

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES



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Transmittal/Memorandum

To: Ms. Jennifer Eberle
Alameda County Health Agency
80 Swan Way, Room 350
Oakland, CA 94621

From: Paul Supple *PS*

Date: July 28, 1992

Subject: Site Assessment Work Plan
UNOCAL Service Station No. 1871
96 MacArthur Boulevard, Oakland, California

Job No.: 27001W

Remarks: Enclosed is one copy of the subject Work Plan for your file.

cc: Mr. Robert Boust, UNOCAL

SITE ASSESSMENT WORK PLAN

UNOCAL Service Station No. 1871
96 MacArthur Boulevard
Oakland, California 94610

STID
1120

July 28, 1992

Prepared for:

UNOCAL
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

Prepared by:

ROUX ASSOCIATES
1855 Gateway Boulevard, Suite 770
Concord, California 94520
(510) 602-2333

TITLE: Site Assessment Work Plan
UNOCAL Service Station No. 1871
96 MacArthur Boulevard
Oakland, California

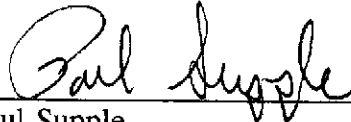
DATE: July 28, 1992

PROJECT NO: 27001W

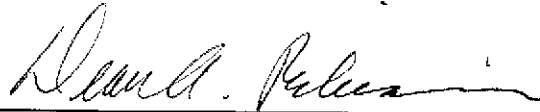
SUBMITTED BY: Roux Associates
1855 Gateway Boulevard, Suite 770
Concord, California 94520

This work was done under the direction of the undersigned California Registered Geologist.

PREPARED BY:



Paul Supple
Senior Hydrogeologist



Dean A. Richesin
Certified Engineering Geologist No. 1055

CONTENTS

	<i>Page</i>
1.0 INTRODUCTION	1
2.0 SITE DESCRIPTION	1
3.0 PREVIOUS INVESTIGATIONS	2
4.0 GEOLOGY AND HYDROGEOLOGY	2
5.0 PROPOSED INVESTIGATION	4
5.1 Drilling and Soil Sampling Procedures	4
5.2 Monitoring Well Installation and Ground Water Sampling Procedures	6
5.3 Laboratory Analyses	8
5.4 Ground Water Flow Determination	8
5.5 Site Health and Safety Plan	9
6.0 REPORT PREPARATION	9
7.0 PROJECT SCHEDULE	9
8.0 REFERENCES	10

TABLES

Table 1	Summary of Soil Analyses: Below Removed Fuel Dispenser
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FIGURES

Figure 1	Site Location
Figure 2	Site Plan
Figure 3	Soil Sample Locations
Figure 4	Location of Proposed Monitoring Wells
Figure 5	Typical Monitoring Well Construction

APPENDICES

Appendix A	Site Health and Safety Plan
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1.0 INTRODUCTION

Petroleum hydrocarbons were discovered in soil during product dispenser and line replacement activities at UNOCAL Service Station No. 1871, located at 96 MacArthur Boulevard, Oakland, California (Site). A UST Unauthorized Release report was issued for this Site on July 16, 1992. This Work Plan describes the proposed procedures for the initial phase of assessment work at the Site. Based on the findings of the initial work, the need for additional assessment work at the Site will be evaluated.

The purpose of this investigation is to assess the extent of petroleum hydrocarbons in soil and ground water, and to determine the direction of ground water flow at the Site. The proposed investigation will consist of drilling and sampling three soil borings and installing three ground water monitoring wells. The activities described in this Work Plan will be performed by Roux geologists and hydrogeologists under the direction of Mr. Dean A. Richesin, California Certified Engineering Geologist No. 1055.

2.0 SITE DESCRIPTION

UNOCAL Service Station No. 1871 is an operating auto repair and self-service gasoline station located at the ^{south} northwest corner of the intersection of Harrison Street and MacArthur Boulevard in Oakland, California (Figure 1). The Site is an asphalt and concrete covered lot, at an elevation of about 80 ft. above mean sea level (USGS, 1980). Topography in the Site area slopes (approximately ten percent) toward the southwest.

Two pump islands, four fuel dispensers and associated underground piping were demolished and removed in May, 1992. Two new pump islands were reconstructed in about the same locations as the former pump islands. Currently, Site features include a service station building, two newly constructed pump islands, one 280-gallon waste oil UST located west of the building, and two 12,000-gallon gasoline USTs located in a common tank cavity in the center of the Site (Figure 2).

3.0 PREVIOUS INVESTIGATIONS

UNOCAL demolished the pump islands at the Site in May, 1992, and constructed two new pump islands in the same locations. Roux collected four soil samples below the former pump islands following removal of the product dispensers and piping (Figure 3). Laboratory analysis of soil sample D3 indicated the presence of petroleum hydrocarbons at a concentration greater than 10 mg/kg (Table 1). A second sample (D3-A) was collected at the same location from a depth of eight feet below ground surface (bgs). Sample D3-A contained total petroleum hydrocarbons as gasoline at 1,700 mg/kg (Roux, 1992).

4.0 GEOLOGY AND HYDROGEOLOGY

The Site is located at the eastern margin of the San Francisco Bay Region known as the East Bay Plain (Figure 1). The East Bay Plain is characterized by broad alluvial fans and alluvial plains which slope westward into the San Francisco Bay. The Site is within the Oakland Alluvial Plain, a local ground water sub-area (Hickenbottom, 1988). A San Francisco Bay tidal estuary,

Lake Merritt, is located about one mile south of the Site. The underlying sediment has been mapped as older alluvium which consists of layers of poorly consolidated to unconsolidated clay, silt, sand and gravel. The alluvial sediments are underlain by undivided bedrock at a depth between 100 to 200 ft. bgs (Hickenbottom, 1988). The Site is located approximately two miles west of the active Hayward Fault (Helley, et al, 1979).

Soil encountered in shallow excavations completed at the Site during pump island removal and reconstruction activities consisted of reddish brown plastic clay and artificial fill. The artificial fill is made up primarily of loose, medium to coarse-grained sand, with abundant large fragments of asphalt, brick, wood and other debris. Artificial fill was encountered from the ground surface to a depth of about 8 ft. below ground surface (bgs) at the pump island along Harrison Street, and from ground surface to a depth of about 1.5 ft. bgs at the pump island along MacArthur Boulevard. Clay was encountered below the artificial fill at the pump island along MacArthur Boulevard. ✓

Ground water was not encountered in any of the shallow excavations. The deepest of the excavations was completed to a maximum depth of 8 ft. bgs. Ground water at a BP (formerly Mobil) service station, located one block southeast of the Site, occurs at 14 ft. bgs, and flows toward the southwest at a gradient of 0.04 (Alton Geosciences, 1989).

↑
What's the report
I'm trying to
get from
Mobil!

5.0 PROPOSED INVESTIGATION

The proposed investigation will consist of drilling and sampling three soil borings, and installing and sampling three ground water monitoring wells. Soil borings/ground water monitoring wells MW-1 through MW-3 will be installed to assess the extent of petroleum hydrocarbons in soil and to determine whether or not ground water has been affected beneath the Site. The soil borings for the monitoring wells will be advanced to about ten feet below the water table. Based on information from an investigation at a nearby site (Alton Geosciences, 1989), it is anticipated that the depth to ground water is about 15 ft. bgs and the direction of flow is to the southwest. *14's likely*

Monitoring well MW-1 will be located in the estimated upgradient direction of ground water flow from the pump island where elevated concentrations of TPH-G were detected. Monitoring well MW-3 will be located in the estimated downgradient direction of ground water flow from the same pump island. Monitoring well MW-2 will be located on the west side of the Site. Monitoring well MW-2 will be used in conjunction with the other wells to determine the direction of ground water flow at the Site. Proposed well locations are shown on Figure 4. ✓

5.1 Drilling and Soil Sampling Procedures

Roux will obtain well installation permits for the proposed wells from the Alameda County Flood Control and Water Conservation District prior to drilling. Roux will also call Underground Service Alert (USA) to have utilities in the immediate vicinity of the Site marked. The soil borings will be drilled and monitoring wells installed by a contractor licensed in the

state of California as a Water Well Driller. Boreholes will be drilled using a truck-mounted drill rig equipped with 10-inch outside diameter, continuous flight, hollow stem augers.

Samples for soil characterization and possible laboratory analysis will be collected at 5-foot intervals by driving a 2-inch diameter, 18-inch long, California Modified, Split Spoon Sampler ahead of the auger. The California Sampler will contain three clean 2-inch diameter, 6-inch long, stainless steel liners. The number of blows to drive the sampler each 6 inches will be counted and recorded on the geologic logs.

One stainless steel liner from each California Sampler collected above the water table will be retained for possible soil analysis. Immediately after the sampler is recovered from the borehole and opened, the ends of one liner will be covered with aluminum foil and plastic end caps. The ends will then be wrapped with tape. Each sample will be labeled with the Site location, date, time, identification code, and sampler's initials. Each sample will be placed in a plastic bag and stored on ice in a cooler chest until delivered to the laboratory. Chain-of-custody documentation will be maintained for all samples.

The contents of the remaining liners from each California Sampler will be examined by the field geologist. Soils from the samplers will be described using the Unified Soil Classification System. The field geologist will also make qualitative notes concerning moisture content, evidence of hydrocarbons (i.e. soil staining and odor), porosity and other pertinent features. Geologic logs for each borehole will be prepared under the direction of a California Registered Geologist.

