A. GENERAL PROJECT INFORMATION

SITE: Fairmont Hospital DATE PREPARED: 02-04-93

LOCATION: 15400 Foothill Boulevard, San Leandro, California

PREPARED BY: Jay Carpenter, ESE

OBJECTIVE (S) AND WORKPLAN: Removal of one 500 gallon gasoline UST.

PROPOSED

DATE(S) OF ON-SITE WORK: February 15, 1993 - March 30, 1993 BRIEFING

DATE(S): BACKGROUND REVIEW:

COMPLETE: x

PRELIMINARY: __

----------PROJECT H.A.S.P. SUMMARY----------

LEVEL(S) OF PROTECTION: A__ B__ C__ D x MIXED__ MODIFIED x

OVERALL HAZARD ESTIMATE: HIGH___ MODERATE__ LOW x UNKNOWN___

ADDITIONAL DOCUMENTATION: TLV TABLE__ FULL HASP x METHODS__

OTHER__

B. SITE/MATERIAL CHARACTERISTICS

MATERIAL/WASTE TYPE(S): LIQUID x SOLID__ GAS__ SLUDGE__

MATERIAL PRESENT IN: DRUMS__ TANKS x OPEN__ OTHER__

CHARACTERISTICS: IGNITABLE x CORROSIVE__ TOXIC x REACTIVE__

RADIOACTIVE__ VOLATILE x UNKNOWN__ OTHER

FACILITY TYPE: Hospital CLOSED__ OPEN x

FACILITY SIZE:

TOPOGRAPHY: Relatively flat, at an approximately 45-feet above mean sea level.

PRINCIPAL DISPOSAL METHOD AND LOCATION(S): The tank will be hauled off-site as hazardous waste by Erickson Trucking, Inc. to Erickson Environmental of Richmond, California where they will it will be cleaned and scrapped.

C. HAZARD EVALUATION

INSTRUCTIONS: Evaluate principal hazards expected at this site. Be specific; complete all entries.

HAZARDS

Physical: Drilling equipment containing cables, augers etc. can be a hazard to the workers hands and feet. Trucks may drive by at all times.

Chemical: The soil samples collected from the borings may contain petroleum hydrocarbons and/or toxic fumes which can be hazardous to an individual breathing them.

Biological: None anticipated.

CORRECTIVE ACTIONS

Physical: Site will be inspected at start up. Identified safety hazards will be discussed at start up safety meeting and mitigated to extent feasible before start-up.

Chemical: Should breathing conditions exceed work action level while drilling, then all workers within the 25-foot exclusion zone will be required to wear a respirator (half-face mask). If a worker becomes sick, he should leave the work area immediately, breathe fresh air and seek medical attention if needed. Contact the HSO as soon as possible. All work will stop and will not resume until investigation and testing has been completed and corrective actions (as appropriate) have been taken to ensure adequate protection of personnel. Recommended work Action Level = 5 ppm in workers' breathing zone for 3 minutes (sustained).

Biological: None Anticipated

D. WORK PLAN INSTRUCTIONS

PERSONAL PROTECTION REQUIRED:

Level of protection: A___ B___ C___ D_x_ MIXED___ MODIFICATIONS___

For MIXED levels of protection describe areas and levels:_____

_____

_____

For MODIFICATIONS identify action levels: This site will involve D level protection which includes a hard hat, gloves, steel-toe boots. Respirator for 5 ppm or greater._____

_____

ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT (PPE): Goggles, respirator, etc. should be available and ready for use._____

MONITORING EQUIPMENT: PID_x_ FID___ TOXIC GAS___ OXYGEN___

DETECTOR TUBES___ EXPLOSIMETER___ PERSONAL MONITOR___

OTHER INSTRUMENTS: N/A

EQUIPMENT CALIBRATION: PID instrument will be calibrated each day.

MONITORING STRATEGY: Measurements of area and breathing zone levels will be taken at 15 minute intervals at start up of each phase of work. If levels are below 5 ppm at breathing zone frequency will be decreased to hourly unless conditions change (odor levels, etc.).

DECONTAMINATION PROCEDURES: If required, equipment and personal decontamination areas will be designated by the Project Manager at the start of the project. All tools will be cleaned adequately prior to final removal from the work zone, to prevent the transfer of contamination from the work site into clean areas. Protective clothing such as Tyvek coveralls, latex gloves, boot covers, etc. will be changed on a daily basis or at the discretion of the Project Manager. All disposable protective clothing (including respirator cartridges) will be put into plastic bags and disposed of in a proper manner. Excavated soil will be stockpiled in an area designated by the Project Manager, until chemical analysis has been performed on representative samples.

SITE CONTROL MEASURES: Set up 25-foot perimeter with traffic cones or caution tape. Visitors within perimeter to read and sign H&S plan and abide by directions of site H&S officer.

SPILL CONTAINMENT PROCEDURES: All pumpable fluids will be removed from the tank and hauled off-site as hazardous waste. Care will be taken when draining and rinsing associated tank piping. Care will be taken while rinsing the tank to prevent any spillage of residual hydrocarbons. No storage of removed product, rinsate, or other hazardous fluids will be allowed. Fluids will be pumped from the tank into vacuum trucks and immediately hauled off-site.

NOTES: N/A

E. EMERGENCY PROCEDURES

FIRE OR EXPLOSION: Evacuate the area and call the Fire Department at 911 immediately. All burn victims should seek medical attention immediately.

INJURY: Call 911 and administer first aid to victims who have severe injuries. Ensure all injured are transported to the nearest medical facility doctor.

WEATHER: Avoid extremes in temperature (i.e. very cold or very hot conditions)

OTHER:

CHEMICAL EXPOSURE ACTIONS:
(See Appendix B for Optional Material Safety Data Sheets)

EMERGENCY TELEPHONE NUMBERS

POLICE/FIRE/AMBULANCE: 911

POISON CONTROL: (800) 523-2222

ESE CONCORD OFFICE: (510) 685-4053

CHEMTREC: (800) 424-9300

UNDERGROUND SERVICE ALERT: (800) 642-2444

PROJECT CONTACTS

AGENCY CONTACT: Alameda County Health Care Services Agency (510) 271-4320

SITE CONTACT: Mr. Paul Hiller, Facility Supervisor (510) 667-4473

CLIENT CONTACT: Mr. Pete Kinney, ACGSA (510) 535-6280

F. EMERGENCY PRECAUTIONS

PRIMARY HOSPITAL/INFIRMARY:

Name: HUMANA HOSPITAL OF SAN LEANDRO

Address: 13855 E 14th St., San Leandro Telephone Number: (510) 357-6500 (emergency)

Directions from site to emergency unit: Head north east on Foothill Blvd. to 150th St. (1 block), turn left (south) on 150th St. cross over the 580 Freeway and down to 14th St. (3 blocks) and turn right (north) on 14th St. and drive to 136th St.(14 blocks). The Hospital is on the left side (south) of 14th St. just before 136th St. intersection.

Remarks: See Figure A

APPENDIX A

SITE-SPECIFIC
HEALTH & SAFETY
INFORMATION

HEALTH AND SAFETY PLAN
for
ALAMEDA COUNTY GENERAL SEVICES AGENCY
FAIRMONT HOSPITAL
San Leandro, California

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APPENDICES

A. SITE SPECIFIC HEALTH AND SAFETY INFORMATION
B. MATERIAL SAFETY DATA SHEETS (Optional)

TABLES

2-1 Medical Examination--Monitoring Program
5-1 Windchill Index

1.0 GENERAL INFORMATION

1.1 INTRODUCTION

This Health and Safety Plan shall provide the safety and health requirements for general site work taking place under a contract with Alameda County General Services Agency (GSA). This Plan provides the structure for a Site-Specific Health and Safety Plan, and provides information which will apply to all Environmental Science & Engineering, Inc. (ESE) projects. Together, they comprise the Site Health and Safety Plan (HASP). This HASP will be considered complete only with an associated Site-Specific HASP.

The purpose of this HASP is to protect individuals, those working at the site, visitors, and the surrounding populace, and the environment during on site sampling and site characterization activities at petroleum hydrocarbon impacted sites. This plan includes preventive and protective measures against health hazards, fire and explosion hazards, and mechanical hazards which may exist or occur during field activities.

1.2 SITE INFORMATION

The General Information section of each Site-Specific Health and Safety Plan will provide the following information:

1. Name and Location of the Site;
2. Name of Individual Preparing the Plan, and Date of Preparation;
3. Brief Site History;
4. Investigative Objective and Work Plan;
5. Proposed Dates of Investigation; and
6. Assessment of Overall Worker and Public Health Hazards.

