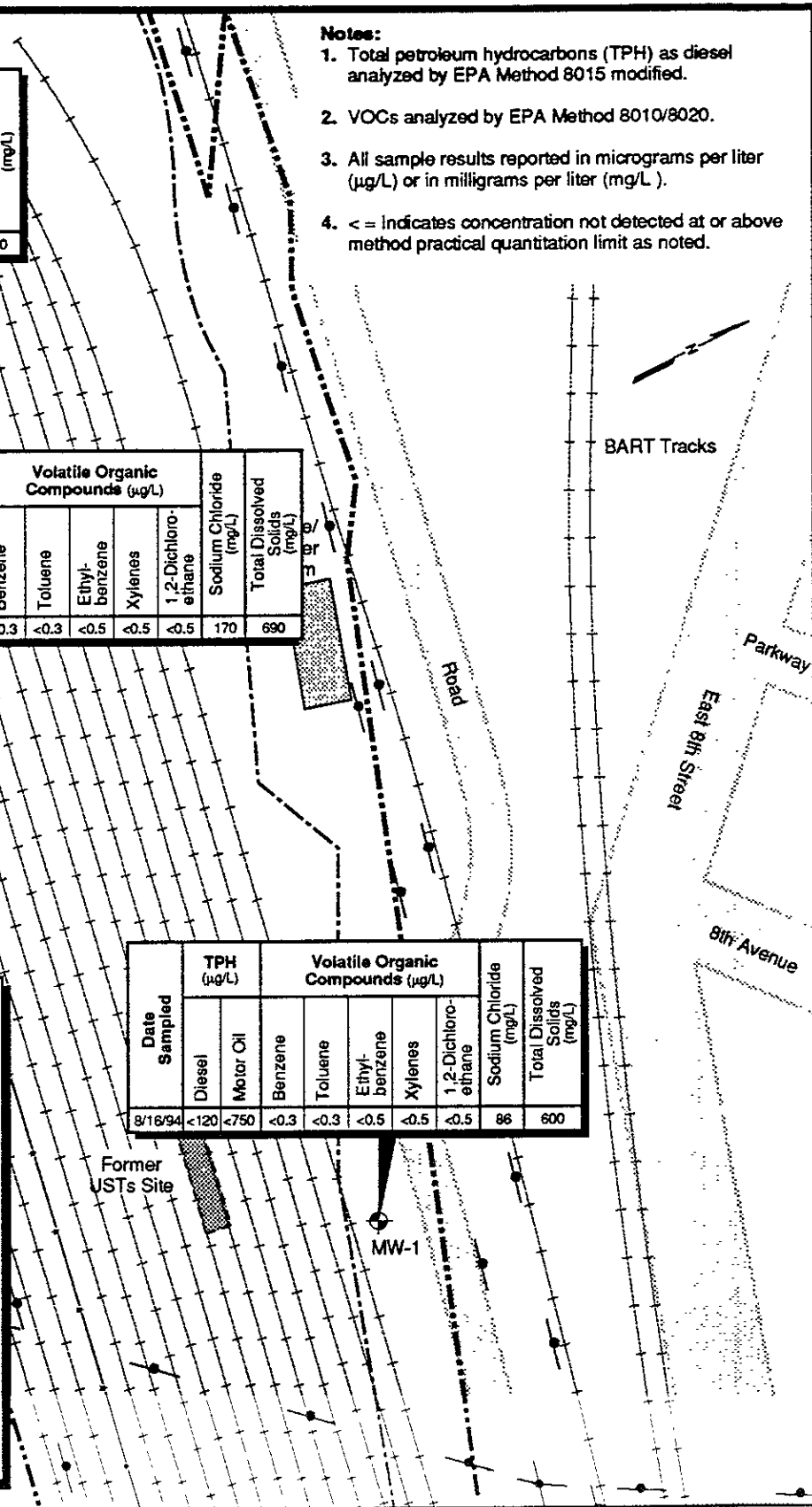
Date Sampled	TPH (µg/L)		Volatile Organic Compounds (µg/L)				Sodium Chloride (mg/L)	Total Dissolved Solids (mg/L)
	Diesel	Motor Oil	Benzene	Toluene	Ethyl-benzene	Xylenes		
8/16/94	<120	750	<0.3	<0.3	<0.5	<0.5	170	690

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		
8/16/94	<120	<750	<0.3	<0.3	<0.5	<0.5	86	600



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



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CHEMICAL DISTRIBUTION MAP FOR CONSTITUENTS IN GROUND WATER SAMPLES AUGUST 1995 SOUTHERN PACIFIC TRANSPORTATION COMPANY 5TH AVENUE AND 7TH STREET PROPERTY OAKLAND, CALIFORNIA

Figure

5

Page No

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Scale

as shown

Project No	05100269	Date	12/01/94
Drawn By	Patti Decker	Checked By	James Ackerman

All laboratory procedures (holding times, methods used, method blanks, documentation, etc.) and subsequent results were monitored throughout the analytical process according to standard quality assurance/quality control (QA/QC) procedures. In addition, all laboratory reports were evaluated as part of QA/QC procedures for ground water monitoring. The analytical data included in this third quarter, 1994 report are considered quantitatively valid.

5.0 DISCUSSION

Based on data collected during the third quarter, 1994 ground water monitoring event at the SPTCo 5th Avenue and 7th Street property, the only chemical compound detected at or above its respective MDL in the ground water was TPH as motor oil which was detected at the MDL in MW-2. This is consistent with analytical results from the first sampling event (April 28, 1994) (Table 4). None of the constituents analyzed this quarter exceeded California Department of Health Services (DHS) maximum contaminant levels (MCLs) for drinking water.

Table 5 lists all ground water elevation data collected to date. A comparison of ground water elevation data collected during the third quarter, 1994 sampling event with ground water elevations measured during April of 1994, indicates a slight decrease in ground water elevations in wells MW-2 and MW-3, and a substantial decrease in ground water elevation in MW-1. Ground water elevations measured on August 16, 1994 show an average decrease of 2.35 feet. The local hydraulic gradient for the third quarter, 1994 was calculated to be 0.017 feet per foot which is similar to the gradient calculated for April, 1994 of 0.01 feet per foot. The ground water flow direction has changed from the north in April of 1994 to the northeast this quarter (August 1994). The observed decrease in ground water elevation and the change in flow direction are most likely due to seasonal variation. Figure 6 shows hydrographs of ground water elevations for all monitoring wells.

TABLE 4
GROUND WATER MONITORING WELL ANALYTICAL RESULTS
HISTORIC SUMMARY

Sample Location	Date Sampled	Total Petroleum Hydrocarbons (µg/L)		Volatile Organic Compounds ^b (µg/L)						Sodium Chloride ^c (mg/L)	Total Dissolved Solids ^d (mg/L)
		Diesel ^a	Motor Oil ^b	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
	08/16/94	<120 ✓	<750 ✓	<0.3 ✓	<0.3 ✓	<0.5 ✓	<0.5 ✓	<0.5	NA	86	600
MW-2	04/28/94	<50	<200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	77	460
	08/16/94	<120 ✓	750 ✓	<0.3 ✓	<0.3 ✓	<0.5 ✓	<0.5 ✓	<0.5	NA	170	690
MW-3	04/28/94	<50	<200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	300	680
	08/16/94	<120 ✓	<750 ✓	<0.3 ✓	<0.3 ✓	<0.5 ✓	<0.5 ✓	<0.5	NA	1200	3700
Cal DHS MCLs		NE	NE	1	100 ^f	680	1,750	0.5	0.02	NE	500

a Analyzed by EPA Method 8015 Modified (April 1994 samples analyzed by EPA Method 8260)

b Analyzed by EPA Method 8015 Modified (April 1994 samples analyzed by EPA Method 8270)

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

d Total dissolved solids analyzed by EPA Method 160.1.

