Submitted to
Port of Oakland
530 Water Street
Oakland, CA 94607

Site Management Plan for Former USTs EF06, EF07, EF08, EF09, 1395 Middle Harbor Road, Port of Oakland Oakland, California August 4, 1997

Prepared by

Uribe & Associates
Engineering and Environmental Consulting Services
2930 Lakeshore Avenue, Suite 200
Oakland, California 94610-3614

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PORT OF OAKLAND

ENVIRONMENTAL PROTECTION
97 AUG 11 PM 4:31

August 8, 1997

Ms. Amy Leech
Alameda County Health Care Services Agency
Department of Environmental Health
Division of Environmental Protection
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Tom –
Please transfer to the appropriate caseworker.
Thx! Amy

Closed case
local option
to 5210 7-1-97

SUBJECT: **SITE MANAGEMENT PLAN**
AMERICAN PRESIDENT LINES TERMINAL
1395 MIDDLE HARBOR ROAD
OAKLAND, CALIFORNIA
STID #3777

Dear Amy:

On the behalf of the Port of Oakland (Port), Uribe and Associates (Uribe) has prepared a Site Management Plan (SMP) regarding an underground storage tank site located at 1395 Middle Harbor Road. The document was prepared in response to your January 31, 1997 letter request.

If you have any questions or comments regarding the SMP, please do not hesitate to call me at 272-1373.

Sincerely,

John Prall

John Prall, R.G.
Associate Environmental Scientist

cc: Neil Werner

530 Water Street ■ Jack London Square ■ P.O. Box 2064 ■ Oakland, California 94604-2064
Telephone (510) 272-1100 ■ Fax (510) 272-1172 ■ TDD (510) 763-5703 ■ Cable address, PORTOFOAK, Oakland

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Introduction

This Site Management Plan (SMP) has been prepared to evaluate the potential health and safety risk associated with former Underground Storage Tanks (USTs) EF06, EF07, EF08, and EF09 (the site) located at 1395 Middle Harbor Road. 1395 Middle Harbor Road is owned by the Port of Oakland (Port) and operated under a lease by a terminal operator. The SMP reviews the land use, stratigraphy, groundwater characteristics, constituents of concern, and history of environmental investigations at the site.

Constituents of concern at the site consist of low levels (< 5 ppb) of halogenated volatile organic compounds (HVOCs) in groundwater at the site of the former USTs. Based on the existing data, the site in its present configuration does not present a threat to the environment or to human health or safety. Health and safety concerns are possible only if groundwater at the site is exposed in the course of construction activities. This SMP presents recommendations for mitigating health and safety concerns related to construction activities. The recommendations include information that should be provided to construction contractors and precautions to be used to prevent cross-contamination between the site surface and the groundwater at the site.

Purpose and Scope

The Port of Oakland is seeking to close the site of former USTs EF06, EF07, EF08, and EF09. Groundwater monitoring between March 1993 and June 1996 has established that residual components of petroleum products have declined to levels that are acceptable for site closure, but low concentrations of halogenated volatile organic compounds have persisted in the ground water. Based on the levels of total dissolved solids (TDS) detected in the samples from the monitoring wells, groundwater at this site is not a viable drinking or industrial water source. The Alameda County Health Services Agency (ACHCSA, 1997a) has, therefore, determined that groundwater quality need not meet drinking water standards at this site in order to qualify for closure status (ACHCSA, 1997a). However, as a prerequisite to closure status, ACHCSA has requested that the Port evaluate the potential for a health and safety risk associated with exposure to the HVOCs detected at the site.

This Site Management Plan briefly reviews the history of environmental investigations at the site and evaluates the potential for exposure to HVOCs. Based on this evaluation, recommendations are made for appropriate site control procedures to reduce potential risks associated with exposure to HVOCs at the site. The information concerning environmental conditions at the site presented in this SMP is based on reports that have previously been submitted to ACHCSA.