1.3 REGULATORY REQUIREMENTS:

Occupational Safety and Health Administration (OSHA) standards 29 Code of Federal Regulations (CFR) 1910 and 1926 apply to work under this site-specific HASP. Title 8 of California Code of Regulations (General Construction Safety Orders and General Safety Orders) must be complied with at California sites. Additional requirements are contained in Code of Federal Regulations title 40, Protection of the Environment.

2.0 PERSONNEL REQUIREMENTS

2.1 ORGANIZATION

The overall project organization as described in this document will be shown in the Site-Specific Health and Safety Plan, and will identify and show responsibilities for all key personnel, employees, and subcontractors.

2.2 ESE HEALTH AND SAFETY POLICY AND RESPONSIBILITY

It is the policy of the management of ESE and also a contract requirement that a safety plan be implemented at hazardous material contamination sites to protect individuals and the environment. All ESE personnel involved in work on these sites will conform and comply with all aspects of this safety program. Each and every individual is, and therefore must regard and conduct him/herself as, a member of the safety team and adhere to the prescribed site safety plan to ensure his/her own safety as well as that of fellow workers, visitors, and the public.

2.3 PERSONNEL RESPONSIBILITIES

For each site, the responsibilities of the Project Manager include:

1. Preparing an effective site safety plan for the project;
2. Categorizing and identifying for the project staff the levels of potential exposure and dangerous levels of hazardous materials possibly encountered on site;
3. Ensuring that adequate and appropriate safety training and equipment are available for project personnel; and
4. Arranging for medical examinations for specified project personnel.
5. Ensuring a qualified on-site field person is designated Site Safety Officer (SSO) and is present when work is in progress. Alternates may also be designated as needed, however, the project manager must ensure the designated (SSO) is familiar with the safety plan and his/her responsibilities.
6. Ensuring any subcontractors (i.e. drillers, excavators) get an advance copy of the Health and Safety Plan and a start-up safety briefing is scheduled.
7. Determining appropriate level of protection and exposure monitoring strategy for the project by task or phase.

Overall responsibility for safety during the site investigative activities rests with the Project Manager. To assist the Project Manager, a qualified Site Safety Officer will be appointed for each site.

The Site Safety Officer's (SSO's) responsibilities include:

1. Implementing all safety procedures and operations on site.
2. Conducting start-up safety briefing with project personnel and subcontractors. Ensure all necessary equipment and procedures are in place before start-up. Addressing any substandard conditions requiring correction prior to start up.
3. Updating equipment or procedures based upon new information gathered during the site inspection.
4. Upgrading or downgrading the levels of personal protection based upon site observations and/or measurements.
5. Determining and posting locations and routes to medical facilities and arranging emergency transportation to medical facilities (as required).
6. Controlling site entry and notifying (as required) local public emergency officers (i.e., police and fire departments) of the nature of the team's operations and making emergency telephone numbers available to all team members.
7. Ensuring that at least one member of the field team is available to stay behind and notify emergency services if the Site Safety Officer must enter an area of maximum hazard or entering this area only after notifying emergency services (police department).
8. Observing work party members for symptoms of on-site exposure or stress.
9. Arranging for the availability of on-site emergency medical care and first aid, as necessary.
10. Documenting field activities and incidents. Keeping Project Manager informed. Consulting with Health and Safety Officer as needed.

The Health and Safety Officer (HSO) is responsible for:

1. Assisting Project Manager with development of the site specific Health and Safety Plan.
2. Providing technical support during normal operations and upsets for hazard assessment, exposure monitoring, level of protection changes.
3. Reviewing and approving the site specific safety plan.

The responsibilities of all other on site personnel include:

1. Complying with all aspects of the project Safety plan, including strict adherence to the buddy system.
2. Obeying the orders of the Site Safety Officer.
3. Notifying the Site Safety Officer of hazardous or potentially hazardous incidents or working situations.

Subcontractors and other non-ESE site personnel are also responsible for complying with this plan and all applicable federal, state and local safety and environmental regulations and codes.

2.4 TRAINING

All ESE site personnel working on the hazardous material contamination site investigations will have completed a safety and health training course for hazardous waste site work meeting the requirements of 29CFR1910.120 and have worked at least 3 days of supervised on the job training. The course consists of an initial 40-hour session and annual refreshers of 8 hours. Subcontractors and visitors are required to provide proof of equivalent training. The field team leader will have completed an additional 8 hours of waste site supervisory training. For each location, specific training is given by the Project Manager or Site Safety Officer to inform employees of site-specific hazards. Additionally, at least one field team member will be trained to perform cardiopulmonary resuscitation (CPR) and first aid.

2.5 MEDICAL MONITORING PROGRAM

All ESE on site personnel, subcontractors, and visitors for this project will be required to have the medical examination outlined in Table 1. This examination is given annually and more often if specified by the attending physician. All medical examinations include certification by the physician of the employee's ability to wear a negative-pressure respirator and to perform strenuous work. If a person sustains an injury or contracts an illness related to work on site that results in lost work time, he must obtain written approval from a physician to regain access to the site.

2.6 RECORDS DOCUMENTATION

Air monitoring data generated during the project will become part of the written record. Both medical and air monitoring data will be retained for the time period required by OSHA in various standards [29 CFR 1910.20(D)(i), 1910.20(D)(ii), 1910.1018, 1910.1025]. Training records are maintained in project files and on ESE's personal identification cards and are available for inspection at all times. Subcontractors are required to have similar documents available for inspection as required.

All personnel associated with work at a site will be required to sign a statement indicating that they have read, and will comply with the site safety plan. This signature page will also include information on their training and medical surveillance status.

Table 2.1

Medical Examination--Monitoring Program

Basic physical exam
Heart status and functions (EKG) baseline only except if >40
Chest X-ray (Roentgenogram posterior-anterior)
Pulmonary function--forced vital capacity, forced expiratory volume at 1 second and reserve volume
Blood--full SMAC Series
Hemoglobin--cell counts, protein levels
Liver function--full enzyme profile
Renal function--BUN, Creatinine, Creatine/Creatinine ratio, lipoprotein count and differential, uric acid
Urinalysis
Audiometry--audio spectrum response of ear
Eye--physical condition, visual acuity

Other laboratory tests may be ordered depending on actual or expected exposures and physician recommendations.

The individuals listed in the Site-Specific Plan organization chart will be certified to wear respirator protection in accordance with criteria from the ANSI Z88.2 and 29 CFR 1910.134.

3.0 HAZARD EVALUATION

3.1 CHEMICAL CONTAMINANTS

Potential site contaminants at petroleum contamination sites include gasoline, gasohol, motor oil, fuel oils (including kerosene, diesel fuel), and aviation grade gasoline. These materials may exist as free product in soil or on groundwater, and/or as contaminants to soil and water, and/or in tanks, piping, and systems. Fuel products include materials in and around storage tanks, such as gasoline, kerosene, diesel, and their derivatives, xylene, toluene, benzene, tetraethyl lead (TEL), and chlorinated solvents. The chlorinated solvents include trichloroethylene and tetrachloroethylene.

3.2 PHYSICAL AND MECHANICAL HAZARDS

Activities on site may include site visits, soil gas sampling, headspace sampling, installation and sampling from monitor wells, installation of free product recovery systems, installation of groundwater recovery systems, installation of soil venting systems, installation of biological treatment systems, installation of air strippers, installation of carbon absorption units, removal of tanks, piping, and systems, and removal of contaminated soil.

Hazards associated with these activities are varied and include vehicle/pedestrian collisions, fire, collapse of excavation and trenching, handling of heavy materials and equipment operations resulting in contact and crushing type injuries, and use of air- and electrically-powered tools which may result in abrasions, contusions, lacerations, etc.

3.3 JOB HAZARD ANALYSIS AND RISK ASSESSMENT

The chemical contaminants which may be present and the hazardous activities which may be performed at the site will be identified through preliminary site assessment activities, such as site visits or records search. Based on this preliminary information, initial risk assessments will be made by the Site Safety Officer, in consultation with an ESE Regional Health and Safety Officer, defining hazards (both chemical and physical) to workers and other on site personnel, the surrounding populace, and the environment.

The identities of potential hazards and resultant initial risk assessments will be included in the Hazard Evaluation section of the Site-Specific Plan, will be reviewed daily, and will be updated as necessary by the Site Safety Officer. Updated information will be communicated to all other on site personnel immediately.

3.4 AIR MONITORING

An air monitoring program is fundamental to the safety of on site and off site personnel. Total organic vapor (TOV) levels associated with on site activities will be monitored with a Photoionization Detection (PID) instrument (Photovac® TIP or HNU PI-101). This instrument will be the primary source of information for upgrading personal protection. Calibration and maintenance of monitoring equipment will be in accordance with manufacturer recommendations.