All downhole drilling and sampling equipment will be steam cleaned prior to use at each borehole. Sampling equipment used during drilling will be scrubbed with a brush and a non-phosphate detergent solution and rinsed with clean water.

Drill cuttings will be temporarily stored on-site. The soil will be placed on, and covered with, plastic sheets. A composite sample will be collected from the stockpiled drill cuttings and analyzed for hydrocarbon and lead content. Proper disposal methods will be determined based upon the laboratory results.

ok - follow this up!

5.2 Monitoring Well Installation and Ground Water Sampling Procedures

After the borehole for each monitoring well is advanced to about 10 ft. below the water table, a 15 to 20-foot long, threaded, 4-inch diameter, PVC slotted section (.020-inch slot) and an appropriate length of blank PVC riser pipe will be placed in the borehole. The screen zone and at least one foot above and below it will be backfilled with a #3 sand filter pack. A two-foot thick layer of bentonite pellets will be emplaced above the sand pack. The remaining annular space will be filled with a cement-bentonite grout mixture to within two feet of ground surface. A traffic rated aluminum vault box will be placed over the well and set in concrete. The vault box will be set slightly above the surrounding ground surface. The wellheads will be secured with a 4-inch diameter, water tight, locking well cap. A typical monitoring well construction diagram is shown on Figure 5.

After the monitoring wells are installed, they will be developed by bailing or pumping about five to ten casing volumes of water from each well. The wells will be allowed to stabilize for at

least 48 hours after development. The monitoring wells will then be checked for floating product. If floating product is detected in a well, the thickness of floating product will be measured with an oil-water interface probe. If the monitoring well contains floating product, it will not be purged or sampled. Water produced during development and sampling will be stored on-site in sealed 55-gallon drums.

*As sampled + description of
accounting*

A ground water sample will be collected from each monitoring well after three to five casing volumes of water have been purged from the well. The temperature, pH, and conductivity of ground water will be measured and recorded periodically prior to sample collection. If the well is pumped dry before three casing volumes of water have been removed, then the well will be allowed to recover to 80 percent of its initial volume before sampling. The water samples will be inspected for the presence of hydrocarbon odor and sheen. Equipment used to develop and purge the monitoring wells will be decontaminated prior to and after use. Decontamination will consist of scrubbing with a brush and non-phosphate detergent solution and then rinsing with clean water.

The ground water samples will be collected using a clean, disposable, bottom loading, polyethylene bailer. Clean polypropylene cord will be used to lower the bailers into the wells. Water samples will be decanted from the bailer into 40-milliliter VOA vials with teflon lined lids. VOA vials will be inspected to insure that no air bubbles are trapped in the container. The VOA vials will be labeled, placed in sealed plastic bags and stored on ice in a cooler chest until delivered to the laboratory. Chain-of-Custody documentation will be maintained for all samples.

5.5 Site Health and Safety Plan

A Site-specific Health and Safety Plan is included in Appendix A. The plan describes the basic safety requirements for work at the Site. It is applicable to both personnel of Roux and to subcontractors of Roux. The Roux field geologist will be the Site safety officer on-site. Personnel at the Site will be briefed on the contents of the Site Health and Safety Plan before work begins. A copy of the plan will be kept at the work site and will be available for reference by appropriate parties during the work.

6.0 REPORT PREPARATION

A report will be prepared which summarizes data gathered during the investigation. The report will contain a description of field methods, laboratory procedures, laboratory reports and chain-of-custody documents. The report will also contain geologic logs and maps (as appropriate) to illustrate sample locations and the extent of hydrocarbons. A draft report will be prepared for UNOCAL for review and comments, prior to being finalized for submittal to the Alameda County Department of Environmental Health (ACDEH).

7.0 PROJECT SCHEDULE

this is for approval!

Drilling at the Site will be scheduled following approval of the Work Plan by the ACDEH. Prior to the commencement of field activities, well permits will be secured from Alameda County Flood Control and Water Conservation District. The ACDEH will be notified 48 hours in advance of scheduled drilling and/or ground water sampling. After all laboratory results are received, the final report will be submitted to the ACDEH within six weeks.

8.0 REFERENCES

- Alton Geosciences, Inc. 1989. Preliminary Site Investigation Report, Former Mobil Service Station No. E-6A, 100 MacArthur Boulevard, Oakland, California. December 20, 1989.
- Helley, E.S., LaJoie, K.R., Spangle, W.E., and Blair M.L. 1979. Flatland Deposits of the San Francisco Bay Region, California. U.S. Geological Survey Professional Paper 943.
- Hickenbottom, K. and Muir, K. 1988. Geohydrology and Ground Water Quality Overview, East Bay Plain Area, Alameda County, California 205(J) Report. Alameda County Flood Control and Water Conservation District, California.
- Roux Associates. 1992. Soil Sampling Below Removed Fuel Dispensers, UNOCAL Service Station No. 1871, 96 MacArthur Boulevard, Oakland, California. June 18, 1992.
- U.S.G.S. 1980. Oakland West Quadrangle, California 1959; photo revised, 1980.
- U.S.G.S. 1980. Oakland East Quadrangle, California 1959; photo revised, 1980.

TABLE 1: Summary of Soil Analyses: Below Removed Fuel Dispensers (Roux, 1992)
UNOCAL Service Station No. 1871, Oakland, California

Sample Designation	Date	Depth (feet bgs)	TPH-G (1)	BTEX Distinction (1)				Lead (1)
				Benzene	Toluene	Ethylbenzene	Xylenes	
D1	5/13/92	2	ND	ND	ND	ND	ND	2.4
D2	5/13/92	2	ND	ND	ND	ND	ND	2.6
D3	5/13/92	4	58	0.20	0.087	0.52	0.97	23
D4	5/13/92	5	2.9	ND	ND	ND	0.0070	4.8
D3-A	5/18/92	8	1,700	3.1	1.0	11	5.4	18

FOOTNOTES

(1) = Concentrations reported in mg/kg (ppm)

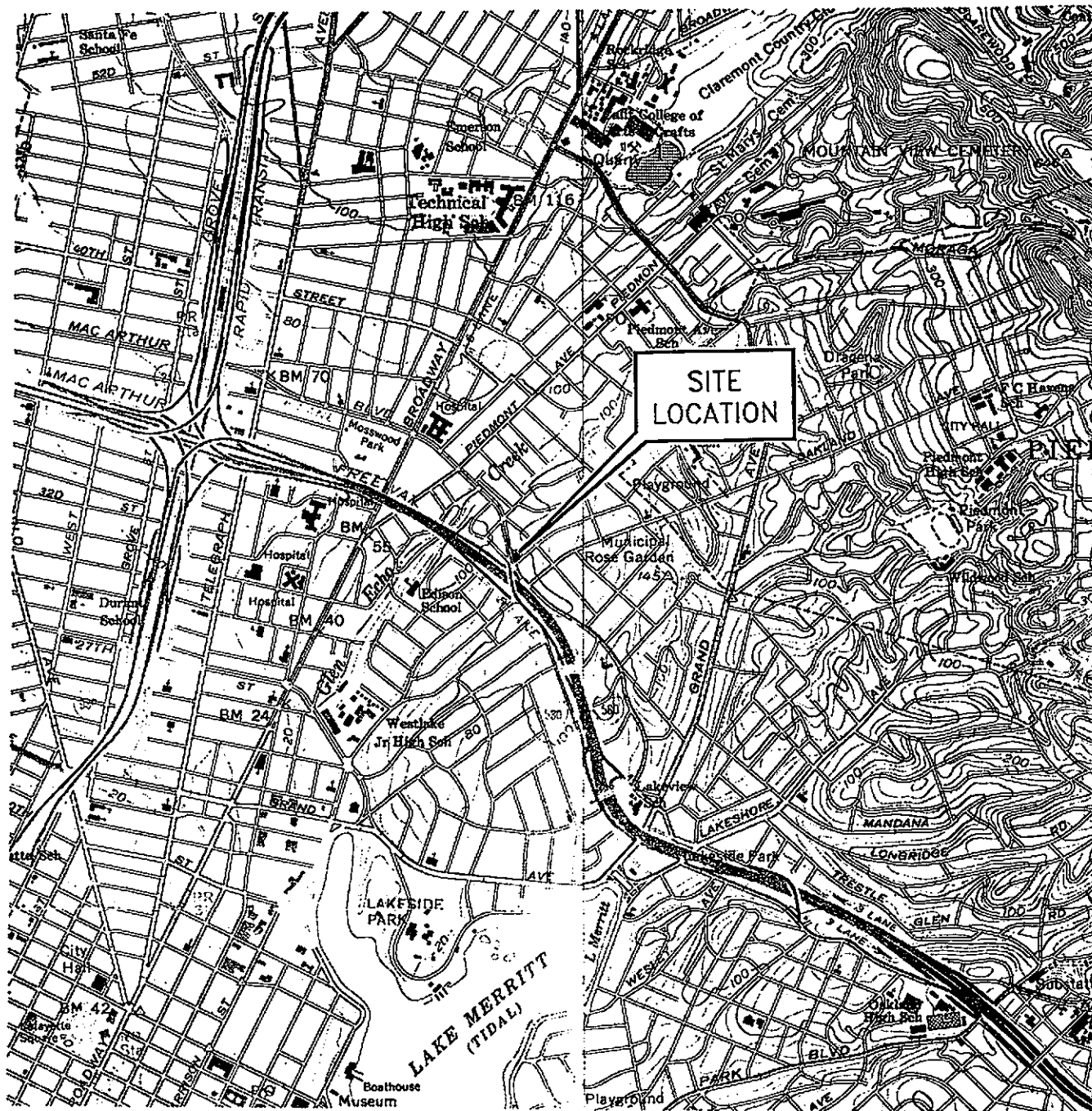
TPH-G = Total Petroleum Fuel Hydrocarbons As Low/Medium Boiling Point Hydrocarbons (USEPA Method 8015)

