

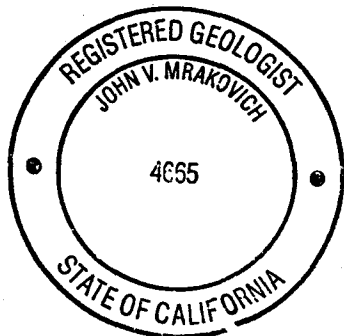
4/6/93  
WORKPLAN  
FOR  
EXCAVATION OF CONTAMINATED SOIL

ALASKA SERVICE STATION  
6211 SAN PABLO AVENUE  
OAKLAND, CA 94608

Submitted By:  
TANK PROTECT ENGINEERING  
OF NORTHERN CALIFORNIA, INC.  
April 6, 1993

*John V. Mrakovich*

John V. Mrakovich, Ph.D.  
Registered Geologist



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This Workplan has been prepared by the staff of Tank Protect Engineering of Northern California, Inc. under direction of an Engineer and/or Geologist whose seal(s) and/or signature(s) appear hereon.

The findings, recommendations, specifications or professional opinions are presented, within the limits prescribed by the client, after being prepared in accordance with generally accepted professional engineering and geologic practice. We make no other warranty, either expressed or implied.

*Jeff J. Farhoomand*

Jeff J. Farhoomand, M.S.  
Civil Engineer

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- B. QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES
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## 1.0 INTRODUCTION

The subject site is located at 6211 San Pablo Avenue in the City of Oakland in Alameda County, California and is occupied by an automobile gasoline station. The facility is operated by Mr. Pritpaul Sappal who resides at 872 Coral Drive in Rodeo, California 94572. On October 26, 1992, during a routine inspection of the facility by a representative of the Alameda County Health Care Services Agency (ACHCSA), a leak was observed in the "Red Jacket" pressure system of the 10,000-gallon, regular, unleaded, underground storage tank (see Figure 1). An inspection report was issued that day requiring an investigation of the unauthorized release.

In a December 7, 1992 letter to Mr. Sappal, the ACHCSA has required several undertakings of which 2 require an investigation of soil and groundwater contamination and the proposed cleanup action. Mr. Sappal has contracted with Tank Protect Engineering of Northern California, Inc. (TPE) to respond to the request for a soil investigation and cleanup.

## 2.0 PROPOSED PRELIMINARY REMEDIAL INVESTIGATION AND REMEDICATION OF CONTAMINATED VADOSE ZONE SOIL

As a preliminary investigation and remediation of vadose zone soil contamination, TPE proposes the following scope of work:

- . Empty all petroleum product from the 10,000-gallon, regular, unleaded, gasoline tank and associated piping. This task will be the responsibility of Mr. Sappal.
- . Saw cut and break the asphalt/concrete around the leak.
- . Excavate gasoline contaminated vadose zone soil.
- . After excavating contaminated soil in the above task, collect soil samples for chemical analyses to document cleanup concentrations from the floor and/or sidewalls of the resulting excavation for total petroleum

*fw y  
possible*

hydrocarbons as gasoline (TPHG); and for benzene, toluene, ethylbenzene, and xylenes (BTEX).

- . Stockpile the excavated soil on site and collect soil samples for chemical analysis to characterize the stockpile for TPHG and BTEX.
- . Dispose of the excavated soil to an appropriate landfill or remediate the soil for on-site reuse to close the excavation (with regulator approval).
- . Backfill the excavation with remediated soil and/or clean imported fill.
- . Prepare a Preliminary Site Assessment Report (PSAR).

## 2.1 Prefield Activities

Prior to beginning excavation activities, TPE will verify that the tank and associated piping have been emptied of all petroleum product and/or flammable liquids and will notify the Bay Area Air Quality Management District (BAAQMD).

## 2.2 Excavation of Contaminated Soil

TPE will saw cut and remove asphalt and/or concrete to expose contaminated soil for excavation. TPE proposes to conduct horizontal excavation of contaminated vadose zone soil to a distance of up to about 10 feet outward from the location of the "Red Jacket" leak and vertical excavation to the depth of groundwater or about 5 feet, whichever occurs first. Excavation will be conducted by hand digging and will not be conducted to the extent of endangering the tank, piping, buildings, sidewalk areas, utilities, or any other structures or objects. Plastic or explosion proof tools will be used near any piping or vessels used to contain gasoline or flammable liquids.

