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Alameda County  
Environmental Health

**ED HEMMAT**  
**3840 SAN PABLO AVENUE**  
**EMERYVILLE, CA 94608**

April 3, 2009

**Ms. Barbara Jakub**  
ACHCSA  
1131 Harbor Parkway, Suite 250  
Oakland, California 94502-6577

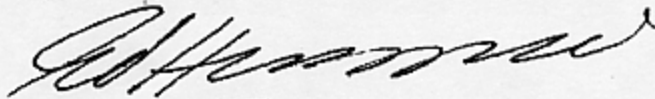
**SUBJECT: WORK PLAN FOR FURTHER SOIL AND  
GROUNDWATER INVESTIGATION**  
5630 San Pablo Avenue, Oakland, CA

Dear Ms. Jakub:

Enclosed, please find a copy of the March 31, 2009 subject Work Plan for Further Soil and Groundwater Investigation prepared by my consultant, Enviro Soil Tech Consultants.

I declare, under penalty of perjury, that the information and/or recommendations contained in this report are true and correct to the best of my knowledge.

Sincerely,



ED HEMMAT

**WORK PLAN FOR FURTHER SOIL AND  
GROUNDWATER INVESTIGATION  
FOR THE PROPERTY  
LOCATED AT 5630 SAN PABLO AVENUE  
OAKLAND, CALIFORNIA  
MARCH 31, 2009**

**PREPARED FOR:  
MR. ED HEMMAT  
3840 SAN PABLO AVENUE  
EMERYVILLE, CALIFORNIA 94608**

**BY:  
ENVIRO SOIL TECH CONSULTANTS  
131 TULLY ROAD  
SAN JOSE, CALIFORNIA 95111**

**ENVIRO SOIL TECH CONSULTANTS**

## **LIST OF FIGURES**

**FIGURE 1** ... Site Plan Showing the Property with Locations Sewer Line, Storm Drain Line and All Utilities Boxes

**FIGURE 2** ... Proposed Borings Location Site Plan

## **LIST OF APPENDICES**

**APPENDIX "A"** ... Figures 1 and 2

**APPENDIX "B"** ... Standard Operation Procedures

**APPENDIX "C"** ... Attachment A

**APPENDIX "D"** ... Outline of Drum Handling Procedures

**APPENDIX "E"** ... Health and Safety Plan

**APPENDIX "F"** ... Type of Protective Clothing and Respiration Should Be Used

**APPENDIX "G"** ... Regulatory Agency's Document

<b>TABLE OF CONTENTS</b>	<b><u>PAGE NO.</u></b>
Letter of Transmittal	1-2
Introduction	3
Site Description	4
Preferential Pathway and Utility Review	4
Proposed Tasks	5-6
Description of Proposed Tasks	
<i>Drilling Permits</i>	6
<i>Soil Investigation</i>	6-8
<i>Groundwater Investigation</i>	8
<i>Laboratory Analysis</i>	9
<i>Data Analysis</i>	9
<i>Disposal Manifests</i>	9
<i>Well Survey Data</i>	10
 <b><u>APPENDIX "A"</u></b>	
Figure 1 - Site Plan	F1
Figure 2 - Proposed Borings Map	F2
 <b><u>APPENDIX "B"</u></b>	
Drilling and Soil Sampling Procedure	SOP1-SOP2
Boring Log Sheet	SOP3
Monitoring Well Installation	SOP4-SOP5
Well Details Sheet	SOP6
Well Development	SOP7
Monitoring Well Survey Sheet	SOP8
Groundwater Sampling	SOP9



**TABLE OF CONTENTS CONT'D**

**PAGE NO.**

**APPENDIX "B" CONT'**

Field Measurements Sheet	SOP10
Volume of Water in Casing or Hole	SOP11
Chain-of-Custody Sheet	SOP12
Sample Management	SOP13-SOP18

**APPENDIX "C"**

Attachment A	A1-A4
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**APPENDIX "D"**

Outline of Drum Handling Procedures	ODH1-ODH5
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**APPENDIX "E"**

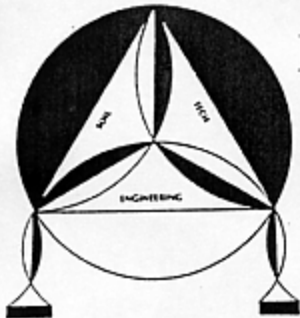
Health and Safety Plan	HSP1-HSP9
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**APPENDIX "F"**

Types of Protective Clothing and Respiration Should Be Used	TPCR1-TPCR3
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**APPENDIX "G"**

Alameda County Public Works Agency's Well Search Information	
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# ENVIRO SOIL TECH CONSULTANTS

Environmental & Geotechnical Consultants

131 TULLY ROAD, SAN JOSE, CALIFORNIA 95111

Tel: (408) 297-1500

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March 31, 2009

File No. 12-04-770-GI

**Mr. Ed Hemmat**

3840 San Pablo Avenue  
Emeryville, California 94608

**SUBJECT: WORK PLAN FOR FURTHER SOIL AND  
GROUNDWATER INVESTIGATION  
FOR THE PROPERTY**

Located at 5630 San Pablo Avenue, in  
Oakland, California

Dear Mr. Hemmat:

In accordance with correspondence received from Alameda County Health Care Services Agency-Environmental Health Division, Enviro Soil Tech Consultants has prepared the attached work plan to continue the environmental site assessment at your facility. The plan is intended to describe the objectives and procedures that we propose in order to evaluate the extent of soil and groundwater contamination in the vicinity of the property.

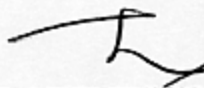
File No. 12-04-770-GI  
March 31, 2009

If you have any questions or require additional information, please feel free to contact our office at (408) 297-1500 or via email at [info@envirosoiltech.com](mailto:info@envirosoiltech.com).

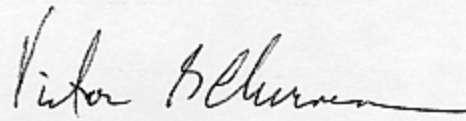
Sincerely,

**ENVIRO SOIL TECH CONSULTANTS**

  
FRANK HAMEDI-FARD  
GENERAL MANAGER

  
LAWRENCE SHUI-BING KOO  
C. E. #34928



  
VICTOR B. CHERVEN, PH.D.  
PROFESSIONAL GEOLOGIST #3475



**WORK PLAN FOR FURTHER SOIL AND  
GROUNDWATER INVESTIGATION  
AT 5630 SAN PABLO AVENUE  
OAKLAND, CALIFORNIA**

**1.0 INTRODUCTION**

Enviro Soil Tech Consultants (ESTC) was retained by Mr. Ed Hemmat in 2005 to prepare a Preliminary Investigation and Evaluation report (PIER) for the property located on the southeast corner of the intersection of San Pablo Avenue and Aileen Street in Oakland, California (Figure 1). The investigation was requested by Alameda County Health Care Services Agency-Environmental Health Division (ACHCSA-EHD), and the purpose was to follow up on an earlier report that soil in the vicinity of a former gasoline dispenser island in the northwestern corner of the property was contaminated with gasoline. ACHCSA-EHD directed Mr. Hemmat to implement a work plan that had been submitted and approved in 2000. Accordingly, ESTC installed five groundwater monitoring wells and has performed quarterly or semi-annual groundwater monitoring since 2005. The monitoring results have indicated that groundwater beneath at least the western portion of the site is impacted with fairly low concentrations of gasoline hydrocarbons, but the full extent of the contamination has not been determined. Further, little investigation of the extent of the contaminated soil has been undertaken. ACHCSA-EHD has requested that these and other issues be addressed in the next phase of investigation, and the purpose of this work plan is to describe the procedures that will be used to reach these objectives.

## **SITE DESCRIPTION**

The site is located in a commercial area on the southeast corner of San Pablo Avenue and Aileen Street in Oakland, California (Figure 1). It measures approximately 65 x 105 feet. A building on the east side of the site, measuring 55 x 20 feet, is currently being used as for storage (Figure 2). Underground gasoline storage tanks are located beneath the sidewalk along San Pablo Avenue.

## **PREFERENTIAL PATHWAY AND UTILITY REVIEW**

ACHCSA-EHD requested that this work plan include a review of site features such as underground utility lines or nearby water wells that could potentially influence contamination migration or serve as sensitive receptors. The results of our study are described in this section.

Table 1 is a list of borings and wells that have been drilled in the vicinity of the site. The list was provided by County of Alameda Public Works Agency-Water Resources Section. The list includes several monitoring wells and borings that have been drilled for environmental or geotechnical investigations, but there are no domestic, irrigation, or municipal wells on the list. None of the wells are deeper than 30 feet, so they would provide no useful information about the subsurface geology beyond what we have obtained so far in our investigation of the property at 5630 San Pablo.

A storm drain runs parallel to the sidewalk in San Pablo Avenue, and sewer lines are present in San Pablo and Aileen Streets (Figure 2). Both of these utility lines are between 5 and 10 feet below surface grade. At this depth, they are probably below the static water level at the site, which has varied between 5 and 10 feet since monitoring began in 2005. Hence, they could act as preferential pathways for groundwater flow and contaminant migration.

## **PROPOSED TASKS**

- Apply for drilling and encroachment permits from ACHCSA-EHD and the City of Oakland.
- Mobilize a trailer-mounted direct-push drilling rig to the site.
- Drill seventeen borings at the locations shown in Figure 3.
- Collect continuous soil samples from each boring in polyethylene liners and prepare boring logs
- Screen each core for evidence of hydrocarbons, and section at 5-foot intervals and at intermediate points where stronger evidence of hydrocarbons is noted, and preserve these samples in a cooled ice chest for transport to a state-certified analytical laboratory.
- Install temporary PVC casing in twelve of the borings (as marked in Figure 3), lower a disposable bailer through the casing, collect a groundwater sample from each, and preserve in a 40-ml glass vial in a cooled ice chest for laboratory analysis.
- Ream out the other five borings with hollow-stem augers, install permanent casing, and construct groundwater monitoring wells. Well STMW-8 will be 4 inches in diameter for use in future testing and/or remediation; all others will be 2 inches in diameter.
- Store drill cuttings from the monitoring wells on plastic sheeting pending laboratory analysis.
- Develop the monitoring wells.
- Measure water depths in all wells and purge standing water.

