WORK PLAN FOR PHASE I INVESTIGATION
LEWIS BAY STREET SERVICE STATION
ALAMEDA, CALIFORNIA

JANUARY 23, 1991

Prepared for Texaco Refining
and Marketing, Inc.
Richmond, California

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February 4, 1991

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ENV - NOTIFICATION
Workplan Submittal for
1127 Lincoln Avenue
Alameda, CA

Tom - keep this in the ~~yellow~~ file

Mr. Ariu Levi
Alameda County Department of
Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Dear Mr. Levi:

Enclosed please find a workplan prepared by McLaren/Hart under the supervision of Texaco Environmental Services (TES) for a former Texaco service station located at 1127 Lincoln Avenue (Lincoln and Lewis Bay) in Alameda, California. This workplan was prepared to address both the assessment phase and to aid in data collection for the remedial - investigation phase, if warranted.

TES, after careful consideration, has decided to send this workplan to bid with three other consulting firms and, therefore, work origination is scheduled no sooner than the week of February 25, 1991, with the consent of the property owner and the property leasee.

Thank you, in advance, for your time in this matter. If you have questions, comments, or require additional information please call me at (818) 505-2719.

Respectfully submitted,

Rose Coughlin
Project Manager
TEXACO ENVIRONMENTAL SERVICES

RAC:rac

Attachment (1)

cc: Ms. Julie Menack, McLaren/Hart

pr:BR

1.0 INTRODUCTION

This work plan to conduct a Phase I subsurface investigation at the Lewis Bay Street Service Station has been prepared by McLaren/Hart, and is being submitted at the request of Texaco Refining and Marketing, Inc. (TRMI). The work will be performed to aid in the determination of the vertical and lateral extent of petroleum hydrocarbons in unsaturated soils beneath the property, and to evaluate the potential impact of these compounds on groundwater. The site is a former Texaco Service Station located at 1127 Lincoln Avenue, Alameda, California. It is presently occupied by an automobile repair shop. Figure 1-1 illustrates the location of the site. Figure 1-2 shows: 1) the location of the former underground tanks and 2) the locations of soil samples collected during tank removals.

This work plan is to be submitted to the Alameda County Department of Environmental Health, which is representing the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) for this site. The work plan conforms to the recommended work plan format for initial subsurface investigation provided in Appendix A of "Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks -- Tri-Regional Recommendations", dated November 9, 1989.

SCOPE OF WORK

This investigation of subsurface conditions will include project management (Task 1), research of chemical usages and land uses at adjacent properties (Task 2), a soil investigation to characterize soil conditions in the vicinity of the former underground tanks (Task 3), and the installation, development, and sampling of four groundwater monitoring wells (Task 4). Findings and recommendations from this investigation will be presented in a Phase I data report (Task 5).

SITE DESCRIPTION

The Lewis Bay Street Service Station property is approximately 50 feet by 150 feet and is situated on the northeast corner of Lincoln and Bay Streets, in a commercial shopping district. Residential neighborhoods are located east and west of the Lincoln-Bay intersection. The property has one building on its northwest corner, which appears to be the original service station building constructed in the early 1930's. Four underground fuel tanks and fuel dispensers were situated on the eastern side of the property before they were removed in 1989 (Figure 1-2). A waste oil tank, removed in 1989, was located directly adjacent to the building, along the western edge of the property (see Appendix I). The locations of piping and on-site subsurface utilities associated with the fuel tanks (and dispensers) have not been determined.

SITE HISTORY

According to records provided by the property owner, the service station was built in 1931 and sold primarily Texaco products until 1985, when the tanks were abandoned in place. Records from the City of Alameda Fire Department indicate that four underground tanks were installed on the property in 1933. The available records also indicate that these tanks were removed and replaced by larger 1,000-gallon and 4,000-gallon tanks on one or more occasions from the 1950's to the 1980's. Existing records do not indicate the specific dates on which any of the tanks were removed and/or replaced. Inventory reconciliation records for the tanks have not been found. There are no records indicating that diesel was ever stored at the site. Copies of Fire Department records and a chronology of the site provided by the property owner, Mr. Leo Pagano, are included as Appendix I.

Tank Removal

McLaren/Hart's review of documentation on the site revealed that a total of five tanks were removed by the property owner on September 11, 1989 (Environmental Bio-Systems, 1989a). These included two 4,000-gallon fuel tanks (denoted Tanks B and C on Figure 1-2), two 1,000-gallon fuel tanks (denoted Tanks D and E), and one 550-gallon bulk oil tank (denoted Tank A). Tank closure reports documenting the initial tank removal and subsequent soil excavation were submitted to the RWQCB on September 22 and October 10, 1989 (Environmental Bio-Systems, 1989a, 1989b). An "Underground Storage Tank Unauthorized Release (Leak) Contamination Site Report" was submitted to the RWQCB with the October 10, 1989 report. The closure reports document that the tanks and tank residue were manifested and disposed of as hazardous waste. Results of soil samples collected from beneath the tanks and the stockpiled, excavated soil indicate that gasoline petroleum hydrocarbon compounds were present. There is no documentation that the lines were removed or that soil sampling was performed along the lines. According to the reports all the excavated soil was subsequently aerated and disposed of at a Class III landfill (landfill not specified). Aeration was performed in accordance with Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 40. Reports documenting soil stockpile sampling and aeration were submitted to the RWQCB on December 13, 1989, March 9, 1990, April 18, 1990, and May 9, 1990 (Environmental Bio-Systems, 1989c, 1990a, 1990b, 1990c).

Condition of Tanks

McLaren/Hart also reviewed information from the closure report (Environmental Bio Systems, 1989a) about the condition of the tanks at the time of excavation, as summarized below. Tank A (550-gallon) was a single-walled steel tank with no significant rust, scale or pits. Dark staining was observed in soil directly above the tank, but not below the tank. Tanks B (4,000-gallon) and E (1,000-gallon) were single-walled, tar-wrapped steel tanks which reportedly showed rust, scale, and pitting. Both tanks had holes either on the bottom or on the sides, in each case at the fill end. Tanks C (4,000-gallon) and D (1,000-gallon) were single-

walled, tar-wrapped steel tanks showing no rust, scale, or pitting. Fill pipes for Tanks B and C were located on the north end of the tanks and fill pipes for Tanks D and E were on the east side of the tanks (Figure 2).

Soil Sample Results

Tables 1-1 and 1-2 summarize the analytical results of soil samples collected by Environmental Bio-Systems during the tank removals and subsequent excavations (Environmental Bio-Systems, 1989a, 1989b). Table 1-1 presents analytical results for total petroleum hydrocarbon (TPH) and volatile organic analyses. Table 1-2 summarizes metal analytical data. Soil sample locations are shown on Figure 1-2.

During the initial soil sampling, performed in conjunction with the tank removals, one soil sample was collected from beneath Tank A and two soil samples were collected beneath and at the ends of each of the four other tanks (Samples 1 through 9). Soil samples were also collected following the soil excavation, from the walls of the Tank B and C excavation. Samples were collected from 7.5 to 12.0 feet below the ground surface. Closure reports indicate that groundwater was not encountered during the excavation. Therefore, groundwater appears to be at a depth greater than 12.0 feet below grade.

All samples were analyzed for total petroleum hydrocarbons as gasoline (TPH/G) using the LUFT Manual method, and for benzene, toluene, xylenes, and ethylbenzene (BTXE) using EPA Method 8020. Additionally, Sample HA-1, collected beneath Tank A, was analyzed for TPH as diesel (TPH/D), total oil and grease (TPH/O&G), volatile organic compounds according to EPA Method 8240, semi-volatile organic compounds using EPA Method 8270, and for cadmium, chromium, lead, and zinc by Atomic Absorption Spectroscopy. It appears that all samples were collected using appropriate soil sample collection procedures and were submitted to a DHS-certified analytical laboratory under chain-of-custody.

Acetone was detected at a concentration of 610 ppb beneath Tank A. The levels of chromium, lead, and zinc were all within, and at the low end of, the common range of concentrations of these elements in soil. Petroleum hydrocarbons including TPH/G, TPH/D, and O&G were not detected beneath this tank.

TPH/G was detected at concentrations of 3.7 to 5,100 ppm in the tank pit for Tanks B and C, in all eight samples collected in this excavation. The three soil samples which indicated TPH/G at concentrations greater than 1,000 ppb were beneath Tank C. TPH/G was detected at concentrations between 300 and 6,200 ppm beneath the tank pit for Tanks D and E in all four samples collected in that excavation. Benzene, toluene, xylenes, and ethylbenzene were also detected, with xylenes occurring at the highest concentration in every case, typically followed by toluene, ethylbenzene, and benzene in decreasing concentrations.

2.0 WORK PLAN

The proposed investigation will be conducted using a phased approach. Task 1, project management, includes preparation of memoranda detailing the progress of on-going investigations, preparation of other correspondence as required by the project, discussions with Texaco, and project tracking. The environmental history of adjacent properties and the subject property will be compiled in Task 2. Task 3 includes all work associated with the drilling and sampling of eight on-site soil borings. Task 4 is the construction of three on-site monitoring wells. Both Tasks 3 and 4 will be performed in one field effort. Task 5 is the preparation of a data report, summarizing the results of Tasks 2 through 4. Recommendations for any further on-site and off-site investigations deemed necessary will be included in the Phase I report prepared in Task 5.

TASK 1 - PROJECT MANAGEMENT

Work to be performed under this task will include the preparation of memoranda detailing ongoing investigations to Texaco, correspondence as required by the project, and discussions and meetings with representatives of Texaco. Project management will also include project status and budget tracking.

TASK 2 - HISTORICAL ENVIRONMENTAL REVIEW OF SUBJECT AND ADJACENT PROPERTIES

This work will involve a review of agency records at the Alameda County Health Department, the City of Alameda Fire Department, and the Regional Water Quality Control Board, to discover any past history of chemical and/or land usage at the subject and adjacent properties. The agency review will include an environmental compliance review for the subject and adjacent properties. A review of historic aerial photographs will also be conducted.

TASK 3 - DRILL AND SAMPLE EIGHT SOIL BORINGS

A total of eight soil borings will be drilled at the site, to confirm the results of soil sampling performed by Environmental Bio-Systems, and to aid in the determination of the lateral and vertical extent of TPH in soil beneath the site. Figure 2-1 shows the proposed locations of the soil borings.

Three soil borings will be drilled in the vicinity of former Tanks D and E. Two borings will be drilled at the corners of the excavation, where soil samples collected by Environmental Bio-Systems showed concentrations in excess of 1,000 ppm TPH/G. One soil boring will be drilled through the center of the former location of Tank D to determine the vertical extent of hydrocarbons. Three soil borings will be drilled in the vicinity of the tank pit for Tanks B and C in a similar manner. One boring will be drilled through the center of the former location of Tank C, and two

borings will be drilled adjacent to the pit, where previous soil samples indicated concentrations in excess of 1,000 ppm TPH/G.

One soil boring will be drilled in the vicinity of former Tank A to determine the vertical extent of acetone detected in the sample collected beneath the tank by Environmental Bio-Systems. The samples collected from this boring will also confirm the absence of TPH/G compounds in this location, as reported by Environmental Bio-Systems (1989a).

One soil boring will be drilled adjacent to the former location of the fuel pump island. This boring will aid in the determination of whether the fuel pump island and associated fuel lines were a source of release and will provide data on the lateral migration of TPH/G compounds from the former tanks. This boring will be drilled at a 30° angle (from vertical) to allow sample collection from directly beneath the pump island.

Prior to drilling, a utility clearance program will be conducted at the site. Underground Service Alert (USA) will be notified prior to drilling. Ground-penetrating radar (GPR) will confirm the removal of the tanks and fuel lines and locate any underground lines on the site. An electronic transmitter/receiver will locate electric, sewer or other utilities which may be present at the location of each planned boring. As part of the utility clearance protocol, the first five feet of each borehole will be drilled with a hand auger to further confirm the absence of underground utilities.

Drilling Method

The soil borings will be drilled with a drill rig equipped with 8-inch hollow-stem augers. Soil samples will be collected at three foot intervals to the total depth of each boring. The soil samples will be logged and classified using the Unified Soil Classification System (USCS). Munsell color, estimated percentages of lithologic constituents, and moisture content will be noted for each sample. Soil samples will be collected using an 18-inch California modified split spoon-sampler lined with 2 x 6-inch brass tubes. One brass tube from each interval will be saved for possible laboratory analysis. The brass tubes will be sealed on each end with teflon tape, a plastic cap, and duct tape. A uniquely numbered identification label will be assigned to each brass tube. Each brass tube will then be placed in a sealable plastic bag and into a cooler filled with ice. Soil samples will be monitored for organic vapors by placing approximately 400 grams of soil into a sealable plastic bag for an equilibrium time of approximately five minutes, and then the head space in the bag will be monitored with a photoionization detector (PID). Field headspace measurements will be recorded on the drilling logs.

Each soil boring will be advanced approximately three feet beyond first water encountered. The depth to groundwater will be noted for each soil boring. Each boring will be backfilled with a neat cement and five percent bentonite mix.

All drilling equipment will be steam-cleaned prior to entering the site to remove any residual oils, chemicals, and soil. The process will be repeated between borings to eliminate any possibility of cross contamination between boreholes. The split-spoon sampler will be decontaminated between sample points by washing it in a solution of trisodium phosphate (TSP) and distilled water, and rinsing with distilled water.

Sample Analyses

Two samples per boring will be submitted for laboratory analysis. Soil samples in the vicinity of Tanks B through E will be analyzed for total petroleum hydrocarbons as gasoline (TPH/G) and one soil sample from each boring will be analyzed for total petroleum hydrocarbons as diesel (TPH/D) according to the LUFT Manual Method. Analyses for benzene, toluene, xylenes, and ethylbenzene (BTEX), will be performed by EPA Method 8020. These methods are recommended by the RWQCB guidelines, because the past contents of the former tanks is uncertain.

In the boring located adjacent to Tank A, the soil will be analyzed for volatile organic compounds (VOCs) according to EPA Method 8240, for semi-volatile organic compounds according to EPA Method 8270, and for TPH as oil and grease (TPH/O&G) by EPA Method 418.1. Previous analysis of soil from beneath Tank A has indicated that TPH/G and oil and grease are not present. However, acetone was detected in EPA Method 8240 analysis. The RWQCB guidelines recommend that EPA Method 8270 be performed as a minimum verification analysis if any compounds are detected beneath a waste oil tank during the initial screening.

Soil samples selected for analysis will be shipped under chain-of-custody via an overnight delivery service to McLaren/Hart Analytical Laboratory (MAL), a State of California-certified analytical laboratory. All brass tubes will be placed in an ice chest to keep them cold until delivery to the laboratory, where they will be stored under refrigeration.

The holding times for the analyses stated above for soils are fourteen days. The analyses will be performed within this time frame and analytical results will be received within three weeks from the time of delivery to the laboratory.

TASK 4 - INSTALL, DEVELOP AND SAMPLE THREE GROUNDWATER MONITORING WELLS

McLaren/Hart will select locations of the three groundwater monitoring wells based on field observations made during the drilling of the soil borings. The approximate proposed locations are shown on Figure 2-1. The purpose of these wells is to determine the groundwater quality in the uppermost water-bearing zone, and to define the groundwater flow direction. Soil samples for lithologic description and possible chemical analysis will be collected every three feet. Soil samples will be collected from the water bearing zone for field sieve analysis.