BTEX Distinction (USEPA Method 8020)

Lead = Total Lead (USEPA Method 7421)

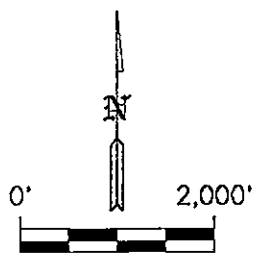
ND = None Detected


bgs = Below ground surface

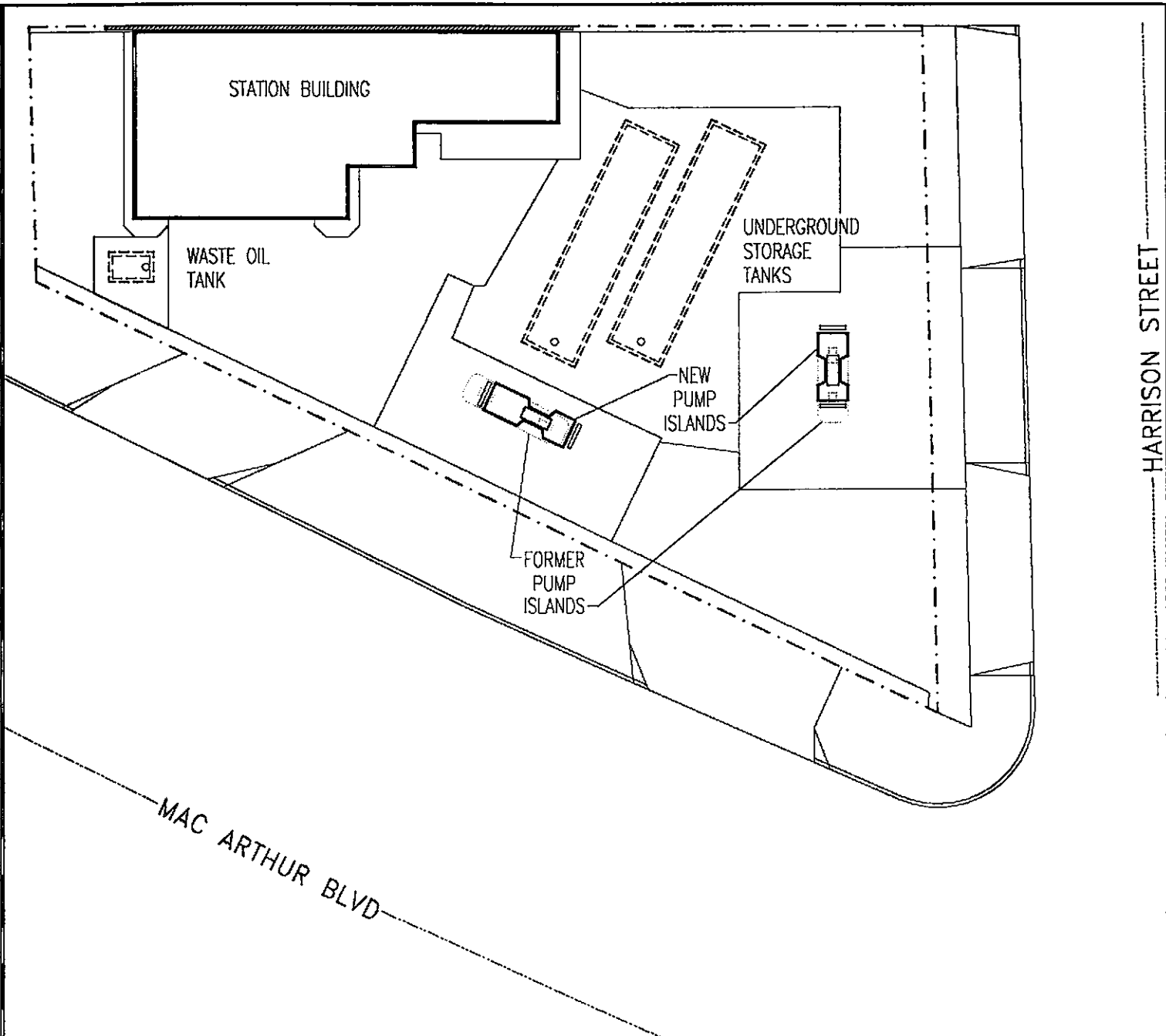


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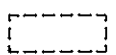
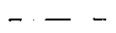
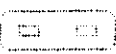

USGS 7.5 MINUTE QUADRANGLES OF OAKLAND EAST, CALIFORNIA 1980, AND OAKLAND WEST, CALIFORNIA 1980.



 <p>ROUX ASSOCIATES ENVIRONMENTAL CONSULTING & MANAGEMENT</p>	COMPILED BY: P.S.	PREPARED FOR: UNOCAL	<p>FIGURE</p> <p style="text-align: center; font-size: 2em;">1</p>
	PREPARED BY: R.P.	TITLE: SITE LOCATION	
	PROJECT MNGR. P.S.	UNOCAL SERVICE STATION NO. 1871	
	DATE: 05/92		
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	PROJECT NO. 27001W		
FILE NAME: TOP01871			

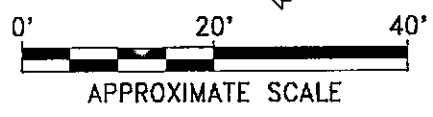



EXPLANATION:

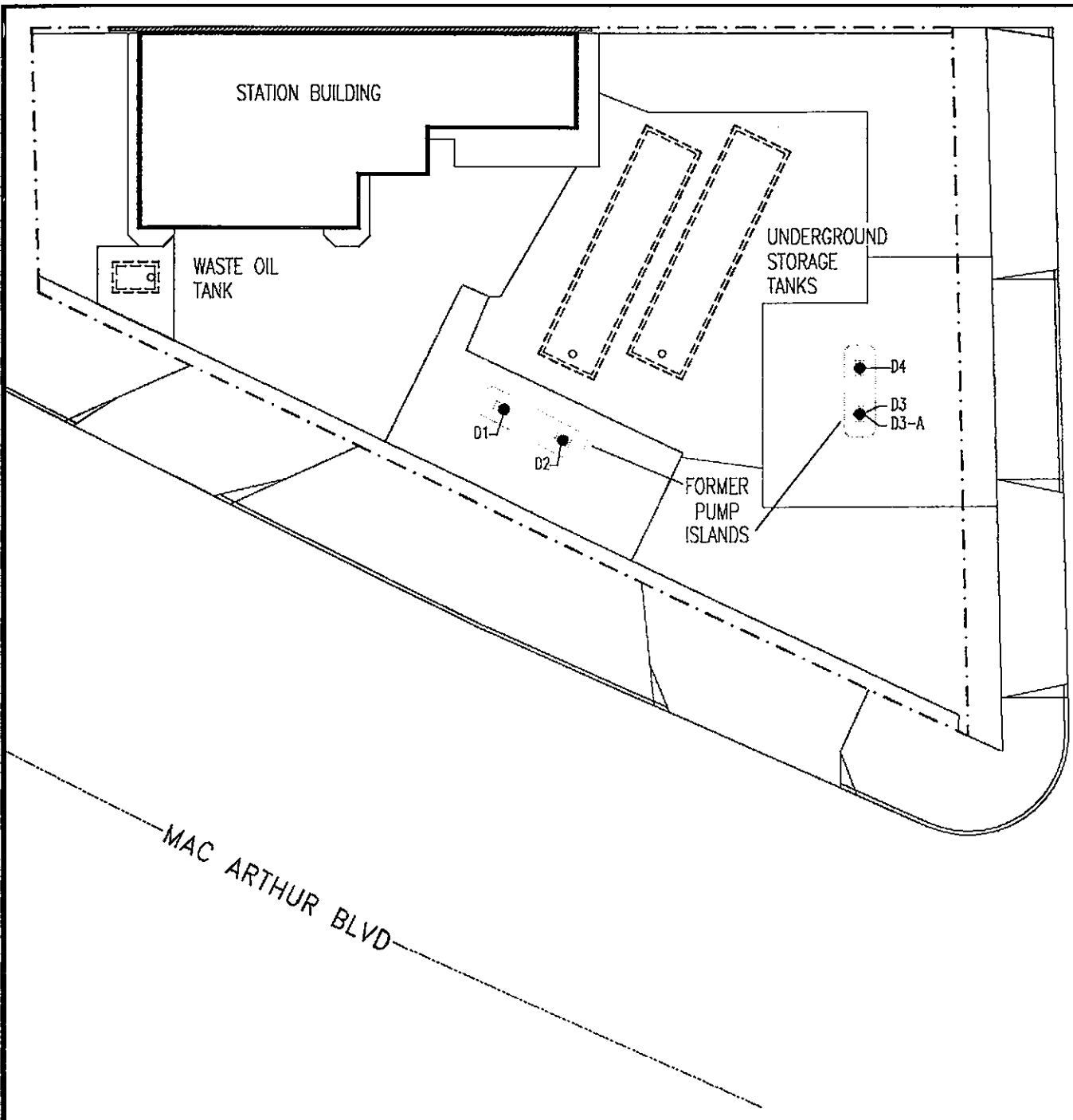
-  UNDERGROUND STORAGE TANK
-  PROPERTY BOUNDARY LINE
-  FORMER PUMP ISLAND
-  NEW PUMP ISLAND

SOURCE:

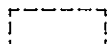
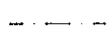

MAP MODIFIED FROM BLUEPRINT PROVIDED BY,
UNOCAL 76, 04/92.