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

f 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 or method detection limit as listed.

TABLE 5
MONITORING WELL GROUND WATER ELEVATION DATA
HISTORIC SUMMARY

Monitoring Well ^a	Date Measured	Time Measured	Reference Elevation ^b (feet MSL)	Depth to Ground Water ^c (feet TOC)	Ground Water Elevation ^d (feet MSL)
MW-1	04/28/94	0900	8.20	4.68	3.52
	08/16/94	0815		10.50	-2.30
MW-2	04/28/94	0913	6.36	2.01	4.35
	08/16/94	0840		3.16	3.20
MW-3	04/28/94	0920	6.84	2.99	3.85
	08/16/94	0910		3.06	3.78

a See Figure 3 for approximate location of monitoring wells.

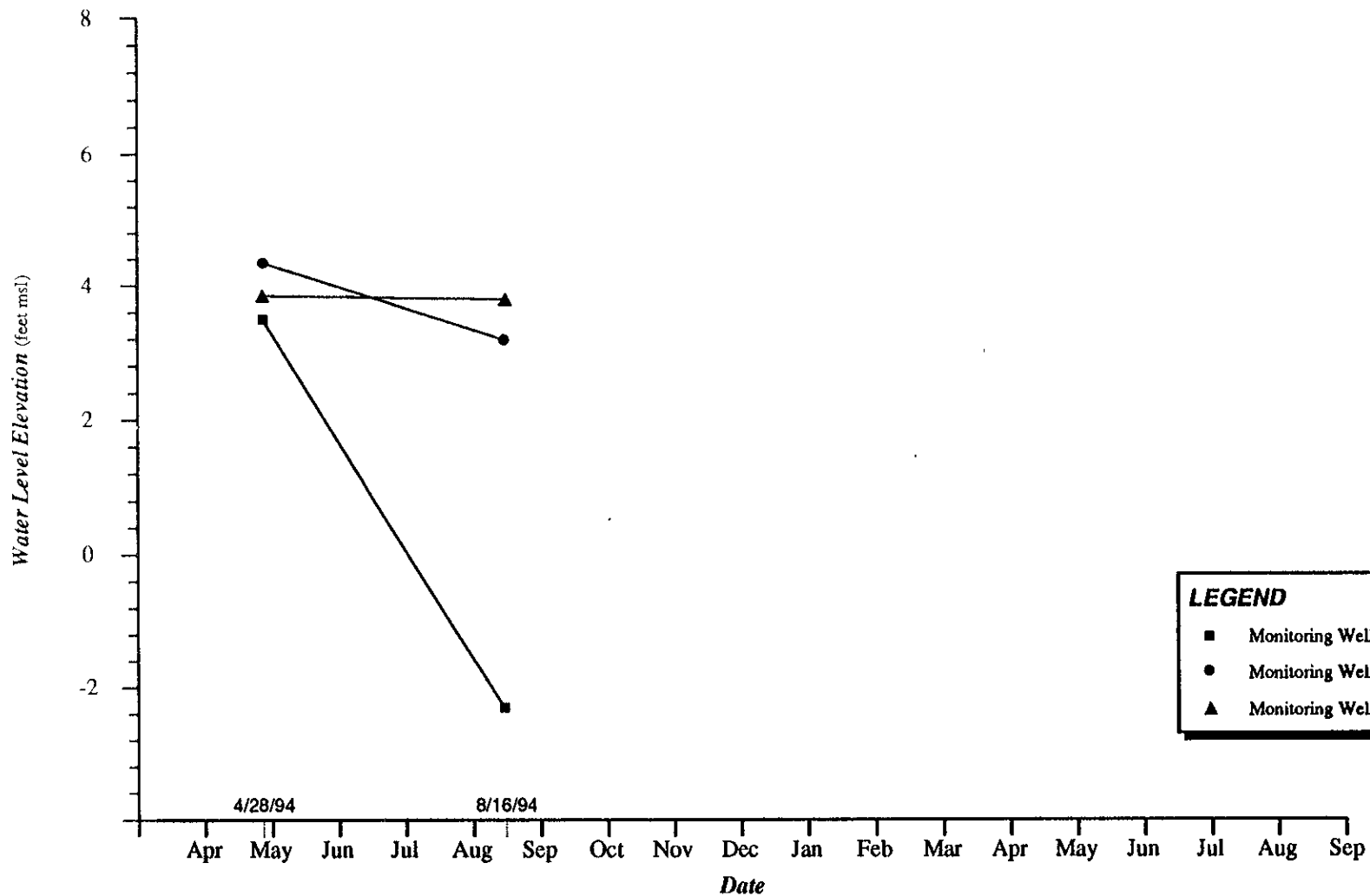
b Reference casing elevation is a point marked on the top of the well casing, which has been measured by a licensed surveyor.

c Depth to ground water measured from top of casing (TOC).

d Ground water elevation calculated by subtracting the depth to ground water from the reference casing elevation.

MSL Mean sea level

TOC Top of casing



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: 12/01/94
Drawn By: Patti Decker	Checked By: James Ackerman	

**HYDROGRAPHS OF GROUND WATER ELEVATIONS
SOUTHERN PACIFIC TRANSPORTATION COMPANY
5TH AND 7TH STREET PROPERTY
OAKLAND, CALIFORNIA**

Figure:
6

Page No.:
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Scale:
as shown

6.0 GLOSSARY OF ACRONYMS

1,2-DCA	1,2-Dichloroethane
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene and xylenes
cy	Cubic yards
DHS	California Department of Health Services
DI	Deionized
IC	Industrial Compliance
MCLs	Maximum contaminant levels
MDL	Method detection limits
mg/L	Milligrams per liter
MSL	Mean sea level
PACE	PACE Incorporated Environmental Laboratories
PCBs	Polychlorinated biphenyls
ppm	Parts per million
QA/QC	Quality assurance/quality control
SPTCo	Southern Pacific Transportation Company
TDS	Total dissolved solids
TEPH	Total extractable petroleum hydrocarbons
TRPH	Total recoverable petroleum hydrocarbons
USTs	Underground storage tanks
VOA	Volatile organic analysis
$\mu\text{g/L}$	Micrograms per liter

APPENDIX A
PURGE CHARACTERIZATION AND SAMPLE LOG FIELD DATA SHEETS



Industrial Compliance

A Subsidiary of SP Environmental Systems, Inc.



