

ENVIRONMENTAL
PROTECTION

PORT OF OAKLAND

PH 1-19

February 18, 1997

Ms. Jennifer Eberle
Alameda County Health Care Services Agency
Department of Environmental Health
Environmental Protection Division
1131 Harbor Bay Parkway
Alameda, CA 94502

**SUBJECT: WORKPLAN FOR SOIL AND WATER INVESTIGATION,
TRANSBAY CONTAINER TERMINAL (TBCT),
707 FERRY STREET, OAKLAND, CALIFORNIA,
STID # 3982**

Dear Jennifer:

On the behalf of the Port of Oakland, Innovative Technical Solutions, Inc. (ITSI) has prepared a document titled "Workplan for Soil and Water Investigation" for a site located at TransBay Container Terminal (TBCT), 707 Ferry Street, Oakland, California. The enclosure addresses a limited site investigation that will be conducted at former underground storage tank site designated by the Port as (tank numbers) CF-03 - CF-05.

A copy of the workplan is enclosed for your review. Should you have any questions regarding the document, please do not hesitate to contact me at 272-1373.

Sincerely,

John Prall, R.G.

Associate Environmental Scientist

Enclosure

cc: Neil Werner



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February 12, 1997

Mr. John Prall, R.G.
Associate Environmental Scientist
Port of Oakland
530 Water Street
Oakland, California 94607

Workplan for Soil and Water Investigation
TransBay Container Terminal, Berth 25
707 Ferry Street
Oakland, California
(Work Order No. 202634)

Dear Mr. Prall:

Innovative Technical Solutions, Inc. (ITSI) is pleased to provide this Workplan for Soil and Water Investigation (Workplan) in the area of two former 1,000-gallon gasoline and diesel underground storage tanks (USTs) at the TransBay Container Terminal (Berth 25), 707 Ferry Street in Oakland, California. This Workplan was prepared in response to a December 17, 1996 letter from Ms. Jennifer Eberle, Hazardous Materials Specialist with the Alameda County Health Care Services Agency (Alameda County), requesting a Soil and Water Investigation in the area of the former UST excavation.

Figure 1 shows the approximate location of the site. The Port of Oakland tank identification numbers for the former USTs are CF-03 and CF-05. The Alameda County Site Identification (STID) number for the site is 3982¹.

BACKGROUND

The two USTs and an associated fuel dispenser island were removed from the TransBay Container Terminal on June 21, 1996 by Accutite Environmental Engineering (Accutite). Approximately 100 cubic yards of soil was removed from the tank excavation. Soil samples collected during removal of the UST were reported to contain elevated concentrations of petroleum hydrocarbons.

On July 23, 1996, approximately 20 cubic yards of additional soil was removed from the excavation. Due to the presence of an underground gas line along the south and west walls of the tank excavation, further excavation in these directions was restricted. Confirmation soil samples collected following overexcavation activities were reported to contain 0.33 mg/kg TPH as gasoline (TPHg), 220 mg/kg TPH as diesel (TPHd) and 119 mg/kg total lead (south wall); 45 mg/kg TPHd (west wall); 13 mg/kg TPHd (north wall); and 0.0019 mg/kg benzene (floor). A water sample

¹ As indicated in the December 17, 1996 letter from Alameda County.

collected from groundwater present in the excavation on July 23, reportedly contained 9.4 mg/L TPHg, 9.6 mg/L TPHd and 0.028 mg/L benzene. The results of the tank removal and overexcavation activities were documented in the *Tank Closure Report*, prepared by ITSI, dated November 12, 1996.

PROPOSED SCOPE OF WORK

As previously referenced, based on the apparent presence of petroleum hydrocarbons in the groundwater and the remaining soil contamination following overexcavation activities, Alameda County has requested a Soil and Water Investigation (SWI) be performed in the area of the former UST excavation. As per the referenced Alameda County letter, proposed SWI activities include the installation and sampling of one groundwater monitoring well and the drilling and sampling of one soil boring. The monitoring well will be located within 10 feet west of the former UST excavation (the presumed downgradient direction) and the soil boring will be drilled south of the excavation to determine the lateral extent of the remaining soil contamination reported along the south wall.

