Harding Lawson Associates

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April 30, 1990

09382,047.02

California Regional Water Quality Control Board
San Francisco Bay Region
1800 Harrison Street, Suite 700
Oakland, California 94612

Attention: Mr. Don Dalke

Gentlemen:

Excavation Monitoring Plan
Pacific Renaissance Plaza
Oakland, California

This letter transmits Harding Lawson Associates' (HLA) *Excavation Monitoring Plan, Pacific Renaissance Plaza, Oakland, California* describing the plan for monitoring, characterization, and disposition of soil excavated as part of the construction of the Pacific Renaissance Plaza (PRP) in Oakland's Chinatown Redevelopment Project Area.

We would be pleased to discuss the plan with you, and will call after you have received it to discuss the need to meet and arrange a mutually agreeable time. If you have any questions, please call David Leland of HLA at 899-7352, Pete Mote of HLA at 899-7397, or Peter Chen of the Redevelopment Agency at 273-3692.

Very truly yours,

HARDING LAWSON ASSOCIATES

David F. Leland
Associate Hydrologist

Attachment: *Excavation Monitoring Plan, Pacific Renaissance Plaza, Oakland, California*

cc: Peter Chen, Agency (2)
Donnell Choy, City Attorney's Office (without attachment)
Richard Hiett, RWQCB (without attachment)
Lowell Miller, Alameda County Health Department (1)
Pete Mote

DFL/klc/df1036#1

A Report Prepared for

California Regional Water Quality Control Board
San Francisco Bay Region
1800 Harrison Street, Suite 700
Oakland, California 94612

EXCAVATION MONITORING PLAN
PACIFIC RENAISSANCE PLAZA
OAKLAND, CALIFORNIA

HLA Job No. 9382,047.02

Submitted on behalf of:

City of Oakland Redevelopment Agency
1417 Clay Street
Oakland, California 94612

by

David F. Leland
Associate Hydrologist

Peter A. Mote
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April 27, 1990

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1.0 INTRODUCTION

1.1 Site Description

This report presents the proposed excavation monitoring plan for construction activities scheduled for the summer and fall of 1990 at the Pacific Renaissance Plaza (PRP) site in Oakland, California. The PRP site, part of the Oakland Chinatown Redevelopment Project Area, is bounded by 9th, Franklin, and Webster streets and the East Bay Municipal Utility District (EBMUD) property line approximately 100 feet north of the center line of 10th street (Plate 1). Construction of a high-rise development at the site is scheduled to begin in June 1990 and will include a 40-foot-deep excavation to the property boundaries.

Harding Lawson Associates' characterization of the site, reported in *Site Characterization, Pacific Renaissance Plaza, Chinatown Redevelopment Project Area, Oakland, California, (HLA, 1988)*, indicated the presence, in soil, of petroleum hydrocarbons identified as gasoline at concentrations up to 4800 parts per million (ppm) total petroleum hydrocarbons (TPH). The available data suggest that the gasoline was associated with a gasoline filling station formerly located at 925 Webster Street, within the area proposed for excavation. The volume of soil with TPH values exceeding 100 ppm was estimated to be 10,000 cubic yards (cy) prior to treatment. Groundwater samples collected from onsite Monitoring Wells MW-9, MW-10, and MW-11 had elevated levels of TPH and the volatile aromatic compounds benzene, toluene, ethylbenzene, and xylenes (BTEX).

A description of the extent of soil and groundwater contamination at the site, including cross sections, plots of TPH concentrations in soil as a function of depth, and laboratory data for soil and groundwater sample analyses, were originally presented in

the site characterization report (*HLA, 1988*). The estimated lateral and vertical extent of soil contamination has been modified subsequently as a result of additional soil sample analyses and review of laboratory reports. These changes are incorporated in Plate 2, which summarizes available data on the lateral and vertical extent of soil contamination prior to treatment.

Special handling and health and safety requirements for dealing with soil contamination prompted remediation of contaminated soil prior to the start of construction. The PRP in situ soil treatment system is designed to remove petroleum hydrocarbons from soil using enhanced biodegradation prior to the start of excavation and construction activities at the site.

The soil treatment system consists of 1) a network of injection wells and infiltration basins that create a groundwater mound containing the nutrients and oxygen required for microbial growth in the soils needing treatment, 2) a ring of extraction wells that maintains hydraulic control of the injected and infiltrated water, and 3) tanks, bioreactors, a carbon treatment module, and other engineering and support works located above ground. Soil treatment began on March 4, 1989, and is scheduled for completion in spring 1990. Discussions with Pacific Renaissance Associates (PRA), the developer of the project, indicate that excavation is scheduled to begin in June 1990.

This monitoring plan has been prepared by HLA on behalf of the Redevelopment Agency of the City of Oakland (Agency). It is submitted to the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), for approval of the field soil screening methods and verification sampling schedule proposed herein.

1.2 Previous Investigations

Site history and characterization activities completed by HLA in 1988 are reported in the site characterization report (*HLA, 1988*). The site characterization report also presents a preliminary screening of soil treatment alternatives and an evaluation of the potential for effectively removing hydrocarbons from soil at the site using biodegradation. The *Report of Waste Discharge, Pacific Renaissance Plaza, Chinatown Redevelopment Project Area, Oakland, California* (*HLA, 1989a*), discusses the design of the soil treatment system and presents the results of the biodegradation treatability study and the proposed operations and monitoring plan for the system. Site background, environmental setting, and previous investigations are also described in the report.

