



ENVIRONMENTAL HEALTH SERVICES

1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700  
(510) 337-9335 (FAX)

May 14, 1997  
STID 3681  
page 1 of 2

Attn: Greg Shepherd  
Southern Pacific Transportation  
One Market Plaza, Rm 1007  
San Francisco CA 94105

**REMEDIAL ACTION COMPLETION CERTIFICATION**

RE: Southern Pacific site, 1912-7th St., Oakland CA 94607

Dear Mr. Shepherd,

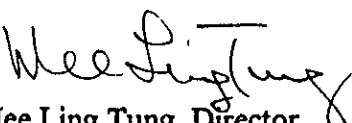
This letter confirms the completion of site investigation and remedial action for the three underground storage tanks (USTs) formerly located at the above referenced site. They included one 3,000-gallon gasoline UST, one 1,000-gallon gasoline UST, and one 2,000-gallon diesel UST. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks is greatly appreciated.

Based on information in the above-referenced file, and with the provision that the information provided to this agency was accurate and representative of site conditions, **no further action related to the underground tank release is required.**

This notice is issued pursuant to a regulation contained in Title 23, Division 3, Chapter 16, Section 2721(e) of the California Code of Regulations.

Please contact our office if you have any questions regarding this matter.

Sincerely,

  
Mee Ling Tung, Director

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY

DAVID J. KEARS, Agency Director

May 14, 1997

STID 3681

page 1 of 2

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Attn: Greg Shepherd  
Southern Pacific Transportation  
One Market Plaza, Rm 1007  
San Francisco CA 94105

RE: **CASE CLOSURE**, Southern Pacific site, 1912-7th St., Oakland CA 94607

Dear Mr. Shepherd,

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]). The State Water Resources Control Board (SWRCB) adopted this letter on 2/20/97. As of 3/1/97, Alameda County Health Care Services Agency, Environmental Health Services, Local Oversight Program is required to use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site. **The subject fuel leak case is closed.**

**SITE INVESTIGATION AND CLEANUP SUMMARY:**

Please be advised that the following conditions exist at the site:

- \* 9,300 parts per billion (ppb) Total Petroleum Hydrocarbons as Gasoline (TPH-g), 610 ppb TPH as Diesel, 970 ppb benzene, 200 ppb toluene, 590 ppb ethylbenzene, and 1,100 ppb xylene remain *in the groundwater* beneath the former UST.

If you have any questions, please call Ms. Jennifer Eberle at 510-567-6761. Thank you.

Sincerely,

Tom Peacock  
Supervisor, Local Oversight Program

01-1461  
ENVIRONMENTAL  
PROTECTION  
SEP 12 11:03 AM '03

**CASE CLOSURE SUMMARY**  
**Leaking Underground Fuel Storage Tank Program**  
**Page 1 of 5**

**I. AGENCY INFORMATION**

Agency name: **Alameda County-HazMat**  
Date/City/State/Zip: **Alameda, CA 94502**  
Responsible staff person: **Amy Leech**

Date: **April 1, 1997**  
Address: **1131 Harbor Bay Pkwy**  
Phone: **(510) 567-6700**  
Title: **Hazardous Materials Specialist**

**II. CASE INFORMATION**

Site facility name: **Southern Pacific Transportation Company**  
Site facility address: **1912 - 7th St., Oakland CA 94607**  
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: **3681**  
URF filing date: **unknown** SWEEPS No: **N/A**

**Responsible Parties:**

Attn: **Greg Shepherd**  
Southern Pacific Transportation Co.

**Address:**

**One Market Plaza, Rm. 1007**  
**San Francisco CA 94105**

**Phone Numbers:**

<b><u>Tank No:</u></b>	<b><u>Size in gal.:</u></b>	<b><u>Contents:</u></b>	<b><u>Closed in-place or removed?:</u></b>	<b><u>Date:</u></b>
1	3,000	gasoline	removed	07/01/88
2	1,000	gasoline	"	"
3	2,000	diesel	"	"

**III. RELEASE AND SITE CHARACTERIZATION INFORMATION**

Cause and type of release: **Hole observed in bottom of 1,000-gallon gasoline UST at time of removal.**

Site characterization complete? **Yes**

Monitoring Wells installed? **Yes** Number: **6**

Proper screened interval? **Yes**

Highest GW depth below ground surface: **7.28 ft** Lowest depth: **9.26 ft (MW-2)**

Flow direction: **Predominately southerly, ranged from southwest, south and northeast.**

Most sensitive current use: **Commercial**

Are drinking water wells affected? **No** Aquifer name: **N/A**

Is surface water affected? **No** Nearest affected SW name: **N/A**

Off-site beneficial use impacts (addresses/locations): **none**

Report(s) on file? **YES** Where is report(s) filed?  
**Alameda County, 1131 Harbor Bay Pkwy, Alameda, CA 94502**

**CASE CLOSURE SUMMARY**  
**Leaking Underground Fuel Storage Tank Program**  
**Page 2 of 5**

**III. RELEASE AND SITE CHARACTERIZATION INFORMATION (cont'd)**

**Treatment and Disposal of Affected Material:**

<u>Material</u>	<u>Amount</u> <u>(include units)</u>	<u>Action (Treatment</u> <u>or Disposal w/destination)</u>	<u>Date</u>
USTs	3-USTs @ 16,000 lbs	Erickson, Inc., Richmond, CA	07/01/88

**Maximum Documented Contaminant Concentrations - - Before and After Cleanup**

<u>Contaminant</u>	<u>Soil (ppm)</u>		<u>Water (ppb)</u>	
	<u>Before</u>	<u>After<sup>4</sup></u>	<u>Before<sup>5</sup></u>	<u>After<sup>6</sup></u>
TPH (Gasoline)	2,400 <sup>1</sup>	ND	12,000	9,300
TPH (Diesel)	4,100 <sup>2</sup>	ND	NT	610
Benzene	25 <sup>3</sup>	ND	52	970
Toluene	47 <sup>3</sup>	ND	89	200
Ethylbenzene	0.3 <sup>1</sup>	ND	220	590
Xylene	170 <sup>3</sup>	ND	1,500	1,100
1,2-DCA	ND <sup>1</sup>	ND	NT	NT
ethylene dibromide	ND <sup>1</sup>	ND	NT	NT

ND=non-detect

NT=not tested

- 1 "Before" soil sample collected at center of UST pit from boring BB-1 in 12/12/91
- 2 "Before" soil sample (OS2-B) collected from tank pit after tank removal on July 1, 1988.
- 3 "Before" soil sample (OS1-A) collected from tank pit after tank removal on July 1, 1988.
- 4 "After" soil samples collected after overexcavation of the tank pit on October 27, 1993.
- 5 "Before" water sample collected from boring BB-1 located at center of the former tank pit on December 14, 1991.
- 6 "After" water sample collected from monitoring well MW-2 in November 1995.

**Comments (Depth of Remediation, etc.):** See "Additional Comments" section.

**IV. CLOSURE**

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan?

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Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan?

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Does corrective action protect public health for current land use? **Yes**

Site management requirements: **If a change in land use is proposed or excavation of soils down to groundwater is planned at this site, then evaluation of risk from exposure to contaminated groundwater must be made.**

Should corrective action be reviewed if land use changes? **YES**

Monitoring wells Decommissioned: **Yes**

Number Decommissioned: **6** Number Retained: **0**

List enforcement actions taken: **n/a**

List enforcement actions rescinded: **n/a**

**CASE CLOSURE SUMMARY**  
**Leaking Underground Fuel Storage Tank Program**  
**Page 3 of 5**

**V. ADDITIONAL COMMENTS**

On July 1, 1988, three underground storage tanks (USTs) were removed in the County's presence from Southern Pacific Transportation Company's property located at 1912 - 7th Street, Oakland, CA: one 3,000-gallon UST and one 1,000-gallon gasoline UST and one 2,000-gallon diesel UST. (See attachment 1 for site location.) A 1/4 inch diameter hole was observed at the bottom of the 1,000-gallon gasoline UST.

Up to 700 ppm Total Volatile Petroleum hydrocarbons and 25/47/170 ppm BTX, respectively, were detected in a sample (OS1-A) collected near the former location of the 1,000-gallon gasoline UST. No analyses were completed for ethylbenzene. In addition, 4,100 ppm Total Extractable Petroleum Hydrocarbons were detected in a soil sample (OS2-B) collected near the former 2,000-gallon diesel UST. (See attachment 2 for tank locations and analytical results.)

In December 1991, a Phase II investigation was completed which included the installation of six soil borings (BB-1 through BB-2) within the vicinity of the former USTs. Boring BB-1 was located within the limits of the former USTs and was converted to monitoring well MW-1. Based on this investigation, petroleum impacted soil appeared to be limited in extent within the vicinity of the former UST pit. Up to 2,400 ppm TPH-G, 0.3 ppm ethylbenzene, and 6 ppm xylenes were identified in the eight (8) foot soil sample collected from boring BB-1. 12,000 ppb TPH-G, 52/89/220/1,500 ppb BTEX, respectively, was identified in the initial water sample collected from monitoring well MW-1. (See attachment 3 for boring locations and analytical results.)

In October 1993, monitoring well MW-1 was abandoned by removing the casing in the UST pit. Approximately 170 cubic yards of contaminated soil was removed from the former tank pit. Confirmatory soil samples collected from the side walls and base of the excavation were non-detect for all constituents sought (i.e., TPH-G, TPH-D, BTEX, 1,2-DCA, and ethylene dibromide). Analytical results of soil samples collected from the stockpile soil were non-detect for all constituents, except for up to 350 ppm total lead. The stockpiled soil was reportedly planned to be re-used on-site or some other Southern Pacific property. (See attachment 4 for sample locations and results.)

In November 1993, six soil borings (MW-1 through MW-5 and BH-3) were installed to define the extent of groundwater impact. Results of soil samples collected from these borings were unremarkable. (See attachment 4 for boring location and results.) Borings MW-1 through MW-5 were converted into monitoring wells. Groundwater was initially encountered between 8 and 9 feet bgs and the flow directions was to the southwest. (See attachment 5 for boring logs/well construction details.)

