First Environmental Group
J. J. Magana Corporation
Martinez Industrial Services
MDW Industrial Services

3501 Collins Avenue, Richmond, CA 94806
phone 510-232-0202 fax 510-232-5844

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Tuesday, June 7, 1994

Attention: Susan Hugo

Company: Alameda County

Subject: Health and Safety Plan
Liquid Sugar, Inc.
Emeryville, California

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Comments:

HEALTH AND SAFETY PLAN

TANK CLEANING/ABANDONMENT ACTIVITIES

Liquid Sugar, Inc.
1299 55th Street
Emeryville, California

June 6, 1994

Prepared for:
Liquid Sugar, Inc.
1274 66th Street
Emeryville, California

HEALTH AND SAFETY PLAN
SITE EXCAVATION ACTIVITIES
1299 55th Street
Emeryville, California

1.0 INTRODUCTION

This Health and Safety Plan (HSP) addresses the hazards associated with the planned field activities at the property located at 1299 55th Street in Emeryville, California (the "Site"; Figure 1). It presents baseline health and safety requirements for establishing and maintaining a safe working environment during the course of work. The planned field activities at the Site include the triple rinsing of eight underground storage tanks, the removal and disposal of the rinsate, and the in place grouting of the tanks.

If work plan specifications change during or after the preparation of this HSP, or if site conditions differ as the result of more information, the AllPro Environmental Corporation (AllPro) Health and Safety Director shall be informed immediately and appropriate changes shall be made to this HSP.

At a minimum, all subcontractor personnel working on site must:

- have read and understood the specifications of this HSP
- provide their own health and safety equipment as indicated in this HSP, and comply with the minimum requirements established by this HSP. If the subcontractor has prepared his/her own HSP, it must minimally meet requirements contained herein and all applicable Federal, State, and local health and safety requirements.

This HSP shall be read and approved by the AllPro Health and Safety Director, the AllPro Project Manager, and the AllPro Quality Assurance Reviewer.

A copy of this HSP shall be kept on site, easily accessible to all employees and government inspectors, and another in AllPro files.

This HSP was prepared using the following documents:

- 29 CFR 1910 -- Occupational Safety and Health Standards, 1990
- 29 CFR 1926 -- Safety and Health Regulations for Construction
- 29 CFR 1910.1000 -- OSHA Air Contaminants - Permissible Exposure Limits, 1990

° Title 8, California Code of Regulations, Occupation Health and Safety Standards.

° American Conference of Governmental Industrial Hygienists (ACGIH). Threshold Limit Values and Biological Exposure Indices for 1990 - 1991. Cincinnati, Ohio, ACGIH.

° California Department of Health Services (DHS), Toxic Substances Control Division (TSCD), Technical and Support Unit, Region 3, Los Angeles, California, August 1988. Site Safety Plan Guidance Document.

° National Institute for Occupational Safety and Health (NIOSH); Occupational Safety and Health Administration (OSHA); U.S. Coast Guard (USCG); U.S. Environmental Protection Agency (EPA), October 1985. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. Washington D.C.: U.S. Government Printing Office.

° NIOSH/OSHA, 1981. Occupational Health Guidelines for Chemical Hazards.

° Sax, N. Irving, 1984, Dangerous Properties of Industrial Materials, 6th edition, Van Nostrand Reinhold Company, Inc., New York, New York.

° U.S. EPA, Office of Emergency and Remedial Response, Hazardous Response Support Division, November 1984. Standard Operating Safety Guides.

2.0 SITE CHARACTERISTICS

Site Address: 1299 55th Street, Emeryville, California

2.1 Background

Eight underground storage tanks are currently present on the Site, four being 1,000 gallon capacity size and four being 10,000 gallon capacity size. The tanks were installed between 1930 and 1965, and taken out of service between 1965 and 1985. They have remained empty since their respective out of service dates.