 <p>ROUX ASSOCIATES ENVIRONMENTAL CONSULTING & MANAGEMENT</p>	COMPILED BY: P.S.	PREPARED FOR: UNOCAL	<p>FIGURE</p> <p style="font-size: 2em; text-align: center;">2</p>
	PREPARED BY: R.P.	TITLE: SITE PLAN	
	PROJECT MNGR. P.S.	UNOCAL SERVICE STATION NO. 1871	
	DATE: 05/92		
	SCALE: AS SHOWN		
	PROJECT NO. 27001W		
	FILE NAME: UN1871XX		

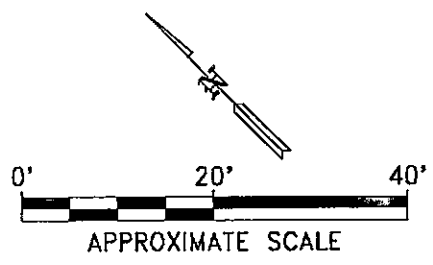



EXPLANATION:

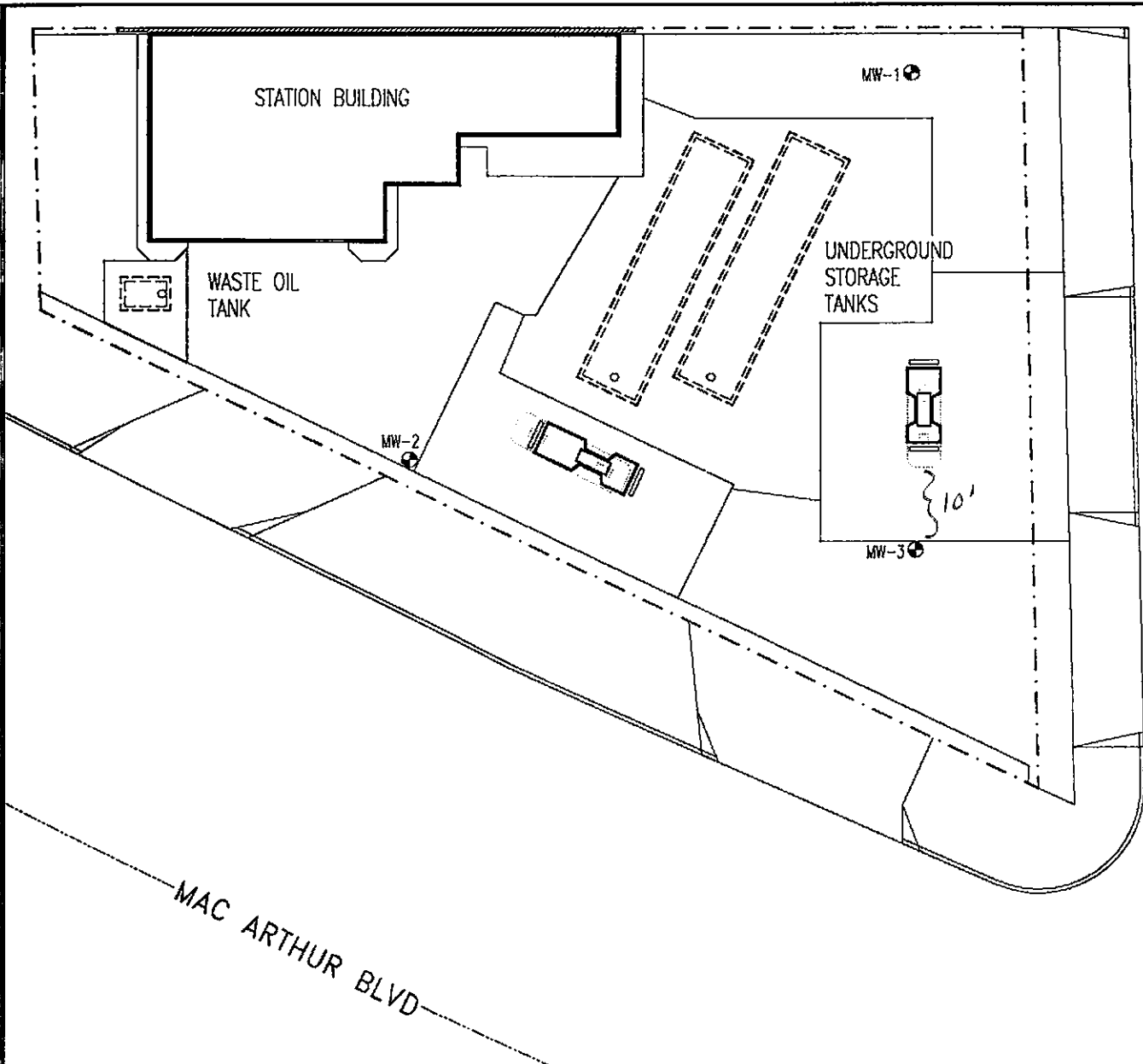
-  UNDERGROUND STORAGE TANK
-  PROPERTY BOUNDARY LINE
-  SOIL SAMPLE LOCATION AND DESIGNATION.

SOURCE:


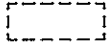



MAP MODIFIED FROM BLUEPRINT PROVIDED BY, UNOCAL 76, 04/92.



 ROUX ASSOCIATES ENVIRONMENTAL CONSULTING & MANAGEMENT	COMPILED BY: P.S.	PREPARED FOR: UNOCAL	FIGURE <h1 style="font-size: 2em;">3</h1>
	PREPARED BY: R.P.	TITLE: SOIL SAMPLE LOCATIONS	
	PROJECT MNGR. P.S.	UNOCAL SERVICE STATION NO. 1871	
	DATE: 05/92		
	SCALE: AS SHOWN		
	PROJECT NO. 27001W		
	FILE NAME: UN1871XX		

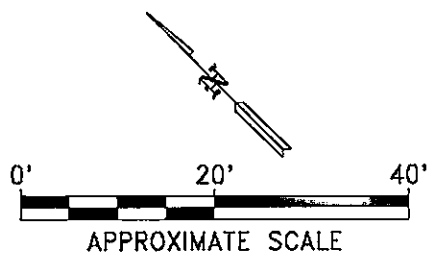



EXPLANATION:

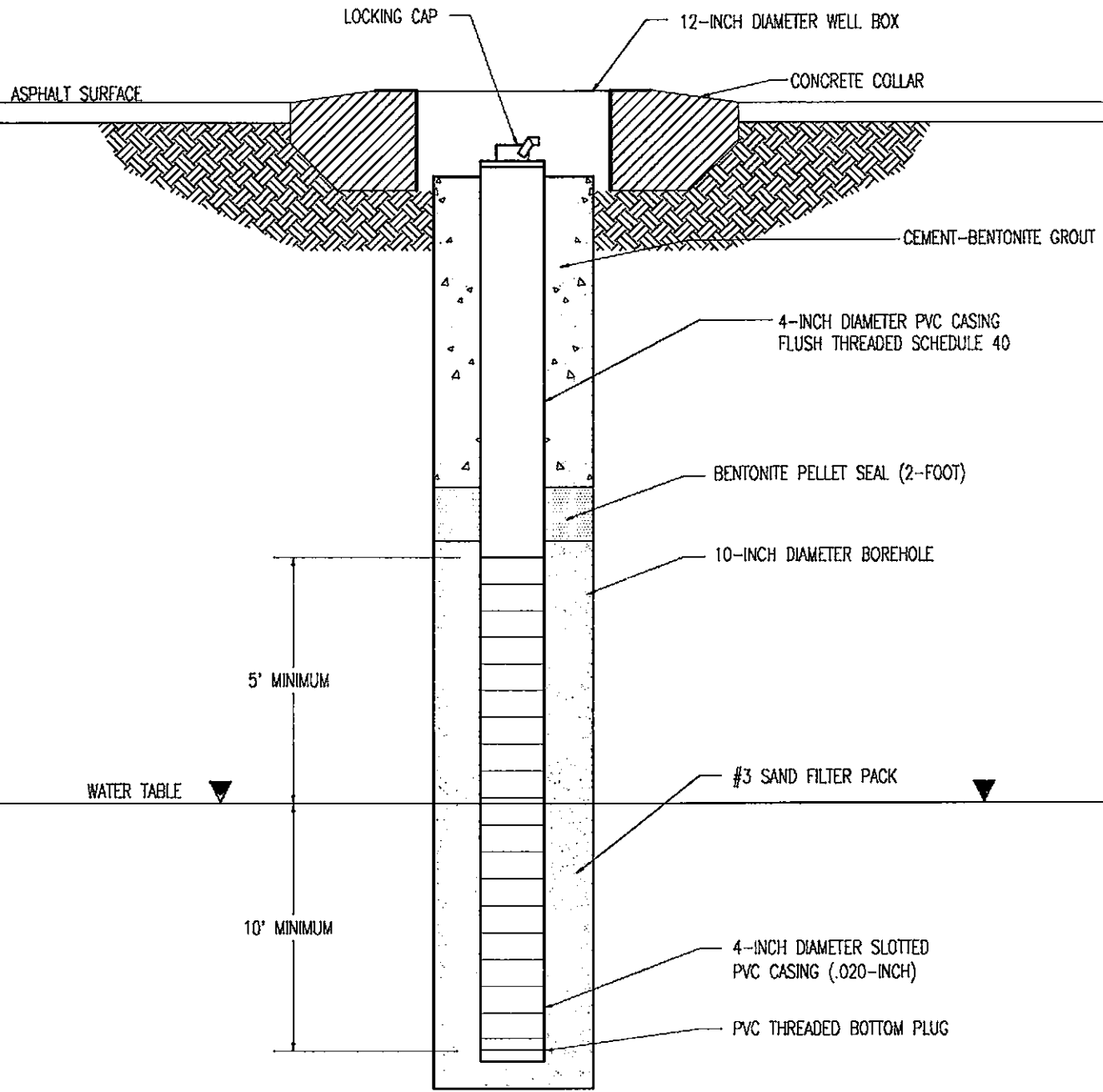
-  MW-1 PROPOSED MONITORING WELL LOCATION AND DESIGNATION
-  UNDERGROUND STORAGE TANK
-  PROPERTY BOUNDARY LINE
-  FORMER PUMP ISLAND
-  NEW PUMP ISLAND