Characterization of the extent of soil contamination at the PRP site, as shown on Plate 2, was updated in the *Report of System Monitoring: March 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California (HLA, 1989b)*, using results of analyses of soil samples collected during treatment system well installation activities. Results of analyses of soil samples collected from confirmation borings in July, August, October, and December 1989 and January 1990 and from borings for new wells installed in November and December 1989 further update this characterization and are presented in *HLA, 1989f,g,h;* and *HLA 1990a,b,c.* System operation and monitoring from March 1989 through February 1990 are described in *HLA, 1989b through i* and *HLA, 1990a through d.* The objective of the treatment system and a description of the process are presented in *HLA, 1989e.*

1.3 Soil Treatment Zone Description

During excavation, HLA proposes to monitor and characterize site soils based on the location of the soils relative to the soil treatment zone as defined in this section.

Two soil monitoring methods as described in Section 2.2 will be used during excavation; one method will be used for soils inside the treatment zone and the other for soils outside the treatment zone.

The horizontal extent of the soil treatment zone, as shown on Plate 2, includes areas along groundwater flow paths between injection wells, infiltration basins and extraction wells. In the area south of 10th Street, the soil treatment zone is laterally bounded on the south by the property line, on the west by the property line for a distance of approximately 50 feet north from the southern property line, and on the east by the property line for a distance of approximately 100 feet north from the southern property line. On the north, the treatment zone is bounded by a line connecting the western property line, Extraction Wells EW-17, EW-18, EW-19, EW-20, EW-1, EW-2, EW-3, EW-4, EW-5, and EW-6, and the eastern property line. The treatment zone also includes an area near the corner of 10th and Franklin streets (Plate 2).

The upper extent of the soil treatment zone is defined in all areas except the southeast corner of the site by the highest groundwater elevations in the groundwater mound induced by the treatment process. The highest historical groundwater elevations are represented by water levels for July 5, 1989, simulated by the groundwater model developed for site, as presented on Plate 3. In the southeast corner of the site, the upper extent of the treatment zone is at a depth of 20 feet bgs and is defined by the shallowest soils with petroleum hydrocarbons at concentrations in excess of 100 milligrams per kilogram (mg/kg) (equivalent to ppm) TPH (Plate 2). Groundwater levels in this area were below the 20 foot depth. The lower extent of the treatment zone is the lowest elevation of soils with TPH concentrations greater than 100 mg/kg. The treatment zone

hydrocarbons in the soil. Consequently, soils emitting gasoline vapors will be further evaluated using visual indications such as discoloration.

The sandy and silty soils at the site normally exhibit brown and tan hues. On the basis of HLA's experience in the area and at the site, natural hues become discolored to bluish green when soil is contaminated with petroleum hydrocarbons. Discoloration and odor will be used as primary and secondary indicators, respectively, of the presence of soils containing petroleum hydrocarbons. For soils outside the treatment zone for which sensory data indicate the presence of petroleum hydrocarbons, the field screening method for soils within the treatment zone (as described in the following section) will be used.

2.2.2 Monitoring Within Treatment Zone

Soils within the treatment zone will be initially screened using sensory cues, as described above. Soils exhibiting discoloration or odor will be further screened further using a field headspace screening method. The field headspace screening method uses a recloseable polyethylene bag (polybag) and a total organic vapor analyzer (OVA) for field classification of soils, and is proposed to provide rapid, reliable, and reproducible field measurements correlatable to TPH concentrations in treated soil within the treatment zone. The polybag method described by Robbins et al. (*1989*) is based on soil-water-headspace partitioning theory for aromatic compounds. The polybag method involves placing 25 grams of soil into a polyethylene screening bag with 100 milliliters of deionized water and sealing the ziplock bag. After the soil is manually disaggregated within the bag by squeezing, the bag is inflated until taut using a hand pump. The soil-water solution is then agitated for 4 minutes by lightly shaking the bag. The headspace

concentration of organic vapors is then measured using a flame-ionization detector (FID) and/or a photo-ionization detector (PID).

The method has been confirmed using laboratory studies and field tests. Laboratory studies on aqueous aromatic standards and spiked soil samples have confirmed the predicted linear correlations between headspace measurements in specially prepared polybag samples and concentrations of TPH and BTEX in water and soil samples. In field tests, the method has been used to screen soils containing aromatic compounds and gasoline and has been shown to provide real-time data that can be used to make accurate and reliable field decisions. The lower limit of accuracy has been shown to be about 10 mg/kg for field soil screening.

Field studies indicate that the correlation between headspace measurements and soil concentrations of total BTEX may be site specific, because headspace concentrations achieved in the screening process are functions of soil porosity, grain size, moisture content, adsorption capacity, and the concentrations of volatile constituents in the soil. To establish the correlation relationships for the PRP site, a soil screening test program is proposed.

2.3 Field Soil Screening Test Program

The polybag method of Robbins et al. *(1989)* will be tested to establish PRP site correlation relationships between headspace measurements and TPH concentrations in soil. The test program will include field screening of soil samples, verification using laboratory chemical analysis, confirmation screening in the laboratory, and analysis and screening of soil spikes.

Approximately eight soil samples will be collected from soil borings as part of the final confirmation sampling for system monitoring of the soil treatment system.

Samples will be screened using the polybag headspace method. Selected samples will be submitted to a California-certified analytical laboratory for chemical testing of TPH as gasoline using EPA Test Method 8015 (modified) and BTEX using EPA Test Method 8020. Samples will be selected to cover low, medium, and high expected TPH values.

Samples will also be screened using the polybag method under controlled conditions in the laboratory to assess reproducibility of the field screening procedure. Spikes of site soil samples prepared by the laboratory to attain known gasoline concentrations will be screened in the laboratory to test the precision and accuracy of the polybag method. Headspace organic vapor concentrations will be measured using both the FID (Century OVA) and PID (Thermo Environmental Instruments, Inc., Organic Vapor Monitor [OVM]) instruments to assess their performance and reliability for this type of test.