Description of Site

Site Location and Land Use

The site of former USTs EF06, EF07, EF08, and EF09 is located at 1395 Middle Harbor Road. The Middle Harbor address, which includes Berths 60 through 63, is a multi-

modal shipping facility owned by the Port. The terminal is relatively flat and paved with asphalt. A network of subsurface utilities is present beneath the terminal, including storm drains, sanitary sewers, fire water and public water lines, gas lines, and electrical supply cables. The terminal is bounded on the north by Middle Harbor Road and on the south by the Oakland Inner Harbor portion of San Francisco Bay. Railyards are located along the adjacent waterfront areas north and west of the facility. A scrap metal yard is located to the east. Former USTs EF06, EF07, EF08, and EF09 were located east of Building E-221, the Terminal Building (See Figure 1) (Baseline, 1990; Baseline, 1992). Below grade utilities are not located in the immediate vicinity of the former tank excavation. An underground electrical cable and a storm drain line pass near the locations of monitoring wells MW-2 and MW-3; constituents of concern have not been detected at significant levels in these two wells.

Stratigraphy of the Site

The site of former USTs EF06, EF07, EF08, and EF09 is underlain by three distinct layers: fill consisting of silty sand and gravel; native sand; and Bay Mud. The silty sand and gravel extend to depths of between three and six feet beneath the site surface. The thickness of the sand layer beneath the fill layer varies between one and ten feet. The Bay Mud beneath the sand layer extends to depths of at least 15.5 feet, which is the maximum depth of the borings associated with the environmental investigations performed at the location of the former USTs (Geomatrix, 1993).

Occurrence and Movement of Groundwater at the Site

During removal of the tanks in 1992, groundwater was observed in the excavation at a depth of approximately four to six feet below ground surface (Geomatrix, 1992). After the excavation was backfilled, groundwater was encountered during the drilling of eleven boreholes in January and February of 1993 at depths of 3.5 to 6.5 feet below the ground surface (Geomatrix, 1993).

Three monitoring wells (MW-1, MW-2, and MW-3) were installed at the site in March 1993 (Figure 1). Groundwater measurements between March 8, 1993 and June 18, 1996 and groundwater gradients are summarized in Table 1. Groundwater has been measured at depths between 2.35 and 4.48 feet below the ground surface. Measured TDS levels have ranged have ranged from 453 mg/L to 23,000 mg/L (Table 2). The groundwater gradient is relatively flat (0.002 to 0.025 ft/ft) and usually flows to the southwest, but in two of the 12 quarterly monitoring events the gradient has been to the southeast and in three of the events the gradient has been to the northwest (Table 1) (Geomatrix 1993, Geomatrix 1994a; Geomatrix 1994b; Geomatrix, 1995; Alisto, 1995a; Alisto, 1995b; ITS, 1996). Therefore, transport of contaminants via groundwater is a very slow process at the location of the four former USTs.

Constituents of Concern

The constituents of concern at the site consist of HVOCs, which were detected at concentrations as great as 300 ppb of vinyl chloride (VC) in groundwater from the tank excavation. However, since the removal of the initial groundwater (2,600 gallons) and recharge water (10,000 gallons) from the excavation, individual HVOC concentrations have never exceeded 4 ppb. Table 3 summarizes HVOC data from the three monitoring wells at the site. Between March 1993 and June 1996, HVOCs have been detected at low

levels (≤ 4 ppb), with the highest concentrations reported for MW-1, which is usually the upgradient well at the site. Low levels (maximum of 4 ppb) of vinyl chloride have only been detected in monitoring well MW-1. In addition, low levels (< 3.0 ppb) of dichloroethane (DCA) and 1,1-dichloroethene (1,1-DCE) have also only been detected in MW-1. Isomers of dichlorobenzene (DCB) have only been detected in MW-2 and MW-3. Cis-1,2-dichloroethene (cis-12,-DCE) is the only HVOC that has been detected in all three monitoring wells.