The underground storage tanks previously contained diesel and gasoline for fueling delivery vehicles, alcohol for use in the production of table syrup, and ammonia for use in the production of vinegar.

3.0 WORK DESCRIPTION

3.1 Work Activities

Tank rinsing activities will be performed at the Site. Work activities are planned in the following order (some activities may be performed concurrently):

- Triple rinse inside of each tank with high pressure hot water blaster.
- Remove rinsate with vacuum truck.
- Transport and dispose of rinsate at an approved, permitted water reclamation facility
- Filling the clean, empty tanks with grout.

4.0 KEY PERSONNEL AND RESPONSIBILITIES

4.1 Site Safety Personnel

Name	Responsibilities
Pat Falk	Project Manager
Pat Falk	Site Safety Officer
Scott Williams	Health and Safety Director

4.2 AllPro Personnel and Responsibilities

The responsibilities of the AllPro personnel listed in Section 4.1 are outlined below.

4.2.1 AllPro Project Manager

The AllPro Project Manager, Pat Falk has the ultimate responsibility for the health and safety of personnel on site. As part of his duties, Mr. Falk shall be responsible for:

- keeping the AllPro Health and Safety Director informed of project developments,
- ensuring that on-site personnel receive the proper training, and are informed of potential hazards anticipated at the Site and procedures and precautions to be implemented on the job,

° ensuring that contractors and subcontractors are informed of the expected hazards and appropriate protective measures at the Site. (Subcontractors should also be given a copy of AllPro's HSP for review),

° ensuring that resources are available to provide a safe and healthy work environment for site personnel.

4.2.2 AllPro Health and Safety Director

The AllPro Health and Safety Director, Scott Williams, shall be responsible for:

° monitoring the health and safety impacts of this project for on-site personnel,

° assessing the potential health and safety hazards at the Site,

° recommending appropriate safeguards and procedures,

° modifying the HSP, when necessary,

° approving changes in safeguards used or operating procedures employed at the Site.

The AllPro Health and Safety Director shall have the authority to:

° require that additional safety precautions or procedures be implemented,

° order an evacuation of the Site, or portion of the Site, or shut down any operation, if he believes a health or safety hazard exists,

° deny unauthorized personnel access to the Site,

° require that any worker obtain immediate medical attention,

° approve or disallow any proposed modifications to safety precautions or working procedures.

4.2.3 AllPro Site Safety Officer

The AllPro Site Safety Officer (SSO), Pat Falk, has fulfilled the 40-hour health and safety training requirements pursuant to 29 CFR 1910.120.

The SSO, or a trained designated alternate, will be present at the Site during work activities. The SSO shall be notified of and approve activities

in which persons may be reasonably expected to be exposed to contaminated soils.

The SSO shall be responsible for:

° ensuring that on-site personnel comply with the requirements of the HSP,

° limiting access to the Site,

° reporting unusual or potentially hazardous conditions to the AllPro Health and Safety Director,

° reporting injuries, exposures, or illnesses to the AllPro Health and Safety Director,

° communicating proposed changes in work scope or procedures to the AllPro Health and Safety Director for approval,

° recommending to the AllPro Health and Safety Director additional safety procedures or precautions that might be implemented.

The SSO shall have the authority to:

° order an evacuation of the Site, or portion(s) of the Site, or shut down any operation if he believes a health or safety hazard exists,

° deny site access to unauthorized personnel,

° require that any worker, including the contractor's or subcontractor's personnel, obtain immediate medical attention.

5.0 HAZARD ANALYSIS

Potential chemical, physical and general safety hazards during the excavation activities at the Site include the following:

° Chemical hazards
- respiratory
- dermal

° Physical hazards
- noise
- electric shock
- heavy equipment

Work procedures to protect workers from chemical and physical hazards are discussed in Section 6.0.

5.1 Chemical Hazards

Based on previous investigations and activities at the Site, the primary chemical hazard is exposure to waste water contaminated with diesel, gasoline, alcohol, and ammonia. It is our belief that the probability of workers to come in contact with contaminated water is minimal, however in the unlikely event of contact we have presented a refined analysis of the hazards involved. Dermal contact is the primary exposure pathway of concern.