SOURCE:

MAP MODIFIED FROM BLUEPRINT PROVIDED BY, UNOCAL 76, 04/92.



 ROUX ASSOCIATES ENVIRONMENTAL CONSULTING & MANAGEMENT	COMPILED BY: P.S.	PREPARED FOR: UNOCAL	FIGURE <h1 style="text-align: center;">4</h1>
	PREPARED BY: R.P.		
	PROJECT MNGR. P.S.	TITLE:	
	DATE: 05/92		
	SCALE: AS SHOWN	LOCATION OF PROPOSED MONITORING WELLS UNOCAL SERVICE STATION NO. 1871	
	PROJECT NO. 27001W		
FILE NAME: UN1871XX			



COMPILED BY: T.R.
 PREPARED BY: R.P.
 PROJECT MNGR. P.S.
 DATE: 05/92
 SCALE: N.T.S.
 PROJECT NO. 27001W
 FILE NAME: UN1871XX

PREPARED FOR: UNOCAL
 TITLE: TYPICAL MONITORING WELL CONSTRUCTION
 UNOCAL SERVICE STATION NO. 1871

FIGURE
 5

APPENDIX A
Site Health and Safety Plan

**SITE HEALTH AND SAFETY PLAN
SITE ASSESSMENT**

UNOCAL Service Station No. 1871
96 MacArthur Boulevard
Oakland, California

Prepared by:

ROUX ASSOCIATES
1855 Gateway Boulevard, Suite 770
Concord, California 94520
(510) 602-2333

**SITE-SPECIFIC GENERAL
HEALTH AND SAFETY PLAN**

Table of Contents

	Page
1.0 GENERAL	1
2.0 HEALTH AND SAFETY PERSONNEL DESIGNATIONS	3
3.0 SITE HISTORY AND PHYSICAL DESCRIPTION	3
4.0 SITE-RELATED INCIDENTS, COMPLAINTS AND ACTIONS	3
5.0 WASTE DESCRIPTION AND CHARACTERIZATION	4
6.0 HAZARD ASSESSMENT	4
7.0 TRAINING REQUIREMENTS	5
8.0 ZONES, PROTECTION AND COMMUNICATIONS	6
9.0 MONITORING PROCEDURES FOR SITE OPERATIONS	7
10.0 SAFETY CONSIDERATIONS FOR SITE OPERATIONS	8
11.0 DECONTAMINATION PROCEDURES	10
12.0 DISPOSAL PROCEDURES	11
13.0 EMERGENCY PLAN	11
14.0 AUTHORIZATIONS	13
15.0 FIELD TEAM REVIEW	13
16.0 APPROVAL PAGE	13

1.0 GENERAL

This Site-specific Health and Safety Plan (HASP) has been prepared in accordance with 29CFR 1910.120 and Roux Associates Standard Operating Procedures. It addresses all activities associated with the proposed investigation at 96 MacArthur Boulevard, Oakland, California (Site) and will be implemented by the designated Site Health and Safety Officer (SHSO) during Site work.

Compliance with this HASP is required for all persons and third parties who enter this Site. Assistance in implementing this HASP can be obtained from the Roux Associates Health and Safety Supervisor. The content of this HASP may undergo revision based upon additional information made available. Any changes proposed must be reviewed and approved by the Roux Associates Health and Safety Supervisor or his designee.

Responsibility	Name	Telephone Number
Site Manager (SM)	Paul Supple	(510) 602-2333
Site Health and Safety Officer (SHSO)	Todd Ramsden	(510) 602-2333
Field Team Leader (FTL)	Todd Ramsden	(510) 602-2333
Site Emergency Coordinator (SEC)	Paul Supple	(510) 602-2333

WORK DESCRIPTION:

Work at the Site covered by this Work Plan will consist of drilling of boreholes to evaluate soil conditions with respect to possible hydrocarbon contamination. The drilling will be conducted using a truck mounted hollow stem auger drill rig. The work will also include the collection of soil samples from the boreholes for laboratory analysis. Ground water monitoring wells will be installed in the boreholes. The wells will be developed by pumping or bailing, and ground water samples will be collected.

EMERGENCY INFORMATION

Type	Name	Telephone Numbers
Police	OPD	911
Fire	OFD	911
Hospital (Figure A1) 280 W. MacArthur Boulevard	Kaiser Hospital	510/ 596-7600
Poison Control Center		800/ 523-2222

ENVIRONMENTAL EMERGENCY
(e.g., release or spill)

Type	Name	Telephone Numbers
Office Health and Safety Manager	James Reilly	510/602-2333
Site Health and Safety Officer	Todd Ramsden	510/602-2333
Field Team Leader	Todd Ramsden	510/602-2333
Site Manager	Paul Supple	510/602-2333

2.0 HEALTH AND SAFETY PERSONNEL DESIGNATIONS

Office Health and Safety Supervisor

The Office Health and Safety Supervisor (OHSS) is responsible for providing the appropriate monitoring and safety equipment and other resources necessary in implementing the HASP. The OHSS ensures that all personnel designated to work on-Site are qualified according to applicable EPA, OSHA and state requirements.

Site Health and Safety Officer

The Site Health and Safety Officer (SHSO) will be present on-Site during the conduct of field operations, will be responsible for health and safety activities and has the authority to make all health and safety related decisions. The determination of hazard levels will be made by the SHSO. The SHSO has stop-work authorization which he or she will execute upon determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation, such as detrimental weather conditions. Authorization to proceed with work will be issued by the OHSS in consultation with the Site Manager after such action. The SHSO or SM will initiate and execute all contact with emergency facilities and personnel when this action is appropriate. Assistant SHSOs may be designated by the SHSO if required but must be pre-qualified and approved by the OHSS.

3.0 SITE HISTORY AND PHYSICAL DESCRIPTION

UNOCAL Service Station No. 1871 is an operating auto repair and self-service gasoline station located at the northwest corner of the intersection of Harrison Street and MacArthur Boulevard in Oakland, California (Figure 1). The Site is an asphalt and concrete covered lot situated about 200 ft. northeast of Interstate 580.

Currently, Site features include a service station building, two newly constructed pump islands, one 280-gallon waste oil UST located west of the building, and two 12,000-gallon gasoline USTs located in a common tank cavity in the center of the Site.

4.0 SITE-RELATED INCIDENTS, COMPLAINTS AND ACTIONS

None have been reported for the Site based on information available at the time this HASP was prepared.

5.0 WASTE DESCRIPTION AND CHARACTERIZATION

- Waste Types

Liquid	<u> X </u>	Solid	<u> </u>	Gas	<u> </u>
Sludge	<u> </u>	Semi-Solid	<u> </u>	Other	<u> </u>

- Characteristics

Corrosive	<u> </u>	Toxic	<u> X </u>	Inert	<u> </u>
Flammable	<u> X </u>	Volatile	<u> X </u>	Carcinogen	<u> </u>
Radioactive	<u> </u>	Reactive	<u> </u>	Other	<u> </u>

- Containment

P.T.	<u> </u>	Process Vessel	<u> </u>	Tank	<u> X </u>
Pond	<u> </u>	Piping	<u> X </u>	Lab Pack	<u> </u>
Lagoon	<u> </u>	Drum	<u> </u>	Other	<u> </u>
Lake	<u> </u>	Tank Car	<u> </u>		

The wastes at this Site could potentially be the soils being drilled and sampled. These soils may be contaminated with petroleum hydrocarbons, such as gasoline, at concentrations up to, and potentially greater than 10,000 ppm. Gasoline contains quantities of benzene, toluene, ethylbenzene and xylenes. Exposure to these compounds may be hazardous to health (Table 1).