Identification of Potential Exposure Routes

Potential Sources of Exposure

As discussed above, HVOCs are the constituents of concern at the site. HVOCs have been detected in groundwater at the site in each of the twelve groundwater monitoring events between March 1993 and June 1996. Table 3 summarizes the HVOC data from the site, as well as the levels at which these HVOCs may be regulated as RCRA wastes. For the four HVOCs that are regulated as RCRA toxicity characteristic wastes (40 CFR 261.24), the maximum detected concentrations at the site are all at least two orders of magnitude below the regulatory levels. Therefore, hazardous waste materials are not identified at the site. Table 3 also includes the NIOSH Recommended Exposure Levels (RELs) and OSHA Permissible Exposure Levels (PELs) for workplace exposure to vapors of the HVOCs detected at the site. Note that the REL values are based on 40-hour per week workplace exposure. Actual exposures at the site are likely to be short-term exposures associated with possible future construction activities at the site.

The most consistently detected HVOC compound is 1,2-DCA, but it is highly unlikely that part per billion concentrations in groundwater could release vapor concentrations of up to 100 ppm in air, which is both the NIOSH REL and OSHA PEL value for 1,2-DCA. The lowest REL and PEL values are associated with 1,1-DCE and VC. Since 1,1-DCE has only been detected in one monitoring well in one sampling event, it is not considered to be a significant exposure risk at the site. VC, which has been detected in MW-1 in five of the last six sampling events, has an OSHA PEL of 1 ppm in air. Therefore, VC is the HVOC at the site which presents the most significant risk. However, since it is highly unlikely that a 4 ppb concentration in groundwater could produce a 1 ppm concentration in air in the breathing zone, the risk presented by VC is minimal.

Potential Routes of Exposure

The potential human exposure routes include:

- Ingestion of HVOCs dissolved in groundwater
- Inhalation of HVOC vapors released from groundwater
- Dermal absorption of HVOCs dissolved in groundwater
- Inhalation of HVOCs in soil particulates
- Ingestion of HVOCs in soil particulates
- Dermal absorption of HVOCs in soil particulates

Based on the lack of significant HVOC concentrations detected in site soils, exposure routes involving HVOCs in groundwater are the only routes that are considered in this

SMP. Work practices that mitigate exposure to groundwater will also mitigate exposure to site soils.

Potential Environmental Exposure
The potential environmental exposure route consists of HVOC migration in groundwater to the estuary. However, significant potential environmental impacts on the estuary are not likely. The groundwater gradient is very flat and is not consistently oriented toward the estuary. In addition, HVOCs in groundwater at the site have been detected at their greatest concentrations at the site in the monitoring well (MW-1) that is usually the upgradient well during water level measurements. During the four years of monitoring, the 1,1-DCA and VC detected in MW-1 have not traveled the approximately 120 feet to the other groundwater monitoring wells (MW-2 and MW-3). Therefore, it is not likely that HVOC contamination will travel the additional 800 feet south to the estuary (Note that the distance to the estuary in the usual southwesterly gradient direction is closer to 1,000 feet).

Potential Health and Safety Risks
The constituents of concern are listed in Table 3. At the levels present at the site, the HVOCs have the potential to be skin or eye irritants via contact with contaminated groundwater or vapors. In addition, 1,2-DCA, 1,1-DCE, 1-4-DCB, and VC are regulated by OSHA as human carcinogens. NIOSH recommended workplace exposure levels (RELs) and OSHA Permissible Exposure Levels (PELs) for the HVOCs that have been detected at the site are included in the last rows of Table 3.

Health and safety risks are only present at the site if the potential exposure routes identified above are actually complete at the site. Because the site is currently paved and the groundwater is located at approximately three feet below the site surface, there are currently no complete exposure routes between workers at the site and the HVOCs in the groundwater. Therefore, there are no current health and safety risks associated with the former UST location at the site.

Exposure routes will only exist if site paving at the site is removed and the groundwater is exposed by future construction activities. Therefore, human health concerns are only significant for construction workers involved in any future excavations at the site. Potential dockside worker exposure is limited to vapor exposure. However, significant vapor exposures are extremely unlikely beyond the immediate area of any future excavations near the former site of USTs EF06, EF07, EF08, and EF09. Therefore, this SMP is concerned only with construction workers.

