

SITE SAFETY & HEALTH PLAN

AMERICAN CAN - REMEDIATION PROJECT

OAKLAND, CA.

Project Description: Subsurface Remediation Project - Oakland, Ca.

Date: October 12, 1994

Prepared for:

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Prepared by:

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1.0 INTRODUCTION

A. Overview

This Project Specific Safety Plan delineates the basic safety requirements for the Soil Remediation Project located at the former American National Can Site, on East 8th St. in Oakland, Ca.

This project will be made up of various construction activities. Some of these activities will be of a non-hazardous nature and others will be considered hazardous in nature. This Site Safety and Health Plan will address only the hazardous work.

The scope of work to be performed on this project is the excavation and remediation of soil which is known to have been impacted by hydrocarbons. The project has been broken down into two areas in which work is to be performed. These areas have been defined as Area 2 and Area 4. HSR Inc. will be performing the excavations using mechanical excavation equipment. We will then be pumping the excavations of any free standing groundwater which has entered the excavation and backfilling the excavations with clean on-site soil and imported soil from an off-site location.

HSR Inc's proposed work plan for this project is:

1. We will mobilize on the site as required.
2. We will establish the proposed areas of excavation using normal construction staking.
3. We will then proceed to excavate the soil from Area 4 as defined in the construction drawings. Following excavation, we will stockpile the excavated soil and cover with plastic sheeting. At that time a determination will be made regarding the aeration of the soil and replacement as backfill following treatment or direct disposal should conditions warrant.

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4. Following completion of area 4, we will proceed to Area 2. The first task in this area will be to install 20 lineal feet of sheet pile shoring to a depth of approximately 30 feet. Following the installation of the shoring, we will proceed to excavate and remove onl (1) underground storage tank which was previously closed in place, continue the excavation to a depth or 20 feet and remove approximately 1500 cubic yards of soil which has been impacted by diesel constituents. This soil will be stockpiled on site for further disposition. We will then proceed to place any clean soil found on the site as backfill and complete the backfilling using imported fill material. Following completion of the backfill process we will remove the shoring system.

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2.0 PROJECT SAFETY AUTHORITY

A. ON - SITE PROJECT SAFETY

Personnel responsible for the project safety are:

Mr. R. Keith Dorsa	Project Manager
Mr. Brian Lukson	Site Safety & Health Officer HSR Inc.
Mr. Brian Lukson	Project Superintendent
Ms. Linda Hansell	Office Coordinator

The Site Safety and Health Officer has the authority to suspend work anytime he determines that the provisions of the plan are inadequate to insure worker safety. If the conduct of any individual is not consistent with the requirements of the Site Safety and Health Plan, the Site Safety and Health Officer will notify the following:

1. Mr. Dick Burzinski
Wahler/Rust (415) 962-6722

It will remain the responsibility of HSR Inc. to enforce compliance of the Site Safety and Health Plan.

In addition the Site Safety and Health Officer shall be responsible for the following:

- Safety Supplies & Equipment Inventory
- Medical Surveillance Program/Physical Examinations
- Training Programs / Hazard Communications
- Accident/Incident Reporting Procedures
- Decontamination/Contamination Reduction Procedures

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B. HSR Inc. SITE SAFETY AND HEALTH OFFICER:

The Site Safety and Health Officer reports to the HSR Inc. Project Manager and is responsible for overall safety and loss prevention functions. Responsibilities Include:

Health Surveillance of all HSR Inc. employees;

Assuring that safety procedures in effect are in compliance with all appropriate federal, state, local, and company regulations. (The most stringent of the regulations will be adopted);

Maintenance of personnel exposure monitoring records.

Assuring appropriate personal protective equipment is adequate for actual hazards of on-site conditions;

Assuring appropriate hazard areas are identified and marked;

Assuring all personnel entering the hazard area are in the appropriate levels of protection;

3.0 JOB HAZARD ANALYSIS

3.1 Chemical Hazard Analysis -

The anticipated contaminants to be encountered on this project are Petroleum Hydrocarbons. The hazards of these compounds are analyzed as follows:

PETROLEUM HYDROCARBONS

From the available analytical data, it appears that petroleum hydrocarbons will be encountered on the site. It appears that most of the hydrocarbon contaminated soil emanates from leaking underground storage tanks, which have been removed from the site.

The identified toxic compounds emanating from these gasoline contaminants are listed below, with descriptions of the specific health effects of each. The list includes primary toxic constituents of gasoline (benzene, toluene, xylene, and ethylbenzene).