The proposed scope of work includes the following tasks:

- Preparation of a site-specific Health and Safety Plan signed by a Certified Industrial Hygienist (CIH).
- Obtaining a Drilling Permit from the Zone 7 Water Agency for the installation of one monitoring well and the drilling of one soil boring.
- Notifying Underground Service Alert (USA) and performing a subsurface utility clearance of the proposed monitoring well and soil boring locations using an independent utility locating contractor.
- Soil boring drilling, soil sampling and monitoring well installation.
- Surveying the vertical and horizontal location of the new monitoring well.
- Development and initial groundwater sampling of the monitoring well (a minimum of 72 hours after installation).
- Preparation of a draft and final SWI Report summarizing and evaluating the above-referenced activities and results for submittal to the Port of Oakland and Alameda County.

A brief description of the proposed tasks are presented below.

Task 1 - Preparation of a Health and Safety Plan. All proposed field activities will be performed in accordance with the site-specific Health and Safety Plan. The Health and Safety Plan for the site has been prepared under the direction of and signed by a CIH and is included as Attachment A.

Task 2 - Permitting. A Drilling Permit Application will be submitted to the Zone 7 Water Agency for the installation of one monitoring well and the drilling of one soil boring.

Task 3 - Subsurface Utility Clearance. USA will be notified at least 48 hours before drilling activities begin at the site. The proposed drilling locations (Figure 2) will be outlined with white paint prior to contacting USA. An independent utility locating contractor, experienced at Port of Oakland marine terminals, will be utilized to clear the locations of the proposed monitoring well

and soil boring. Special attention will be given to the identified gas line(s) located along the south and west walls of the former excavation in order to determine the exact locations of the line(s).

Task 4 - Soil Boring Drilling, Soil Sampling and Monitoring Well Installation Activities. One monitoring well and one soil boring have been proposed. The proposed monitoring well will be located within 10 feet west of the former UST excavation (the presumed downgradient direction). The proposed soil boring will be located 5 to 10 feet south of the excavation to determine the lateral extent of the remaining soil contamination reported along the south wall. Figure 2 shows the approximate locations of the proposed monitoring well and soil boring in relation to the former UST excavation. The exact locations may change based on the results of the subsurface utility clearance. *good!*

Drilling will be performed using a drilling rig equipped with hollow stem flight augers. Soil samples will be collected from the monitoring well borehole at 5-foot intervals until first encountered groundwater is reached. One soil sample will be collected at or near the soil/groundwater interface. Soil samples will not be collected for laboratory analysis below groundwater. Groundwater is expected to be encountered at approximately 12 feet below grade surface (bgs). One soil sample will be collected from the soil boring for laboratory analysis at 8 feet bgs.

Soil samples will be collected using a spilt spoon sampler equipped with three 6-inch long by 2-inch diameter brass sleeves driven with a 140-pound hammer into undisturbed soil. One selected brass sleeve sample will then be capped on each end with a Teflon patch and covered with a plastic friction cap. Each soil sample will be properly labeled with an identification number (borehole/well number and sample depth), date and time of collection, and sampler's initials. The soil samples will be placed in an iced cooler for transport to the laboratory. Soil samples will be sent for analysis under proper chain-of-custody procedures to Pace Analytical Services, Inc. (PACE), a California-certified laboratory. The soil samples will be analyzed for the following:

- TPHg by Modified EPA Method 8015
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020
- TPHd by Modified EPA Method 8015 with silica gel cleanup procedure
- Total lead by EPA Method 6010

A quantity of soil from each sample location will be sealed into plastic bags for field screening using an organic vapor meter with photoionization detector (PID). The concentration of organic vapor in the headspace of each bag will then be measured with the PID and recorded on a boring log. A description of the soil encountered during drilling will be recorded on the boring log using the Unified Soil Classification System (USCS) under the supervision of a California Registered Geologist.