The most significant potential exposure pathway for construction workers is the inhalation of HVOC vapors (especially VC) released from groundwater exposed by construction activities. The low risk to construction workers can be demonstrated by a worst case example. For example, assume that a one square meter excavation is extended to a total depth of one and one-half meters and that groundwater accumulates in the bottom half meter of the excavation. If the groundwater contains the highest measured VC concentration (4 µg/L), transferring all of the VC in the groundwater into the air space in the excavation would produce a concentration of 2 mg/m^3, which is below the PEL value of 2.6 mg/m^3. This example is highly conservative because air

from outside the excavation would actually dilute the VC concentration in the excavation and because it is physically impossible to instantly transfer parts per billion levels of VC from water to air.

Incidental ingestion of contaminated groundwater and dermal contact with contaminated groundwater are less significant exposure pathways because they can easily be blocked by the use of standard work clothing and proper personal hygiene work practices. If the site is re-paved after any future construction projects are completed, there will no longer be an exposure route from the groundwater to workers at the site.

Site Management Plan

Prior to letting contracts to perform excavations or other work that will penetrate the asphalt, including utility trenching, the Port will disclose to potential contractors the history of HVOCs in groundwater at the site. The presence of HVOCs at the site will be summarized in the project specifications. In addition, contractors bidding on the project will have access to copies of reports relating to the existing site conditions that are listed in the project specifications document. Copies of these reports will also be provided to the successful bidder on request. The Port may also elect to prepare a site-specific disclosure document that would detail known environmental conditions at the site. Any contractor who will break the surface of the asphalt paving at the site will be required to perform their work under a Health and Safety Plan in compliance with OSHA Title 29 CFR 1910.120 and Cal/OSHA Title 8 CCR Section 5194. The Health and Safety Plan should discuss the potential for exposure to HVOC vapors and HVOC contaminated groundwater at the site. The Health and Safety Plan should specify appropriate personal protective equipment and safe work practices for exposure to HVOC vapors and HVOCs in groundwater, as well as measurements that are to be performed during construction activities.

Contractors performing work that exposes the underlying soil will be required to have an individual, either on staff or on contract, trained according to Cal/OSHA Title 8 CCR, Section 5192, who can evaluate work practices relative to potentially contaminated materials. The contractor will be required to have a plan to identify and communicate to the Port the presence of potentially hazardous materials encountered during the project. These requirements already exist in Port construction contract specifications.

Precautions to Prevent Cross-Contamination of Aquifers

As a part of site closure, the monitoring wells at the site should be properly abandoned by overdrilling and grouting. The wells currently have a low potential to act as a conduit for contamination because they are properly designed and capped and locked.

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Alisto, 1995a. Groundwater Monitoring and Sampling Report, Port of Oakland, American Presidents Lines Terminal, 1395 Middle Harbor Road, Oakland, California, Project No. 10-256-01-002, Alisto Engineering Group, May 16, 1995.

Alisto, 1995b. Tank Closure Report, Port of Oakland Tank No. EF-10, Berth 63 - American Presidents Line Terminal, 1395 Middle Harbor Road, Oakland, CA Project No. 10-256-02-004, October 31, 1995, Alisto Engineering Group.

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ITS (Innovative Technical Solutions), 1996. Groundwater Monitoring and Sampling Report, American President Lines (APL) Terminal, Berths 60-63, Port of Oakland, 1395 Middle Harbor Road, Oakland, California (Work Order No. 210476), Project No. 95-113.07, June 4, 1996, Innovative Technical Solutions, Inc.

