ACUMEN

INDUSTRIAL HYGIENE INC

1175 FOLSOM STREET SAN FRANCISCO CA 94103

TEL 415 252 0778 FAX 415 252 1411

Health & Safety Plan

Emery Station No. 3
Emeryville, CA

11 November 1998

Acumen Project No: WCB 9803

Prepared for:

Mr. Eric Owen
Webcor Builders, Inc.
2100 Powell Street
Emeryville, CA 94608

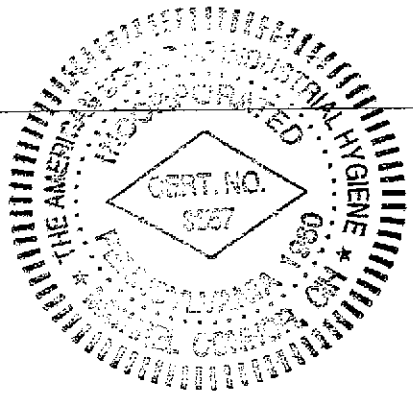

Table of Contents

Health & Safety Plan
Emery Station No. 3
Emeryville, CA

1.0 Introduction

The purpose of this Health and Safety Plan (HSP) is to provide Webcor Builders, Inc. (WBI), of San Mateo, CA with health and safety at Emery Station No. 3 in Emeryville, CA. Previous investigations show site contaminants to be very low levels of hydrocarbons and metals. Although this HSP is directed toward WBI whose work will require them to handle contaminated soils, its provisions also apply to other personnel on site who may have occasion to enter contaminated work areas. This HSP shall be available on site during all activities that require handling of contaminated soils.

This HSP includes the overall general responsibilities of the general contractor and all sub-contractors, to meet minimum prescribed safety provisions in handling contaminated soils or materials. This HSP is not intended to replace work practices or substitute existing safe work practices as described in WBI's and subcontractor's Illness and Injury Prevention Programs (IIPPs) as required in 8CCR3203. These IIPPs are incorporated into this document by reference.

1.1 Overview of work

The work covered by this HSP consists of soils work necessary for the construction of 7 story structure on site. The site location is shown in Figure 1. The site is bordered to the east and south by Landregan Street and Powell Street, respectively, and to the west by the Southern Pacific Railroad right-of-way. The work with consist foundation pile driving and the excavation of a structure. A site risk assessment of conditions conducted by Geraghty & Miller (Raleigh, NC) in 1992, have generally indicated low levels of a number of contaminants (hydrocarbons) in soil and groundwater. This risk assessment, submitted to the Regional Water Quality Control Board, concluded that no further site remediation was required. Known site contaminants are further discussed in Section 3.2.

1.2 Site History

The 3 acre site was former a Chevron asphalt plant. The plant was used previously as a storage and transfer facility for petroleum products. Beginning in the early 1950s, the Chevron asphalt plant operated as a laboratory and test facility. It was closed in June 1987. The laboratory tested asphalt composition and experimented with asphalt-based surface coats. A portion of the land was leased to a solvent handler during this same period. Information regarding Chevron's tenants' use of on-site chemicals was not available.

In October 1987, the above-ground fuel storage tanks and associated piping were removed. In 1988, both the loading dock and barrel storage area were removed to allow the removal of approximately 10,400 cubic yards of soils containing hydrocarbons to a depth of 6 feet (Western Geologic Resources [WGR], 1990a). Soils were removed until halocarbons were no longer detected using a portable gas chromatograph. Excavated soils were transported to the American Rock and Asphalt Facility in Richmond, California (WGR, 1990). The excavated area was lined with 10-mil Visqueen plastic sheeting; then it was backfilled with 1.5 inches of clean crushed rock and covered with graded sub-base material.

An additional 256 cubic yards of contaminated soil were excavated and removed from four other locations. Three were within the southwest office/lab building, and the other one was just outside the building area. The excavated areas were backfilled and covered in the same manner as discussed previously.

The former laboratory building was demolished in late 1991. The garage, paint shop, and office/lab building were demolished in May 1992. Due to the presence of stained soils, soil samples were collected from beneath the garage. The presence of hydrocarbons was verified and soil excavation was conducted. Approximately 15 cubic yards of soil were removed then (Geraghty & Miller, Inc., 1992). Overall, the site history indicates that site contamination has been mitigated.

2.0 Project Organization

2.1 Project Manager

The WBI Project Manager, Mr. Eric Owen, has primary responsibility for assuring that all its personnel, and applicable sub-contractors, comply with relevant aspects of this HSP. Specific duties of the WBI Project Manager include the following:

- Notification of all subcontractors of activities that could involve potential work with contaminated soils,
- Notify Cal-OSHA of excavation related work as needed,
- Ensure site has been cleared of underground utilities before excavation and drilling begins.
- Ensure safety procedures comply with applicable federal, state, and local regulations,
- Ensure compliance with this HSP,
- Provide regular pre-task health and safety briefings,
- Investigate accident and incidents promptly.

2.2 Health and Safety Officer

The Health and Safety Officer, Mr. Eric Owen, will be responsible for the following:

- Ensure personal wear the appropriate protective equipment in the work areas (HSP Section 4.0),
- Control access into contaminated areas and ensure that only trained and authorized personnel enter these areas,
- Ensure that site personnel receive necessary training (HSP Section 6.0),
- Conduct periodic inspections of the work area health and safety conditions,
- Assist the project manager with his/her health and safety related responsibilities,
- Stop work if there is any reason to expect that the work cannot be completed safely.

Mr. Owen shall have the necessary training as described in Section 6.0 of this HSP. He shall be on-site as necessary whenever there is work that requires the handling of contaminated materials, as directed by the project manager.

3.0 Hazard Analysis

3.1 Routes of Exposure

In dealing with any hazardous or potentially hazardous substance, all routes of exposure should be protected as necessary. These routes and methods to minimize exposure are described below.

3.1.1 Inhalation

Inhalation is the most common route of occupational exposure to gases, vapors, mists, fumes or dusts. It may result in respiratory damage and/or may cause systemic illness. The risk of such adverse effects depends on the airborne concentration and on the nature of the contaminant(s). The California Division of Occupational Safety and Health (Cal-OSHA) has promulgated Permissible Exposure Levels (PELs) for airborne contaminants. PELs represent legally enforceable limits for airborne exposure to contaminants. Exposures which exceed current PELs require protective measures such as engineering and or administrative controls and or the use of respiratory protection. Cal-OSHA's PELs may be found in Title 8 of California Code of Regulations Section 5155 (8CCR5155).

Sections 5.0 and 13.0 discuss the selection of respiratory protection for this project. Section 7.0 describes when respirator use may be discontinued.

3.1.2 Skin Contact

Skin contact with certain materials may cause skin irritation and may also result in systemic absorption. The following precautions must be used when inspecting sites which may contain materials with the potential for dermal absorption:

3. Ensure that exposed skin is protected during site work;
4. Use proper procedures for removing contaminated clothing while still at the site;
5. Contaminated rags and other disposable items, such as gloves, should be bagged for proper disposal, avoiding skin contact;
6. Choose protective clothing suitable for anticipated materials.

Section 5.2 discusses the appropriate personal protective equipment suitable for this project.

3.1.3 Ingestion

The ingestion of hazardous material may occur when drinking, eating, or smoking in contaminated areas, or with contaminated hands. This can be avoided through the use of the prescribed protective clothing, through the restriction of eating, drinking, and smoking to uncontaminated areas, and through good personal hygiene practices. Eating, drinking and smoking are prohibited on-site until decontamination procedures have been completed and only then outside the exclusion area. The purpose of decontamination procedures described in Section 8.0 is to minimize the potential for accidental ingestion of toxic materials.

3.1.4 Eye Contact

The eyes are sensitive to damage from a number of solids, liquids, or vapors. Effects may range from mild irritation to severe damage. The actual effect depends on the material and on the quantity to which the eye may have been exposed. The following precautions to avoid eye injury must be taken when entering the site:

- Wear safety glasses with side shields or goggles;
- Do not rub eyes;

- Never wear contact lenses when working in areas where hazardous materials may be encountered. Contact lenses cannot be worn when respirator use may be required.

3.2 *Chemical Hazards*

The chemical hazards associated with this project are anticipated to be very low. Geraghty & Miller's 1992 Health Risk Assessment indicates that site contaminant levels are very. Tables 1, 2 and 3 show highest levels of significant contaminants as reported in Geraghty & Miller's 1992 report. These three tables also provide an industrial hygiene evaluation of anticipated exposures while disturbing contaminated soil

Potential inhalation exposures to airborne metals are expected to be very low. Dermal exposure is not a concern since metals are not absorbed through the skin. However, inadequate personal hygiene practices could lead to inadvertent ingestion of metallic contaminants. This will be controlled through personal hygiene practices.

Tables 2 and 3 provide worst case exposure models for airborne exposures to hydrocarbons found on site. As indicated estimated exposures based on a worst case scenario analysis are well below applicable PELs. This does not preclude the presence of occasional odors.

Hydrocarbon exposure could also occur through dermal exposure and incidental ingestion. At concentrations detected, it is unlikely that petroleum hydrocarbons on site would represent a significant dermal hazard. Ingestion hazards shall be minimized through good personal hygiene practices.

Use of excavation equipment may generate airborne dust, which may be inhaled. Note that site work practices will require dust control measures so as to minimize visible dust emissions. Therefore the dust inhalation hazard is also expected to be low.

3.3 *Physical Hazards*

The physical hazards of this project should be normal to the WBI's activities and thus should already be addressed in their IIPPs. These are incorporated by reference into this HSP and shall be available on site during fieldwork. However, the following safety issues should be considered during this project.

- Underground utility clearance before excavation
- Compliance with Cal-OSHA's excavation safety orders if the work will require anyone to enter excavations deeper than five feet. These orders require a permit from Cal-OSHA as described in 8CCR1539.

Other physical hazards typical of construction activities include working around heavy equipment, electrical work, noise, slips and falls, back strains from lifting, and cuts from jagged edges and protrusions. These hazards are already addressed in WBI's IIPPs, and should be discussed during routine tailgate safety meetings.

Work with and around heavy equipment will require adherence to the following general practices. The safe practices stated below are not intended to substitute existing IIP requirements. They are reiterated below to serve as reminders for site employees.

- Use of reflective vests around moving equipment.

- Eye contact with equipment operator.
- Operators to be trained on the proper use and limitations of the equipment.
- Rated equipment capacity shall not be exceeded.
- Operators shall wear seat belts provided.
- All equipment to be inspected each day before use.
- Equipment guards shall be left in place except for routine maintenance and for repairs. Guards removed shall be replaced promptly.
- Manufacturer's recommended preventive maintenance procedures shall be followed.
- Personnel shall not work under suspended loads.
- Equipment shall be fitted with audible electronic back up alarms.
- Equipment shall be placed on firm stable ground before use.
- Operators and employees shall use seats provided only.
- Operators shall not get on or off equipment while it is in motion.

Work around equipment or noise sources that exceed 85 decibels on the A-weighted scale will require the use of either earmuffs or insert hearing protectors. Earmuffs shall be maintained in a clean and sanitary condition. Insert hearing protectors shall be disposed of after each use. Users of insert protectors shall ensure hands are clean before inserting plugs into ears.

3.4 Overview of Safety Procedures

The hazards described above shall be controlled through a combination of engineering and administrative controls and through the use of personal protective equipment.

The engineering controls applicable to this project shall be to implement appropriate dust control measures to minimize visible airborne dust emissions. This shall consist of a water truck to be used as needed on contaminated soil so as to minimize visible dust emissions.

The administrative controls for this project shall consist of limiting access to contaminated areas to properly trained and equipped personnel. These individuals shall follow the required decontamination procedures when leaving the contaminated work areas.

The project Health and Safety Officer shall ensure the following activities are conducted to ensure that employees are properly protected when the work involves handling contaminated materials:

- Designate contaminated areas and establish site control
- Provide the necessary equipment for decontamination
- Conduct daily site inspections to verify the appropriate precautions are in effect.
- Conduct periodic air monitoring of the excavation
- Identify the nearest emergency facilities (if not already done).

These procedures are described in this HSP.

4.0 Site Control

4.1 Contaminated Areas

Known site contaminants are present in low concentrations. As explained in Section 3.2, it is very unlikely that worker exposure will exceed applicable Cal-OSHA PELs. Therefore, exclusion zones as defined in 8CCR5192 will not be required. However, areas either known to be contaminated or areas where there is visible evidence of contamination (soil discoloration, odors etc.) shall be designated as contaminated areas. These shall be delineated with cones, barricade tape, temporary or other visible means. Appropriate personal protective equipment shall be worn when working in this area as described below.

The absence of exclusion zones shall not relieve site workers from the requirement for personal hygiene before eating, drinking or smoking.

Vehicle access into contaminated work areas shall be restricted only to the equipment required for the work, and to the water truck as needed for dust control.

Access to the project site shall be restricted to authorized personnel only. Site visitors will be required to check in at the office trailer upon entry and exit. Visitors authorized to enter active work areas shall sign in an entry and exit log. Access to the site shall be locked outside working hours.

5.0 Personal Protective Equipment

5.1 Selection Criteria

The EPA has classified personal protective equipment (PPE) ensembles into four categories which address different levels of hazards. They are as follows.

- *Level A* This type of protection should be worn when the highest level of respiratory, skin, eye and mucous membrane protection is needed.
- *Level B* Level B protection should be selected when the highest level of respiratory protection is needed, but a lesser level of skin and eye protection.
- *Level C* This level protection should be selected when the actual or potential airborne substance(s) is known, the concentration(s) is measured, the criteria for using air-purifying respirators are met, and skin and eye exposure is unlikely. Periodic air monitoring is necessary.
- *Level D* Level D is primarily work clothing.

The PPE selection criteria for unexpected toxic hazards which may be encountered are based on two major parameters:

- Type(s) and measured concentration(s) of the chemical substance(s) in the atmosphere, with its (their) associated toxicity.
- Potential for exposure to high air concentrations of volatile substance, splashes of liquids, or other types of direct contact with material due to work functions being performed.

PPE for activities where the identity of contaminants is available requires consideration of the following .

- Identity of either known or suspected contaminant.
- Actual or potential airborne concentration
- Skin toxicity data.
- Potential for skin or eye contact

5.2 Contaminated Area PPE Requirements

As stated in Section 3.2 of this HSP anticipated exposures by all occupationally relevant routes is not expected to be significant. Therefore, the following (EPA level D) personal protective equipment shall be worn in contaminated areas to minimize potential chemical hazards associated with contaminated materials:

- Hardhat;
- Nitrile gloves (when handling contaminated soils and equipment);
- Safety footwear with steel toe and shank.

All personnel who may come in direct contact with contaminated materials shall wear the above described PPE clothing. Unnecessary contact with potentially contaminated residues shall be avoided as much as possible.

5.3 Clean Area PPE Requirements

Work outside contaminated areas shall require the use of EPA level D protective equipment normal to the construction industry. Typically, this consists of hard hats, safety footwear, and normal work clothing.

6.0 Employee Training

As discussed in Section 3 of this HSP, it is unlikely that site activities will result in exposure to health hazards other than those associated with construction activities. Therefore, hazardous waste operations training is not required for this project. However, all site personnel (including subcontractors whose work includes soils handling) shall be familiar with the contents and requirements of this Health and Safety plan. This information shall be presented at a project start-up tailgate safety meeting mandatory for all site personnel. The Health and Safety Officer, will conduct this meeting. Table 4 shows an outline for the site specific tailgate safety meeting in this HSP.

During fieldwork, tail-gate meetings will be held at the start of each work week to discuss the planned activities and any health and safety-related issues. Additional meetings may be needed after events such as procedure changes, PPE level adjustments, accidents, or additions to this HSP. These meetings will be arranged by the Health & Safety Officer.

This training is additional to the training required under WBI's IIPP. Additional training may be required should project conditions change or warrant it. This includes respiratory protection training if air monitoring shows respirators are needed.

Prior to commencing work each day, either the Health and Safety Officer or Site Supervisor will ensure that the following tasks are performed:

1. Safety briefing, as scheduled, for all site personnel to discuss the activities to be performed during the day, as well as any anticipated safety or health issues. The weekly safety briefing will also emphasize proper emergency procedures, and will identify any health and safety related changes from this HSP.
2. A site inspection to identify and eliminate or control physical hazards that may exist on the project site (moving ground, tripping hazards, slipping hazards, sharp objects, etc.).
4. Proper delineation of contaminated work areas with barricades or barrier tape as needed.
5. Scheduling of personnel so that only the personnel necessary to complete the day's work are allowed to work in contaminated work areas.

7.0 Air Monitoring

As airborne exposures to site contaminants based on worst case scenarios and maximum reported levels of contaminants is extremely low, air monitoring is not required.

8.0 Decontamination

Personnel leaving contaminated areas shall wash their hands and face before eating, drinking or smoking. Hands shall also be thoroughly washed after leaving any areas of the site before eating, drinking, or any other activities during soil construction work.

9.0 Emergency Response

Table 5 contains emergency response telephone numbers to be used in emergencies. Normal on site communications shall consist of two way radios and cell phones.

9.1 Employee Injury or Illness

The affected employee shall be removed (if it can be done safely and without aggravating conditions) and transported to Alta Bates Hospital, Berkeley, CA. Emergency telephone numbers are listed on Table 5. Only individuals currently trained in first aid or CPR shall render this type of assistance. Appendix D contains a map to Alta Bates Hospital.

Directions to Alta Bates Hospital

Go 3 miles north on Hollis Street
Turn east (right) on Ashby
Go about 4 miles. Hospital is on the south (right) side of Ashby.

9.2 Emergency Equipment

Emergency equipment available on site consists of

- First aid kits (to be used by trained personnel only).
- Fire extinguishers (10 A,B,C ratings). Fire extinguishers shall be available at the jobsite trailer, and in each supervisor vehicle. Fire extinguishers shall be

inspected annually, and during each job site inspection they are re-charged as necessary.

9.3 Emergency Decontamination

As project related chemical hazards are expected to be low, it is unlikely that employee contamination can present a life threatening condition. Therefore, emergency employee decontamination shall consist of washing with soap and water.

9.4 Emergency Evacuation

In the unlikely event of site evacuation, an airhorn will be used to sound the alarm. Reasons for emergency evacuation include trench collapse, fires and explosions.

Employees shall report to the Site Supervisor's vehicle without delay where the Site Supervisor shall conduct a head count.

9.5 Unusual Conditions

Site employees shall be instructed to cease work, and immediately report to the supervisor should they encounter unusual conditions such as strange odors or liquids. The Site Supervisor shall assess conditions, and shall consult with Mr. Michael Connor, CIH, CSP as needed. If necessary, work shall be temporarily suspended until the situation can be properly addressed.

10.0 General Safe Work Practices

The project operations shall be conducted with the following minimum safety requirements employed:

- Personnel on-site are to be thoroughly briefed on the anticipated hazards, equipment requirements, safety practices, emergency procedures and communication methods, initially and in daily briefings.
- Dust control measures to minimize airborne dust emissions.
- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand to mouth transfer and ingestion of materials is prohibited in all areas of soil work.
- Removal of materials from protective clothing or equipment by blowing, shaking, or any other means that may disperse materials into the air is prohibited.
- Personnel should be cautioned to inform each other and their supervisor of subjective symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract.
- Contact with contaminated soil shall be minimized.
- Legible and understandable precautionary labels shall be prominently affixed to containers of raw materials, intermediates, products, mixtures, scrap, waste, debris, and contaminated clothing.
- Open excavations shall be covered if rain is expected to minimize the accumulation of stormwater.

- Spoils piles shall be covered with polyethylene that shall be weighed down so as to prevent contaminated soil emissions from wind and rain.
- Wherever possible, spoils shall be placed back into the excavation after work is completed. Waste soils to be transported off site shall be characterized for appropriate waste disposal.

11.0 Sanitation

WBI will provide the proper sanitary facilities for use by all personnel assigned to the project. Sanitation facilities shall include temporary toilets that shall be serviced periodically. These shall include appropriate washing facilities that shall include an adequate supply of soap, water and towels.

12.0 Proposition 65

Several site contaminants are substances known to the state of California to be either reproductively toxic or carcinogenic. Consequently, it is necessary to comply with the requirements of Proposition 65 (Safe Drinking Water and Toxics Enforcement Act of 1986) during the project. This will require the posting of Proposition 65 warning notices at all entrances to the site.

12.0 Standard Operating Procedures

Appendix C to this HSP contains standard operating procedures for decontamination. Other standard operating procedures relevant to site construction work are included in Webcor's and subcontractors' IIPPs which are incorporated into this HSP by reference. They will be available on site for review during field work.

Table 1
Industrial Hygiene Evaluation
Metal Contaminants in Soil

Emery Station No. 3
Emeryville, CA

September 1998

Contaminant	Soil Conc.[1]	Air Conc.[2]	PEL[3]	%PEL[4]	Soil PEL Conc.[5]
Antimony	3.8	0.002	500	0.001	1,000,000
Arsenic*	7.1	0.003	10	0.035	20,000
Barium	130	0.065	500	0.013	1,000,000
Cadmium*	0.5	0.0002	5	0.005	10,000
Cobalt	16	0.005	50	0.010	100,000
Copper	39	0.019	100	0.019	200,000
Chromium	34	0.017	50	0.034	100,000
Lead*	64	0.032	50	0.064	100,000
Nickel*	48	0.024	100	0.024	200,000
Vanadium	30	0.015	50	0.030	100,000
Zinc	130	0.065	1000	0.006	2,000,000

FOOTNOTES

1. Soil Conc. indicates maximum reported soil concentration (Webcor Builders, 1999) for the site.
2. Air Conc. indicates predicted airborne concentration based on continuous emissions of just visible dust (500 micrograms of dust per cubic meter of air or $\mu g/m^3$). Predicted metals concentrations are expressed in $\mu g/m^3$.
3. PEL indicates current Cal-OSHA Permissible Exposure Limit (PEL) currently promulgated in Title 8 of California Code of Regulations. PELs are given in $\mu g/m^3$. Where more than 1 PEL has been promulgated, the lowest value is given.
4. %PEL indicates air concentrations shown in column 3 as a percentage of the applicable PEL.
5. Soil Conc. PEL indicates the required level of soil contamination (in parts per million) for continuous emissions of just visible dust (500 $\mu g/m^3$ over 8 hours) to represent the PEL for given metal contaminants on site. Note that 1,000,000 ppm is equivalent to 100%.

* Indicates California Proposition 65 substance.

Table 2
Industrial Hygiene Evaluation
Hydrocarbon Contaminants
in Soils

Emery Station No. 3
Emeryville, CA

September 1998

Contaminant	Soil Conc.[1]	Air Conc.[2]	PEL[3]	% PEL[4]
Benzene	0.5	0.025	320	0.78%
trans-1,2-dichloroethene	1.7	0.085	790	0.01%
Ethyl benzene	0.68	0.034	435	0.01%
Toluene*	0.007	0.00035	435	0.00%
Trichloroethylene*	15	0.75	135	0.56%
TPH Gasoline	1900	95	900	10.56%
Xylene	3.1	0.155	435	0.04%

FOOTNOTES

1. Soil Conc. indicates maximum reported soil concentration in GERAGHTY & MILLER'S Environmental Engineering's Health Risk Assessment for the site. These concentrations are presented in milligrams of contaminant per kilogram of soil (mg/Kg).
2. Air Conc. indicates projected airborne concentration of hydrocarbons assuming that the maximum reported levels of hydrocarbons evaporated instantly and continuously from the top one foot of soil into a volume of 2 cubic meters (approximately 9 feet by 9 feet by six feet in height) at any given time. This projected calculation does not allow for any dilution associated with natural air movement. The projected calculations are given in milligrams per cubic meter of air (mg/m^3).
3. PEL indicates current Cal-OSHA Permissible Exposure Limit (PEL) currently promulgated in Title 8 of California Code of Regulations. PELs are given in mg/m^3. Neither diesel nor oil and grease have Cal-OSHA PELs.
4. %PEL indicates air concentrations shown in column 3 as a percentage of the applicable PEL.

* Indicates California Proposition 65 substance.

Table 3
Industrial Hygiene Evaluation
Volatile Hydrocarbon Contaminants
in Groundwater

Emery Station No. 3
Emeryville, CA

September 1998

Contaminant	Conc.[1]	Air Conc.[2]	PEL[3]	% PEL[4]
Benzene *	0.019	0.000437	3.2	0.014%
1,1-dichoroethane	0.0028	0.000064	400	0.000%
1,1-dichoroethene	0.0007	0.000016	4	0.000%
cis-1,2-dichloroethene	1.9	0.95	790	0.120%
trans-1,2-dichloroethene	0.033	0.0165	790	0.002%
Ethyl benzene	0.0012	0.0006	435	0.000%
Toluene*	0.0026	0.0013	435	0.000%
Trichloroethylene *	0.0074	0.000170	135	0.000%
Vinyl chloride *	0.26	0.00598	2.6	0.230%
Xylene	0.004	0.000092	435	0.000%
TPH Gasoline	0.42	0.00966	900	0.001%

FOOTNOTES

1. Soil Conc. indicates maximum reported groundwater concentration in GERAGHTY & MILLER'S Environmental Engineering's Health Risk Assessment for the site. These concentrations are presented in milligrams of contaminant liter of groundwater (mg?l) or ppm.
2. Air Conc. indicates projected airborne concentration of hydrocarbons assuming that the maximum reported levels of hydrocarbons evaporated instantly and continuously into a volume of 2 cubic meters (approximately 9 feet by 9 feet by six feet in height) at any given time based on a water evaporation rate of 2.3% This rate is derived from the vapor pressure of water and saturation water vapor concentrations. The vapor pressure of water at 20 C (68 F) is 17.535 mmHg. Therefore, saturation water vapor concentration would be 17.353/760 (normal atmospheric pressure) x 10^6 parts per million (ppm) or 22,833 ppm (of water). This is equivalent to 2.3 % water vapor in air. In reality, this is an overestimate given the high atmospheric moisture content near the San Francisco Bay. This projected airborne concentration calculation does not allow for any dilution associated with natural air movements. The projected calculations are given in milligrams per cubic meter of air (mg/m^3).
3. PEL indicates current Cal-OSHA Permissible Exposure Limit (PEL) currently promulgated in Title 8 of California Code of Regulations. PELs are given in mg/m^3. Neither diesel nor oil and grease have Cal-OSHA PELs.
4. %PEL indicates air concentrations shown in column 3 as a percentage of the applicable PEL.

* Indicates California Proposition 65 substance.

Table 4

Tailgate Safety Meeting Outline

Emery Station No. 3
Emeryville, CA

August 1998

- Introduction
- Summary of Work
- Review of Hazards
  - Chemical
    - Low levels of hydrocarbons
    - Low levels of metals
    - Anticipated exposures
  - Physical
    - Work around heavy equipment
    - Noise
    - Underground utilities
    - Excavation
- Hazard Control Methods
  - Engineering
    - Use of water truck to mitigate dust
  - Administrative
    - Decontamination requirements
  - Personal Protective Equipment
    - Level D
- Employee Decontamination
  - Personal Hygiene Practices
- Emergency Procedures
  - Nearest emergency facility
  - Site Evacuation
  - Emergency Decontamination

Table 5

Emergency Telephone Numbers

Emery Station No. 3
Emeryville, CA

August 1998

Alta Bates Hospital	1-510 204-4444
California State Office of Emergency Service	1-510-646-5908
Chemtrec	1-800-424-9300
Department of Toxic Substances Control Lynn Nakashima	1-510- 540-3839
Fish and Game	1-800-952-5400
Michael Connor, CIH, CSP	1-415-252-0778 (o) 1-415-509-5924 (cell)
Poison Control Center	1-800-356-3129
Police/Fire	911
Regional Water Quality Control Board	1-510-286-1255
Underground Services Alert	1-800-642-2444
Webcor Project Manager (Mr. John Kerley)	1-650- 349-2727