The extent of excavation will be based on the presence of apparent soil contamination as evidenced by visible hydrocarbon stains, odors, and by field screening; by head-space

analysis, of excavated floor and/or sidewall soil samples for volatile organic compounds using a Gastech Inc. Trace-Tehtor.

### 2.3.1 Soil Sampling

When the horizontal and vertical extent of contaminated vadose zone soil has been reached, based on the above parameters, or the horizontal and vertical limits discussed above have been reached, soil samples will be collected for chemical analysis. A minimum of 1 soil sample will be collected from each sidewall and from the floor. Sidewall samples will be collected about 1-foot above the floor of the excavation. If any sidewall or floor dimension becomes greater than 14-feet in length, soil samples will be collected at about 14-foot intervals along that dimension. If groundwater is present, soil samples will be collected about 1-foot above the groundwater's surface. Additional soil samples may be collected where contaminated soil may be suspected and in permeable materials that may act as conduits for contaminant transport. Additional excavation may be recommended if all contaminated soil has not been removed, based on results of chemical analyses.

Soil samples will be collected from the excavation by removing about 1 foot of soil to expose a fresh surface and driving a 2-inch diameter by 6-inch long brass tube into the newly exposed surface with a slide-hammer corer. The samples may also be collected by excavating soil with the bucket of a backhoe and collecting a sample in a brass tube from soil in the bucket. After collecting each sample, the brass tube ends will be quickly covered with teflon tape, capped with plastic end-caps, and sealed in a quart size plastic bag. The tubes will be labeled to show site name, date, sampler, sample number, time, and depth and will be placed in an iced-cooler for transport to a California Department of Health Services (DHS) certified laboratory accompanied by chain-of-custody documentation (see Appendices A and B for TPE's protocols relative to sample handling procedures and quality assurance and quality control procedures, respectively).

### 2.3.2 Chemical Analyses

All soil samples are proposed to be analyzed for TPHG and BTEX by the DHS Method and EPA Method 8020, respectively.

### 2.4 Stockpiled Soil

Based on concentrations of contaminants and volume of soil excavated, TPE may recommend to the client either disposal of contaminated soil at an appropriate landfill or on-site treatment of contaminated soil followed by disposal at an appropriate landfill or on-site reuse of the soil with regulator approval.

If stockpiled soil is remediated on site, TPE may recommend treatment by aeration, bioremediation, and/or chemical oxidation of the hydrocarbons. The chosen method of remediation will only be conducted with the approval of the ACHCSA and after notifying the BAAQMD.

#### 2.4.1 Soil Sampling

After remedial treatment, 1 discrete verification soil sample will be collected for each 20 cubic yards (cyds) to confirm an appropriate cleanup concentration for on-site reuse. If greater than 200 cyds of soil is stockpiled for remediation, TPE may ask the ACHCSA to approve a statistical soil sampling plan to reduce the number and cost of verification soil samples needed to verify soil cleanup. Cleanup concentrations of less than 10 parts per million (ppm) for TPHG and non-detectable BTEX are recommended by TPE for on-site reuse of remediated soil. If excavated soil is disposed of at a landfill, the cleanup concentration and number of soil samples for characterization will be determined by the landfill guidelines.

## 2.5 Excavation Closure

After terminating excavation activities, TPE will backfill the excavation and resurface as necessary. Backfill material will consist of the excavated, remediated soil and/or imported clean fill. The fill will be placed in the excavation in 2-foot to 3-foot compacted lifts to final grade.

## 2.6 Preliminary Site Assessment Report

The information collected, analytical results, and TPE's conclusions and recommendations will be summarized in a report. The report will describe the work performed and include: copies of all permits required to complete the work, a detailed site plan showing limits of excavation, locations of soil samples, results of chemical analyses, and other documentation to support the conclusions. Analytical results will be summarized in a table and documented with certified analytical reports and chain-of-custodies. Stockpiled soil disposition will be documented and conclusions regarding the extent and type(s) of contamination will be presented within the context of this workplan. Recommendations for feasible remedial alternatives and/or supplemental sampling and analyses will be included.

## 3.0 SITE SAFETY PLAN

A Site Safety Plan for conducting work under this workplan is included in Appendix C.