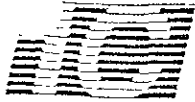
PURGE CHARACTERIZATION AND SAMPLE LOG

Project Number: 05100269 Project Name: EAST OAKLAND Date: 8-16-94
 Well Number: MW-1 Sampler: J. CARLUCCI Weather: CLEAR

Military Time	8:25	8:28	8:30	8:35	10:35	14:50	
Gallons Purged	1	2	4	BD			Depth to bottom (DB): <u>13.68</u>
Purge Rate		HAND BAIL		R			Depth to water (DW): <u>10.50</u>
pH	7.58	7.20	6.92	Y			Height of water column (H) = DB - DW: <u>3.18</u>
Conductivity	11.52x100	9.03x100	9.33x100				One casing volume (CV) = H x multiplier: <u>2.07</u>
Temperature (K) F	67.1	70.0	70.8	↓			Three casing volumes (3CV): <u>6.2</u>
Salinity (0/XX)	-	-	-				Multipliers = 2" well = 0.16 gallons/foot
Turbidity	LT	LT	LT				4" well = 0.65 gallons/foot
Color	Clear	GRAY	GRAY		DTW ↓	DTW =	6" well = 1.47 gallons/foot
Water Level Casing	3'	2'	1'		12.80	12.50	8" well = 2.61 gallons/foot
Calibration	pH	10/4					S.C.:

Sample #	Quantity	Volume	Type	Preserv.	Analysis	Lab	Sample Equip.	Purge Equip.	Field Comments
MW-1	2	40 ml	Voa	HCE	FFP260	PAGE	Disp Baiton	Disp Baiton (2)	POOR RECHARGE
MW-1	1	12	Amber	-	8270 846TPH	↓	↓	↓	
MW-1	1	12	Amber	-	PD-SAL	↓	↓	↓	
TRIP	2	40 ml	Voa	HCE	FFP260	PAGE	-	-	PREPARED @ 8:10
Cleaning:	PURGE EQUIPMENT WASHED WITH ALCONOX RINSED WITH DI H ₂ O								
Comments:	POOR RECHARGE.								

Sampler's Signature: John Carlucci



Industrial Compliance

A Subsidiary of SP Environmental Systems, Inc.



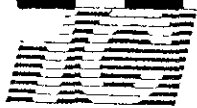
PURGE CHARACTERIZATION AND SAMPLE LOG

Project Number: 05100269 Project Name: EAST OAKLAND Date: 8-16-94
 Well Number: MW-2 Sampler: JOHN CAVANAUGH Weather: CLEAR

Military Time	9:15	9:25	9:45	9:50	9:57		
Gallons Purged	1	6	13	20	5		Depth to bottom (DB): 13.62
Purge Rate	← HAND BAILER →					A	Depth to water (DW): 3.16
pH	7.60	7.23	7.09	7.14	M		Height of water column (H) = DB - DW: 10.46
Conductivity	4.75 1000	2.254 1000	6.95 11000	3.48 1000	P		One casing volume (CV) = H x multiplier: 6.8
Temperature (°F)	76.1	76.1	74.9	76.8			Three casing volumes (3CV): 20
Salinity (0/00)	-	-	-	-	L		Multipliers = 2" well = 0.16 gallons/foot
Turbidity	LT	LT	MOD	LT	E		4" well = 0.65 gallons/foot
Color	CLEAR	CLEAR	GRAY	GRAY			6" well = 1.47 gallons/foot
Water Level Casing	2+	3+	4+	6+	DW=4.5		8" well = 2.61 gallons/foot
Calibration	pH: 10/4					64.0	S.C.:

Sample #	Quantity	Volume	Type	Preserv.	Analysis	Lab	Sample Equip.	Purge Equip.	Field Comments
MW-2	2	40 ml	VOA	HCL	FF 8260	PACE	Disp Bailer	Disp Bailer	Good RECHARGE
MW-2	1	12	AMBER	-	TPH-NO 8270				
MW-2	1	12	AMBER	-	TDS-SAL				
DUP	2	40 ml	VOA	HCL	FF 8260	PACE	Disp Bailer	2 Bailleurs	
MW-2	1	12	AMBER	-	TPH-NO 8270				
MW-2	1	12	AMBER	-	TDS-SAL				
MW-2 DUP									
EQUIP	2	40 ml	VOA	HCL	FF 8260	PACE	Disp Bailer	2 Bailleurs	Collected BEFORE PURGE
EQUIP	1	12	AMBER	-	TPH-NO 8270				
EQUIP	1	12	AMBER	-	TDS-SAL				
Cleaning	DISPOSABLE BAILER USED - CONVERT TO (2) BATTERIES TEFLO BAILERS - EQUIP BAIER collect								
Comments	CT CLOSED OFF RAMP - USE FOR ACCESS 9:30								

Sampler's Signature: John Cavanaugh



Industrial Compliance

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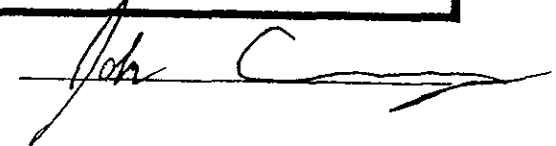
PURGE CHARACTERIZATION AND SAMPLE LOG

Project Number: 05100269 Project Name: EAST OAKLAND Date: 08-16-94
 Well Number: MW-3 Sampler: J. GAVANAUGH Weather: CLEAR

Military Time	10:15	10:20	10:27	10:30	11:40		
Gallons Purged	1	7	14	21	S		Depth to bottom (DB): 13.60
Purge Rate	←	HAND	Ball	D	R		Depth to water (DW): 3.00
pH	7.88	7.27	6.90	Y	Y		Height of water column (H) = DB - DW: 10.60
Conductivity	7.26 μmho	5.96 μmho	6.69 μmho	@ 15	GALICUS		One casing volume (CV) = H x multiplier: 6.9
Temperature (°F)	75.8	76.6	76.1				Three casing volumes (3CV): 20.7
Salinity (0/00)	—	—	—				Multipliers = 2" well = 0.16 gallons/foot
Turbidity	LT	LT	LT		DTW = 10.5		4" well = 0.65 gallons/foot
Color	GRAY	BRN	BRN				6" well = 1.47 gallons/foot
Water Level Casing	6'	5'	3'				8" well = 2.61 gallons/foot
Calibration	pH	10/7					S.C.:

Sample #	Quantity	Volume	Type	Preserv.	Analysis	Lab	Sample Equip.	Purge Equip.	Field Comments
MW-3	2	40 ml	Voa	HCE	FF 8266	PACE	Disp Baller	(2) Ballers	
MW-3	1	1 R	Ambee	—	FDS-SAL	↓			
MW-3	1	1 R	Ambee	—	TPH-16 5220	↓			

Cleaning: PURGE EQUIPMENT WASHED WITH ALCONOX, RINSED WITH DI H₂O
 Comments: RECHARGE = FAIR TO POOR

Sampler's Signature: 

GROUND WATER ELEVATION MEASUREMENT LOG

Project Name: EAST OAKLAND Project No.: 05100269 Task/Phase: 01
 Date: 8-16-20 Start/Finish: 8:15-9:10 Weather: Clear

Well Number	Reference Elevation (feet msl)	DTW (feet)	PT (feet)	PT x 0.8 (feet)	Adjusted DTW (DTW - (PT x 0.8))	Ground Water Elevation (feet msl)	Comments
MW-1	8.20	10.50	—	—	10.50	-2.30	
MW-2	6.36	3.16	—	—	3.16	3.20	
MW-3	6.84	3.06	—	—	3.06	3.78	

DTW = Depth to Water (to 0.01 feet)

DTP = Depth to Product (to 0.01 feet)

PT = Product Thickness (to 0.01 feet)

Signature: Joh [Signature]

APPENDIX B
CHAIN-OF-CUSTODY DOCUMENTS



Industrial Compliance

A Subsidiary of SP Environmental Systems Inc.