The groundwater monitoring well will be constructed of 2-inch PVC blank casing and 2-inch machine slotted 0.020-inch screened casing fitted with an end cap. The proposed screened interval of the monitoring well will be from approximately five feet above to approximately 10 feet below the static water level in the bore hole. These screened interval specifications are proposed to allow for the seasonal fluctuation of the water table and, if present, for separate phase hydrocarbons to enter the well; however, these specifications may vary as appropriate based on site specific conditions. The filter material will consist of No. 3 sand placed into the annulus of the monitoring well to approximately two feet above the screened casing interval. A bentonite seal approximately one foot thick will be placed on top of the sand with an annular seal consisting of neat cement grout extending to grade surface. The monitoring well will be enclosed and finished with a traffic rated

EMCO Wheaton well box and fitted with a lockable compression well cap and locked. The soil boring will be properly abandoned by backfilling the borehole with neat cement grout to grade surface.

Appropriate quality assurance and quality control (QA/QC) procedures will be followed during the investigation. Non-disposable sampling equipment will be decontaminated prior to collecting each sample by high-temperature pressure washing or by washing with a non-phosphate detergent and double rinsing with distilled water. Rinse water from decontamination of sampling equipment will be temporarily stored at the site in a 55-gallon drum. Soil generated during the drilling activities will be placed in a properly labeled 55-gallon drum. Disposal of the rinse water and soil cuttings will be performed by the current Port of Oakland disposal contractor.

Task 5 - Monitoring Well Location Survey. The groundwater monitoring well will be surveyed for vertical elevation relative to the Port of Oakland datum, which is 3.2 feet below mean sea level. The horizontal location will be surveyed relative to a fixed site feature. Survey work will be performed by a professional land surveyor licensed in the state of California.

Task 6 - Well Development and Sampling. The monitoring well will be gauged for depth to water and checked for the presence of separate phase hydrocarbons prior to development. Groundwater levels will be measured using a Solinst water level meter, or equivalent, accurate to 0.01 foot, or with an oil/water interface probe, if free product is present. At least 72 hours after well installation, the monitoring well will be developed using a surge block and bailer. Groundwater will be removed from the well until the fines are removed. Physical parameters, including pH, electrical conductivity, and temperature, will be measured approximately every three well volumes and recorded on a Monitoring Well Development Form. Groundwater will be temporarily stored at the site in 55-gallon drums. Disposal of the development water will be performed by the current Port of Oakland disposal contractor.

After approximately 80 percent of the initial water level in the monitoring well has recovered, groundwater samples will be collected and placed into laboratory provided containers using a disposable bailer. Samples will be properly labeled with the sample number, date and time of collection, and sampler's initials. Groundwater samples will then be placed in an iced cooler for transport to the laboratory. The samples will be sent for analysis under proper chain-of-custody procedures to PACE. The groundwater samples will be analyzed for the following:

- TPHg by Modified EPA Method 8015
- BTEX by EPA Method 602
- TPHd by Modified EPA Method 8015 with silica gel cleanup procedure
- Total lead by EPA Method 6010/7000
- Total dissolved solids (TDS)

As part of the QA/QC procedures, a minimum of one field duplicate sample will be collected from the groundwater, and will be analyzed for volatile target compounds (*i.e.*, TPHg and BTEX).

Task 7 - Preparation of Soil and Water Investigation Report. Upon receipt of laboratory analyses for the soil and groundwater samples, a draft report will be prepared. This report will include a description of the work performed, tabulated sample results, a figure showing the locations of the monitoring well and soil boring in relation to the former UST excavation, copies of laboratory reports and chain-of-custodies for the soil and groundwater samples, copies of the boring logs, and a copy of the State of California Well Completion Report for the completed monitoring well. The report will also include conclusions and recommendations based on the findings of the

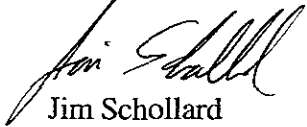
investigation. Upon review and comment by the Port of Oakland, a final report will be prepared and provided to the Port of Oakland for submittal to Alameda County.