The Site Safety Officer, or designee, will establish daily a background TOV prior to initiating on site activities. Under most circumstances, this level can be determined by taking multiple readings at representative locations along the perimeter of the site and averaging the results of sustained measurements. (A sustained measurement is defined as the arithmetic average of six readings taken at 10-second intervals.) If, due to site conditions, it appears that perimeter readings will not yield a truly representative background level, the Site Safety Officer or an ESE Regional Health and Safety Officer will be consulted for guidance.

Decisions to upgrade personal protection will be based on sustained breathing zone TOV that exceeds background levels. Breathing zone refers to the area from the top of the shoulders to the top of the head.

Explosivity levels associated with on site activities will be monitored with an explosimeter or combustible gas meter. This will be the primary source of information for determining the potential hazard due to explosion or fire in confined spaces and other enclosed areas with little or no ventilation.

Prior to entry of any area which may contain an explosive or flammable atmosphere, the Site Safety Officer or designee will take representative readings of the suspect area. Representative readings include readings from top, middle, and lower levels of the area, and at various points at each level in larger areas. Areas in which any one reading exceeds 20% of the lower flammable limit will be considered potentially explosive, and will be vented to below 20% of the lower flammable limit before the introduction of any personnel or non-explosion proof powered equipment.

4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment to be used at petroleum contamination sites will consist of several components. These components will protect the respiratory system, eyes and face, hands, feet, body, and head from a variety of chemical and physical hazards. Levels of personal protection will be categorized in accordance with the criteria described in accordance with the guidelines given in Section 3, Air Monitoring. Additional guidance for personal protective equipment can be found in the ESE Corporate Respiratory Protection Program, or can be obtained from an ESE Regional Health and Safety Officer.

Action levels for upgrading to the various protective levels and levels of personal protection required for the various tasks to be performed on each site, as well as any special site requirements, will be given in the Personal Protective Equipment section of the Site-Specific Plan.

PERSONAL PROTECTIVE EQUIPMENT--LEVEL A

1. Open-circuit, pressure-demand, self-contained breathing apparatus (SCBA);
2. Totally encapsulated suit;
3. Gloves, inner (surgical type);
4. Gloves, outer, chemical protective;
5. Boots, chemical protective, steel toe and shank; and
6. Booties, chemical protective.

CRITERIA

1. Sites known to contain hazards which:
   a. Require the highest level of respiratory protection (as previously stated),
   b. Will cause illness as a result of personal exposure,
   c. Permit a reasonable determination that personal exposure could occur to any part of the body; or
2. Sites for which the Project Manager and/or Site Safety Officer make a reasonable determination that, based on the lack of information to the contrary, the site may be described as previously stated.

PERSONAL PROTECTIVE EQUIPMENT--LEVEL B

1. Open-circuit, pressure-demand SCBA;
2. Chemical protective
   a. Overalls and long-sleeved jacket, or
   b. Coveralls;
3. Gloves, inner (surgical type);
4. Gloves, outer, chemical protective;
5. Boots, chemical protective, steel toe and shank; and
6. Booties, chemical protective.

CRITERIA

1. Sites known to contain hazards which:
   a. Require the highest level of respiratory protection (as previously stated),
   b. Will cause illness as a result of personal exposure,
   c. Permit a reasonable determination that personal exposure to areas of the body not covered by Level B protective clothing is unlikely; and
2. Sites for which the Project Manager and/or Site Safety Officer make a reasonable determination that, based on the lack of information to the contrary, the site may be described as previously stated.

PERSONAL PROTECTIVE EQUIPMENT--LEVEL C

1. Full face-piece, air-purifying respirator (high-efficiency particulate/organic vapor cartridges);
2. Emergency escape oxygen pack (carried);
3. Chemical protective (Tyvek® is the minimum protection)
   a. Overalls and long-sleeved jacket, or
   b. Coveralls, or
   c. Apron;
4. Gloves, inner (surgical type) (Latex);
5. Gloves, outer, chemical protective (Nitrile);
6. Boots, chemical protective (neoprene or NBR), steel toe and shank; and
7. Booties, chemical protective (Latex).

CRITERIA

1. Sites known to contain hazards which:
   a. Do not require a level of respiratory protection greater than the level afforded by air-purifying respirators (nominal protection of 10), as previously stated;
   b. Will cause illness as a result of personal exposure; or
   c. Permit a reasonable determination that personal exposure to areas of the body not covered by Level C protective clothing is unlikely; and
2. Sites for which the Project Manager and/or Site Safety Officer make a reasonable determination that, based on the lack of information to the contrary, the site may be described as previously stated.

PERSONAL PROTECTIVE EQUIPMENT--LEVEL D

1. Coveralls, cotton;
2. Boots/shoes, safety;
3. Safety glasses;
4. Hard hat with optional face shield (where overhead hazards exist); and
5. Air-purifying respirator (readily available).

CRITERIA

Sites where the Project Manager and/or Site Safety Officer make a reasonable determination that hazards due to exposure to hazardous materials are unlikely.

ADDITIONAL PERSONAL PROTECTION

In addition to personal protective equipment, field personnel having duties on or near the hazard site should have ready access to:

1. A fully stocked industrial-size first-aid kit;
2. An eyewash kit; and
3. At least 6 gallons of potable water in a pressurized container to permit decontamination in event of accidental skin or eye contact with chemicals.

5.0 STANDARD WORK PRACTICES

5.1 GENERAL SAFETY RULES:

In addition to the specific requirements of the Site-Specific Plan, common sense should prevail at all times.

The following general safety rules and practices will be in effect at the site.

1. The site will be suitably marked or barricaded as necessary to prevent unauthorized visitors, but will not hinder emergency services if needed.
2. All open holes, trenches, and obstacles will be properly barricaded in accordance with local site needs. These needs will be determined by proximity to traffic ways, both pedestrian and vehicular, and site of the hole, trench, or obstacle. If holes are required to be left open during nonworking hours, they will be adequately decked over or barricaded and sufficiently lighted.
3. Prior to conducting any digging or boring operations, underground utility locations will be identified. The site representative and local utility authorities will be contacted to provide locations of underground utility lines and product piping. All boring, excavation, and other site work will be planned and performed with consideration for underground lines.
4. Smoking and ignition sources in the vicinity of flammable or contaminated material is prohibited.
5. Drilling, boring, movement and use of cranes and drilling rigs, erection of towers, movement of vehicles and equipment, and other activities will be planned and performed with consideration for the location, height, and relative position of aboveground utilities and fixtures, including signs, lights, canopies, buildings, and other structures and construction, and natural features such as trees, boulders, bodies of water, and terrain.
6. When working in areas where flammable vapors may be present, particular care must be exercised with tools and equipment that may be sources of ignition. All tools and equipment so provided must be properly bonded and/or grounded.
7. Approved and appropriate safety equipment, as specified in this site-specific HASP, such as eye protection, hard hats, foot protection, and respirators, must be worn in areas where required by the site-specific HASP. In addition, eye protection must be worn when handling free product, contaminated soil or water, or fill dirt.
8. Beards that interfere with respirator fit are not allowed within the site boundaries. This is necessary because all site personnel may be called upon to use respirator protection in some situations, and beards do not allow for proper respirator fit.
9. No smoking, eating, or drinking will be allowed in the contaminated areas.
10. Tools and hands must be kept away from the face.
11. Personnel must shower at the end of the shift or as soon as possible after leaving the site.
12. Each sample must be treated and handled as though it were extremely toxic.
13. Tank pit excavations must be sampled cautiously, using a remote sampling device or securing samples from excavated soil, and the pit should be entered only as a last resort and only if it is properly shored or sloped. The pit may meet the criteria for a confined space, in which case any entry must be made in accordance with NIOSH recommended Confined Space Entry Procedures. No confined space entry except by written procedure approved by the Health and Safety Officer.
14. Persons with long hair and/or loose-fitting clothing that could become entangled in power equipment are not permitted in the work area.
15. Horseplay is prohibited in the work area.
16. Working while under the influence of intoxicants, narcotics, or controlled substances is prohibited.

5.2 WORK LIMITATIONS:

HOURS

Work shall be limited to daylight hours and during normal weather conditions. Extremes in temperature and weather condition (i.e., wind and lightning) will restrict working hours.