2.4 Verification by Laboratory Analysis

The number of laboratory sample analyses to be conducted for verification of field screening procedures will depend on the zone from which the soil is excavated and on the results of field screening. Soil from outside the treatment zone will be sampled for verification analysis if field screening indicates elevated levels of volatile constituents in the soil. Samples for verification analysis of treated waste soil within the treatment zone will be collected every 100 cy in accordance with RWQCB requirements for Class III landfill disposal. A composite sample from four discrete samples representative of each 100 cy will be prepared and analyzed. Soils that may require further treatment, e.g., by aeration, will be sampled for laboratory analysis every 50 cy in accordance with BAAQMD Regulation 8, Rule 40.

Soil samples will be collected using clean stainless steel tubes driven into the soil with a hand sample barrel. The ends of the tube will be covered with aluminum foil and plastic end caps, and sealed with PVC electrician's tape. Samples will be labeled, placed on ice, and submitted to a state-certified laboratory under chain of custody for chemical analyses. Samples will be analyzed for TPH as gasoline using EPA Test Method 8015 (modified) and BTEX using EPA Test Method 8020.

Soils within the treatment zone that do not exhibit discoloration or elevated headspace readings, i.e., that are indistinguishable from clean soils outside the treatment zone, will be treated as clean fill.

3.0 SOIL DISPOSITION PLAN

The disposition of soils classified within specified ranges of TPH concentrations is described below.

3.1 Soils With TPH Concentrations Below 10 mg/kg

The laboratory limit of detection for TPH as gasoline in soils is typically 1 to 10 mg/kg; the sensitivity of field screening is expected to be approximately 10 mg/kg. Soils with concentrations of TPH as gasoline below 10 mg/kg will be handled as clean fill.

3.2 Soils With TPH Concentrations Between 10 and 100 mg/kg

In general, California state regulatory agencies currently classify soils containing petroleum hydrocarbons as nonhazardous if concentrations are less than 100 mg/kg TPH. Current RWQCB policy allows disposal of these soils at permitted Class III land disposal facilities. The proposed location for disposal of these soils is the West Contra Costa Sanitary Landfill in Richmond, California.

3.3 Soils With TPH Concentrations Between 100 and 1,000 mg/kg

Soils containing petroleum hydrocarbons with concentrations between 100 and 1,000 mg/kg TPH are currently classified as designated waste. RWQCB requires that designated waste soils be disposed at a Class II regulated land disposal facility or be treated to reduce TPH concentrations below 100 mg/kg. Because costs for Class II disposal are typically high, HLA proposes further treatment of these soils by landfarming (aeration) at a site to be identified.

Characterization of these soils will be conducted in accordance with BAAQMD Regulation 8, Rule 40. This regulation requires collecting a composite sample from four

discrete locations for every 50 cy of soil prior to aeration. Sample collection, handling, and analysis will be performed as described in Section 2.4.

3.4 Soils With TPH Concentrations Above 1,000 mg/kg

Soils containing petroleum hydrocarbons with concentrations greater than 1,000 mg/kg TPH are currently classified as hazardous waste by California state regulatory agencies. The RWQCB requires disposal of hazardous waste soils at a Class I regulated land disposal facility or treatment to reduce TPH concentrations below 1,000 mg/kg (for disposal at a Class II facility) or below 100 mg/kg (for disposal at a Class III facility). Because of high disposal costs and potential generator liability associated with disposal at a Class I facility, HLA proposes to treat these soils by aeration as described in Section 3.3.

4.0 HEALTH AND SAFETY MONITORING

With respect to general work practice and issues related to known or possible contamination at the site, worker health and safety for the project general contractor and its subcontractors will be the responsibility of the general contractor. HLA, acting on behalf of the Redevelopment Agency, will assist the general contractor with respect to contamination-related health and safety issues through the Site Monitoring Officer (SMO), whose responsibilities are described in the Site Safety Plan (SSP) presented in Appendix A.

During excavation activities, monitoring for the presence of soil contamination will be conducted by the SMO. Activities of HLA personnel and any HLA subcontractors will be conducted in accordance with the SSP.

In conjunction with monitoring activities, hazard communication and respiratory protection programs for HLA and HLA subcontractor personnel have been formulated and are presented in Appendix B. The Air Monitoring Plan proposed for HLA and HLA subcontractor personnel during excavation activities is presented in Appendix C.

5.0 REPORTING AND AGENCY COORDINATION

Prior to the start of excavation, HLA will present the RWQCB with a summary of the results of the field screening test program of the polybag method. Any modifications to the excavation monitoring plan requested by the RWQCB will be addressed at that time.

HLA will submit to the RWQCB, on behalf of the Agency, a final report following completion of the excavation activities at the PRP site. The report will summarize the results of the field screening test program, field screening and verification sampling activities during excavation, disposal activities, and aeration treatment (if applicable), and final site conditions at completion of the excavation activities.

6.0 REFERENCES

Harding Lawson Associates, 1988. *Site Characterization, Pacific Renaissance Plaza, Chinatown Redevelopment Project Area, Oakland, California.* December 22.

_____, 1989a. *Report of Waste Discharge, Pacific Renaissance Plaza, Chinatown Redevelopment Area, Oakland, California.* February.

_____, 1989b. *Report of System Monitoring: March 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* May 4.

_____, 1989c. *Report of System Monitoring: April 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* May 31.

_____, 1989d. *Report of System Monitoring: March through May 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* July 10.

_____, 1989e. *Report of System Monitoring: June 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* August 2.

_____, 1989f. *Report of System Monitoring: July 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* October 5.

_____, 1989g. *Report of System Monitoring: June through August 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* October 2.

_____, 1989h. *Report of System Monitoring: September 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* October 31.

_____, 1989i. *Report of System Monitoring: October 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* December 1.

_____, 1990a. *Report of System Monitoring: September through November, 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* January 9.