Groundwater has been sampled and analyzed for TPH-G, TPH-D and BTEX nine (9) times from 11/93 through 11/95. Groundwater flow direction has been predominately to the south. Petroleum hydrocarbons have consistently been detected in groundwater samples collected from monitoring well MW-2 located within the former UST pit. Up to 9,300 ppb TPH-G; 610 ppb TPH-D; and 970/200/590/1,100 ppb BTEX, respectively, have been detected in groundwater samples collected from monitoring MW-2 during the last four quarters of sampling. However groundwater contamination in the vicinity of MW-2 does *not* appear to be significantly migrating, since water samples collected from all other monitoring wells (i.e. MW- 1, MW-3 through MW-5) have been predominantly non-detect for all contaminants sought. (See attachment 6 for historical groundwater results.)

A review of the potential risk to human health from exposure to contaminants left in place was completed using ASTM E1739-95 Tier 1 RBCA. The possible exposure pathways evaluated were groundwater contamination volatilizing to outdoor and indoor air. The site is part of the Interstate 880 reconstruction project, and future human contact with site media after the freeway is constructed will reportedly be minimal. Currently, there are no building structures located over the residual groundwater contamination. In addition,

**V. ADDITIONAL COMMENTS (cont'd)**

groundwater is not used as a drinking water source.

The maximum concentration of benzene reported in groundwater during the last four quarters of sampling at the site is 970 ppb. This concentration does *not* exceed the ASTM RBCA Tier 1 RBSLs for *commercial exposure* to groundwater volatilization to outdoor air ( $1 \times 10^{-6}$  cancer risk, RBSL= 5,340 ppb) or groundwater vapor intrusion into buildings ( $1 \times 10^{-4}$  cancer risk, RBSL= 2,140 ppb). A risk analysis of construction or utility worker exposure to contaminated groundwater was not evaluated. This pathway should be considered and evaluated accordingly prior to completing any excavation or construction in the vicinity of the former UST pit. (See attachment 7 for estimated lateral extent of gasoline contamination in groundwater.)

No further investigations are recommended since this site appears to meet the San Francisco RWQCB's definition of a low risk groundwater case:

1. The source of contamination was abated by removal of the UST. Overexcavation of the contaminated soil was completed within the UST pit.
2. The extent of impact to soil and groundwater has been evaluated at this site by analysis of multiple soil and groundwater samples collected within and in the vicinity of the UST pit.
3. Analytical groundwater data collected over 9 consecutive quarters has shown that the dissolved hydrocarbon plume is not significantly migrating. In addition, as part of the I-880 reconstruction project, a bentonite grout slurry "cutoff" wall was installed just south of the former UST pit to prevent groundwater seepage into the Seventh Street subway structure. This cutoff wall extends to approximately 85 feet bgs through the Merritt Sand, where an impermeable barrier is made with Old Bay Mud. (See attachment 8 for current site configuration.)
4. The residual contamination left in groundwater at this site is not expected to significantly impact water wells, deeper drinking water aquifers, surface water, or other sensitive receptors. Shallow groundwater at this site is not used for municipal or domestic purposes. No water wells were identified within a 1/4 mile radius of the site. Oakland Inner Harbor is located approximately one mile south of the site.
5. No significant risk to human health was found for outdoor and indoor inhalation for commercial exposure scenarios to benzene from groundwater contamination using the ASTM E1739-95 Tier 1 RBSL Look-up Table for  $1 \times 10^{-6}$  and  $1 \times 10^{-4}$  cancer risk, respectively. There are currently no buildings or structures over or adjacent to the groundwater contaminant plume. Site concentrations of benzene in the groundwater were *exceeded* for the indoor inhalation residential exposure scenario. A risk analysis will be required if any change in land use is proposed or if plans for construction/excavation in the affected area is planned.

A risk management strategy should be developed to:

- If appropriate, mitigate any potential negative impacts posed by the residual contamination remaining on site (e.g., install vapor barriers beneath new building construction).
- Develop a strategy to address any risk posed to the construction or utility worker exposure during earth moving activities in the vicinity of the former tank pit.
- Take precautions to avoid making vertical or lateral conduits that may cause cross contamination between the shallow and deeper aquifers.

**VI. LOCAL AGENCY REPRESENTATIVE DATA**

Name: Amy Leech

Title: Hazardous Materials Specialist


Signature: 

Date: 5/1/97

Reviewed by

Name: Jennifer Eberle

Title: Hazardous Materials Specialist

Signature: 

Date: 4-1-97

Name: Thomas Peacock

Title: Supervising, Hazardous Materials Spec.

Signature: 


Date: 5-1-97

**VII. RWQCB NOTIFICATION**

Date Submitted to RB:

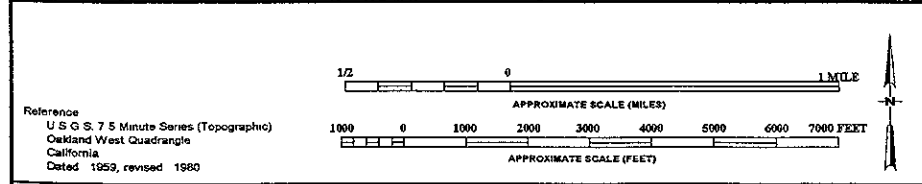
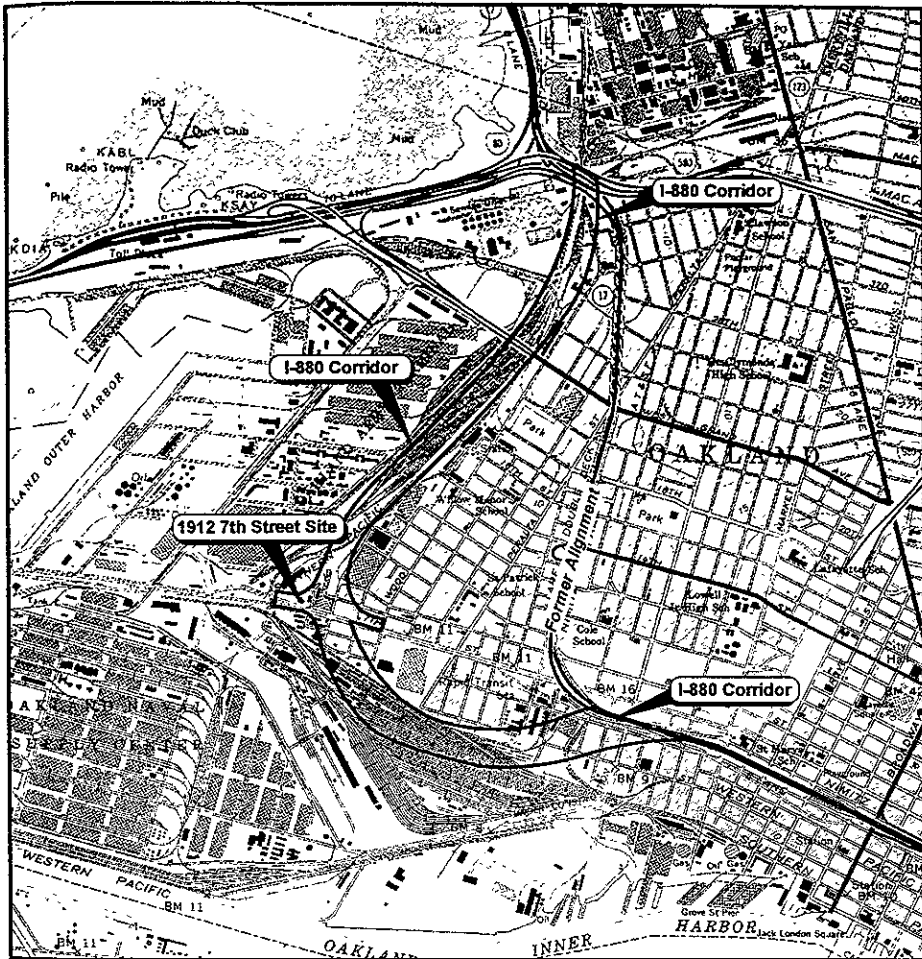
RB Response: 

RWQCB Staff Name: Kevin Graves, P.E.

Signature: 