Table 1: Groundwater Elevations
American President Lines Terminal, Berths 60-63, Port of Oakland
1395 Middle Harbor Road,
Oakland, California

Monitoring Well ID	Elevation of Top of Casing (feet)	Date of Monitoring	Measured Depth to Water (feet)	Groundwater Elevation (feet)	Gradient Direction	Gradient (feet/feet)
MW-1	10.37	3/8/93	3.30	7.07	southwesterly	
		5/11/93	3.29	7.06	southwesterly	
		8/19/93	4.10	6.27	northwesterly	
		11/24/93	4.48	5.89	northwesterly	
		2/24/94	3.51	6.86	southwesterly	
		6/14/94	3.54	6.83	southwesterly	
		8/23/94	3.32	7.05	southwesterly	
		11/4/94	3.52	6.85	southwesterly	
		3/7/95	3.04	7.33	southwesterly	0.002
		9/25/95	3.87	6.50	northwesterly	0.002
		3/28/96	2.35	8.02	southeasterly	0.025
		6/18/96	3.47	6.90	southeasterly	0.003
MW-2	10.03	3/8/93	3.45	6.58	southwesterly	
		5/11/93	3.24	6.79	southwesterly	
		8/19/93	3.73	6.30	northwesterly	
		11/24/93	4.01	6.02	northwesterly	
		2/24/94	3.49	6.54	southwesterly	
		6/14/94	3.69	6.34	southwesterly	
		8/23/94	3.51	6.52	southwesterly	
		11/4/94	3.65	6.38	southwesterly	
		3/7/95	3.01	7.02	southwesterly	0.002
		9/25/95	3.48	6.55	northwesterly	0.002
		3/28/96	2.35	7.68	southeasterly	0.025
		6/18/96	3.28	6.75	southeasterly	0.003
MW-3	9.84	3/8/93	3.08	6.76	southwesterly	
		5/11/93	2.89	6.95	southwesterly	
		8/19/93	3.50	6.34	northwesterly	
		11/24/93	3.79	6.05	northwesterly	
		2/24/94	3.08	6.76	southwesterly	
		6/14/94	3.41	6.43	southwesterly	
		8/23/94	3.22	6.62	southwesterly	
		11/4/94	3.51	6.33	southwesterly	
		3/7/95	2.69	7.15	southwesterly	0.002
		9/25/95	3.19	6.65	northwesterly	0.002
		3/28/96	3.17	6.67	southeasterly	0.025
		6/18/96	3.22	6.62	southeasterly	0.003

Table 2: Summary of Laboratory Results for Petroleum Hydrocarbons
American President Lines Terminal, Berths 60-63, Port of Oakland
1395 Middle Harbor Road,
Oakland, California

Monitoring Well ID	Date of Sampling	TPH-G (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	TPH-D (µg/L)	TPH-MO (µg/L)	TOG (µg/L)	TDS (mg/L)
MW-1	2/5/93	1,800	9.2	1.6	8.9	2.7	4,700	--	5,000	3,000
	5/11/93	260	3.2	2.3	0.7	0.5	4,800	--	7,000	--
	8/19/93	60	9.0	ND	ND	ND	2,300	--	ND	--
	11/24/93	50	8.8	1.5	ND	3.0	280	--	ND	--
	2/24/94	360	12	ND	2	ND	2,000	--	--	--
	6/14/94	ND	9.4	ND	ND	0.7	ND	--	ND	--
	8/23/94	80	13	2.4	ND	9.0	3,000	--	ND	--
	11/4/94	ND	15	2.4	ND	11.2	1,600	--	ND	--
	3/7/95	< 50	1.3	0.4	< 0.3	< 0.4	420	7,200	< 5,000	9,000
	9/25/95	310	12	8.0	< 0.3	22.5	< 500	1,300	--	2,200
	3/28/96	430	6.6	2.4	12	8.5	710	820	--	453
	6/18/96	68	5.8	1.3	< 0.5	< 1	350	750	--	953
MW-2	2/5/93	ND	ND	ND	ND	ND	840	--	2,000	23,000
	5/11/93	ND	ND	ND	ND	ND	3,700	--	ND	--
	8/19/93	ND	ND	ND	ND	ND	620	--	ND	--
	11/24/93	ND	ND	ND	ND	ND	80	--	ND	--
	2/24/94	ND	ND	ND	ND	ND	ND	--	--	--
	6/14/94	--	--	--	--	--	ND	--	ND	--
	8/23/94	--	--	--	--	--	620	--	ND	--
	11/4/94	--	--	--	--	--	1,400	--	ND	--
	3/7/95	< 50	< 0.4	< 0.3	< 0.3	< 0.4	310	7,100	< 5,000	20,000
	9/25/95	--	--	--	--	--	< 300	880	--	11,000
	3/28/96	--	--	--	--	--	280	380	--	1,190
	6/18/96	--	--	--	--	--	110	330	--	18,800