ESTIMATED SCHEDULE

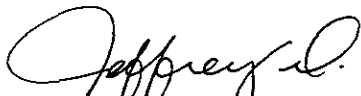
Field activities will be initiated within approximately one to two weeks following approval of this workplan by Alameda County. Results of the investigation should be available within approximately six to eight weeks from initiation of field activities.

Please feel free to give us a call if you have any questions or need additional information.

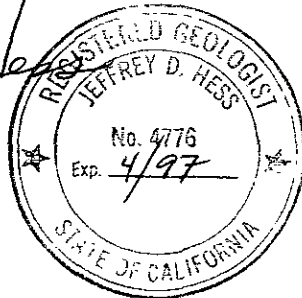
Sincerely,

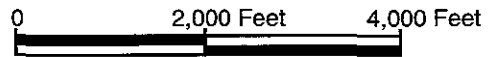
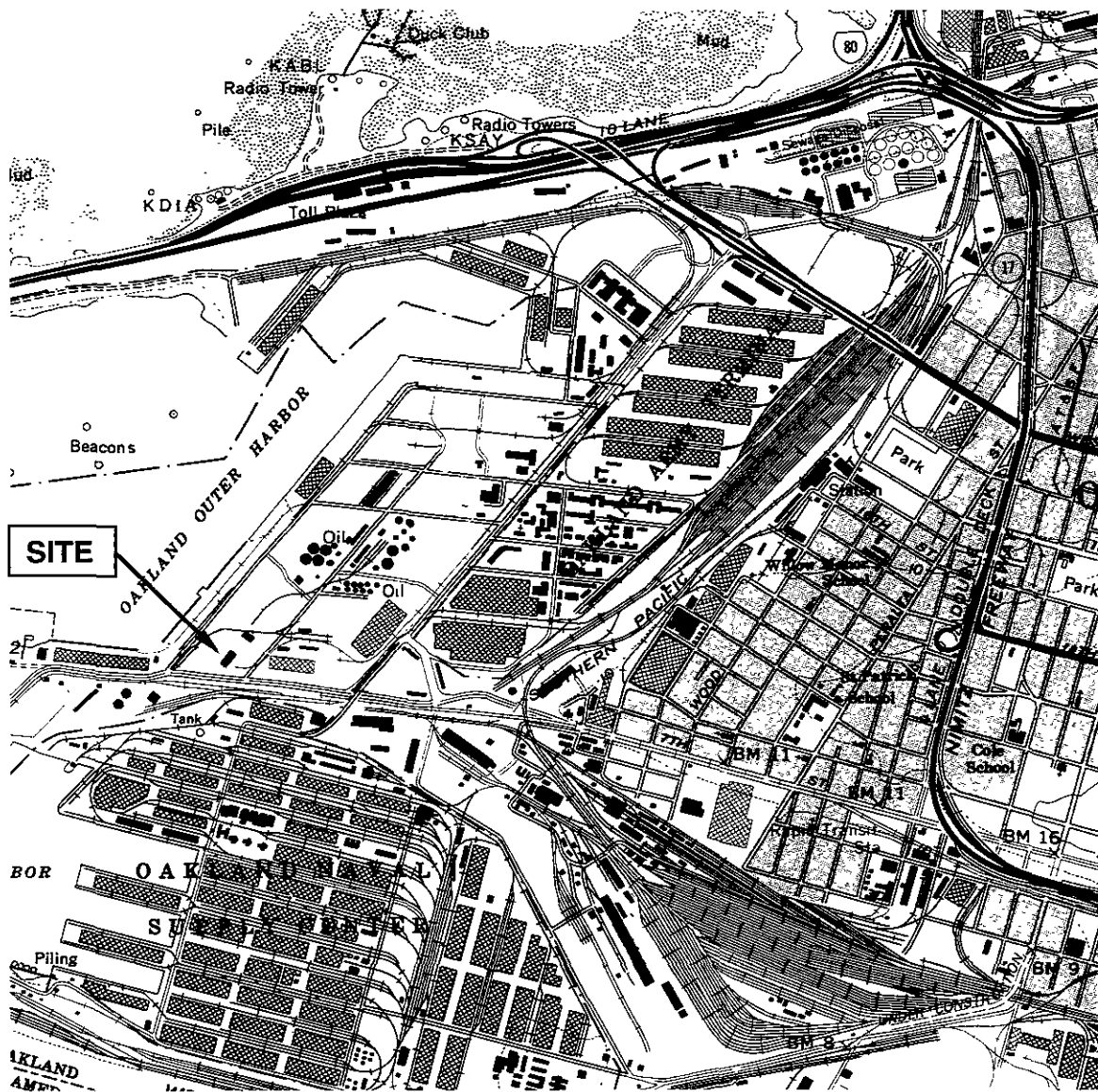