5.1.1 Chemical Description and Effects of Exposure to Diesel

Diesel fuel is a gas oil fraction available in various grades as required by different engines. Composition of diesel varies in ratios of predominantly aliphatic, olefinic, cycloparaffinic, and aromatic hydrocarbons, and additives.

Ingestion of diesel can lead to systemic effects such as gastrointestinal irritation, vomiting, diarrhea, and in severe cases drowsiness and central nervous system depression, progressing to coma and death. Aspiration of diesel fuel can cause hemorrhaging and pulmonary edema, progressing to pneumonitis and renal involvement.

5.1.2 Chemical Description and Effects of Exposure to Gasoline

Leaded gasoline fuel is produced from the light distillates during petroleum fractionation, with its major components including paraffins, olefins, naphthenes, aromatics, and recently ethanol. Gasoline also contains various functional additives as required for different uses, such as antiknock fluids, antioxidants, metal deactivators, corrosion inhibitors, anti-icing agents, preignition preventors, upper-cylinder lubricants, dyes, and decolorizers. Lead additives in particular were widely used in gasoline until the introduction of vehicle catalytic converters.

Mild cases of gasoline ingestion can cause inebriation, vomiting, vertigo, drowsiness, confusion, and fever. Aspiration into the lungs and secondary pneumonia may occur unless prevented. Gasoline can cause hyperemia of the conjunctiva and other eye disturbances. Inhalation of gasoline during bulk handling operations produced no physiological effects. Gasoline is a skin irritant and a possible allergen. Repeated or chronic dermal contact can result in drying of the skin, lesions, and other dermatologic conditions.

5.1.3 Chemical Description and Effects of Exposure to Alcohol

Alcohol is a clear, colorless liquid, with a distinct, pleasant odor and burning taste. Alcohols are miscible with water and other organic liquids, and is highly flammable.

Exposure to concentration of 5,000 to 10,000 ppm can irritate the eyes and mucous membranes of the upper respiratory tract. With continued exposure, stupor and drowsiness may result. Effects of repeated over exposure to the various forms of alcohol are nausea, vomiting, flushing, mental excitement or depression, drowsiness, impaired perception, loss of coordination, stupor, and coma. The threshold limit value (TLV) for ethyl alcohol is 1,000 ppm in air.

5.1.4 Chemical Description and Effects of Exposure to Ammonia

Ammonia is a colorless gas with a pungent odor, characteristic of drying urine, and an acrid taste. Ammonia water is a colorless liquid with the same suffocating odor and taste.

Ammonia is a reflex respiratory stimulant, irritating to the eyes and mucous membranes. Additional signs and symptoms of exposure are conjunctivitis, swelling of the eyelids, coughing, dyspnoea, and vomiting. Irritation of the skin and corneal ulcers have been reported in cases of skin and eye contact. Inhalation of concentrated vapors causes edema of the respiratory tract, spasm of the glottis, or asphyxia. The TLV for ammonia in air is 25 ppm.

5.2 Physical Hazards

The potential physical hazards at the Site during the planned activities stem from heavy machinery use and the hazardous nature of the work. The potential physical hazards are listed under Section 5.0. Work procedures to protect workers from chemical and physical hazards are discussed in Section 6.0.

Noise

Noise results primarily from operation of vacuum trucks and other machinery.

Electric Shock

Electrical equipment for field activities and surface utility lines pose the potential for electric shock.

6.0 WORK REQUIREMENTS

6.1 Respiratory Protection

Field operations will be initiated in Level D. The primary route of potential exposure for chemicals is dermal absorption.