- Collect water samples from each well.
- Submit soil and groundwater samples to a state-certified laboratory for chemical analyses of Total Petroleum Hydrocarbons as gasoline and diesel; Benzene, Toluene, Ethylbenzene, Total Xylenes; and Methyl Tertiary Butyl Ether.
- Survey the casing elevations of the new wells relative to the existing wells.
- Analyze the drilling and laboratory data, prepare geologic cross sections, and report the results of the investigation.

## **DESCRIPTION OF PROPOSED TASKS**

### *DRILLING PERMITS*

Several of the borings and at least two monitoring wells will be drilled on property owned by the City of Oakland. Therefore it will be necessary to obtain an encroachment permit from the City prior to the start of field work. ESTC will also obtain a drilling permit from County of Alameda Public Works Agency-Water Resources Section.

### *SOIL INVESTIGATION*

In item 2 on page 2 of their September 2008 correspondence, ACHCSA-EHD asserted that “neither the lateral nor vertical extent of contamination has been assessed in soil”. This statement is inaccurate, as it implies that no subsurface investigation has been done to define (assess) the extent of soil contamination. AEI Consultants drilled four soil

borings in 2000, and ESTC drilled five monitor wells in 2005. Between these two investigations, at least 20 soil samples were collected and analyzed for the specific purpose of assessing the extent of soil contamination. Perhaps ACHCSA-EHD meant to say that “the full lateral and vertical extent of soil contamination has not been determined”. This would more accurately describe the results of the drilling that has been completed to date.

In order to address the concerns of ACHCSA-EHD with regard to the extent of contamination, ESTC will drill additional borings close to the presumed source of gasoline and additional borings to the north, west, south, and east of that source (Figure 2). The borings will be drilled with a portable direct-push (Geoprobe®) drilling rig and will be continuously sampled in polyethylene liners. The samples will be inspected, described, and preserved for laboratory analysis.

In the borings that have been drilled previously, hydrocarbons were detected at depths of 5, 8, 9, 10, and 15 feet. Concentrations have tended to be higher at 10 feet than at either 5 or 15 feet. No gasoline oxygenates (such as MTBE) have been detected, and the concentration of Benzene or other volatile aromatic hydrocarbons was below the detection limit in most samples, so that only higher-molecular weight hydrocarbons within the gasoline range have been detected by the laboratory, leading the laboratory chemists to conclude that the gasoline is old and has been degraded by natural attenuation processes. This conclusion is supported by the fact that the tanks were removed or stopped storing petroleum product in 1967, prior to the introduction of gasoline oxygenates.



Because low concentrations of gasoline were detected in the saturated samples collected at 15 feet in STMW-2 and STMW-5, we will attempt to sample borings B-1 through B-7 to at least 20 feet (it is highly unlikely that any off-site borings are contaminated more than a few feet below the prevailing water table, and therefore they will not be sampled below 15 feet). However, sampling below the water table is somewhat problematic because of the tendency for saturated sediment to wash out of the sampler during recovery, so it may not be possible to collect intact samples at that depth.

### *GROUNDWATER INVESTIGATION*

Due to the age of the gasoline release (i.e. pre-1967), it is reasonable to expect that much of the gasoline has leached to the water table and then spread laterally in the prevailing direction of groundwater flow. Therefore, ESTC proposes to drill several borings along the perimeter of the site, as well as west and north of the site to collect water samples for analysis. Water samples will be collected from the soil borings by placing a length of temporary slotted PVC casing into the boring and lowering a disposable bailer through the casing. Several of these borings are likely to be within the plume of contaminated groundwater, so these will be used as one-time sampling points only and will not be converted to permanent monitoring wells. A few of the borings, however, are needed to more fully assess the direction of groundwater flow and serve as sentinel wells for future monitoring of contaminant migration, and will be converted to monitor wells STMW-6 through STMW-10. If contamination is also detected in borings B-8 through B-11, at least one of these borings will also be completed as a well.

Well construction details are illustrated in Figure 4. The wells will be drilled to 15 feet and screened from 5 to 15 feet. Samples will be collected from the wells after they have been completed, developed and purged of sediment. The new wells will be added to the regular quarterly monitoring schedule.

### *LABORATORY ANALYSIS*

No MTBE was detected in any of the soil samples collected in 2005, and the laboratory has reported MTBE only in water samples from STMW-1. Those concentrations were extremely low (less than 10 parts per billion), and in past reports we have concluded that MTBE is not a contaminant of concern at this site. However, ACHCSA-EHD has requested that we continue to analyze soil and water samples for this hydrocarbon. EPA method 8015 will be used to analyze for TPH as gasoline, and method 8260B will be used to analyze for BTEX and MTBE.

### *DATA ANALYSIS*

ACHCSA-EHD has requested that geologic cross sections be constructed and included with this work plan. Unfortunately, the existing network of borings is not conducive to the construction of significantly beneficial cross sections. Only 2 or 3 borings are aligned in a straight line, and no resulting line would pass through the source area or yield much data on the orientation of permeable bedding units. We have therefore deferred this task until the new borings are drilled. In developing this drilling program, we have selected locations that would make it possible to construct several multi-boring sections (Figure 2), and these will be included in the resulting report.

### *DISPOSAL MANIFESTS*

ACHCSA-EHD has requested copies of the manifests for the disposal of soil and groundwater generated during drilling and sampling. Purged groundwater and soil cuttings as well as soil samples returned by laboratory are stored in 55 gallon drums at the site.

*WELL SURVEY DATA*

ACHCSA-EHD has requested a copy of the surveyor's report showing the location and elevation of the existing wells. This is attached in Appendix "C" and has been uploaded to Geotracker. Future wells will be surveyed and uploaded in similar fashion.