HEAT STRESS

For monitoring the body's recuperative ability toward excess heat, the following techniques will be used as a screening mechanism. Monitoring of personnel wearing protective clothing will commence when the ambient temperature is 70 degrees Fahrenheit (°F) or above. When temperatures exceed 85°F, workers will be monitored after every work period. Monitoring will include visual observations for signs of heat stress and measurement of radial pulse rate for 30 seconds at the beginning of each rest period. If the heart rate exceeds 110 beats per minute (beats/min) at the beginning of a rest period, the next work period will be shortened by 10 minutes, and the rest period stays the same. If the pulse rate is 100 beats/min at the beginning of the next rest period, the following work cycle will be shortened another 10 minutes.

Also, good hygienic standards must be maintained by frequent change of clothing and daily showering. Clothing should be permitted to dry during rest periods. If skin problems occur, consult medical personnel.

COLD STRESS

The human body "senses" cold as a result of two factors, the air temperature and the wind velocity. Cooling of the flesh increases rapidly as wind velocity goes up. Frostbite can occur at relatively mild temperatures if wind penetrates the body insulation. For example, when the air temperature is 40°F and the wind velocity is 30 miles per hour (mph), the exposed skin would perceive an equivalent still air temperature of 13°F. Table 5-1 illustrates windchill indices and the associated hazards to exposed flesh. Precautions will be taken to minimize exposed flesh, and layered clothing will be provided, as appropriate.

Table 5-1.

Windchill Index

Windspeed (mph)	Actual Thermometer Reading (°F)									
	50	40	30	20	10	0	-10	-20	-30	-40
Calm	50	40	30	20	10	0	-10	-20	-30	-40
5	48	37	27	16	6	-5	-15	-26	-36	-47
10	40	28	16	4	-9	-21	-33	-46	-58	-70
15	36	22	9	-5	-18	-36	-45	-58	-72	-85
20	32	18	4	-10	-25	-39	-53	-67	-82	-96
25	30	16	0	-15	-29	-44	-59	-74	-88	-104
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116

Source: National Safety Council, 1982.

5.3 ACCIDENT PREVENTION PLAN/ACCIDENT REPORTING:

The purpose of the Safety Plan is to prevent accidents and minimize the impact of an accident if one should occur.

All accidents must be reported to the Site Safety Officer immediately. Prompt reporting is essential to the prevention of future incidents in addition to the well-being of the affected individual or individuals. The Site Safety Officer will notify the Project Manager of any serious accidents. The Site Safety Officer or other key members of the field team will be trained in first aid and CPR. First aid will be administered to affected personnel under the direction of the Site Safety Officer. For serious accidents, the nearest ambulance service will be contacted for transport of injured personnel to the nearest medical facility (see Section 6.0). The Site Safety Officer will have established contact and liaison with medical authorities (see Section 6.0) whose personnel will be knowledgeable of the activities of the field team. Telephone numbers and addresses of ambulance and medical services will be posted on site.

A formal report of any OSHA-recordable accident will be filed with ESE. All reports must be received within 2 working days.

5.4 WORK ZONES AND DECONTAMINATION PROCEDURES:

Work zones will be established in accordance with guidance provided in Figure 5-1. These zones may be modified to fit applicable field conditions; however, proposed modifications must be approved by the Project Manager and Site Safety Officer prior to being implemented in the field.

Personnel decontamination will be initiated on site. Disposable clothing will be removed and stored in designated containers. If additional decontamination is necessary, based on preliminary or subsequent risk assessment by the Site Safety Officer in consultation with ESE Regional Safety and Health Officer, additional decontamination procedures will be implemented. Site specific decontamination procedures will be listed in the Site-Specific Plan.

All heavy equipment will be decontaminated on site. Water in the form of steam cleaning and/or pressure washing may be used to remove any visual contamination from drilling equipment and backhoe.

5.5 SITE SECURITY AND ENTRY:

Site security measures, including barricading, fencing, and lighting, and any special site entry procedures will be described in the Section 5 of the Site-Specific Plan.

6.0 EMERGENCY INFORMATION AND CONTINGENCY PLANS

All emergency information, including phone numbers, site resources, and routes to emergency medical care, will be maintained on site in the Site-Specific Plan by each field team.

The phone list will include the following numbers:

AMBULANCE:
FIRE DEPARTMENT:
HOSPITAL (primary):
HOSPITAL (secondary):
POISON CONTROL CENTER:
POLICE:
TOXIC WASTE AND OIL SPILL:
CLIENT CONTACT:
AGENCY CONTACT:
PROJECT MANAGER:
CORPORATE SAFETY AND HEALTH OFFICER:

The list of site resources will include fire extinguishers, first aid equipment, eyewash units, communications (telephone), emergency personal protective equipment, spill containment equipment and materials, and any other special equipment, supplies or resources.

6.1 INJURY CONTINGENCY PLAN

First aid equipment will be kept on site during all site activities. Additionally, one member of the field team will be trained in first aid. Emergency telephone numbers for ambulance and poison control will be maintained on site in a readily accessible location. Names, addresses, and routes to two emergency medical care providers (hospitals or emergency clinics) will be verified prior to any site activity, and will be listed in the Site-Specific Plan. Maps showing the location of the site, the emergency medical care providers, and hotels and restaurants (if any) used by the field team should be provided in each vehicle. In the event of an injury that cannot be treated on site, the injured person will be immediately transported to the medical provider either by support vehicle or ambulance on determination by the Site Safety Officer, Project Manager, and/or first aid provider.

6.2 FIRE CONTROL AND CONTINGENCY PLAN

No smoking will be allowed during field activities. Fire extinguishers will be available at sites for use on small fires. All samples must be treated as flammable or explosive. The Site Safety Officer will have available the telephone number of the nearest fire station and local law enforcement agencies in case of a major fire emergency.

6.3 SPILL CONTROL AND CONTINGENCY PLAN

In the event of a spill, the Site Safety Officer will be notified immediately. The important factors are that no personnel are overexposed to vapors, gases, or mists and that the liquid does not ignite. Waste spillage must not be allowed to contaminate any local water source. Small dikes will be erected to contain spills, if necessary, until proper disposal can be completed. Subsequent to cleanup activities, the Site Safety Officer will survey the area to ensure that no toxic or explosive vapors remain.

6.4 OFF SITE INCIDENT CONTINGENCY PLAN

The Site Safety Officer will provide field team members with emergency medical care information similar to that kept on site in event of an off site emergency, such as a motor vehicle accident, food poisoning, or other injury sustained off the site.

6.5 COMMUNITY THREAT CONTINGENCY PLAN

The potential for exposure to the surrounding community will be assessed in conjunction with the preliminary site assessment.

The Site Safety Officer will consult with a representative of the local emergency services agency (police or fire department, in accordance with local governmental procedures), and will outline procedures in the Site-Specific Plan to be followed in the event of an emergency threat to the surrounding populace. Situations requiring specified procedures include fire, explosion, accidental ingestion, large spills consisting of free product, and accumulation of potentially explosive vapors off site.

The Site-Specific Plan will identify individuals who will respond to reports of non-emergency community threats arising from site activities. This non-emergency response will include sampling of air, wells and ground water, and soil. Situations requiring specified procedures include small spills and presence of existing concentrations of potentially explosive vapors on site.

A. GENERAL PROJECT INFORMATION

SITE: Fairmont Hospital DATE PREPARED: 02-04-93

LOCATION: 15400 Foothill Boulevard, San Leandro, California

PREPARED BY: Jay Carpenter, ESE

OBJECTIVE (S) AND WORKPLAN: Removal of one 500 gallon gasoline UST.

PROPOSED

DATE(S) OF ON-SITE WORK: February 15, 1993 - March 30, 1993 BRIEFING

DATE(S): BACKGROUND REVIEW:

COMPLETE: x

PRELIMINARY: __

----------PROJECT H.A.S.P. SUMMARY----------

LEVEL(S) OF PROTECTION: A__ B__ C__ D x MIXED__ MODIFIED x

OVERALL HAZARD ESTIMATE: HIGH__ MODERATE__ LOW x UNKNOWN__

ADDITIONAL DOCUMENTATION: TLV TABLE__ FULL HASP x METHODS__

OTHER__

B. SITE/MATERIAL CHARACTERISTICS

MATERIAL/WASTE TYPE(S): LIQUID x SOLID__ GAS__ SLUDGE__

MATERIAL PRESENT IN: DRUMS__ TANKS x OPEN__ OTHER__

CHARACTERISTICS: IGNITABLE x CORROSIVE__ TOXIC x REACTIVE__

RADIOACTIVE__ VOLATILE x UNKNOWN__ OTHER__

FACILITY TYPE: Hospital CLOSED__ OPEN x

FACILITY SIZE:

TOPOGRAPHY: Relatively flat, at an approximately 45-feet above mean sea level.