CHAIN-OF-CUSTODY RECORD

440817.518 No. 13734

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)	NUMBER OF CONTAINERS	REMARKS														
PROJ NO	PROJECT CONTACT	PROJECT TELEPHONE NO.						FF-8260 (Diesel) TPH-Mo-8270 TDS-SAL														
CLIENT'S REPRESENTATIVE					PROJECT MANAGER/SUPERVISOR																	
ITEM NO	SAMPLE NUMBER	DATE	TIME	COMP	GRAB				SAMPLE LOCATION (INCLUDE MATRIX AND POINT OF SAMPLE)													
EAST OAKLAND		OAKLAND CA																				
05100269	J. CAVALUGH / SHIN	(570) 238-9540																				
J. JENSEN / DOCKUM																						
1	MW-2 DUP	8-16	9:57		X	DUPLICATE SAMPLE GW FROM MW-2	2	X														
2	MW-2 DUP				X		1		X													
3	MW-2 DUP				X		1			X												
4	EQUIP		8:20		X	EQUIPMENT RINSE DECON RINSE WATER	2	X														
5	EQUIP				X		1		X													
6	EQUIP				X		1			X												
7	TRIP		8:10		X	TRIP BLANK, PREPARED IN FIELD	2	X													37821.4	

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1 to 7	<i>[Signature]</i>	<i>[Signature]</i>	8/17/03	2:38	STANDARD JAV
2		<i>[Signature]</i>	<i>[Signature]</i>	8/17/03	4:00	10/BOT F/1
3						
4						

SAMPLER'S NAME: *Ji CAVALUGH*
 SAMPLER'S SIGNATURE: *[Signature]*



Industrial Compliance

A Subsidiary of SP Environmental Systems Inc



CHAIN-OF-CUSTODY RECORD

440817.518 No. 13735

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

PROJECT NAME EAST OAKLAND		PROJECT LOCATION OAKLAND CA	
PROJ NO 0500267	PROJECT CONTACT J. QUANAUGH/SHIN	PROJECT TELEPHONE NO. (510) 238-2540	
CLIENT'S REPRESENTATIVE		PROJECT MANAGER/SUPERVISOR J. JENSEN/DOCKUM	

ITEM NO	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE LOCATION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)	REMARKS
1	MW-1	8-16	14:50			GROUND WATER FROM MW-1	2	X	
2	MW-1						1	X	
3	MW-1						1	X	
4	MW-2		9:57			GROUND WATER FROM MW-2	2	X	
5	MW-2						1	X	
6	MW-2						1	X	
7	MW-3		14:40			GROUND WATER FROM MW-3	2	X	
8	MW-3						1	X	
9	MW-3						1	X	
10									

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)

FR 8260 (DISSOLV)
TPH-MG 8220
TDS - SAL

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1 to 9	<i>[Signature]</i>	<i>[Signature]</i>	8/17/00	2:38	STANDARD TAT
2		<i>[Signature]</i>	<i>[Signature]</i>	8/17/00	4:40	
3						10/90T F11
4						SAMPLER'S NAME: J. QUANAUGH SAMPLER'S SIGNATURE: <i>[Signature]</i>

To trace
C-1111

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: Pace
Address: 11 Digital Dr
Chickasha OK 74419
Phone: 405 883-6100

Report To: Pace New-Ho
Bill To:
P.O. # / Billing Reference
Project Name / No. 440817.518

Pace Client No.
Pace Project Manager
Pace Project No.
*Requested Due Date: 9/30

Sampled By (PRINT): Vansen/Duckum 8/16
Sampler Signature: _____ Date Sampled: _____

NO. OF CONTAINERS	PRESERVATIVES				ANALYSES REQUEST
	UNPRESERVED	H ₂ SO ₄	HNO ₃	VOA	
					<u>TPH-HV-6270</u>

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PAGE NO.	NO. OF CONTAINERS	UNPRESERVED	H ₂ SO ₄	HNO ₃	VOA	ANALYSES REQUEST	REMARKS
1	MW1	8/16	W	037816.8	1	X				X	CK4019 - 1
2	MW2			037817.6		X				Y	- 2
3	MW3			037818.4		X				Y	- 3
4	MW-2 DUP			03891.2		X				Y	- 4
5	EQUIP			03820.6		Y				X	- 5
6											
7											
8											

COOLER NOS.	SAILERS	SHIPMENT METHOD	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
		OUT / DATE RETURNED / DATE		<u>Wendy Wash</u>	<u>UPS Red</u>	<u>8/27/94</u>	<u>10:00</u>
Additional Comments: <u>S1243</u>				<u>UPS # 128510080100001244</u>	<u>Allyell</u>	<u>8/25/94</u>	<u>09:40</u>

APPENDIX C
ANALYTICAL LABORATORY REPORTS,
GROUND WATER SAMPLES



REPORT OF LABORATORY ANALYSIS

Industrial Compliance
 9838 Old Placerville Road, Suite 100
 Sacramento, CA 95827-3559

December 28, 1994 (Revised Rept)
 PACE Project Number: 440817518

Attn: Mr. Jim Jensen

Client Reference: 05100269 East Oakland

PACE Sample Number:
 Date Collected:
 Date Received:

70 0378168
 08/16/94 ✓
 08/17/94
 MW-1

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Chloride (Argentometric, SM 407A)	mg/L	1	52	08/24/94
Sodium (EPA Method 6010, ICP)	mg/L	1.0	130	08/27/94
Solids, Total Dissolved (EPA 160.1)	mg/L	5	600	08/23/94
Sodium Chloride (Calculated)	mg/L	1.0	86	12/21/94

ORGANIC ANALYSIS

HALOGENATED VOLATILE ORGANICS 8010/8020

<u>VOLATILE HALOCARBONS BY EPA 8010</u>				
1,2-Dichloroethane (EDC)	ug/L	0.5	-	08/26/94
Bromochloromethane (Surrogate Recovery)	%		ND	08/26/94
1,4-Dichlorobutane (Surrogate Recovery)	%		94	08/26/94
			104	08/26/94
<u>VOLATILE AROMATICS BY EPA 8020</u>				
Benzene	ug/L	0.3	-	08/26/94
			ND ✓	08/26/94

Toluene	ug/L	0.3	-	08/26/94
Ethylbenzene	ug/L	0.5	ND ✓	08/26/94
Xylenes, Total	ug/L	0.5	ND ✓	08/26/94
a,a,a-Trifluorotoluene (Surro. Recovery)	%		88	08/26/94

EXTRACTABLE FUELS EPA 3510/8015

Extractable Fuels, as Diesel	mg/L	0.12 ✓	ND ✓	08/29/94
Extractable Fuels, as Motor Oil	mg/L	0.75 ✓	ND ✓	08/29/94
Date Extracted			08/26/94	