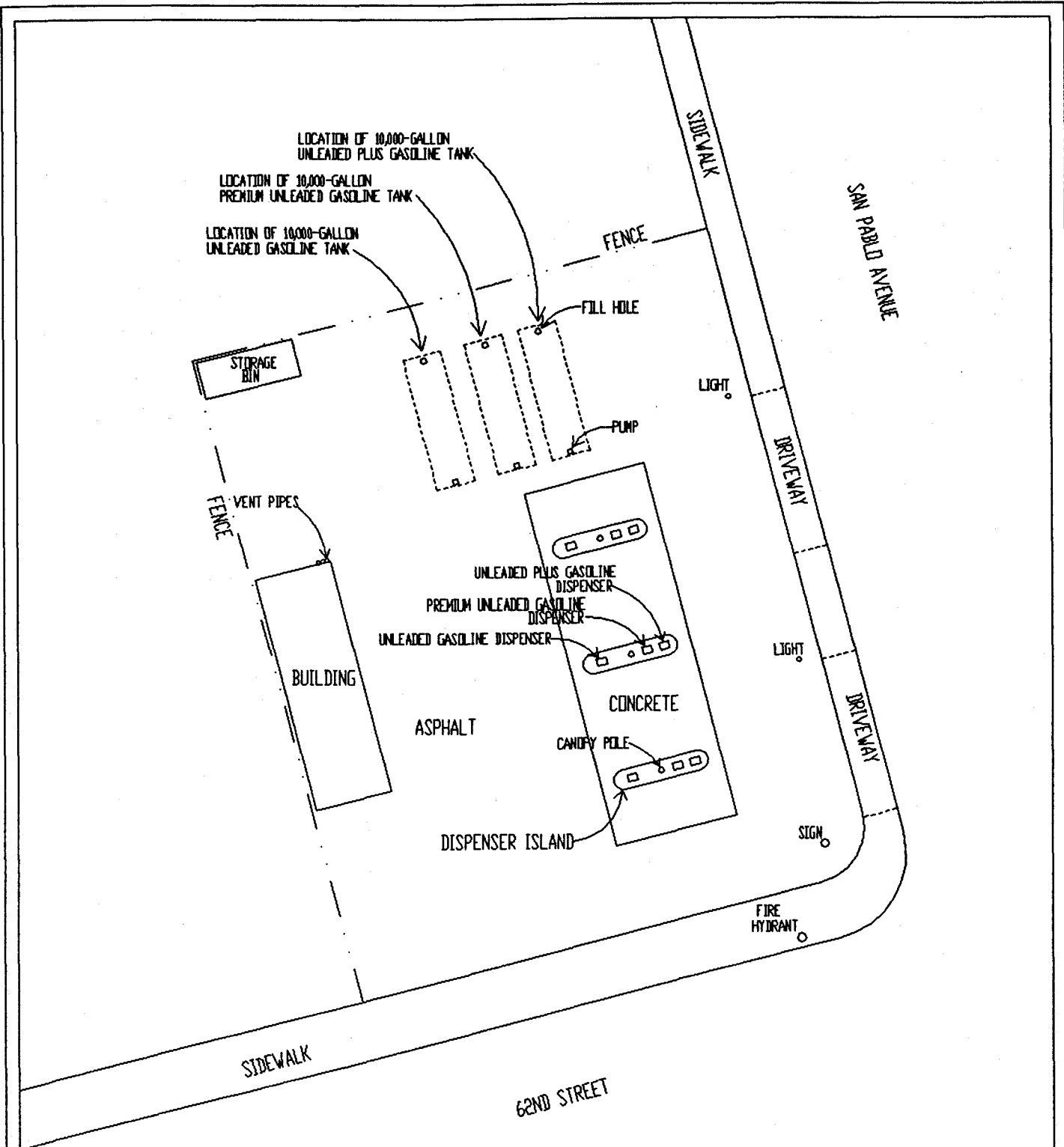
## 4.0 TIME SCHEDULE

The projected time schedule for implementation of the activities described in this workplan is presented below. The schedule reflects a relatively problem-free program. However, delays in the workplan review, permitting, or laboratory analyses could lengthen the project schedule. Access difficulties, adverse weather, and regulator review

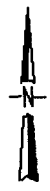


could also delay the proposed time schedule. TPE will make every effort to adhere to the project schedule.

- Week 1: Client Submits Workplan for Regulator Approval.
- Week 2: Regulator Approval Received.
- Week 3: Conduct Excavation of Contaminated Soil and Chemical Analyses of Soil Samples.
- Week 4: Receive Chemical Analyses.
- Week 5: Remediate and/or Dispose of Stockpiled Soil; If Stockpiled Soil is not Remediated, Close Excavation and Resurface.
- Week 8: If Stockpiled Soil is Remediated, Collect Soil Samples and Conduct Chemical Analyses.
- Week 9: Receive Chemical Analyses, and Close Excavation and Resurface.
- Week 7 or 11: Deliver PSAR to Client.