6.2 Dermal Protection

Unless adequate precautions are taken, chemicals may contact the skin or clothing. Potential physical contact with chemicals of concern are possible under the following circumstances:

- triple rinsing
- rinsate vacuum activities

6.2.1 Personal Protective Equipment

AllPro and contractor/subcontractor personnel will wear the following protective clothing on site:

- steel-shank boots
- gloves
- safety glasses

6.3 Action Levels

The SSO shall impose a temporary stop work and contact the AllPro Health and Safety Director immediately if the following conditions are observed, or if there is a question about site conditions:

- uncontrolled rinsate splashing

- changes in the general health profile of on-site personnel

Action levels corresponding to these conditions are discussed below.

6.4 Protection Against Physical Hazards

6.4.1 Noise

Noise results primarily from vacuum trucks and other machinery. Workers will wear ear plugs when operating heavy machinery to avoid noise that may exceed the 85 decibel Threshold Limit Value (TLV) established by the American Conference of Governmental Industrial Hygienists. However, based on previous field experience, expected noise level should not exceed 85 decibels.

6.4.2 Electric Shock

All electrical equipment to be used during field activities will be suitably grounded and insulated.

6.4.3 Heavy Equipment

Hazards related to heavy equipment will necessitate securing the work area. All relevant requirements pursuant to 29 CFR 1926.602 and Subpart W, Rollover Protective Structures; Overhead Protection, shall be observed during the course of rinsate vacuum activities.

All field personnel not directly involved in the Site activities will be kept at safe distances from areas where heavy equipment is in use. Unauthorized visitors will not be permitted near areas where heavy equipment is in use regardless of whether the area has been designated as an exclusion zone.

6.4.4 General Safety

All AllPro and contractor/subcontractor personnel will wear approved head protection while working around heavy equipment in the Site area. Fire hydrants, fire extinguishers, and telephone locations will be identified before operations begin.

6.5 Entry Procedures

At a minimum, all visitors entering the exclusion zone must wear the protective clothing and equipment worn by AllPro and contractor/subcontractor personnel. Permission to enter the work area must be obtained from at least one of the personnel named in Section 4.0. Each visitor's name and purpose of visit will be recorded in the field notes.

7.0 WORK ZONE AND DECONTAMINATION PROCEDURES

A Site must be controlled to reduce the possibility of exposure to any contaminants present and to limit their transport from the site by personnel or equipment.

7.1 Control

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

The possibility of exposure or translocation of contaminants can be reduced or eliminated in a number of ways, including:

- setting security or physical barriers at control points to regulate access to and/or exclude unnecessary personnel from the general area,

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

° establishing work zones within the Site,

° conducting operations in a manner which will reduce the exposure of personnel and equipment,

° minimizing the airborne dispersion of contaminants,

° implementing appropriate decontamination procedures for both equipment and personnel.

7.2 Field Operations Work Areas

Work areas (zones) will be established based on anticipated contamination. Within these zones, prescribed operations will occur utilizing appropriate Personal Protective Equipment (PPE). Movement between areas will be controlled at checkpoints. The planned zones are:

° Exclusion (contaminated)

° Contamination Reduction

° Support (uncontaminated).

7.2.1 Exclusion Zone

The Exclusion Zone is the innermost area of the three concentric rings and is considered contaminated, dirty, or "hot." Within this area, the prescribed protection must be worn by any personnel upon entering. An entry checkpoint will be established at the periphery of the exclusion zone to control the flow of personnel and equipment between contiguous zones, and to guarantee that the procedures established to enter and exit the zones are followed.

The Exclusion Zone boundary will be established initially on the presence of the contaminant(s) within the area. Subsequent to initial operations, the boundary may be readjusted based on observations and/or measurement. The boundary will be physically secured and posted.