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
Page 2

December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

PACE Sample Number:
Date Collected:
Date Received:
Client Sample ID:
Parameter

70 0378176
08/16/94
08/17/94
MW-2

Units MDL DATE ANALYZED

INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Parameter	Units	MDL	DATE ANALYZED	
Chloride (Argentometric, SM 407A)	mg/L	1	150	08/24/94
Sodium (EPA Method 6010, ICP)	mg/L	1.0	170	08/27/94
Solids, Total Dissolved (EPA 160.1)	mg/L	5	690	08/23/94
Sodium Chloride (Calculated)	mg/L	1.0	170	12/21/94

ORGANIC ANALYSIS

HALOGENATED VOLATILE ORGANICS 8010/8020

VOLATILE HALOCARBONS BY EPA 8010

Parameter	Units	MDL	DATE ANALYZED	
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	08/26/94
Bromochloromethane (Surrogate Recovery)	%		93	08/26/94
1,4-Dichlorobutane (Surrogate Recovery)	%		103	08/26/94

VOLATILE AROMATICS BY EPA 8020

Parameter	Units	MDL	DATE ANALYZED	
Benzene	ug/L	0.3	ND ✓	08/26/94
Toluene	ug/L	0.3	ND ✓	08/26/94
Ethylbenzene	ug/L	0.5	ND ✓	08/26/94
Xylenes, Total	ug/L	0.5	ND ✓	08/26/94
a.a.a-Trifluorotoluene (Surro. Recovery)	%		94	08/26/94

EXTRACTABLE FUELS EPA 3510/8015

Parameter	Units	MDL	DATE ANALYZED	
Extractable Fuels, as Diesel	mg/L	0.12	ND ✓	08/29/94
Extractable Fuels, as Motor Oil	mg/L	0.75	0.75 ✓	08/29/94
Date Extracted			08/26/94	



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
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December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

PACE Sample Number:

70 0378184

Date Collected:

08/16/94

Date Received:

08/17/94

Client Sample ID:

MW-3

Parameter

Units

MDL

DATE ANALYZED

INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Parameter	Units	MDL	Result	DATE ANALYZED
Chloride (Argentometric, SM 407A)	mg/L	10	1500	08/24/94
Sodium (EPA Method 6010, ICP)	mg/L	10	1200	08/30/94
Solids, Total Dissolved (EPA 160.1)	mg/L	5	3700	08/23/94
Sodium Chloride (Calculated)	mg/L	1.0	1200	12/21/94

ORGANIC ANALYSIS

HALOGENATED VOLATILE ORGANICS 8010/8020

VOLATILE HALOCARBONS BY EPA 8010

Parameter	Units	MDL	Result	DATE ANALYZED
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	08/26/94
Bromochloromethane (Surrogate Recovery)	%		84	08/26/94
1,4-Dichlorobutane (Surrogate Recovery)	%		105	08/26/94

VOLATILE AROMATICS BY EPA 8020

Parameter	Units	MDL	Result	DATE ANALYZED
Benzene	ug/L	0.3	ND	08/26/94
Toluene	ug/L	0.3	ND	08/26/94
Ethylbenzene	ug/L	0.5	ND	08/26/94
Xylenes, Total	ug/L	0.5	ND	08/26/94
a,a,a-Trifluorotoluene (Surro. Recovery)	%		87	08/26/94

EXTRACTABLE FUELS EPA 3510/8015

Parameter	Units	MDL	Result	DATE ANALYZED
Extractable Fuels, as Diesel	mg/L	0.12	ND	08/29/94
Extractable Fuels, as Motor Oil	mg/L	0.75	ND	08/29/94
Date Extracted			08/26/94	



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
Page 4

December 28, 1994 (Revised Rept
PACE Project Number: 440817518)

Client Reference: 05100269 East Oakland

PACE Sample Number: 70 0378192
Date Collected: 08/16/94
Date Received: 08/17/94
Client Sample ID: MW-2 DUP

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Chloride (Argentometric, SM 407A)	mg/L	5	140	08/24/94
Sodium (EPA Method 6010, ICP)	mg/L	1.0	130	08/27/94
Solids, Total Dissolved (EPA 160.1)	mg/L	5	720	08/23/94
Sodium Chloride (Calculated)	mg/L	1.0	130	12/21/94

ORGANIC ANALYSIS

HALOGENATED VOLATILE ORGANICS 8010/8020

VOLATILE HALOCARBONS BY EPA 8010

1,2-Dichloroethane (EDC)	ug/L	0.5	ND	08/26/94
Bromochloromethane (Surrogate Recovery)	%		83	08/26/94
1,4-Dichlorobutane (Surrogate Recovery)	%		103	08/26/94

VOLATILE AROMATICS BY EPA 8020

Benzene	ug/L	0.3	ND	08/26/94
Toluene	ug/L	0.3	ND	08/26/94
Ethylbenzene	ug/L	0.5	ND	08/26/94
Xylenes, Total	ug/L	0.5	ND	08/26/94
a,a,a-Trifluorotoluene (Surro. Recovery)	%		86	08/26/94

EXTRACTABLE FUELS EPA 3510/8015

Extractable Fuels, as Diesel	mg/L	0.12	ND	08/29/94
Extractable Fuels, as Motor Oil	mg/L	0.75	ND	08/29/94
Date Extracted			08/26/94	



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
Page 5

December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

PACE Sample Number: 70 0378206
Date Collected: 08/16/94
Date Received: 08/17/94
Client Sample ID: EQUIP

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DATE ANALYZED</u>
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INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Chloride (Argentometric, SM 407A)	mg/L	1	ND	08/24/94
Sodium (EPA Method 6010, ICP)	mg/L	1.0	36	08/27/94
Solids, Total Dissolved (EPA 160.1)	mg/L	5	ND	08/23/94
Sodium Chloride (Calculated)	mg/L	1.0	ND	12/21/94

ORGANIC ANALYSIS

HALOGENATED VOLATILE ORGANICS 8010/8020

VOLATILE HALOCARBONS BY EPA 8010

1,2-Dichloroethane (EDC)	ug/L	0.5	ND	08/26/94
Bromochloromethane (Surrogate Recovery)	%		86	08/26/94
1,4-Dichlorobutane (Surrogate Recovery)	%		107	08/26/94

VOLATILE AROMATICS BY EPA 8020

Benzene	ug/L	0.3	ND	08/26/94
---------	------	-----	----	----------

Toluene	ug/L	0.3	ND	08/26/94
---------	------	-----	----	----------

Ethylbenzene	ug/L	0.5	ND	08/26/94
--------------	------	-----	----	----------

Xylenes, Total	ug/L	0.5	ND	08/26/94
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a,a,a-Trifluorotoluene (Surro. Recovery)	%		89	08/26/94
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EXTRACTABLE FUELS EPA 3510/8015

Extractable Fuels, as Diesel	mg/L	0.12	ND	08/26/94
------------------------------	------	------	----	----------

Extractable Fuels, as Motor Fuel	mg/L	0.75	ND	08/29/94
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Date Extracted			08/26/94	
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REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
Page 6

December 28, 1994(Revised Rept
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

PACE Sample Number: 70 0378214
Date Collected: 08/16/94
Date Received: 08/17/94
Client Sample ID: TRIP

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>		<u>DATE ANALYZED</u>
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ORGANIC ANALYSIS

HALOGENATED VOLATILE ORGANICS 8010/8020 VOLATILE HALOCARBONS BY EPA 8010

1,2-Dichloroethane (EDC)	ug/L	0.5	-	08/26/94
Bromochloromethane (Surrogate Recovery)	%		85	08/26/94
1,4-Dichlorobutane (Surrogate Recovery)	%		104	08/26/94

VOLATILE AROMATICS BY EPA 8020

Benzene	ug/L	0.3	-	08/26/94
Toluene	ug/L	0.3	ND	08/26/94
Ethylbenzene	ug/L	0.5	ND	08/26/94
Xylenes, Total	ug/L	0.5	ND	08/26/94
a,a,a-Trifluorotoluene (Surro. Recovery)	%		88	08/26/94

These data have been reviewed and are approved for release.