LEGEND



TANK PROTECT ENGINEERING

SITE PLAN

ALASKA GAS STATION  
6211 SAN PABLO AVENUE  
OAKLAND, CA 94608

DATE	3/25/93
FIGURE	1
FILE #	252A-1
DRAWN BY	MAC
CHECKED BY	

## APPENDIX B

### QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The overall objectives of the field sampling program include generation of reliable data that will support development of a remedial action plan. Sample quality will be checked by the use of proper sampling, handling, and testing methods. Additional sample quality control methods may include the use of background samples, equipment rinse samples, and trip and field blanks. Chain-of-custody forms, use of a qualified laboratory, acceptable detection limits, and proper sample preservation and holding times also provide assurance of accurate analytical data.

TPE will follow a QA/QC program in the field to ensure that all samples collected and field measurements taken are representative of actual field and environmental conditions and that data obtained are accurate and reproducible. These activities and laboratory QA/QC procedures are described below.

Field Samples: Additional samples taken in the field are used to evaluate both sampling and analytical methods. Three basic categories of QA/QC samples that may be collected are trip samples, field blanks, and duplicate samples.

Trip blanks are a check for cross-contamination during sample collection, shipment, and in the laboratory. Analytically confirmed organic-free water shall be used for organic parameters and deionized water for metal parameters. Blanks will be prepared by the laboratory supplying the sample containers. The blank shall be numbered, packaged, and sealed in the same manner as the other samples. One trip blank will be used for each sample set of less than 20 samples. At least 5% blanks will be used for sets greater than 20 samples. The trip blank is a water sample that remains with the collected samples during transportation and is analyzed along with the field samples to check for residual contamination. The trip blank is not to be opened by either the sample collectors or the handlers.

The field blank is a water sample that is taken into the field and is opened and exposed at the sampling point to detect contamination from air exposure. The water sample is poured into appropriate containers to simulate actual sampling conditions. Contamination for air exposure can vary considerably from site to site.

The laboratory will not be informed about the presence of field and trip blanks and a false identifying number will be put on the label. Full documentation of these collection and decoy procedure will be made in the site log book.

Duplicate samples are identical sample pairs (collected in the same place and at the same time), placed in identical containers. For soils, adjacent sample liners will be analyzed. For the purpose of data reporting, one is arbitrarily designated the sample, and the other is designated as a duplicate sample. Both sets of results are reported to give an indication of the precision of sampling and analytical methods.

The laboratory's precision will be assessed without the laboratory's knowledge by labeling one of the duplicates with false identifying information. Data quality will be evaluated on the basis of the duplicate results.

Laboratory QA/QC: Execution of a strict QA/QC program is an essential ingredient in high-quality analytical results. By using accredited laboratory techniques and analytical procedures, estimates of the experimental values can be very close to the actual value of the environmental sample. The experimental value is monitored for its precision and accuracy by performing QC test designed to measure the amount of random and systematic errors and to signal when correction of these errors is needed.

The QA/QC program describes methods for performing QC tests. These methods involve analyzing method blanks, calibration standards, check standards (both independent and EPA-certified standards), duplicates, replicates, and sample spikes. Internal QC also requires adherence to written methods, procedural documentation, and record keeping, and the observance of good laboratory practices.

**TPE SITE SAFETY PLAN**

**TANK PROTECT ENGINEERING OF NORTHERN CALIFORNIA, INC.  
SITE SAFETY PLAN**

**Site: Alaska Gas Station  
6211 San Pablo Avenue  
Oakland, CA 94608**

**Project Number: 252**

**Original Site Safety Plan: Yes (X) No ( )  
Plan Prepared by Tank Protect Engineering  
Plan Approved by Louis Travis**

**Revision Number:  
Date: 4-6-93  
Date: 4-6-93**

Please respond to each item as completely as possible. Where an item is not applicable, please mark "N/A".

**1. KEY PERSONNEL AND RESPONSIBILITIES**

(Include name, telephone number and health and safety responsibilities; i.e., project manager - Joe Smith - responsible for supervision of all site activities.)