1. Benzene

a. Characteristics:

Clear, colorless, highly flammable liquid with characteristic odor

b. High exposure levels may cause:

Acute restlessness, convulsions, depression, respiratory failure, is a suspected carcinogen

c. Permissible exposure level (PEL) for a time weighted average (TWA) over an eight hour period:

1.0 ppm

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2. Toluene

a. Characteristics:

Refractive, flammable liquid with benzene-like odor

b. High exposure levels may cause:

mild macrocytic anemia but not leukopenia (less toxic than benzene)

c. PEL for an 8-hour Time Weighted Average (TWA): 100 ppm

3. Xylene

a. Characteristics:

Refractive, flammable liquid with benzene-like odor

b. High exposure levels may cause: Narcosis

c. Pel for and 8-hour (Time Weighted Average) TWA: 100 ppm

Ethylbenzene

a. Characteristics: Clear, colorless, highly flammable liquid with characteristic odor

b. High exposure levels may cause: Irritation to skin, nose and throat, dizziness, constriction in chest, loss of consciousness, respiratory failure.

c. Pel for an 8-hour (Time Weighted Average) TWA: 100 ppm

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Diesel Fuel:

This material currently has no TLV specifically adopted by NIOSH. However, it has been listed as a suspect carcinogen, and is currently being tested for carcinogenicity.

It is currently anticipated that the potential levels of exposure will not reach PEL or TLV limits, but this is based solely on limited available specific information. It is planned that inhalation and dermal contact will be the potential exposure pathways of concern. Protective hand coverings may be necessary for all field personnel coming into contact with the contaminants. In addition, respiratory protective devices shall be required to be available to each person in the Exclusion Zone, and within reach of those in the Contamination Reduction Zone, should excessive levels of the contaminants be encountered.

The appropriate air-purifying respiratory protective devices, that are required to be available for all personnel working on-site, will be fitted with organic vapor cartridges with dust pre-filters, or with the high efficiency, organic vapor/HEPA stack type cartridges. Respirator cartridges will be changed on a routine basis as necessary.

Personnel working on the site will monitor wind direction and speed, and make every effort to operate in an upwind direction of the excavation.

An experienced line locator service will mark the locations for all underground utilities prior to the start of any digging.

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3.2 Physical Hazard Analysis -

Another potential hazard on this site is the use of heavy construction equipment. The heavy equipment will be performing the tasks of excavation, pile driving, loading of soil, transportation of soil and machinery, overhead construction and many other construction related tasks.

All OSHA standards will be strictly adhered to during all excavation work performed by HSR Inc. All equipment will be equipped with standard Roll Over Protection Cabs and will have an approved back up horn. All HSR Inc. personnel will be experienced in the operation and excavation practices of such equipment. All HSR Inc. personnel will be wearing Day Glow fluorescent orange construction vests and will be wearing ear protection if noise levels warrant such use.

The potential for heat stress is very low on this project site. All operators and technicians will be monitored for heat stress and will take all required breaks in work routine to minimize any potential for heat related stress.

Prior to any excavation work on this site, all utilities will be located using trained locator services and Underground Service Alert.

If any entry is made into excavation, a hazard analysis will be performed of the conditions, including confined space entry conditions and slope stability and protection.

If entry into excavation greater than 4 feet is made, confined space entry procedures and training as required under California Code of Regulations (8CCR 5158) will be utilized.

4.0 RISK ASSESSMENT SUMMARY

It is not anticipated that there will be any significant or major potential source of exposures due to the scope of work to be followed on this project. The potential of any increased risk of exposure on other workers or the surrounding community is minimal. The basic potential exposure sources would originate from soil vapors and airborne dust generated during the excavation of the contaminated soils.

Due to this potential, HSR Inc. will have the equipment on-site to provide for dust control during the excavation activities. Dust control will be maintained through the use of water trucks or available on-site water. The levels of airborne dusts will be visually monitored by HSR Inc. If any dust is noted, additional water will be added to further control the airborne dusts.

5.0 EXPOSURE MONITORING PLAN

A. General

An air quality monitoring program will be implemented to provide baseline and on-going air quality data for site operations. The program will include:

1. Photoionization detector or Flame Ionization detector for organic vapors will be utilized on a regular basis during excavation & loading operations.
2. Air monitoring for organic vapors will be performed on a regular basis during excavation and loading operations. Exposure monitoring for metals, specifically lead, will be conducted during work. Exposure monitoring for volatiles will be conducted based on organic vapor monitoring.

Instruments must be calibrated at least daily using manufacturer's procedures & a known concentration span gas.

Action levels:

25 ppm above background in the breathing zone for 5 minutes, upgrade to half-mask respirators with OV/HEPA cartridges.