File No. 12-04-770-GI  
March 31, 2009

## **A P P E N D I X "A"**

### **FIGURES**

**ENVIRO SOIL TECH CONSULTANTS**

Enviro Soil Tech  
Consultants

131 Tully Road  
San Jose, CA 95112

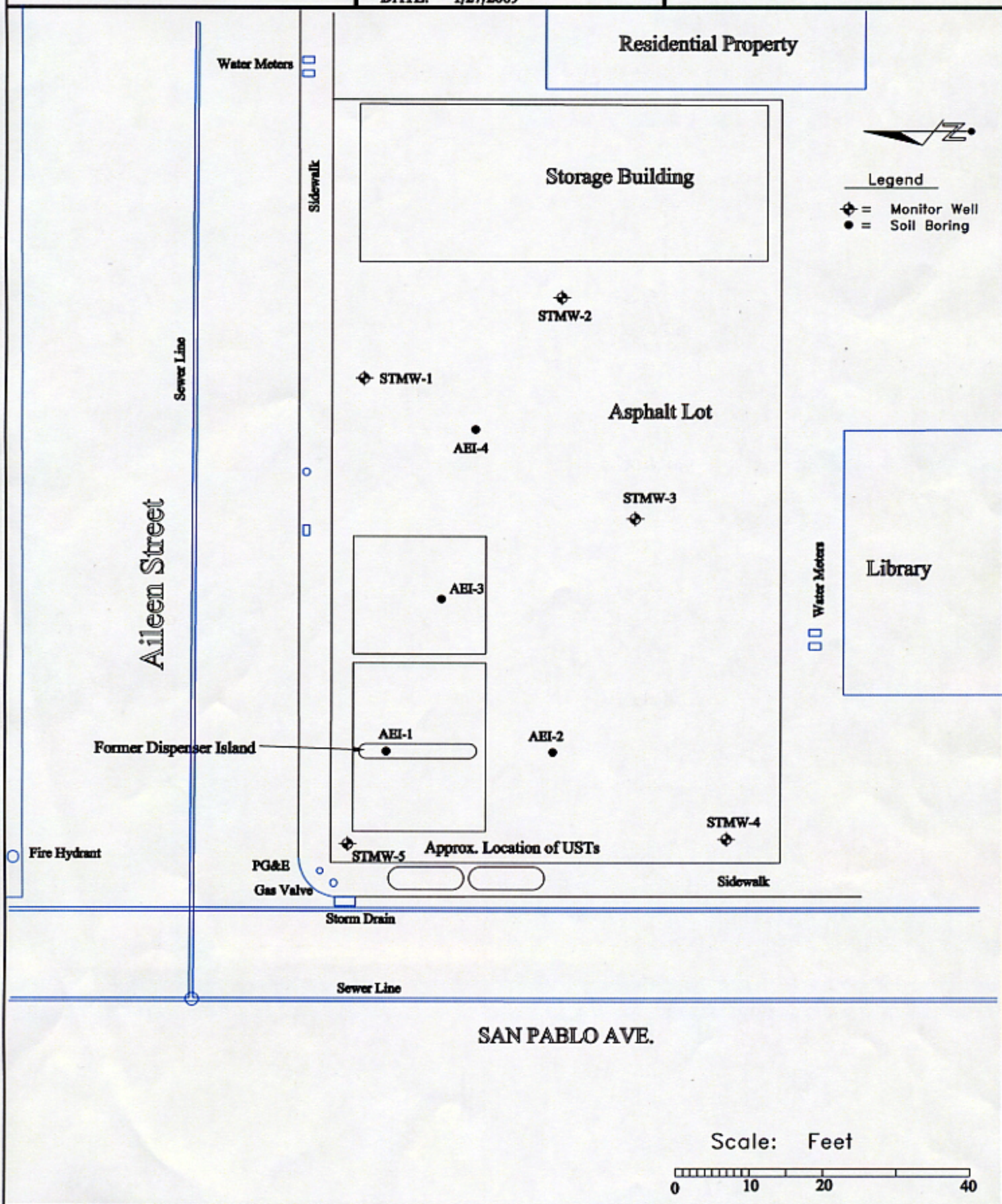
PROJECT

5630 San Pablo Avenue  
Oakland, California

PROJECT # 12-04-770-GI  
DATE: 1/27/2009

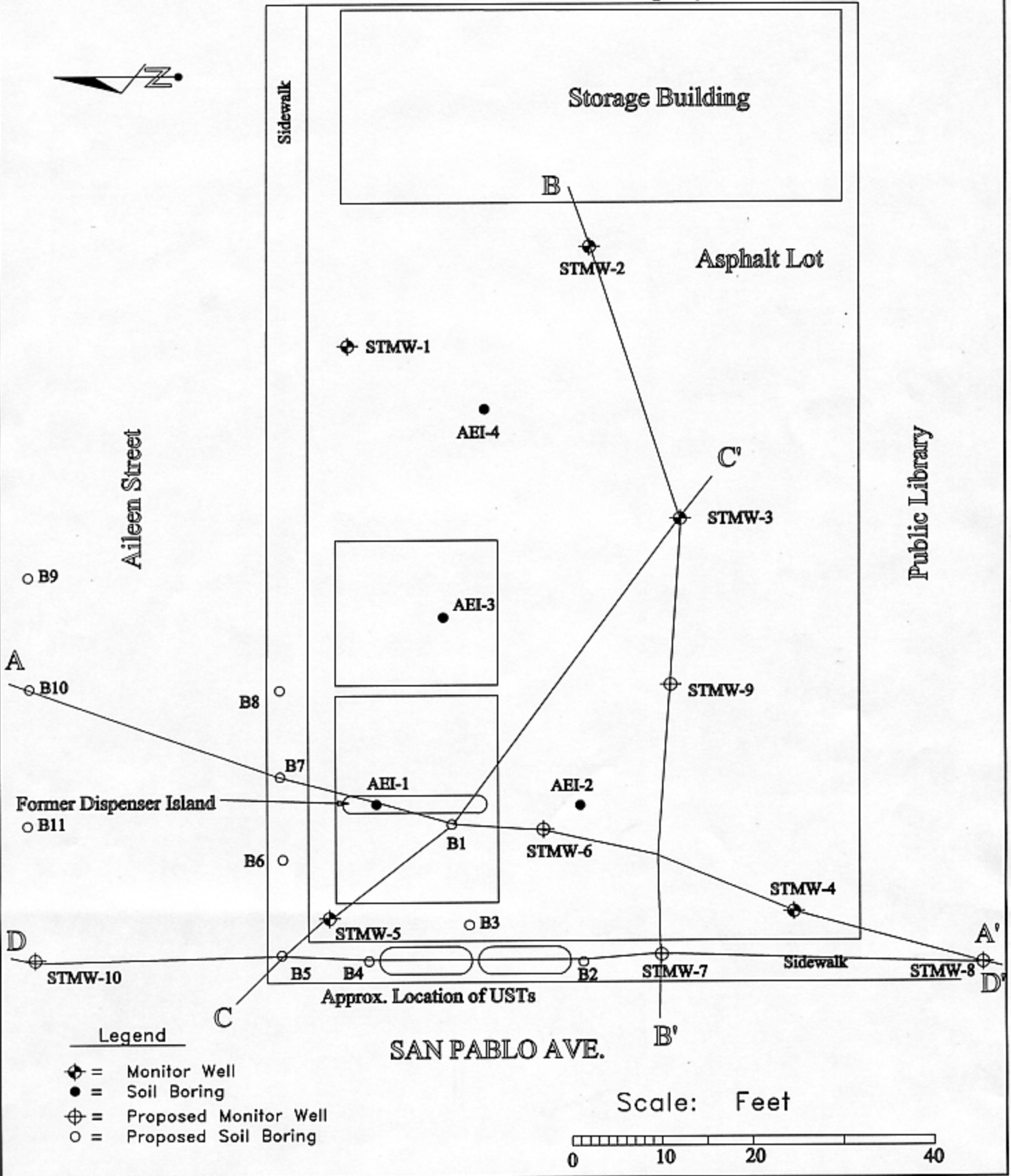
Figure 1

Site Plan





Residential Property



File No. 12-04-770-GI  
March 31, 2009

## **A P P E N D I X "B"**

### **STANDARD OPERATION PROCEDURES**

**ENVIRO SOIL TECH CONSULTANTS**

## **DRILLING AND SOIL SAMPLING PROCEDURE**

A direct push technology (Geoprobe) tool will be used in drilling the soil borings to the desired depths.

Prior to drilling, all drilling equipment will be thoroughly steam-cleaned to minimize the possibility of cross-contamination and/or vertical migration of possible contaminants.

In addition, sampling equipment will be washed between samples with Tri-sodium Phosphate (TSP) solution or an equivalent EPA-approved detergent followed by a rinse in distilled water.

During the drilling operation, undisturbed soil samples will be taken from the required depth by forcing a 2-inch sampler lined with polyethylene or brass tubes driven into undisturbed sediments at the bottom of the borehole by means of hydraulic push technologies.

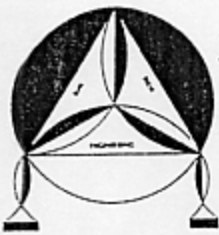
The selected sampling tubes will be immediately trimmed, the ends covered tightly with aluminum foil and plastic caps, sealed with tape labeled, placed in a plastic bag and stored in a cold ice chest in order to minimize the escape of any volatile present in the samples. Soil samples will be sent to a state-certified hazardous waste laboratory for analysis accompanied by a chain-of-custody record.



Soil samples collected at each sampling interval will be inspected for any possible contamination (odor or peculiar colors). Soil vapor concentrations will be measured in the field by using a Photoionization Detector (PID), Photovac Tip Air Analyzer. The soil sample will be sealed in a Zip-Loc plastic bag and placed in the sun to enhance volatilization of the hydrocarbons from the sample. The purpose of this field analysis is to qualitatively determine the presence or absence of hydrocarbons and to establish which soil samples will be analyzed at the laboratory. The data will be recorded on the drilling log at the depth corresponding to the sampling point.

Other soil samples may be collected to document the stratigraphy and estimate relative permeability of the subsurface materials.

Soil tailings that are obtained during drilling will be stored at the site, pending the analytical test results to determine proper disposal.



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Tel. (408) 297-1500 Fax: (408) 292-2116

File No. \_\_\_\_\_

Date \_\_\_\_\_

By \_\_\_\_\_

Job \_\_\_\_\_

Site Description \_\_\_\_\_ (continued on reverse side)

Type of Drill Rig \_\_\_\_\_ Hole Diameter \_\_\_\_\_

(NOTE: WATER LEVEL, TIME, DATE AT END OF LOG, CAVING, ETC...)

Sample Quality	Blows/6-inch	Sample Loc.	Sample No.	Depth	Soil Classification	Penetrometer
----------------	--------------	-------------	------------	-------	---------------------	--------------

				1		
				2		
				3		
				4		
				5		
				6		
				7		
				8		
				9		
				0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
				8		
				9		
				0		
				1		
				2		

## **MONITORING WELL INSTALLATION**

The boreholes for the monitoring wells were hand augered with a diameter of at least two inches larger than the casing outside diameter (O.D.).

The monitoring wells will be cased with threaded, factory-perforated and blank, schedule 40 PVC. The perforated interval consisted of slotted casing, generally 0.010 to 0.040 inch wide by 1.5-inch long slot size, with 42 slots per foot (slots which match formation grain size as determined by field grain-size distribution analysis). A PVC cap will be fastened to the bottom of the casing (no solvents, adhesive, or cements were used), the well casing will be thoroughly washed and steam-cleaned.

After setting the casing inside the borehole, kiln-dried sand or gravel-filter material will be poured into the annular space to fill from the bottom of the boring to two feet above the perforated interval. A one to two feet thick bentonite plug will be placed above this filter material to prevent grout from infiltrating down into the filter material. Approximately one to two gallons of distilled water will be added to hydrate the bentonite pellets. Then the well will be sealed from the top of the bentonite seal to the surface with concrete or neat cement containing about 5% bentonite (see Well Construction Detail).

To protect the well from vandalism and surface water contamination, Christy box with a special type of Allen screw will be installed around the wellhead, (for wells in parking lots, driveways and building areas). Steel stove pipes with padlocks will be usually set over wellheads in landscaped areas.

File No. 12-04-770-GI

March 31, 2009

In general, groundwater monitoring wells extend to the base of the upper aquifer, as defined by the consistent (less than 5 feet thick) clay layer below the upper aquifer, or at least 10 to 15 feet below the top of the upper aquifer, whichever is shallower. The wells do not extend through the laterally extensive clay layer below the upper aquifer. The wells are terminated one to two feet into such a clay layer.