_____, 1990b. *Report of System Monitoring: December 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* February 1.

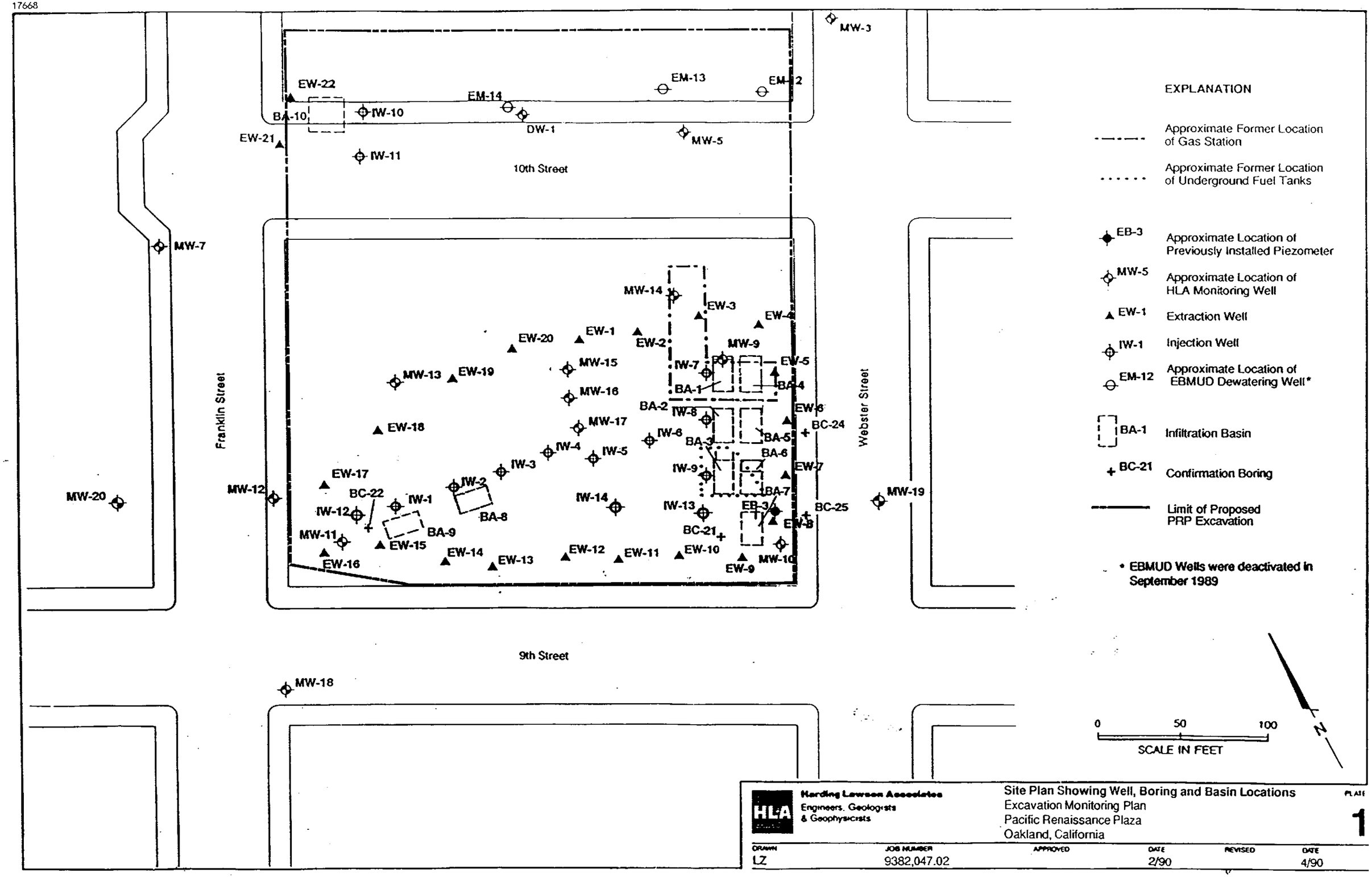
_____, 1990c. *Report of System Monitoring: January 1990, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* March 6.

_____, 1990d. *Report of System Monitoring: February 1990, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* March 30.

Robbins, G. A., Bristol, R. D., and Roe, V. D., 1989. *A Field Screening Method for Gasoline Contamination Using a Polyethylene Bag Sampling System. Groundwater Monitoring Review*, Vol. 9, No. 4, pp. 87-97. Fall 1989.