Jim Schollard
Environmental Scientist



Jeffrey D. Hess, R.G.
Project Director





Approximate Scale

FIGURE 1

SITE LOCATION

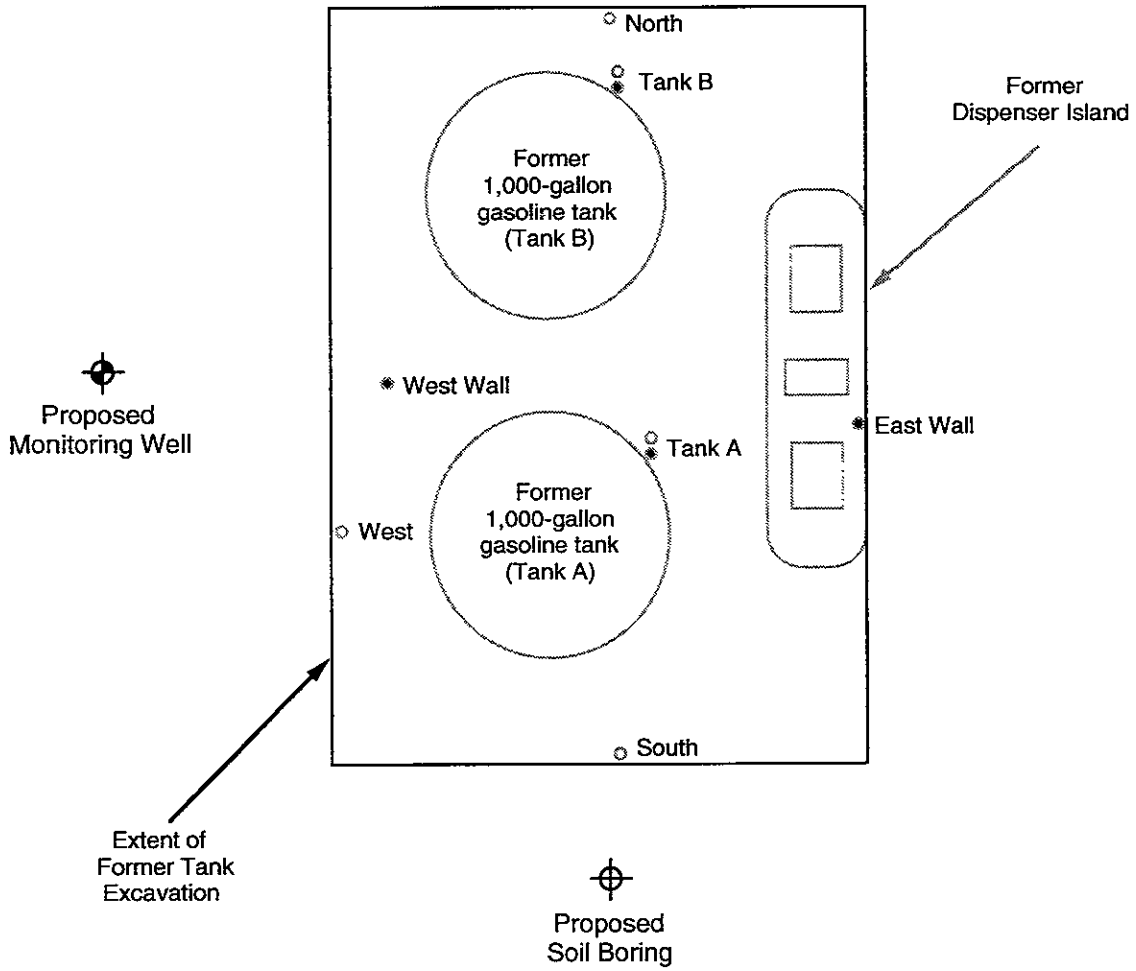
TransBay Container Terminal (Berth 25)
707 Ferry Street
Oakland, California