6.0 HAZARD ASSESSMENT

In addition to the chemical hazards already noted, work at this jobsite may present hazards such as:

- Chemical Hazards - Gasoline contaminated soils are present at the Site. Gasoline contains quantities of benzene, toluene, ethylbenzene and xylenes. These compounds may be hazardous to health (Table 1).

- Ambient Air Hazards - Exposure to gasoline compounds, benzene, toluene, ethylbenzene and xylenes may be hazardous to health (Table 1). Dust of volatile organic vapors may contain BTEX compounds.
- Heat/Cold Stress - Heat/cold stress are possible due to working in protective clothing and gloves.
- Noise - Noise heard from heavy machinery on-site.
- General Safety Hazards - The general safety hazard from machine traffic on-site. Overhead electrical power line must be observed. Underground utilities must be identified prior to drilling operations.

7.0 TRAINING REQUIREMENTS

7.1 Basic Training

All Site personnel who will perform work in areas where there exists the potential for toxic exposure will be health and safety trained prior to performing work on-Site per OSHA (29CFR 1910.120(e)).

7.2 Site Specific Training

Site Specific Training will be provided by the SHSO and FTL. It will address the activities, procedures, and monitoring equipment for the Site operations. This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities regarding safety and operations for their particular activity. Site-specific training will be documented and kept as part of the project records.

7.3 Safety Briefings

Project personnel will be given briefings by the FTL or SHSO on an as-needed basis to assist them in conducting their activities safely.

7.4 Record Keeping Requirements

All record keeping requirements mandated by OSHA (29CFR 1910.120) will be strictly followed.

8.0 ZONES, PROTECTION AND COMMUNICATIONS

8.1 Site Zones

The area of the Site where work will be conducted (the work zone) will be surrounded by a temporary fence consisting of cones and caution tape. No personnel shall work in the work zone without a buddy. All workers within the work zone shall wear the proper personal protective equipment (see section 8.2). No unauthorized persons will be allowed in the work zone during Site activities.

8.2 Personal Protection

8.2.1 General

The level of protection to be worn by field personnel will be defined and controlled by the SHSO with approval of the OHSS. Protection may be upgraded or downgraded by the SHSO on the basis of action levels presented for the activities listed below:

Task	Level of Protection
• Drilling	D
• Sampling	D
• Decontamination	D

8.2.2 Respiratory Protection and Clothing

All work at this Site should be performed in Level D protection:

- Tyvek Suits or coveralls
- Rubber Gloves
- Steel Toed Boots
- Hard Hats
- Eye Protection, As Required
- Noise Protection, As Required

Personal protective equipment for Level C, if necessary, will include:

- Full facepiece air-purifying respirator, NIOSH/MSHA approved
- Emergency escape respirator
- Tyvek Suits

- Gloves, inner (surgical type)
- Gloves, outer, chemical protective
- Boots, chemical protective, steel toe and shank

8.2.3 Safety Equipment

Basic emergency and first aid equipment will be available in or near the work zone, as appropriate. This shall include first aid kit, fire extinguishers, and other safety related equipment.

8.3 Communications

- Telephones -- A telephone will be at the Site for communication with emergency support services/facilities.
- Hand Signals -- To be employed in high noise areas such as when working with heavy equipment.

9.0 MONITORING PROCEDURES FOR SITE OPERATIONS

9.1 Monitoring During Site Operations

It is not anticipated that project personnel exposure will exceed the TLVs or PELs of the gasoline compounds. However proper personal protective equipment will be worn while working at the Site. In addition, the SHSO will monitor the breathing zone and ambient air, frequently during Site operations, using a Thermo Environmental Instruments Model 580 organic vapor meter (OVM). If the OVM readings are consistently exceeding 100 ppm (1/3 of the TLV for gasoline) in the breathing zone, personnel will be required to withdraw from the Site and the level of personal protection will be upgraded before entering the Site.

9.2 Medical Surveillance Requirements

Medical surveillance specifies any special medical monitoring and examination requirements as well as stipulates that all Roux Associates personnel and subcontractors are required to pass the medical surveillance examination or equivalent for hazardous waste work required by 29 CFR 1910.120. As a minimum, the examination will include:

- Complete medical and work histories
- EKG
- Urinalysis

- Physical Exam
- Eye Exam
- Blood Chemistry
- Pulmonary Function Test
- Audiometry

The examination will be taken annually, at a minimum, and upon termination of employment with the company. Additional medical testing may be required by the OHSS in consultation with the company physician and the SHSO if an overt exposure or accident occurs, or if other Site conditions warrant further medical surveillance.

10.0 SAFETY CONSIDERATIONS FOR SITE OPERATIONS

10.1 General

All field sampling will be performed under the level of personal protection described in Section 8.0. In this section, non-monitoring, safety-related procedures are described.

10.2 Site Walk-Through

Safety considerations during Site walk-through are important since this activity will precede all other field operations. Staff will maintain line of sight with each other at all times. Air monitoring will be performed as indicated in Section 9.0 and will be used to alert the walk-through team if a dangerous situation exists. It will also assist in prescribing levels of protection for future Site operations, designating Site layout and identifying areas of particular hazard, if any.

10.3 Heavy Equipment and Drill Rig Safety

Drilling crews are confronted with all of the hazards associated with operating any heavy equipment. They must be responsible for housekeeping around the rig because of the rods, auger sections, rope, and hand tools cluttering the operation. Maintenance is a constant requirement. Overhead and buried utilities require special precautions because of electrical and natural gas hazards. Electrical storms may have an affinity for a standing derrick. The hoist or cathead rope poses specific hazards that must be respected. Always use a clean, dry, sound rope. Keep hands away from the test hammer! Hearing loss, while not an immediate danger, is considerable over time. Use hearing protection!

From a safety standpoint, it is always important to be continually aware of the equipment around you. It poses a serious hazard if not operated properly, or if personnel near machinery cannot be seen by operators.

The SHSO will be present on Site during all invasive operations, including drilling, and will provide health and safety monitoring to ensure that appropriate levels of protection and safety procedures are utilized.

10.4 Excavation and Backfill Operations

No such activities are anticipated.

10.5 Sampling

Personnel will wear prescribed clothing, especially eye protection and chemical resistant gloves when sampling. Sample bottles may be bagged prior to sampling to ease decontamination procedures. The sampling team must be aware of emergency evacuation procedures described in this HASP and the location of all emergency equipment, including spill containment materials, prior to sampling. Contamination avoidance shall be practiced at all times. Personnel will utilize the buddy system and maintain communications. In some situations, additional monitoring by the SHSO may be needed to confirm or establish the proper level of protection before the sampling team can proceed.

10.6 Sample Handling

Personnel responsible for the handling of samples shall wear the prescribed level of protection described in Section 8.0. Samples shall be identified as to their hazard and packaged as to prevent spillage or breakage. Any unusual sample conditions will be noted. Lab personnel shall be advised of sample hazard level and the potential contaminants present. This will be accomplished by a phone call to the lab coordinator and/or inclusion of a written statement with the samples. If necessary the SHSO will review safety procedures for handling Site samples to assist or assure that these practices are appropriate for the type of suspected contaminants in the sample.

10.7 Waste Disposal

All waste disposal operations shall be monitored by the SHSO and carried out under the appropriate level of personal protection described in Section 8.0. Personnel shall wear the prescribed clothing, especially eye protection and chemical resistant gloves, when handling waste materials. Contamination avoidance shall be practiced at all times. Also see Section 12.0.

10.8 Heavy Equipment Decontamination

A steam cleaner will be utilized on Site to decontaminate the equipment.

10.9 Confined Space Entry

No such activities are anticipated.

10.10 Additional Safe Work Practices

The SHSO is to be referred to for specific concerns on each individual Site task. The safety rules listed below must be strictly followed:

- Always employ the buddy system
- Practice contamination avoidance, both on-Site and off-Site;
- Plan activities ahead of time;
- Do not climb over/under obstacles;
- Be alert to your own physical condition;
- Watch your buddy for signs of fatigue, exposure, heat or cold stress, etc.;
- Report all accidents, no matter how minor, immediately to the SHSO or FTL; and
- **KNOW YOUR HEALTH AND SAFETY PLAN**

11.0 DECONTAMINATION PROCEDURES

11.1 Contamination Prevention

One of the most important aspects of decontamination is the prevention of contamination. Good contamination prevention should minimize worker exposure and help ensure valid sample results by precluding cross-contamination. Procedures for contamination avoidance include:

Personnel

- Do not walk through areas of obvious or known contamination;
- Do not handle or touch contaminated materials directly;
- Make sure all personal protective equipment (PPE) does not have any cuts or tears prior to donning;
- Fasten all closures on suits, covering them with tape, if necessary;
- Take particular care to protect any skin injuries;
- Stay upwind of airborne contaminants; and
- Do not carry cigarettes, gum, etc. into contaminated areas.

Sampling/Monitoring

- When required by the SHSO, cover instruments with clear plastic, leaving an opening for sampling and exhaust ports; and
- Bag sample containers prior to the placement of sample material.