# WELL DETAILS

PROJECT NAME: \_\_\_\_\_

BORING/WELL NO. \_\_\_\_\_

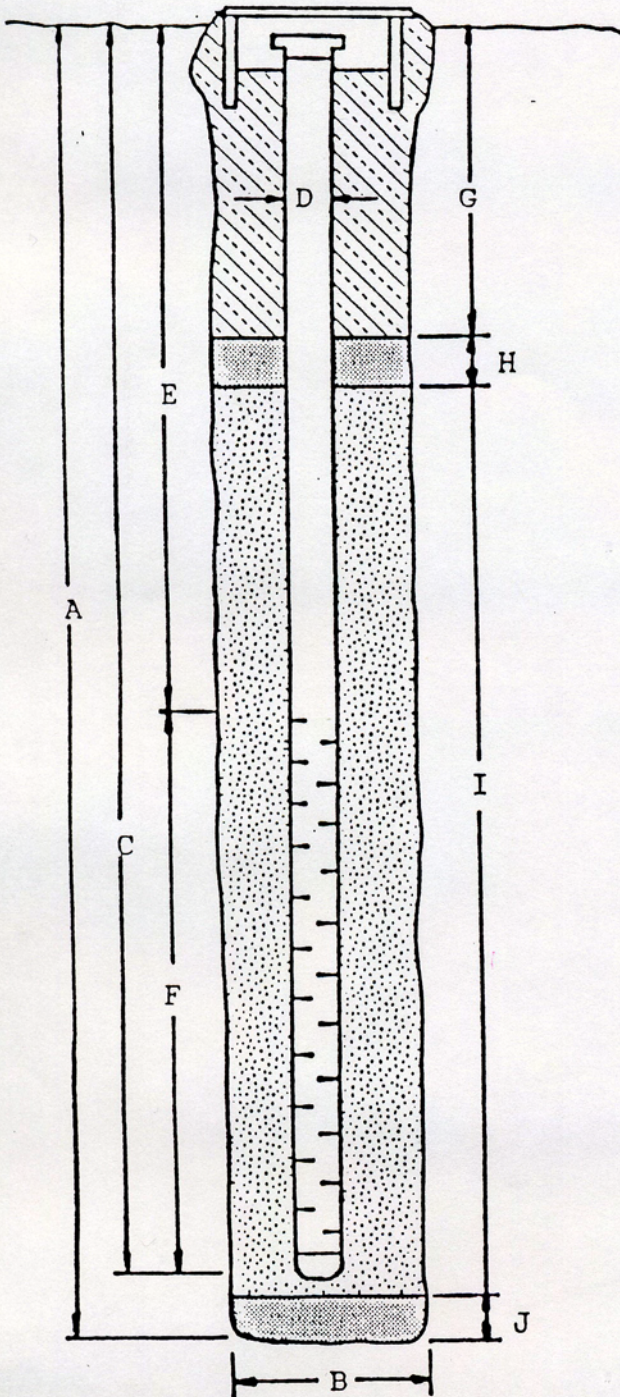
PROJECT NUMBER: \_\_\_\_\_

CASING ELEVATION: \_\_\_\_\_

WELL PERMIT NO.: \_\_\_\_\_

SURFACE ELEVATION: \_\_\_\_\_

G-5 Vault Box



A. Total Depth: \_\_\_\_\_

B. Boring Diameter: \_\_\_\_\_

Drilling method: \_\_\_\_\_

C. Casing Length: \_\_\_\_\_

Material: \_\_\_\_\_

D. Casing Diameter: \_\_\_\_\_

E. Depth to Perforations: \_\_\_\_\_

F. Perforated Length: \_\_\_\_\_

Perforated Interval: \_\_\_\_\_

Perforation Type: \_\_\_\_\_

Perforation Size: \_\_\_\_\_

G. Surface Seal: \_\_\_\_\_

Seal Material: \_\_\_\_\_

H. Seal: \_\_\_\_\_

Seal Material: \_\_\_\_\_

I. Gravel Pack: \_\_\_\_\_

Pack Material: \_\_\_\_\_

Size: \_\_\_\_\_

J. Bottom Seal: \_\_\_\_\_

Seal Material: \_\_\_\_\_



## **WELL DEVELOPMENT**

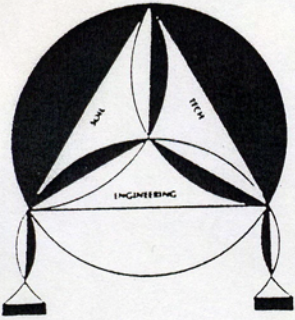
For all newly installed groundwater monitoring wells, the well casing, filter pack and adjacent formations were cleared of disturbed sediment and water.

Well development techniques including pumping, bailing, surging, swabbing, jetting, flushing or air lifting by using a stainless steel or Teflon bailer, a submersible stainless steel pump, or air lift pump. The well development will continued until the discharged water appeared to be relatively free of all turbidity.

All water and sediment generated by well development will be collected in 55-gallon steel drums (Department of Transportation approved), closed head (17-H) for temporarily storage, and then will be disposed of properly, depending on analytical results.

To assure that cross-contamination did not occur between wells, all well development tools will be steam-cleaned or thoroughly washed in a Trisodium Phosphate (TSP) solution followed by a rinse in distilled water before each well development.





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131 TULLY ROAD, SAN JOSE, CALIFORNIA 95111

Tel: (408) 297-1500

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## MONITORING WELL SURVEY SHEET

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

FACILITY NAME AND ADDRESS: \_\_\_\_\_

PROJECT NO.: \_\_\_\_\_

### FIELD ACTIVITIES

WELL NUMBER      ROD READING      RIM ELEVATION      WATER ELEVATION

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

WARNING: HAVE YOU SURVEYED ALL WELLS?      LOCATED ALL WELLS?

HAVE YOU CHECKED FOR & SURVEYED EXISTING MONITORING WELLS ON ADJACENT PROPERTIES OR PROPERTIES ACROSS THE STREET?

DO WE HAVE ACCURATE SKETCHES AT 1"=30' (AND 1"=100' IF NECESSARY)?      IF NOT, MAKE THEM.



## **GROUNDWATER SAMPLING**

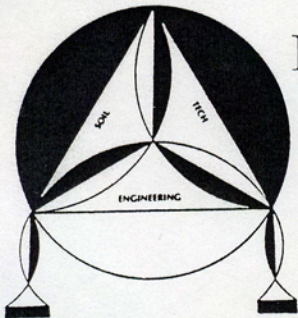
Prior to collection of groundwater samples, all of the sampling equipment (i.e. bailer, cables, bladder pump, discharge lines and etc...) will be cleaned by pumping TSP water solution followed by distilled water.

Prior to purging, the well "Water Sampling Field Survey Forms" will be filled out (depth to water and total depth of water column will be measured and recorded). The well then will be bailed or pumped to remove four to ten well volumes or until the discharged water temperature, conductivity and pH stabilized. "Stabilized" is defined as three consecutive readings within 15% of one another.

The groundwater sample will be collected when the water level in the well recovered to 80% of its static level.

One liter amber glass bottle and forty milliliter (ml.) glass volatile organic vials (VOA) with Teflon septa will be used as sample containers. The groundwater sample will be decanted into each VOA vial in such a manner that there will be a meniscus at the top. The cap quickly will be placed over the top of the vial and securely tightened. The VOA vial will then be inverted and tapped to see if air bubbles are present. If none is present, then the sample will be labeled and refrigerated for delivery under chain-of-custody to the laboratory. The label information should include a sample identification number, job identification number, date, time, type of analysis requested and the sampler's name.





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131 TULLY ROAD, SAN JOSE, CALIFORNIA 95111

Tel: (408) 297-1500

Fax: (408) 292-2116

FILE NO.: \_\_\_\_\_

WELL NO.: \_\_\_\_\_

DATE: \_\_\_\_\_

SAMPLER: \_\_\_\_\_

DEPTH TO WELL: \_\_\_\_\_

1 WELL VOLUME: \_\_\_\_\_

DEPTH TO WATER: \_\_\_\_\_

5 WELL VOLUME: \_\_\_\_\_

HEIGHT OF WATER COLUMN: \_\_\_\_\_

ACTUAL PURGED VOLUME: \_\_\_\_\_

CASING DIAMETER: \_\_\_\_\_ 2"

\_\_\_\_\_ 4"

## CALCULATIONS:

2" x 0.1632 \_\_\_\_\_

4" x 0.653 \_\_\_\_\_

PURGE METHOD: \_\_\_\_\_ BAILER \_\_\_\_\_ DISPLACEMENT PUMP \_\_\_\_\_ OTHER

SAMPLE METHOD: \_\_\_\_\_ BAILER \_\_\_\_\_ OTHER

SHEEN: \_\_\_\_\_ NO \_\_\_\_\_ YES, DESCRIBE: \_\_\_\_\_

ODOR: \_\_\_\_\_ NO \_\_\_\_\_ YES, DESCRIBE: \_\_\_\_\_

## FIELD MEASUREMENTS

<u>TIME</u>	<u>VOLUME</u>	<u>Ph</u>	<u>TEMP.</u>	<u>E.C.</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____



**VOLUME OF WATER IN CASING OR HOLE**

<b>Diameter of Casing or Hole (inch)</b>	<b>Gallon per Foot of Depth</b>	<b>Cubic Feet per Foot of Depth</b>	<b>Liter per Meter of Depth</b>	<b>Cubic Meter per Meter of Depth</b>
1	0.041	0.0055	0.509	0.509 x 10 <sup>-3</sup>
1½	0.092	0.0123	1.142	1.142 x 10 <sup>-3</sup>
2	0.163	0.0218	2.024	2.024 x 10 <sup>-3</sup>
2½	0.255	0.0341	3.167	3.167 x 10 <sup>-3</sup>
3	0.367	0.0491	4.558	4.558 x 10 <sup>-3</sup>
3½	0.500	0.0668	6.209	6.209 x 10 <sup>-3</sup>
4	0.653	0.0873	8.110	8.113 x 10 <sup>-3</sup>
4½	0.826	0.1104	10.26	10.26 x 10 <sup>-3</sup>
5	1.020	0.1364	12.67	12.67 x 10 <sup>-3</sup>
5½	1.234	0.1650	15.33	15.33 x 10 <sup>-3</sup>
6	1.469	0.1963	18.24	18.24 x 10 <sup>-3</sup>
7	2.000	0.2673	24.84	24.84 x 10 <sup>-3</sup>
8	2.611	0.3491	32.43	32.43 x 10 <sup>-3</sup>
9	3.305	0.4418	41.04	41.04 x 10 <sup>-3</sup>
10	4.080	0.5454	50.67	50.67 x 10 <sup>-3</sup>
11	4.937	0.6600	61.31	61.31 x 10 <sup>-3</sup>
12	5.875	0.7854	72.96	72.96 x 10 <sup>-3</sup>
14	8.000	1.069	99.35	99.35 x 10 <sup>-3</sup>
16	10.44	1.396	129.65	129.65 x 10 <sup>-3</sup>
18	13.22	1.767	164.18	164.18 x 10 <sup>-3</sup>
20	16.32	2.182	202.68	202.68 x 10 <sup>-3</sup>
22	19.75	2.640	245.28	245.28 x 10 <sup>-3</sup>
24	23.50	3.142	291.85	291.85 x 10 <sup>-3</sup>
26	27.58	3.687	342.52	342.52 x 10 <sup>-3</sup>
28	32.00	4.276	397.41	397.41 x 10 <sup>-3</sup>
30	36.72	4.909	456.02	456.02 x 10 <sup>-3</sup>
32	41.78	5.585	518.87	518.87 x 10 <sup>-3</sup>
34	47.16	6.305	585.68	585.68 x 10 <sup>-3</sup>
36	52.88	7.069	656.72	656.72 x 10 <sup>-3</sup>