<b>Project Manager:</b>	<b>Louis Travis,</b>	<b>(510) 429-8088</b>
<b>Site Safety Manager:</b>	<b>Louis Travis,</b>	<b>(510) 429-8088</b>
<b>Alternate Site Safety Manager:</b>		
<b>Field Team Members:</b>	<b>Ed LeHouillier</b>	<b>(510) 429-8088</b>
	<b>Adrian Ardeleanu</b>	<b>(510) 429-8088</b>

**Agency Reps:** [Please specify by one of the following symbols: Federal: (F), State: (S), Local: (L), Contractor(s): (C)]

**(L) Alameda County Health Care Services Agency, Brian Oliva (510) 271-4320**

# TPE SITE SAFETY PLAN

## 2. JOB HAZARD ANALYSIS

### 2.1 OVERALL HAZARD EVALUATION

Hazard Level: High ( ) Moderate (X) Low ( ) Unknown ( )  
Hazard Type: Liquid (X) Solid ( ) Sludge ( ) Vapor/Gas (X)

Known or suspected hazardous materials present on site

See below: 1 - Gasoline vapors contain benzene, toluene, xylenes, ethylbenzene

Characteristics of hazardous materials included above (complete for each chemical presents):

---

#### MATERIAL #1

Corrosive ( )	Ignitable (X)	Toxic (X)	Reactive ( )
Volatile (X)	Radioactive ( )	Biological Agent ( )	
Exposure Routes:	Inhalation (X)	Ingestion ( )	Contact (X)

Skin & Mucous Membrane

---

#### MATERIAL #2

Corrosive ( )	Ignitable ( )	Toxic ( )	Reactive ( )
Semi-Volatile ( )	Radioactive ( )	Biological Agent ( )	
Exposure Routes:	Inhalation ( )	Ingestion ( )	Contact ( )

---

#### MATERIAL #3

Corrosive ( )	Ignitable ( )	Toxic ( )	Reactive ( )
Volatile ( )	Radioactive ( )	Biological Agent ( )	
Exposure Routes:	Inhalation ( )	Ingestion ( )	Contact ( )

---

#### MATERIAL #4

Corrosive ( )	Ignitable ( )	Toxic ( )	Reactive ( )
Volatile ( )	Radioactive ( )	Biological Agent ( )	
Exposure Routes:	Inhalation ( )	Ingestion ( )	Contact ( )

# TPE SITE SAFETY PLAN

## 2.2 JOB-SPECIFIC HAZARDS

For each labor category specify the possible hazards based on information available (i.e., Task-driller, Hazards-trauma from drill rig accidents, etc.) For each hazard, indicate steps to be taken to minimize the hazard.

**Task - Cut and remove concrete/asphalt and excavate hydrocarbon contaminated soil. Monitor vapors with a Gastech, Inc., Trace-Techtor, hydrocarbon vapor meter. Wear hard hats, gloves, steel-toed boots.**

The following additional hazards are expected on site (i.e., snake infested area, extreme heat, etc.):

N/A

Measures to minimize the effects of the additional hazards are:

N/A

## 3. MONITORING PLAN

### 3.1 (a) Air Monitoring Plan

Action levels for implementation of air monitoring. Action levels should be based on published data available on contaminants of concern. Action levels should be set by persons experienced in industrial hygiene.

Level (i.e.,.5 ppm)	Action Taken (i.e., commence perimeter monitoring)
	N/A

### (b) Air Monitoring Equipment

Outline the specific equipment to be used, calibration method, frequency of monitoring, locations to be monitored, and analysis of samples (if applicable).

**Air monitoring will be done by using Gastech, Inc., Trace-Techtor, hydrocarbon vapor meter. Hexane will be used for calibration.**

## TPE SITE SAFETY PLAN

If air monitoring is not to be implemented for this site, explain why:

**This case involves only excavation of hydrocarbon contaminated soil.**

### 3.2 Personnel Monitoring

(Include hierarchy of responsibilities decision making on the site)

**Project manager delegates responsibilities to individual team workers.**

### 3.3 Sampling Monitoring

(a) Techniques used for sampling

**Monitor air in excavation if vapor odors are detected.**

(b) Equipment used for sampling

**Gastech, Inc., Trace-Techtor, hydrocarbon vapor meter**

(c) Maintenance and calibration of equipment

**Use hexane for calibration. Equipment will be calibrated prior to operation.**

## 4. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Be Specific (i.e., hard hat, impact resistance goggles, other protective glove, etc.).

**Wear hard hat, protective gloves (petroleum resistant), and steel-toed boots. Use safety glasses or goggles and respirator (with organic vapor filter) as necessary.**

## 5. SITE CONTROL AND SECURITY MEASURES

The following general work zone security guidelines should be implemented:

- Work zone shall be barricaded and caution tape used.