ILLUSTRATIONS

17668



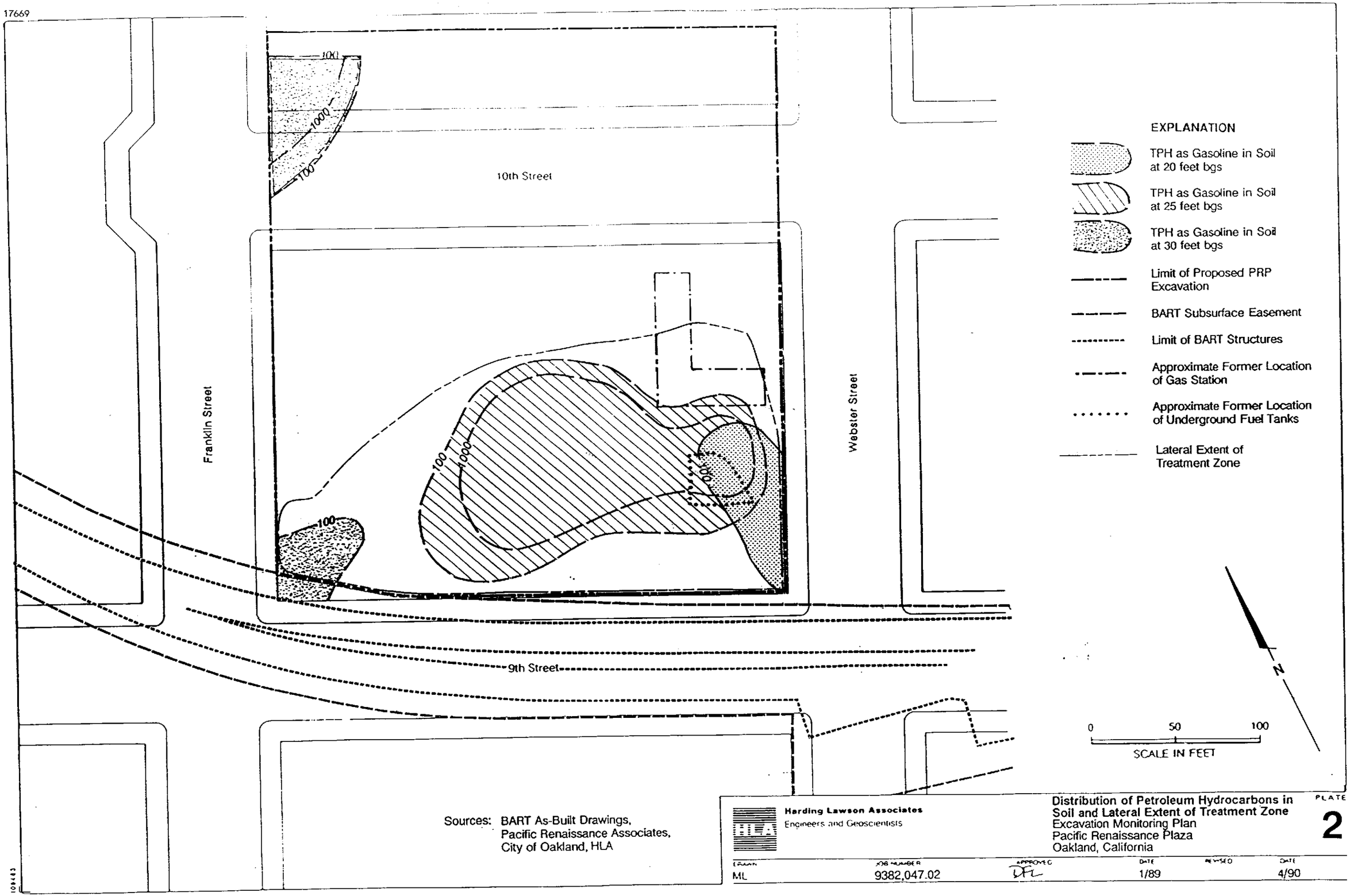
Harding Lawson Associates
Engineers, Geologists & Geophysicists

Site Plan Showing Well, Boring and Basin Locations
Excavation Monitoring Plan
Pacific Renaissance Plaza
Oakland, California

PLATE 1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
LZ	9382,047.02		2/90		4/90

17669



Sources: BART As-Built Drawings,
Pacific Renaissance Associates,
City of Oakland, HLA

Harding Lawson Associates
Engineers and Geoscientists

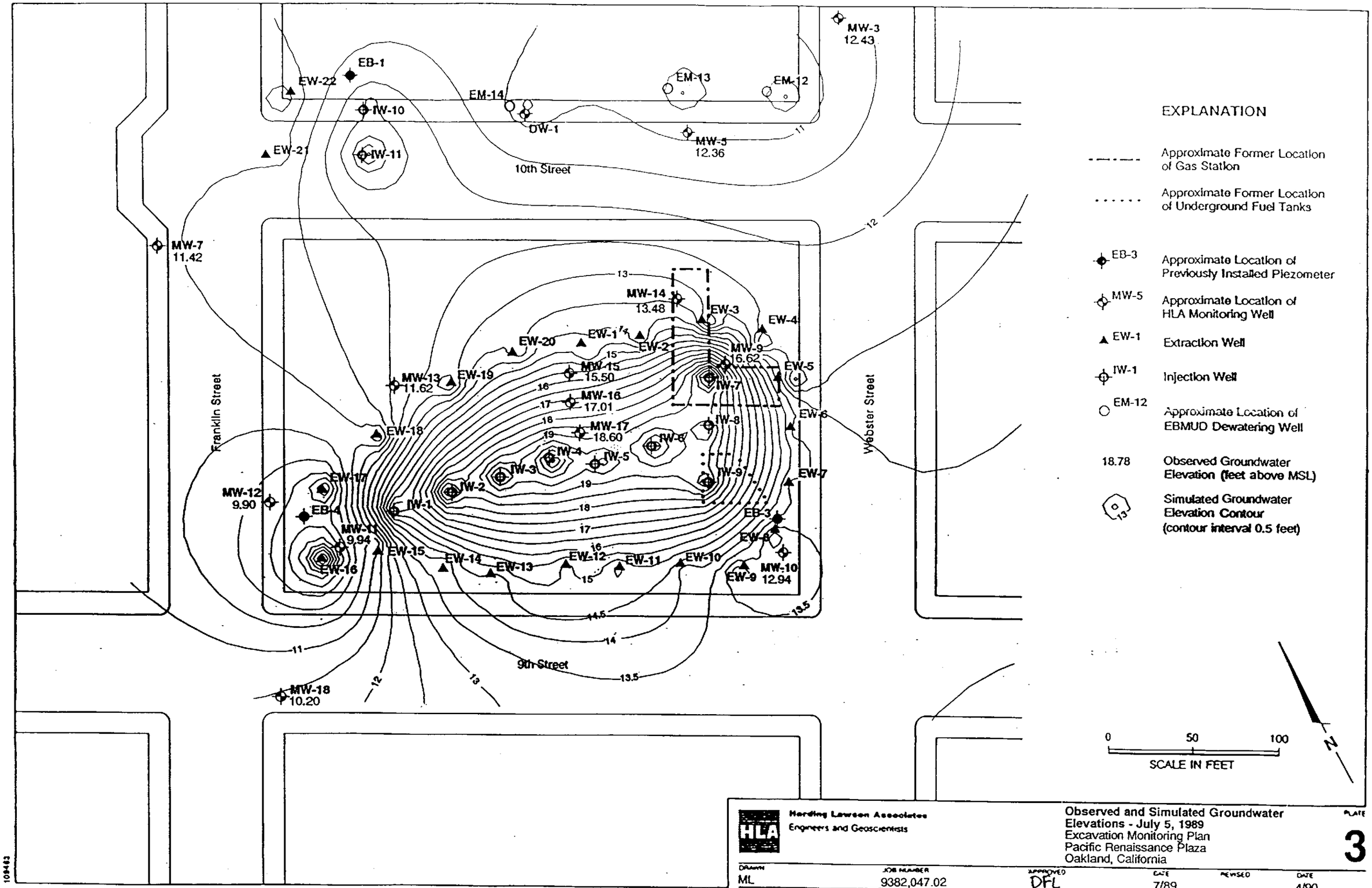
Distribution of Petroleum Hydrocarbons in Soil and Lateral Extent of Treatment Zone
Excavation Monitoring Plan
Pacific Renaissance Plaza
Oakland, California