## SAMPLE MANAGEMENT

### Sample Type: Soil, Oil Solvents, Solids, Highly Contaminated Liquid (c)

<u>General Composition</u>	<u>Sample Volume</u>	<u>Sample Container</u>	<u>Preservative</u>	<u>Holding Time</u> (recommended/regulatory)
Weak Acids and Bases		plastic or glass		
Photosensitive materials		amber glass		
Volatile Organic		40 ml glass vial with TFE lined septum		
Non-Volatile Organic		glass with TFE lined cap		
<b><u>Measurement – General Chemical Categories, Inorganic</u></b>				
Inorganic, general		plastic or glass		
Metals, total		plastic or glass		
<b><u>Measurement – General Chemical Categories, Organic</u></b>				
Acid extractables		glass with TFE lined cap		
Base/neutral extractables		glass with TEF lined cap		
<b><u>Measurement Specified Chemicals – Inorganic</u></b>				
Hydrofluoric Acid		plastic		
Phosphoric Acid		plastic		

## SAMPLE MANAGEMENT

### Sample Type: Waste

<u>General Composition</u>	<u>Sample Volume</u>	<u>Sample Container</u>	<u>Preservative</u>	<u>Holding Time</u> (recommended/regulatory)
<b><u>Measurement – General Chemical Categories, Inorganic</u></b>				
Ammonia			add 1 ml conc H <sub>3</sub> PO <sub>4</sub>	24 hours
Arsenic			add 6 ml conc HNO <sub>3</sub> /L	6 months
Chlorine			cool 4°C	24 hours
Chromium VI			add 6 ml conc H <sub>2</sub> SO <sub>4</sub> /L	24 hours
Cyanide, total			add 2.5 ml of 50% NaOH/L, cool 4°C	24 hours
Fluoride			cool 4°C	7 days
Mercury, total			add 5 ml conc HNO <sub>3</sub> L	28 days
Mercury, dissolved			filter, add 5 ml conc HNO <sub>3</sub> /L	38 days
Selenius			add 5 ml conc HNO <sub>3</sub> /L	
Sulfide			add 2 ml conc HCl/l	
Zinc			add 2 ml conc HC1/1	

### **Sample Type: Soil, Oil, Solvents, Solids, Highly Contaminated Liquids (c)**

Strong acids, pH<2	glass
Strong bases, pH>12.5	plastic

## SAMPLE MANAGEMENT

### Sample Type: Water and Wastewater

<u>General Composition</u>	<u>Sample Volume</u>	<u>Sample Container</u>	<u>Preservative</u>	<u>Holding Time</u> (recommended/regulatory)
Sulfate	50 ml	plastic or glass	cool 4°C	7 days/28 days
Sulfide	500 ml	plastic or glass	cool 4°C, add 4 drops 2N Zn acetate/100 ml	24 hours/28 days
Sulfite	50 ml	plastic or glass lined septum	determine on site	No Holding
<b><u>Measurement – Specific Chemicals Organic</u></b>				
NTA	50 ml	plastic or glass waterline & center	cool 4°C	24 hours
<b><u>Measurement – Physical Properties</u></b>				
Acidity			cool 4°C	24 hours
Alkalinity			cool 4°C	24 hours
pH			determine on site cool 4°C	6 hours
<b><u>Measurement – General Chemical Categories, Inorganic</u></b>				
Metals, dissolved			filter on site, add 5 ml conc HNO <sub>3</sub> /L	6 months
Metals, total			add 5 ml conc HNO <sub>3</sub> /L	6 months
<b><u>Measurement – General Chemical Categories, Organic</u></b>				
Phenolics			add H <sub>2</sub> PO <sub>4</sub> to pH 4 & 1 g CuSO <sub>4</sub> /L, cool 4°C	24 hours

## SAMPLE MANAGEMENT

### Sample Type: Water and Wastewater

<u>General Composition</u>	<u>Sample Volume</u>	<u>Sample Container</u>	<u>Preservative</u>	<u>Holding Time</u> (recommended/regulatory)
<b><u>Measurement – Specific Chemicals, Inorganic</u></b>				
Ammonium	50 ml	plastic or glass	cool 4°C, add H <sub>2</sub> SO <sub>4</sub> To pH<2	24 hours/28 days
Boron	100 ml	plastic	None Required	28 days/28 days
Chlorine	200 ml	plastic or glass	determine on site	No Holding
Chromium VI	300 ml	plastic or glass rinse with 1:1 HNO <sub>3</sub>	cool 4°C	24 hours/28 days
Cyanide, total	500 ml	plastic or glass add NaOH to pH>12	cool 4°C	24 hours/14 days
Cyanide, amenable to chlorination	50 ml	plastic or glass	add 100 mg NaS <sub>2</sub> O <sub>3</sub>	
Fluoride	300 ml	plastic	None Required	7 days/28 days
Iodide	100 ml	plastic or glass	cool 4°C	24 hours/-
Iodine	500 ml	plastic or glass	determine on site	½ hour/-
Mercury, total	500 ml	plastic or glass rinsed with 1:1 HNO <sub>3</sub>	cool 4°C add HNO <sub>3</sub> to pH<2	28 days/28 days
Mercury, dissolved	100 ml	plastic or glass	filter on site add HNO <sub>3</sub> to pH<1	glass: 38 days hard plastic: 13 days
Nitrate	100 ml	plastic or glass	cool 4°C add H <sub>2</sub> SO <sub>4</sub>	24 hours/48 hours
Nitrate & nitrate	200 ml	plastic or glass	cool 4°C add H <sub>2</sub> SO <sub>4</sub>	24 hours//28 days
Nitrate	100	plastic or glass	cool 4°C or freeze	

## SAMPLE MANAGEMENT

### Sample Type: Water and Wastewater

<u>General Composition</u>	<u>Sample Volume</u>	<u>Sample Container</u>	<u>Preservative</u>	<u>Holding Time</u> (recommended/regulatory)
<b><u>Measurement – General Chemical, Organic</u></b>				
Acid extractables		2 liter glass with TFE lined cap		
Base//neutral extractable		2 liter glass with TFE lined cap		
MBA's	250 ml	plastic or glass	cool 4°C	24 hours
Oil and Grease	1000 ml	glass, wide mouthed, calibrated	cool 4°C H <sub>2</sub> SO <sub>4</sub> to pH<2	24 hours/28 days
Organic		glass rinsed with organic solvents, TFE cap		
Phenolics	500 ml	glass		24 hours/28 days
Purgeables by purge	50 ml	glass with TFE cap		



## SAMPLE MANAGEMENT

### Sample Type: Water and Wastewater (a, b, c)

<u>General Composition</u>	<u>Sample Volume</u>	<u>Sample Container</u>	<u>Preservative</u>	<u>Holding Time</u> (recommended/regulatory)
Non-Volatile Organic		2 liter glass with TFE with lined cap		
Photosensitive materials		1 liter amber glass		
Volatile Organic		40 ml glass vial with TFE lined cap (collect in duplicate)		
Volatile	100 ml		cool 4°C	7 days
<b><u>Measurement – Physical Properties</u></b>				
Acidity	100 ml	plastic or borosilicate glass	cool 4°C	24 hours/14 days
Alkalinity	200 ml	plastic or glass	cool 4°C	24 hours/14 days
pH	25 ml	plastic or glass	determine on site	2 hours/2 hours
Temperature	1000 ml	plastic or glass	determine on site	No Holding
<b><u>Measurement – General Chemical Categories, Inorganic</u></b>				
Metals, dissolved	200 ml	plastic(g) or glass	filter on site (f)	6 months(e)
Metals, total	100 ml	plastic(g) or glass rinsed with 1:1 HNO <sub>3</sub>	HNO <sub>3</sub> to pH<2 (g)	6 months/6 months (e)

File No. 12-04-770-GI  
March 31, 2009

**A P P E N D I X "C"**

**ATTACHMENT A**

**ENVIRO SOIL TECH CONSULTANTS**

**ATTACHMENT A  
STANDARD FIELD PROCEDURES  
FOR GEOPROBE@ SAMPLING**

**DESCRIPTION:**

This document describes ESTC's standard field methods for Geoprobe soil and groundwater sampling. These procedures are designed to comply with Federal, State and Local regulatory guidelines. Specific field procedures are summarized below:

**OBJECTIVE:**

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate groundwater depth and quality and to submit samples for chemical analysis.

**SOIL CLASSIFICATION/LOGGING:**

All soil samples are classified according to the Unified Soil Classification System by a trained geologist or engineer working under the supervision of a California Registered Geologist (RG) or Civil Engineer (CE). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand silt, clay or gravel).
- Approximate percentage of each grain size category.
- Color.
- Approximate water or separate-phase hydrocarbon saturation percentage.

- Observed odor and/or discoloration.
- Other significant observation (i.e. concentration, presence of marked horizon, mineralogy) and estimated permeability.

### **SOIL SAMPLING:**

Geoprobe soil samples are collected from borings driven using hydraulic push technologies. A minimum of one and one-half feet of the soil column is collected for every five feet of drilled depth. Additional soil samples can be collected near the water table and at lithologic changes. Samples are collected using samplers lined with polyethylene or brass tubes driven into undisturbed sediments at the bottom of the borehole. The ground surface immediately adjacent to the boring is used as a datum to measure sample depth. The horizontal location of each boring is measured in the field relative to a permanent on-site reference using a measuring wheel or tape measure.

Drilling and sampling equipment is steam-cleaned or washed prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

### **SAMPLE STORAGE, HANDLING AND TRANSPORT:**

Sampling tubes chosen for analysis are trimmed off excess soil and capped with aluminum foil, Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4° C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

### **FIELD SCREENING:**

After a soil sample has been collected, soil from the remaining tubing is placed inside a sealed plastic bag and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable GasTech or photoionization detector measures volatile hydrocarbon vapor concentrations in the bag's headspace, extracting the vapor through a slit in the plastic bag. The measurements are used along with the field observations, odors, stratigraphy and groundwater depth to select soil samples for analysis.

### **GRAB GROUNDWATER SAMPLING:**

Groundwater samples are collected from the open borehole using bailers, advancing disposable Tygon tubing into the borehole and extracting groundwater using a diaphragm pump, or using a hydro-punch style sampler with a bailer or tubing. The groundwater samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

### **DUPLICATES AND BLANKS:**

Blind duplicate water samples are usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells samples. Laboratory supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory quality assurance/quality control (QA/QC) blanks contain the suspected field contaminants. An equipped blank may also be analyzed if non-dedicated sampling equipment is used.

**GROUTING:**

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

File No. 12-04-770-GI  
March 31, 2009

**A P P E N D I X "D"**

**OUTLINE OF DRUM HANDLING  
PROCEDURES**

**ENVIRO SOIL TECH CONSULTANTS**

**OUTLINE OF DRUM HANDLING PROCEDURES  
FOR THE PROPERTY  
LOCATED AT 5630 SAN PABLO AVENUE  
OAKLAND, CALIFORNIA**

1. Test material per site-specific test requirements.
2. Classify Material as: Clean/Non-Hazardous.
3. Labeling of Drums:
  - \* Pending Label: Used to describe material pending final analytical testing. Labels must be immediately affixed to drum during field work.
  - \* Non-Hazardous Label: Required within 24 hours after analytical results are received.
  - \* Hazardous Label: Required within 24 hours after analytical results are received.
  - \* For Pick-Up Label: Must be affixed to drum prior to arranged pick-up date by certified hauler.
4. Remove within 21 days of generation. Empty drums, where material was disposed in bulk, must be removed the same day they are emptied.
5. Disposal of Material:
  - \* Clean: Any local landfill.
  - \* Non-Hazardous: Class III Landfill.
  - \* Hazardous: Class I landfill.
6. Manifests may be signed by the on-site contractor or consultant, owner, or other authorized representatives. The transporter should not sign the manifest.

It is the responsibility of the contractor, consultant and owner to arrange for a person to sign the manifest on the day of pick-up.

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ODHP1



7. Reporting:

Reports shall include the following:

- \* Completed soil and water work sheets.
- \* Copy of the analytical results.
- \* State how and where material was disposed.
- \* If drums are emptied and material was disposed of in bulk, state how empty drums were handled.
- \* The signed blue and yellow copies of the hazardous waste manifest.

**SOIL:**

1. Test Requirements and Methods: Per STE site-specific test requirements.

- \* TPH: EPA Method 8015.
- \* BTEX: EPA Method 8020.
- \* TOG: 503 D&E.
- \* Lead:
  - Total Lead - EPA Method 7421.
  - Inorganic (soluble) Lead: DOS Title 22, Waste Extraction Test, 22-66700.
  - Organic - EPA Method 8240.
- \* Ignitable:

2. Classification:

\* Clean: TPH, BTEX, TOG, VOC and non-detectable (<100 ppm).

\* Non-Hazardous if any are true:

- TPH less than 1,000 ppm.

- Lead - Inorganic (soluble) Lead less than 5 ppm (STLC) or less than 100 ppm (TTLC).

- Organic Lead less than 13 ppm (TTLC).

\* Hazardous if any are true:

- TPH greater than 1,000 ppm.

- Lead - Inorganic (soluble) Lead greater than 5 ppm (STLC) or greater than 1,000 ppm (TTLC).

- Organic Lead greater than 13 ppm (TTLC).

- Ignitable - If TPH>1,000 ppm, then conduct Bunsen Burner Test.

- If soil burns vigorously and persistently soils are RCRA D001.

\* VOC - less than 1,000 ppm.

3. Responsibility for Disposal:

\* Clean: Consultant, contractor or owner.

\* Non-Hazardous: Consultant, contractor or owner.

4. Types of Drums: DOT-17H for a solid, solidified, or sludge material.

5. Disposal Facility:

\* Clean: Any local landfill.

\* Non-Hazardous: Class III or II landfill.

- \* Hazardous: Class I landfill.

**WATER:**

1. Test Requirements and Methods: Per site-specific test requirements.
  - \* TPH: EPA Method 8015.
  - \* BTEX: EPA Method 602.
2. Classification:
  - \* Clean Water: TPH and BTEX non-detectable.
  - \* Hazardous:
    - Water with dissolved product and detectable TPH and BTEX.
    - Water with free product.
    - Free product only.
3. Responsibility for Disposal:
  - \* Clean: Consultant/Contractor.
  - \* Non-Hazardous: Consultant, contractor or owner.
4. Types of Drums: DOT-17C or DOT-17E for liquid or slurry.
5. Disposal Facility:
  - \* Clean Water: Into sanitary sewer per Local Sewer District approval or into storm sewer with proper approval from Water Board.
  - \* Non-Hazardous:
    - Water with TPH and BTEX only.

File No. 12-04-770-GI  
March 31, 2009

- Water with free product.
- Arrange certified waste hauler to pick and dispose.
- \* Hazardous:
  - Free product only.
  - Arrange disposal by a certified hazardous waste hauler.

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ODHP5

File No. 12-04-770-GI  
March 31, 2009

## **A P P E N D I X "E"**

### **HEALTH AND SAFETY PLAN**

**ENVIRO SOIL TECH CONSULTANTS**

**HEALTH AND SAFETY PLAN  
FOR THE PROPERTY  
LOCATED AT 5630 SAN PABLO AVENUE  
OAKLAND, CALIFORNIA**

**GENERAL:**

This Health and Safety Plan (HSP) contains the minimum requirements for the subject site field work. The field activities include drilling, soil sampling and/or water sampling. All personnel and contractors will be required to strictly adhere with HSP requirements.

The objective of the HSP plan is describe procedures and actions to protect the worker, as well as unauthorized person, from inhalation and ingestion of and direct skin contact with potentially hazardous materials that may be encountered at the site. The plan describes (1) personnel responsibilities and (2) protective equipment to be used as deemed when working on the site. At a minimum, all personnel working at the site must read and understand the requirements of this HSP. A copy of this HSP will be on-site that easily accessible to all staff and government field representatives.

**HAZARD ASSESSMENT:**

The major contaminants expected to be encountered on the project are gasoline and its hydrocarbon constituents. The anticipated contaminants and their exposure standards are listed in Table 1. It is not anticipated that the potential levels of exposure

will reach the permissible exposure limits (PEL) or threshold limit values (TLV). Inhalation and dermal contact are the potential exposure pathways. Protective clothing will be mandatory for field personnel specified in this Plan. In addition, respiratory protective devices are required to be worn by each person on-site or to be within easy reach should irritating odors be detected or irritation of the respiratory tract occur.

**TABLE 1  
EXPOSURE LIMITS OF ANTICIPATED CHEMICAL CONTAMINANTS  
IN PARTS PER MILLION (ppm)**

Contaminant	PEL	EL	ED	CL	TWA	STEL
Benzene*[skin] & [carc]	1	---	-----	---	10	5
Ethylbenzene	100	---	-----	---	100	125
Toluene [skin]	100	200	10 min per 8 hours	500	100	150
Xylene (o, m & p isomers) [skin]	100	200	30 min per 8 hours	300	100	150

- PEL - permissible exposure limit: 8 hours, time-weighted average, California Occupational Safety and Health Administration Standard (CAL-OSHA).
- EL - excursion limit: maximum concentration of an airborne contaminant to which an employee may be exposed without regard to duration provided the 8 hours time-weighted average for PEL is not exceeded (CAL-OSHA).
- ED - excursion duration: maximum time period permitted for an exposure above the excursion limit but not exceeding the ceiling limit (CAL-OSHA).

March 31, 2009

- CL - Ceiling limit: maximum concentration of airborne contaminant which employees may be exposed permitted (CAL-OSHA).
- TWA - time-weighted average: 8 hours, [same as threshold limit value (TLV)], American Conference of Governmental Industrial Hygienists (ACGIH).
- STEL - Short-term exposure limit: 15 minutes time-weighted average (ACGIH).
- [carc] - substance identified as a suspected or confirmed carcinogen.
- [skin] - substance may be absorbed into the bloodstream through the skin, mucous membranes or eyes.
- \* - Federal OSHA Benzene limits given for PEL and STEL; STEL has a 50 minutes duration limit.

A brief description of the physical characteristics, incompatibilities, toxic effects, routes of entry and target organs has been summarized from the NIOSH Pocket Guide to Chemical Hazards for the contaminants anticipated to be encountered. This information is used in on-site safety meetings to alert personnel to the hazards associated with the expected contaminants.

### **Benzene:**

Benzene is a colorless, aromatic liquid. Benzene may create an explosion hazard. Benzene is incompatible with strong oxidizers, chlorine and bromine with iron. Benzene is irritating to the eyes, nose and respiratory system. Prolonged exposure may result in giddiness, headache, nausea, staggering gait, fatigue, bone marrow depression or abdominal pain. Routes of entry include inhalation, absorption, ingestion and skin or eye contact. The target organs are blood, the central nervous system (CNS), skin, bone marrow, eyes and respiratory system. Benzene is carcinogenic.



### **Ethylbenzene:**

Ethylbenzene is a colorless, aromatic liquid. Ethylbenzene may create an explosion hazard. Ethylbenzene is incompatible with strong oxidizers. Ethylbenzene is irritating to the eyes and mucous membranes. Prolonged exposure may result in headache, dermatitis, narcosis or coma. Routes of entry include inhalation, ingestion and skin or eye contact. The target organs are the eyes, upper respiratory system, skin and the CNS.

### **Toluene:**

Toluene is a colorless, aromatic liquid. Toluene may create an explosion hazard. Toluene is incompatible with strong oxidizers. Prolonged exposure may result in fatigue, confusion, euphoria, dizziness, headache, dilation of pupils, lacrimation, insomnia, dermatitis or photophobia. Routes of entry are inhalation, absorption, ingestion and skin or eye contact. The target organs are the CNS, liver, kidneys and skin.