7.2.2 Contamination Reduction Zone

Between the Exclusion and the Support Zone is the Contamination Reduction Zone. The purpose of this zone is to provide an area to prevent or reduce the transfer of contaminants which may have been picked up by personnel or equipment returning from the Exclusion Zone. All decontamination activities occur in this area. The boundary between the Support Zone and the Contamination Reduction Zone is the contamination control line. This boundary separates the potentially contaminated area from the clean area. Entry into the Contamination Reduction Zone from

the clean area will be through an access control point. Personnel entering at this station will be wearing the prescribed PPE for working in the Contamination Reduction Zone. Exiting the Contamination Reduction Zone to the Clean Area requires the removal of any suspected or known contaminated PPE, and compliance with the established decontamination procedures.

7.2.3 Support Zone

The Support Zone is the outermost of the three rings and is considered decontaminated, or Clean Area. It contains the Command Post for field operations and other elements necessary to support site activities.

7.3 Zone Dimensions

Considerable judgment is needed to ensure safe working distances for each zone, balanced against practical work considerations. Physical and topographical barriers may constrain ideal locations. Field/laboratory measurements combined with meteorological conditions and air dispersion calculations will assist in establishing the control zone distances. When not working in areas that require the use of chemical-resistant clothing, work zone procedures may still need to limit the movement of personnel and retain adequate site control.

7.4 Decontamination Procedures

As part of the system to prevent or reduce the physical transfer of contaminants by people and/or equipment from the Site, procedures will be instituted for decontaminating anything leaving the Exclusion Zone and Contamination Reduction Zone. These procedures include the decontamination of personnel, protective equipment, monitoring equipment, clean-up equipment, etc. Unless otherwise demonstrated, everything leaving the Exclusion Zone should be considered contaminated. In general, decontamination at the site consists of removing and/or rinsing equipment with detergent/water solution. Reusable decontaminated PPE will be stored for air drying.

Decontamination is addressed in two ways: the physical arrangement and control of contamination zones, and the effective use of decontamination procedures.

In the event PPE is decontaminated and reused, the following procedures will be followed.

The decontamination process will use cleaning solutions, followed by rinse solutions. Used solution, brushes, sponges, and containers must be properly disposed of.

Decontamination Solution

3 cups Alconox
1 cup sodium carbonate
5-8 gallons water

As with all alkaline cleaners, continuous or repeated contact with the skin should be avoided. If an employee's skin becomes contaminated, he/she will move to the decontamination area and remove contaminated clothing, and wash with a mild soap/detergent and water to remove any contaminant from the skin. He/she will then see a physician for possible medical treatment.

A rinse solution will be used to remove the contamination solution and neutralize any excess decontamination solution.

All personnel will follow these decontamination procedures:

1. When returning from the Exclusion Zone, remove heavy soil, as necessary, from boots, gloves, and clothing by using a towel or hose before entering the Contamination Reduction Zone.

2. At the decontamination area, brush boots and gloves clean.

3. Remove disposable suit, if any, and discard in proper container.

4. Remove boots covers, if used.

5. Remove outer gloves and dispose of properly.

6. Remove hard hat.

Decontamination procedures may be modified, if necessary, with the approval of the Site Safety Officer.

7.4.1 Personnel Decontamination During Medical Emergencies

In the event of personnel injury, first-aid personnel must decide if the victim's injuries are potentially the type that would be aggravated by movement. If there is any doubt, or if the victim is unconscious and cannot respond, no attempt should be made to move the victim to the decontamination area. Only off-site paramedics may move such victims. If the paramedics approve, the victim's PPE will be cut off in the Decontamination Reduction Zone. If the decision is made not to remove the victim's protective clothing, he/she will be wrapped in a tarp or similar object to protect the ambulance and crew during transportation. If the victim is contaminated with materials that threaten to cause additional injury or immediate health hazards, the PPE will be carefully removed and the victim washed appropriately.

8.0 EMERGENCY PROCEDURES

8.1 General Injury

° Step 1: Use first-aid kit on site, if appropriate.

° Step 2: Use off-site help and/or assistance if appropriate.

° Step 3: Notify SSO, Project Manager and Health and Safety Director.

8.2 Specific Treatments

° Eye Exposure: flush eye with eye wash, call ambulance.