PLATE **2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
ML	9382,047.02	DFL	1/89		4/90

109443

17670



Harding Lawson Associates
Engineers and Geoscientists

Observed and Simulated Groundwater Elevations - July 5, 1989
Excavation Monitoring Plan
Pacific Renaissance Plaza
Oakland, California

PLATE **3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
ML	9382,047.02	DFL	7/89		4/90

10946

Appendix A

SITE SAFETY PLAN

SITE: Pacific Renaissance Plaza
9th and Webster Streets, Oakland
California

GUIDELINE PREPARED BY: Harding Lawson Associates
Pete Rice, C.I.H., C.S.P.
Chris Corpuz, C.I.H.

FACILITY DESCRIPTION: Construction Site/Excavation/Shoring

STATUS: Active

SURROUNDINGS: Commercial and residential buildings, restaurants, markets, etc.

CLIMATE:

	July	October	January	April
Mean High Temp of (1986)	71	70	56	64
Mean Low Temp of (1986)	55	51	41	48

SITE HISTORY: Gasoline-contaminated site.

SITE MONITORING OFFICER: It is the responsibility of each contractor to assure the health and safety of its site workers. The Site Monitoring Officer (SMO), who is a consultant to the Redevelopment Agency, will assist Contractors with worker health and safety as they relate to toxic contamination only. The General Contractor's (General) own health and safety officer will be fully responsible for the standard non-toxic health and safety issues related to construction. The SMO will coordinate with the General for the proper implementation of Site Safety Plans. The SMO will be present at the site during field activities. The SMO will also provide the following services:

- Monitor whether appropriate personal protective equipment is properly utilized by onsite personnel.

- Monitor the safety performance of onsite personnel as it relates to toxic contamination.
- Immediately advise the General of any work practices that may result in injury or exposure to hazardous substance.
- Inform onsite personnel of any detected imminent hazards and immediately inform the General of the same. If the imminent hazard is sufficient to warrant the site to be shutdown, such shut down is the responsibility of the General.
- Prepare written confirmation of any oral communication within 24 hours of issuance of such oral communication.
- Conduct tailgate safety meetings.
- Conduct appropriate air monitoring (Air Monitoring Plan, Appendix C).
- Assist site contractors with emergency response.
- Conduct additional training for workers as necessary.
- Evaluate any laboratory analytical results.
- Identify and mark the site areas of known contamination.
- Establish, maintain, and adjust site control work zone, e.g., exclusion zone, decontamination area.

GENERAL JOB TASK DESCRIPTION:

Common Excavation and Excavation Shoring.

SITE HAZARD EVALUATION AND COMMUNICATION:

The site history indicates that the site has gasoline contamination. Appendix B presents the hazard communication and respiratory protection plan. A minimum of 2 hours employee training will be conducted to inform the employees of the onsite hazards and proper protective equipment and work practices to ensure employee safety. Emphasis will be on the route of entry of chemicals into the body.

Material Safety Data Sheets (MSDSs) will be available for the chemicals identified.

CHEMICAL HAZARDS:

Use personal protective equipment. Conduct air monitoring to evaluate respiratory and explosion hazards. Appendix C presents the air monitoring plan.

TEMPERATURE HAZARDS:

When temperatures exceed 70 degrees F and protective clothing is being worn, frequent breaks in shaded area should be taken. During breaks: unzip or remove coveralls; have water or electrolyte replenishment solution available; drink small amounts frequently to avoid dehydration; check pulse. If pulse is not normal by end of break, reduce length of work periods and increase frequency of breaks.

ACOUSTICAL HAZARDS:

Ear protection (foam inserts) is not required for protection against hazardous chemicals; however, use of earmuffs is recommended when noise levels prevent conversation in normal voice at a distance of 3 feet.

OXYGEN DEFICIENCY - CONFINED SPACE HAZARDS:

The SMO will monitor oxygen deficiency hazards. Confined spaces include trenches, pits, sumps, elevator shafts, tunnels, or any other areas where circulation of fresh air or the ability to readily escape from the area is restricted. The SMO will test the air with appropriate oxygen meters.

B. **Explosion Hazard**

Instrument	Reading	Location	Action
Combustible Gas Indicator (Gastech 1314)	20% LEL[1]	Ambient Air	Leave area - introduce ventilation if concentrations above 20% LEL are sustained.