PRINCIPAL DISPOSAL METHOD AND LOCATION(S): The tank will be hauled off-site as hazardous waste by Erickson Trucking, Inc. to Erickson Environmental of Richmond, California where they will it will be cleaned and scrapped.

C. HAZARD EVALUATION

INSTRUCTIONS: Evaluate principal hazards expected at this site. Be specific; complete all entries.

HAZARDS

Physical: Drilling equipment containing cables, augers etc. can be a hazard to the workers hands and feet. Trucks may drive by at all times.

Chemical: The soil samples collected from the borings may contain petroleum hydrocarbons and/or toxic fumes which can be hazardous to an individual breathing them.

Biological: None anticipated.

CORRECTIVE ACTIONS

Physical: Site will be inspected at start up. Identified safety hazards will be discussed at start up safety meeting and mitigated to extent feasible before start-up.

Chemical: Should breathing conditions exceed work action level while drilling, then all workers within the 25-foot exclusion zone will be required to wear a respirator (half-face mask). If a worker becomes sick, he should leave the work area immediately, breathe fresh air and seek medical attention if needed. Contact the HSO as soon as possible. All work will stop and will not resume until investigation and testing has been completed and corrective actions (as appropriate) have been taken to ensure adequate protection of personnel. Recommended work Action Level = 5 ppm in workers' breathing zone for 3 minutes (sustained).

Biological: None Anticipated

D. WORK PLAN INSTRUCTIONS

PERSONAL PROTECTION REQUIRED:

Level of protection: A__ B__ C__ D_x_ MIXED__ MODIFICATIONS__

For MIXED levels of protection describe areas and levels:_____

_____

_____

For MODIFICATIONS identify action levels: This site will involve D level protection which includes a hard hat, gloves, steel-toe boots. Respirator for 5 ppm or greater._____

_____

ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT (PPE): Goggles, respirator, etc. should be available and ready for use._____

MONITORING EQUIPMENT: PID_x_ FID__ TOXIC GAS__ OXYGEN__

DETECTOR TUBES__ EXPLOSIMETER__ PERSONAL MONITOR__

OTHER INSTRUMENTS: N/A

EQUIPMENT CALIBRATION: PID instrument will be calibrated each day.

MONITORING STRATEGY: Measurements of area and breathing zone levels will be taken at 15 minute intervals at start up of each phase of work. If levels are below 5 ppm at breathing zone frequency will be decreased to hourly unless conditions change (odor levels, etc.).

DECONTAMINATION PROCEDURES: If required, equipment and personal decontamination areas will be designated by the Project Manager at the start of the project. All tools will be cleaned adequately prior to final removal from the work zone, to prevent the transfer of contamination from the work site into clean areas. Protective clothing such as Tyvek coveralls, latex gloves, boot covers, etc. will be changed on a daily basis or at the discretion of the Project Manager. All disposable protective clothing (including respirator cartridges) will be put into plastic bags and disposed of in a proper manner. Excavated soil will be stockpiled in an area designated by the Project Manager, until chemical analysis has been performed on representative samples.

SITE CONTROL MEASURES: Set up 25-foot perimeter with traffic cones or caution tape. Visitors within perimeter to read and sign H&S plan and abide by directions of site H&S officer.

SPILL CONTAINMENT PROCEDURES: All pumpable fluids will be removed from the tank and hauled off-site as hazardous waste. Care will be taken when draining and rinsing associated tank piping. Care will be taken while rinsing the tank to prevent any spillage of residual hydrocarbons. No storage of removed product, rinsate, or other hazardous fluids will be allowed. Fluids will be pumped from the tank into vacuum trucks and immediately hauled off-site.

NOTES: N/A

E. EMERGENCY PROCEDURES

FIRE OR EXPLOSION: Evacuate the area and call the Fire Department at 911 immediately. All burn victims should seek medical attention immediately.

INJURY: Call 911 and administer first aid to victims who have severe injuries. Ensure all injured are transported to the nearest medical facility doctor.

WEATHER: Avoid extremes in temperature (i.e. very cold or very hot conditions)

OTHER:

CHEMICAL EXPOSURE ACTIONS:
(See Appendix B for Optional Material Safety Data Sheets)

EMERGENCY TELEPHONE NUMBERS

POLICE/FIRE/AMBULANCE: 911

POISON CONTROL: (800) 523-2222

ESE CONCORD OFFICE: (510) 685-4053

CHEMTREC: (800) 424-9300

UNDERGROUND SERVICE ALERT: (800) 642-2444

PROJECT CONTACTS

AGENCY CONTACT: Alameda County Health Care Services Agency (510) 271-4320

SITE CONTACT: Mr. Paul Hiller, Facility Supervisor (510) 667-4473

CLIENT CONTACT: Mr. Pete Kinney, ACGSA (510) 535-6280

F. EMERGENCY PRECAUTIONS

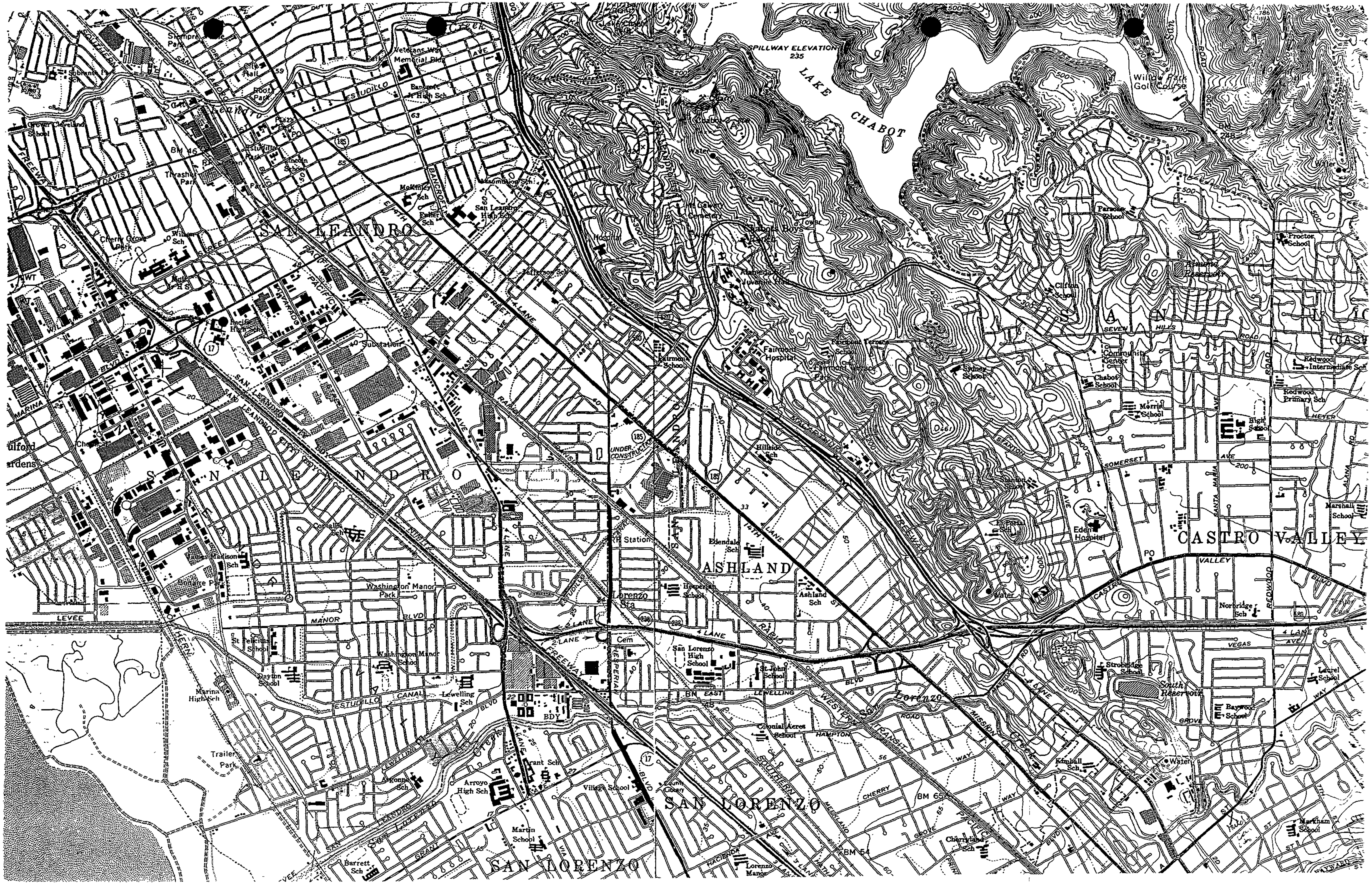
PRIMARY HOSPITAL/INFIRMARY:

Name: HUMANA HOSPITAL OF SAN LEANDRO

Address: 13855 E 14th St., San Leandro Telephone Number: (510) 357-6500 (emergency)

Directions from site to emergency unit: Head north east on Foothill Blvd. to 150th St. (1 block), turn left (south) on 150th St. cross over the 580 Freeway and down to 14th St. (3 blocks) and turn right (north) on 14th St. and drive to 136th St.(14 blocks). The Hospital is on the left side (south) of 14th St. just before 136th St. intersection.

Remarks: See Figure A



SAN LEANDRO
LAKE CHABOT
SPILLWAY ELEVATION 235
Willow Park Golf Course
CASTRO VALLEY
ASHLAND
SAN LORENZO
Fairmont Hospital
Eden Hospital
Washington Manor Park
Lorenzo Sta
San Lorenzo High School
Arroyo High Sch
Marina High Sch
Trailer Park
Proctor School
Redwood Intermediate Sch
Redwood Primary Sch
Marshall School
Norbridge Sch
Stroblidge School
Baywood School
Kimball Sch
Markham School
Cherryland Sch
Martin School
Barrett Sch
Lorenzo Manor
Village School
Grant Sch
Lewelling Sch
Washington Manor School
Dayton School
Hesperian School
Ashland Sch
Edendale Sch
Hillside Sch
Colonial Acres School
St Johns School
Corvallis Sch
Madison Sch
Bonaire Park
San Leandro High Sch
Bancroft Jr High Sch
Jefferson Sch
Cherry Grove Park
Thrasher Park
Lincoln School
McKinley Sch
Substation
Sydney School
Chabot School
Morris School
Clifton School
Parsons School
Stanton School
Fairmont Terrace Park
Chabot Park
Fairmont School
Community Center
High School
South Reservoir
Water
UNDER CONSTRUCTION
ESTUDILLO CANAL
FREEWAY
MANOR BLVD
LEVEE
SEVEN HILLS ROAD
SOMERSET AVE
HEYER AVE
VEGAS AVE
GROVE WAY
HAMPTON
CHERRY WAY
BM 65
BM 54

APPENDIX B

MATERIAL
SAFETY DATA
SHEETS

14720

D00748

MATERIAL SAFETY DATA SHEET

UNOCAL 76

Product Name: UNOCAL 76 LEADED REGULAR GASOLINE
Product Code No: 00301

Issue Date: 05/04/90
Status: FINAL

Responsible Party:

UNOCAL REFINING & MARKETING DIVISION
UNION OIL COMPANY OF CALIFORNIA
1201 WEST 5TH STREET
LOS ANGELES, CALIFORNIA 90017

CONTACT FOR FURTHER INFORMATION:
MSDS COORDINATOR 213-977-7589

Transportation Emergencies:
CHEMTREC
(800) 424-9300 Cont. U.S.
(202) 483-7616 (Collect)
from Alaska & Hawaii
Health Emergencies:
Call LOS ANGELES POISON
INFORMATION CENTER (24 hrs)
(800) 356-3129

PRODUCT IDENTIFICATION

PRODUCT NAME: UNOCAL 76 LEADED REGULAR GASOLINE

SYNONYMS: UNION 76 LEADED REGULAR GASOLINE

GENERIC NAME: LEADED GASOLINE

CHEMICAL FAMILY: PETROLEUM HYDROCARBON MIXTURE

DOT PROPER SHIPPING NAME: GASOLINE

ID NUMBER: UN1203

DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID

PRECAUTIONARY WARNING

DANGER
EXTREMELY FLAMMABLE. VAPORS MAY EXPLODE. HARMFUL OR FATAL IF SWALLOWED. VAPOR HARMFUL. ASPIRATION HAZARD IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. POSSIBLE CANCER HAZARD BASED ON TESTS WITH LABORATORY ANIMALS. NO SMOKING OR OPEN FLAME. KEEP AWAY FROM HEAT, SPARKS, FLAMES OR OTHER SOURCES OF IGNITION (e.g. STATIC ELECTRICITY, PILOT LIGHTS OR MECHANICAL/ELECTRICAL EQUIPMENT). VAPORS MAY BE IGNITED BY SPARK OR FLAME SOURCE MANY FEET AWAY. DO NOT OVERFILL TANK. USE ONLY WITH ADEQUATE VENTILATION. DO NOT TASTE OR SWALLOW. KEEP CONTAINER CLOSED. DO NOT BREATHE VAPOR OR MISTS. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. WASH THOROUGHLY AFTER HANDLING. NEVER SIPHON BY MOUTH. FOR USE AS MOTOR FUEL ONLY. DO NOT USE FOR ANY OTHER PURPOSE. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, GRIND OR DRILL ON OR NEAR CONTAINER. "EMPTY" CONTAINER RETAINS RESIDUE (LIQUID AND/OR VAPOR) AND MAY EXPLODE IN HEAT OF A FIRE. KEEP OUT OF REACH OF CHILDREN. FAILURE TO USE CAUTION MAY CAUSE SERIOUS INJURY OR ILLNESS.

SECTION I - COMPONENTS	PERCENT	EXPOSURE LIMIT	UNITS	AGENCY	TYPE
HAZARDOUS COMPONENTS					
GASOLINE CAS #: 8006-61-9		300.000	ppm	ACGIH	TWA
		500.000	ppm	ACGIH	STEL
		300.000	ppm	OSHA	TWA
		500.000	ppm	OSHA	STEL

UNION OIL CO.

Product Name: UNOCAL 76 LEADED REGULAR GASOLINE
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SECTION I - COMPONENTS	PERCENT	EXPOSURE LIMIT	UNITS	AGENCY	TYPE
		300.000	ppm	CAL OSHA	TWA
BENZENE					
CAS #: 71-43-2	1.0 - 5.0	10.000	ppm	ACGIH	TWA
		25.000	ppm	MSHA	CEIL-SKIN
		1.000	ppm	OSHA	TWA
		5.000	ppm	OSHA	STEL
		50.000	ppm	CAL OSHA	CEIL
		25.000	ppm	CAL OSHA	EXCUR
		10.000	ppm	CAL OSHA	TWA-SKIN
LEAD COMPOUND					
CAS #: NONE	0.1 GM/GAL		NOT ESTABLISHED		
TOLUENE					
CAS #: 108-88-3	1.0 - 15.0	100.000	ppm	ACGIH	TWA
		150.000	ppm	ACGIH	STEL
		100.000	ppm	MSHA	TWA
		100.000	ppm	OSHA	TWA
		150.000	ppm	OSHA	STEL
		200.000	ppm	CAL OSHA	EXCUR
		100.000	ppm	CAL OSHA	TWA-SKIN
		500.000	ppm	CAL OSHA	CEIL-SKIN
XYLENES					
CAS #: 1330-20-7	1.0 - 21.0	100.000	ppm	ACGIH	TWA
		150.000	ppm	ACGIH	STEL
		100.000	ppm	MSHA	TWA
		100.000	ppm	OSHA	TWA
		150.000	ppm	OSHA	STEL
		200.000	ppm	CAL OSHA	EXCUR
		100.000	ppm	CAL OSHA	TWA-SKIN
		300.000	ppm	CAL OSHA	CEIL-SKIN
N-HEXANE					
CAS #: 110-54-3		50.000	ppm	ACGIH	TWA
		500.000	ppm	MSHA	TWA
		50.000	ppm	OSHA	TWA
		50.000	ppm	CAL OSHA	TWA

OTHER COMPONENTS

--NONE--

THIS PRODUCT CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA 313 AND 40 CFR 372:	CAS NUMBER	WEIGHT %
BENZENE	71-43-2	1-5
LEAD COMPOUND	NONE	0.1 GM/GAL
TOLUENE	108-88-3	1-15
XYLENES	1330-20-7	1-21
ETHYLBENZENE	100-41-4	1-5
METHYL TERT-BUTYL ETHER	1634-04-4	0-11
1,2,4-TRIMETHYLBENZENE	95-63-6	1-5

NOTE: GASOLINE IS A COMPLEX COMBINATION OF HYDROCARBONS INCLUDING A SMALL QUANTITY OF BENZENE, TOLUENE, XYLENE AND N-HEXANE.

SECTION II - EMERGENCY AND FIRST AID PROCEDURES

EMERGENCY
Have physician call LOS ANGELES POISON INFORMATION CENTER (24 hrs) (800) 356-3129

EYE CONTACT:

IF IRRITATION OR REDNESS DEVELOPS, MOVE VICTIM AWAY FROM EXPOSURE AND INTO FRESH AIR. FLUSH EYES WITH CLEAN WATER. IF SYMPTOMS PERSIST, SEEK MEDICAL ATTENTION.

SKIN CONTACT:

WIPE MATERIAL FROM SKIN AND REMOVE CONTAMINATED SHOES AND CLOTHING. CLEANSE AFFECTED AREA(S) THOROUGHLY BY WASHING WITH MILD SOAP AND WATER AND, IF NECESSARY, A WATERLESS SKIN CLEANSER. IF IRRITATION OR REDNESS DEVELOPS AND PERSISTS, SEEK MEDICAL ATTENTION.

INHALATION (BREATHING):

IF RESPIRATORY SYMPTOMS OR OTHER SYMPTOMS OF EXPOSURE DEVELOP, MOVE VICTIM AWAY FROM SOURCE OF EXPOSURE AND INTO FRESH AIR. IF SYMPTOMS PERSIST, SEEK IMMEDIATE MEDICAL ATTENTION. IF VICTIM IS NOT BREATHING, IMMEDIATELY BEGIN ARTIFICIAL RESPIRATION. IF BREATHING DIFFICULTIES DEVELOP, OXYGEN SHOULD BE ADMINISTERED BY QUALIFIED PERSONNEL. SEEK IMMEDIATE MEDICAL ATTENTION.

INGESTION (SWALLOWING):

ASPIRATION HAZARD: DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH BECAUSE THIS MATERIAL CAN ENTER THE LUNGS AND CAUSE SEVERE LUNG DAMAGE. IF VICTIM IS DROWSY OR UNCONSCIOUS, PLACE ON THE LEFT SIDE WITH THE HEAD DOWN. IF POSSIBLE, DO NOT LEAVE VICTIM UNATTENDED. SEEK MEDICAL ATTENTION.

COMMENTS:

NOTE TO PHYSICIANS: EXPOSURE TO HIGH CONCENTRATIONS OF THIS MATERIAL (e.g. IN ENCLOSED SPACES OR WITH DELIBERATE ABUSE) MAY BE ASSOCIATED WITH CARDIAC ARRHYTHMIAS. EPINEPHRINE AND OTHER SYMPATHOMIMETIC DRUGS MAY INITIATE CARDIAC ARRHYTHMIAS IN PERSONS EXPOSED TO THIS MATERIAL. OTHER DRUGS WITH LESS ARRHYTHMOGENIC POTENTIAL SHOULD BE CONSIDERED. IF SYMPATHOMIMETIC DRUGS ARE ADMINISTERED, OBSERVE FOR THE DEVELOPMENT OF CARDIAC ARRHYTHMIAS.

SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY

EYE CONTACT:

THIS MATERIAL MAY CAUSE MILD EYE IRRITATION. DIRECT CONTACT WITH THE LIQUID OR EXPOSURE TO VAPORS OR MISTS MAY CAUSE STINGING, TEARING AND REDNESS.

SKIN CONTACT:

THIS MATERIAL MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY CAUSE REDNESS, BURNING, AND DRYING AND CRACKING OF THE SKIN. CONTACT MAY RESULT IN SKIN ABSORPTION BUT SYMPTOMS OF TOXICITY ARE NOT ANTICIPATED BY THIS ROUTE ALONE UNDER NORMAL CONDITIONS OF USE. PERSONS WITH PRE-EXISTING SKIN DISORDERS MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS MATERIAL.

INHALATION (BREATHING):

WHILE THIS MATERIAL HAS A LOW DEGREE OF TOXICITY, BREATHING HIGH CONCENTRATIONS OF VAPORS OR MISTS MAY CAUSE FLUSHING, BLURRED VISION, NAUSEA AND SIGNS OF NERVOUS SYSTEM DEPRESSION (e.g. HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION AND FATIGUE). EXPOSURE TO HIGH CONCENTRATIONS MAY CAUSE LOSS OF CONSCIOUSNESS, CONVULSIONS, RESPIRATORY COLLAPSE AND DEATH. RESPIRATORY SYMPTOMS ASSOCIATED WITH PRE-EXISTING LUNG DISORDERS (e.g. ASTHMA-LIKE CONDITIONS) MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

UNION OIL CO.

Product Name: UNOCAL 76 LEADED REGULAR GASOLINE
Product Code No: 00301

Issue Date: 05/04/90
Status: FINAL

SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY

INGESTION (SWALLOWING):

ASPIRATION HAZARD - THIS MATERIAL CAN ENTER LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND DAMAGE. INGESTION OF EXCESSIVE QUANTITIES OF THIS MATERIAL MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT AND SIGNS OF NERVOUS SYSTEM DEPRESSION (e.g. HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION, AND FATIGUE).

COMMENTS:

GASOLINE IS A POSSIBLE CANCER HAZARD BASED ON ANIMAL DATA. FOLLOW-UP STUDIES SUGGEST THAT THIS MAY BE A UNIQUE EFFECT IN MALE RATS. UNLEADED GASOLINE HAS BEEN IDENTIFIED AS A POSSIBLE CARCINOGEN BY IARC. BENZENE, A COMPONENT OF THIS PRODUCT, IS A KNOWN CANCER (LEUKEMIA) HAZARD. RESULTS OF TESTS IN HUMANS HAVE SHOWN THAT EXPOSURE TO BENZENE CAN CAUSE IRREVERSIBLE CHANGES IN THE GENETIC MATERIAL (DNA) OF A CELL. THE HUMAN HEALTH CONSEQUENCES OF THESE CHANGES IS NOT FULLY UNDERSTOOD. BENZENE HAS BEEN IDENTIFIED AS A CARCINOGEN BY IARC, NTP AND OSHA. THERE IS INSUFFICIENT EVIDENCE TO SHOW THAT GASOLINE POSES ANY HAZARD RELATED TO ITS LOW BENZENE CONTENT. INTENTIONAL MISUSE BY DELIBERATE INHALATION OF LEADED GASOLINE MAY RESULT IN CHANGES IN BEHAVIOR CHARACTERIZED BY IRRITABILITY, AGGRESSIVENESS AND HALLUCINATIONS; MORE SEVERE OVEREXPOSURE MAY RESULT IN TREMORS AND SEIZURES. PERSONS WITH PRE-EXISTING HEART DISORDERS MAY BE MORE SUSCEPTIBLE TO IRREGULAR HEARTBEATS (ARRHYTHMIAS) IF EXPOSED TO HIGH CONCENTRATIONS OF THIS MATERIAL (SEE SECTION II - NOTE TO PHYSICIANS).

SECTION IV - SPECIAL PROTECTION INFORMATION

VENTILATION:

IF CURRENT VENTILATION PRACTICES ARE NOT ADEQUATE TO MAINTAIN AIRBORNE CONCENTRATIONS BELOW THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I), ADDITIONAL VENTILATION OR EXHAUST SYSTEMS MAY BE REQUIRED. WHERE EXPLOSIVE MIXTURES MAY BE PRESENT, ELECTRICAL SYSTEMS SAFE FOR SUCH LOCATIONS MUST BE USED.

RESPIRATORY PROTECTION:

THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I). DEPENDING ON THE AIRBORNE CONCENTRATION, USE A RESPIRATOR OR GAS MASK WITH APPROPRIATE CARTRIDGES AND CANNISTERS (NIOSH APPROVED, IF AVAILABLE) OR SUPPLIED AIR EQUIPMENT.

PROTECTIVE GLOVES:

THE USE OF GLOVES IMPERMEABLE TO THE SPECIFIC MATERIAL HANDLED IS ADVISED TO PREVENT SKIN CONTACT AND POSSIBLE IRRITATION.

EYE PROTECTION:

APPROVED EYE PROTECTION TO SAFEGUARD AGAINST POTENTIAL EYE CONTACT, IRRITATION OR INJURY IS RECOMMENDED.

OTHER PROTECTIVE EQUIPMENT:

IT IS SUGGESTED THAT A SOURCE OF CLEAN WATER BE AVAILABLE IN THE WORK AREA FOR FLUSHING EYES AND SKIN. IMPERVIOUS CLOTHING SHOULD BE WORN AS NEEDED.

SECTION V - REACTIVITY DATA

REACTIVITY:

STABLE UNDER NORMAL CONDITIONS OF STORAGE AND HANDLING.

EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE.

UNION OIL CO.

Product Name: UNOCAL 76 LEADED REGULAR GASOLINE
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SECTION V - REACTIVITY DATA

CONDITIONS AFFECTING REACTIVITY:

AVOID ALL POSSIBLE SOURCES OF IGNITION (SEE SECTIONS VII AND VIII).

INCOMPATIBLE MATERIALS:

STRONG OXIDIZING AGENTS SUCH AS CHLORINE, PERMANGANATES AND DICHROMATES MAY CAUSE FIRE OR EXPLOSION.

HAZARDOUS DECOMPOSITION PRODUCTS:

COMBUSTION MAY YIELD SIGNIFICANT AMOUNTS OF CARBON MONOXIDE AND SMALL AMOUNTS OF OXIDES OF SULFUR AND NITROGEN, BENZENE AND OTHER ORGANIC COMPOUNDS.

HAZARDOUS POLYMERIZATION:

WILL NOT OCCUR

POLYMERIZATION CONDITIONS TO AVOID:

NONE KNOWN

SECTION VI - SPILL AND LEAK PROCEDURES

HIGHWAY OR RAILWAY SPILLS
Call CHEMTREC (800) 424-9300 Cont. U.S.
(Collect) (202) 483-7616 from Alaska & Hawaii

PRECAUTIONS IN CASE OF RELEASE OR SPILL:

EXTREMELY FLAMMABLE. KEEP ALL SOURCES OF IGNITION AND HOT METAL SURFACES AWAY FROM SPILL/RELEASE. STAY UPWIND AND AWAY FROM SPILL/RELEASE. ISOLATE HAZARD AREA AND LIMIT ENTRY TO EMERGENCY CREW. STOP SPILL/RELEASE IF IT CAN BE DONE WITHOUT RISK. WEAR APPROPRIATE PROTECTIVE EQUIPMENT INCLUDING RESPIRATORY PROTECTION AS CONDITIONS WARRANT (SEE SECTION IV). PREVENT SPILLED MATERIAL FROM ENTERING SEWERS, STORM DRAINS, OTHER UNAUTHORIZED TREATMENT DRAINAGE SYSTEMS AND NATURAL WATERWAYS. DIKE FAR AHEAD OF SPILL FOR LATER RECOVERY OR DISPOSAL. SPILLED MATERIAL MAY BE ABSORBED INTO AN APPROPRIATE ABSORBENT MATERIAL. NOTIFY FIRE AUTHORITIES AND APPROPRIATE FEDERAL, STATE AND LOCAL AGENCIES. IMMEDIATE CLEANUP OF ANY SPILL IS RECOMMENDED. IF SPILL OF ANY AMOUNT IS MADE INTO OR UPON U.S. NAVIGABLE WATERS, THE CONTIGUOUS ZONE, OR ADJOINING SHORELINES, NOTIFY THE NATIONAL RESPONSE CENTER (PHONE NUMBER 800-424-8802).

WASTE DISPOSAL METHOD:

DISPOSE OF PRODUCT IN ACCORDANCE WITH LOCAL, COUNTY, STATE, AND FEDERAL REGULATIONS.

SECTION VII - STORAGE AND SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS:

KEEP CONTAINER(S) TIGHTLY CLOSED. USE AND STORE THIS MATERIAL IN COOL, DRY, WELL VENTILATED AREAS AWAY FROM HEAT, DIRECT SUNLIGHT, HOT METAL SURFACES AND ALL SOURCES OF IGNITION. POST AREA "NO SMOKING OR OPEN FLAME." BOND AND GROUND ALL EQUIPMENT WHEN TRANSFERRING FROM ONE VESSEL TO ANOTHER. STORE ONLY IN APPROVED CONTAINERS. KEEP AWAY FROM ANY INCOMPATIBLE MATERIALS (SEE SECTION V). PROTECT CONTAINER(S) AGAINST PHYSICAL DAMAGE. THE USE OF EXPLOSION-PROOF EQUIPMENT IS RECOMMENDED AND MAY BE REQUIRED (SEE APPROPRIATE FIRE CODES). DO NOT ENTER CONFINED SPACES SUCH AS TANKS OR PITS WITHOUT FOLLOWING PROPER ENTRY PROCEDURES SUCH AS ASTM D-4276. OUTDOOR OR DETACHED STORAGE IS PREFERRED. INDOOR STORAGE SHOULD MEET OSHA STANDARDS AND APPROPRIATE FIRE CODES. THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED ANY ESTABLISHED EXPOSURE LIMITS (SEE SECTIONS I AND IV). WASH THOROUGHLY AFTER HANDLING. DO NOT WEAR CONTAMINATED CLOTHING OR SHOES. USE GOOD PERSONAL HYGIENE PRACTICE. "EMPTY" CONTAINERS RETAIN RESIDUE (LIQUID AND/OR VAPOR) AND CAN BE DANGEROUS. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE

SECTION VII - STORAGE AND SPECIAL PRECAUTIONS

AND CAUSE INJURY OR DEATH. "EMPTY" DRUMS SHOULD BE COMPLETELY DRAINED, PROPERLY BUNGED AND PROMPTLY SHIPPED TO THE SUPPLIER OR A DRUM RECONDITIONER. ALL OTHER CONTAINERS SHOULD BE DISPOSED OF IN AN ENVIRONMENTALLY SAFE MANNER AND IN ACCORDANCE WITH GOVERNMENTAL REGULATIONS. BEFORE WORKING ON OR IN TANKS WHICH CONTAIN OR HAVE CONTAINED THIS PRODUCT, REFER TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ANSI Z49.1, AND OTHER GOVERNMENTAL AND INDUSTRIAL REFERENCES PERTAINING TO CLEANING, REPAIRING, WELDING, OR OTHER CONTEMPLATED OPERATIONS.

SECTION VIII - FIRE AND EXPLOSION HAZARD DATA

			HAZARD RANKING	
NFPA HAZARD CLASS	HEALTH HAZARD:	2	0 = LEAST	FLASH POINT
	FLAMMABILITY:	3	1 = SLIGHT	
	REACTIVITY:	0	2 = MODERATE	-45 F (TCC)
	OTHER:		3 = HIGH	
			4 = EXTREME	

EXTINGUISHING MEDIA:

DRY CHEMICAL, CARBON DIOXIDE, HALON, FOAM OR WATER SPRAY IS RECOMMMENDED. WATER MAY BE INEFFECTIVE.

UNUSUAL FIRE & EXPLOSION HAZARDS:

THIS MATERIAL IS EXTREMELY FLAMMABLE AND MAY BE IGNITED BY HEAT, SPARKS, FLAME OR OTHER SOURCES OF IGNITION (e.g. STATIC ELECTRICITY, PILOT LIGHTS, MECHANICAL/ELECTRICAL EQUIPMENT). VAPORS MAY TRAVEL CONSIDERABLE DISTANCES TO A SOURCE OF IGNITION WHERE THEY MAY IGNITE, FLASHBACK OR EXPLODE. VAPOR/AIR EXPLOSION HAZARD INDOORS/OUTDOORS OR IN SEWERS. VAPORS ARE HEAVIER THAN AIR AND MAY ACCUMULATE IN LOW AREAS. IF CONTAINER IS NOT PROPERLY COOLED, IT MAY EXPLODE IN THE HEAT OF A FIRE.

SPECIAL FIRE FIGHTING PROCEDURES:

WEAR APPROPRIATE PROTECTIVE EQUIPMENT INCLUDING RESPIRATORY PROTECTION AS CONDITIONS WARRANT (SEE SECTION IV). STOP SPILL/RELEASE IF IT CAN BE DONE WITHOUT RISK. MOVE UNDAMAGED CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. WATER SPRAY MAY BE USEFUL IN MINIMIZING OR DISPERSING VAPORS AND COOLING EQUIPMENT EXPOSED TO HEAT AND FLAME. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

SECTION IX - PHYSICAL DATA

***UNLESS OTHERWISE NOTED, VALUES ARE AT 20 C/68 F AND 760 mm Hg/1 atm.

APPROX BOILING POINT	(AIR = 1) VAPOR DENSITY	(N-BUTYL ACETATE = 1) EVAPORATION RATE	% VOLATILE
85-430F / 29-221C	>1	<1	100

% SOLUBILITY IN WATER

NEGLIGIBLE

SPECIFIC GRAVITY

0.80

APPEARANCE

BRONZE COLORED LIQUID

ODOR

GASOLINE

UNION OIL CO.

Product Name: UNOCAL 76 LEADED REGULAR GASOLINE
Product Code No: 00301

Issue Date: 05/04/90
Status: FINAL

SECTION X - DOCUMENTARY INFORMATION

ISSUE DATE: 05/04/90 PRODUCT CODE NO. 00301

PREV. DATE: 04/25/90 PREV. PROD. CODE NO. N/A

MSDS NO: N/A PREV. MSDS NO: N/A

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