Darrell C. Cain
Regional Director



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
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FOOTNOTES
for pages 1 through 6

December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

MDL Method Detection Limit
ND Not detected at or above the MDL.



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
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QUALITY CONTROL DATA

December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

Calcium (EPA Method 6010/200.7, ICP)

Batch: 70 33454

Samples: 70 0378168, 70 0378176, 70 0378184, 70 0378192, 70 0378206

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	MDL	Method Blank	Duplicate of		RPD
				700377900	70 0377900	
Calcium (EPA Method 6010/200.7, ICP)	mg/L	0.05	ND	47	50	6%
Copper (EPA Method 6010/200.7, ICP)	mg/L	0.01	ND			
Iron (EPA Method 6010/200.7, ICP)	mg/L	0.1	ND	40	38	5%
Magnesium (EPA Method 6010/200.7, ICP)	mg/L	0.05	ND	59	63	7%
Nickel (EPA Method 6010/200.7, ICP)	mg/L	0.02	ND			
Sodium (EPA Method 6010, ICP)	mg/L	1.0	ND	120	130	8%
Zinc (EPA Method 6010/200.7, ICP)	mg/L	0.01	ND			

LABORATORY CONTROL SAMPLE:

Parameter	Units	MDL	Reference	
			Value	Recv
Calcium (EPA Method 6010/200.7, ICP)	mg/L	0.05	5.00	98%
Copper (EPA Method 6010/200.7, ICP)	mg/L	0.01	0.25	97%
Iron (EPA Method 6010/200.7, ICP)	mg/L	0.1	1.00	100%
Magnesium (EPA Method 6010/200.7, ICP)	mg/L	0.05	5.00	94%
Nickel (EPA Method 6010/200.7, ICP)	mg/L	0.02	0.50	99%
Sodium (EPA Method 6010, ICP)	mg/L	1.0	10.0	96%
Zinc (EPA Method 6010/200.7, ICP)	mg/L	0.01	0.50	97%



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
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QUALITY CONTROL DATA

December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

Chloride (Argentometric, SM 407A)

Batch: 70 33277

Samples: 70 0378168, 70 0378176, 70 0378184, 70 0378192, 70 0378206

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	MDL	Method Blank	700373077	Duplicate of 70 0373077	RPD
Chloride (Argentometric, SM 407A)	mg/L	1	ND	20	20	0%

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	700373077	Spike	Spike Recv	Spike Dupl Recv	RPD
Chloride (Argentometric, SM 407A)	mg/L	1	20	50.0	111%	108%	3%



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Mr. Jim Jensen
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QUALITY CONTROL DATA

December 28, 1994(Revised Rept
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

Solids, Total Dissolved (EPA 160.1)

Batch: 70 33249

Samples: 70 0378168, 70 0378176, 70 0378184, 70 0378192, 70 0378206

METHOD BLANK AND SAMPLE DUPLICATE:

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>Method</u>	<u>Duplicate</u>	<u>RPD</u>
Solids, Total Dissolved (EPA 160.1)	mg/L	5	Blank ND	700378095 10000 H 70 0378095 9800	2%



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
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QUALITY CONTROL DATA

December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

EXTRACTABLE FUELS EPA 3510/8015

Batch: 70 33405

Samples: 70 0378168, 70 0378176, 70 0378184, 70 0378192, 70 0378206

METHOD BLANK:

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>Method Blank</u>
Extractable Fuels, as Diesel	mg/L	0.05	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>Reference Value</u>	<u>Recy</u>	<u>Dup1 Recy</u>	<u>RPD</u>
Extractable Fuels, as Diesel	mg/L	0.05	1.00	86%	70%	21%



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QUALITY CONTROL DATA

December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

HALOGENATED VOLATILE ORGANICS 8010/8020

Batch: 70 33432

Samples: 70 0378168, 70 0378176, 70 0378184, 70 0378192, 70 0378206
70 0378214

METHOD BLANK:

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>Method Blank</u>
INDIVIDUAL PARAMETERS			
Ethylene Dibromide (1,2-Dibromoethane)	ug/L	4.0	ND
HALOGENATED VOLATILE ORGANICS 8010/8020			
VOLATILE HALOCARBONS BY EPA 8010			
Dichlorodifluoromethane	ug/L	2.0	ND
Chloromethane	ug/L	2.0	ND
Vinyl Chloride	ug/L	2.0	ND
Bromomethane	ug/L	2.0	ND
Chloroethane	ug/L	2.0	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND
FREON 113	ug/L	1.0	ND
1,1-Dichloroethene	ug/L	0.5	ND
Methylene Chloride	ug/L	2.0	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND
1,1-Dichloroethane	ug/L	0.5	ND
cis-1,2-Dichloroethene	ug/L	0.5	ND
Chloroform	ug/L	0.5	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND
Carbon Tetrachloride	ug/L	0.5	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND
Trichloroethene (TCE)	ug/L	0.5	ND
1,2-Dichloropropane	ug/L	0.5	ND
Bromodichloromethane	ug/L	0.5	ND
Dibromomethane	ug/L	0.5	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND
1,1,2-Trichloroethane	ug/L	0.5	ND
Tetrachloroethene	ug/L	0.5	ND
Dibromochloromethane	ug/L	0.5	ND



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
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QUALITY CONTROL DATA

December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

HALOGENATED VOLATILE ORGANICS 8010/8020

Batch: 70 33432
Samples: 70 0378168, 70 0378176, 70 0378184, 70 0378192, 70 0378206
70 0378214

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Chlorobenzene	ug/L	0.5	ND
1,1,1,2-Tetrachloroethane	ug/L	0.5	ND
Bromoform	ug/L	0.5	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND
1,2,3-Trichloropropane	ug/L	0.5	ND
Bromobenzene	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	ND
1,4-Dichlorobenzene	ug/L	0.5	ND
Benzyl Chloride	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND
Bromochloromethane (Surrogate Recovery) %			90
1,4-Dichlorobutane (Surrogate Recovery) %			97

VOLATILE AROMATICS BY EPA 8020

Parameter	Units	MDL	Method
Benzene	ug/L	0.3	ND
Toluene	ug/L	0.3	ND
Chlorobenzene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	ND
1,4-Dichlorobenzene	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND
a,a,a-Trifluorotoluene (Surro. Recovery) %			99