Table 2: Summary of Laboratory Results for Petroleum Hydrocarbons, Continued

Monitoring Well ID	Date of Sampling	TPH-G (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	TPH-D (µg/L)	TPH-MO (µg/L)	TOG (µg/L)	TDS (mg/L)
MW-3	2/5/93	ND	2.1	0.9	1.7	3.1	3,400	--	2,000	1,600
	5/11/93	ND	ND	ND	ND	ND	3,300	--	ND	--
	8/19/93	ND	ND	ND	ND	ND	840	--	ND	--
	11/24/93	ND	ND	ND	ND	ND	100	--	ND	--
	2/24/94	ND	ND	ND	ND	ND	890	--	--	--
	6/14/94	--	ND	ND	ND	ND	440	--	ND	
	8/23/94	--	ND	ND	ND	ND	ND	--	ND	
	11/4/94	--	ND	ND	ND	ND	630	--	ND	
	3/7/95	< 50	1.4	< 0.3	< 0.3	< 0.4	330	3,200	< 5,000	12,000
	9/25/95	--	--	--	--	--	200	1,300	--	19,000
	3/28/96	--	--	--	--	--	200	300	--	7,600
	6/18/96	--	--	--	--	--	340	560	--	20,600

B	Benzene
E	Ethyl benzene
T	Toluene
X	Xylenes
ND	Not detected
TDS	Total Dissolved Solids
TPH-D	Total Petroleum Hydrocarbons in the diesel range.
TPH-G	Total Petroleum Hydrocarbons in the gasoline range.
TPH-MO	Total Petroleum Hydrocarbons in the motor oil range.
TOG	Total Oil and Grease
--	Not analyzed

Table 3: Summary of Laboratory Results for Halogenated Volatile Organic Compounds
American President Lines Terminal, Berths 60-63, Port of Oakland
1395 Middle Harbor Road,
Oakland, California