Heavy Equipment

- Care should be taken to limit the amount of contamination that comes in contact with heavy equipment;
- If contaminated tools are to be placed on non-contaminated equipment for transport to the decontamination pad, plastic should be used to keep the equipment clean; and

- Excavated soils should be contained and kept out of the way of workers.

11.2 Decontamination

At the conclusion of Site activities each day, or when leaving the work zone, personnel and equipment shall be thoroughly decontaminated.

12.0 DISPOSAL PROCEDURES

All discarded materials, waste materials, or other objects shall be handled in such a way so as to preclude the potential for spreading contamination, creating a sanitary hazard, or causing litter to be left on-Site. All potentially contaminated materials (e.g., soil, clothing, gloves, etc.) will be bagged or drummed, as necessary, and segregated for disposal. All contaminated materials shall be disposed of in accordance with appropriate regulations. All non-contaminated materials shall be collected and bagged for appropriate disposal as normal domestic waste.

13.0 EMERGENCY PLAN

As a result of hazards on-Site and the conditions under which operations are conducted, the possibility of an emergency exists. An emergency plan is required by OSHA (29CFR 1910.120) to be available for use and is included below. A copy of this plan shall be posted in the Support zone at each work Site.

The Site Emergency Coordinator(s) shall implement this emergency plan whenever conditions at the Site warrant such action.

13.1 Evacuation

In the event of an emergency situation, such as fire, explosion, significant release of particulates, etc., an air horn or other appropriate device will be sounded by the FTL or SHSO for approximately ten seconds indicating the initiation of evacuation procedures. All persons in both the restricted and non-restricted areas will evacuate and assemble in a safe area as identified by the Site Emergency Coordinator(s). The Site Emergency Coordinator(s) will have authority to initiate proper action if outside services are required. Under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given. The SHSO or FTL must see that access for emergency equipment is provided and that all combustion apparatus has been shutdown once the alarm has been sounded. Once the safety of all personnel is established, the fire department and other emergency response groups will be notified by telephone of the emergency.

13.2 Potential of Actual Fire or Explosion

If the potential for a fire exists or if an actual fire or explosion occurs, the following procedure will be implemented:

- Immediately evacuate the Site as described above (Section 13.1); and
- Notify fire and police
Fire Department: 911
Police Department: 911

13.3 Environmental Incident (Release or Spread of Contamination)

In the event of an environmental incident, the Site Emergency Coordinator(s) shall instruct a person on-Site to immediately contact police and fire authorities to inform them of the possible or immediate need for nearby evacuation. If a significant release has occurred, the National Response Center and other appropriate groups should be contacted. Those groups will alert governmental, national or regional response teams as necessary.

Type	Name	Telephone #
Fire Department	OFD	911
Police Department	OPD	911
National Response Center (Release or Spill)		(800)424-8802

13.4 Personal Injury

Emergency first aid shall be applied on-Site as deemed necessary to stabilize the patient. Other emergency response will be taken as necessary.

13.5 Overt Personnel Exposure

If an overt exposure to toxic materials should occur, the exposed person shall be treated on-Site as follows:

Skin Contact: Wash/rinse affected area thoroughly with copious amounts of soap and water, then provide appropriate medical attention. Eyes should be rinsed for at least fifteen (15) minutes upon chemical contamination.

Inhalation: Move to fresh air and/or if necessary, decontaminate and transport to the hospital.

Ingestion: Decontaminate and transport to emergency medical facility.

13.6 Adverse Weather Conditions

In the event of adverse weather conditions, the SHSO will determine if work can continue without sacrificing the health and safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Heavy rainfall;
- Potential for heat stress;
- Potential for cold stress and cold-related injuries;
- Limited visibility;
- Potential for electrical storms;
- Potential for malfunction of H & S monitoring equipment or gear; and
- Potential for accidents.

14.0 AUTHORIZATIONS

Personnel authorized to enter the Site while operations are being conducted must be approved by the SHSO, FTL and Site Manager. Authorization will involve completion of appropriate training courses, medical examination requirements as specified by OSHA 29CFR 1910,120, and review and sign-off of this HASP. All personnel must utilize the buddy system or trained escort, and check-in with the FTL.

15.0 FIELD TEAM REVIEW

See attached form.

16.0 APPROVAL PAGE

See Attached form.

17.0 ATTACHMENTS

- Injury/Incident Report
- Site Safety Follow-up Report
- Field Change Request

-
- OSHA Poster
 - Hospital Location Map

15.0 FIELD TEAM REVIEW

Each field member shall sign this section after Site-specific training is completed and before being permitted to work on-Site.

I have read and understand this Site-Specific Health and Safety Plan. I will comply with the provision contained therein.

Site/Project: **96 MacArthur Boulevard, Oakland, California**

Name Printed	Signature	Date
_____	_____	_____
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_____	_____	_____

16.0 APPROVALS

By their signature, the undersigned certify that this HASP is approved and will be utilized at the 96 MacArthur Boulevard, Oakland, California Site.

Site Health and Safety Officer

Date

Office Health and Safety Supervisor

Date

Site Manager

Date

TABLE 1. Toxicological, Physical, and Chemical Properties of Gasoline Constituents

UNOCAL Service Station No. 1871, 96 MacArthur Boulevard, Oakland, California

COMPOUND	CAS #	TLV (mg/m3)	PEL (mg/m3)	ROUTES OF EXPOSURE	TOXIC PROPERTIES	TARGET ORGANS	CARCINOGEN	PHYSICAL AND CHEMICAL PROPERTIES
Benzene	71-43-2	100 ppm	100 ppm	Inhalation, Absorption, Ingestion, Contact	Sensory Irritant Bone Marrow Depressant, Central Nervous (CNS) Depressant	Blood, CNS, Skin Bone, Marrow, Eyes, Respiratory System	OSHA, ACGIH, IARC, NTP	Liquid, Aromatic Odor, Boiling Point=176F, Flash Point=12F, Vapor Density=2.7
Ethyl- benzene Point=277F	100-41-4	100 ppm	100 ppm	Inhalation, Absorption, Ingestion,	CNS Depressant, Sensory Irritant Narcosis	Eyes, Upper Respiratory System	No	Liquid, Aromatic Odor, Boiling Flash Point=59F, Vapor Density=3.66
Toluene	108-88-3	100 ppm	100 ppm	Inhalation, Absorption,	CNS Depressant Sensory Irritant, Dermatitis	CNS, Liver Kidneys, Skin	No	Liquid Aromatic Odor, Boiling Point=231F, Flash Point=40F, Vapor Density=3.14
Xylenes	1330-20-7	100 ppm	100 ppm	Inhalation, Absorption, Ingestion, Contact	CNS Depressant, Sensory Irritant, Dermatitis, Abdominal Pain	CNS, Eyes, GI Tract, Blood Liver, Kidneys, Skin	No	Liquid Aromatic Odor, Boiling Point 281F-292F, Flash Point=81-90F, Vapor Density=3.7
Gasoline	8006-61-9	300 ppm	300 ppm	inhalation, Absorption, Ingestion, Contact	CNS Depressant, Sensory Irritant, Dermatitis, Pulmonary Edema	CNS, Eyes, Skin, Respiratory System	No	Liquid Aromatic Odr, Flash Point=60F, Vapor Density=3.040

References:

"NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards". Mackinson, Frank W., Stricoff, R. Scott, Partridge, Jr., Lawrence J.; Government Printing Office, 1981.

"Documentation of Threshold Limit Values and Biological Exposure Indices". American Conference of Governmental Industrial Hygienists, 5th Edition, 1986.

"Guide to Occupational Exposure Values". American Conference of Governmental Industrial Hygienists, 1990.

"Dangerous Properties of Industrial Materials". Sax, Irving N., Lewis, Sr., Richard J. Van Norstrand Reinhold Company, 7th Edition, Volume III, 1989.

INCIDENT REPORT

Site _____

Site Location _____

Report Prepared By _____
Name Printed Title

Incident Category (Check all that apply)

- | | | |
|--|--|--|
| <input type="checkbox"/> Injury | <input type="checkbox"/> Illness | <input type="checkbox"/> Property Damage |
| <input type="checkbox"/> Near Miss | <input type="checkbox"/> On-Site Equipment | <input type="checkbox"/> Chemical Exposure |
| <input type="checkbox"/> Motor Vehicle | <input type="checkbox"/> Fire | <input type="checkbox"/> Electrical |
| <input type="checkbox"/> Mechanical | <input type="checkbox"/> Other | |

Date and Time of Incident _____

Names of Persons Injured (see end of report for details)

NARRATIVE REPORT OF INCIDENT

(Provide sufficient detail so that the reader may fully understand the actions leading to or contributing to the incident, the incident occurrence, and actions following the incident. Append additional sheets of paper if necessary.)