The wells will be screened in the uppermost flow zone as determined by the soil lithology. Design and construction specifications for the monitoring wells will be determined based upon location-specific lithology encountered in the selected well completion zone. The screened interval will extend three to five feet above the first encountered groundwater and 10 feet below the water table. This will ensure that the water level is within the screened interval. The wells are expected to extend a maximum of 25 feet below the ground surface.

Soil sampling during tank removal indicated the presence of acetone beneath Tank A and TPH/G and BTEX compounds beneath Tanks B through E. Two soil samples will be analyzed from each well boring for TPH/G by the LUFT Manual Method and for BTEX by EPA Method 8020. One soil sample from each well boring will be analyzed for TPH/D by the LUFT Manual Method.

Subtask 4A - Well Installation

The wells will be installed under permits from the Alameda County Flood Control and Water Conservation District -- Zone 7. A McLaren/Hart soil scientist, under the direction of a California-registered geologist, will be present throughout the drilling operation, and will prepare a detailed lithologic log of the borings and the well construction as-builts.

The wells will be drilled with a drill rig using 10-inch hollow stem augers. After the screened interval has been determined, a well will be constructed inside the hollow stem augers. Figure 2-2 provides a diagram of the planned wells. All wells will be constructed of 4-inch diameter, flush-threaded, schedule 40 PVC casing and 4-inch diameter, 0.020-inch slot PVC well screen. The annular space of each well will be backfilled with filter pack material, extending one foot above the top of the well screen. A one to two-foot bridge of granular bentonite, will be installed, followed by cement with 5 percent bentonite to the ground surface. Each well will be constructed with a traffic-rated vault box, approximately 1/2-inch above grade. A water-tight locking cap will be placed on each well.

Field sieve analysis will be performed on undisturbed soil samples collected from the monitoring wells to determine the appropriate filter material for the particular lithology encountered in the interval chosen for well completion. To provide a conservative determination of the appropriate well screen and filter pack material for a well, a sample will be collected from the finest-grained saturated material found within the interval selected for screening. The sample will be analyzed according to the method described in "Groundwater and Wells" by Driscoll, 1986.

Well Development

All wells will be developed following construction using a bailer and surge block to remove a minimum of 10 casing volumes of water. The surge block will be used to flush water in and out of the filter pack and break up any material which could inhibit the flow of water into the well. A bailer will be used to remove sediment-laden water. After bailing, a

centrifugal pump will be used to purge water and complete development. Well development will continue until the turbidity is less than 100 NTUs. Well development parameters, including volume of water removed, pH, electric conductivity, temperature, turbidity, and flow rate will be recorded and reported.

Surveying

The top-of-casing elevations for the newly-constructed monitoring wells will be surveyed to a common benchmark, with a datum elevation referenced to mean seal level (msl). The surveying will be performed by a licensed surveyor.

Subtask 4B - Groundwater Sampling

Groundwater Sample Collection

Each new well will be sampled and the water levels will be sounded within one month of installation. Samples from all wells will be analyzed for TPH/G and TPH/D according to the LUFT Manual Method, and for volatile organic compounds (VOCs) according to EPA Method 8240. During each sampling round, equipment rinse and travel blanks will be collected and analyzed for TPH/G and EPA Method 8240. All samples will be submitted to McLaren/Hart Analytical Laboratory (MAL) for analysis.

Before a sample is collected, careful consideration is given to the type of analytical testing that will be required. All due precautions are taken to prevent loss or contamination of the sample and to preserve the sample for subsequent analysis.

The objective of groundwater sampling is to obtain a volume of water that will be as chemically close to the water in the aquifer as possible. In order to meet this objective, the following minimum criteria will be observed.

- All stagnant water from the casing will be removed so that fresh water from the aquifer will enter the well at the time of sample collection.
- The sample will be extracted from the well with as little disturbance and as little exposure to the atmosphere as possible.
- The sample will not be allowed to come into contact with any materials which may adsorb or leach constituents in solution, or alter the sample in any way.
- Physical parameters which would undergo changes due to exposure to the air during containerization, transport, storage or laboratory analysis, and which cannot be preserved, will be measured at the time of sample collection.

- Portions of the sample will be treated to preserve those parameters which would otherwise be or altered affected during transport to the laboratory.

All wells will be purged using a peristaltic or centrifugal pump and will be sampled with a disposable bailer. A minimum of three casing volumes of water will be removed from each well prior to sampling. After each well casing has been removed, the temperature, turbidity, pH and electric conductivity will be measured and recorded. Before sampling, the pH, conductivity and temperature must stabilize. These parameters are considered to have stabilized when the results are reproducible.

The sample containers will be filled using a sampling port. The port will maintain a low flow rate with the fill tube submerged in the container. Sample containers will be filled until a meniscus forms at the rim; the meniscus will be sheared and the closure secured. Sample containers will be given a number label from a sampling log book. All samples will be placed in a cooler with ice immediately following collection, and will remain in the cooler until received by the laboratory. Samples will be accompanied by chain-of-custody forms at all times.

Equipment Decontamination

The field equipment decontamination procedures are rigorous. They have been designed to eliminate any cross-contamination from one sample to another. The sampling equipment will be used once and then returned to the field decontamination center for cleaning. All plastic tubing and other apparatus that cannot be completely decontaminated will be discarded, and new material will be used. Tygon tubing has been eliminated from all sampling devices in order to minimize phthalate contamination and analyte loss via absorption.

Sample Containers/Preservation

Groundwater samples will be collected in appropriate clean glass containers supplied by the laboratory. All glass containers will be placed in an ice chest to keep the samples cooled to 2° to 4° C until delivery to the laboratory, where samples will be stored under refrigeration until analyzed.

Sample Documentation

Each groundwater sample will be tracked by extensive paper work from the time of collection. The paper work which will be completed during sampling includes, as appropriate: field documentation, hydrologic data sheet, sampling field data sheet, chain-of-custody record and sample labels.

Field data recorded at the time of sample collection will include, as appropriate:

- Date of entry
- Purpose of sampling
- Description of sampling
- Number of samples taken
- Date and time of sample collection
- Field sample identification of well from which sample was collected
- References, such as maps or photographs of sampling site
- Field observations
- Condition and operation of sampling equipment

Because sampling situations vary widely, field notes will be as descriptive and inclusive as possible; anyone reading the entries should be able to reconstruct the sampling situation from the recorded information. The language will be objective and factual.

Field personnel will date and sign all data entries. All sampling field data sheets will include information on specific activities related to the collection of a single sample. The sampling field data sheet will be completed in the field at the time of sample collection by sampling personnel.

Water Level Measurement

Water level measurements will be used to determine the water surface elevation in each of the new monitoring wells. Well sounding will be accomplished using an Olympic Well Probe Model 300 (Actac Corporation) electrical water level sounder. If floating product is observed, the thickness will be measured using a Marine Moisture Systems oil/water interface measurement device. All measurements will be referenced to the top of the well casing and expressed in feet.

TASK 5 - PREPARE DATA REPORT ON INVESTIGATION FINDINGS

McLaren/Hart will present the results of Tasks 2.0 through 4.0 in a Phase I data report. This report will include a description and historical review of adjacent properties, and the laboratory data, data tables, and drawings necessary to evaluate soil and groundwater data. Drawings will include a site map, generalized lithologic log, chemical distribution in groundwater, groundwater contour map, drilling logs, and well construction details. Original laboratory data, chain-of-custody records, and field sampling records will be provided. The report will include recommendations for Phase II activities, both on- and off-site.

3.0 SITE HEALTH AND SAFETY PLAN

A site Health and Safety Plan is provided as Appendix II.

4.0 SCHEDULE

The proposed schedule for conducting the additional investigations at the former Texaco Station is presented in Figure 4-1. The schedule shows completion of the investigation and submittal of a draft report 11 weeks from project start-up, and submittal of a final report to the Alameda County Department of Environmental Health 13 weeks from project start-up.

5.0 REFERENCES

Environmental Bio-Systems, 1989a, "Initial Tank Removal Sampling and Assessment at the Lewis Bay Service Station, 1127 Lincoln Avenue, Alameda, California," by Environmental Bio-Systems, September 22, 1989.

Environmental Bio-Systems, 1989b, "Additional Excavation Sampling and Assessment at the Lewis Bay Service Station, 1127 Lincoln Avenue, Alameda, California," by Environmental Bio-Systems, October 10, 1989.

Environmental Bio-Systems, 1989c, "Stockpile Sampling at 1127 Lincoln Avenue, Alameda, California," by Environmental Bio-Systems, December 13, 1989.

Environmental Bio-Systems, 1990a, "Stockpile Sampling at 1127 Lincoln Avenue, Alameda, California," by Environmental Bio-Systems, March 9, 1990.

Environmental Bio-Systems, 1990b, "Stockpile Sampling at 1127 Lincoln Avenue, Alameda, California," by Environmental Bio-Systems, April 18, 1990.

Environmental Bio-Systems, 1990c, "Stockpile Sampling at 1127 Lincoln Avenue, Alameda, California," by Environmental Bio-Systems, May 9, 1990.

FIGURE 1-1
SITE LOCATION MAP
LEWIS BAY SERVICE STATION
ALAMEDA, CA

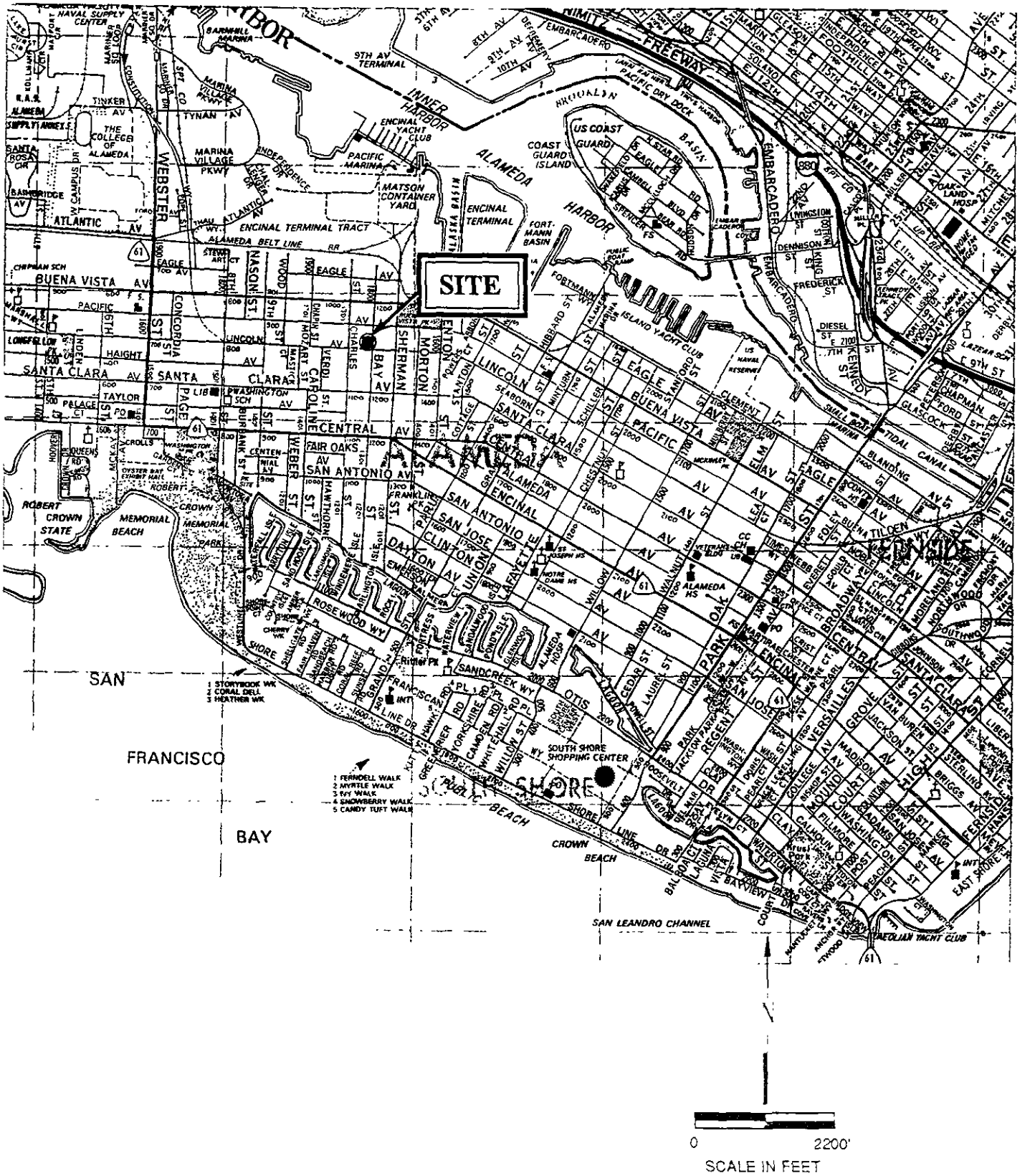

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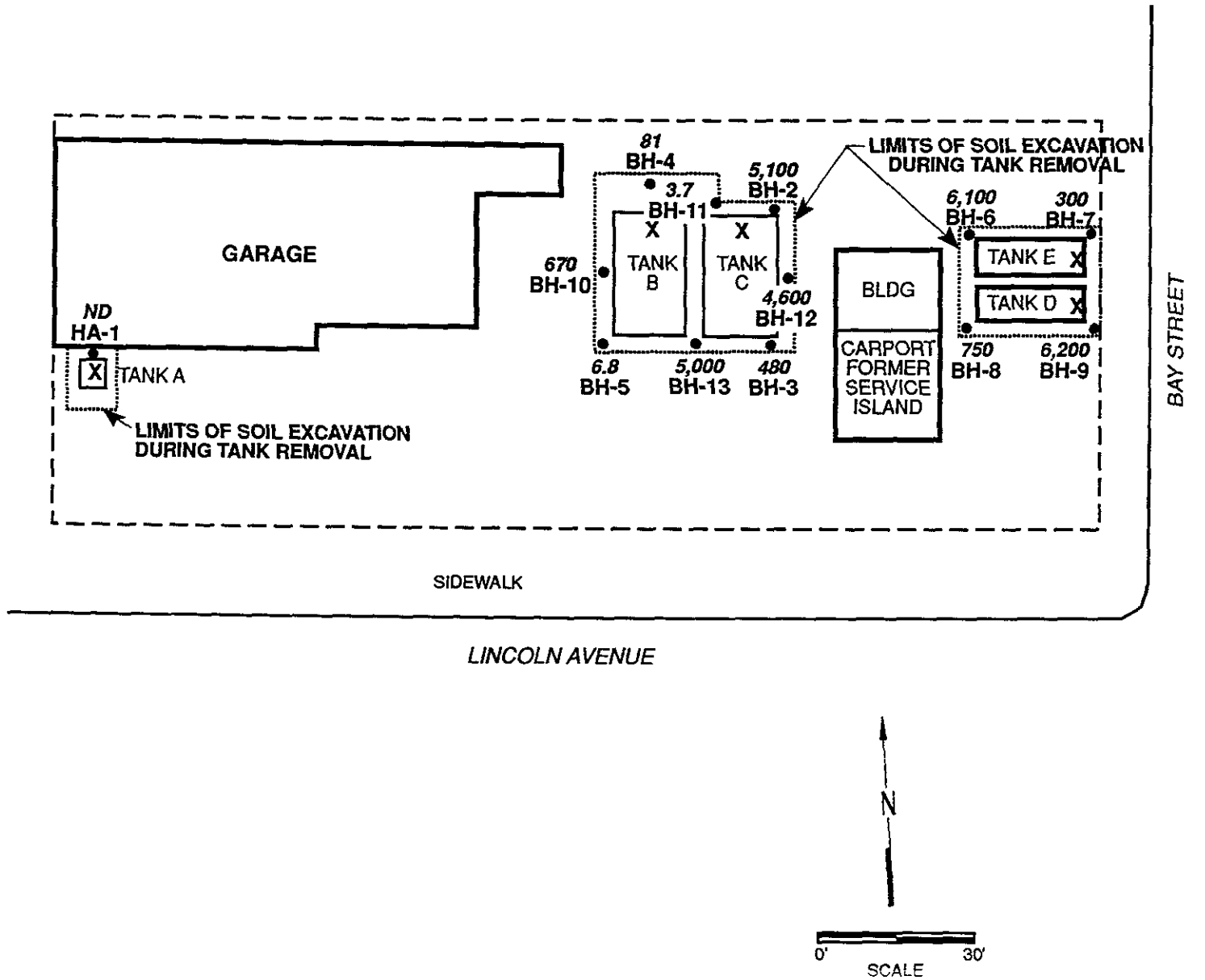
FIGURE 1-2
SITE MAP
LEWIS BAY STREET SERVICE STATION
ALAMEDA, CA



LEGEND

- ● SOIL SAMPLING LOCATION (9/11/89)
- *5,100* TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE
- *ND* BELOW REPORTING LIMIT
- X TANK FILL LOCATION

NOTE: INFORMATION TAKEN FROM ENVIRONMENTAL BIOSYSTEMS, 1990

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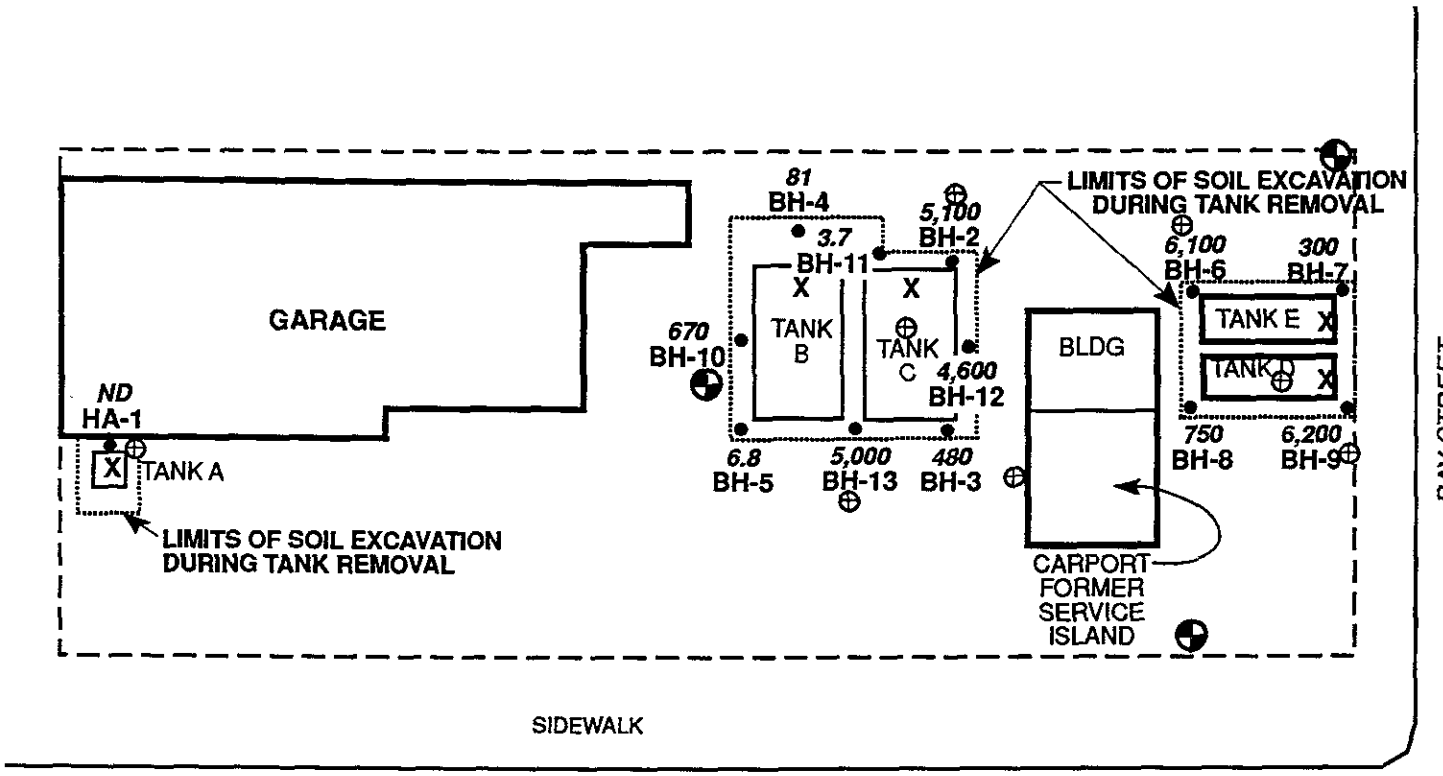
FIGURE 2-1
PROPOSED SOIL BORING AND
MONITORING WELL LOCATIONS
LEWIS BAY STREET SERVICE STATION
ALAMEDA, CA



LEGEND

- • SOIL SAMPLING LOCATION (9/11/89)
- *5,100* TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE
- *ND* BELOW REPORTING LIMIT
- X TANK FILL LOCATION
- ⊕ PROPOSED SOIL BORING LOCATION
- ◒ PROPOSED MONITORING WELL LOCATION

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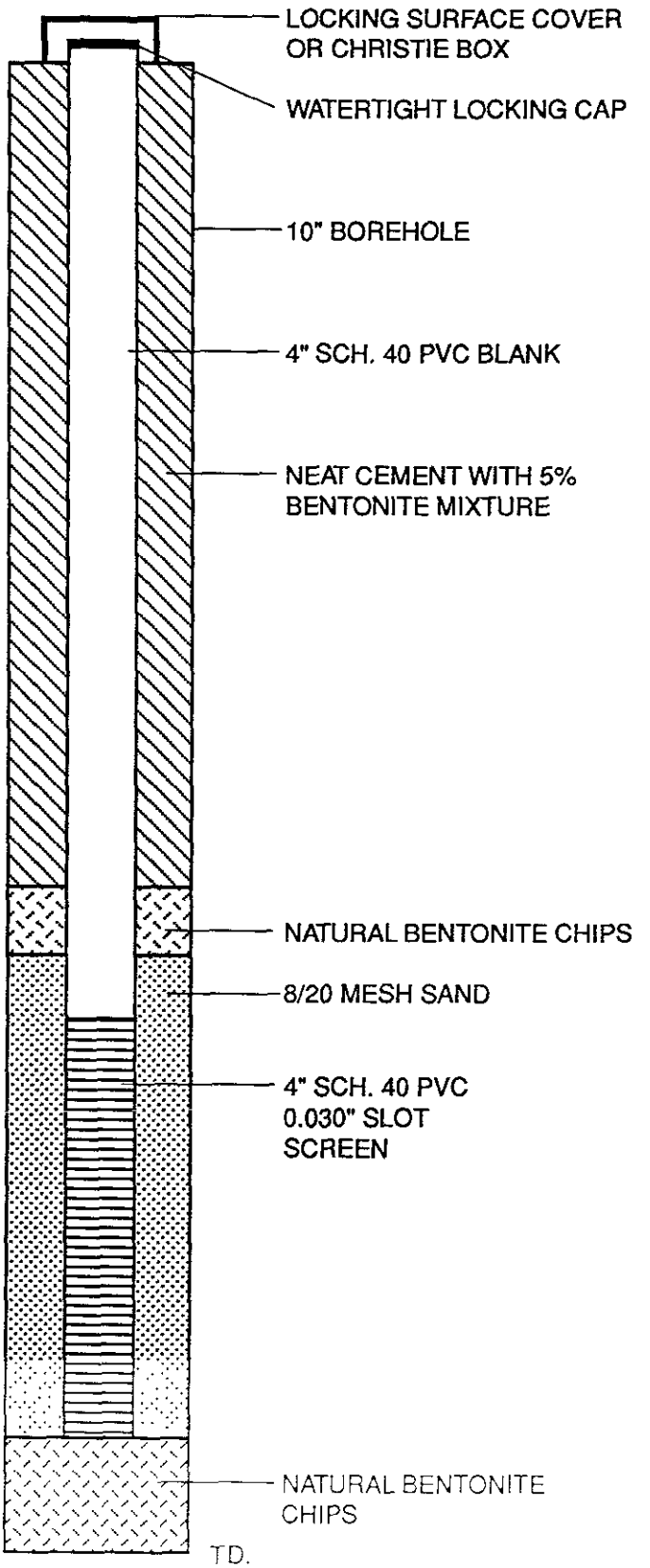
FIGURE 2-2
TYPICAL MONITORING WELL



NOT TO SCALE

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FIGURE 4 - 1

SCHEDULE FOR PHASE I INVESTIGATION

LEWIS BAY STREET SERVICE STATION, ALAMEDA, CA

Description	weeks 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Submit Workplan to Alameda County Department of Environmental Health	x																			
Receive Approval from Alameda County Department of Environmental Health			x																	
Give Property Owner Two Week Notice of Scheduled Field Activities			x																	
Task 2 -- Historical Environmental Review of Subject and Adjacent Properties		x	x	x																
Task 3 -- Drill and Sample Eleven Soil Borings					x															
Task 4 -- Install and Sample Four Groundwater Monitoring Wells																				
-Obtain Well Permit			x																	
-Conduct Utility Clearance					x															
-Drill and Develop Wells					x	x														
-Survey Wellheads						x														
-Sample Wells							x													
Task 5 -- Prepare Data Report With Investigation Findings							x	x	x	x	x									
-Submit Report to Texaco											x									
-Submit Report to Alameda County Department of Environmental Health													x							

TABLE 1

SUMMARY OF SOIL ORGANIC COMPOUND ANALYSES
LEWIS BAY STREET SERVICE STATION, ALAMEDA, CALIFORNIA

Sample Location	Sample Designation[1]	Sample Depth (Feet)	Compund (mg/Kg - parts per million) TOG	TPH/D	TPH/G	Benzene	Toluene	Xylenes	Ethylbenzene	Acetone
Tank A (Center)	HA-1	7.5	--	--	--	--	--	--	--	0.61
Tank B (North End)	BH-4	10.5	N/A[2]	N/A	81	0.7	1.0	5.5	1.5	N/A
Tank B (South End)	BH-5	10.5	N/A	N/A	6.8	0.3	0.5	0.8	0.3	N/A
Tank B (West End)	BH-10	10.0	N/A	N/A	670	2.9	8.3	110	22	N/A
Tank B and C (South End)	BH-13	11.0	N/A	N/A	5,000	21	200	380	150	N/A
Tank C (North End)	BH-2	11.0	N/A	N/A	5,100	84	180	500	150	N/A
Tank C (North End)	BH-11	12.0	N/A	N/A	3.7	--	0.1	0.5	0.1	N/A
Tank C (South End)	BH-3	11.0	N/A	N/A	480	2.0	23	43	11	N/A
Tank C (East End)	BH-12	11.0	N/A	N/A	4,600	42	220	350	160	N/A

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TABLE 1

SUMMARY OF SOIL ORGANIC COMPOUND ANALYSES
LEWIS BAY STREET SERVICE STATION, ALAMEDA, CALIFORNIA
(continued)

Sample Location	Sample Designation[1]	Sample Depth (Feet)	Compund (mg/Kg - parts per million) TOG	TPH/D	TPH/G	Benzene	Toluene	Xylenes	Ethylbenzene	Acetone
Tank D (West End)	BH-8	8.5	N/A	N/A	750	15	56	120	21	N/A
Tank D (East End)	BH-9	8.5	N/A	N/A	6,200	240	740	1,000	180	N/A
Tank E (West End)	BH-6	8.0	N/A	N/A	6,100	93	430	610	140	N/A
Tank E (East End)	BH-7	8.0	N/A	NA	300	6.6	22	48	8.5	N/A

[1] HA Indicates hand auger sample; BH indicates backhoe sample.
-- means below reporting limit.

[2] N/A Sample not analyzed for this compound.

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TABLE 2

SUMMARY OF METAL ANALYTICAL RESULTS
LEWIS BAY STREET SERVICE STATION, ALAMEDA, CALIFORNIA
(mg/Kg - parts per million)

Metal	STLC[1]	TTLC[2]	Standard Reporting Limit	Common Range For Soils[3]	Selected Average For Soils[3]	Sample HA-1 7.5 Feet
Cadmium	1.0	100	0.01	0.01-0.70	0.06	--
Chromium (Total)	560	2,500	0.02	1-1,000	100	11
Lead	5.0	1,000	0.01	2-200	10	5
Zinc	250	5,000	0.05	10-300	50	22

[1] Soluble Threshold Limit Concentration, California Code of Regulations, Title 22

[2] Total Threshold Limit Concentration, California Code of Regulations, Title 22

[3] Lindsay, W. L., 1979, Chemical equilibria in Soils, John Wiley & Sons.

-- means below reporting limit.

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APPENDIX I

CITY OF ALAMEDA FIRE DEPARTMENT RECORDS AND SITE CHRONOLOGY FROM PROPERTY OWNER

Fire Dept

UNDERGROUND TANK REMOVAL - 1127 LINCOLN AVE.
SEPTEMBER 11, 1989

QUANTITY - 5 TANKS
2 - 4,000 FUEL
2 - 1,000 FUEL
1 - 550 BULK OIL

TANK REMOVAL COMPANY: ZACCOR PH: 363-2181

TRANSPORT COMPANY: H&H SHIP SERVICE COMPANY PH: 543-4835

MANIFEST #: 89495209

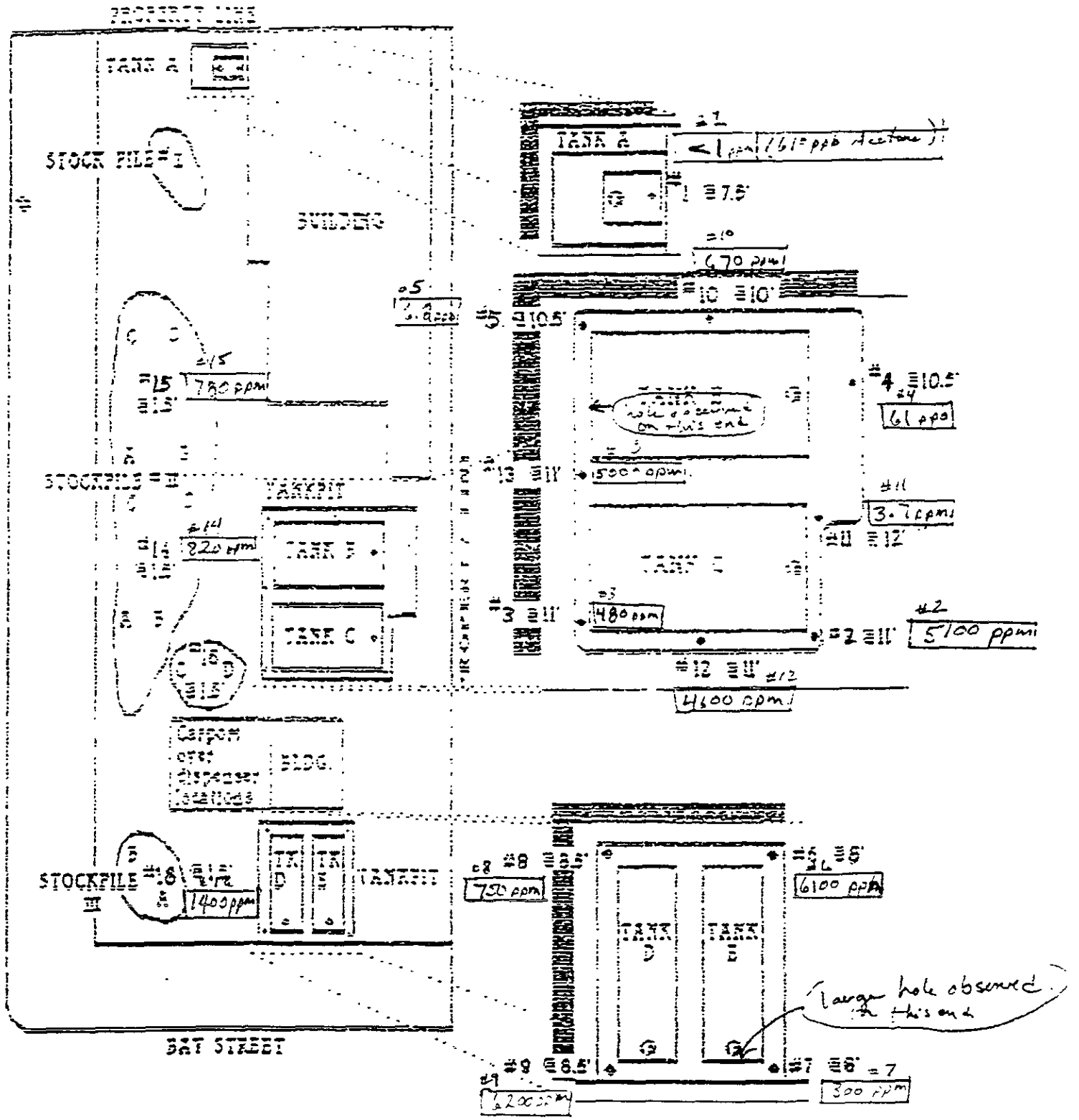
EPA #: CAD004771168

LOCATION OF DISPOSAL: 220 CHINA BASIN ST.
SAN FRANCISCO, CA 94107

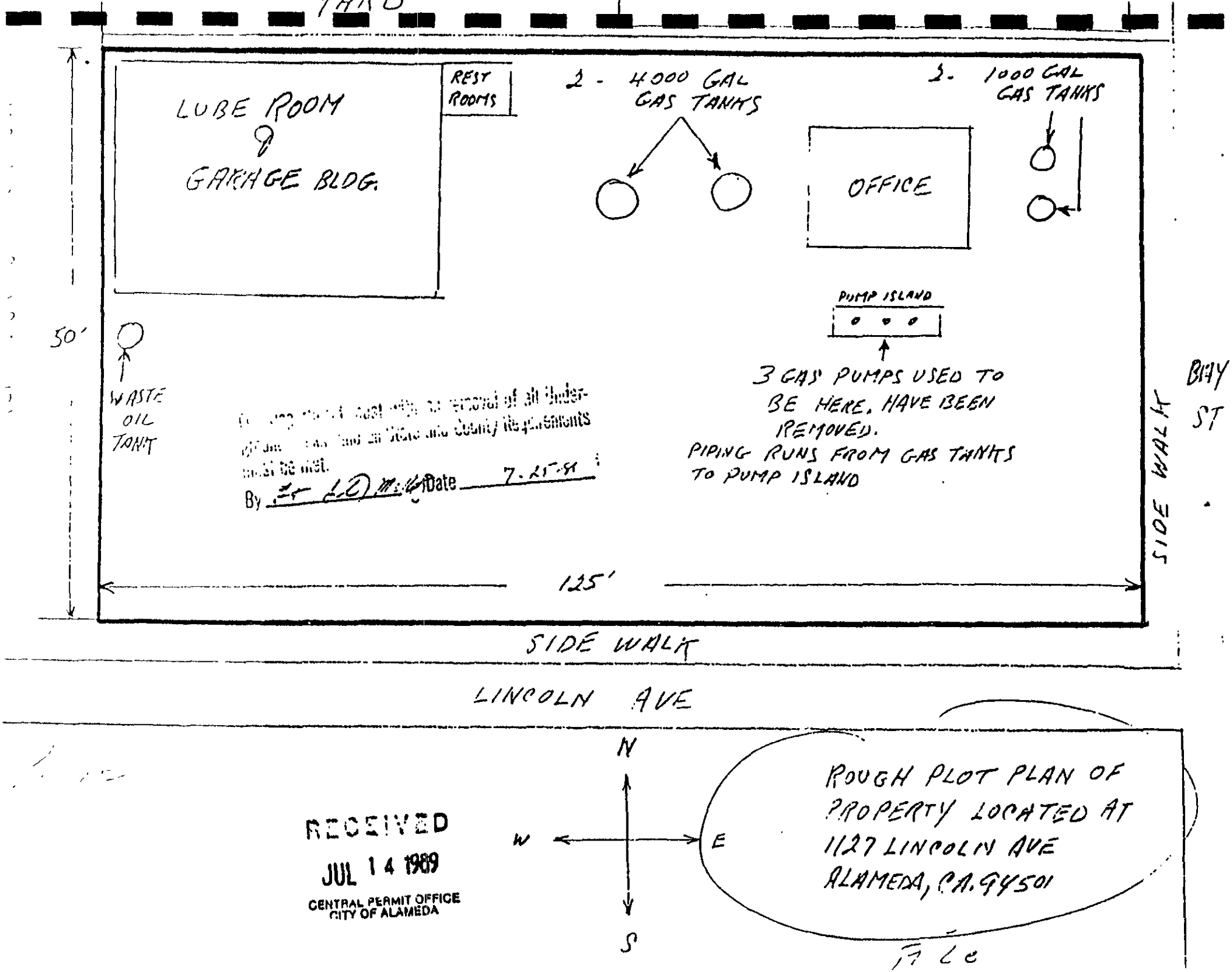
COMPANY TAKING SAMPLE: ENVIRONMENTAL BIO SYSTEM

INSPECTOR: RANDY MILLER

Randell Miller
INSPECTOR RANDY MILLER



ZACCOR ©
LEWIS BAY SERVICE STATION
1127 LINCOLN AVE.
ALAMEDA, CA.



By _____ Date 7-25-89

RECEIVED
JUL 14 1989
CENTRAL PERMIT OFFICE
CITY OF ALAMEDA

ROUGH PLOT PLAN OF PROPERTY LOCATED AT 1127 LINCOLN AVE ALAMEDA, CA. 94501

File

Location [illegible]

Name Texaco Service Station

Oil Storage Permit _____ No. 51 ✓

Liquid gasoline Gallons 1-4000 gal.

Date Issued June 13 1955 Gauge _____

Installation 4 ft underground

Inspected By _____

Remarks 2 existing 1000 gal. tanks will be removed (per letter of June 13, 1955) No letter on file stating installation of 1000 gal. tanks. Only record shown on attached card dated 6-26-33.

NOTE: See file on Tank Installations - letter dated June 13, 1955

Location Bay Street & Lincoln Ave

Name Texaco Service Station

Oil Storage Permit Chief Thomas M. Lane No. 22 ✓

Liquid gasoline Gallons 1-4000 gal tank

Date Issued Nov. 3 1952 Gauge No. 7

Installation 4 ft underground from top of tank

Inspected By Capt. Waterbury

Remarks _____

NOTE: See file on Tank Installations - letter dated Nov 3, 1952

Location 1127 Lincoln Ave.

Name Mr. Henry Michels

Oil Storage Permit TML No. 469

Liquid Gasoline Gallons 2,200

Date Issued June 26,1933 Gauge _____

Installation 4 Tanks Underground; One Gas Buggy

Inspected By TML

[illegible] changed to 4-1000 gal tanks 4-550's

"SITE CHRONOLOGY PROVIDED BY THE PROPERTY OWNER"

CHRONOLOGY

1931 - Texaco station at 1127 Lincoln Avenue, Alameda was built in 1931 by Henry Michaels. It was leased to Texaco and sold Texaco products.

1946 - I subleased this station in February from Texaco, Inc.

1957 - I acquired the master lease from station owner Henry Michaels.

1965 - I purchased the station and property from Henry Michaels.

1974 - I informed Texaco (Richmond office) by telephone and by mail that one of the 4000 gallon underground storage tanks was taking on water. Texaco sent out maintenance person to pump water out of the tank. Texaco followed this procedure each time they were notified of a seepage.

1975 - Texaco provided a new 4000 gallon tank. I paid for the installation Texaco charged me $10.00 for it ($1.00 a year for a period of 10 years).

1980 - On June 30, 1980 Texaco sold me the following items:

1 Ingersoll Rand Air Compressor
2 Coxwells
3 Bennett Computing Pumps
1 Western Hoist
2 1000 gallon underground fuel tanks
1 4000 gallon underground fuel tank

All above items were sold to me for the sum of $424.00

1982 - Texaco sold to me, for the sum of $1.00, the 4000 gallon fuel tank which was replaced in 1975.

1984 - In 1984 the EPA came out with the first regulations concerning underground storage tanks (USTs). This means that at least several years of studies and research was being done prior to 1984. Texaco definitely knew of the regulations coming.

1985 - I retired and leased the station to Gene Lewis who decided not sell gasoline. Fuel tanks were abandoned.

1989 - Tanks were removed and contaminated soil was excavated and partly disposed of as hazardous waste. All work was directed by an environmental consultant.

1990 - Obtained soil aeration permit from the Bay Area Air Quality Management District. Remaining contaminated soil treated on site and disposed of at class III dump site. Expenses to-date approximately $60,000.00. Residual contamination requires soil vapor study and possible vapor extraction systems. Site also requires a minimum of 3 groundwater monitoring wells.

APPENDIX II

SITE HEALTH AND SAFETY PLAN

TEXACO - ALAMEDA
SITE SAFETY AND HEALTH PLAN

CLIENT: Texaco Refining & Marketing,Inc. **SITE NAME:** Lewis Bay Street Service Station

PROJECT/TASK ID#: 88705-001 **ADDRESS:** 1127 Lincoln Avenue Alameda, CA 94501

DATE: November 29, 1990 **PLAN EXPIRATION DATE:** February 29, 1991

	Name	Signature	Date
PROJECT MANAGER:	Julie Menack	Julie Menack	11/30/90
IH REVIEW:	Rene Ricks	Rene Ricks	11/30/90
REHSC:	Roxanne Morocco	Roxanne Morocco	11-29-90
FIELD SUPERVISOR/ SITE SAFETY OFFICER	Herb Hirschfeld	Herb Hirschfeld	11/30/90
SUBCONTRACTOR(S):	Cache Creek Drilling		

1031dan2

DISCLAIMER

This Site Safety and Health Plan has been written for the use of McLaren/Hart and its employees. It may also be used as a guidance document by properly trained and experienced McLaren/Hart subcontractors. However, McLaren/Hart does not guarantee the health or safety of any person entering this site.

Due to the potentially hazardous nature of this site and the activity occurring thereon, it is not possible to discover, evaluate, and provide protection for all possible hazards which may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury at this site. The health and safety guidelines in this plan were prepared specifically for this site and should not be used on any other site without prior research by trained health and safety specialists.

McLaren/Hart claims no responsibility for this use by others. The Plan is written for the specific site conditions, purpose, dates, and personnel specified and must be amended if these conditions change.

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1.0 GENERAL PROJECT AND PERSONNEL INFORMATION

1.1 Introduction and Project Identification

This plan has been prepared in conformance with the California Department of Health Services Toxic Substances Control Division Site Safety Plan Guidance Document (8/88) and 29 CFR 1910.120. It addresses all those activities associated with the scope of work stated below and will be implemented by the Site Safety Officer (SSO) during site work. Compliance with this Site Safety and Health Plan (SSHP) is required of all persons and third parties who enter this site. Assistance in implementing this plan can be obtained from the Site Safety Officer and Project Manager, and/or the Regional Environmental Health and Safety Coordinator (REHSC). The content of this SSHP may change or undergo revision based upon additional information made available to health and safety (H&S) personnel, monitoring results or changes in the technical scope of work. Any changes proposed must be reviewed by H&S staff and are subject to approval by the REHSC and Project Manager.

SITE NAME: Lewis Bay Street Service Station TASK NO.: 88705-001

SCHEDULED DATES OF SITE WORK: Nov 1990 - Jan 1991

SCOPE OF WORK: Soil vapor survey; drilling and soil sampling; monitoring well construction; and groundwater sampling

1.2 Key McLaren/Hart Personnel

The McLaren/Hart personnel designated as the project manager and Site Safety Officer are as indicated with telephone numbers:

Project Manager	Julie Menack	(415) 521-5200
Site Safety Officer	Herb Hirschfeld	(415) 521-5200
Regional Health and Safety Coordinator	Roxanne Morocco	(415) 521-5200

See Table 1-1 and Section 1.4 for a complete list of personnel, their responsibilities, and training requirements.

1.3 Key Phone Numbers

The following briefly lists key phone numbers for emergency and non-emergency contacts. A more complete list is provided in Attachment 7.

Local Fire/Police Dept.	Emergency Services	911
Alameda Hospital	Local Hospital	(415) 522-3700
HAZMAT	National Response Center	(800) 424-8802
S.F. Bay Area Poison Cont	Poison Control Center	(800) 523-2222
Ellis Wallenberg III	Regional Manager	(415) 521-5200
Herb Hirschfeld	Field Supervisor	(415) 521-5200
R.R.Zielinski & G.Jacobson	Client Contact	(415) 236-1770
Rose Coughlin	Client Contact	(818) 505-2719
Cache Creek Drilling	Subcontractor	(916) 661-9027
To Be Determined	Subcontractor	

TABLE 1-1

PERSONNEL, QUALIFICATIONS, AND RESPONSIBILITIES

TITLE	GENERAL DESCRIPTION	SPECIFIC RESPONSIBILITIES	REQUIRED TRAINING
Project Manager Julie Menack	Reports to upper-level management. Has authority to direct response operations. Assumes total control over site activities.	• Prepares and organizes the background review of the job at hand, the Work Plan, the Site Safety Plan, and the field team. • Obtains permission for site access and coordinates activities with appropriate officials. • Ensures that the work plan is completed and on schedule. • Briefs the field teams on their specific assignments. • Uses the Site Safety and Health Officer to ensure that safety and health requirements are met. • Prepares the final report and support files on the response activities. • Serves as the liaison with public officials.	• 40-hr. Hazardous Wastes Training including 8-hr supervisor update (29 CFR 1910.120)
Site Safety Officer/ Alternate Site Safety Officer* Herb Hirschfeld	Advises the Project Team Leader on all aspects of health and safety on-site. Recommends stopping work if any operation threatens worker or public health or safety.	• Coordinates safety and health program activities with the Scientific Advisor. • Monitors the work parties for signs of stress, such as cold exposure, heat stress and fatigue. • Monitors on-site hazards and conditions. • Participates in preparation of and implements the Site Safety Plan. • Ensures that protective clothing and equipment are properly stored and maintained. • Knows emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department. • Notifies, when necessary, local public emergency officials. • Coordinates emergency medical care.	• 40-hr Hazardous Wastes Training including 8-hr update (29 CFR 1910.120) • Respirator use training • Medical surveillance participant
Public Information Officer Julie Menack	Reports to upper-level management and Project Manager.	• Release information to the news media and the public concerning site activities.	Not applicable

*Any team member may act as an alternate for the team leader and/or security officer.

TABLE 1-1
(Continued)

PERSONNEL, QUALIFICATIONS, AND RESPONSIBILITIES

TITLE	GENERAL DESCRIPTION	SPECIFIC RESPONSIBILITIES	REQUIRED TRAINING
Security Officer Herb Hirschfeld	Advises Field Operations Leader. Manages site security.	• Controls entry and exit at the Access Control Points.	• 40-hr Hazardous Wastes Training including 8-hr. update (29 CFR 1910.120) • Respirator use training • Medical surveillance participant
Field Supervisor Herb Hirschfeld	Responsible for field team operations and safety. Reports to Project Manager.	• Manages field operations. • Executes the Work Plan and schedule. • Enforces safety procedures. • Coordinates with the Site Safety Officer in determining protection level. • Enforces site control. • Documents field activities and sample collection. • Serves as liaison with public officials.	• 40-hr Hazardous Wastes Training including 8-hr. update (29 CFR 1910.120) • Respirator use training • Medical surveillance participant
Team Members Scott Allin Louie Malixi Sheryl Brown Chris Walsh Colette Shelly Mark Johnson Chris Giuntoli Mark Christensen Herb Hirschfeld John Love	Report to Field Team Leader. Contains at least two people. For drilling purposes Team Members consist of a McLaren/Hart geologist, a drilling foreman and helpers.	•Safely completes the on-site tasks required to fulfill the Work Plan •Complies with Site Safety Plan. •Notifies the Site Safety Officer or supervisor of unsafe conditions	• 40-hr Hazardous Wastes Training including 8-hr. update (29 CFR 1910.120) • Respirator use training • Medical surveillance participant

1.4 Additional Authorized Site Personnel

Personnel authorized to enter the Texaco Alameda site while operations are being conducted must be approved by the REHSC. Authorization will involve completion of appropriate training courses and medical examination requirements as required by OSHA 29 CFR 1910.120 and/or other applicable regulations and review and sign-off of this SSHP. All personnel must utilize the buddy system or trained escort, and check in with the Field Supervisor at the Command Post.

Additional McLaren/Hart or Subcontractor Personnel Authorized to Perform Work On-site (not previously listed in Section 1.2):

Name	Training	REHSC Initials
1.	40-hr. 29 CFR 1910.120/8-hr. update	
2.		
3.		
4.		

2.0 SITE INFORMATION

2.1 Site Description:

The site presently consists of a small auto repair facility located at the corner of Bay and Lincoln in Alameda, California in a mixed light commercial and residential area. There is moderate local traffic on Lincoln Avenue.

2.2 Site Map(s):

See Attachment 1 for site maps and general directions to the site.

2.3 Background Information:

Initial Site Entry: None

Information Obtained:

Texaco formerly operated a retail gas station at the site. Four gasoline tanks and one waste oil tank have been excavated. A summary of soil contaminant levels has been provided by the RWQCB (Regional Water Quality Control Board) and is listed in Table 2-1.

TABLE 2-1

KNOWN CONTAMINANTS*

Contaminant	Source of Contamination	Source of Sample	Maximum Concentration (ppm)[2]
TPH-G[1]	Tank leaks	Soil	6,200
Benzene	Tank leaks	Soil	240
Toluene	Tank leaks	Soil	740
Xylenes	Tank leaks	Soil	1,000
Ethylbenzene	Tank leaks	Soil	180

* Source of data: Environmental Bio-Systems, Inc.
Date of sampling: September 1989

[1]TPH-G: Total petroleum hydrocarbons as gasoline
[2]ppm: Parts of contaminant per million parts of soil

2.4 Current Site Status

- Site status:

  _____ Abandoned

  ____X__ Occupied

- Previous McLaren/Hart work on site?____None_____

- Adjoining McLaren/Hart work sites? ____No_____

- Is this site subject to regulatory agency oversight?___Yes____

  By whom? Alameda County Health Department

2.5 Description of Operable Units (OUs):

The operable unit concept is useful for co-located facilities with different contamination, large sites, and sites having complex contamination from multiple sources. For remedial investigation and risk assessment purposes, it may be useful to divide a site into operable units based upon consideration of:

- the location of high priority stations,
- the chemicals of concern,
- the potential environmental transport pathways, and
- the potential future uses of the land.

Is the "operable unit" concept applicable to this site? _No_____

3.0 PROJECT WORK PLAN

3.1 Purpose of Site Work

The purpose of site work is to characterize the extent and level of groundwater and soil contamination.

3.2 Description of Job Tasks

On-site tasks in order of execution:

1. Perform utility clearance.
*2. Perform soil vapor survey.
*3. Drilling of soil borings and monitoring wells.
4. Collection and analysis of soil samples.
*5. Contain soil and groundwater wastes.
*6. Steam clean auger and drill.
7. Perform groundwater sampling.

* Tasks to be performed by subcontractor(s) under McLaren/Hart supervision.

Are any off-site tasks planned? Yes

Describe: Soil vapor sampling, well construction, and water sampling will be performed at a later date.

3.3 Utility Clearance

- To be performed by: McLaren/Hart Personnel or Subcontractor
- Date to be performed: November 1990
- The Utilities Clearance Checklist Form (Attachment 2) must be completed and returned to the Regional Environmental Health and Safety Coordinator.
- Map identifying utilities (Attachment 3) must be completed and returned to the Regional Environmental Health and Safety Coordinator.

4.0 TASK-SPECIFIC SAFETY AND HEALTH RISK ANALYSIS

4.1 Hazard Analysis

Potential exposure pathways, chemical hazards, and physical hazards are all involved in an analysis of risk. See Table 4-1 for a risk analysis of each of the tasks to be performed. Overall, the physical and chemical hazards are as summarized below:

Physical hazards are associated with:

- The use of heavy equipment (moveable parts, potential for contact with utilities, noise, etc.)
- The potential for contact with overhead power lines during drill rig operations.
- The potential for slippery surfaces due to oil slicks which may be present on the pavement in front of the auto repair shop.
- Vehicular traffic due to the close proximity of work (all tasks) to the moderate traffic flow on Lincoln Ave.

Chemical hazards are associated with:

- The potential for inhaling contaminant vapors from contaminated soil and water.
- The potential for dermal exposure from contaminated soil and water.

The overall hazard is MODERATE.

4.2 Chemical Hazards

Chemical contaminants listed in Table 2-1 may or may not present health hazards to field personnel. The concentration of the contaminant, extent of area contaminated, and the likelihood of exposure all must be considered. An assessment of the chemicals of concern, including exposure limits, odor thresholds, volatility, and health effects, is presented in Table 4-2.

TABLE 4.1
RISK ANALYSIS OF JOB TASKS

TASKS SCHEDULED[a]	MEDIA OF CONCERN	POTENTIAL EXPOSURE PATHWAYS[b]	PHYSICAL HAZARDS[c]	CHEMICAL HAZARDS/ POTENTIAL CHEMICALS OF CONCERN[d]
1. Perform utility clearance	---	---	T,S	---
2. Perform soil vapor survey	Soil	Inh(v), Derm	U,H,S,T,E	TPH-G, BTEX
3. Drill borings & wells	Soil; Groundwater	Inh(v), Derm	U,H,S,N,O,E,T	TPH-G, BTEX
4. Collect soil samples	Soil	Inh(v), Derm	S,T	TPH-G, BTEX
5. Contain wastes	Soil; Groundwater	Inh(v), Derm	S,L,T	TPH-G, BTEX
6. Steamclean	Soil	Inh(v), Derm	S,N,H,T	TPH-G, BTEX
7. Sample groundwater	Groundwater	Inh(v), Derm	S,L,T	TPH-G, BTEX

a TASKS:

See Section 3.2 for a complete description of job tasks

b EXPOSURE PATHWAY:

Inh = Inhalation
(P) = Particulate Inhalation
(V) = Vapor Inhalation
Derm = Dermal

SEE NEXT PAGE FOR CONTINUATION OF FOOTNOTES

[c] PHYSICAL HAZARDS:

U = Utilities
H = Heavy Machines
S = General Safety: slip, trip, fall
N = Noise
O = Overhead Hazards
I = Illumination Limited
E = Explosivity
T = Traffic
L = Lifting

[d] POTENTIAL CHEMICALS OF CONCERN

TPH-G = Total petroleum hydrocarbons as gasoline
BTEX: = Benzene, toluene, ethylbenzene, xylenes

Table 4.2

ASSESSMENT OF CHEMICALS OF CONCERN

Chemical Name (or class)	PEL/TLV[1]	Other Pertinent Limits[2] (Specify)	Odor Threshold (if any)	Volatility[3]	Acute Health Effects	Chronic Health Effects	Carcinogen[4]
1. Total Petroleum hydrocarbons	---	---	<1 ppm	High	Lightheadedness; drowsiness; eye and nose irritation	Respiratory damage; CNS effects	No
2. Benzene	1/10 ppm	Ceiling=50 ppm	12 ppm*	High	Eye or skin irritant; narcotic; anesthetic	Bone marrow & blood cell damage (leukemia)	Yes
3. Xylene	100/100 ppm	STEL=150 ppm	1 ppm	High	Respiratory irritant; blurred vision; dizziness nausea; collapse, coma	CNS effects; liver and kidney damage; dermatitis	No
4. Toluene	100/100 ppm	STEL=150 ppm	3 ppm	High	Skin & eye irritant; CNS effects; fatigue	CNS effects; liver and kidney damage; dermatitis	No
5. Ethylbenzene	100/100 ppm	STEL=125 ppm	2 ppm	High	Eye, skin, & mucous membrane irritant; dizziness, ataxia	CNS effects; liver and kidney damage	No

1 OSHA Permissible Exposure Limit (PEL)/American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV). Both values represent time-weighted average concentrations for an 8-hr. workday.

2 Other Pertinent Limits:

STEL = ACGIH or OSHA 15-minute Short-term Exposure Limit
Ceiling = OSHA's maximum exposure concentration for which an employee shall not be exposed during any period without respiratory protection.

3 Ranked on basis of vapor pressure (VP) and Henry's Constant (HC), which defines partitioning between the water phase and the gas phase.

High = Highly Volatile: VP > 10mmHg; HC > 10^{-3} atm-m^3/mole
Moderate = Moderately Volatile: VP between 10^{-3} and 10mmHg; HC between 10^{-5} and 10^{-3} atm-m^3/mole
Slight = Slightly Volatile: VP between 10^{-5} and 10^{-3} mmHg; HC between 10^{-7} and 10^{-5} atm-m^3/mole
Non-Vol = Non-Volatile: VP < 10^{-5} mmHg; HC <10^{-7} atm-m^3/mole

SEE NEXT PAGE FOR CONTINUATION OF FOOTNOTES

4 Carcinogen

Yes: U.S. EPA **Classification A or B1**
A = Confirmed human carcinogen (sufficient evidence of carcinogenicity in humans)
B1= Probably human carcinogen (sufficient animal evidence with limited human evidence)

Suspect: U.S. EPA **Classification B2**
B2= Probably human carcinogen (sufficient animal evidence with inadequate or lack of human data)

Experimental: U.S. EPA **Classification C**
C = Possible human carcinogen (limited evidence of carcinogenicity in animals and inadequate or lack of human data)

No: U.S. EPA **Classification D or E**
D = Not classified (inadequate or no evidence)
E = Evidence of noncarcinogenicity

4.3 Non-Chemical Hazards

The following checklist notes non-chemical hazards identified for at least one of the described job tasks outlined in Section 3.2:

	No	Yes	Which Tasks?
Electrical hazard			
Overhead power lines		X	Drilling
Underground cable/ power lines		Possible	To Be Determined during utility clearance.
Gas lines/Water lines		X	Drilling, soil vapor survey.
Equipment hazards			
Drilling		X	Drilling
Excavation	X		
Machinery		X	Drilling, steam cleaning soil vapor survey (rotary) hammer)
Heat exposure	X		
Cold exposure	X		
Oxygen deficiency	X		
Confined spaces	X		
Noise		X	Drilling, steam cleaning
Ionizing	X		
Non-ionizing radiation	X		
Lasers			
Infrared			
Ultraviolet			
Fire	X		
Biologic	X		
Safety			
Holes/ditches	X		
Steep grades	X		
Slippery surfaces		X	
Uneven terrain	X		
Unstable surfaces	X		
Elevated work surfaces	X		
Explosive Atmosphere		X	Drilling, soil vapor survey
Shoring/Scaffolding	X		
Other:			

5.0 SITE HEALTH AND SAFETY STANDARD OPERATING PROCEDURES

5.1 Applicable Maps:

Site Map(s) -- See Attachment 1
Utilities Map -- See Attachment 3
Hospital Route Map -- See Attachment 4

5.2 Site Security and Exclusion Zones

- Work Area Access:
  Barricades and/or caution tape

- Work Area Security:
  McLaren/Hart Site Security Officer

- Work Site Definition:
  Area: (1) within a 30-ft. radius of a drill rig or a rotary hammer plus additional areas within barricades, cones and/or caution tape; or (2) within a 10-ft. radius of a hand augering location or groundwater monitoring well if drilling/boring equipment is *not* co-located.

- Work Site Perimeter Identification Method:
  Barricades and/or caution tape

- On-site Command Post:
  McLaren/Hart truck cab

- Site Work Zone Requirements:

  Exclusion Zone: Work site as described above
  Contamination Reduction Zone: Outside work site zone
  Support Zone: McLaren/Hart truck cab

- Communication:

  - Contact of off-site office personnel by on-site personnel:
    by phone or 2-way radio

  - Contact of on-site personnel by off-site office personnel:
    by 2-way radio or pager

- **Confined Space Entry?** NO

5.3 Personal Protective Equipment (PPE) Requirements

All tasks require level D protection unless direct reading instruments and/or colorimetric tubes indicate otherwise. See Table 5-1 for specifics.

Table 5-1

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

TASKS[a]	PPE[b] SUIT	GLOVES	FEET	HEAD	EYE	EAR	LEVEL OF[c] RESPIRATOR	LEVEL OF[c] PROTECTION	PPE UPGRADE	ADDITIONAL[b] MONITORING[d] FOR UPGRADE	EQUIPMENT
1. Utility Clearance	Std	---	Steel	HH	Safety	---	---	D	---	---	---
2. Perform soil vapor survey	Std/Tyvek*	NS*	Steel	HH	Safety	---	---	D	C	OV	PID/LEL/CT
3. Drilling; borings and wells	Tyvek/ PE Tyvek*	NS/Work	Steel	HH	Safety	Plugs	---	D	C	OV	PID/LEL/CT
4. Soil Sampling	Tyvek/ PE Tyvek*	NS/V	Steel	HH	Safety	(Plugs)	---	D	C	OV	PID/LEL/CT
5. Contain Wastes	Std/ PE Tyvek*	NS	Steel	HH	Safety	---	---	D	C	OV	PID/LEL/CT
6. Steam Cleaning	Tyvek	NS	Steel	HH	Safety	Plugs	---	D	C	OV	---
7. Groundwater Sampling	Std/ PE Tyvek*	NS	Steel	HH	Safety	---	---	D	C	OV	PID/LEL/CT

Note: Protective equipment assigned in this table may be upgraded or downgraded at any time by the site industrial hygienist, REHSC, or qualified safety officer based upon site conditions and air monitoring results.

SEE THE FOLLOWING PAGE FOR FOOTNOTES.

[a] TASKS SCHEDULED: See Section 3-2 for complete identification of tasks.

[b] PERSONAL PROTECTIVE EQUIPMENT (PPE):

Note: If upgrade is necessary (consult Table 5-4 for monitoring action levels), all discretionary suit and glove PPE become mandatory.

Std = Standard work clothes
Tyvek = DuPont spun polyethylene suit (usually white)
PE Tyvek = Polyethylene-coated Tyvek (usually yellow)
PE Tyvek* = Wear if contact with wet soil or water is anticipated or encountered
Work = work gloves (canvas, leather)
(Work) = optional use of work gloves
NS = Nitrile-Solvex gloves or neoprene-laytex gloves
NS* = Wear if contact with wet soil or water is anticipated or encountered
N = Nitrile (thick) gloves
V = Vinyl gloves may be used briefly for soil texturing purposes
Steel = Steel-toed boots
Steel^{+} = Steel-toed plus (+) PVC (polyvinyl chloride) booties or the use of Neoprene or Butyl Rubber boots if contact with contaminated soils and or water is anticipated or encountered
Steel^{++} - Mandatory use of PVC booties, Neoprene boots, or Butyl Rubber boots
HH = Hard Hat
(HH) = wear hard hat if contact with overhead hazards anticipated or if near drill rig
Safety = Safety glasses or goggles
Shield = Safety face shield or goggles
plugs = ear plugs or muffs
(plugs) = wear ear plugs or muffs if near drill rig or boring equipment generating high noise
OV = organic vapor cartridges on air purifying respirator

[c] LEVELS OF PROTECTION:

Level A - Self-contained breathing apparatus (SCBA), totally encapsulating suit, two-way radio communications
Level B - SCBA or supplied air respirator (SAR) with an escape bottle, chemically resistant PPE, two-way radio communications
Level C - Full or half-face air-purifying respirator (APR), chemically resistant clothing
Level D - No respiratory protection. Coveralls, safety glasses, hard hat, steel-toed boots, and gloves specified under Level C are required if contact with hazardous materials is probable

[d] MONITORING EQUIPMENT:

PID = photoionization detector with colorimetric tube follow-up (see Table 5-4).
LEL = Combustible gas (lower explosive limit = LEL)/oxygen combination meter
CT = Specific colorimetric tube (see Table 5-4).

5.4 Monitoring Equipment Requirements

Monitoring is to be conducted by the Site Safety Officer or his/her designee. The results shall be interpreted by the Site Safety Officer together with the Regional Environmental Health and Safety Coordinator (REHSC). Monitoring results and calibration logs (Attachments 5 and 6) are to be completed and sent to the REHSC to be filed with the Site Safety and Health Plan.

Monitoring is designed to assess exposure to employees during site activities and to determine if Personal Protective Equipment (PPE) is required and/or adequate to assure protection. Because investigation and remediation activities at hazardous waste sites are of an inconsistent nature, it is not possible to assign a practicing monitoring protocol which excludes or is not directly dependent upon professional judgement to determine when monitoring is required to assess exposure.

Thus, the following generic protocol must be followed at a minimum and should be modified to be more conservative (e.g. require more monitoring) if deemed necessary by the Site Security Officer (SSO) or Regional Environmental Health and Safety Coordinator (REHSC). Under no conditions will the required monitoring frequency decrease.

At a minimum, exposures to suspected chemicals of contamination, as defined in this plan, should be monitored before, during, and after each task/activity. Additional characterization monitoring shall begin immediately <u>if the operation destabilizes, the environment changes, or the potential for exposure is otherwise affected</u>. Monitoring should continue on a continuous basis until the operation is stable and the SSO or REHSC feels that the monitoring is sufficient to adequately assess and characterize exposure during that operation. Upon task/environmental/activity stabilization, periodic monitoring is required to verify the initial exposure assessment to <u>all</u> chemicals.

When the project/task is complete and site exodus is planned, final characterization monitoring must be again performed to determine if controls are required during times when the site is abandoned.

Equipment calibration and use requirements are specified in Sections 5.5 and 5.6.

5.5 Equipment Calibration Requirements

The following summarizes calibration requirements for the equipment specified for at least some of the specified job tasks. See Section 5.4 for task-specific monitoring protocols.

Instrument*	Calibration Frequency
Direct Reading Instruments	Beginning of workday
PID	
LEL/O_2	
Personal Exposure Monitoring	N/A
Colorimetric Tubes	Test pump prior to each day's use
Benzene	
Other equipment	N/A

*Not all job tasks may require monitoring. See Table 5-2 for specific protocols.

5.6 Monitoring Protocols

Task-specific instrument monitoring protocols and contaminant action levels are outlined in Table 5-2. The use of action levels and the basis for the selection of monitoring equipment is as explained below:

Action levels determine:

(1) the field team's selection of personal protective equipment, and
(2) the field team's ability to remain and work within the exclusion (work) zone.

The selection of the specified monitoring equipment is based on:

(1) the nature of the contaminants;
(2) the concentrations of the contaminants;
(3) the likelihood of the contaminants entering the air in significant levels;
(4) the probable duration of exposure; and
(5) the relative sensitivity of the monitoring equipment to the specific contaminants.

Protocol Summary:

All job tasks, excluding the initial utility clearance and auger steam cleaning, require monitoring with a PID instrument, a combustible gas meter ("LEL") and a benzene colorimetric (Draeger) tube prior to and during execution of the tasks. If a PID reading of ≥20 ppm or a benzene reading of ≥0.5 ppm is measured in the breathing zone, a respirator will be donned. Work will cease and the REHSC will be consulted if one of the following occurs: (1) a breathing zone level of ≥200 ppm organic vapor is detected with the PID; (2) ≥1 ppm benzene is detected with a Draeger tube; or (3) ≥20% LEL/<19.5% oxygen is measured.

All results will be recorded on the Direct Reading Report (Attachment 5).

TABLE 5-2 MONITORING PROTOCOLS AND CONTAMINANT ACTION LEVELS

Contaminant/ Atmospheric Condition	Monitoring Equipment	Monitoring Protocol	Breathing Zone Action Level Concentrations	
			Monitored Level for* for Mandatory Respirator Use	Monitored Level** for Mandatory Work Stoppages
Organic Vapors	PID	Prior to and during task; except for Tasks # 1 and 6	20 ppm	200 ppm
Combustible Gases	Combustible Gas + Oxygen Meter	Prior to and during task; except for Tasks # 1 and 6	N/A	≥20% LEL/<19.5% O_2
Benzene	Draeger tube	Prior to and during task; except for Tasks # 1 and 6	0.5 ppm	1 ppm

* Monitoring performed at operator's breathing zone. Monitor at the source first; if the source concentration is near or above the action level concentration, monitor in the breathing zone (approximately one foot from the operator's face).

** Call the Regional Environmental Health and Safety Coordinator for consultation.

5.7 Decontamination Procedures

Depending on the specific job task, decontamination may include personnel themselves, sampling equipment, and/or heavy equipment. The following sections summarize general decontamination protocols.

5.7.1 General Decontamination (Decon) Operating Procedures:

Configure Decon Station as appropriate using Layout in Figure 5-1.

Materials/Equipment Required: See Table 5-3.

- Sampling equipment will be brushed clean and rinsed with distilled water or other appropriate cleaning material.
- Heavy equipment will be high-pressure washed at individual operating unit locations when practical.
- Samples will be dry-wiped prior to packaging.
- Monitoring equipment will be wiped down.
- Vehicles which become contaminated with suspect contaminated soil will be cleaned prior to leaving the site. The wheel wells, tires, sides of vehicles, etc. will be high-pressure washed at a location to be determined by the SSO.
- Spent decon solutions may be required to be drummed and disposed of as hazardous waste and/or solvent solutions may be required to be segregated from water rinses.
- Decontamination shall be performed in a manner that minimizes the amount of waste generated.

5.7.2 Heavy Equipment

Heavy equipment will be decontaminated prior to personnel decontamination. Drillers will steam clean their augers after use. Hand auger buckets will be washed in TSP solution and rinsed in distilled water. Contaminant systems will be set-up for collection of decon fluids and materials. Berms and wind barriers will be set up if appropriate.

5.7.3 Personnel

Use steps and procedures outlined below and in Table 5-4 as guidelines for personnel decontamination.

- Gross wash and rinse: suit wash (where appropriate);
- Tape removal: (where appropriate);
- Outer glove removal;
- Boot removal;
- Suit removal (where appropriate);
- Respirator/hard hat removal (where appropriate);
- Respirator wash (where appropriate);
- Inner glove wash/rinse/removal;
- Inner clothing removal; and
- Field wash and redress.

5.7.4 Samples and Sampling Equipment

Same configuration, equipment and materials as required for Personnel Decontamination. The same decontamination line will be used.

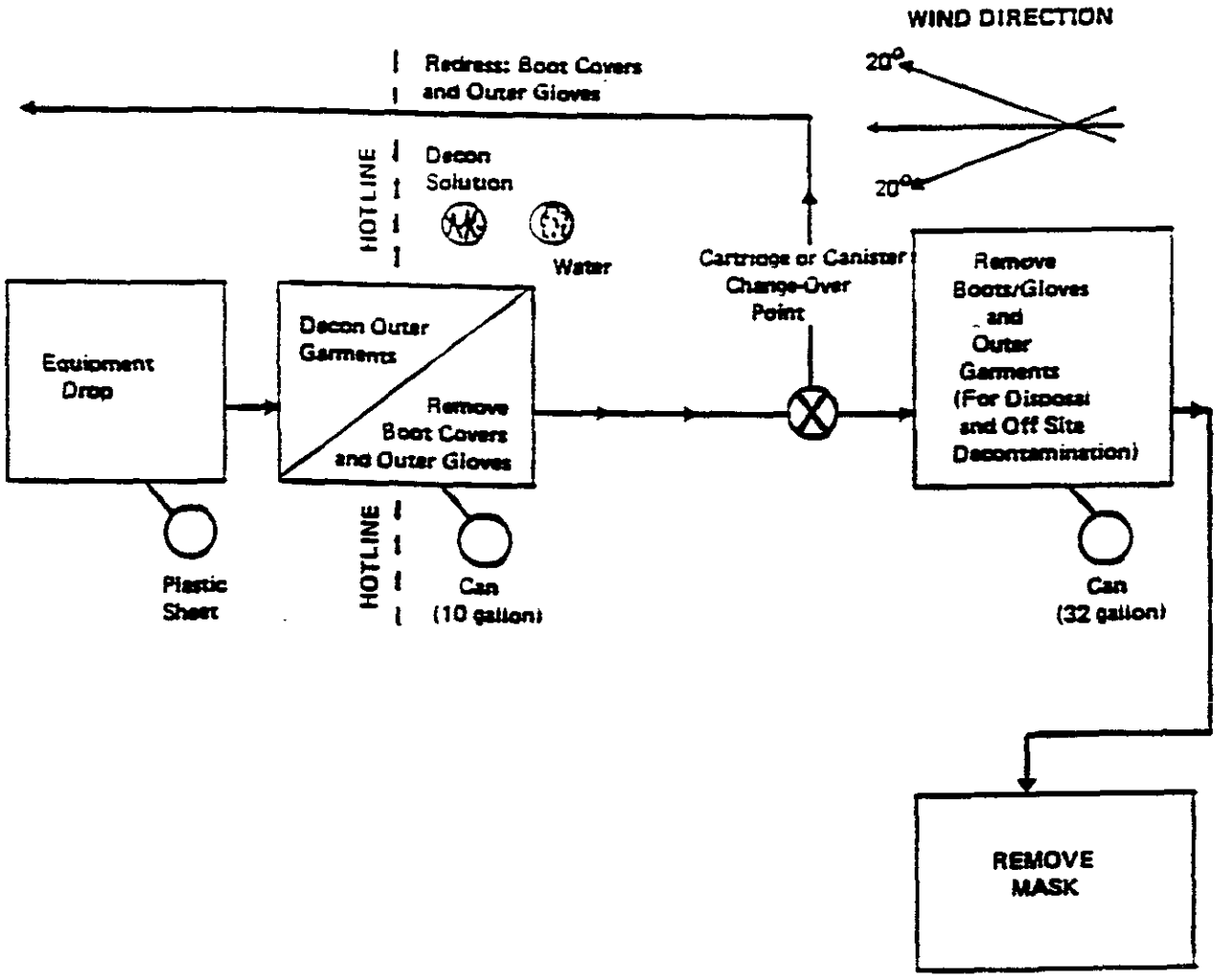


FIGURE 5-1 Minimum Decontamination Layout Level for C Protection

TABLE 5-3

EQUIPMENT NEEDED TO PERFORM MINIMUM
DECONTAMINATION MEASURES FOR LEVELS A, B, AND C

Station 1: Equipment Drop

a. Various Size Containers
b. Plastic Liners
c. Plastic Drop Cloths

Station 2: Outer Garment, Boots, and Gloves Wash and Rinse

a. Containers (20-30 Gallons)
b. Decon Solution
c. Rinse Water
d. 2-3 Long-Handled, Soft-Bristled, Scrub Brushes

Station 3: Outer Boot and Glove Removal

a. Containers (20-30 Gallons)
b. Plastic Liners
c. Bench or Stools

Station 4: Tank Change

a. Air Tanks or Masks and Cartridges Depending Upon Level
b. Tape
c. Boot Covers
d. Gloves

Station 5: Boot, Gloves, and other Garment Removal

a. Containers (20-30 Gallons)
b. Plastic Liners
c. Bench or Stools

Station 6: SCBA Removal

a. Plastic Sheets
b. Basin or Bucket
c. Soap and Towels
d. Bench or Stools

Station 7: Field Wash

a. Water
b. Soap
c. Tables
d. Wash Basin or Bucket

TABLE 5-4

MINIMUM MEASURES FOR LEVEL C DECONTAMINATION OF PERSONNEL

Station 1:	Equipment Drop	1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, cool down station may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves and splash suit with decon solution or detergent water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Canister or Mask Change	4. If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's air canister is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty.
Station 5:	Boot, Gloves, and Outer Garment Removal	5. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
Station 6:	Face Piece Removal	6. Facepiece is removed. Avoid touching face with fingers. Facepiece deposited on plastic sheet.
Station 7:	Field Wash	7. Hands and face are thoroughly washed. Shower as soon as possible.

5.8 Procedures for Waste Handling of Anticipated Wastes

5.8.1 Waste Generation

Anticipated: Yes __X__ No ____

Types: Liquid __X__ Solid __X__ Sludge ____ Gas ____

Quantity: Expected Volume of each Soil: 5yd^3
Water: <10,000 gallons

Characteristics

Corrosive ____ Ignitable __X__ Radioactive ____ Volatile __X__

Toxic __X__ Reactive ____ Unknown ____ Carcinogenic __X__

Other (specify) _____

5.8.2 Disposal and/or Treatment Methods Proposed:

This project will __X__ will not ____ generate hazardous wastes. These wastes will be:

____ Stored __X__ Treated
____ Transported ____ Manifested in the following manner:

Soils will be aerated under permit from the BAAQMD and disposed of in a Class 3 waste disposal facility. Wastewater will be disposed of by sanitary sewer under permit from the City of Alameda.

NOTE: Check that permits have been secured prior to proceeding with the above actions.

5.8.3 Transportation

D.O.T. Classification (Anticipated): _____

Type(s) of labels required for waste shipment: _____

Packaging requirements for waste material:

Open head 55-gallon drum _____
Closed head 55-gallon drum _____
Overpack drum _____
Baker tanks __X (liquid)__ _____
Lined waste bins __X (soil)__ _____
Other _____

TSD Facility to be used:

Name: _____N/A_____

EPA I.D. Number: _____

Waste Transporter:

Name: N/A

EPA I.D. Number: _____
State I.D. Number _____

5.9 Site Operating Procedures

5.9.1 Initial Site Operating Procedures

- Locate nearest available telephone. Indicate location on Site Map (Attachment 1)
- Determine wind direction, establish hotline, and set up decontamination facilities. Note wind direction and location of decontamination facilities on site map (Attachment 1)
- Post Site Map (Attachment 1) Confirm and post emergency telephone numbers and route to hospital.
- Designate at least one vehicle for emergency use.
- If toilet facilities are not located within a 5-minute walk from the decontamination facilities, either provide a chemical toilet and hand washing facilities or have a vehicle available (not the emergency vehicle) for transport to nearby facilities.
- Prior to working on-site, an inspection for hazards (i.e. chemicals, spiders, electrical hazards) will be made.
- Conduct or review utility clearance prior to start of work, if appropriate.

5.9.2 Daily Operating Procedures

- Hold daily Tailgate Safety Meetings prior to work start (Attachment 8).
- Use monitoring instruments and follow designated action levels specified in Section 5.4 and 5.5 and Table 5-2.
- Use personal protective equipment (ppe) as specified in Section 5.3 and Table 5-1.
- Try to remain upwind of operation.
- Vent wells from an upwind position.
- No work will be conducted without adequate natural light or without appropriate supervision.
- Dust control measures may be needed on roads that cross the exclusion zone.

- Spoils from excavation work should be placed so as not to be in the expected paths of travel.

- Drilling cuttings should be kept shoveled up and drummed, out of the way of workers. Liquids generated during drilling should be contained out of the way to limit the amount of mud created around the rig.

- Care should be taken to limit the extent that a piece of equipment comes into contact with contamination (e.g. on backhoes, limit contact to the arm and bucket).

- A work/rest regime will be initiated when ambient temperatures and protective clothing create a potential heat stress situation.

5.9.3 Personnel Operating Procedures

- Do not walk through areas of obvious or known contamination.

- Do not handle or touch contaminated materials directly.

- Make sure all PPE has no cuts or tears prior to donning.

- Fasten all closures on suits, covering with tape if necessary.

- Particular care should be taken to protect any skin injuries.

- Stay upwind of airborne contaminants.

- Do not carry cigarettes, gum, etc. into contaminated areas.

- Refer to Site H&S Officer for specific concerns for each individual site task. Do not climb over/under drums, or other obstacles and always employ the buddy system.

- Practice contamination avoidance, on- and off-site. Activities should be planned ahead of time.

- Apply immediate first aid to any and all cuts, scratches, abrasions, etc.

- All accidents, no matter how minor, must be reported immediately to the SSO.

- Be alert to your own physical condition. Watch your buddy for signs of fatigue, exposure, etc.

6.0 CONTINGENCY PLAN

The nature of work at contaminated or potentially contaminated work sites makes emergencies a continual possibility. Although emergencies are unlikely and occur infrequently, a contingency plan is required to assure timely and appropriate response actions. The contingency plan is reviewed at tailgate safety meetings.

Tailgate Safety Meetings are required in order to fulfill regulatory provisions for training employees on site-specific hazards as a means of minimizing work-place injuries and illnesses. Prior to commencing work on a site, a Tailgate Safety Meeting (see Attachment 8) will be conducted to review site-specific hazards and protocols.

The following sections outline emergency procedures and routes.

6.1 Emergency Procedures

6.1.1 Incident:

Step 1: Get posted emergency phone list (Attachment 7).

Step 2: Send stand-by personnel to notify additional emergency responders and/or company officials.

Step 3: See Emergency Response Flow Chart (Figure 6-1).

6.1.2 Injury:

See Decision Aid for Emergency Decontamination (Figure 6-2).

If an injury occurs, take the following action:

Step 1: Get medical attention for the injured person immediately.

Step 2: Notify the Site Safety Officer and Site Team Leader.

Step 3: Depending on the type and severity of the injury, notify the Corporate Consulting Physician or the occupational physician for the injured person.

Step 4: Notify the injured person's personnel office.

Step 5: Prepare the incident report. The Site Safety Officer is responsible for its preparation and submittal to the Regional Health and Safety Coordinator (REHSC) and Corporate Human Resources (CHR) office within 24 hours.

Step 6: The Site Safety Officer will assume charge during a medical emergency.

6.2 Emergency Routes

See Hospital Route Map - Attachment 4 (TO BE POSTED)

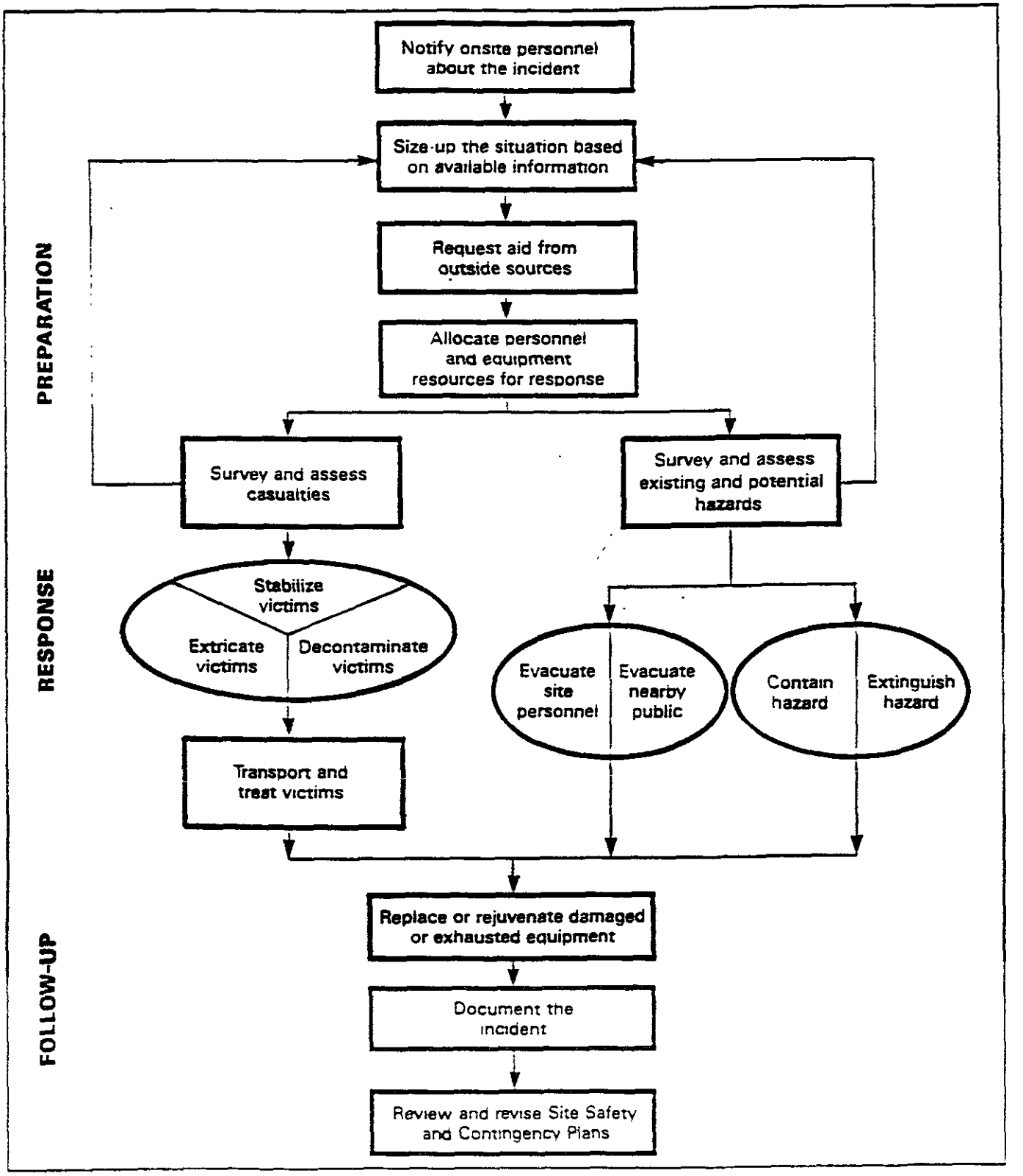


Figure 6-1. Emergency Response Operations.

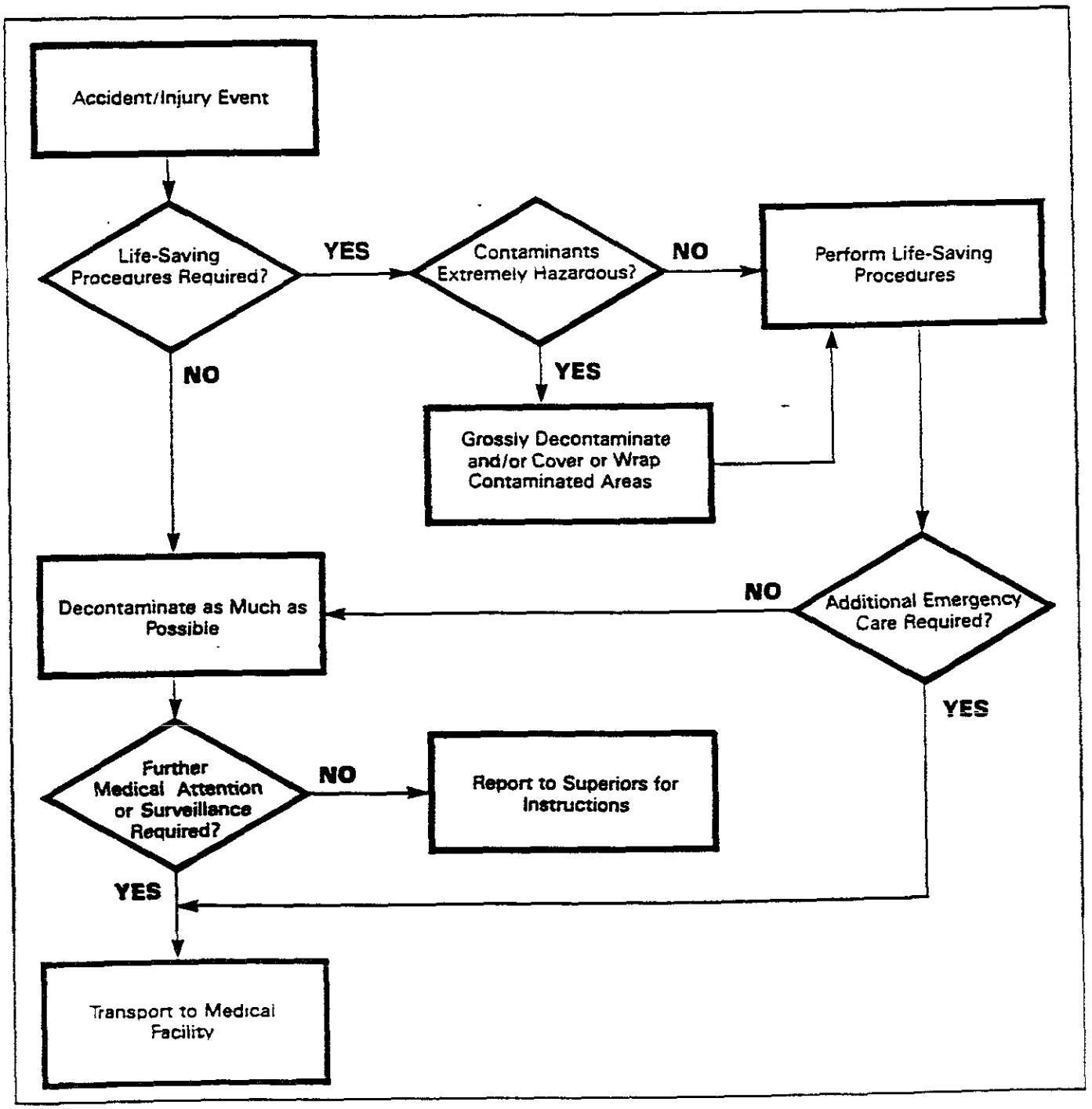


Figure 6-2. Decision Aid for Emergency Decontamination.

ATTACHMENT 1

SITE MAP(S)

Directions to site from Alameda Office:

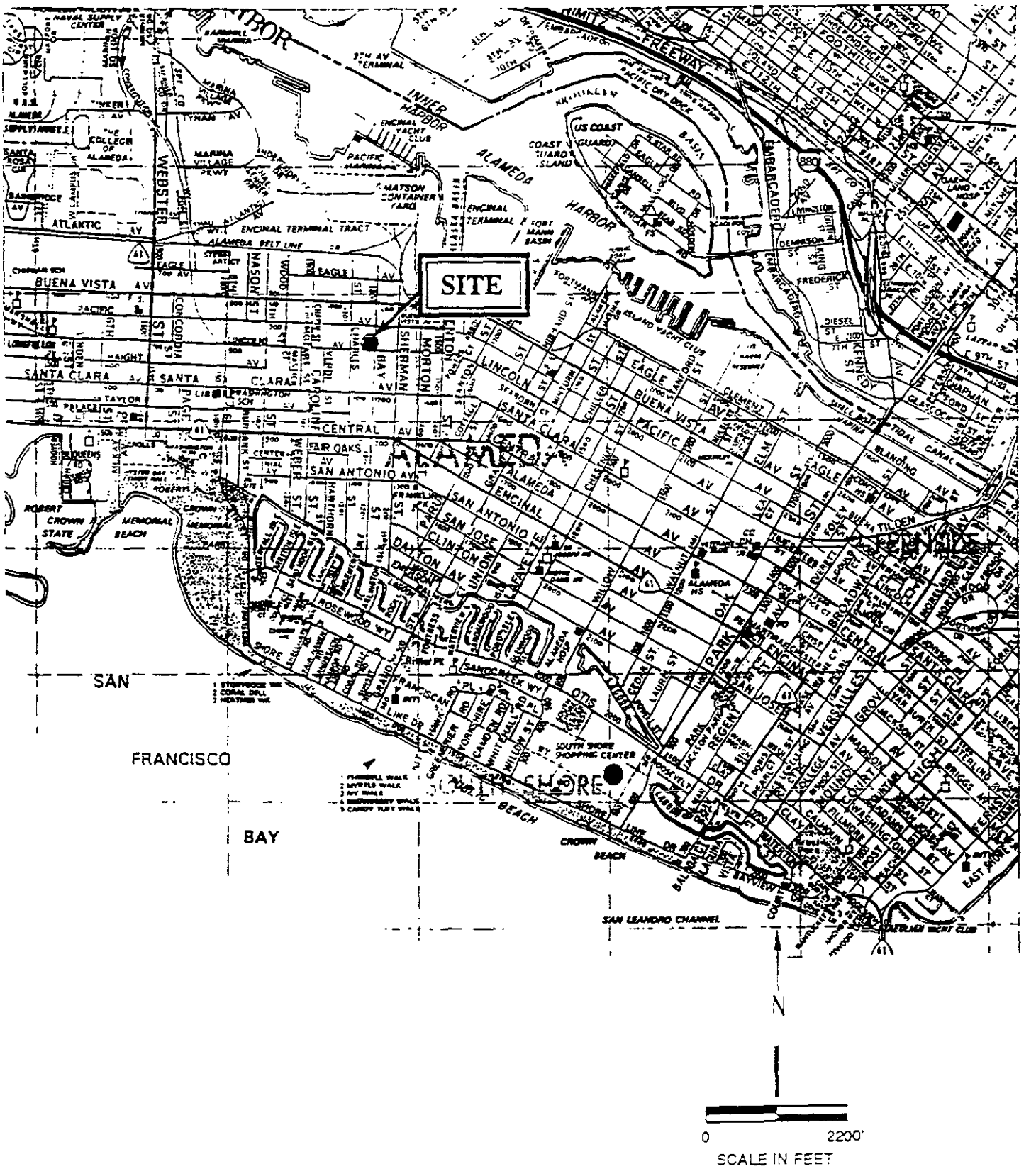
South on Atlantic Avenue; Atlantic onto Sherman St., right on Lincoln Ave.

Address: Lewis Bay Service Station

1127 Lincoln Avenue

Alameda, California 94501

FIGURE 2
SITE LOCATION MAP
LEWIS BAY SERVICE STATION
ALAMEDA, CA



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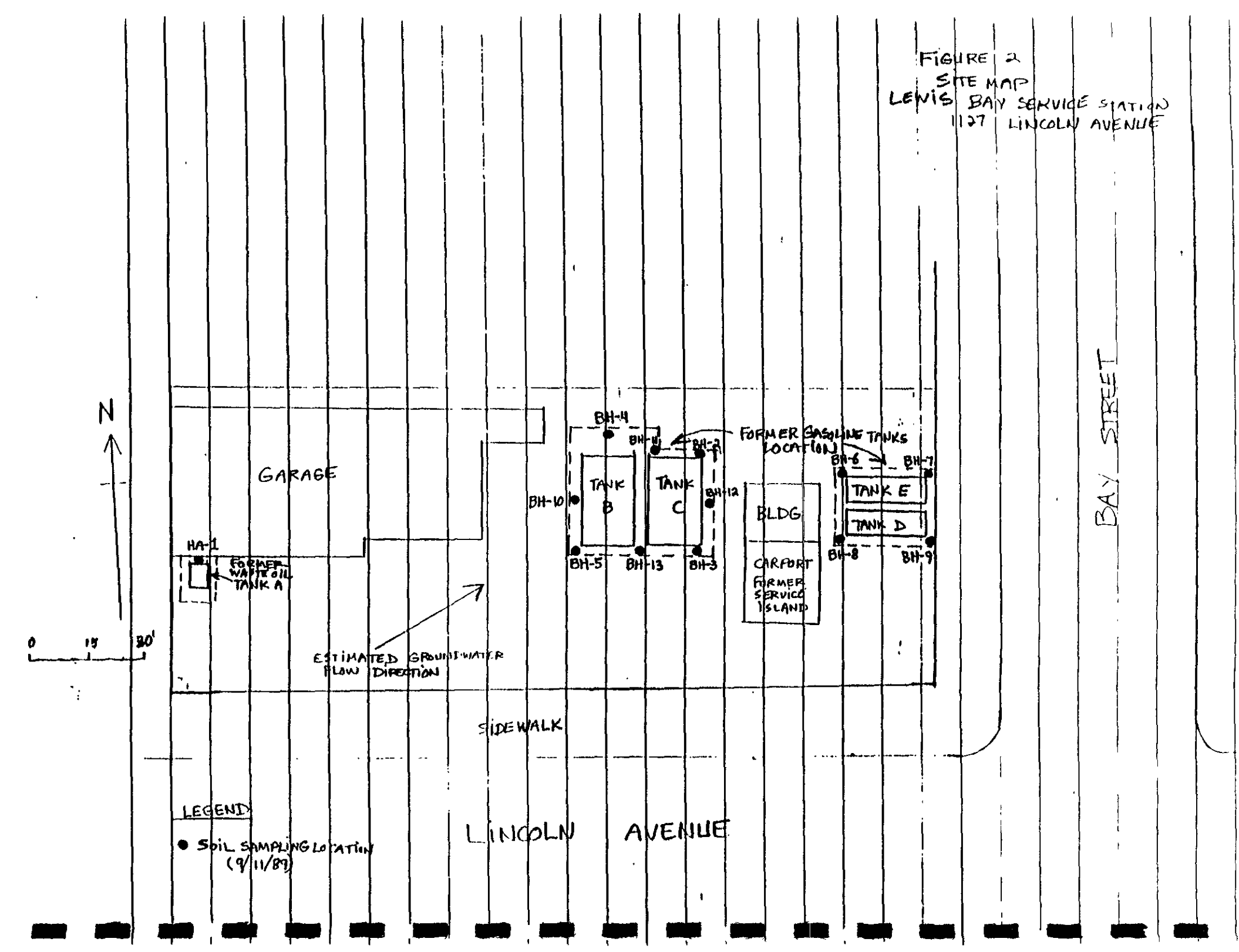


FIGURE 2
SITE MAP
LEWIS BAY SERVICE STATION
1127 LINCOLN AVENUE
N
GARAGE
BH-4
BH-11
BH-2
FORMER GASOLINE TANKS LOCATION
BH-6
BH-7
TANK B
TANK C
TANK E
TANK D
BH-10
BH-12
BLDG
HA-1
FORMER WASTE OIL TANK A
BH-5
BH-13
BH-3
BH-8
BH-9
CARPORT
FORMER SERVICE ISLAND
0
15
30'
ESTIMATED GROUNDWATER FLOW DIRECTION
BAY STREET
SIDEWALK
LEGEND
● SOIL SAMPLING LOCATION (9/11/89)
LINCOLN AVENUE

ATTACHMENT 2

UTILITY CLEARANCE CHECKLIST

UTILITY CLEARANCE CHECK
(FILL OUT BEFORE CALLING USA)

Client and Site Name:	Task Number:	Project Start Date:	Clearance Request Date:

Task Descriptions:
(well drilling, trenching,etc.)_____

_____

_____

Project Location: _____

_____

_____

McLaren Project Manager:_____

Drilling / Construction Supervisor:_____

USA Contact Date:_____ USA Ticket Number:_____
(1-800-642-2444)

FACILITY DRAWINGS INSPECTION (INITIALS AND DATE)	FIELD VERIFICATION (INITIALS AND DATE)
Water Main_____	Water Main_____
Sanitary_____	Sanitary_____
Storm_____	Storm_____
Telephone_____	Telephone_____
Electrical_____	Electrical_____
Gas Lines_____	Gas Lines_____
Steam Lines_____	Steam Lines_____
Liquid Fuel_____	Liquid Fuel_____
Compressed Air_____	Compressed Air_____
Overhead Lines_____	Overhead Lines_____

Date Performed::	Facility Contact:

Clearance Engineer (signature and date):	Supervising Engineer Verification (after utility clearance, signature and date):

Notes:_____

_____

_____

_____

ATTACHMENT 3

MAP IDENTIFYING UTILITIES

[Note: Map identifying utilities will be attached if drilling/coring is performed during the time period that this plan is in effect.]

ATTACHMENT 4

HOSPITAL ROUTE MAP

Directions to the hospital from the job site:

South on Lincoln Avenue; right on Willow Avenue; right on Clinton Ave.

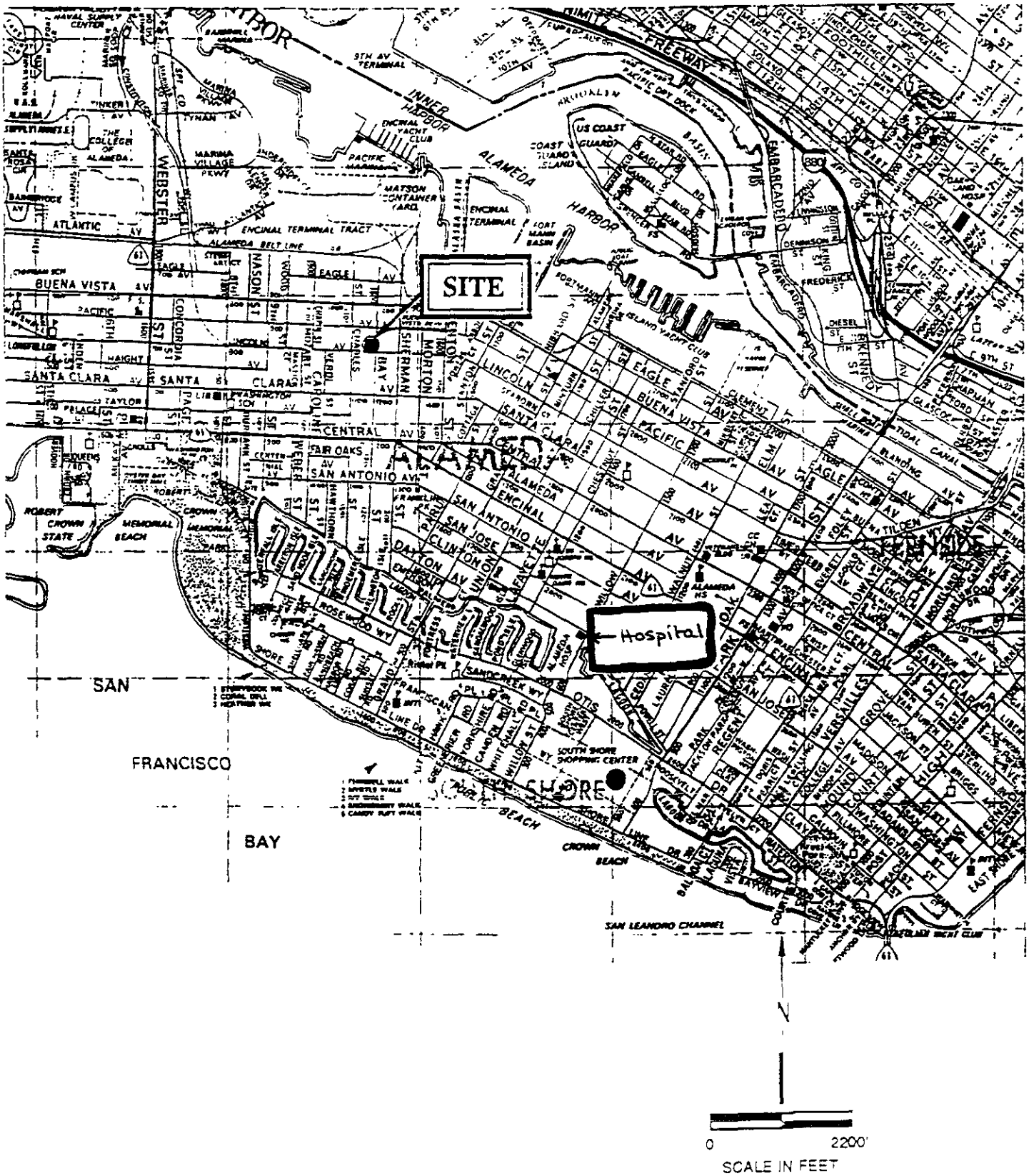
Address: Alameda Hospital

2070 Clinton Avenue

Alameda, California 94501

(415) 522-3700

FIGURE 2
SITE LOCATION MAP
LEWIS BAY SERVICE STATION
ALAMEDA, CA



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ATTACHMENT 5

DIRECT READING REPORT

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DIRECT READING REPORT

Sheet ___ of ___

Client Name and Site:	Project Manager:	Task Number:	Date:

Employee:	Title:	Weather Conditions/ Observations:
		Wind Speed: ______ Wind Direction: ______ Temperature: ______

Direct Reading Data

Location:	Task Description (Drilling, Sampling, etc.)	Time	Instrument Type (& lamp size if applicable)	Substance/ Agent	Concentration	Source: S Breathing Zone: B

Comments:

NOTE: Return to **REHSC** Upon Completion of Site Work. Use Additional Forms if Necessary.

ATTACHMENT 6

INSTRUMENT CALIBRATION LOG

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INSTRUMENT CALIBRATION LOG

Page ___ of ___

Client Name and Site:	Project Manager:	Task Number:

Calibration Event:

Person Calibrating:	Date:
Instrument Type:	Calibration Gas:
Model:	Calibration Gas Concentration (ppm):
Serial #:	Reading (ppm):
Calibrator Model:	Adjusted Reading (If Necessary)
Comments:	
Person Calibrating:	Date:
Instrument Type:	Calibration Gas:
Model:	Calibration Gas Concentration (ppm):
Serial #:	Reading (ppm):
Calibrator Model:	Adjusted Reading (If Necessary)
Comments:	
Person Calibrating:	Date:
Instrument Type:	Calibration Gas:
Model:	Calibration Gas Concentration (ppm):
Serial #:	Reading (ppm):
Calibrator Model:	Adjusted Reading (If Necessary)
Comments:	
Person Calibrating:	Date:
Instrument Type:	Calibration Gas:
Model:	Calibration Gas Concentration (ppm):
Serial #:	Reading (ppm):
Calibrator Model:	Adjusted Reading (If Necessary)
Comments:	
Person Calibrating:	Date:
Instrument Type:	Calibration Gas:
Model:	Calibration Gas Concentration (ppm):
Serial #:	Reading (ppm):
Calibrator Model:	Adjusted Reading (If Necessary)
Comments.	

Comments:

NOTE: Return to **REHSC** Upon Completion of Site Work.

ATTACHMENT 7

EMERGENCY PERSONNEL AND SERVICES

EMERGENCY PERSONNEL AND SERVICES
(To be Posted)

TITLE	NAME	PHONE NUMBER
EMERGENCY		
Police	Emergency Service	911 or (415) 522-1220
Fire	Emergency Service	911 or (415) 522-4109
Local Hospital	Alameda Hospital	(415) 522-3700
Local Ambulance/Rescue		911
Poison Control Center	S.F. Bay Area Regional Poison Control Center	(800) 523-2222
Hazardous Waste National Response Center	HAZMAT	(800) 424-8802
PROJECT/BUSINESS		
Regional Environmental Health & Safety Coordinator	Roxanne Morocco	(415) 521-5200
Regional Occupational Physician	Lewis & Fischman	(415) 521-5200
Project Manager	Julie Menack	(415) 521-5200
Client Contact	R. R. Zielinski	(415) 236-1770
Site Contact	N/A	
Subcontractor	Tracer Research (Soil vapor survey)	(602) 888-9400
Regional Manager	Ellis A. Wallenberg III	(415) 521-5200
Site Safety Officer	Herb Hirschfeld	Ofc: (415) 521-5200
Alternate Site Safety Officer	Any site team Member	Ofc: (415) 521-5200
Corporate Human Resources Dept.	Mary Lynn Hollingsworth/ Paulette Richards	(916) 638-3696

Site Location:
(for directing response teams) Lewis Bay Service Station,
1127 Lincoln Avenue, Alameda, California 94501

1031dan2

ATTACHMENT 8

TAILGATE SAFETY MEETING
FORM

TAILGATE SAFETY MEETING

CLIENT:_____ FACILITY:_____

DATE:_____ TIME:_____ JOB NUMBER:_____

SITE LOCATION:_____

TYPE OF WORK:_____

CHEMICALS USED:_____

_____

SAFETY TOPICS PRESENTED

PROTECTIVE CLOTHING/EQUIPMENT:_____

_____

CHEMICAL HAZARDS:_____

ACTION LEVELS:_____

PHYSICAL HAZARDS:_____

_____

EMERGENCY PROCEDURES:_____

_____

HOSPITAL/CLINIC:_____

PHONE:_____ PARAMEDIC PHONE:_____

SPECIAL EQUIPMENT:_____

OTHER:_____

ATTENDEES

PRINTED NAME:	SIGNATURE:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

MEETING CONDUCTED BY:_____

SUPERVISOR:_____

h&s1