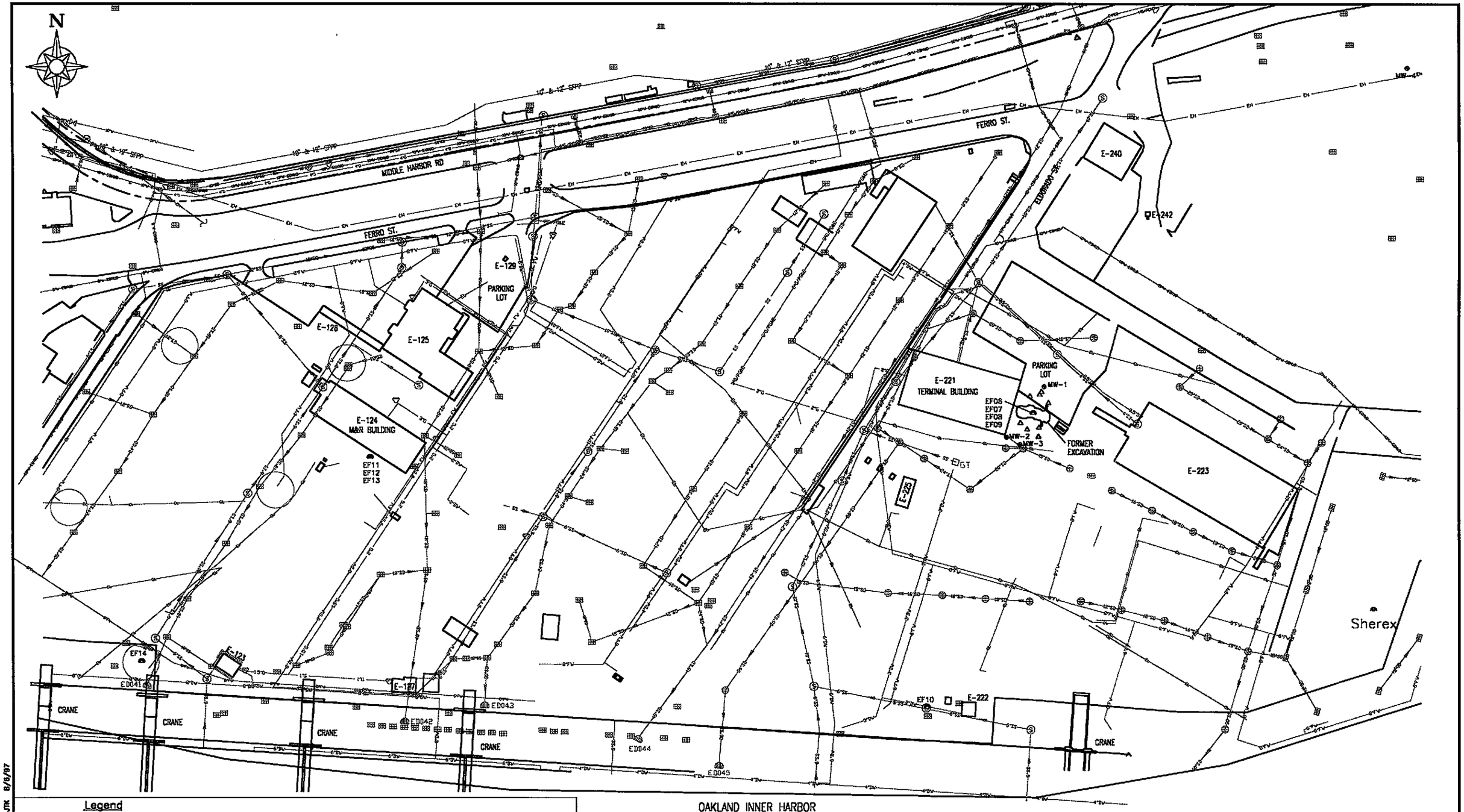
Monitoring Well ID	Date of Monitoring	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	cis 1,2-DCE (µg/L)	1,2-DCB (µg/L)	1.4-DCB (µg/L)	VC (µg/L)
MW-1	3/8/93	0.8	ND	ND	ND	ND	ND	ND
	5/11/93	0.6	ND	ND	ND	ND	ND	ND
	8/19/93	2.0	ND	2.0	ND	ND	ND	ND
	11/24/93	0.7	ND	ND	ND	ND	ND	ND
	2/24/94	2.0	ND	ND	ND	ND	ND	ND
	6/14/94	1.0	ND	ND	ND	ND	ND	ND
	8/23/94	2.3	0.3	ND	0.4	ND	ND	1.1
	11/4/94	2.2	0.8	ND	ND	ND	ND	0.7
	3/7/95	1.5	ND	ND	ND	ND	ND	ND
	9/25/95	1.7	ND	ND	0.6	ND	ND	1.8
	3/28/96	1.2	ND	ND	ND	ND	ND	4
	6/18/96	1.2	ND	ND	ND	ND	ND	2.6
MW-2	3/8/93	ND	ND	ND	ND	ND	ND	ND
	5/11/93	ND	ND	ND	ND	ND	ND	ND
	8/19/93	ND	ND	ND	ND	1.0	3.0	ND
	11/24/93	ND	ND	ND	ND	ND	ND	ND
	2/24/94	ND	ND	ND	ND	ND	1.0	ND
	6/14/94	ND	ND	ND	ND	ND	0.8	ND
	8/23/94	ND	ND	ND	0.4	ND	1.3	ND
	11/4/94	ND	ND	ND	2.2	ND	0.9	ND
	3/7/95	ND	ND	ND	ND	ND	ND	ND
	9/25/95	ND	ND	ND	0.4	ND	ND	ND
	3/28/96	ND	ND	ND	ND	ND	ND	ND
	6/18/96	ND	ND	ND	ND	ND	ND	ND