C. **Oxygen Deficiency**

Instrument and Calibration	Reading	Location	Action
Oxygen meter	<19.5%	Ambient Air	Leave area - introduce ventilation if concentrations below 19.5% oxygen are sustained. Do not reenter area unless concentrations above 19.5% oxygen are sustained.

D. **Other**

1) To assess site hazards, personal air monitors, as defined in Appendix C, may be used to collect samples to measure worker exposure to contaminants, if warranted by site soil contamination.

2) Draeger indicator tubes will be used to measure airborne contaminants when necessary as determined by the SMO.

---

[1] Lower Explosive Limit

EXCLUSION ZONE:

If warranted by the existence of site contamination, portions of the site may be restricted (exclusion zone) to control worker access. The size of the exclusion zone, if needed, may change from time to time depending on site conditions. Within 25 feet of the exclusion zone, all onsite personnel will wear proper protective equipment. The area will be physically marked (e.g., barrier tape, cones, etc.) to aid in the exclusion of nonessential personnel. The SMO will assist site workers in identifying exclusion zone boundaries during the working day. OVA and visual cues will be used to monitor the contamination and adjust the exclusion zone accordingly.

PERSONNEL DECONTAMINATION:

Workers working in an area identified as being contaminated should:

1) Wash hands and face before eating, drinking, smoking, using the restroom, and at end of shift.

2) Place contaminated protective clothing in drums on site labeled as containing contaminated personal protective equipment.

3) Discard spent respirator cartridges into drums along with the contaminated clothing. Gloves will be changed daily. Contaminated gloves will be discarded in drums.

4) For employees using cloth coveralls outside of the contamination areas, a daily change of clean coveralls is required.

5) As prescribed in site safety meetings, all neoprene boots shall be cleaned by site workers at the end of each day and stored on site. Cleaning implements will be provided by the SMO. No contaminated clothing or boots can be taken offsite by site workers.

SITE RESOURCES:

Drinking Water Supply:	on site
Telephone:	on site
Toilet:	on site
Wash Basin:	on site

EMERGENCY EQUIPMENT LOCATION:

Eye Wash/Safety Shower:	on site
First aid kit:	on site
Fire extinguisher:	on site

EMERGENCY TELEPHONE NUMBERS:

General:	To be determined
Police:	273-3211 or 911
Fire Dept:	444-1616 or 911
Peralta Hospital:	451-4900
HLA:	892-0821
SF Poison Center	233-3360

A site map will be prepared showing the onsite locations of emergency equipment.

CONTINGENCY PLANS:

Fire:

- Call 911 to report fire. If the line is busy, call 444-1616 (Oakland Fire Department).
- Evacuate the site until the fire is controlled.
- Small, insignificant localized fires may be extinguished by the SMO or other trained contractor personnel with a fire extinguisher if there is no significant risk to worker safety.

Acute Chemical Exposure:

- Remove the individual from the immediate area of contamination.
- Wash the skin with water if skin contact with chemicals has occurred.
- Wash eyes with emergency eyewash for 15 minutes if contaminants enter eyes.
- Transport victims to the Peralta Hospital, located at 450 30th Street (Plate A1), or call 911 for ambulance.
- If transporting the victim to the hospital, take the gasoline MSDS. The route map to the hospital will be placed on the front page in the MSDS binder.
- If calling the hospital, ambulance, or poison center, inform the operator the victim may be exposed to chemicals, possibly gasoline. Have the MSDS binder immediately available with the victim.

Should any of the above events occur, the SMO will immediately inform the General.

PHYSICAL EXAMINATIONS:

All employees working in the zones designated as contaminated areas by the SMO shall receive a baseline medical examination. At the end of the job, employees shall also receive a termination medical examination as determined by the examining physician. An employee's medical examination results will be available to the employee upon written request.

PROJECT PERSONNEL LIST AND SAFETY PLAN DISTRIBUTION RECORD:

All contractors and subcontractors on site must sign below, signifying receipt of this approved safety plan.

Name	Responsibility	Signature and Date

TAILGATE SAFETY MEETING:

To be held at the beginning of each new task, at least weekly, or more frequently as determined by the SMO. Attendance by HLA or HLA subcontractor site workers working in contaminated or potentially contaminated areas is mandatory. Attendance by other site workers is at the option of the worker. All attendees must sign an attendance sheet similar to that provided below.

Date	Name	Firm Name	Topics

Appendix B

HAZARD COMMUNICATION AND RESPIRATORY PROTECTION PROGRAMS

HAZARD COMMUNICATION AND RESPIRATORY PROTECTION PROGRAMS

Appendix B

Appendix B

HAZARD COMMUNICATION AND RESPIRATORY PROTECTION PROGRAMS

B.1 Introduction

HLA, on behalf of the Agency, has developed the Hazard Communication and Respiratory Protection programs to protect the health and safety of PRP site workers. The purpose of these programs is to provide information about potential chemical hazards and the control of those hazards, and the use and care of respirators, should any be needed. The programs describe the use of Material Safety Data Sheets (MSDSs), the training of personnel, and the handling of respirators.

Both the Hazard Communication and the Respiratory Protection programs are to be administered as necessary at the job site by the General Contractor (General) for the protection of the General's or General's subcontractor personnel, with monitoring assistance of the SMO.

B.2 Hazard Communication Program

B.2.1 Material Safety Data Sheets (MSDSs)

Copies of MSDSs for primary hazardous substances suspected to be in contaminated soils to which site workers may be exposed will be kept in the HLA site office.