Title: Assoc. Water Resources Control Engineer

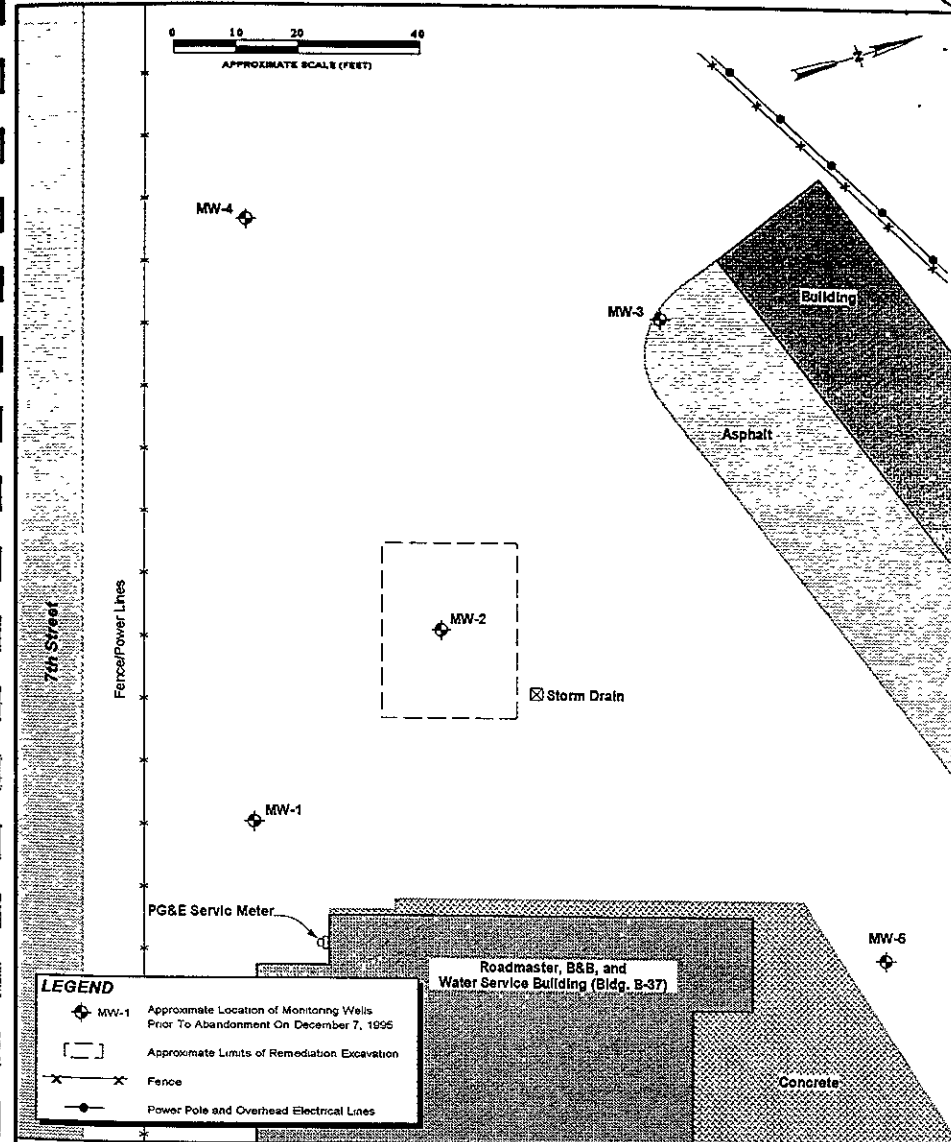
Date: 5/7/97



Project No. <b>06100649</b>	Figure No. <b>1</b>
Scale: <b>As Above</b>	Page No.
File No. <b>549SM</b>	Drawn By <b>Patti Decker</b>
Date: <b>06/24/96</b>	Approved By <b>Richard Bateman</b>



**SITE LOCATION MAP**  
SOUTHERN PACIFIC TRANSPORTATION COMPANY  
1912 SEVENTH STREET  
OAKLAND, CALIFORNIA



Project No. <b>05100649</b>	Figure No. <b>2</b>
Scale: <b>As Above</b>	Page No.
File No. <b>D3000407</b>	Drawn By <b>Patti Decker</b>
Date: <b>06/24/96</b>	Approved By <b>Richard Bateman</b>



**SITE FEATURES PRIOR TO NOVEMBER 1995**  
SOUTHERN PACIFIC TRANSPORTATION COMPANY  
1912 SEVENTH STREET  
OAKLAND, CALIFORNIA



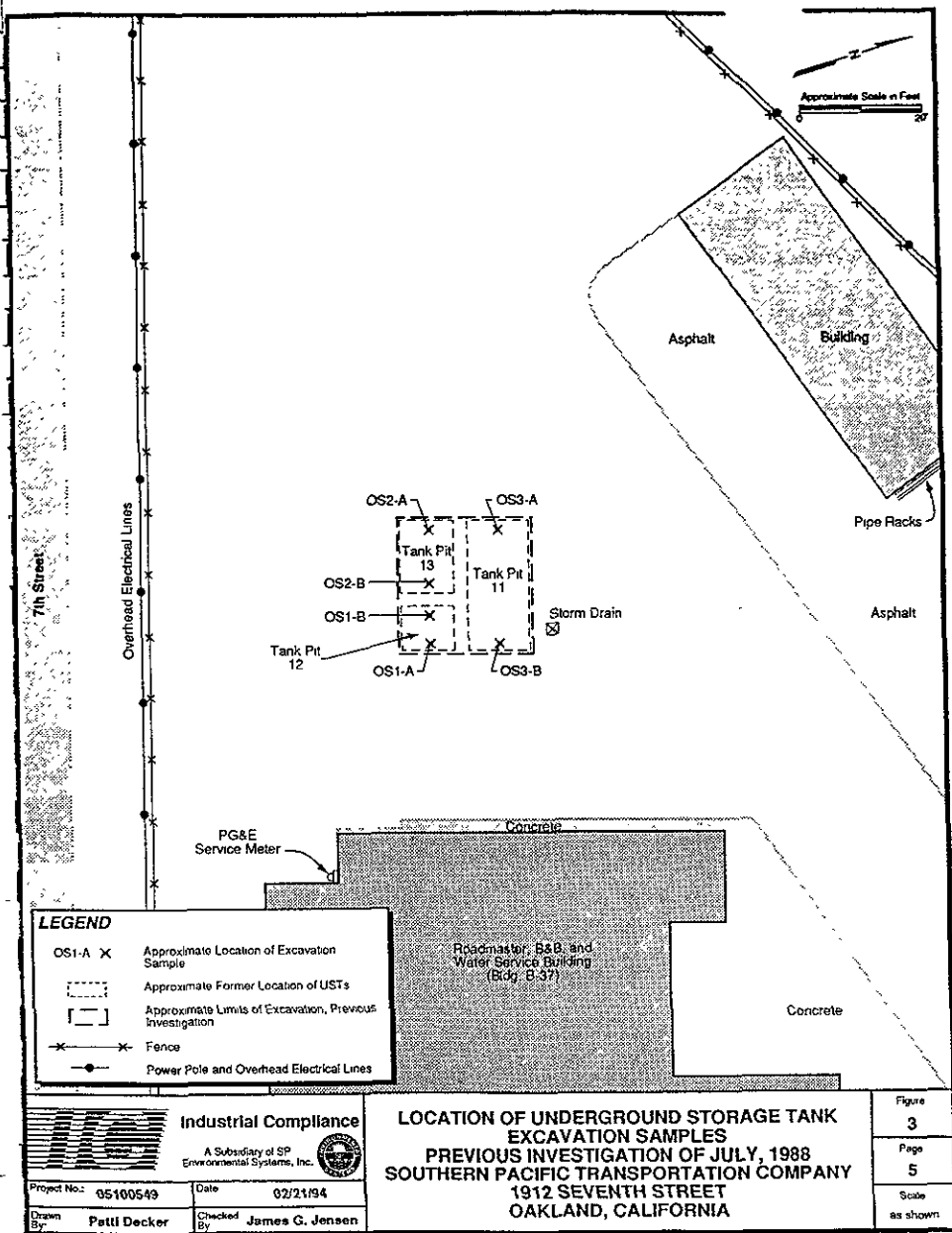


TABLE 1  
ANALYTICAL RESULTS  
UNDERGROUND STORAGE TANK EXCAVATIONS - SOIL SAMPLES  
PREVIOUS INVESTIGATION OF JULY, 1988

Sample Location	Sample ID <sup>a</sup>	Date Collected	Sample Depth <sup>b</sup> (feet)	TEPH <sup>c</sup> (mg/kg)	TVPH <sup>d</sup> (mg/kg)	Volatile Organic Compounds (mg/kg)			
						Benzene <sup>e</sup>	Toluene <sup>e</sup>	Xylenes <sup>e</sup>	Ethylene Dibromide <sup>f</sup>
Tank Pit 11	OS3-A	07/01/88	2 - 4	NA	<10	<2	<2	<2	<0.2
	OS3-B		2 - 4	NA	11	<2	<2	<2	<0.2
Tank Pit 12	OS1-A	07/01/88	2 - 4	NA	700	25	47	179	NA
	OS1-B		2 - 4	NA	130	<20	<20	<20	NA
Tank Pit 13	OS2-A	07/01/88	2 - 4	690	NA	NA	NA	NA	NA
	OS2-B		2 - 4	4,100	NA	NA	NA	NA	NA

- <sup>a</sup> See Figure 3 for approximate sample locations
- <sup>b</sup> As per the Cascone report of March, 1989, soil sample was collected from the native soil at 2 to 4 feet below the tank
- <sup>c</sup> Total extractable petroleum hydrocarbons (TEPH) analyzed by EPA Method 8015
- <sup>d</sup> Total volatile petroleum hydrocarbons (TVPH) analyzed by EPA Method 8015.
- <sup>e</sup> Benzene, toluene, ethylbenzene, and xylenes (BTEX) analyzed by EPA Method 8020
- <sup>f</sup> Ethylene dibromide analyzed by EPA Method 8010
- NA Not analyzed
- < Indicates the analyte was not detected at a concentration at or above the method detection limit as listed
- mg/kg Milligrams per kilogram, approximately equal to parts per million (ppm)

880-002 9/1/03-17-94/afindoc/bw/880table1

TABLE 2  
ANALYTICAL RESULTS  
SOIL BORING SOIL SAMPLES  
PREVIOUS INVESTIGATION OF DECEMBER, 1991

Soil Boring Number <sup>a</sup>	Date Collected	Sample Depth <sup>b</sup> (feet bgs)	Total Petroleum Hydrocarbons <sup>c</sup> (mg/kg)		Volatile Organic Compounds <sup>d</sup> (mg/kg)					
			Gasoline	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
BB-1	12/12/91	5	2,400	<10	<0.1	<0.1	0.3	6	<0.1	<0.1
		13	<0.2	<0.2	<0.002	<0.002	<0.002	0.004	<0.002	<0.002
BB-2	12/12/91	5	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		9	1.1	<0.1	0.43	0.002	<0.001	0.001	<0.001	<0.001
BB-3	12/12/91	5	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		9	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BB-4	12/12/91	5	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		9	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		11	<0.1	0.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BB-5	12/12/91	5	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		9	<0.1	4.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BB-6	12/13/91	5	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		8	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

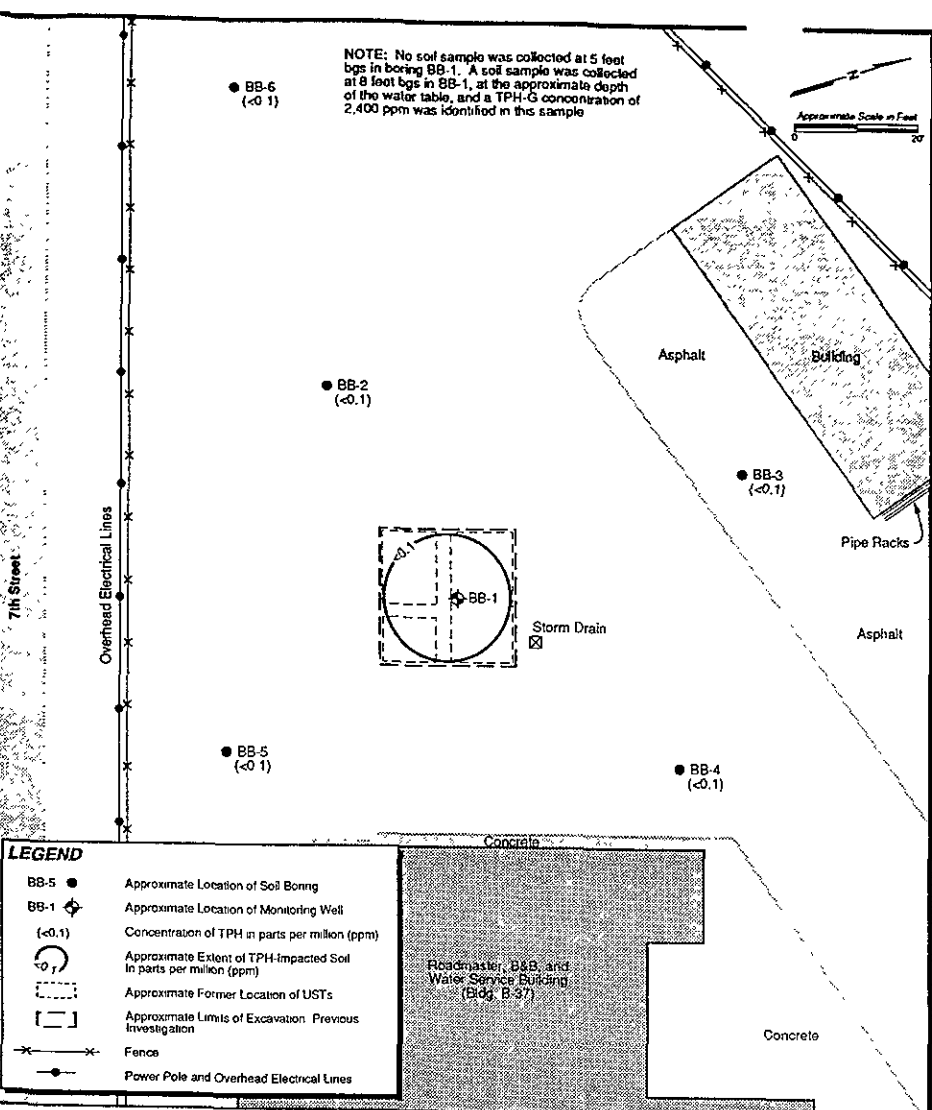
- a See Figure 4 for approximate boring locations. mg/kg Milligrams per kilogram, approximately equal to parts per million (ppm)
- b Sample depth measured in feet below ground surface (bgs) < Indicates the analyte was not detected at or above the listed method detection limit
- c Analyzed by Cal DHS Draft TPH (Modified) and EPA Method 8760

TABLE 3  
ANALYTICAL RESULTS  
MONITORING WELL GROUND WATER SAMPLE  
PREVIOUS INVESTIGATION OF DECEMBER, 1991

Monitoring Well <sup>a</sup>	Date Collected	Total Petroleum Hydrocarbons <sup>b</sup> (µg/L)		Volatile Organic Compounds <sup>b</sup> (µg/L)					
		Gasoline	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
BB-1	12/14/91	12,000	<100 <sup>c</sup>	52	89	220	1,500	<1 <sup>d</sup>	<1 <sup>e</sup>
Cal DHS MCL <sup>f</sup>		-	-	1.0	100 <sup>g</sup>	680	1,750	0.5	0.02

- a See Figure 4 for approximate monitoring well location
- b Samples were analyzed by Cal DHS Draft TPH (Modified) and EPA Method 8260
- c High concentration of some analytes caused the sample to be run diluted resulting in stated method detection limits for analytes
- d California Department of Health Services (DHS) Maximum Contaminant Levels (MCL) for drinking water (California RWQCB, May, 1993, Completion of Water Quality Goals)
- e California DHS action level for drinking water (California RWQCB, May, 1993, Completion of Water Quality Goals)
- µg/L Micrograms per liter (µg/L), approximately equal to parts per billion (ppb)
- < Indicates the analyte was not detected at or above the listed method detection limit

NOTE: No soil sample was collected at 5 feet bgs in boring BB-1. A soil sample was collected at 8 foot bgs in BB-1, at the approximate depth of the water table, and a TPH-G concentration of 2,400 ppm was identified in this sample



**LEGEND**

- BB-5 ● Approximate Location of Soil Boring
- ⊕ BB-1 ⊕ Approximate Location of Monitoring Well
- (<0.1) Concentration of TPH in parts per million (ppm)
- ○ Approximate Extent of TPH-impacted Soil in parts per million (ppm)
- ⊔ ⊔ Approximate Former Location of USTs
- ⊔ ⊔ Approximate Limits of Excavation: Previous Investigation
- — Fence
- — Power Pole and Overhead Electrical Lines

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

**LATERAL EXTENT OF TPH IN SOIL SAMPLES AT 5 FEET BELOW GROUND SURFACE PREVIOUS INVESTIGATION OF DECEMBER, 1991 SOUTHERN PACIFIC TRANSPORTATION COMPANY 1912 SEVENTH STREET OAKLAND, CALIFORNIA**

Figure: 5  
Page: 9  
Scale: as shown

Project No.: 05100549 Date: 02/24/94  
Drawn By: Patti Decker Checked By: James G. Jensen

Oak 549-SR 0204 F.05 #100

Monitoring Well	Date Collected	Sample Depth (feet)	Constituents (mg/kg)							
			Total Petroleum Hydrocarbons		Volatile Organic Compounds					
			Gasoline	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
MW-3	11/02/93	8	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Monitoring Well	Date Collected	Sample Depth (feet)	Constituents (mg/kg)							
			Total Petroleum Hydrocarbons		Volatile Organic Compounds					
			Gasoline	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
MW-4	11/02/93	8	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Sample ID	Date Collected	Sample Depth (feet)	Constituents (mg/kg)							
			Total Petroleum Hydrocarbons		Volatile Organic Compounds					
			Gasoline	Diesel	Benzene	Toluene	Ethylene Dibromide	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
S-1	10/27/93	4	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
S-2	10/27/93	8	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

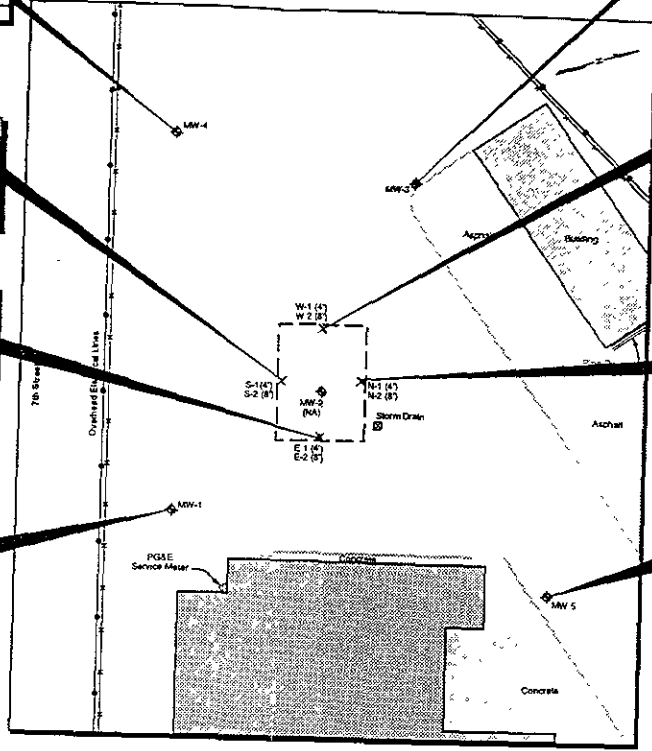
Sample ID	Date Collected	Sample Depth (feet)	Constituents (mg/kg)							
			Total Petroleum Hydrocarbons		Volatile Organic Compounds					
			Gasoline	Diesel	Benzene	Toluene	Ethylene Dibromide	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
E-1	10/27/93	4	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
E-2	10/27/93	8	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Monitoring Well	Date Collected	Sample Depth (feet)	Constituents (mg/kg)							
			Total Petroleum Hydrocarbons		Volatile Organic Compounds					
			Gasoline	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
MW-1	11/01/93	8	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Sample ID	Date Collected	Sample Depth (feet)	Constituents (mg/kg)							
			Total Petroleum Hydrocarbons		Volatile Organic Compounds					
			Gasoline	Diesel	Benzene	Toluene	Ethylene Dibromide	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
W-1	10/27/93	4	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
W-2	10/27/93	8	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Sample ID	Date Collected	Sample Depth (feet)	Constituents (mg/kg)							
			Total Petroleum Hydrocarbons		Volatile Organic Compounds					
			Gasoline	Diesel	Benzene	Toluene	Ethylene Dibromide	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
N-1	10/27/93	4	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
N-2	10/27/93	8	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Monitoring Well	Date Collected	Sample Depth (feet)	Constituents (mg/kg)							
			Total Petroleum Hydrocarbons		Volatile Organic Compounds					
			Gasoline	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dichloroethane	Ethylene Dibromide
MW-5	11/02/93	7	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005



**LEGEND**

- ◆ MW-1: Approximate Location Monitoring Well Boring
- x: Excavation Sample
- : Approximate Former Location of USTs
- : Approximate Limits of Excavation, Present Remediation
- : Fence
- : Power Pole and Overhead Electrical Lines

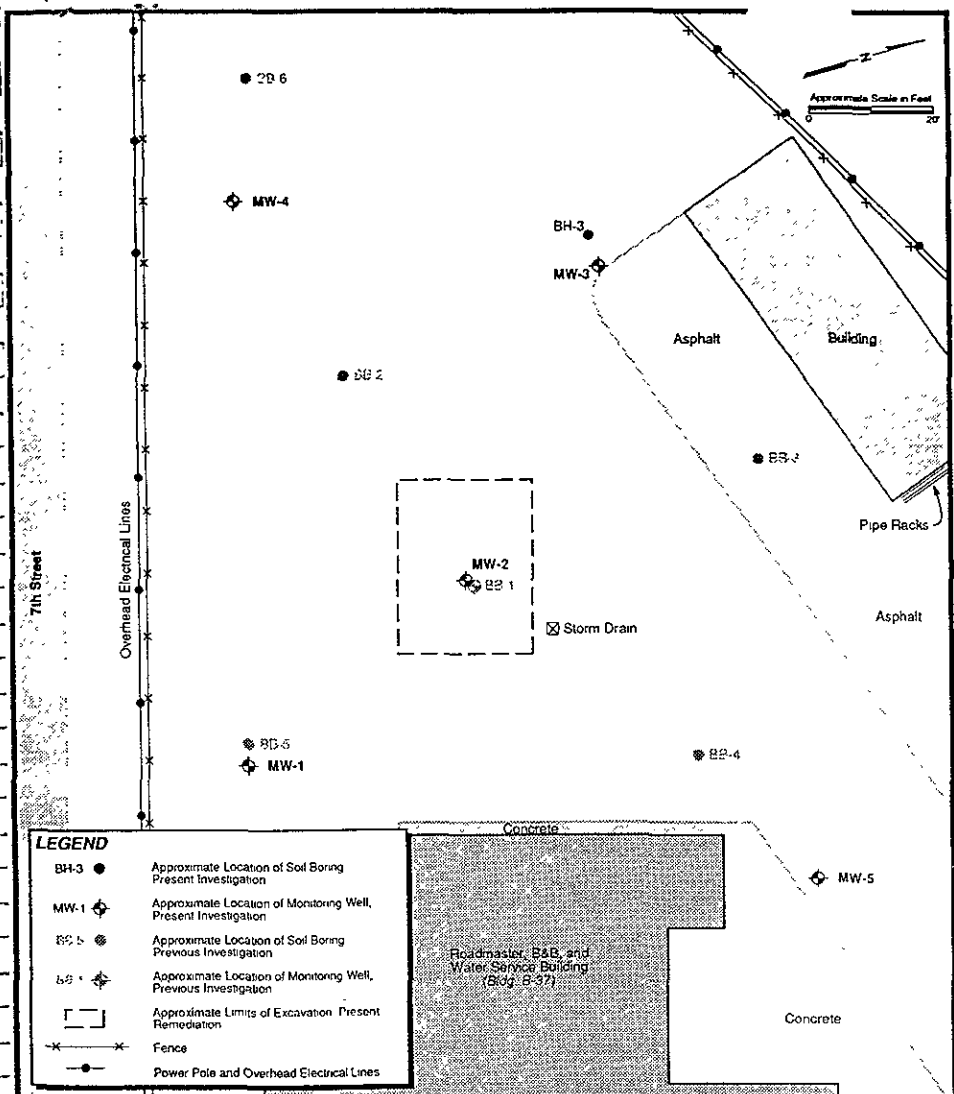
- Notes:**
- Depth in feet below ground surface
  - Total petroleum hydrocarbons as gasoline (TPH-G) and as diesel (TPH-D) analyzed by EPA Method 8260 Modified
  - Benzene, toluene, ethylbenzene, xylenes, 1,2-dichloroethane, and ethylene dibromide analyzed by EPA Method 8260 Modified.
  - All sample results reported in milligrams per kilogram (mg/kg), approximately equal to parts per million (ppm)
  - Laboratory analytical data summarized on Tables 5 and 8.
- NA = not analyzed  
 < Indicates the analyte was not detected at a concentration at or above the method detection limits as noted

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

Project No.: 05100549      Date: 02/24/94  
 Drawn By: Patti Decker      Checked By: James G. Jensen

**CHEMICAL DISTRIBUTION MAP FOR CONSTITUENTS IN SOIL SAMPLES IDENTIFIED DURING PRESENT INVESTIGATION SOUTHERN PACIFIC TRANSPORTATION COMPANY 1912 SEVENTH STREET OAKLAND, CALIFORNIA**

Figure 11  
 Page No. 40  
 Scale: as shown



<b>Industrial Compliance</b> A Subsidiary of SP Environmental Systems, Inc.		<b>LOCATION OF SOIL BORING AND MONITORING WELLS PRESENT INVESTIGATION</b> <b>SOUTHERN PACIFIC TRANSPORTATION COMPANY</b> 1912 SEVENTH STREET OAKLAND, CALIFORNIA	Figure 7
Project No. 05100549	Date 02/24/94		Page 19
Drawn By Patti Decker	Checked By James G. Jensen		Scale as shown
Oak 549/SR 0294 F.08 #100			

Boring Location		Water Services Building		Boring Name		BH-3		
Drilling Company		West Hazmat		Project Name		1912 7th Street		
Drilling Method		Hollow Stem Auger-Continuous Core		Rig Type		Acker AD-II		
Hole Diameter		8 In.		Driller		Joe Geddes		
Ground Elevation		est. 10' AMSL		Date		11/2/93		
Water Depth		10.5 feet bgs		Logged By		James G. Jensen		
Total Depth		14.5 feet bgs (8" auger)						
Sample Number	Recovery	Blows/6-inches	Depth Feet	Boring Detail	Lithology	USCS Log	Sample Description	PID (ppm)
	not cored		1	Backfilled with Cement/Bentonite Grout		GW	Silty gravel at surface.	
	100%		2			ML	Silty Gravel: dark brown, 50% gravel, subrounded to subangular, 50% silt, poorly sorted, loose, damp	
	0%		3			SM	Gravelly Silt: gray brown, 70% silt, 30% gravel, subrounded, poorly sorted, loose, damp.	
	0%		4			CL	Clayey Silty Sand: brown, 55% fine grained sand, subangular, 30% silt, 15% clay, poorly sorted, firm, trace gravel, damp.	
	0%		5			SM	Gravelly Sandy Clay: gray, 40% fine to medium grained sand, subrounded, 40% clay, 20% pea gravel, poorly sorted firm, damp	0.0
	100%		6			SP	Silty Clay: dark brown, 60% clay, 30% silt, 10% gravel, subrounded, poorly sorted, firm, damp.	
	0%		7				Silty Sand: brown, 70% fine grained sand, subrounded, 30% silt, poorly sorted, loose, trace shell fragments, damp	
	0%		8				No Recovery.	
	100%		9				Sand: brown, 80% medium grained, subrounded, 20% fine grained, moderately sorted, 20% dark minerals, loose, trace shell fragments, damp. Increase in fine grained sand to 40% at 7.5'	0.0
	0%		10				No Recovery.	
	100%		11			SP	Sand: brown, 80% medium grained, subrounded, 20% fine grained, moderately sorted, 20% dark minerals, firm, trace shell fragments, wet.	
	0%		12				No Recovery.	
	100%		13			SM	Silty Sand: gray to dark gray, 70% fine grained sand, subround, 30% silt, moderate to poorly sorted, firm, trace shell fragments, thin shell debris layer, thin 1/2" peat layer at 13.2', wet, slight organic odor.	0.3
	100%		14			SW	Sand: gray to dark gray, 60% fine grained, 30% medium grained, subrounded, 10% silt, poorly sorted, firm, trace shell fragments, trace dark minerals, wet, woody fragments at bottom of core barrel, slight organic odor.	0.1

**Note:**  
 1. Boring continuously cored to total depth  
 Total Depth 14.5 feet bgs (refusal at 14.5).

Well Construction Log

INDUSTRIAL COMPLIANCE

Well Location	Water Services Building		Well Name	MW-1	
Drilling Company	West Hazmat		Project Name	1912 7th Street	
Drilling Method	Hollow Stem Auger-Continuous Core		Rig Type	Acker AD-II	
Driller	Joe Geddes	Date	11/1/93	Logged By	James G. Jensen
Ground Elevation	est. 10' AMSL	Water Depth	8.5 feet bgs	Total Depth	18.5' (8" Auger)/17.5' (10" Auger)

Well Construction Specifics

Screen Placement	from 16.5 ft. to 6.5 ft.	Slot Size	0.020 inches	Diameter	4 inches	Completion Type:	
Blank Casing	from 6.5 ft. to 0.5 ft.	Schedule	40 PVC	Diameter	4 inches	Completion Type:	Aboveground
Filter Pack	from 17.0 ft. to 4.0 ft.	Size	#3	Type	Lonestar/Monterey	At Grade	x
Bentonite Pellets	from 4.0 ft. to 2.0 ft.	Type	Pellets	Size	3/8" inches	Hydrated	x yes no
Cement/Bentonite	from 2.0 ft. to surf ft.	Size		Percent Bentonite	3%		

Sample Number	Recov.	Blows/ 6 inches	Depth Feet	Well Detail	Lithology	USCS Log	Sample Description	PID (ppm)
	not cored		0				Asphalt pavement at surface.	
	100%		1	Cement/Bentonite Grout		SW	Sand: dark brown, 70% fine grained, subrounded, 30% silt, poor to moderately sorted, loose, trace gravel, trace dark minerals, red rock fragments, damp.	
			2					
			3	Bentonite Seal		SP	Sand: brown, 85% fine grained, 15% very fine grained, subrounded, moderately sorted, 10% dark minerals, loose, damp.	0.1
	0%		4				No Recovery	
			5	#3 Sand				
			6					
	100%		7	Screen		SP	Sand: brown, 80% fine grained, subrounded, 20% very fine grained, moderately sorted, 10% dark minerals, loose, damp, becomes wet at 8.5'.	0.5
	0%		8					
			9				Sand: orange brown, 50% fine grained, 50% medium grained, subrounded, moderately sorted, loose, 30% dark minerals, wet.	
			10					
	100%		11			SC	Sand: gray, medium grained, subrounded, well sorted, firm, 20% dark minerals, wet.	0.5
			12			SM	Clayey Sand: gray, 50% fine grained, subrounded, 30% clay, poorly sorted, firm, 10% dark minerals, trace wood fragments, wet.	
			13				Silty Sand: orange brown mottled with gray, 30% fine grained, 30% medium grained, subrounded, 40% silt, firm, poorly sorted, 15% dark minerals, wet.	
	0%		14				No Recovery	
			15					
	100%		16			SM	Silty Sand: orange brown mottled with gray, 40% fine grained, 30% medium grained, subrounded, 30% silt, poorly sorted, firm, 15% dark minerals, wet.	0.5

Well Construction Log

INDUSTRIAL COMPLIANCE

Well Number	MW-1	Project Number	05100549	Project Name	1912 7th Street			
Sample Number	Recov.	Blows/ 6-inches	Depth Feet	Boring Detail	Lithology	USCS Log	Sample Description	PID (ppm)
	100%		18			SM	Silty Sand: orange brown and gray mottled, 50% fine grained, 20% medium grained, subrounded, 30% silt, poorly sorted, firm, wet, 15% dark minerals.	

Note:  
1. Boring continuously cored to total depth.

Total Depth 18.5 feet bgs.

**Well Construction Log**

**INDUSTRIAL COMPLIANCE**

Well Location	Water Services Building	Well Name	MW-2
Drilling Company	West Hazmat	Project Name	1912 7th Street
Drilling Method	Hollow Stem Auger-Continuous Core	Rig Type	Acker AD-II
Hole Diameter	8 & 10 In.	Driller	Joe Geddes
Ground Elevation	est. 10' AMSL	Date	11/1/93
Water Depth	8.5 feet bgs	Logged By	James G. Jensen
Total Depth	18.5' (8" Auger)/17.5' (10" Auger)		

**Well Construction Specifics**

Screen Placement	from 17.0 ft. to 7.0 ft.	Slot Size	0.020 inches	Diameter	4 inches	Completion Type:	
Blank Casing	from 7.0 ft. to 0.5 ft.	Schedule	40 PVC	Diameter	4 inches	Aboveground	
Filter Pack	from 17.5 ft. to 4.5 ft.	Size	#3	Type	Lonestar/Monterey	At Grade	<input checked="" type="checkbox"/>
Bentonite Pellets	from 4.5 ft. to 2.4 ft.	Type	Pellets	Size	3/8 inches	Hydrated	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Cement/Bentonite	from 2.4 ft. to surf ft.	Size		Percent Bentonite	3%		

Sample Number	Recov.	Blow/6-inches	Depth Foot	Well Detail	Lithology	USCS Log	Sample Description	PID (ppm)
			1	Cement/Bentonite Grout			Drilled in center of backfilled UST excavation	
			2				Gravel: clean imported backfill from surface to approximately 8.5 feet below ground surface (bgs).	
	Not Cored		3	Bentonite Seal				
			4				Not cored	
			5	#3 Sand				
			6					
			7					
			8	Screen				
Did Not Collect Laboratory Sample	0%		9				At 8.5 feet PID measured 169 ppm at the boring. Begin continuous core at 8.5 feet bgs. No recovery.	
			10		SP		Sand: gray, 50% fine, 50% medium grained, subrounded, moderately sorted, firm, wet, trace shell fragments, 15% dark minerals.	418
	100%		11		SM		Silty Sand: gray, 70% fine grained, subrounded, 30% silt, poorly sorted, firm, wet, 10% dark minerals, moderate odor.	
			12		CH		Clay: gray to dark gray, sticky, firm, moist, slight odor. 2" layer of sand, black, fine grained, subrounded, moderately sorted, trace shell fragments, slight odor.	
			13		SM		Silty Sand: gray, 70% fine grained, subrounded, 30% silt, poorly sorted, firm, 10% dark minerals, trace shell fragments, slight odor.	
	0%		14				At 13.5 feet PID measured 174 ppm at the boring. No recovery.	
			15		SW		Sand: gray, 50% fine grained, 40% medium grained, 10% very fine grained, subrounded, moderate to poorly sorted, firm, 10% dark minerals, slight odor. Grading to:	
	100%		16		SM		Silty Sand: orange brown mottled with gray, 60% medium grained, 30% fine grained, subrounded, 10% silt, moderate to poorly sorted, firm, wet, 15% dark minerals, slight odor.	194

**Well Construction Log**

**INDUSTRIAL COMPLIANCE**

Well Number	MW-2	Project Number	05100549	Project Name	1912 7th Street			
Sample Number	Recov.	Blow/6-inches	Depth Feet	Boring Detail	Lithology	USCS Log	Sample Description	PID (ppm)
	100%		18			SM	Silty Sand: orange brown mottled with gray, 60% medium grained, 30% fine grained, 10% silt, subrounded, moderate to poorly sorted, firm, wet, 15% dark minerals, slight odor.	13

Note:  
1. Boring continuously cored to total depth.

Total Depth 18.5 feet bgs.

Well Construction Log

INDUSTRIAL COMPLIANCE

Well Location	Water Services Building	Well Name	MW-3
Drilling Company	West Hazmat	Project Name	1912 7th Street
Drilling Method	Hollow Stem Auger-Continuous Core	Rig Type	Acker AD-II
Driller	Joe Geddes	Date	11/2/93
Logged By	James G. Jensen	Project Number	05100549
Well Diameter	8 & 10 In.	Water Depth	10.5 feet bgs
Ground Elevation	est. 10' AMSL	Total Depth	18.5' (8" Auger)/17.0' (10" Auger)

Well Construction Specifics

Screen Placement	from 17.0 ft. to 7.0 ft.	Slot Size	0.020 inches	Diameter	4 inches	Completion Type	
Blank Casing	from 7.0 ft. to 0.5 ft.	Schedule	40 PVC	Diameter	4 inches	Aboveground	
Filter Pack	from 17.5 ft. to 4.4 ft.	Size	#3	Type	Lonestar/Monterey	At Grade	X
Bentonite Pellets	from 4.4 ft. to 2.4 ft.	Type	Pellets	Size	3/8 inches	Hydrated	X yes no
Cement/Bentonite	from 2.4 ft. to surf ft.	Size		Percent Bentonite	3%		

Sample Number	Recov.	Blow/ft 6-inches	Depth Feet	Well Detail	Lithology	USCS Log	Sample Description	PID (ppm)
	Not Cored						Asphalt pavement at surface.	
	100%		1	Cement/Bentonite Grout	GM		<b>Silty Gravel:</b> dark brown, 50% gravel, subrounded to subangular, 50% silt, poorly sorted, loose, damp.	
	100%		2		ML		<b>Sandy Silt:</b> dark brown, 50% fine grained, subrounded, 50% silt, poorly sorted, firm, trace fill material (red rock), tar debris, damp.	
	0%		3	Bentonite Seal	SM		<b>Silty Sand:</b> dark brown, 60% fine grained, subrounded, 40% silt, poorly sorted, loose, trace gravel, damp.	0.0
	0%		4		SP		<b>Sand:</b> brown, 80% medium grained, 20% fine grained, subrounded, well sorted, loose, 15% dark minerals, trace shell fragments, damp.	
	0%		5				No Recovery.	
	100%		6	#3 Sand			<b>Sand:</b> brown, 70% medium grained, 30% fine grained, subrounded, moderately sorted, loose, damp, 15% dark minerals, trace shell fragments.	
	100%		7		SP			0.1
	0%		8	Screen			No recovery	
	0%		9					
	100%		11		SP		<b>Sand:</b> gray brown grading to gray, 60% fine grained, 40% medium grained, subrounded, moderately sorted, firm, wet, trace dark minerals, slight organic odor, thin gray clay layer at 12.5', trace shell fragments, increase in medium grained sand bottom 3"	
	100%		12				<b>Sand and Sandy Clay:</b> black, 50% fine grained, 50% medium grained, "peat-like", subrounded, moderately sorted, firm, wet, slight organic odor, 40% clay in part, trace gravel and wood fragments.	0.0
	100%		13		SP			
	100%		14				<b>Silty Sand:</b> gray, 40% medium grained, 40% fine grained, subrounded, 20% silt, moderate to poorly sorted, firm, wet, trace dark minerals, slight organic odor.	
	100%		15		SM		<b>Silty Sand:</b> gray, 50% medium grained, 30% fine grained, subrounded, 20% silt, moderate to poorly sorted, firm, wet, trace shell fragments, trace dark minerals, slight organic odor.	
	100%		16				<b>Silty Sand:</b> orange brown mottled with gray, 40% medium grained, 40% fine grained, 20% silt, subrounded, moderate to poorly sorted, firm, wet.	0.1

Well Construction Log

INDUSTRIAL COMPLIANCE

Well Number	MW-3	Project Number	05100549	Project Name	1912 7th Street			
Sample Number	Recov.	Blow/ft 6-inches	Depth Feet	Boring Detail	Lithology	USCS Log	Sample Description	PID (ppm)
	100%		18			SM	<b>Silty Sand:</b> orange brown mottled with gray, 40% medium grained, 40% fine grained, subrounded, 20% silt, moderate to poorly sorted, firm, wet.	0.1

Note:  
1. Boring continuously cored to total depth.

Total Depth 18.5 feet bgs.

**Well Construction Log**

**INDUSTRIAL COMPLIANCE**

Well Location	Water Services Building	Well Name	MW-4
Drilling Company	West Hazmat	Project Name	1912 7th Street
Drilling Method	Hollow Stem Auger-Continuous Core	Rig Type	Acker AD-II
Hole Diameter	8 & 10 in.	Driller	Joe Geddes
Ground Elevation	est. 10' AMSL	Date	11/2/93
Water Depth	9.5 feet bgs	Logged By	James G. Jensen
		Total Depth	18.5' (8" Auger)/19.0' (10" Auger)

**Well Construction Specifics**

Screen Placement	from 16.5 ft. to 6.5 ft.	Slot Size	0.020 inches	Diameter	4 inches	Completion Type:	
Blank Casing	from 6.5 ft. to 0.5 ft.	Schedule	40 PVC	Diameter	4 inches	Aboveground	
Filter Pack	from 18 ft. to 4.6 ft.	Size	#3	Type	Lonestar/Monterey	At Grade	X
Bentonite Pellets	from 4.6 ft. to 2.5 ft.	Type	Pellets	Size	3/8 inches	Hydrated	X, yes no
Cement/Bentonite	from 2.5 ft. to surf ft.	Size		Percent Bentonite	3%		

Sample Number	Recov.	Blow/6 inches	Depth Feet	Well Detail	Lithology	USCS Log	Sample Description	PID (ppm)
	not cored					ML	Asphalt pavement at surface.	
	100%		1	Cement/Bentonite Grout		ML	Sandy Silt: brown, 70% silt, 30% fine grained, subrounded, poorly sorted, loose, damp	
	0%		2	Bentonite Seal		SP	Sandy Silt: dark brown, 60% silt, 40% fine grained, subrounded, poorly sorted, loose, damp	0.0
	0%		3				Sand: brown, 60% medium grained, 40% fine grained, subrounded, moderately sorted, loose, damp, 10% dark minerals, mottled dark brown and orange brown in part, 25% shell debris at 3.5', grades to 70% medium grained sand bottom 1'.	0.0
	0%		4				No Recovery.	
	100%		5	#3 Sand		SP	Sand: brown, 70% medium grained, 30% fine grained, subrounded, moderately sorted, loose, damp, 10% dark minerals, trace shell fragments, increase fine grained sand bottom 1'.	0.0
	0%		6	Screen			No recovery	
	0%		7			SP	Sand: gray with brown mottling, 70% medium grained, 30% fine grained, subrounded, moderately sorted, firm, wet, 15% dark minerals, trace shell fragments, sandy clay ball present, slight organic odor	
	100%		8			SC	Sandy Clay and Clay: gray with dark gray clay, "peat-like", 40% fine to medium grained sand in upper 0.5', subrounded, poorly sorted, firm, wet, large wood fragments, trace rootlets, trace shell debris, moderate organic odor	1.0
	0%		9			SP	Sand: gray brown, 70% medium grained, 30% fine grained, subrounded, moderately sorted, firm, wet, slight organic odor	
	0%		10			SM	Silty Sand: gray, 40% medium grained, 40% fine grained, 20% silt, subrounded, poorly sorted, firm, wet, 10% shell fragments, slight organic odor.	
	0%		11			SM	Silty Sand: gray, 60% fine grained, 30% medium grained, 10% silt, subrounded, moderate to poorly sorted, firm, wet, 15% dark minerals, trace shell fragments, slight organic odor.	
	0%		12			SM	Silty Sand: orange brown mottled, 60% fine grained, 25% medium grained, 15% silt, subrounded, poorly sorted, firm, wet, 15% dark minerals.	0.0
	0%		13			SM	Silty Sand: orange brown mottled, 60% fine grained, 25% medium grained, 15% silt, subrounded, poorly sorted, firm, wet, 15% dark minerals.	0.0
	0%		14			SM	Silty Sand: orange brown mottled, 60% fine grained, 25% medium grained, 15% silt, subrounded, poorly sorted, firm, wet, 15% dark minerals.	0.0
	0%		15			SM	Silty Sand: orange brown mottled, 60% fine grained, 25% medium grained, 15% silt, subrounded, poorly sorted, firm, wet, 15% dark minerals.	0.0
	0%		16			SM	Silty Sand: orange brown mottled, 60% fine grained, 25% medium grained, 15% silt, subrounded, poorly sorted, firm, wet, 15% dark minerals.	0.0

**INDUSTRIAL COMPLIANCE**

**Well Construction Log**

Well Number	MW-4	Project Number	05100549	Project Name	1912 7th Street
Sample Number		Recov.		Blow/6 inches	
		100%			
				Depth Feet	18
				Boring Detail	
				Lithology	
				USCS Log	SM
				Sample Description	Silty Sand: orange brown mottled, 60% fine grained, 25% medium grained, 15% silt, subrounded, poorly sorted, firm, wet, 15% dark minerals.
				PID (ppm)	0.0

Note:  
1. Boring continuously cored to total depth.

Total Depth 18.5 feet bgs.



TABLE 1  
SUMMARY OF GROUND WATER ANALYTICAL RESULTS

Sample Location*	Date Sampled	Total Petroleum Hydrocarbons* (µg/L)		Volatile Organic Compounds* (µg/L)				Sodium Chloride* (mg/L)	Total Dissolved Solids* (mg/L)
		Gasoline	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes		
MW-1	11/16/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/10/94	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	05/12/94	<50	<50	<0.5	<0.5	<0.5	<0.5	35	710
	08/12/94	<50	<60	<0.3	<0.3	<0.5	<0.5	33	710
	11/03/94	<50	<50	<0.5	<0.5	<0.5	<0.5	41	960
	02/01/95	<50	<50	<0.5	<0.5	<0.5	<0.5	69	760
	05/03/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/03/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/02/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
MW-2	11/16/93	23,000	<500	410	440	500	3,800	NA	NA
	02/10/94	9,500	<50	220	51	380	1,800	NA	NA
	05/12/94	18,000	<5000	1,700	70	<50	3,400	73	1,500
	08/12/94	17,000	11,000	2,100	100	640	1,700	76	1,300
	11/03/94	9,000	2,400 <sup>f</sup>	2,200	49	400	720	99	1,710
	02/01/95	2,300	210 <sup>f</sup>	110	2.6	52	64	247	2,430
	05/03/95	2,100	<50	58	3.5	54	77	NA	NA
	08/03/95	6,800	<50	420	120	190	670	NA	NA
	11/02/95	9,300	610 <sup>f</sup>	970	200	590	1,100	NA	NA
MW-3	11/16/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/10/94	NS	NS	NS	NS	NS	NS	NS	NS
	05/12/94	<50	<50	<0.5	<0.5	<0.5	<0.5	38	560
	08/12/94	<50	130	0.6	0.8	<0.5	0.7	43	510
	11/03/94	<50	<50	<0.5	<0.5	<0.5	<0.5	53	860
	02/01/95	<50	<50	<0.5	<0.5	<0.5	<0.5	158	1,620
	05/03/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/03/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/02/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA

TABLE 1 (continued)  
SUMMARY OF GROUND WATER ANALYTICAL RESULTS

Sample Location*	Date Sampled	Total Petroleum Hydrocarbons* (µg/L)		Volatile Organic Compounds* (µg/L)				Sodium Chloride* (mg/L)	Total Dissolved Solids* (mg/L)
		Gasoline	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes		
MW-4	11/16/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/10/94	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	05/12/94	<50	<50	<0.5	<0.5	<0.5	<0.5	60	1,100
	08/12/94	<50	230	0.7	<0.3	<0.5	<0.5	64	930
	11/03/94	<50	<50	<0.5	<0.5	<0.5	<0.5	58	1,110
	02/01/95	<50	76 <sup>f</sup>	<0.5	<0.5	<0.5	<0.5	536	1,770
	05/03/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/03/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/02/95	50	300 <sup>f</sup>	<0.5	<0.5	<0.5	<0.5	NA	NA
	MW-5	11/16/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NA
02/10/94		<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
05/12/94		<50	<50	<0.5	<0.5	<0.5	<0.5	55	1,100
08/12/94		<50	190	<0.3	<0.3	<0.5	<0.5	73	1,000
11/03/94		<50	<50	<0.5	<0.5	<0.5	<0.5	59	1,110
02/01/95		<50	<50	<0.5	<0.5	<0.5	<0.5	46	1,180
05/03/95		<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
08/03/95		<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
11/02/95		<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
Cal DHS MCLs <sup>a</sup>	NE	NE	1	150	700	1,750	NE	500 <sup>b</sup>	



TABLE 1  
GROUND WATER ELEVATION DATA

Monitoring Well <sup>a</sup>	Date Measured	Time Measured	Top of Casing Elevation <sup>b</sup> (feet MSL)	Depth to Ground Water <sup>c</sup> (feet TOC)	Ground Water Elevation <sup>d</sup> (feet MSL)
MW-1	11/16/93	1051	11 93	9.06	2.87
	02/10/94	0900		8.30	3.63
	05/12/94	0925		9.36	2.57
	08/12/94	0915		9.84	2.09
	11/03/94	0920		9.90	2.03
	02/01/95	0820		7.52	4.41
	05/03/95	0835		7.96	3.97
	08/03/95	0905		8.58	3.35
	11/02/95	0805		9.32	2.61
MW-2	11/16/93	1026	11 24	8.32	2.92
	02/10/94	1000		7.60	3.64
	05/12/94	0945		8.55	2.69
	08/12/94	0935		9.11	2.13
	11/03/94	0936		9.26	1.98
	02/01/95	0827		8.78	2.46
	05/03/95	0840		7.28	3.96
	08/03/95	0925		8.38	2.86
	11/02/95	0830		8.58	2.66
MW-3	11/16/93	1505	11 61	8.62	2.99
	02/10/94	NM		NM	NM
	05/12/94	0935		8.68	2.93
	08/12/94	0925		9.07	2.54
	11/03/94	0936		9.36	2.25
	02/01/95	0826		7.70	3.91
	05/03/95	0855		7.68	3.93
	08/03/95	0920		8.12	3.49
	11/02/95	0815		8.73	2.88



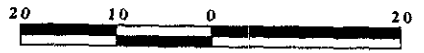
TABLE 1 (continued)  
GROUND WATER ELEVATION DATA

Monitoring Well <sup>a</sup>	Date Measured	Time Measured	Top of Casing Elevation <sup>b</sup> (feet MSL)	Depth to Ground Water <sup>c</sup> (feet TOC)	Ground Water Elevation <sup>d</sup> (feet MSL)
MW-4	11/16/93	1415	11 17	8.36	2.81
	02/10/94	1100		7.86	3.31
	05/12/94	0940		8.43	2.74
	08/12/94	0930		8.85	2.32
	11/03/94	0928		9.10	2.07
	02/01/95	0832		7.28	3.89
	05/03/95	0830		7.42	3.75
	08/03/95	0915		8.44	2.73
	11/02/95	0820		8.48	2.69
	MW-5	11/16/93		1007	11 18
02/10/94		1145	7.50	3.68	
05/12/94		0930	7.87	3.31	
08/12/94		0920	8.34	2.84	
11/03/94		0925	8.74	2.44	
02/01/95		0821	7.00	4.18	
05/03/95		0824	8.70	2.48	
08/03/95		0910	7.94	3.24	
11/02/95		0827	8.33	2.85	

- a See Figure 2 for approximate location of monitoring wells
- b Top of casing elevation is the elevation, in feet above mean sea level, of a point marked on the top of the well casing (generally north side) which has been surveyed by a licensed surveyor
- c Depth to ground water measured from top of casing
- d Ground water elevation calculated by subtracting the depth to ground water from the top of casing elevation
- MSL Mean sea level
- TOC Top of casing
- NM Not measured due to surface obstruction

17

17



7th Street

Fence/Power Lines

MW-4  
(50)