50 ppm above background in breathing zone for 5 minutes, upgrade to full-face respirators with OV/HEPA cartridges, also if eye irritation occurs.

6.0 LEVELS OF PROTECTION

A. Introduction

It is important that personal protective equipment and safety requirements be appropriate to protect against the potential hazards at the site. Protective equipment will be selected based on the contaminant type(s), concentration(s), and routes of entry. In situations where the type of materials and possibilities of contact are unknown or the hazards are not clearly identifiable, a more subjective determination must be made of the personal protective equipment.

Field personnel and visitors are required to wear the following Level D clothing and equipment, as a minimum, while on the American Can Oakland Project Site:

1. Hard Hat
2. Long Sleeved Shirts
3. Safety Glasses will be worn while the concrete and asphalt demolition are being performed and any time the Site Safety and Health Officer deems them to be necessary

B. Required Protection

During all phases of the Soil clean-up project, all HSR Inc. personnel coming into contact with the contaminants will wear modified Level D work clothing at a minimum., including Standard Tyvek work clothing with Latex gloves , at a minimum.

All personnel will wear safety glasses when demolishing any concrete. All personnel will also wear air-purifying respirators with organic vapor/HEPA cartridges if air monitoring action levels are exceeded or if requested by personnel for odor or irritation.

If ground water is encountered, workers will switch to nitrile gloves and P/E coated Tyvek to avoid incidental splash.

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HSR Inc. will provide its employees with appropriate personal protective equipment as required. If respirators are deemed necessary, only NIOSH/MSHA certified respiratory protective equipment will be utilized. Any HSR Inc. subcontractors are responsible to supply the appropriate safety equipment for their own employees.

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7.0 SITE SECURITY MEASURES

A. General

The site will be controlled by HSR Inc. to reduce the possibility of exposure to any contaminants present and to prevent the transport of these materials from the site by personnel or equipment.

A control system is required to assure that personnel and equipment working on the hazardous waste site are subjected to appropriate health and safety surveillance.

The possibility of exposure or translocation of contaminants will be reduced or eliminated in the following ways:

Setting up security or physical barriers to exclude unnecessary personnel from the general area

Minimizing the number of personnel and equipment on-site consistent with effective operations

Establishing work areas within the site to separate the clean area from the area where soil is being aerated

Establishing control points to regulate access to work areas

Conducting operations in a manner to reduce the exposure of personnel and equipment

Minimizing the airborne dispersion of contaminants

Implementing the appropriate personnel and equipment decontamination procedures

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All personnel entering the site will be qualified field personnel wearing the proper level of protection. Eating, drinking, smoking and any other practices which increase the probability of hand-to-mouth transfer will be prohibited in any area of work. All field personnel will be instructed to thoroughly wash their hands and face upon leaving any area of work. Potable water will be furnished on the site.

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8.0 DECONTAMINATION PROCEDURES

A. Introduction

As part of the system to prevent or reduce physical transfer of contaminants by people and/or equipment from on-site, procedures will be instituted for decontaminating anything leaving the site. These procedures include the decontamination of personnel, protective equipment, monitoring equipment, clean-up equipment, etc. All equipment leaving project site, will be inspected for the potential of contamination. If contamination is present appropriate methods for decontamination will be followed.

B. Procedure

1. Respirators will be cleaned daily during the work.
2. All Tyvek and other clothing will be placed in drums and disposed of appropriately.
3. All trucks leaving the site will be decontaminated by the use of brooms or available water.
4. The brushes, sponges, brooms, containers, etc., used in the decontamination process must, until shown otherwise, be considered contaminated and will be properly disposed.
5. Employees will instructed to avoid shaking clothes or use of compressed air to remove dust.
6. All surfaces must be vacuumed or wet-wiped to remove dust. No dry sweeping or compressed air will be permitted. Only HEPA vacuums will be used.
7. Personal hygiene will be emphasized to workers to avoid the potential of ingestion of chemicals.

9.0 STANDARD OPERATING PROCEDURES

Respiratory Protection Program Guidelines

Respirators will be provided by HSR Inc. when such equipment is deemed necessary to protect the health of the employee. HSR Inc. shall provide respirators which are applicable and suitable for the purpose intended. HSR Inc. shall be responsible for the establishment and maintenance of the respiratory protective program. The Site Safety and Health Officer will approve the selection, of the respirators and inspection of the models and types of respiratory protective devices.

A medical evaluation is required prior to wearing any respirator, except where emergency escape respirators are provided. The contact physician shall determine annually if any health or physical conditions exist which would prohibit a worker from being assigned to an area requiring respiratory protection. A record will be retained in the employee's medical file, which will be retained at the medical clinic or doctor's office.