B.2.2 Employee Information and Training

Prior to starting work, all HLA and HLA subcontractor site workers with the potential for exposure to hazardous substances will be required to attend a health and safety orientation given by the SMO. The orientation will:

- Inform employees of any operations in their work area that involve hazardous substances
- Make available a written hazard communication program including all MSDSs to site workers
- Describe the physical and health effects of the hazardous substances
- Prescribe the methods and observation techniques to be used to determine the presence of hazardous substances in the work area
- Describe how to lessen or prevent exposure to these hazardous substances through usage of control, work practices, and personal protective equipment
- Outline steps being taken to lessen or prevent exposure to these substances
- Describe the emergency and first aid procedures employees should follow if they are exposed to hazardous substance(s)
- Instruct employees on how to review an MSDS to obtain appropriate hazard information.

B.2.3 List of Hazardous Substances

The Site Safety Plan lists all chemicals potentially present at the site (Appendix A). Specific information on each chemical can be obtained by reviewing the MSDSs.

B.2.4 Informing Subcontractors and Site Workers

HLA subcontractors and site workers will be provided with the following information.

- Hazardous substances to which they may be exposed while on the job site
- Appropriate protective measures or precautions employees may take to lessen the possibility of exposure.

B.3 Respiratory Protection Program

The SMO shall be responsible for training HLA and HLA subcontractor site workers on the use, maintenance, care, and storage of respirators.

B.3.1 Selection

Only respirators approved by the National Institute of Occupational Safety and Health (NIOSH) will be used. Employees will be fit-tested by the SMO before using the respirators on site. The type of respirator suggested for the site is a 3M half-mask with organic vapor cartridge.

B.3.2 Respirator Assignment

It is recommended but not mandatory that respirators be assigned to individual employees; individually assigned respirators should be marked with the employee's name.

B.3.3 Respirator Training

Each employee shall be trained before using the respirator. Subjects include: respiratory hazards, respirator types, respirator function, capabilities and limitations of respirators, donning and fit testing, proper use, and maintenance. Training shall be made part of the health and safety orientation to be given by the SMO.

B.3.4 Respirator Fit Testing

Initial fit testing of respirators shall be conducted by the SMO using isoamyl acetate and/or irritant smoke.

B.3.5 Medical Monitoring

A respirator physical will be conducted by a qualified examining physician prior to employees wearing respiratory protection.

B.3.6 Respirator Cleaning/Sanitization

Respirators shall be cleaned after each use. Each employee shall be responsible for cleaning his/her own respirator. Cleaning shall include, at a minimum, soapy water wash, clean water rinse, and air drying. Cleaning will be done at a location onsite designated by the SMO.

B.3.7 Respiratory Inspection and Maintenance

Respiratory Protection Program effectiveness shall be evaluated through regular inspections. Each employee may take his/her respirator to the SMO for inspection at anytime, but at least once a week. Employees shall change cartridges once a week or if breakthrough is detected. Chemical breakthrough is usually detected by smell or taste.

B.3.8 Storage of Respirators

When respirators are not in use, they shall be stored in plastic bags, coffee cans, metal/plastic boxes, etc., where they will be protected from dust, chemicals, sunlight, and extreme heat, cold, or moisture.

B.3.9 Respiratory Protection Program Records

The following records will be maintained as part of the Respiratory Protection Program:

- The approximate number and types of respirators in use at the site
- The site-specific Respirator User Approval Form
- Medical Evaluation Sheet
- Respirator inspection and maintenance records
- Any pertinent information regarding observations or occurrences.

B.3.10 Respiratory Physical

The tests recommended for site workers to evaluate the capability to wear respirators can vary depending on the examining physician. However, typical evaluations include:

- Blood pressure
- Pulse
- Medical history prepared by site workers
- Pulmonary function test
- Auditory evaluation of heart and lungs.

Appendix C

AIR MONITORING PLAN

The purpose of this Air Monitoring Plan is to provide information regarding monitoring the worker breathing area air if site conditions warrant such activity. Gasoline vapors will likely be detected from time to time by site personnel. These vapors will be monitored by the SMO, using the following instruments.

- Organic Vapor Analyzer (OVA) or Organic Vapor Monitor (OVM)
- Combustible gas and oxygen deficiency detector Gastech 1314
- Detector tubes for specific contaminants
- Battery operated sampling train, which includes sampling pump and charcoal tubes (to be used only if significant breathing zone contamination exists)

Several times during the day (hourly if necessary) an OVA or OVM will be used to check the site air quality. Areas where soil is being removed or handled will be checked most frequently. The ambient air upwind of the site will be monitored using an OVA or OVM. The breathing zones of equipment operators, soil haulers, and other personnel performing different activities within identified contaminated areas will be monitored with an OVA or OVM.

The Gastech 1314 and detector tubes for specific contaminants (i.e., petroleum hydrocarbons, benzene, etc.) will be used on an as-needed basis. If it is indicated by these instruments that respiratory protection equipment is warranted, personal air monitoring may be conducted by the SMO.

Charcoal tubes and sampling pumps (sampling train) will be used for personal air monitoring if such monitoring is deemed necessary by the SMO. The sampling train will

be attached to selected employees for most of a sampling day to collect breathing air samples. Charcoal sampling tubes will be changed throughout the sampling day.

The rate at which air is collected will be at various settings between 0.1 to 1.0 liter of air per minute. Thirty-minute and 4-hour samples will be collected. If conducted, personal air sampling will be performed for three consecutive days. The samples will be analyzed by an analytical laboratory accredited by the American Industrial Hygiene Association. If after three days the sampling results indicate that the Occupational Safety and Health Administration (OSHA) 8-hour time-weighted average is not exceeded, the personal air monitoring will be conducted on a biweekly basis, as long as the OVA indicators warrant such monitoring. The monitoring will be conducted on those days where work activities are expected to produce the greatest potential air quality degradation. However, if the OSHA 8-hour time-weighted average is exceeded, the adequacy of the personal protective equipment will be evaluated by the SMO.

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PACIFIC RENAISSANCE PLAZA
OAKLAND, CALIFORNIA
April 27, 1990

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