Project # _____
Project Name: _____
Location: _____
Date: _____

INCIDENT REPORT

Page 2 of 4

WITNESSES TO INCIDENT

1. Name _____ Company _____
Address _____
Telephone No. _____

2. Name _____ Company _____
Address _____
Telephone No. _____

PROPERTY DAMAGE

Brief Description of Property Damage _____

Estimate of Damage _____

INCIDENT LOCATION

INCIDENT ANALYSIS

Causative agent most directly related to accident (object, substance, material, machinery, equipment, conditions): _____

Project # _____
Project Name: _____
Location: _____
Date: _____

INCIDENT REPORT
Page 3 of 4

Was weather a factor? _____

Unsafe mechanical/physical/environmental condition at time of incident (be specific) _____

Unsafe act by injured and/or others contributing to the incident (be specific, must be answered) _____

Personal factors (improper attitude, lack of knowledge or skill, slow reaction, fatigue) _____

ON-SITE INCIDENTS

Level of personal protection equipment required in Site Safety Plan _____

Modifications _____

Was injured using required equipment? _____

Project # _____
Project Name: _____
Location: _____
Date: _____

INCIDENT FOLLOW-UP

Date of Incident _____

Site _____

Brief Description of Incident _____

Outcome of Incident _____

Physician's Recommendations _____

Date Injured Returned to Work _____

ATTACH ANY ADDITIONAL INFORMATION TO THIS FORM

INJURIES

Injured Person

Name of Address of Injured _____

SSN _____ **Age** _____ **Sex** _____

Years of Service _____ **Time on Present Job** _____

Title/Classification _____

Severity of Injury or Illness

_____ **Disabling** _____ **Non-Disabling**
_____ **Fatality** _____ **Medical Treatment**

Estimated Number of Days Away From Job _____

Nature of Injury or Illness _____

Classification of Injury

_____ Fractures	_____ Heat Burns	_____ Cold Exposure
_____ Dislocations	_____ Chemical Burns	_____ Frostbite
_____ Sprains	_____ Radiation Burns	_____ Heat Stroke
_____ Abrasions	_____ Bruises	_____ Heat Exhaustion Concussion
_____ Lacerations	_____ Blisters	_____ Toxic
_____ Punctures	_____ Bites	_____ Toxic Respiratory Exposure
_____ Faint/Dizziness	_____ Dermal Allergy	_____ Ingestion
_____ Other		_____ Respiratory Allergy

Part of Body Affected _____

Degree of Disability _____

Date Medical Care was Received _____

Where Medical Care was Received _____

Address (if off-site) _____

If Hospitalized, Name, Address and Telephone of Hospital _____

Name, Address and Telephone Number of Physician _____

Project # _____
Project Name: _____
Location: _____
Date: _____

PERSONAL PROTECTIVE EQUIPMENT

Level of Respiratory Protection Activity Performed

Used

Field Dress

Activity

MONITORING EQUIPMENT

HNU/OVA/CGI

- Background reading _____
- Readings above background? _____
- Location of high readings _____

Radiation

- Readings above background? _____ Yes _____ No
- If yes, specify where readings were found and what action was taken

Project # _____
Project Name: _____
Location: _____
Date: _____

GENERAL SAFETY

Were any safety problems encountered while on site?

Explain _____

ACCIDENT REPORT INFORMATION

Did Any Team Member Report

Yes

No

- Chemical exposure _____
- Illness, discomfort, or unusual symptoms _____
- Environmental problems (heat, cold, etc.) _____

Explain _____

Was an Employee Exposure/Injury Incident Report Completed? ___ Yes ___ No

Project # _____
Project Name: _____
Location: _____
Date: _____

FIELD CHANGE REQUEST

SITE SAFETY REVIEW – CHANGES AND OVERALL EVALUATION (To Be Completed For Each Field Change In Plan)

Was the Safety Plan Followed as presented _____ Yes _____ No

Describe, in detail, all changes to the Safety Plan

Reason for changes _____

Follow-up, Review and Evaluation Prepared by _____ Date _____

Discipline _____

Approved by: Site Manager _____ Date _____

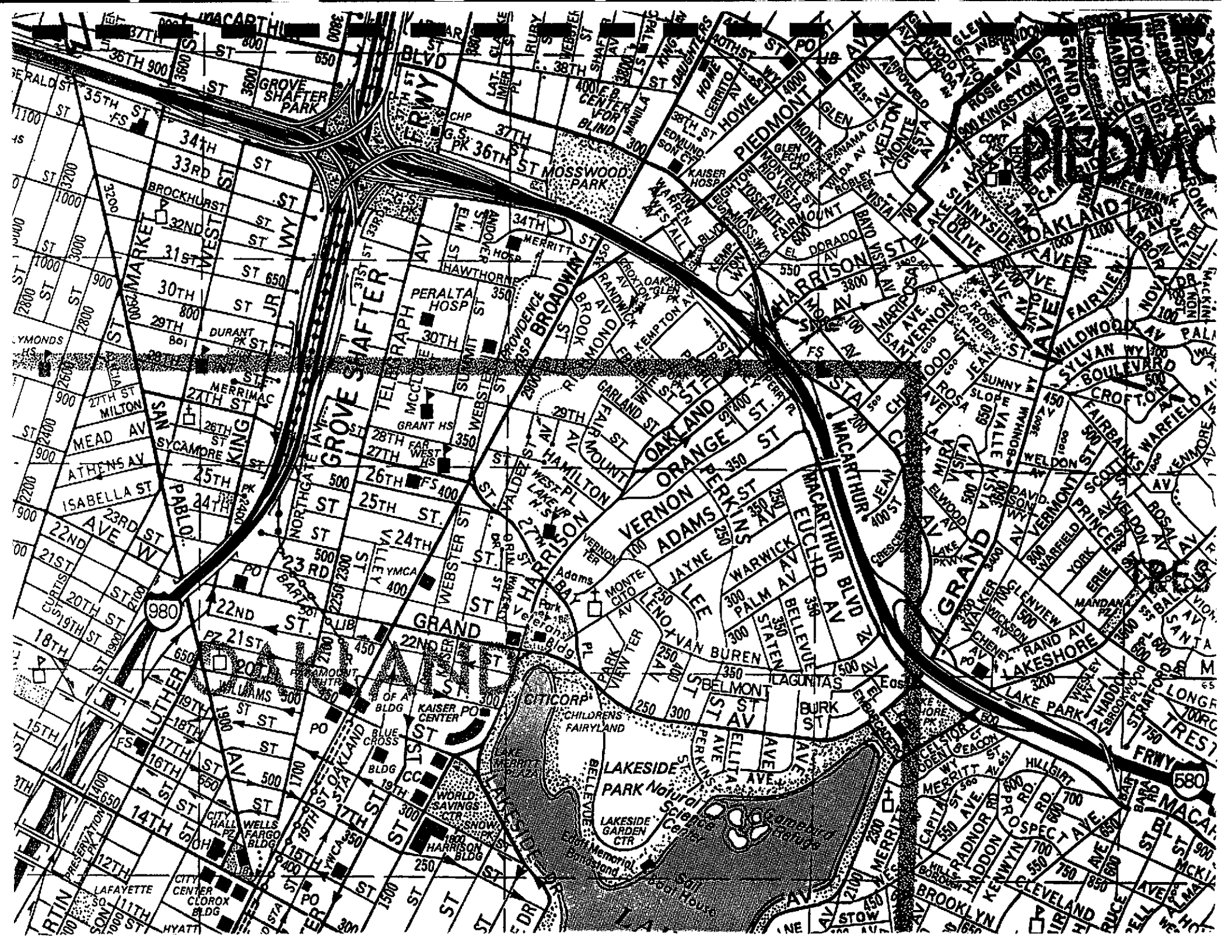
Site Safety Officer _____ Date _____

Approved by: Office Health & Safety Supervisor _____ Date _____

Evaluation of Site Safety Plan

Was the Safety Plan adequate? _____ Yes _____ No

What changes would you recommend? _____



JOB SAFETY & HEALTH PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Provisions of the Act include the following:

Employers

All employers must furnish to employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct jobsite inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA Inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discriminatory action.

Citation

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty

The Act provides for mandatory penalties against employers of up to \$1,000 for each serious violation and for optional penalties of up to \$1,000 for each nonserious violation. Penalties of up to \$1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$10,000 for each such violation.

There are also provisions for criminal penalties. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of up to \$250,000 (or \$500,000 if the employer is a corporation), or by imprisonment for up to six months, or both. A second conviction of an employer doubles the possible term of imprisonment.

Voluntary Activity

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

OSHA has published Safety and Health Program Management Guidelines to assist employers in establishing or perfecting programs to prevent or control employee exposure to workplace hazards. There are many public and private organizations that can provide information and assistance in this effort, if requested. Also, your local OSHA office can provide considerable help and advice on solving safety and health problems or can refer you to other sources for help such as training.

Consultation

Free assistance in identifying and correcting hazards and in improving safety and health management is available to employers, without citation or penalty, through OSHA-supported programs in each State. These programs are usually administered by the State Labor or Health department or a State university.

Posting Instructions

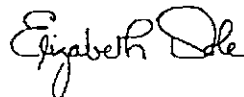
Employers in States operating OSHA approved State Plans should obtain and post the State's equivalent poster.

Under provisions of Title 29, Code of Federal Regulations, Part 1903.2(a)(1) employers must post this notice (or facsimile) in a conspicuous place where notices to employees are customarily posted.

More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:

Atlanta	(404) 347-3573
Boston	(617) 565-7164
Chicago	(312) 353-2220
Dallas	(214) 767-4731
Denver	(303) 844-3061
Kansas	(816) 426-5861
New York	(212) 337-2325
Philadelphia	(215) 596-1201
San Francisco	(415) 995-5672
Seattle	(206) 442-5930


Elizabeth Dole, Secretary of Labor

Washington, D.C.
1989 (Revised)
OSHA 2203

U.S. Department of Labor

Occupational Safety and Health Administration