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	700377528	Spike	Spike		RPD
					Recv	Dupl	
1,1-Dichloroethane	ug/L	0.5	ND	20	138%	138%	0%
Trichloroethene (TCE)	ug/L	0.5	1.8	20	87%	91%	4%
1,1,2-Trichloroethane	ug/L	0.5	ND	20	118%	112%	5%
Tetrachloroethene	ug/L	0.5	1.3	20	91%	96%	5%
Benzene	ug/L	0.3	1.2	20	102%	102%	0%



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
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QUALITY CONTROL DATA

December 28, 1994 (Revised Rept)
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

HALOGENATED VOLATILE ORGANICS 8010/8020

Batch: 70 33432

Samples: 70 0378168, 70 0378176, 70 0378184, 70 0378192, 70 0378206
70 0378214

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	700377528	Spike	Spike		RPD
					Recv	Dupl Recv	
Toluene	ug/L	0.3	1.5	20	100%	101%	1%
Xylenes. Total	ug/L	0.5	2.2	60	108%	110%	2%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Dupl		RPD
				Recv	Recv	
1,1-Dichloroethane	ug/L	0.5	20	88%	110%	22%
Trichloroethene (TCE)	ug/L	0.5	20	78%	75%	4%
1,1,2-Trichloroethane	ug/L	0.5	20	103%	98%	5%
Tetrachloroethene	ug/L	0.5	20	81%	76%	6%
Benzene	ug/L	0.3	20	82%	74%	10%
Toluene	ug/L	0.3	20	89%	78%	13%
Xylenes. Total	ug/L	0.5	60	98%	88%	11%



REPORT OF LABORATORY ANALYSIS

Mr. Jim Jensen
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FOOTNOTES
for pages 8 through 14

December 28, 1994(Revised Rept
PACE Project Number: 440817518

Client Reference: 05100269 East Oakland

H Analysis conducted in excess of EPA recommended holding time.
MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference



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 11 Digital Drive
 Novato, CA 94949

Lab Number : CK-4019-1
 Project : 440817.518
 Analyzed : 09/07/94
 Analyzed by: DT
 Method : GC/MS

REPORT OF ANALYTICAL RESULTS

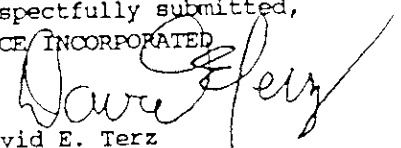
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SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED	RECEIVED
		(CAS RN)	*PQL	RESULT	NOTE
MW-1 037816.8	Aqueous	Jensen / Dockum		08/16/94	08/23/94
CONSTITUENT			$\mu\text{g/L}$	$\mu\text{g/L}$	
Total Extactrable Petroleum Hydrocarbons			200.	ND	1,2
Total Petroleum Hydrocarbons				94.	
Nitrobenzene-d5 (Surrogate Percent Recovery)				91.	
2-Fluorobiphenyl (Surrogate Percent Recovery)				56.	
4-Terphenyl-d14 (Surrogate Percent Recovery)					

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
 *RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
 (1) Sample Preparation on 08/23/94 by GG using EPA 625
 (2) Surrogates are spiked at 100ug/L.

09/14/94
 MSD8/090708A
 DET/edtedt
 CK401901235T

Respectfully submitted,
 PACE INCORPORATED


 David E. Terz
 Group Leader



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Lab Number : CK-4019-1
Project : 440817.518
Analyzed : 09/07/94
Analyzed by: DT
Method : EPA 625

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED	RECEIVED
MW-1 037816.8	Aqueous	Jensen / Dockum		08/16/94	08/23/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE	
SUPPLEMENTARY SVOA COMPOUNDS					1,2,3
Supplementary Compounds		5.	ND		

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
 *RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
 (1) Sample Preparation on 08/23/94 by GG using EPA 625
 (2) Tentatively Identified Compounds (TIC) present at greater than 10% of the nearest internal standard are semi-quantitative results.
 (3) No tentatively identified compounds were detected.

09/14/94
MSD8/090708A
DET/edtedt
CK401901235T

Respectfully submitted,
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Lab Number : CK-4019-2
Project : 440817.518
Analyzed : 09/07/94
Analyzed by: DT
Method : GC/MS

REPORT OF ANALYTICAL RESULTS

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SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
MW-2 037817.6	Aqueous	Jensen / Dockum	08/16/94	08/23/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
Total Extractable Petroleum Hydrocarbons		200.	ND	1,2
Total Petroleum Hydrocarbons			84.	
Nitrobenzene-d5 (Surrogate Percent Recovery)			84.	
2-Fluorobiphenyl (Surrogate Percent Recovery)			88.	
4-Terphenyl-d14 (Surrogate Percent Recovery)				

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 08/23/94 by GG using EPA 625
(2) Surrogates are spiked at 100ug/L.

09/14/94
MSD8/090709A
DET/edtedt
CK401901235T

Respectfully submitted,
PACE INCORPORATED

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Lab Number : CK-4019-2
Project : 440817.518
Analyzed : 09/07/94
Analyzed by: DT
Method : EPA 625

REPORT OF ANALYTICAL RESULTS

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SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED	RECEIVED
MW-2 037817.6	Aqueous	Jensen / Dockum		08/16/94	08/23/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE	
SUPPLEMENTARY SVOA COMPOUNDS					1,2,3
Supplementary Compounds			5.	ND	

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
 *RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
 (1) Sample Preparation on 08/23/94 by GG using EPA 625
 (2) Tentatively Identified Compounds (TIC) present at greater than 10% of the nearest internal standard are semi-quantitative results.
 (3) No tentatively identified compounds were detected.

09/14/94
MSD8/090709A
DET/edtedt
CK401901235T

Respectfully submitted,
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Lab Number : CK-4019-3
 Project : 440817.518
 Analyzed : 09/07/94
 Analyzed by: DT
 Method : GC/MS

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED	RECEIVED
MW-3 037818.4	Aqueous	Jensen / Dockum		08/16/94	08/23/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE	
Total Extactrable Petroleum Hydrocarbons				1,2	
Total Petroleum Hydrocarbons		200.	ND		
Nitrobenzene-d5 (Surrogate Percent Recovery)			75.		
2-Fluorobiphenyl (Surrogate Percent Recovery)			77.		
4-Terphenyl-di4 (Surrogate Percent Recovery)			20.		

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
 *RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
 (1) Sample Preparation on 08/23/94 by GG using EPA 625
 (2) Surrogates are spiked at 100ug/L.

09/14/94
 MSD8/090710A
 DET/edtedt
 CK401901235T

Respectfully submitted,
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 Group Leader



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Lab Number : CK-4019-3
Project : 440817.518
Analyzed : 09/07/94
Analyzed by: DT
Method : EPA 625

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED	RECEIVED
MW-3 037818.4	Aqueous	Jensen / Dockum		08/16/94	08/23/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE	
SUPPLEMENTARY SVOA COMPOUNDS					1,2
Mono(2-ethylhexyl)ester hexanedioic acid			5.	7.	

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 08/23/94 by GG using EPA 625
(2) Tentatively Identified Compounds (TIC) present at greater than 10% of the nearest internal standard are semi-quantitative results.