### **Xylene Isomers:**

Xylene is a colorless, aromatic liquid. Xylene may create an explosion hazard. Xylene is incompatible with strong oxidizers. Xylene is irritating to the eyes, nose and throat. Prolonged exposure may result in dizziness, excitement, drowsiness, staggering gait, corneal vacuolization, vomiting, abdominal pain or dermatitis. Routes of entry are inhalation, absorption, ingestion and skin or eye contact. The target organs are the CNS, eyes, gastrointestinal tract, blood, liver, kidneys and skin.

## **GENERAL PROJECT SAFETY RESPONSIBILITIES:**

Key personnel directly involved in the investigation will be responsible for monitoring the implementation of safe work practices and the provisions of this plan are (1) the drilling project supervisor and (2) Enviro Soil Tech Consultants (*ESTC*) project field engineer. These personnel are responsible for knowing the provisions of the plan, communicating plan requirements to workers under their supervision and regulatory agencies inspectors and for enforcing the plan.

The personnel-protective equipment will be selected to prevent field personnel from exposure to fuel hydrocarbons that may be present at the site. To prevent direct skin contact, the following protective clothing will be worn as appropriate while working at the site:

1. Tyvek coveralls.
2. Butyl rubber or disposable vinyl gloves.
3. Hard hat with optional face shield.
4. Steel toe boots.
5. Goggles or safety glasses.

The type of gloves used will be determined by the type of work being performed. Drilling personnel will be required to wear butyl rubber gloves because they may have long duration contact with the subsurface materials. *ESTC* sampling staff will wear disposable gloves when handling any sample. These gloves will be changed between each sample.

Personnel protective equipment shall be put on before entering the immediate work area. The sleeves of the overalls shall be outside of the cuffs of the gloves to facilitate removal of clothing with the least potential contamination of personnel. If at any time protective clothing (coveralls, boots and gloves) become torn, wet or excessively soiled, it will be replaced immediately.

Total organic vapors will be monitored at the site with a portable PID. should the total organic vapor content approach that of the threshold limit value (TLV) for any of the substances listed in Table 1, appropriate safety measures will be implemented under the supervision of the site project engineer. These precautions include, but are not limited to, the following: (1) donning of respirators (with appropriate cartridges) by site personnel, (2) forced ventilation of the site, (3) shutdown of work until such time as appropriate safety measures sufficient to insure the health and safety of site personnel can be implemented.

No eating, drinking or smoking will be allowed in the vicinity of the drilling operations. *ESTC* will designate a separate area on site for eating and drinking. Smoking will not be allowed at the vicinity of the site except in designated areas. No contact lenses will be worn by field personnel.

#### **WORK ZONES AND SECURITY MEASURES:**

The project engineer will call Underground Service Alert (USA), and the utilities will be marked before any drilling is conducted on-site, and the borings will be drilled at safe distances from the utilities. The client will also be advised to have a representative

March 31, 2009

on-site to advise us in selecting locations of borings with respect to utilities or underground structures. Enviro Soil Tech Consultants assumes no responsibility to utilities not so located. The first 5 feet will be hand augered before any drilling equipment is operated.

Each of the areas where the borings will be drilled will be designated as Exclusion Zones. Only essential personnel will be allowed into an Exclusion Zone. When it is practical and local topography allows, approximately 25 to 75 feet of space surrounding those Exclusion Zones will be designated as Contamination Reduction Zones.

Cones, wooden barricades or a suitable alternative will be used to deny public access to these Contamination Reduction Zones. The general public will not be allowed close to the work area under any conditions. If for any reason the safety of a member of the public (e.g. motorist or pedestrian) may be endangered, work will cease until the situation is remedied. Cones and warning signs will be used when necessary to redirect motorists or pedestrians.

**LOCATION AND PHONE NUMBERS OF EMERGENCY FACILITIES:**

For emergency reasons, the closest facilities addresses and phone numbers are listed below:

City of Oakland Fire Department	911
Kaiser Foundation Hospital 280 West Mac Arthur Blvd., Oakland, CA	(510) 596-1000

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HSP7

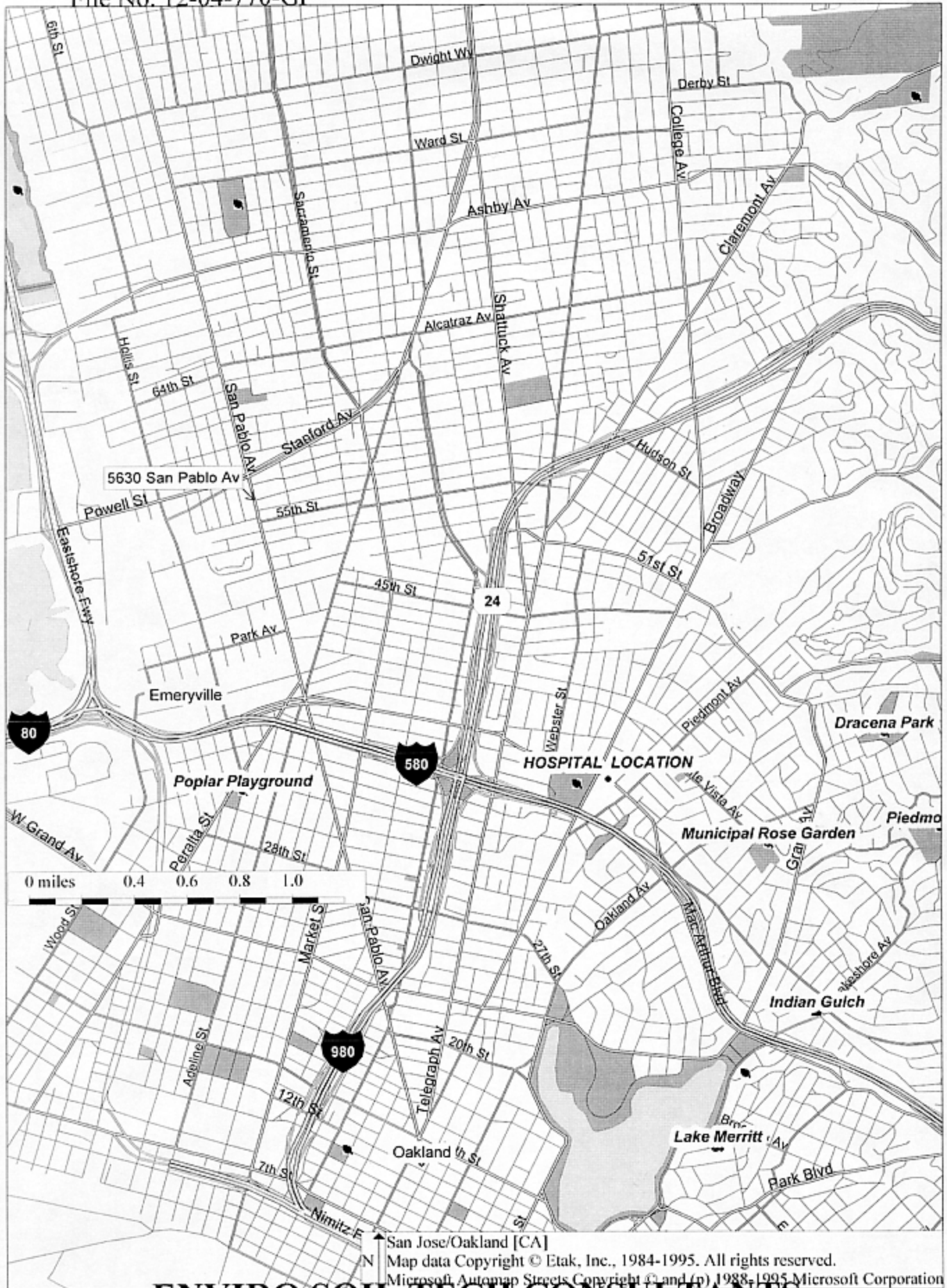
**ADDITIONAL CONTINGENCY TELEPHONE NUMBERS:**

Poison Control Center. . . . . (800) 523-2222  
Enviro Soil Tech Consultants Administrative Office. . . . . (408) 297-1500  
CHEMTREC. . . . . (800) 424-9300

**NOTE:** Only call CHEMTREC stands for Chemical Transportation Emergency Center, a public service of the Chemical Manufacturer’s Association. CHEMTREC can usually provide hazard information, warnings and guidance when given identification number or the name of the product and the nature of the problem. CHEMTREC can also contact the appropriate experts.

This Site Safety Plan has been reviewed by the project engineer, *ESTC*’s field personnel and all subcontractors.

Amendments or modifications to this Plan may be written on a separate page and attached to this Plan. Any amendments or modifications must be reviewed and approved by the personnel name above.



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**ENVIRO SOIL TECH CONSULTANTS**

HSP9

File No. 12-04-770-GI  
March 31, 2009

## **A P P E N D I X "F"**

### **TYPES OF PROTECTIVE CLOTHING AND RESPIRATION SHOULD BE USED**

**ENVIRO SOIL TECH CONSULTANTS**

**TYPES OF PROTECTIVE CLOTHING AND RESPIRATION  
THAT SHOULD BE USED AT HAZARDOUS WASTE SITES  
LOCATED AT 5630 SAN PABLO AVENUE  
OAKLAND, CALIFORNIA**

The degree of hazard is based on the waste material's physical, chemical, biological properties and anticipated concentrations of the waste. The level of protective clothing and equipment worn must be sufficient to safeguard the individual. A four category system is described below.

**LEVEL A:**

Level A consists of pressure-demand SCBA (air supplying respirator with back mounted cylinders), fully encapsulated resistant suit, inner and outer chemical resistant steel safety boots (toe, shank and metatarsal protection), and hard hat. Optional equipment might include cooling systems, abrasive resistant gloves, disposable oversuit and boot covers, communication equipment and safety line. Level A is worn when the highest level of respiratory, skin, and eye protection is required. Most samplers will never wear Level A protection.

**LEVEL B:**

Level B protection is utilized in areas where full respiratory protection is warranted, but a lower level of skin and eye protection is sufficient (only a small area of head and neck is exposed). Level B consists of SCBA, splash suit (one or two piece) or



disposal chemical resistant coveralls, inner and outer chemical resistant gloves, chemical resistant safety boots, and hard hat with face shield. Optional items include glove and boot covers and inner chemical resistant fabric coveralls.

### **LEVEL C:**

Level C permits the utilization of air-purifying respirators. Level B body, foot and hand protection is normally maintained. Many organizations will permit only the use of approved full-face masks equipped with a chin or harness-mounted canister. However, many sites are visited by personnel wearing a half-mask cartridge respirator.

### **LEVEL D:**

Level D protection consists of a standard work uniform of coveralls, gloves, safety shoes or boots, hard hat and goggles or safety glasses.

Two basic types of respirators are air-purifying and air-supplying. Air-purifying respirators are designed to remove specific contaminants by means of filters and/or sorbents. Air-purifying respirators come in various sizes, shapes and models, and can be outfitted with a variety of filters, cartridges and canisters. Each mask and cartridge or canister is designed for protection against certain contaminant concentrations. Just because a cartridge says it is for use against organic vapors does not mean that it is good for all organic vapors.

Air-supplying respirators are utilized in oxygen-deficient atmospheres (less than 19.5 percent) or when an air-purifying device is not sufficient. Air is supplied to a face-mask from an uncontaminated source of air via an air line from stationary tanks, from a compressor or from air cylinders worn on the back (SCBA). Rated capacities of the

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March 31, 2009

SCBA's are normally between 30 and 60 minutes. Only positive pressure (pressure demand) respirators should be used in high concentration hazardous environments.

Respirators often malfunction during cold weather or after continued use. Only NIOSH (National Institute for Occupational Safety and Health) and MSHA (Mine Safety and Health Administration) approved respirators should be used.

Contact lenses are not permitted for use with an respirator. Contact lenses should not be worn at any site since they tend to concentrate organic materials around the eyes; soft plastic contact lenses can absorb chemicals directly. In addition, rapid removal of contact lenses may be difficult in an emergency. Since eye glasses can prevent a good seal around the temple when wearing goggles or full face masks, spectacle adapters are available for masks and goggles.

**ENVIRO SOIL TECH CONSULTANTS**

TPCR3

File No. 12-04-770-GI  
March 31, 2009

**A P P E N D I X "G"**

**REGULATORY AGENCY'S DOCUMENT**

**ENVIRO SOIL TECH CONSULTANTS**

info@envirosoiltech.com

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To: &lt;info@envirosoiltech.com&gt;

CC: "Jakub, Barbara, Env. Health" &lt;barbara.jakub@acgov.org&gt;, "Yoo, James" &lt;jamesy@acpwa.org&gt;

Date: Tue, 16 Dec 2008 15:07:14 -0800

Subject: **well search 5630 San Pablo Ave Oakland 1s4w 15 .25 mile**

You requested a .25 mile radius search.

I searched in Sections 1s4w 15HJKR Q; 1s4w 14M N, and found results in all but the underlined sections.

In accordance with Section 13752, information obtained from these reports shall be kept confidential and shall not be disseminated, published, or made available for inspection by the public without written authorization from the owner(s) of the well(s). The information shall be used only for the purpose of conducting the study. Copies obtained shall be stamped **CONFIDENTIAL** and shall be kept in a restricted file accessible only to agency staff or the authorized agent.

The information provided is deemed reliable but not guaranteed.

Please feel free to contact me at the numbers below with any questions. Thanks-

Vicky Hamlin

ESA

Alameda County Public Works Agency

Water Resources Section

399 Elmhurst Street

Hayward, CA 94544

Ph: 510-670-5443

Fax: 510-782-1939

[vickyh@acpwa.org](mailto:vickyh@acpwa.org)[www.acgov.org/pwa/wells](http://www.acgov.org/pwa/wells)

Legend for Well Search.rtf (Binary attachment)

well search 5630 San Pablo Ave Oakland 1s4w 15 .25 mile.xls (Binary attachment)

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Contact Webmail Support

## **Well Legend**

DOM=Domestic well

IRR=Irrigation well

MUN= Municipal well

IND=Industrial well

CAT=Cathodic well

DES=well destroyed (through permit)

ABN=Abandoned and not being used (but has not been destroyed through permit process)

TES=Test well

BOR= Geotechnical investigation

MON= Monitoring well

EXT=Extraction/ Vapor wells

PIE=Piezometers

REC=Recovery well (extraction/ vapor)

? = Unknown or no information found or given

<u>Permit</u>	<u>Tr</u>	<u>Section</u>	<u>Address</u>	<u>Longcity</u>
	1S/4W	14N 1	1056 48th St.	Emeryville
	1S/4W	14N 2	1056 48th St.	Emeryville
	1S/4W	14N 3	1056 48th St.	Emeryville
96105	1S/4W	15H 1	6301 San Pablo Ave	Oakland
96105	1S/4W	15H 2	6301 San Pablo Ave	Oakland
96105	1S/4W	15H 3	6301 San Pablo Ave	Oakland
96105	1S/4W	15H 4	6301 San Pablo Ave	Oakland
	1S/4W	15J	SAN PABLO AVE & POWELL	Oakland
	1S/4W	15J 6	5714 San Pablo Ave.	Oakland
	1S/4W	15J 7	5714 San Pablo Ave.	Oakland
	1S/4W	15J 8	5714 San Pablo Ave.	Oakland
	1S/4W	15J 9	5714 San Pablo Ave.	Oakland
	1S/4W	15J		
	1S/4W	15J		
	1S/4W	15J		
	1S/4W	15J		
	1S/4W	15J		
	1S/4W	15J		
	1S/4W	15J		
	1S/4W	15J		
	1S/4W	15J		
	1S/4W	15K 1	HOLLIS ST. & 59TH	Emeryville
	1S/4W	15K1		
	1S/4W	15Q 4	1355 55th St	Emeryville
	1S/4W	15Q 5	1355 55th St	Emeryville
	1S/4W	15Q 1	1400-53RD ST	Emeryville
	1S/4W	15Q 2	4525 Hollis Street	Emeryville
	1S/4W	15Q 3	5521 Doyle St.	Emeryville

<u>Owner</u>	<u>Update</u>	<u>Xcoord</u>	<u>Ycoord</u>	<u>Matchlevel</u>	<u>Tsrqq</u>	<u>Rec code</u>
City of Emmeryville MW-1	#####	1.22E+08	37837116	1	1S/4W 14N	0
City of Emmeryville MW-2	#####	1.22E+08	37837116	1	1S/4W 14N	0
City of Emmeryville MW-3	#####	1.22E+08	37837116	1	1S/4W 14N	0
Mobil Oil Corp.	#####	1.22E+08	37845789	1	1S/4W 15H	0
Mobil Oil Corp.	#####	1.22E+08	37845789	1	1S/4W 15H	0
Mobil Oil Corp.	#####	1.22E+08	37845789	1	1S/4W 15H	0
Mobil Oil Corp.	#####	1.22E+08	37845789	1	1S/4W 15H	0
CHAPMAN SHEPARD INC.	#####	1.22E+08	37837446	2	1S/4W 15J	2337
SYDA Foundation MW-2	#####	1.22E+08	37840689	1	1S/4W 15J	0
SYDA Foundation MW-3	#####	1.22E+08	37840689	1	1S/4W 15J	0
SYDA Foundation MW-4	#####	1.22E+08	37840689	1	1S/4W 15J	0
SYDA Foundation MW-5	#####	1.22E+08	37840689	1	1S/4W 15J	0
		0	0	9	1S/4W 15J	6818
		0	0	9	1S/4W 15J	6873
		0	0	9	1S/4W 15J	6874
		0	0	9	1S/4W 15J	6875
		0	0	9	1S/4W 15J	6876
		0	0	9	1S/4W 15J	6877
		0	0	9	1S/4W 15J	6878
		0	0	9	1S/4W 15J	6879
		0	0	9	1S/4W 15J	6880
BONTA COLLINS	#####	1.22E+08	37841400	0	1S/4W 15K	6542
		0	0	9	1S/4W 15K	6881
California Syrup and Extr	#####	1.22E+08	37837848	1	1S/4W 15Q	0
California Syrup and Extr	#####	1.22E+08	37837848	1	1S/4W 15Q	0
CETUS CORP	3/6/1987	1.22E+08	37836594	8	1S/4W 15Q	2341
City of Emeryville Rdlmt	#####	1.22E+08	37833624	0	1S/4W 15Q	1967
Clementina Equipment MW1	#####	1.22E+08	37838175	1	1S/4W 15Q	0

<u>Phone</u>	<u>City</u>	<u>Drilldate</u>	<u>Elevation</u>	<u>Totaldepth</u>	<u>Waterdept</u>	<u>Diameter</u>	<u>Use</u>
0 EME		Oct-92	0	28	0	2	DES
0 EME		Oct-92	0	28	0	2	DES
0 EME		Oct-92	0	28	0	2	DES
0 OAK		3/96	0	20	7	4	MON
0 OAK		3/96	0	20	7	4	MON
0 OAK		3/96	0	20	15	4	MON
0 OAK		3/96	0	25	16	4	MON
0 OAK		Feb-89	0	20	14	8	BOR
0 OAK		5/92	0	19	10	4	MON
0 OAK		5/92	0	19	10	4	MON
0 OAK		5/92	0	19	10	4	MON
0		Mar-89	0	15	13	8	BOR
0		Feb-89	0	15	13	8	BOR
0		Feb-89	0	20	0	8	BOR
0		Feb-89	0	15	0	8	BOR
0		Mar-89	0	15	13	8	BOR
0		Mar-89	0	20	14	8	BOR
0		Mar-89	0	15	13	8	BOR
0		Mar-89	0	20	0	8	BOR
0		Mar-89	0	15	0	8	BOR
0 EME			0	0	0	0	
0		Feb-88	0	20	5	2	MON
0 EME		9/94	0	20	8	2	MON
0 EME		9/94	0	20	8	2	MON
0 EME		Dec-86	0	29	12	2	MON
0 EME		5/91	0	30	0	0	DES
0 EME		4/93	0	17	12	2	MON