° Skin Exposure: wash immediately with soap and water; call ambulance, if necessary.

° Fire (localized): use fire extinguisher and activate alarm system, if necessary.

° Fire (uncontrolled): call Fire Department.

° Chemical Spill: call Fire Department and National Response Center for Toxic Chemical and Oil Spills.

° Explosion: call Fire Department if potential for additional explosions or fire danger exists.

° Inhalation: move affected person(s) to fresh air and cover source of vapors, if appropriate.

8.3 Emergency Phone Numbers

Medical/General Service Numbers

Police Department	911
Fire Department	911
Ambulance	911

Hospital

Alta Bates Hospital 4450 Ashby Avenue Berkeley, California	510-204-4444

Figure 1 shows the route from the Site to the hospital. From the Site, proceed east on 55th, north on San Pablo Avenue, east on Ashby. Alta Bates Hospital in on the right, just past Telegraph Avenue.

Hazardous Materials Response/Reporting

National Emergency Response Center	(800) 424-8802
California State Office of Emergency Services	(800) 852-7550
Regional Water Quality Control Board	(510) 464-1255

8.4 Accident Reporting Procedures

In the event of an emergency, contact the following:

AllPro		Office (510) 933-6133
Pat Falk	(Project Manager, SSO)	Pager (510) 716-3742
		Car (510) 421-4488

If an exposure or injury occurs, work shall be temporarily halted until the SSO, in consultation with the Health and Safety Director, decides it is safe to continue work.

9.0 DOCUMENTATION

The SSO will record field observations of health and safety procedures by workers conducting the planned activities outlined in Section 3.0, including deviations from the recommended health and safety procedures.

10.0 MEDICAL MONITORING

Appropriate medical monitoring will be required of AllPro personnel to:

- Meet requirements of 29 CFR 1910.120 (f).

A signed physician's statement qualifying the individual for the work to be performed will be required as part of the medical monitoring program.

11.0 TRAINING PROGRAM

1. The AllPro SSO shall have fulfilled all appropriate training requirements indicated by 29 CFR 1910.120 (e), including the 40-hour training requirement and required refresher courses.

2. A tailgate session to discuss this HSP will be held before field activities begin. All AllPro personnel and contractor/subcontractor employees shall receive, at a minimum, the following information:

   ° the names of personnel and alternates responsible for Site safety and health,

   ° safety, health, and other hazards at the Site,

   ° instruction in the use of personal protective equipment,

   ° action levels,

   ° employee work practices to minimize risks from on-site hazards,

   ° instruction in the safe use of engineering controls and equipment on Site,

   ° Site control measures,

   ° emergency plans.

12.0 SIGNATURES

12.1 AllPro Personnel

This HSP for the triple rinsing of underground storage tanks, to be conducted at 1299 55th Street, Emeryville, California, is approved by the following AllPro personnel:

Scott Williams
Health and Safety Director

Date

Pat Falk
Project Manager
Site Safety Officer

Date

12.2 Contractor and Subcontractor Personnel

Contractor and Subcontractor Agreement:

1. Contractor certifies that in the event visual observation of splashing rinsate may produces an environment that is deemed hazardous to human health, that his personnel noted below to be employed on the underground tank rinsing project at 1299 55th Street, Emeryville, California, will meet the requirements of the OSHA Hazardous Waste Operations and Emergency Response Standard 29 CFR 1910.120 and other applicable OSHA Standards.

2. Contractor certifies that in addition to meeting the OSHA requirements, it has received a copy of this HSP, and will ensure that its employees are informed and will comply with both OSHA requirements and the guidelines in this HSP.

3. Contractor further certifies that it has read, understands and will comply with all provisions of this HSP, and it will take full responsibility for the health and safety of its employees.