PORT OF OAKLAND

INNOVATIVE TECHNICAL SOLUTIONS, INC.

Source: Oakland West 7.5-minute U.S.G.S. Quadrangle, dated 1959, and photorevised in 1980.



Building C-129

Legend

- ⊕ Approximate Location of Proposed Monitoring Well
- ⊕ Approximate Location of Proposed Soil Boring
- Confirmation Soil Samples Collected on June 21, 1996
- Confirmation Soil Samples Collected on July 23, 1996

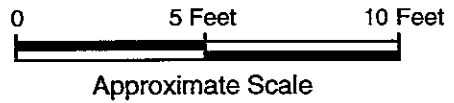


FIGURE 2

SITE LAYOUT AND PROPOSED MONITORING WELL AND BORING LOCATIONS

TransBay Container Terminal (Berth 25)
707 Ferry Street
Oakland, California



PORT OF OAKLAND

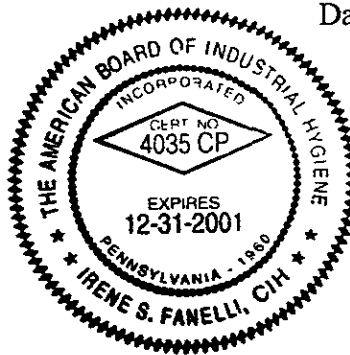
INNOVATIVE TECHNICAL SOLUTIONS, INC.

This health and safety plan has been developed for groundwater investigation in the area of a former underground gasoline storage tank at Berth 25 of the Transbay Container Terminal at the Port of Oakland. The plan has been prepared in accordance with project specifications, 8 CCR 5192 and other applicable regulations, and good industrial hygiene practice.

This plan is intended to apply to sampling at the above listed site only, and must not be extrapolated to other substances, work activities or project locations without modification to address the specific hazards associated with those substances, activities and/or any other specific regulatory requirements.

Irene S. Fanelli, CIH/JRC
Irene S. Fanelli, CIH

2/3/97
Date



HEALTH AND SAFETY PLAN

GROUNDWATER INVESTIGATION IN THE AREA OF A FORMER GASOLINE TANK BERTH 25, TRANSBAY CONTAINER TERMINAL PORT OF OAKLAND

1.0 INTRODUCTION

This Health and Safety Plan (Plan) will be in effect during the groundwater investigation in the area of a former underground gasoline storage tank at Berth 25 of the Transbay Container Terminal at the Port of Oakland. The sampling will be conducted utilizing a drill rig/cuttingless sampling system for soil and groundwater sample collection. This Plan addresses the potential exposure to soil and groundwater which may contain petroleum hydrocarbon contamination.