09/14/94
MSD8/090710A
DET/edtedt
CK401901235T

Respectfully submitted,
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Group Leader



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Lab Number : CK-4019-4
 Project : 440817.518
 Analyzed : 09/08/94
 Analyzed by: DT
 Method : GC/MS

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
MW-2 DUP 03819.2	Aqueous	Jensen / Dockum	08/16/94	08/23/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
Total Extactable Petroleum Hydrocarbons				1,2
Total Petroleum Hydrocarbons		200.	ND	
Nitrobenzene-d5 (Surrogate Percent Recovery)			70.	
2-Fluorobiphenyl (Surrogate Percent Recovery)			74.	
4-Terphenyl-d14 (Surrogate Percent Recovery)			26.	

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187

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

- (1) Sample Preparation on 08/23/94 by GG using EPA 625
- (2) Surrogates are spiked at 100ug/L.

09/14/94
 MSD8/090711A
 DET/edtedt
 CK401901235T

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Lab Number : CK-4019-4
Project : 440817.518
Analyzed : 09/08/94
Analyzed by: DT
Method : EPA 625

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED	RECEIVED
MW-2 DUP 03819.2	Aqueous	Jensen / Dockum		08/16/94	08/23/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE	
SUPPLEMENTARY SVOC COMPOUNDS					1,2,3
Supplementary Compounds				5.	ND

- Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
 *RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
- (1) Sample Preparation on 08/23/94 by GG using EPA 625
 - (2) Tentatively Identified Compounds (TIC) present at greater than 10% of the nearest internal standard are semi-quantitative results.
 - (3) No tentatively identified compounds were detected.

09/14/94
MSD8/090711A
DET/edtedt
CK401901235T

Respectfully submitted,
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Lab Number : CK-4019-5
Project : 440817.518

Analyzed : 09/08/94
Analyzed by: DT
Method : GC/MS

REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED	RECEIVED
		(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
EQUIP 03820.6	Aqueous	Jensen / Dockum		08/16/94	08/23/94
CONSTITUENT					
Total Extactrable Petroleum Hydrocarbons			200.	ND	1,2
Total Petroleum Hydrocarbons				82.	
Nitrobenzene-d5 (Surrogate Percent Recovery)				84.	
2-Fluorobiphenyl (Surrogate Percent Recovery)				62.	
4-Terphenyl-d14 (Surrogate Percent Recovery)					

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 08/23/94 by GG using EPA 625
(2) Surrogates are spiked at 100ug/L.

09/14/94
MSD8/090712A
DET/edtedt
CK401901235T

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Lab Number : CK-4019-5
Project : 440817.518
Analyzed : 09/08/94
Analyzed by: DT
Method : EPA 625

REPORT OF ANALYTICAL RESULTS

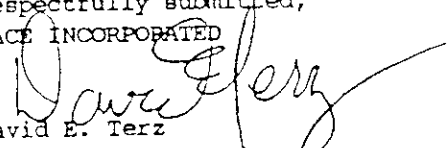
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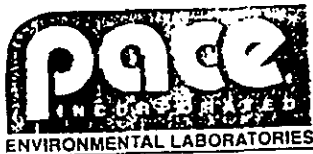
SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED	RECEIVED
EQUIP 03820.6	Aqueous	Jensen / Dockum		08/16/94	08/23/94
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE	
SUPPLEMENTARY SVOA COMPOUNDS					1,2
Benzophenone		5.	20.		

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 08/23/94 by GG using EPA 625
(2) Tentatively Identified Compounds (TIC) present at greater than 10% of the nearest internal standard are semi-quantitative results.

09/14/94
MSD8/090712A
DET/edtedt
CK401901235T

Respectfully submitted,
PACE INCORPORATED


David E. Terz
Group Leader



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QC Batch ID: CK401901235T

CLIENT: PACE Incorporated

Analyzed : 09/07/94
Analyzed by: DT
Method : GC/MS

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RE	
METHOD BLANK	Aqueous			
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	
Total Extactrable Petroleum Hydrocarbons		200.	ND	
Total Petroleum Hydrocarbons			82.	
Nitrobenzene-d5 (Surrogate Percent Recovery)			81.	
2-Fluorobiphenyl (Surrogate Percent Recovery)			112.	
4-Terphenyl-d14 (Surrogate Percent Recovery)				

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CS
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitat
(1) Sample Preparation on 08/23/94 by GG using EPA 625
(2) Surrogates are spiked at 100ug/L.

09/14/94
MSD8/090705A
DET/edtedt
CK4019-1

Respectfully submitted,
PACE INCORPORATED

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QC Batch ID: CK401901235T

CLIENT: PACE Incorporated

Analyzed : 09/07/94
Analyzed by: DT
Method : GC/MS

INSTRUMENT BLANK
REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED	
INSTRUMENT BLANK	Aqueous			
CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
Total Extractable Petroleum Hydrocarbons		200.		ND
Total Petroleum Hydrocarbons				

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

09/14/94
MSD8/090704A
DET/edtedt
CK4019-1

Respectfully submitted,
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QC Batch ID: CK401901235T

CLIENT: PACE Incorporated

Analyzed : 09/08/94
Analyzed by: DT
Method : GC/MS

QC SPIKE
REPORT OF ANALYTICAL RESULTS

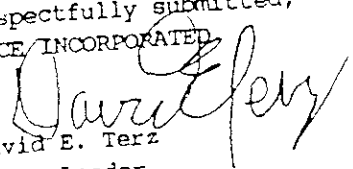
Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED		
QC SPIKE	Aqueous				
CONSTITUENT		*PQL µg/L	SPIKE AMOUNT	RESULT µg/L	%REC NOTE
Total Extractable Petroleum Hydrocarbons		200.	10000.	9610.	96. 1,2
Total Petroleum Hydrocarbons (Diesel #2)			100.	86.	
Nitrobenzene-d5 (Surrogate Percent Recovery)			100.	92.	
2-Fluorobiphenyl (Surrogate Percent Recovery)			100.	93.	
4-Terphenyl-d14 (Surrogate Percent Recovery)					

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #10187
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 08/23/94 by GG using EPA 625
(2) Surrogates are spiked at 100ug/L.

09/14/94
MSD8/090713A
DET/edtedt
CK4019-1

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Analyzed : 09/08/94
Analyzed by: DT
Method : GC/MS

QC SPIKE
REPORT OF ANALYTICAL RESULTS

Page 1 of 1

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED		
QC SPIKE DUPLICATE	Aqueous					
CONSTITUENT	*PQL µg/L	SPIKE AMOUNT	RESULT µg/L	%REC	%DIFF	NOTE
Total Extactrable Petroleum Hydrocarbons	200.	10000.	10000.	100.	4.	1,2
Total Petroleum Hydrocarbons (Diesel #2)		100.	89.			
Nitrobenzene-d5 (Surrogate Percent Recovery)		100.	99.			
2-Fluorobiphenyl (Surrogate Percent Recovery)		100.	101.			
4-Terphenyl-d14 (Surrogate Percent Recovery)						

Lab Certifications: CAELAP #1598; UTELAP #E-142; AZELAP #AZ0162; AZLA #0136-01; L.A.Co.CSD #10187
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 08/23/94 by GG using EPA 625
(2) Surrogates are spiked at 100ug/L.

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