Contractor Signature Date

Employees:

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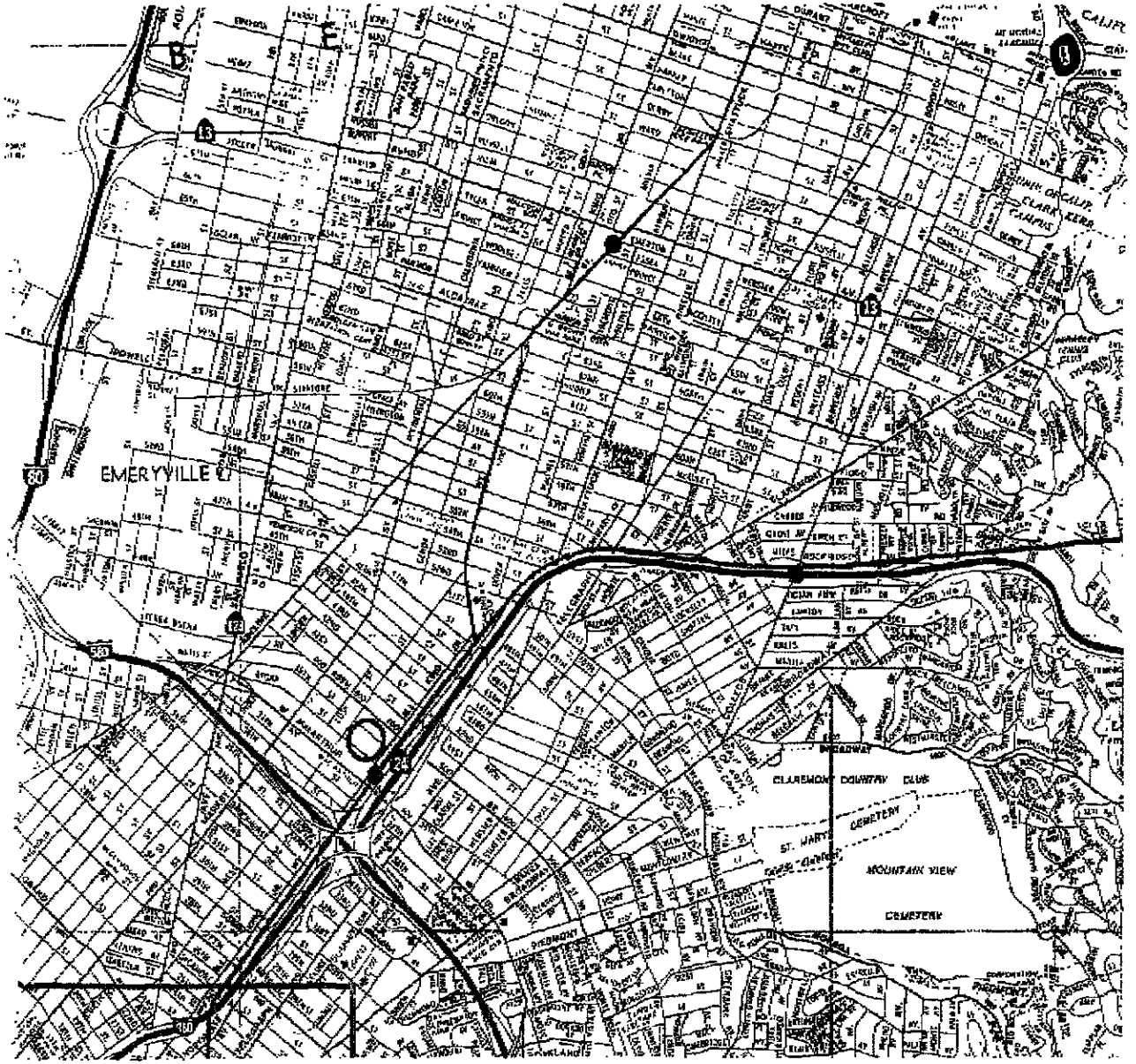

Scale: as shown	June, 1994
First Environmental Group	

HOSPITAL ROUTE

1299 55th Street, Emeryville, California

Figure 1

project #: