



5710 1262  
505

March 3, 1998

Project Number 192-01-03

Mr. Hooshang Hadjian  
Dublin Auto Wash  
7240 Dublin Boulevard  
Dublin, CA 94568

**Subject: Work Plan for Environmental Site Assessment Including Installation of Three Ground Water Monitoring Wells and Collection of Soil and Groundwater Samples at Foothill Beacon, 16210 Foothill Blvd, San Leandro, California**

Dear Mr. Hadjian:

Parker Environmental Services has prepared this environmental site assessment Work Plan for the project located at the above referenced facility ("site"). The purpose of the project work scope is to evaluate the vertical and lateral extent of petroleum hydrocarbons in the soil and groundwater by collecting subsurface soil and groundwater samples from the vicinity of the former underground storage tank (UST) system that contained diesel fuel and gasoline. This Work Plan is based on conversations with yourself and a request for additional investigation at this site by the Alameda County Health Services Department, Environmental Health Division.

This workplan will be forwarded on your behalf to the Regional Water Quality Control Board and Alameda County.

The following activities comprise the project Work Scope:

1. Prepare a Work Plan and Site Safety Plan;
2. Obtain permits, drill 3 total soil borings to about 25 feet depth BGS for soil sampling and chemical analysis;
3. Install three 2-inch groundwater monitoring wells into the borings;
4. Develop the three wells, then purge and sample the wells, analyze groundwater samples;

*Recycled Paper*

5. Analyze soil and groundwater samples for Total Petroleum Hydrocarbons as gasoline (TPH-g), as Methyl-tert Butyl Ether (MTBE) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX);
6. Prepare a comprehensive report of investigative methods and findings as required by the Regional Water Quality Control Board, San Francisco Bay Region.

### **SITE DESCRIPTION**

The project site is located on the southeast corner of the intersection of Carolyn Street and Foothill Boulevard in San Leandro, California. The site is currently used as a convenience store that retails gasoline under the name Foothill Beacon.

Soil conditions are expected to be weathered bedrock. Groundwater was known to exist at about 11 feet BGS in January, 1997.

### **SITE BACKGROUND**

Four underground storage tanks were removed from this site by California Petroleum Equipment, Inc., of Fresno on January 28, 1997. There were two 8,000 gallon tanks and two 5,000 gallon tanks, single wall steel, and appeared to be in fair condition, with some pitting evident on the tanks with close inspection.

The Alameda County inspector probed the pitted areas and found two 1/4" to 1/2" holes at the end of one of the 5,000 gallon tanks. The holes were about 3 feet from the bottom of the tank at the weld by the tank cylinder and tank end. Although the metal was soft enough to disintegrate with the probing of a screwdriver, it appears that the tank did not leak from these spots. The tanks were sitting in about 4 feet of water, and if the tanks leaked, water would have been 3 to four feet deep in this tank. Since no water was pumped from the tank during service, the tank was apparently intact until removal. Groundwater was 11 feet below grade surface on the day of the tank removal, as measured by tape measure.

### **Sample Collection**

Prior to the tank removals, samples were taken of soils in the pipe trenches and under the former island locations (Samples P-1 through P-9) at depths of 2 to 3 feet BGS with a backhoe. Standing water was observed in the tank pit prior to and after the tanks were removed. The tank pit samples (T-1 through T-5, W-1) and additional pipe trench samples (P-10, P-11) were obtained on January 30, 1997. The soil samples were obtained as described above. The water sample was obtained by lowering a teflon bailer into the standing water, allowing the bailer to completely submerge, and placing the sample water in two 40 milliliter vials.

The sampled soils were comprised mainly of stiff clays, and smelled moderately of aged or fresh gasoline.

**Sample Analysis Results**

The soil samples were analyzed at a State Certified Environmental Laboratory for total petroleum hydrocarbons as gasoline (TPH-g), methyl-tert butyl ether (MTBE), and benzene, toluene, ethylbenzene, xylenes (BTEX) by EPA methods 8015 modified /8020 (Attachment A: Soil Sample Analytical Data).

The native soil samples indicated low level gasoline contamination with background lead concentrations. Sample results are presented in Table 1 below.

**Table 1**  
**Soil Sample Analytical Results**  
**Foothill Beacon, 16210 Foothill Boulevard**  
**San Leandro, California**

| Sample         | TPH-gas | MTBE | benzene    | toluene | ethyl-benzene | xylenes |
|----------------|---------|------|------------|---------|---------------|---------|
| <b>1/28/97</b> |         |      |            |         |               |         |
| P-1@2'         | ND      | ND   | ND         | ND      | ND            | ND      |
| P-2@2'         | ND      | ND   | ND         | ND      | ND            | 0.011   |
| P-3@2'         | 870     | 7.4  | ND<0.03    | 0.59    | ND<0.03       | 98      |
| P-4@2'         | ND      | ND   | ND         | ND      | ND            | ND      |
| P-5@3'         | 150     | 110  | <u>2.3</u> | 10      | 2.3           | 19      |
| P-6@3'         | 360     | 0.43 | 0.26       | 1.5     | 1.0           | 14      |
| P-7@3'         | 1.1     | 0.70 | 0.028      | 0.074   | 0.009         | 0.031   |
| P-8@2'         | ND      | 0.16 | ND         | ND      | ND            | 0.012   |
| P-9@2'         | 180     | 1.5  | ND         | 0.093   | 0.16          | 0.32    |
| <b>1/30/97</b> |         |      |            |         |               |         |
| T-1@10.5'      | 10      | 9.4  | 0.17       | 0.23    | 0.074         | 0.68    |
| T-2@10.5'      | 1.4     | 1.3  | 0.38       | 0.008   | ND            | ND      |
| T-3@10.5'      | 17      | 0.24 | 0.042      | 0.027   | 0.026         | 0.056   |
| T-4@10.5'      | 2.5     | 0.10 | ND         | 0.009   | ND            | 0.044   |
| T-5@10.5'      | 130     | 0.48 | <u>1.1</u> | 0.19    | 3.0           | 5.8     |
| P-10@6'        | 3.2     | .38  | ND         | 0.007   | ND            | 0.005   |
| P-11@9.5'      | 130     | 2.6  | <u>1.8</u> | 2.3     | 3.0           | 18      |
| det. lim. (S)  | 1.0     | 0.05 | 0.005      | 0.005   | 0.005         | 0.005   |
| <hr/>          |         |      |            |         |               |         |
| W-1@11'        | 4000    | 2800 | 110        | 88      | 46            | 620     |
| det. lim. (W)  | 50      | 5.0  | 0.5        | 0.5     | 0.5           | 0.5     |

Soil results are in mg/kg or parts per million (ppm), Water results are in µg/L or parts per billion (ppb).  
 ND = not detected at or above method detection limits

Approximately 15,000 gallons of water were removed from the tank pit and hauled offsite for disposal before the new tanks were installed.

*U.S.T.  
 pit  
 water*

## SITE PLAN

A site plan map is attached that shows the locations of the proposed monitoring wells and other pertinent site features (Figure 2).

The tasks of the project work scope and an estimate for the schedule of the project follow.

### TASK 1 - PREPARE WORK PLAN AND SITE SAFETY PLAN

The site safety plan (Appendix C), will be on-site during all field activities. Underground Service Alert will be used to identify underground utilities and other possible subsurface obstacles. A minimum of Level D personal protection is required for all field activities. The work plan will be submitted to the Regional Water Quality Control Board and Alameda County

### TASK 2 - DRILL SOIL BORINGS, SAMPLE SOILS, INSTALL MONITOR WELLS

All necessary permits for drilling and well construction will be obtained prior to drilling. Parker Environmental staff, under the supervision of a State-of California Certified Engineering Geologist/R.G., Gary D. Lowe, will supervise and document the drilling to be performed by West Hazmat Drilling, a State-licensed water well driller (C57-#554979). The standard operating procedures for drilling soil borings and obtaining soil samples are included in Attachment B. The proposed soil borings will be drilled into native soils. The proposed location of the soil borings may have to be adjusted according to drill rig accessibility, underground utilities or obstacles.

Soil samples will be collected from the borings at 2.5 to 5 foot intervals for lithologic characterization, and for possible chemical analysis. The samples will be screened for chemical analysis by sensory perceptions. The selected soil samples will be analyzed at a State-certified analytical laboratory (McC Campbell Analytical, #1644) for TPH as gasoline, ~~TPH as diesel~~ and BTEX. and MTBE

*cap fringe  
samples  
to be  
analyzed  
indicated*

Monitoring wells will be placed into the borings for the purpose of obtaining groundwater samples for chemical analysis. The wells will be installed to specifications contained in Appendix B and graphically depicted on Figure 3, Typical Monitoring Well Construction.

All soil cuttings will be stored on-site on top of and beneath plastic sheeting. Used waters will be stored on site in 55-gallon Department of Transportation (DOT) approved 17 H drums pending laboratory analysis for appropriate disposal.

### **TASK 3 - GROUNDWATER PURGING AND SAMPLING**

The new wells will be developed by the removal of groundwater equal to not less than ten well volumes, well production permitting. The groundwater will be removed by pumping into drums.

Prior to groundwater sampling, water level measurement data will be collected from all groundwater monitoring wells on site using an electric water level meter. The monitoring wells will be purged by evacuating a minimum of three well-casing volumes of groundwater prior to sampling. Parker Environmental's standard operating procedures for groundwater purging and sampling are included in the Attachments. The monitoring wells will be sampled from the submersible pump discharge. The samples will be taken under chain-of-custody to the laboratory, McCampbell Analytical of Pacheco, California. The purged water will be stored on-site in 55-gallon DOT drums pending laboratory analysis for appropriate disposal.

### **TASK 4 - LABORATORY ANALYSIS**

Soil and groundwater samples will be sent to a state-certified environmental testing laboratory (McCampbell Analytical, #1644). All soil samples selected from the boring and groundwater samples from the monitoring wells will be analyzed for TPH as gasoline and TPH as diesel by modified EPA method 5030/8015 and BTEX by EPA method 8020/602. *and MCB*

### **TASK 5 - ANALYZE DATA**

After the soil and groundwater laboratory data is available, the known vertical and lateral extent of subsurface soil contamination and lateral extent of groundwater contamination will be evaluated. Based on this data, a remediation work plan can be developed, if necessary. Groundwater monitoring will be performed quarterly for one year prior to initiation of any other remedial activity.

### **TASK 6- PREPARE REPORT**

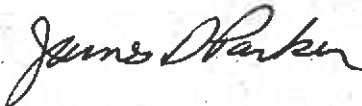
Following completion of the field work and receipt of analytical data, a summary report documenting the methods and findings of field work and analytical data and presenting conclusions will be submitted to the appropriate agencies.

## ESTIMATED SCHEDULE

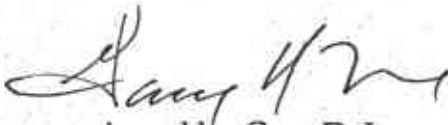
| <u>Task</u>  | <u>Days to Perform</u> |
|--|------------------------|
| 1- Obtain approval for Work Plan and Safety Plan,<br>Obtain Well Permits | 15                     |
| 2- Drill, Install Monitor Wells (after reg. approval)                    | 10                     |
| 3- Well Development, Purging and Sampling                                | 5                      |
| 4, 5- Laboratory Analyses, Analyze Data                                  | 5                      |
| 6- Prepare Report  | 15                     |

Please call us at (510) 439-1024 if you have questions, comments, or any need for further assistance.

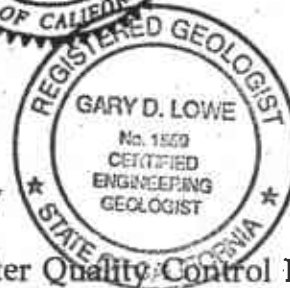
Sincerely,  
PARKER ENVIRONMENTAL SERVICES



James D. Parker, R.E.A. # 1059  
President



reviewed by Gary D. Lowe  
Principal, Hydrogeologist  
H<sub>2</sub>OGEOL, A GroundWater Consultancy



cc: Mr. Lester Feldman, Regional Water Quality Control Board, San Francisco Bay Region  
Mr. Scott Seery, Alameda County Environmental Health Division

**FIGURES:**

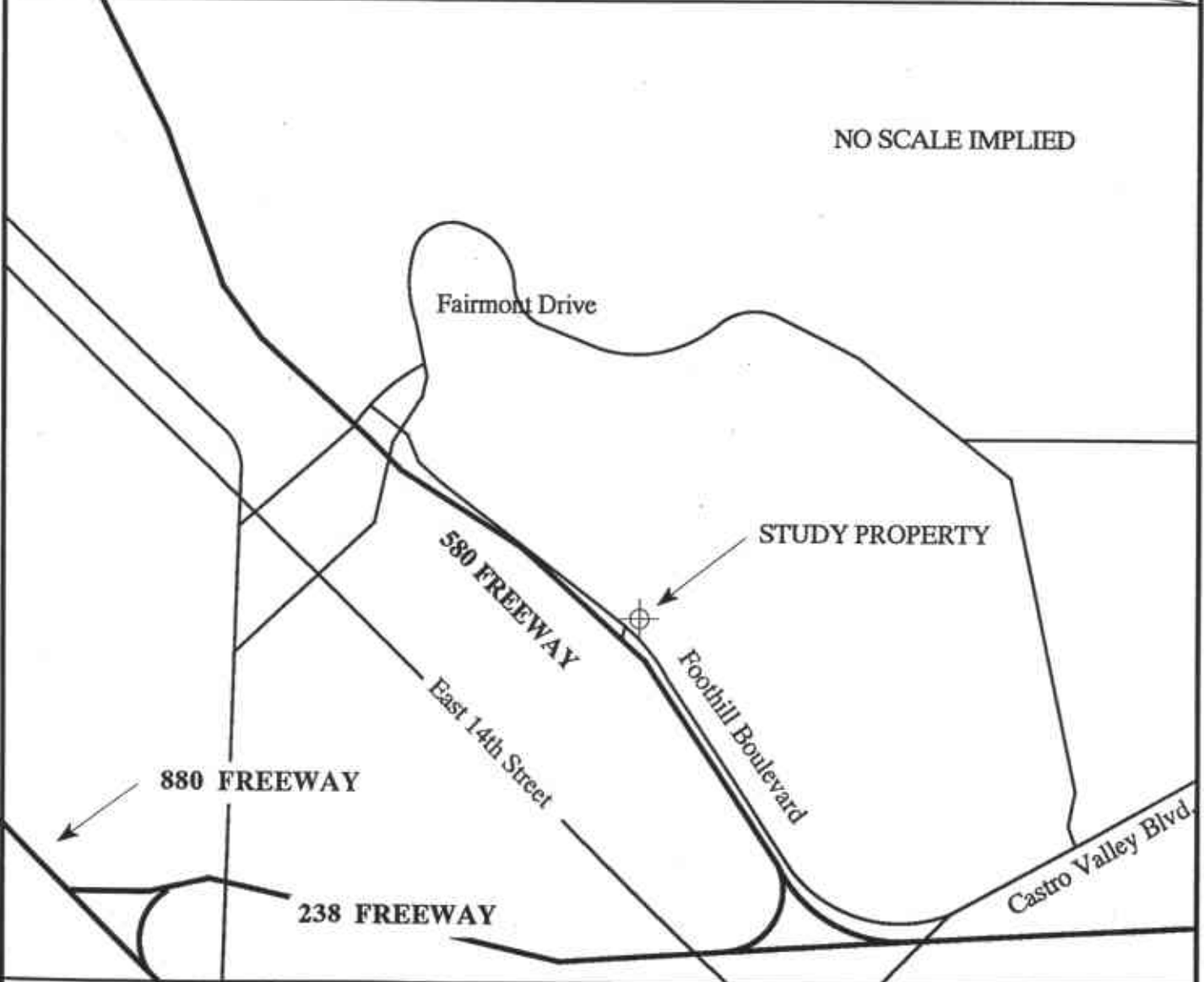
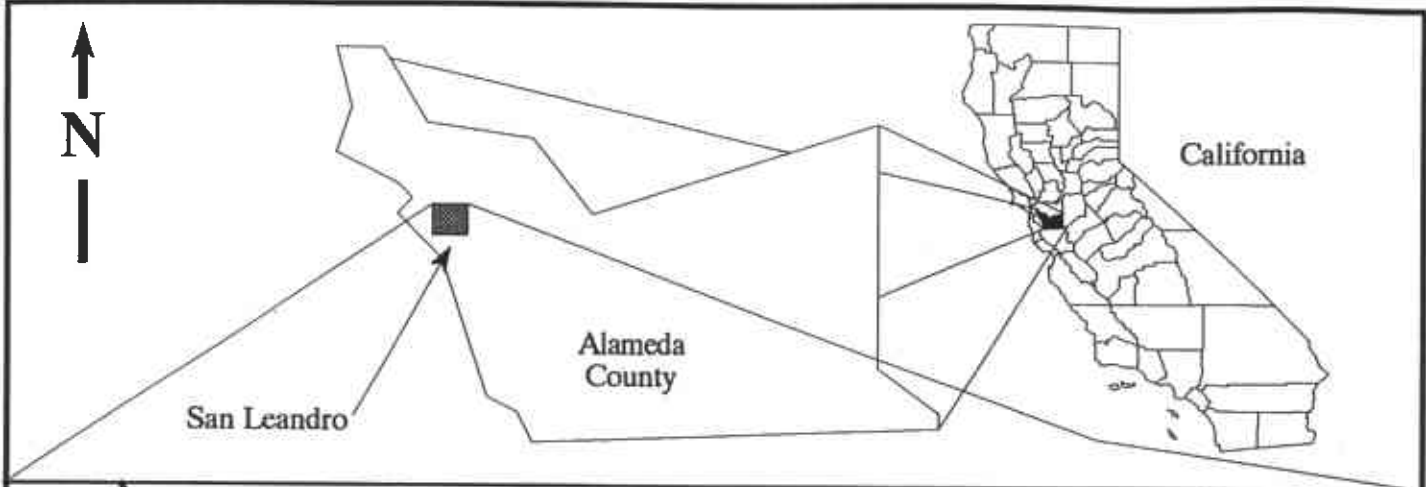
1. Vicinity Map
2. Site Plan, Proposed Well Locations
3. Typical Monitoring Well Construction

**ATTACHMENTS:**

**ATTACHMENT A: Standard Operating Procedures for Site Investigations**

1. The Parker Environmental standard operating procedures for drilling soil borings and obtaining soil samples.
2. The Parker Environmental standard operating procedures for well installation and development.
3. The Parker Environmental standard operating procedures for groundwater purging and sampling.

**ATTACHMENT B - Site Safety Plan**

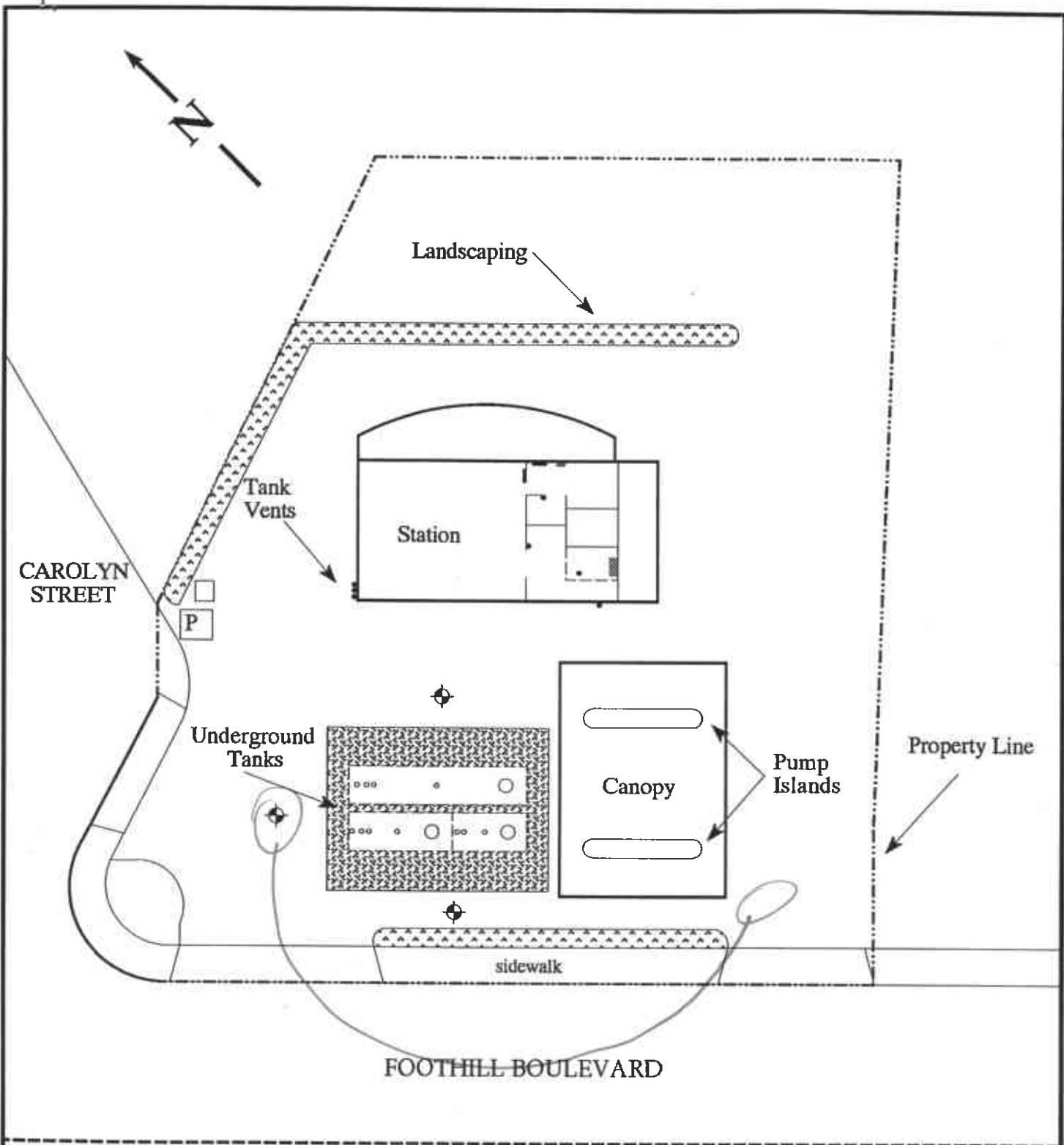


**PARKER**  
*Environmental Services*

190 East 7th Street  
 Pittsburg, CA 94565  
 (510) 439-1024

**FOOTHILL BEACON**  
 16210 Foothill Boulevard  
 San Leandro, California  
 Figure 1 - Vicinity Map





580 FREEWAY

◆ = proposed monitoring well

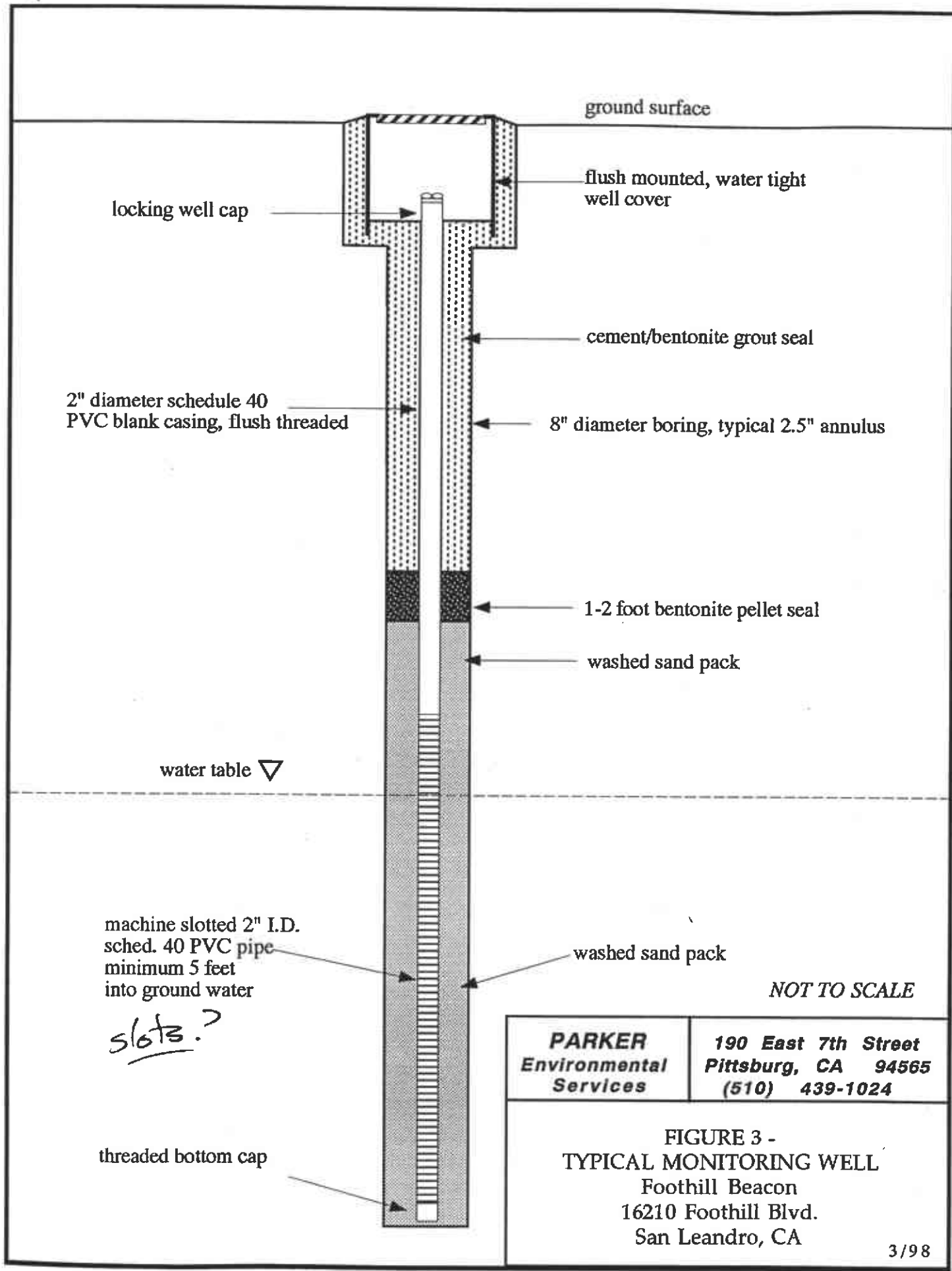
Scale: 1" = 30'

*Location of site features are approximate.*

**PARKER**  
Environmental  
Services

190 East 7th Street  
Pittsburg, CA 94565  
(510) 439-1024

Proposed Well Locations  
Foothill Beacon  
16210 Foothill Boulevard  
San Leandro, CA



NOT TO SCALE

|  |  |
|--|--|
| <b>PARKER</b><br>Environmental<br>Services | 190 East 7th Street<br>Pittsburg, CA 94565<br>(510) 439-1024 |
|--|--|

**FIGURE 3 -**  
TYPICAL MONITORING WELL  
Foothill Beacon  
16210 Foothill Blvd.  
San Leandro, CA

## STANDARD OPERATING PROCEDURES

### Soil Borings and Sampling

Soil borings are lithologically logged by Parker staff or a contract geologist under the direction and supervision of a state registered geologist using the Unified Soil Classification System. During the drilling, discrete soil samples are collected at approximate 5.0 depth intervals to the top of the groundwater for lithologic and hydrographic description and possible chemical analysis.

Soil samples for chemical analysis are collected in pre-cleaned, thin walled brass tubes, 6 inches long and 2 inches in outside diameter. Three sample tubes are set in a 2 inch inside diameter, 18 inch long modified California split barrel sampler. The split barrel sampler is driven its entire length using a drop hammer, typically 140 pounds. After the sampler is extracted from the bore hole, the brass tubes containing the samples are removed. The third (top) soil sample is immediately field tested using an organic vapor analyzer (OVA) or photo ionization detector (PID). Organic vapor procedures are listed on a separate page of Standard Operating Procedures. Soil sampling is performed in accordance with California Regional Water Quality Control Board (RWQCB) procedures described in the *Leaking Underground Fuel Tank (LUFT) Field Manual*, the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*, and local regulatory guidelines.

Upon removal of the sampler, the selected brass tubes are immediately capped at both ends with teflon tape, trimmed and capped with plastic caps. The samples are then labeled and placed in individual clear zip-lock plastic bags. The samples are stored in a portable ice chest with crushed ice to maintain a constant temperature of 4° Celsius. A thermometer is kept in the ice chest to ensue that the proper temperature is maintained. The samples are then delivered under chain of custody to a state certified hazardous materials testing laboratory. These procedures minimize the potential for cross contamination and volatilization of the lighter organic compounds prior to chemical analysis.

The sampling equipment is cleaned with Alconox detergent wash, two tap water and one deionized water rinses between samples and steam cleaned with all the drilling equipment between borings to prevent cross contamination.

## STANDARD OPERATING PROCEDURES

### Collecting Organic Vapor Data From Soil Samples

Soil samples from drill cuttings, soil piles or tank excavations are placed with minimal disturbance into pre-cleaned standard soil sample collection jars. The jars are half filled, with the sample material being broken up to provide additional surface area for volatilization. Aluminum foil is placed over the jar top, and then capped with the lid.

The jars are then placed out of direct sunlight and allowed to sit undisturbed for a minimum of 20 minutes, thereby allowing the air in the head space and soil to equilibrate.

An OVA or PID is calibrated and the batteries checked prior to each use. After the air in the sample jar has equilibrated, the probe of the OVA or PID is inserted into the jar through the aluminum foil. The presence of any organic vapor measured will be recorded in parts per million.

Samples used for collecting organic vapor data are never submitted to a laboratory for analytical testing.

## STANDARD OPERATING PROCEDURES

### Groundwater Monitoring Well or Extraction Well Installation and Development

#### WELL INSTALLATION

The bore holes for monitoring or extraction wells (wells) are drilled using a truck mounted hollow-stem auger drill rig. The diameter of the borehole is a minimum four inches larger than the outside diameter of the well casing when installing the well screen (DWR Publication 74-81). The hollow-stem auger provides minimal interruption of drilling, and permits soil sampling at desired depths. All wells are installed by state licensed drillers.

The wells are cased with threaded, factory slotted or blank Schedule 40 PVC plastic. The perforated interval consists of slotted casing, generally 0.020 inch wide by 1.5 inch long slot size, with 42 slots per linear foot of pipe. A threaded PVC cap is fastened to the bottom of the casing. Centering devices may be fastened to the casing to assure even distribution of filter material and grout within the bore hole annulus. The well casing is thoroughly washed and steam cleaned prior to installation.

After setting the casing inside the hollow stem, sand or gravel filter material is poured into the annular space to fill from the bottom of the boring to one foot above the slotted interval. A 1 - 2 foot thick bentonite plug is placed above the filter material to prevent the grout from infiltrating down into the filter material. Neat cement, containing about 5% bentonite, is then tremied into the annular space from the top of the bentonite plug to the surface. A lockable PVC cap is placed on each well head. Traffic rated flush mounted steel covers are installed around well heads for wells in paved areas, while steel stove pipes are usually set over well heads in landscaped areas.

#### WELL DEVELOPMENT

After installation, the wells are thoroughly developed to remove residual drilling materials from the well bore, and to improve well performance by removing any fine material in the filter pack that can pass from the native material into the well. Well development is performed in accordance with California Regional Water Quality Control Board (RWQCB) procedures described in the *Leaking Underground Fuel Tank (LUFT) Field Manual*, the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*, and local regulatory guidelines.

## STANDARD OPERATING PROCEDURES

### Well Installation and Development (continued)

Well development techniques include pumping, bailing, surging, swabbing, jetting, flushing and air lifting. During well development three to ten well volumes are removed from the well, allowing temperature, pH, specific conductivity and sediment content of the water to stabilize. All development water and rinsate is collected for temporary storage in labeled 55 gallon containers or proper storage tanks, and is then disposed of properly depending on chemical analysis results. To assure that cross contamination does not occur between wells during development, development equipment is either steam cleaned or washed with Alconox and triple rinsed, twice with tap water and finally with deionized water.

## STANDARD OPERATING PROCEDURES

### Groundwater Level Measuring, Purging and Sampling

Prior to groundwater sampling, static water level measurements are recorded for each well using a battery powered water level meter with a precision of plus or minus 0.01 foot. All measurements are recorded as depth to water from the surveyed measuring point at the top of the casing. Depth to water readings are converted to water level elevations referenced to the USGS mean sea level datum.

Each well is purged by removing a minimum of three to five well casing volumes of groundwater using either a pre-cleaned teflon bailer, a dedicated PVC bailer, a pre-cleaned disposable bailer, or a stainless steel pump. During the purging of each well and prior to sampling, discharge water temperature, pH, and specific conductivity measurements are recorded and allowed to stabilize. Stabilized measurements indicate that formation water has entered the well. Purge water is stored in 55 gallon steel drums on site pending laboratory analysis results. The groundwater sample is taken when the water level in the well recovers to 80% of its static level.

After purging, a groundwater sample is collected in accordance with California Regional Water Quality Control Board (RWQCB) procedures described in the *Leaking Underground Fuel Tank (LUFT) Field Manual, the Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*, and local regulatory guidelines.

Groundwater samples are collected using a pre-cleaned teflon or stainless steel bailer equipped with a ball check valve. The groundwater sample is first checked for the presence of free product in the sampling bailer. Thickness of possible free product is measured using an electronic interface probe with a plus or minus 0.01 foot detection limit. Sampling containers are filled directly from the bailer as soon after purging as possible.

Agitation is minimized during sample retrieval and transfer to containers to avoid possible sample aeration. Groundwater samples are carefully decanted into laboratory prepared 40 milliliter volatile organic analysis (VOA) vials. The VOA vials are filled completely, leaving no air bubbles after the teflon lined cap is screwed on. Additional groundwater samples may be collected in one liter bottles. All samples are labeled and stored in a portable ice chest with crushed ice to maintain a constant temperature of 4° Celsius. A thermometer is kept in the ice chest to ensure that the proper temperature is maintained. The samples are then delivered under chain of custody to a state certified hazardous materials testing laboratory.

## SITE SAFETY PLAN

The Site Safety Plan has been specifically prepared for the following site:

Project: Foothill Beacon, 16210 Foothill Blvd, San Leandro, CA

Site Location: See Above

Job Number: 192-01-03

Plan Prepared By: Jim Parker Date: March 3, 1998

Plan Reviewed By: \_\_\_\_\_ Date: \_\_\_\_\_

Plan Revised By: \_\_\_\_\_ Date: \_\_\_\_\_

### PURPOSE OF THE SITE SAFETY PLAN

The purpose of the Site Safety Plan is to protect personnel in the field. All personnel participating in field work must be trained in the general and specific hazards unique to the job. All site personnel and visitors shall follow the guidelines, rules, and procedures contained in this Site Safety Plan. The Project Manager of Site Safety Officer may impose additional procedures or prohibitions that are believed to be necessary for safe operations.

Although this Site Safety Plan is prepared to inform all field personnel of the potential hazards of the site, contractors and subcontractors must assume direct responsibility for the health and safety of their own employees.



**TABLE OF CONTENTS**

|       |   |    |
|-------|---|----|
| I.    | INTRODUCTION .....  | 1  |
| II.   | PERSONS RESPONSIBLE AND INVOLVED .....                            | 2  |
| III.  | FACILITY BACKGROUND.....  | 3  |
| IV.   | IDENTIFIED CHEMICAL CONTAMINANTS .....                            | 4  |
| V.    | GENERAL WORK PRACTICES .....                                      | 6  |
| VI.   | SITE CONTROL/WORK ZONES.....                                      | 7  |
| VII.  | SITE RESOURCES .....  | 8  |
| VIII. | HAZARD ANALYSIS .....   | 9  |
| IX.   | HAZARD MITIGATION .....   | 10 |
| X.    | AIR MONITORING.....   | 13 |
| XI.   | REQUIRED PERSONAL PROTECTIVE AND RELATED SAFETY<br>EQUIPMENT..... | 15 |
| XII.  | DECONTAMINATION PROCEDURES.....                                   | 17 |
| XIII. | DOCUMENTATION.....  | 18 |
| XIV.  | CONTINGENCY/EMERGENCY INFORMATION.....                            | 21 |

## I. INTRODUCTION

A. SITE LOCATION: Foothill Beacon

16210 Foothill Boulevard, San Leandro, CA

B. PLAN PREPARED: Jim Parker March 3, 1998  
Date

C. PLAN APPROVED: \_\_\_\_\_  
Project Manager Date

D. PLAN REVISED: \_\_\_\_\_  
Name Date

E. REVISION APPROVED: \_\_\_\_\_  
Project Manager Date

F. THE POSSIBLE HAZARDS ON THIS JOB ARE EXPECTED TO BE: Underground and  
above ground utilities, mechanical hazards from drilling, chemical hazards from gasoline  
and diesel in soil and groundwater, vehicular traffic, rig noise, lifting heavy materials and  
equipment, slipping, tripping and falling

G. REQUIRED PERSONAL PROTECTIVE ITEMS AND EQUIPMENT FOR THIS PROJECT:  
Level D: Hard hat, safety glasses, safety boots, long sleeved shirts, nitrile gloves, hearing  
protection, orange safety vests. Possible upgrade to level C: Above equipment plus tyvek  
coveralls and air purifying respirator with organic vapor cartridges. Upgrade from Level D if  
more than 100 ppm hydrocarbons detected with PID in breathing zone for one minute.

## II. PERSONS RESPONSIBLE AND INVOLVED

A. PROJECT MANAGER: Jim Parker

Health and Safety Responsibilities: Ensure that on site personnel follow the site safety plan.

Oversee safety of project, may impose procedures or prohibitions to enhance site safety.

B. SITE SUPERVISOR: Jim Parker

Health and Safety Responsibilities: Ensure that the site safety plan is followed. Enforce on-site safety. Ensure that safety equipment is on site and used by personnel in the work area.

C. SITE SAFETY OFFICER (SSO): Jim Parker

Health and Safety Responsibilities: Air monitoring if necessary, enforce site safety regulations, ensure that site safety plan is being followed, ensure personnel follow site safety plan.

D. OTHERS: Jim Parker

Health and Safety Responsibilities: emergency contact

E. SUBCONTRACTORS: H<sub>2</sub>OGEOL, West Hazmat Drilling

Health and Safety Responsibilities: Responsible for ensuring that their on site personnel follow the site safety plan. Responsible for proper drill rig and equipment maintenance, ensure that PPE is available for subcontractor's personnel on site: Level D and Level C clothing

### III. FACILITY BACKGROUND

A. FACILITY BACKGROUND AND DESCRIPTION: Convenience Store that also sells Gasoline

B: SITE HISTORY (USE OF SITE, ORIGIN OF CONTAMINATION): Underground storage tanks placed in early 1970's, removed in 1997, 3 gasoline and 1 diesel tank

C. HAZARDOUS INCIDENCE HISTORY (HISTORY OF INJURIES, EXPOSURE, CHEMICAL SPILLS, COMPLAINTS, ETC.) Soil sampling at the time of tank removal and related to exploratory drilling has revealed TPH-g contamination of site soils up to 870 ppm. A grab sample of the water in the tank pit showed 4000 ppb TPH-g.

D. PURPOSE OF ACTIVITY/OBJECTIVE OF WORK (CHARACTERIZATION, REMEDIAL ACTIONS, EXCAVATION, TRENCHING; INCLUDE LOCATION WITH RESPECT TO AREAS OF KNOWN OR SUSPECTED CONTAMINATION):

Objective of work is to determine if soil and groundwater by the tank pit has been impacted by the known release of gasoline.

E. SITE STATUS (ACTIVE, INACTIVE, UNKNOWN) Tanks removed, site active

F. SURROUNDINGS (LOCATION WITH RESPECT TO CITY, ROADS, RESIDENCES, BUSINESSES, NATURAL FEATURES, GRADIENTS, TANKS, ETC.): Residential east, and north, commercial south along Foothill Blvd. I-580 west across Foothill

G. SITE MAP (ATTACH MAP AT END OF THIS PLAN SHOWING SALIENT FEATURES, INCLUDING LOCATION OF WORK AND LOCATION OF CONTAMINATED AREAS):

H. CLIMATE: AVERAGE WIND SPEED AND DIRECTION

MEAN HIGH TEMPERATURE: 

|       |       |         |         |       |
|-------|-------|---------|---------|-------|
|       | July  | October | January | April |
| _____ | _____ | _____   | _____   | _____ |

MEAN LOW TEMPERATURE: \_\_\_\_\_

#### IV. IDENTIFIED CHEMICAL CONTAMINANTS

##### A. IDENTIFIED CHEMICAL CONTAMINANTS KNOWN TO BE PRESENT

List chemical contaminants that have been identified, their concentration, and the environmental media in which they are present. Hazardous property information for selected chemicals appears in the appendix. Review this information for all the chemicals listed below. If chemicals are not listed in the appendix, you must enter the hazardous property information in the spaces provided.

| Chemical     | Environmental Media (Code) | Measured Minimum | Concentrated Maximum |
|--------------|----------------------------|------------------|----------------------|
| TPH-g        | SO/GW                      | ND               | 870 ppm              |
| MTBE         | SO/GW                      | ND               | 9.4 ppm              |
| Benzene      | SO/GW                      | ND               | 2.3 ppm              |
| Toluene      | SO/GW                      | ND               | 10 ppm               |
| Ethylbenzene | SO/GW                      | ND               | 3 ppm                |
| Xylenes      | SO/GW                      | ND               | 98 ppm               |

##### B. SUSPECTED CHEMICAL CONTAMINANTS ON SITE

Chemical contaminants that are suspected to be present

| Chemical                      | Environmental Media |
|-------------------------------|---------------------|
| Same as above                 | SO/GW/Air           |
| Code for Environmental Media: |                     |

|     |             |
|-----|-------------|
| GW  | Groundwater |
| SL  |             |
| SW  |             |
| LW  |             |
| SO  | Soil        |
| Air |             |
| OT  |             |

##### C. CHEMICAL CONTAMINANTS CHARACTERIZATION

Has the site been adequately characterized to the best of your knowledge?

Yes

No            X

If yes, reference all sources and previous reports/ studies.

Tank removal soil sampling and further excavation sampling indicated the presence of residual petroleum hydrocarbons in the native site soil.

---

---

---

---

---

## V. GENERAL WORK PRACTICES

- ★ PERSONNEL ON SITE MUST USE THE "BUDDY" SYSTEM WHEN WEARING ANY RESPIRATORY PROTECTIVE DEVICES.
- ★ SMOKING, EATING, DRINKING, CHEWING GUM OR TOBACCO WILL NOT BE PERMITTED WITHIN THE WORK ZONES.
- ★ PERSONNEL SHOULD KEEP TRACK OF WEATHER CONDITIONS AND WIND DIRECTION TO THE EXTENT THEY COULD AFFECT POTENTIAL EXPOSURE
- ★ PERSONNEL SHOULD BE ALERT TO ANY ABNORMAL BEHAVIOR ON THE PART OF THE WORKERS THAT MIGHT INDICATE DISTRESS, DISORIENTATION, OR OTHER ILL EFFECTS.
- ★ PERSONNEL SHOULD NEVER IGNORE SYMPTOMS WHICH COULD INDICATE POTENTIAL EXPOSURE TO CHEMICAL CONTAMINANTS. THESE SHOULD BE IMMEDIATELY REPORTED TO THEIR SUPERVISORS OR THE SAFETY OFFICER.
- ★ OTHERS (SPECIFIC TO TASKS, I.E., TRENCHING SAFETY, DRILL RIG SAFETY, SITE ENTRY, ETC.)

## VI. SITE CONTROL/WORK ZONES

A. DESCRIBE LOCATION OF EXCLUSION ZONE, HOT LINE, CONTAMINATION REDUCTION ZONE, AND DECONTAMINATION AREA AND SUPPORT ZONE. ZONES MAY MOVE AS WORK PROCEEDS. DESCRIPTIONS MUST BE RELATIVE TO A MOVING REFERENCE. SHOW LOCATIONS ON SITE PLAN

Exclusion zone: Extends a minimum of 15 feet in all directions from the drill rig when in use.

Orient the drill rig and boring so that the exclusion zone is upwind. Exclusion zone may be extended as necessary if warranted by air monitoring. No smoking, eating or drinking allowed in exclusion zone.

B. DEFINE THE SITE CONTROL/SECURITY MEASURES (I.E., FENCING, LOCKED GATES, KEYS, SECURITY GUARDS, FLAGGING, ETC.)

Barricades, safety cones and caution tape will be used to control exclusion zone.

C. DESCRIBE SAFETY PLAN LOCATIONS

On site in site supervisor's vehicle.



## VII. SITE RESOURCES

### SITE RESOURCES LOCATIONS

Toilet Facilities: In building on site

Drinking Water Supply: In building on site

Telephone: In site supervisor's vehicle

Radio: \_\_\_\_\_

Other: \_\_\_\_\_

### EMERGENCY EQUIPMENT LOCATION

Safety Shower/Eyewash: None - tap in bathroom

First Aid Kit: In site supervisor's vehicle and on drill rig

Fire Extinguisher: In site supervisor's vehicle and on rig

### VIII. HAZARD ANALYSIS

List all activities in the Job Activity Columns and assign a number to each activity. (example: 1. Groundwater sampling)  
 Identify how each category of hazard exists at each activity.

| Activity Number | Job Task              | Mechanical        | Electrical     | Chemical  | Temperature | Acoustical | Radioactive | Oxygen Deficiency<br>Conf. Space | Biohazard |
|-----------------|-----------------------|-------------------|----------------|-----------|-------------|------------|-------------|----------------------------------|-----------|
| 1               | Drilling, Soil Sample | Drill Rig         | Overhead lines | SO, GW    | Rain, or    | rig noise  | NE          | NE                               | NE        |
|                 |                       |                   | Buried lines   |           |             |            |             |                                  |           |
| 1               | Well Installation     | Handling, Traffic | NE             | gas lines | Cold, or    |            | NE          | NE                               | NE        |
| 2               | Well Development      | Traffic,          | Generator      | GW        | Heat stress | Compressor | NE          | NE                               | NE        |
| 3               | GW Sampling           | Lifting/Handling  | NE             | GW        |             |            | NE          | NE                               | NE        |
|                 |                       |                   |                |           |             |            |             |                                  |           |
|                 |                       |                   |                |           |             |            |             |                                  |           |

NE = Not Expected

## IX. HAZARD MITIGATION

Identify procedures to mitigate all hazards listed in Section VIII by placing the task number next to the appropriate mitigating measure. Listing of standard procedures is not inclusive. A specific procedure must be entered to mitigate each hazard identified in Section VIII.

Activity  
List Number

### A. MECHANICAL HAZARDS

|       |  |
|-------|--|
| 1     | Do not stand near backhoe buckets, drill rigs and earth moving equipment.                              |
| 1,2,3 | Verify that all equipment is in good condition.  |
| 1     | Do not stand or walk under elevated loads or ladders.  |
| NE    | Do not stand near unguarded excavation or trenches.  |
| NE    | Do not enter excavation or trenches over 5 feet deep that are not properly guarded, shored, or sloped. |
| 1,2,3 | Consult SSO if any other mechanical hazards exist.   |

### B. ELECTRICAL HAZARDS

|   |  |
|---|--|
| 1 | Locate and mark buried utilities before drilling   |
| 1 | Utilities located by _____ on _____  |
| 1 | Maintain at least 10 foot clearance from overhead power lines.   |
| 1 | Contact utility company for minimum clearance from high voltage power lines.   |
| 1 | If unavoidably close to buried or overhead power lines, have power turned off, with circuit breaker locked and tagged. |
| 1 | Properly ground all electrical equipment   |
| 1 | Avoid standing in or near water when operating electrical equipment  |
| 1 | If equipment must be connected by splicing wires, make sure all connections are properly taped.                        |
| 1 | Be familiar with specific operating instructions for each piece of equipment.  |

NE = NOT EXPECTED

### C. CHEMICAL HAZARDS

|       |  |
|-------|--|
| 1,2,3 | Use personal protective equipment indicated in Section XI.   |
| NE    | Conduct direct reading air monitoring to evaluate respiratory and explosion hazards (list instrument, action level, monitoring location, and action to be taken in Section X). |

NE Consult SSO for personal air monitoring.

D. TEMPERATURE HAZARDS

1. Heat Stress

1,2,3 When temperature exceeds 70° F, take frequent breaks in shaded area. Unzip or remove coveralls during breaks. Have cool water or electrolyte replenishment solution available. Drink small amounts frequently to avoid dehydration. Count the pulse rate for 30 seconds as early as possible in the rest period. If the pulse rate exceeds 110 beats per minute at the beginning of the rest period, shorten the work cycle by 1/3.

2. Cold Stress

NE Wear multi-layer cold weather outfits. The outer layer should be of wind resistant fabric.  
0° to-30° F total work time is 4 hours. Alternate one hour in and one hour out of the lower temperature area. Below -30° F consult an industrial hygienist.  
Drink warm fluid. Provide warm shelter for resting. Use buddy system. Avoid heavy sweating.

E. ACOUSTICAL HAZARDS

1 Use earplugs or earmuffs when noise level prevents conversation in normal voice at a distance of three feet.

NE = NOT EXPECTED

F. O<sub>2</sub> DEFICIENCY - CONFINED SPACE HAZARDS

Confined spaces include trenches, pits, sumps, elevator shafts, tunnels, or any other area where circulation of fresh air is restricted or ability to readily escape from an area is restricted.

Safety policy and procedure must be consulted prior to entering a confined space.

NE Obtain permit for confined space entry.  
Monitor O<sub>2</sub> and organic vapors before entering. If following values are exceeded, do not enter:  
u O<sub>2</sub> less than 19.5% or greater than 23%  
u Total hydrocarbons greater than 5 ppm above background, if all air contaminants have not been identified.

u Concentrations of specific contaminants exceeding action level in Section IV if all air contaminants identified.

\_\_\_\_\_ Monitor O<sub>2</sub> and organic vapors continuously while inside confined space. If values cited above are exceeded, evacuate immediately. Record instrument readings.

\_\_\_\_\_ At least one person must be on standby outside the confined space who is capable of pulling workers from the confined space in an emergency. Standby person must not enter unless there is another standby person.

\_\_\_\_\_ Use portable fans or blowers to introduce fresh air to confined spaces whenever use of respiratory protection is required.

\_\_\_\_\_ Work involving the use of flame, arc, spark, or other source of ignition is prohibited within a confined space.

G. RADIATION HAZARDS

\_\_\_\_\_ NE

If radiation meter indicates 2 mR/hr or more, leave the area and consult the SSO

H. BIOHAZARDS

\_\_\_\_\_ Poison oak, poison ivy.

\_\_\_\_\_ Infectious waste.

\_\_\_\_\_ Rabid animals.

\_\_\_\_\_ 1,2

Ticks, mosquitoes, and other insects (disease carriers or poisonous). Avoid breathing dust in dry desert or central valley areas (valley fever).

NE = NOT EXPECTED

## X. AIR MONITORING

A. KNOWN CONTAMINANTS - When air monitoring in the breathing zone (for a one minute duration) detects concentrations at the action level(s), introduce the appropriate action.

1. Gasses and Vapors

| Instrument and date of Calibration | Gas                          | Frequency/Duration of Air Monitoring         | Action Level Above Background (Breathing Zone) | Action  |
|------------------------------------|------------------------------|--|--|---|
| OVM (PID)                          | Standard 100 ppm Isobutylene | Every 30 minutes or sooner if odors detected | 5 ppm  | Introduce engineering controls (i.e. blower fans) (Level D) |
|                                    | RF = 0.70                    |  | 100 ppm  | Don respirator (Level C)                                    |
|                                    |                              |  | 500 ppm  | Leave area (Level C)  |
|                                    |                              |  | NE   | Upgrade to Level B  |
|                                    |                              |  |  |   |
|                                    |                              |  |  |   |

2. Explosion Hazard

| Instrument and Date of Calibration | Action Level Above Background (Ambient Air) | Frequency/Duration of Air Monitoring | Action     |
|------------------------------------|---|--------------------------------------|------------|
| Combustible gas indicator          | Greater than 20% LEL                        |                                      | Leave Area |

NE = NOT EXPECTED

3. Oxygen Deficiency

| Instrument and Date                    | Action Level                                    | Frequency/Duration |                        |
|--|---|--------------------|------------------------|
| of Calibration<br>O <sub>2</sub> meter | (Ambient Air)<br>Less than 19.5% O <sub>2</sub> | of Air Monitoring  | Action<br>Do not enter |
|  | More than 23% O <sub>2</sub>                    |                    |                        |

4. Other Instruments

| Instrument and Date    | Action Level  | Frequency/Duration |        |
|------------------------|---------------|--------------------|--------|
| of Calibration         | (Ambient Air) | of Air Monitoring  | Action |
|                        | Date          |                    |        |
| Draeger pump/tubes     |               |                    |        |
| Radiation monitor      |               |                    |        |
| Heat stress meter      |               |                    |        |
| Noise meter            |               |                    |        |
| H <sub>2</sub> S meter |               |                    |        |
| pH analyzer            |               |                    |        |
| Others                 |               |                    |        |
|                        |               |                    |        |

B. AIR MONITORING FOR UNKNOWN CONTAMINANTS - For totally unknown contaminants, the following levels of protection must be utilized.

PID or FID in Breathing Zone

Reading for one minute

|                                  |         |
|----------------------------------|---------|
| Background                       | Level D |
| > 0 - 5 ppm above background     | Level C |
| 5 - 500 ppm above background     | Level B |
| 500 - 1,000 ppm above background | Level A |

## XI. REQUIRED PERSONAL PROTECTIVE AND RELATED SAFETY EQUIPMENT

Place the activity number from Section VIII next to each item of personal protective equipment required for that task. All personal safety equipment must meet ANSI standards or equivalent.

LEVEL: \_\_\_\_\_ A      \_\_\_\_\_ B      \_\_\_\_\_ \* C      \_\_\_\_\_ \*\* D

Comments \* Level C protective equipment shall be worn on-site if air monitoring warrants  
or if site conditions warrant as determined by SSO.

| Head    |   | Eye/Face |                  |  |             |
|---------|---|----------|------------------|--|-------------|
| 1, 2    | Hard Hat  | 1, 2, 3  | Safety Glasses   |  | Face Shield |
|         |   |          | Chemical Goggles |  |             |
| Hand    |   |          |                  |  |             |
|         | Neoprene  | 1, 2, 3  | Nitrile          |  | PVC         |
|         | Viton   |          | Underglove       |  | Other =     |
| Body    |   |          |                  |  |             |
|         | Full Encapsulated Suit                          |          |                  |  |             |
|         | Two Piece Rain suit, Material =                 |          |                  |  |             |
| *       | One Piece Splash Suit, Material =               |          |                  |  |             |
|         | Hooded Tyvek Suit                               |          |                  |  |             |
| *       | Hooded Tyvek/Saranax Suit                       |          |                  |  |             |
|         | Hooded Tyvek/Polyethylene Suit                  |          |                  |  |             |
|         | Cloth Coveralls                                 |          |                  |  |             |
| 1, 2, 3 | High Visibility Vest                            |          |                  |  |             |
|         | Other   |          |                  |  |             |
| Lung    |   |          |                  |  |             |
|         | SCBA (open circuit, pressure demand)            |          |                  |  |             |
|         | Supplied air respirator                         |          |                  |  |             |
|         | Full face respirator, cartridge =               |          |                  |  |             |
| *       | Half mask respirator, cartridge = ORGANIC VAPOR |          |                  |  |             |
|         | Other   |          |                  |  |             |



|                        |   |
|------------------------|---|
| Ear                    |   |
| 1                      | Earplug, type = Disposable                                  |
|                        | Earmuff, type =   |
| Foot                   |   |
| 1, 2                   | Steel-toed boots, Type = Leather or Neoprene                |
|                        | Disposable Overboots, type =                                |
| Other Safety Equipment |   |
|                        | Ventilation blower/fan                                      |
| 1                      | Traffic cones   |
| 1                      | Barrier tape  |
|                        | Blast alarm   |
| 1                      | Ground fault circuit interrupter = Kill Switch on Drill Rig |
|                        | Lifeline harness  |
|                        | Radiation dosimeter   |
| Comments:              |   |
|                        |   |
|                        |   |
|                        |   |
|                        |   |
|                        |   |
|                        |   |

## XII. DECONTAMINATION PROCEDURES

- A. Equipment (Sampling, Construction, Etc.) Decontamination (Solvents used, Equipment used, Method of Disposal). Attach site decontamination map as necessary.

Equipment shall be cleaned using Alconox or TSP solution, then rinsed twice with tap water .  
Drilling tools will be steam cleaned. Rinseates will be stored in 55 gallon drums.

---

- B. Personnel Decontamination (Solvents used, Method of solvent disposal; Include decontamination method of PPE and disposal of PPE). Attach site decontamination map as necessary.

Performed by rinsing with TSP and potable water. Contaminated PPE will be disposed of in a waste containment dumpster.

---

- C. Investigation derived material disposal.

1. Drill cuttings/well water: Stored on site. Soil cuttings stored on and under plastic sheeting. Water stored in DOT 17-H steel drums. Disposal at certified landfill facilities (soil) or by vacuum truck (water) depending on lab results. Material may also be remediated on site if on site remediation of soil or groundwater is chosen cleanup option.

---

2. Decontamination Solutions: Stored along with investigation well water in drums.

---

3. Other: PPE disposed of in trash dumpster.

---

Legible and understandable precautionary labels must be affixed to containers of contaminated clothing, debris, waste, raw materials and mixtures.

**XIII. DOCUMENTATION**

RECORDS WILL BE MAINTAINED ON SITE AS NECESSARY.

**A. PROJECT PERSONNEL LIST AND SAFETY PLAN DISTRIBUTION RECORD**

**1. Employees**

All project staff must sign, indicating they have read and understand the Site Safety Plan. A copy of this Site Safety Plan must be made available for their review and readily available at the job site.

| <u>Employee Name/Job Title</u> | <u>Date Distributed</u> | <u>Signature</u> |
|--------------------------------|-------------------------|------------------|
| _____                          | _____                   | _____            |
| _____                          | _____                   | _____            |
| _____                          | _____                   | _____            |
| _____                          | _____                   | _____            |
| _____                          | _____                   | _____            |
| _____                          | _____                   | _____            |

**2. Contractors, Subcontractors**

A copy of this safety plan shall be provided to contractors and subcontractors who may be affected by activities covered under the scope of this Site Safety Plan. All contractors and subcontractors must comply with applicable OSHA, EPA and local government rules and regulations. In addition, contractors and subcontractors have read and understand and will comply with all provisions of this Site Safety Plan.

| <u>Firm Name</u> | <u>Contact Person</u> | <u>Date Distributed</u> |
|------------------|-----------------------|-------------------------|
| _____            | _____                 | _____                   |
| _____            | _____                 | _____                   |
| _____            | _____                 | _____                   |
| _____            | _____                 | _____                   |
| _____            | _____                 | _____                   |



C. VISITOR - IT IS COMPANY POLICY THAT VISITORS MUST FURNISH THEIR OWN PERSONAL PROTECTIVE EQUIPMENT. ALL VISITORS ARE REQUIRED TO SIGN THE VISITOR LOG AND COMPLY WITH THE SAFETY PLAN REQUIREMENTS.

| VISITOR LOG     |           |               |           |
|-----------------|-----------|---------------|-----------|
| Name of Visitor | Firm Name | Date of Visit | Signature |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |
|                 |           |               |           |

#### XIV. CONTINGENCY/EMERGENCY INFORMATION

##### A. EMERGENCY TELEPHONE NUMBERS

Ambulance: 911

Police: 911

Fire Department: 911

Hospital: Fairmont Hospital, 15400 Foothill Boulevard, San Lendro 510 667-7800

Client Contact: Mr. Hooshang Hadjian 510-843-1714, pager 510-977-0477

Poison Control Center: 800 233-3360

CHEMTREC: 800 424-9300

Project Manager: Jim Parker pager (510) 840-2780

SSO: same or 510-439-1024

##### B. STANDARD PROCEDURES FOR REPORTING EMERGENCIES

When calling for assistance in an emergency situation, the following information should be provided:

1. Name of person making the call
2. Telephone number at location of person making the call
3. Name of person(s) exposed or injured
4. Nature of emergency
5. Actions already taken

RECIPIENT OF CALL SHOULD HANG UP FIRST, NOT THE CALLER

##### C. EMERGENCY ROUTES:

ATTACH A MAP SHOWING THE ROUTE TO THE NEAREST HOSPITAL.

DESCRIBE NARRATIVELY THE ROUTE TO THE HOSPITAL.

HAS HOSPITAL BEEN CONTACTED TO DETERMINE IF THEY WILL HANDLE A CHEMICAL EXPOSURE?

D. CONTINGENCY PLANS AS APPROPRIATE; Describe contingency plans for emergency such as: Fire, Emergency Care, Injury, PPE, or other Equipment Failure. Include Emergency Signals and Evacuation Routes. If Formal Contingency Plan document has been prepared, attach a copy.