## TPE SITE SAFETY PLAN

- Excavations shall be closed or perimeter shall be barricaded when drilling and sampling activities are not actually taking place.
- No excavations shall be left unattended without perimeter barricaded. Visitors will not enter the work zone unless they have attended a project safety briefing.
- Persons will not leave the work zone without first passing through the decontamination zone.

### 6. DECONTAMINATION PROCEDURE

List the procedures and specific steps to be taken to decontaminate equipment and PPE.

Equipment will be decontaminated by washing with trisodium phosphate solution and rinsing with tap water.

### 7. TRAINING REQUIREMENTS

Prior to mobilization at the job site, employees will attend a safety briefing. The briefing will include the nature of the wastes and the site, donning personal protection equipment, decontamination procedures and emergency procedures.

### 8. MEDICAL SURVEILLANCE REQUIREMENTS

If any task requires a very high personnel protection level, personnel shall provide assurances that they have received a physical examination and they are fit to do the task. Also personnel will be instructed to look for any symptom of heat stress, heat stroke, heat exhaustion or any other unusual symptom. If there is any report of that kind it will be immediately followed through, and appropriate action will be taken.

### 9. STANDARD OPERATION PROCEDURES

Tank Protect Engineering of Northern California, Inc. (TPE) is responsible for the safety of all TPE employees on site. Each contractor shall provide all the equipment necessary to meet safe operation practices and procedures for their personnel on site and be responsible for the safety of their workers.

## TPE SITE SAFETY PLAN

A "Three Warning" system is utilized to enforce compliance with Health and Safety procedures practices which will be implemented at the site for worker safety:

- \* Eating, drinking, chewing gum or tobacco, and smoking will be allowed only in designated areas.
- \* Wash facilities will be utilized by workers in the work areas before eating, drinking, or use of the toilet facilities.
- \* Containers will be labeled identifying them as waste, debris or contaminated clothing.
- \* All Excavation/drilling work will comply with all applicable regulatory agencies requirements.
- \* All site personnel will be required to wear hard hats and advised to take adequate measures for self protection.
- \* Any other action which is determined to be unsafe by the site safety officer.

### 10. CONFINED SPACE ENTRY PROCEDURES

Entry into a confined space operation is not allowed without proper safety measures. Specifically in case of an excavated Tank Pit, no one should enter at any time.

### 11. EMERGENCY RESPONSE PLAN

Fire extinguisher(s) will be on site prior to excavation. Relevant phone numbers:

Person	Title	Phone No.
<u>Louis Travis</u>	Project Manager	(510) 429-8088
_____	Fire	911 or _____
_____	Police	911 or _____
_____	Ambulance	911 or _____
_____	Poison Control Center	(800) 523-2222
_____	Site Phone	(510) _____
_____	Nearest off-site no.	_____
<u>Alta Bates Hospital</u>	Medical Advisor	(510) 204-2188
<u>Mr. Pritpaul Sappal</u>	Client Contact	(510) 799-9271

TPE SITE SAFETY PLAN

U.S EPA - ERT \_\_\_\_\_ (201) 321-6660  
Chemtrec \_\_\_\_\_ (800) 424-9300  
Centers for Disease Control \_\_\_\_\_ Day (404) 329-3311  
Night (404) 329-2888  
National Response Center \_\_\_\_\_ (800) 424-8802  
Superfund/RCRA Hotline \_\_\_\_\_ (800) 424-8802  
TSCA Hotline \_\_\_\_\_ (800) 424-9065  
National Pesticide Information Services \_\_\_\_\_ (800) 845-7633  
Bureau of Alcohol, Tobacco, and Firearms \_\_\_\_\_ (800) 424-9555

HEALTH AND SAFETY COMPLIANCE STATEMENT

I, Louis Travis, have received and read a copy of the project Health and Safety Plan. I understand that I am required to have read the aforementioned document and have received proper training under the occupational Safety and Health Act (29 CFR, Part 1910.120) prior to conducting site activities at the site.

\_\_\_\_\_  
Signature

4-6-93  
\_\_\_\_\_  
Date

Nearest Hospital: Alta Bates Hospital  
3001 Colby Street  
Berkeley, CA 94705  
Gen. Info. (510) 204-4444  
Emergency (510) 204-2188

Directions From Site:

Go North on San Pablo Avenue, turn right onto Ashby Avenue, follow it until Colby Street, then turn right onto Colby Street.