Table 3: Summary of Laboratory Results for Halogenated Volatile Organic Compounds, Continued

Monitoring Well ID	Date of Monitoring	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	cis 1,2-DCE (µg/L)	1,2-DCB (µg/L)	1.4-DCB (µg/L)	VC (µg/L)
MW-3	3/8/93	ND	ND	ND	0.4	ND	ND	ND
	5/11/93	ND	ND	ND	ND	ND	ND	ND
	8/19/93	ND	ND	ND	ND	ND	1.0	ND
	11/24/93	ND	ND	ND	ND	ND	ND	ND
	2/24/94	ND	ND	ND	ND	ND	ND	ND
	6/14/94	ND	ND	ND	ND	ND	0.6	ND
	8/23/94	ND	ND	ND	ND	ND	ND	ND
	11/4/94	ND	ND	ND	ND	ND	ND	ND
	3/7/95	ND	ND	ND	ND	ND	ND	ND
	9/25/95	ND	ND	ND	ND	ND	ND	ND
	3/28/96	ND	ND	ND	ND	ND	1.6	ND
	6/18/96	ND	ND	ND	ND	ND	ND	ND
RCRA Levels	(µg/L)	- -	500	700	- -	- -	7,500	200
NIOSH REL	(ppm / mg/m^3)	100 / 400	1 / 4	lowest feasible	200 / 790	50 / 300	lowest feasible	lowest feasible
OSHA PEL	(ppm / mg/m^3)	100 / 400	50 / - -	- -	200 / 790	50 / 300	- -	1 / 2.60
OSHA Ceiling	(ppm)	- -	100	- -	- -	- -	- -	5
IDLH	(ppm)	3,000	50	N.D.	1,000	200	150	N.D.

1,1-DCA	1,1-dichloroethane	cis 1,2-DCE	cis 1,2-dichloroethene	VC	vinyl chloride
1,2-DCA	1,2-dichloroethane	1,2-DCB	1,2-dichlorobenzene	ND	Not detected
1,1-DCE	1,1-dichloroethene	1,4-DCB	1,4-dichlorobenzene		

Ceiling Concentration not to be exceeded.
IDLH Concentration that is Immediately Dangerous to Life and Health.
N.D. An IDLH value has not been determined for this compound.
NIOSH National Institute for Occupational Safety and Health, June 1994 Pocket Guide to Chemical Hazards.
OSHA Occupational Safety and Health Administration. Permissible Exposure Levels (PELs) form 29 CFR 1910.100, Tables Z-1, Z-2, and Z-3.
RCRA Level at which the compound is regulated as a RCRA hazardous waste under the toxicity characteristic in 40 CFR 261.24.
PEL Permissible Exposure Limit. Unless otherwise stated assumes a time-weighted concentration for a 40 hour work week.
REL Recommended Exposure Limit. Unless otherwise stated assumes a time-weighted concentration for a 40 hour work week.



Legend

E-912 Building E-221

EF06 Former UST EF06

MW-1 Monitoring Well MW-1 installed in 1993

Soil Boring drilled in 1993

Areas not occupied by buildings or parking lots are used for container storage

Below Grade Utilities

—EH— High Voltage (>600 V) Electrical

—EL— Low Voltage (<600 V) Electrical

—DW— Drinking Water

—FW— Fire Water

—G— Gas

—SD— Storm Drain

—SS— Sanitary Sewer

200 100 0 200

SCALE IN FEET

U&A

URIBE & ASSOCIATES
Environmental
Consulting Services

FIGURE 1

STRUCTURES, UNDERGROUND UTILITIES, AND FORMER USTs AT 1395 MIDDLE HARBOR ROAD

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