Respirators shall not be worn when conditions prevent a facepiece-to-face seal. Such conditions as facial hair, scars, wrinkles, facial diseases, dentures removal, or other disorders could prevent a proper facepiece-to-face seal. In these cases, corrective action will be taken to insure a proper seal. Contact lenses shall not be worn when using any respirator.

For the safe use of any respirator, it is essential that the user be properly instructed in its operation and maintenance. Both supervisors and employees shall be so instructed. Employees shall be instructed and trained in the proper selection and use of respirators and their limitations. The employee shall use the provided respirator in accordance with instructions and training received. All training shall be documented with records retained in the employee's training files.

The HSR Inc. Respiratory Program will meet the 11 points as specified in Title 29 Code of Regulations (CFR) 1910.134 *, and The California Code of Regulations 8CCR 5144.

Respirators must be fit tested every six months for lead contaminated work, and annually for general use.

10.0 EMERGENCY PROCEDURES

A. Site Emergency Warning System

Several warning systems will be utilized depending on the work site conditions or emergency involved:

1. Verbal communications.
2. Vehicle horns.
3. Portable hand-held compressed gas horns.

Verbal instructions with or without assistance will be used to deal with specific incidents.

Horn signals will be used to signify an emergency warning.

One long blast will be used on-site to signify emergency evacuation of the immediate work area to a predetermined location upwind, where a head count will be taken and further instructions given.

Repeated short blasts will be used on-site or from off-site to signify evacuation of all personnel from the site.

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B. Emergency Equipment

The following equipment comprises the basic emergency equipment which will be available at the work site:

1. Fire extinguishers - dry chemical
2. First Aid Kits (Including chemical burn kit)
3. Combustible gas and oxygen detector analyzers
4. Hand-held compressed gas horns
5. Appropriate spill clean-up supplies and equipment

C. General Emergency Procedures

In case of emergency or hazardous situation, the team member that observes the condition shall immediately sound the compressed gas horn.

1. Upon hearing the horn, all non-emergency communications will cease and the member giving the alarm will proceed to give the Site Safety and Health Officer the pertinent information. The first responsibility of the Site Safety and Health Officer is to prevent any further injury.
2. Power equipment will be shut down and operators will stand by for instruction.
3. Injured personnel will be transported to a clean area.
4. The HSR Inc. Office at 3851 Charter Park Dr., San Jose, Ca. (408) 265-4300 will be notified immediately.

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5. In case of fire, explosion, or hazard alarm, personnel will immediately proceed to assigned prearranged safe locations.
6. Upon arrival at the safe locations, a complete head count will be given to the Project Manager and personnel will stay at the safe locations until the area is secured.

D. Personal Injury

If an injury occurs due to an accident or exposure to a hazardous substance, the HSR Inc. Office will be notified. The Site Safety and Health Officer will be given all appropriate information concerning the nature and cause of the condition so that treatment can be initiated. The injured person will be transported to a clean area where appropriate decontamination and first aid can begin. Decontamination can be omitted if it may aggravate or cause more harm to the injured party. A member of the work team will accompany the injured party to the medical facility to advise on matters concerning chemical exposure.

The Project Manager will be informed and will investigate the cause of the injury and make any necessary changes in the work procedures.

F. Ambient Monitoring Contingencies

When ambient monitoring on the downwind edge of the site indicates significantly higher than background levels of any contaminants, the Site Safety and Health Officer will immediately determine the cause, make changes to work practices or procedures, and if necessary, make changes in the site layout, and warn unprotected personnel to evacuate or don protective equipment.

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G. Contingency Plan

The following procedures will be used in case of an unpredictable event:

- | | |
|--------------------|--|
| Fire: | Use fire extinguisher if localized and call the fire department if uncontrolled |
| Chemical Exposure: | Follow first aid treatment specified previously |
| Physical Injury: | Provide first aid treatment and contact ambulance for evacuation, if appropriate |

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EMERGENCY CONTACT LISTING

Emergency Telephone Numbers

City of Oakland:

Fire/Ambulance	911
Police Department	911
Hospital - Doctor's Hospital 4600 Fairfax Ave. Oakland, Ca. 94601	(510) 536-8500

Directions to Doctor's Hospital are given in Exhibit B

Chemical Spills: National Response Center (24 hours)	(800) 424-8802
Chemtrec: Chemical Releases (24 Hours)	(800) 424-9300
Environmental Protection Agency Emergency Response Section:	(415) 974-7511
Poison Control Center (24 hours):	(415) 428-3248
Cal-OSHA District Office	(415) 557-1677

Additional Contingency Numbers:

HSR Inc.	(408) 265-4300
HSR Inc. Mobile Telephone	(408) 398-3748
HSR Inc. Site Safety & Health Officer (On-Site)	(408) 398-6707

11.0 TRAINING REQUIREMENTS

All personnel assigned to this project will be required to demonstrate that they have completed the Initial Training Requirements (40-hrs.), according to Federal OSHA Standards under 29 CFR 1910.120 and according to California Standards under 8 CCR 5192.

Field personnel from HSR Inc. will attend a project-specific training program for safety issues and project work task review before beginning work. The meeting will also be attended by the Project Manager and the Site Safety and Health Officer, in addition fit testing of respiratory protective devices will be conducted as part of the safety/orientation

- A. All HSR Inc. site personnel shall have completed training relative to the project operations plans, and the materials to be encountered during the project. This training shall be conducted by the Site Safety & Health Officer and shall include classroom and practical application exercises regarding the hazards to be expected and the protective equipment to be utilized.

The requirements for refresher and supervisor training will also be met. This training will also comply with the requirements for lead training as required by California Code of Regulations 8 CCR 1532.1.

If entry into excavation greater than 4 feet is made, confined space entry procedures and training as required under California Code of Regulations (8CCR 5158) will be utilized.

12.0 MEDICAL SURVEILLANCE

HSR Inc. personnel engaged in project operations shall be participants in the Medical Surveillance program, and must be cleared by the examining physician (s) to wearing respiratory protection devices and protective clothing for working with hazardous materials. The applicable requirements under Federal OSHA, 29 CFR 1910 will be observed.

Examination Requirements

All HSR Inc. personnel on-site shall have successfully completed a pre-placement or periodic medical examination in accordance with established HSR Inc. policies and procedures, and consistent with the provisions of the OSHA carcinogen standards. This examination shall include a complete medical and occupational history, physical examination, and selected biological sampling. Laboratory studies include a complete blood count (CBC), urinalysis, chemistry panel (SMAC) pulmonary function (FEV and FVC), chest x-ray, audiometry, and vision screening, and blood lead & zinc protoporphyrin testing as required by California Code of Regulations (8 CCR 1532.1).

13.0 RECORDKEEPING

A. General

Recordkeeping shall be consistent with OSHA regulations in all respects. The following permanent records will be maintained in the HSR Inc. offices.

1. Safety Inspection Reports
2. Personnel Exposure Monitoring Records (spiral or bound permanent log books will be used)
3. OSHA 200 - Current to within 5 days
4. Accident reports consistent with the established HSR Inc. procedures

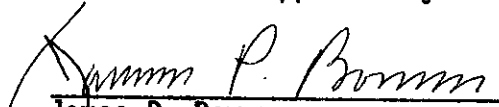
B. Medical Records

Permanent medical records shall be maintained in confidential files by the contract physician/medical clinic. The physician will supply HSR Inc. with a medical status document, certifying that the personnel assigned to the project are physically capable of performing their individual work tasks.


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14.0 SIGNATURES

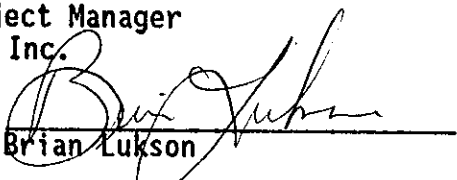
Site Safety & Health Plan Approved By:

Signature: 
Name: James P. Bowers Date: _____

Title: Vice President/Safety Officer
HSR Inc.

Signature: 
Name: R. Keith Dorsa Date: _____

Title: Project Manager
HSR Inc.

Signature: 
Name: Brian Lukson Date: _____

Title: Project Superintendent/Site Safety Officer
HSR Inc.

Contractor Agreements:

1. HSR Inc. certifies that the following personnel to be employed on the subject project have met the following requirements of the OSHA Hazardous Waste Operator Standard (29 CFR 1910.120) and other applicable OSHA standards.
2. HSR Inc. certifies that in addition to meeting OSHA requirements, it has received a copy of this Site Safety & Health Plan and will ensure that its employees are informed and will comply with both OSHA requirements and the guidelines in the Site Safety & Health Plan.

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3. HSR Inc. further certifies that it has read and understands and will comply with all provisions of this Safety & Health Plan.
4. HSR Inc. certifies that the following employees have read, understand and will comply with the above Site Safety & Health Plan.

HSR Inc. Personnel	Training/Certification/Medical Examination	Signature	Date
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
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