This Plan covers ITSI personnel only. All other personnel on site will be expected to possess the appropriate training, experience, and personal protective equipment. Based upon experience with similar operations, the potential exposures to site personnel is expected to be minimal. If circumstances outside the scope of this Plan occur on site, the Plan will be amended to account for such circumstances, and the appropriate protective measures will be taken

2.0 PERSONNEL

Site Health and Safety Officer - The Site Health and Safety Officer will be responsible for briefing field personnel and contractors on the potential site hazards, personal protective equipment to be used on site, work rules and safe work practices, and implementation of the Plan, prior to initiation of work.

The Health and Safety Officer will also conduct tailgate safety meetings as appropriate during field operations, to inform the field personnel and contractors of changing field conditions and any potential changes in the Plan.

Project Manager - The Project Manager, Jeff Hess, will be responsible for all technical aspects of the project, and will assure that the requirements of the Plan are implemented.

Consulting Certified Industrial Hygienist - The Consulting Certified Industrial Hygienist, Irene S. Fanelli, CIH, has reviewed this Health and Safety Plan, and will provide consulting support for the project activities on an as-needed basis.

Field Personnel - Field personnel will be responsible for understanding and complying with the requirements of this Plan. They will acknowledge and sign a copy of this Plan, and will attend tailgate safety meetings, as required.

Field personnel will have the appropriate prior experience, training, and medical clearance in compliance with 8 CCR 5192. Such training includes the 40-hour basic training, three days of supervised field experience, 8-hour update training, and 8-hour supervisory training, as appropriate.

3.0 CONTAMINANTS

The potential chemical hazards on site consist of groundwater containing total petroleum hydrocarbons as gasoline, diesel, aromatic petroleum hydrocarbons including benzene, toluene, ethylbenzene, and xylenes, and organic lead from leaded gasoline. General symptoms of exposure to gasoline and its constituents include: irritation of the eyes, nose, mucous membranes, and respiratory system; headache; nausea, vomiting, abdominal pain; giddiness, excitement, dizziness, staggered gait; fatigue, weakness, lassitude; anorexia; corneal vacuolization; dermatitis; and bone marrow depression (benzene). Target organs include the central nervous system, eyes, skin, gastrointestinal tract, blood, liver, and kidneys.

Benzene is listed under California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as a chemical known to the State of California to cause cancer. Toluene is listed as a chemical known to cause reproductive harm. For this reason, the following warning will be given to all on-site personnel:

"This area contains chemicals known to the State of California to cause cancer (gasoline and benzene) and reproductive harm (toluene)."

The table below lists toxicological information for the site contaminants:

Chemical	Cal/OSHA PEL or TLV (ppm)	Carcinogen?	Absorbed through skin?
Gasoline	300	Yes	Yes
Diesel	none	No	Yes
Benzene	1	Yes	Yes
Toluene	50	No	Yes
Ethylbenzene	100	No	No
Xylenes	100	No	No
Tetraethyl Lead	0.075 mg/m ³	No	Yes

Notes:

1. Data is taken from Title 8 CCR 5155, the NIOSH Pocket Guide to Chemical Hazards, 1994, and the ACGIH Threshold Limit Values, 1995-1996.
2. The PEL/TLV is the lowest of the two values.

4.0 POTENTIAL FOR EXPOSURE AND ROUTES OF ENTRY

Chemical hazards may be encountered during the sampling operations. During these operations, site personnel may be exposed to any or all of the chemicals noted in the table. Exposure may occur through inhalation, ingestion, and dermal contact. The potential for exposure, given reasonable precautions, is considered to be low. Overall exposure will be controlled through restriction of personnel from entering the excavation. Exposure through inhalation will be controlled through ambient air monitoring and the use of approved respiratory protection as necessary. Dermal exposure will be controlled by limiting contact through safe work practices, the use of chemical protective clothing, and personal hygiene. Ingestion hazards will be controlled by strict limitation of eating, drinking, and smoking in the work areas, and by rigorous application of decontamination and personal hygiene protocols.

5.0 PHYSICAL HAZARDS

No confined spaces will be entered during the work.