MW-3  
( $<50$ )

MW-2  
(9,300)

MW-1  
( $<50$ )

Building

Asphalt

Storm Drain

Concrete

MW-5  
( $<50$ )

Roadmaster, B&B, and  
Water Service Building  
(Bldg. B-37)

Concrete

**LEGEND**

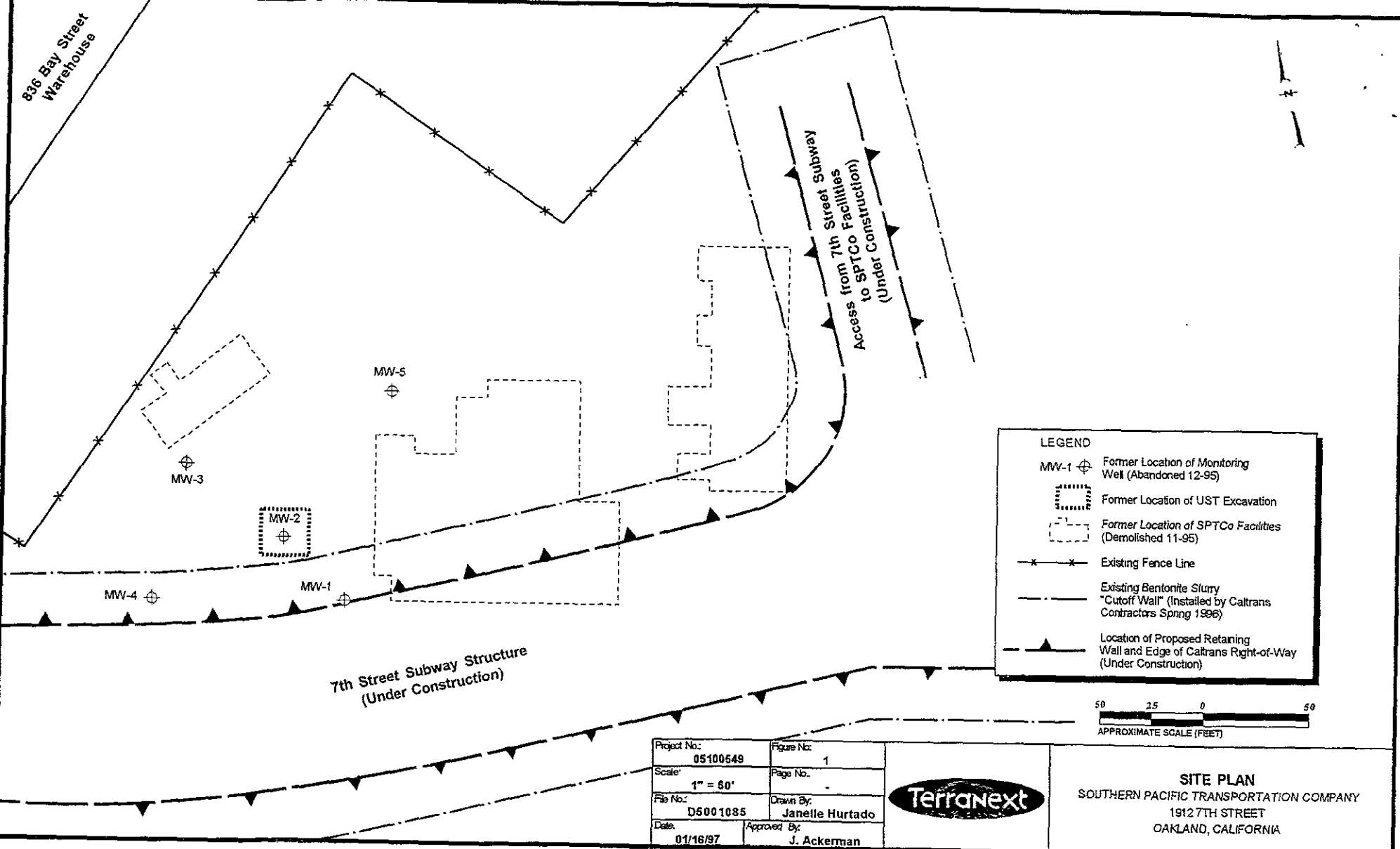
- MW-1 Approximate Location of Monitoring Well
- ( $<50$ ) Concentration of TPH-G (in micrograms per liter)
- 100 Approximate Extent of TPH-G Impacted Ground Water (in micrograms per liter) (dashed where inferred)
- [ ] Approximate Limits of Remediation Excavation
- Fence
- Power Pole and Overhead Electrical Lines

Project No: 05100549	Figure No: 4
Scale: As Above	Page No.: 17
File No.: D1000142	Drawn By: Patti Decker
Date: 01/23/86	Approved By: Richard Bateman



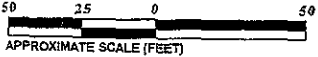
**ESTIMATED LATERAL EXTENT OF TPH  
AS GASOLINE IN GROUND WATER**  
 NOVEMBER, 1995  
 SOUTHERN PACIFIC TRANSPORTATION COMPANY  
 1912 SEVENTH STREET  
 OAKLAND, CALIFORNIA

836 Bay Street  
Warehouse



**LEGEND**

- MW-1 ⊕ Former Location of Monitoring Well (Abandoned 12-95)
- ⊠ Former Location of UST Excavation
- ⊡ Former Location of SPTCo Facilities (Demolished 11-95)
- \*— Existing Fence Line
- Existing Bentonite Slurry "Cutoff Wall" (Installed by Caltrans Contractors Spring 1996)
- ▲- Location of Proposed Retaining Wall and Edge of Caltrans Right-of-Way (Under Construction)



Project No: <b>05100549</b>	Figure No: <b>1</b>
Scale: <b>1" = 50'</b>	Page No.: <b>-</b>
File No.: <b>D5001085</b>	Drawn By: <b>Janelle Hurtado</b>
Date: <b>01/16/97</b>	Approved By: <b>J. Ackerman</b>



**SITE PLAN**  
SOUTHERN PACIFIC TRANSPORTATION COMPANY  
1912 7TH STREET  
OAKLAND, CALIFORNIA

**INDUSTRIAL COMPLIANCE**

**Well Construction Log**

Well Location	Water Services Building	Well Name	MW-5
Drilling Company	West Hazmat	Project Name	1912 7th Street
Drilling Method	Hollow Stem Auger-Continuous Core	Rig Type	Acker AD-II
Hole Diameter	8 & 10 In.	Driller	Joe Geddes
Ground Elevation	est. 10' AMSL	Date	11/2/93
Water Depth	8.0 feet bgs	Logged By	James G. Jensen
		Total Depth	18 5' (8" Auger)/16.0' (10" Auger)

**Well Construction Specifics**

Screen Placement	from 16.0 ft. to 6.0 ft.	Slot Size	0.020 inches	Diameter	4 inches	Completion Type:	
Blank Casing	from 6.0 ft. to 0.5 ft.	Schedule	40 PVC	Diameter	4 inches	Aboveground	
Filter Pack	from 15.0 ft. to 4.0 ft.	Size	#3	Type	Lonestar/Monteray	At Grade	<input checked="" type="checkbox"/>
Bentonite Pellets	from 4.0 ft. to 2.0 ft.	Type	Pellets	Size	3/8 inches	Hydrated	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Cement/Bentonite	from 2.0 ft. to surf ft.	Size		Percent Bentonite	3%		

Sample Number	Recov.	Blows/6 inches	Depth Feet	Well Detail	Lithology	USCS Log	Sample Description	FID/PPD
	not cored		0			GW	Asphalt pavement at surface.	
	0%		1				No Recovery	
	100%		2	Cement/Bentonite Grout		SM	<b>Red brick:</b> possible fill material <b>Silty Sand:</b> brown to dark brown, 60% fine grained, subrounded, 40% silt, 10% gravel, poorly sorted, firm, damp	0.0
			3	Bentonite Seal		CL	<b>Gravelly Clay:</b> orange brown, 65% clay, 25% small gravel, 10% silt, firm, damp	
			4				No Recovery from 3.5 feet to 8.5 feet bgs	
	0%		5					
			6	#3 Sand				
			7			SP	<b>Sand</b> (from cuttings at 7.0' bgs) brown, 70% fine grained, 30% medium grained, subrounded, moderately sorted, loose, damp, 10% dark minerals.	1.5
	0%		8	Screen			<b>Sand</b> (from cuttings at 8.0' bgs): gray, 60% fine grained, 30% medium grained, subrounded, 10% silt, moderately sorted, firm, wet, 10% dark minerals, trace shell fragments	
			9				No Recovery	
			10			SM	<b>Silty Sand:</b> gray, 50% fine grained, 35% medium grained, subrounded, 15% silt, poorly sorted, firm, wet, 10% dark minerals, trace shell fragments, mottled with well sorted, medium grained, brown sand.	
	100%		11			OL	<b>Basty Sand:</b> black, 70% fine to medium grained, 30% peat, subrounded, poorly sorted, firm, wet, slight organic odor	
			12			SM	<b>Silty Sand:</b> gray green, 50% fine grained, 35% medium grained, subrounded, 15% silt, poorly sorted, firm, wet, grading to: <b>Silty Sand:</b> orange brown mottled, 45% medium grained, 40% fine grained, subrounded, 15% silt, poorly sorted, firm, wet, 15% dark minerals	0.5
	0%		13				No Recovery.	
			14					
	100%		15			SM	<b>Silty Sand:</b> orange brown mottled, 50% medium grained, 35% fine grained, subrounded, 15% silt, poorly sorted, firm, wet, 15% dark minerals.	0.8
			16					

**INDUSTRIAL COMPLIANCE**

**Well Construction Log**

Well Number	MW-5	Project Number	05100549	Project Name	1912 7th Street			
Sample Number	Recov.	Blows/6-inches	Depth Feet	Soiling Detail	Lithology	USCS Log	Sample Description	PI/C (ppm)
	100%		18			SM	<b>Silty Sand:</b> orange brown mottled, 50% medium grained, 35% fine grained, 15% silt, subrounded, poorly sorted, firm, wet, 15% dark minerals.	0.6

Total Depth 18.5 feet bgs.

Note:  
1. Boring continuously cored to total depth.