Physical hazards will be posed by heavy equipment and vehicle traffic as part of daily operations at the Port of Oakland facilities and as part of the site activities. In addition, all personnel working in equipment and vehicle traffic areas will wear orange reflective vests for improved visibility.

Personnel working in areas where heavy equipment is operating may be exposed to excessive noise, and will wear their choice of hearing protection as necessary.

Heat stress may also be a potential physical hazard during the work. Personnel must be familiar with the symptoms of heat stress, and the conditions during which it may occur. Heat stress symptoms may include nausea, headache, lightheadedness, lack of coordination, or slurred speech. The use of protective clothing greatly enhances the likelihood of heat stress. Where site conditions warrant, site personnel will monitor for heat stress and implement work/rest regimens, if necessary. Potable water and/or an electrolyte replacement fluid such as Gatorade will be available on-site at all times.

6.0 AIR MONITORING/ACTION LEVELS

Direct reading air monitoring for organic vapors will be conducted during the sampling utilizing a Photo Ionization Detector (PID). All direct-reading monitoring results will be compared to background levels, as measured at locations upwind of the work area. All equipment will be calibrated at least daily, according to the manufacturer's instructions. Additional calibration will be carried out as necessary. Calibration and monitoring data will be recorded in the field log for the project.

All site workers will be informed that they are always entitled to make use of respiratory protection prior to reaching a work area action level. Once an action level is reached, designated

protection levels will be mandatory. All respiratory protection will be NIOSH/MSHA approved equipment. If PID readings consistently reach 10 ppm above background for five minutes, workers will upgrade to respirators with organic vapor cartridges. If PID readings consistently reach 25 ppm, workers will leave the area until organic vapor levels are below this level.

7.0 PERSONAL PROTECTIVE EQUIPMENT

All personnel in the active work area will be required to wear a hard hat, steel-toed boots, and safety glasses to protect against injury, and orange reflective safety vests in traffic areas. Personnel working around heavy equipment will utilize their choice of hearing protection. Personnel will also be required to wear neoprene or nitrile gloves when handling soil or groundwater samples. Personnel will utilize appropriate decontamination techniques prior to leaving the work area. These measures include proper containment and disposal of disposable protective equipment, washing and rinsing of reusable equipment, and washing of hands before eating, drinking, or smoking.

8.0 EMERGENCIES IN THE FIELD

In case an accident should occur in the field the nearest appropriate emergency facility will be notified immediately. The locations of the nearest emergency facilities to the project site are:

Hospital

- Kaiser Permanente Medical Center (510) 596-7600
280 West MacArthur Boulevard

Police Department

- Oakland Police Department 911 or (510) 238-3481

Fire Department

- Oakland Fire Department 911 or (510) 238-3851

Other Numbers

- ITSI - Jeff Hess (510) 256-8898
- EHCI - Irene Fanelli (415) 347-9205

To get to the hospital from Berth 25, take Pier Street east to Maritime Street, then left to Grand Avenue, then right to Peralta Street, then left to West MacArthur Boulevard, then right to Kaiser Permanente Hospital at West MacArthur Boulevard and Broadway Avenue.

Spills will be controlled through the use of sorbent material or soil. Used sorbent materials will be disposed of properly.

9.0 ACCIDENT REPORT

In case of accident, the on-site Health and Safety Officer will provide a report to the Project Manager describing the following:

- The nature of the event that required notification of off-site personnel or agencies.
- The date, time and names of personnel and agencies notified, and their response.
- A description of personal injury and/or property damage.
- A description of the resolutions of the incident.

10.0 ACKNOWLEDGEMENT AND UNDERSTANDING OF THIS PLAN

Field personnel will be briefed on the nature of work at the site, potential hazards, and protective clothing requirements prior to site work. The personnel will then be asked to sign the following statement:

This Health and Safety Plan has been explained to me. I acknowledge receipt of this Plan and obligate myself to read it. I agree to abide by the Plan and procedures outlined herein. I understand that non-compliance with the Plan may lead to termination of my employment.

Signature:

Date:
