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Alameda County Health Department.
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502

Attention: Kevin Tinsley

Tim Ogles from Two M Squared requested this Health and Safety Plan for your records. This is for Exxon Oil Company, Station #7-0235. I am also enclosing my business card. If you have any questions please call.

Frank Kramer
Project Manager

The Tyree Organization

15939 Piuma Avenue, Cerritos, CA 90703
Phone: 562-468-0051 • Fax: 562-865-2300
General Construction • Environmental Services

Sincerely,

Frank Kramer
Project Manager
The Tyree Organization

Station #7-0235
Exxon Oil Company

Excavation and Upgrade of Underground Storage Tank Systems

Site Health And Safety Plan

JUNE, 1997

Tyree Organization, Ltd.

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1.0 INTRODUCTION

1.1 Site Description

The Exxon Service Station is located at 2225 Telegraph Avenue in Oakland, California. Underground storage tanks will be upgraded according to the EPA Retrofit mandate. Underground storage tanks will be upgraded and and repiping will be performed.

1.2 Purpose

The purpose of this Site Health and Safety Plan (HASP) is to define the requirements and designate protocols to be followed during the excavation and removal of underground storage tanks and contaminated soils. Applicability extends to all Tyree employees, subcontractors, and visitors.

All personnel on site shall be informed of the site emergency response procedures and any potential fire, explosion, health, or safety hazards of the operation. This plan must be reviewed, and acknowledged, by all personnel prior to entering the exclusion zone or contamination reduction zone.

During development of this plan consideration was given to current safety standards as defined by EPA/OSHA/NIOSH, health effects and standards for known contaminants, and procedures designed to account for the potential for exposure to unknown substances. Specifically, the following reference sources have been consulted:

- OSHA Regulations: 29 CFR 1910 and 1926
- USEPA Standard Operating Safety Guides, June 1992
- NIOSH/OSHA/USCG/EPA "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities"
- NIOSH Pocket Guide to Chemical Hazards, June 1994
- ACGIH Threshold Limit Values for Chemical Substances and Chemical Agents
- Hazardous Waste Handbook for Health & Safety, Martin, Lippitti, Prothero, 1987
- Handbook of Toxic and Hazardous Chemicals and Carcinogens, Sittig, 1985

In addition, to the above referenced documents, Tyree has established a comprehensive and realistic Health and Safety Program, based on past experience, sound engineering practice, employee training and enforcement of health and safety regulations to prevent unreasonable health and safety risks.

This Health and Safety Plan will be complemented by the existing Tyree Health and Safety Program. This plan will be a living document in that it will be continually updated or revised as the site conditions and knowledge of the operations develops further.

Tyree, as part of the overall Company Health and Safety Program, maintains written individual procedures for the types of hazards/issues that our employees will or could be potentially exposed. This program will be reviewed/revised on an annual basis or as required by the respective governing OSHA Standard. Each program, insofar as possible, will be maintained as an independent program to avoid situations where it is unclear where responsibilities for given issues belong. Effective implementation of this program requires support from top management to every employee within the company. The written program will be communicated to personnel that are affected by it through training.

In the event that a person does not adhere to the provisions of the HASP, he/she will be requested to leave the work area. All nonconformance incidents will be recorded in the site log.

The development and preparation of this Health and Safety Plan has been based on past experience and site specific information at the time of preparation. If actual site conditions or operations vary from the data used to prepare this Health and Safety Plan, amendments shall be made to reflect those changes.

2.0 STAFF ORGANIZATION AND RESPONSIBILITIES

While the Health and Safety Department directs and supervises the overall Health and Safety Program, the responsibility for health and safety extends throughout our organization from top management to every employee.

The following outlines the Tyree personnel and responsibilities during the closure, removal, and installation of underground storage tanks, and subsequent site assessment, if any:

- Health and Safety Manager: Aldo M. Gonzalez
- Project Manager/Site Safety Officer: Frank Kramer
- Site Superintendent/Site Safety Officer: Corey Gunther

2.1 Health and Safety Manager

Responsible to the Chief Operating Officer, the Health and Safety Manager formulates, administers and coordinates programs for the company to reduce the risk of loss due to employee injury, regulatory non-compliance, general liability, fire, theft or damage. The Health and Safety Manager will develop written detailed policies and procedures covering elements in the Health and Safety Program.

2.2 Project Manager

The Project Manager has full responsibility for ensuring that the policies and procedures outlined in the Health and Safety Program are implemented on their respective project(s). The Project

Manager, by example, establishes an attitude of concern for Safety matters and assists the project superintendents to recognize and resolve safety violations and items of non-compliance.

2.3 Project Superintendent/Site Safety Officer

The Project Superintendent has operational responsibility for the implementation of the safety program on the project; including establishing an attitude of concern for Safety matters by initiating prompt corrective action of hazards brought to his attention and ensuring that the project health and safety requirements are initiated and followed by all project personnel.

Plan and require that all work be done in compliance with this HASP and the Tyree Organization's Health and Safety Program and/or the Client's safety program including all applicable local, state and federal regulations. Impress upon all subcontractors' supervisory personnel a responsibility and accountability of each individual to maintain a safe workplace and work in a safe manner. Conduct a daily "toolbox" safety meeting with site personnel and subcontractors.

2.4 Work Force

It is the responsibility of all employees to work in a manner that will prevent injury and exposure to themselves and to other employees. Every employee is responsible for obeying safety rules and regulations, and reporting unsafe conditions or acts to their supervisors

3.0 SITE CHARACTERIZATION AND ANALYSIS

Industrial facilities and construction sites can cause a multitude of health and safety concerns any of which can result in serious injuries and/or illnesses of workers. Some hazards are a function of the physical, or chemical nature of the site itself. Others are a direct result of the work being done.

The overall health and safety hazard assigned to this project during the closure, removal, and installation of underground storage tanks, is low to moderate. Job Hazard Analysis associated with these projects are presented in **Attachment I, Job Hazard Analysis**.

3.1 Chemical Hazard

The primary chemicals of concern during the closure, removal, and installation of underground storage tanks, will be Petroleum Hydrocarbons. **Refer to Attachment II Specific Material Safety Data Sheets .**

3.2 Route of Entry

A primary exposure route of concern at the site is inhalation of vapors during excavation. Air monitoring, using direct reading instruments, for volatile organic compounds shall be performed during work activities.

Direct contact of the skin and eyes with liquid or dust is another important route of exposure. To protect workers against dermal contact, they will wear specified protective clothing, respirators and safety glasses for operations involving potential exposure to hazardous materials. Proper personal decontamination procedures will be emphasized during remedial construction activities.

Although ingestion should be the least significant route of exposure, employees will be made aware of ways in which this type of exposure can occur and methods to avoid such exposure. Deliberate ingestion of chemicals is unlikely.

Personal hygiene habits which provide a route of entry for chemicals will be restricted. Proper decontamination procedures will reduce/eliminate potential of ingesting hazardous materials. Site personnel will wash their hands, face and other exposed parts of their skin before eating or smoking.

3.3 Physical Hazards

In addition to chemical hazards, the potential for physical hazards exists. Physical hazards include, oxygen deficiency, heat and cold stress, noise, electrical, excavation, safety hazards, slip/trip/hit/fall, hand and power tools and heavy lifting.

3.3.1 Oxygen Deficiency

Oxygen deficiency may occur on-site during storage tank entry, due to displacement of oxygen by other gases in confined spaces. The oxygen content of ambient air is 21 percent. Physiological effects of oxygen deficiency are readily apparent when the oxygen concentration decreases below 16 percent. Oxygen-deficient conditions may be controlled in the following manner:

- Monitoring air concentrations for oxygen shall be conducted in the breathing zone with an Oxygen Meter (02/LEL Meter). Monitoring can reduce risks by indicating when action levels have been exceeded.
- Supplied-air type respiratory protection shall be utilized in areas known to have oxygen concentrations below 19.5 percent.

3.3.2 Explosive Atmospheres

The potential for explosive atmospheres exists when the following conditions occur 1) the levels of combustible gases accumulate to within the explosive limit range; 2) the gas is generated in

the presence of oxygen; and 3) there is a source of heat or ignition. Explosive conditions may be controlled in the following manner.

- Monitoring air concentrations for explosive gases will be conducted in the immediate area of source(s) with a Combustible Gas Indicator (02/LEL meter). Monitoring can reduce risks by indicating when action levels have been exceeded.
- Inert gases (nitrogen) shall be used to displace combustible gases. Intrinsically safe equipment will be used.
- All operations shall cease and desist if oxygen concentrations exceed 23.5 percent.

3.3.3 Heat Stress

Heat stress may be a hazard for workers wearing protective clothing even if the temperature is moderate. The same protective materials that shield the body from chemical exposure, prevent heat and moisture from dissipating. Personal protective clothing can therefore create a hazardous condition. Depending on the ambient temperature and the work being performed, heat stress can occur very rapidly - within as little as 15 minutes.

In its early stages, heat stress can cause discomfort and inattention, resulting in impaired functional abilities that can threaten the safety of both the individual and his co-workers. Personnel will be instructed to recognize the symptoms of the onset of heat stress. Project supervisory personnel will periodically check all personnel working in thermal stress areas to ensure that the symptoms are recognized. Frequency of heat stress monitoring and checks for symptoms of heat stress will increase with rises in air temperature, humidity, and the degree of exposure to high temperature areas.

A Wet Bulb Globe Temperature (WBGT) of 77° F or a Botsball Temperature of 80.6° F will be used as an action level to implement pulse monitoring, oral temperatures and administrative controls to prevent employees from experiencing heat related health effects.

Pulse monitoring will be performed with a portable monitor. Monitoring will be performed in the morning and afternoon hours when WBGT exceeds 77° F or a Botsball Temperature of 80.6 and other times as deemed appropriate .

Oral temperatures will be performed with a portable monitor. Monitoring will be performed in conjunction with pulse monitor. The oral temperature shall not exceed 100.4° F.

If an employee's pulse rate exceeds the maximum age adjusted heart rate (0.7(220-AGE)), the employee shall be required to stop work and rest at the work site or move to an air conditioned room after proper decontamination. The affected employee may b e allowed to return to work after his/her pulse rate has dropped below 100 beats per minute.

Fluids shall be provided and rest breaks will be taken. The frequency of breaks will increase with the temperature. Such things as cooling vest, portable fans and breaks in air conditioned areas shall be used if necessary.

Any individual showing susceptibility to heat stress will be referred to a physician for evaluation. Individuals will be encouraged to increase their consumption of fruit juices to replenish lost fluids.

3.3.4 Cold Stress

Cold injury (frostbite and hypothermia) and impaired ability to work are hazards to persons working outdoors in low temperatures at or below freezing. Extreme cold for a short time may cause severe injury to exposed body surfaces (frost nip or frostbite), or result in profound generalized cooling (hypothermia). Areas of the body which have high surface area-to-volume ratio such as fingers, toes, and ears, are the most susceptible to frost nip or frostbite.

Two factors influence the development of a cold weather injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

To guard against cold injuries, workers should wear appropriate clothing and use warm shelters after removing personal protective equipment (Decontamination is discussed in Section 6.0). The lunch trailer will be used as a warm shelter when required. In addition, the Superintendent/Site Safety Officer will monitor workers' physical conditions.

3.3.5 Noise

Noise is found at remediation sites in such operations as transportation and with heavy construction equipment. Noise has been defined as unwanted sounds. The human ear can tolerate a certain amount of sound without any harmful effects. The OSHA standard allows 90 dB(A) for a full 8 hours and for a lesser time when the levels exceed 90 db(A). It is usually safe to assume that if you need to shout to be heard at arms length, the noise level is at 90 dB(A) or above. Hearing protection will be utilized by personnel operating or working around construction equipment or power tools.

3.3.6 Electrical

Overhead power lines, electrical wires, electrical fixtures, and buried cables all pose a danger of shock or electrocution if contacted or severed during site operations. A safe distance will be maintained between overhead wires. Electrical equipment used on site may also pose a hazard to

workers. Whenever possible, low-voltage equipment with ground-fault interrupters and water-tight, corrosion-resistant connecting cables to minimize this hazard will be used. In addition, lightning is a hazard during outdoor operation, particularly for workers handling metal containers or equipment. In the event of a lightning storm, operations involving cranes or back-hoes will cease for the duration of the storm.

No employee shall be permitted to work in the proximity of any part of an electrical power circuit unless the person is protected against electric shock by de-energizing the circuit and grounding it, or it has been locked and tagged out. These procedures will be utilized when work has to be performed on energized equipment.

All electrical wiring and equipment will be intrinsically safe for use in potentially explosive environments and atmospheres. Ground fault circuit interrupters shall be used in the absence of properly grounded circuitry or when portable tools must be used around wet areas.

3.3.7 Safety Hazards

A construction site may contain numerous safety hazards of which workers should be aware such as:

- Holes and ditches.
- Precariously positioned objects, such as drums or boards that may fall.
- Sharp objects, such as nails, metal shards, and broken glass.
- Slippery surfaces.
- Steep grades.
- Uneven terrain.
- Unstable surfaces, such as walls that may cave in or flooring that may give way.
- Contaminated soil, refuse and/or buried drums.

3.3.8 Slip/Trip/Hit/Fall

Slip/trip/hit/fall injuries are the most frequent of all injuries to workers. They occur for a wide variety of reasons, but can be minimized by the following prudent practices:

- Spot check the work area to identify hazards.
- Establish and utilize a pathway which is most free of slip and trip hazards.
- Beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain.
- Carry only loads which you can see over.
- Keep work areas clean and free of clutter, especially in storage rooms and walkways.
- Communicate hazards to on-site personnel
- Secure all loose clothing, ties, and remove jewelry while around machinery.
- Report and/or remove hazards.
- Keep a safe buffer zone between workers using equipment and tools.

3.3.9 Hand and Power Tools

Hand and power tools are used for various site activities. Procedures for using hand and power tools are as follows:

- Persons using power tools shall be trained in their use.
- Only tools in good condition shall be used.
- Tools shall be kept clean.
- Guards and shields shall be kept on all tools.
- Air coupling shall be secured.
- Non-sparking tools shall be used in hazardous areas.

3.3.10 Heavy Lifting

When lifting objects, use the following proper lifting techniques:

- Keep your feet shoulder width apart to get the best footing possible.
- Grasp the object at opposite corners.
- Lift with the legs instead of the back muscles.
- Keep the back upright and avoid twisting.
- Most importantly, think before lifting.
- Bend at the knees, not at the waist.
- Tighten stomach muscles to offset the force of the load.

3.3.11 Fall Hazards

To prevent falls and injuries when employees work in areas where fall hazards cannot be eliminated by reasonable means, personnel will be required to use a full body harness or safety belt and shock absorbing lanyard. Personnel will make maximum use of primary fall protection systems, such as scaffolding and scissors lifts. These systems will be equipped with standard guard rails and safe means of access/egress.

Before any employee attempts to work in an area where a high risk of falls exists, they must equip themselves with suitable fall-arresting equipment. Personnel riding on or working from scissors lift must secure their safety lanyards to the basket at all times.

The fall protection equipment shall be properly fitted and shall not restrict the movements of the worker. Full safety harnesses or safety belts are required for any work performed over six (6) feet in elevation.

Tail lines or lanyards of the shortest workable length must be attached to a secure point in the vicinity of the work area. The line shall be long enough not to restrict the worker's movements, but short enough to prevent tripping over the line and falls beyond the worker's extended reach for self-rescue; in any case, not over six (6) feet.

3.3.12 Excavation Hazards

Excavation spoils will be stockpiled at a designated area away from the work area. Excavation/Trenches regardless of the depth or width will be barricaded or covered. The use of raised berms, caution signs and caution tape will be used to protect both the public and other personnel on the site. The excavation area will be delineated with caution tape during operations and barricaded/secured with safety fence at the end of each work day. Adequate means of exit, such as ladders, steps, ramps or other safe means of egress, will be provided and be within 25 feet of lateral travel. The hazard associated with excavation is low to moderate. In, general, the hazards encountered during soil excavation are as follows:

- Sides of excavation can cave in. Possible burying or crushing of workers due to:
  - Absence of shoring
  - Misjudgment of stability
  - Defective shoring
  - Undercut sides
  - Piling excavation spoils too close to the edge of the excavation.
- Falling during access/egress, while monitoring or dismounting equipment, or stumbling into excavation.
- An overhead hazard can result from material, tools, rock, and/or soil falling into the excavation.
- Congested work area due to too many workers in a small area.
- Fall or trip hazard working in the vicinity of the edge of the trench.
- Flammable atmospheres encountered in excavation.
- Exposure to airborne contaminants released during intrusive activities.

Tyree shall perform the following:

- Provide adequate shoring or sloping of sides of the excavation when required. Regularly inspect trenches for changing conditions.
- Provide engineered plans, signed by a Registered Civil or Geotechnical Engineer, whenever depths that are greater than 20 feet require shoring.
- Provide ramps or ladders to trenches to allow safe access and egress.
- Provide an adequate barrier around open pits.
- Material from pit must be placed away from edge at least 2 feet from the excavation to prevent cave-ins and instability of pit.
- To prevent overexertion, limit manual lifting and emphasize mechanical means where practical.
- Maintain ample work room between workers.
- A distance of 15 feet should be present between overhead wires and equipment.
- All underground utilities should be identified and considered live. Should additional utilities be encountered during excavation, the local utilities will be contacted.
- Proper housekeeping will be emphasized on site.

- Monitor for airborne contaminants. Allow excavation/test pits to purge and/or use personal protective equipment.

3.4 Engineering Controls

The use of engineering controls for the protection of personnel is the first means of mitigation. This involves the elimination of hazards and the isolation of the workers from the hazards. Covering a trench or stockpiled material will separate the workers from contaminants. Forced air ventilation is another means of mitigating hazards during confined space entries operations. Dust will be controlled primarily by careful project planning and implementation.

4.0 SITE CONTROL MEASURES

This section outlines site control measures to be implemented to minimize potential exposure to and accidental spread of hazardous substances during the closure, removal, and installation of underground storage tanks. Listed below are the work zones that shall be established. The zone boundaries may be modified as necessary as new information becomes available.

4.1 Exclusion Zone (EZ)

This zone, commonly known as the Hot Zone, is where there will be direct contact with the potentially contaminated material. The level of PPE required shall be based on hazard, site condition and air monitoring performed. The outer boundary of the Exclusion Zone, called the Hotline, shall be delineated with caution tape or safety fence. Modification to the size and boundary of the exclusion zone will be made in the field based on operation and wind directions. The primary EZ location will be along the inside perimeter of the excavation during intrusive activities.

All activities in this contaminated area should be conducted using the "buddy system". This involves a buddy who is able to provide his or her partner with assistance, observe for signs of chemical or heat exposure, check integrity of personal protective equipment and go for help when needed.

4.2 Contamination Reduction Zone (CRZ)

This zone, commonly known as the Warm Zone, is where workers and equipment shall be decontaminated. This shall minimize the spread of contaminants from the EZ into clean areas. The contamination reduction zone will be located in front of or next to the EZ so that personnel exiting the exclusion can conveniently stop at the CRZ for decontamination.

4.3 Support Zone

This zone, commonly known as the Clean Zone, is considered to be uncontaminated. This area shall be used as a storage area for operations equipment and break and toilet facilities will be located.

4.5 Personal Hygiene and General Safety Requirements

Personnel performing or supervising work within the Exclusion Zone, subject to exposure to chemical vapors, liquids, or contaminated solids, shall observe and strictly adhere to the provisions of this HASP.

Any Tyree employee, subcontractor or authorized visitor found to consistently disregard the provisions of this HASP may be barred from the site.

Eating, drinking, smoking, chewing gum or tobacco or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited, except in a designated eating area outside the exclusion and contaminant reduction zones. Tyree employees, subcontractor employees, and service personnel are required to thoroughly decontaminate themselves prior to entering the support zone. No alcoholic beverages or controlled dangerous substances are allowed on site.

No facial hair which interferes with the effectiveness of a respirator shall be permitted on personnel required or potentially required to wear respirators.

Personal Protective Equipment (PPE) must be utilized by on - site personnel when deemed necessary. Each individual will be responsible to properly inspect their PPE prior to entering the CRZ and exclusion zone. Hard Hats and Safety Glasses with side shields will be worn on-site at all times.

No open flames or smoking will be permitted in the Exclusion Zone or Contamination Reduction Zone unless a Hot Work Permit has been initiated.

When possible, avoid contact with contaminated materials.

5.0 PERSONAL PROTECTIVE EQUIPMENT

This section provides an outline of the personal protective equipment and guidelines that will be implemented to minimize chemical, and physical exposures and accidents during activities at the site. Where engineering controls and job hazard analyses do not eliminate all job hazards, employees will (where appropriate) wear personal protective equipment (PPE).

These include items such as, hard hats, face shields, safety goggles, glasses, hearing protection, footguards, gloves etc. The project manager under the direction of the Tyree Corporate Health and Safety Manager will ensure that equipment selected will meet the following requirements:

- It will be appropriate for the particular hazard.
- It will be maintained in good condition.
- It will be properly stored when not in use, to prevent damage or loss.
- It will be kept clean, fully functional and sanitary.

Protective clothing and PPE can present additional safety hazards. Supervisors will ensure workers wear appropriate clothing and PPE. These items will be worn so as not to create additional hazards.

All PPE will be selected in accordance with 29 CFR 1910.132. Tyree will provide proper PPE to all employees. All protective clothing will be properly used, stored, selected, and maintained.

5.1 Head Protection

All personnel shall wear a hard hat that meets the requirements and specifications in ANSI Safety Requirements for Industrial Head Protection Z89.1-1969. Exceptions to this requirement are personnel utilizing eating/break areas.

5.2 Hand Protection

Outer gloves used on the site for remedial activities shall be either chemical resistant or general purpose. The appropriate glove shall be determined for a specific work task. Inner gloves shall always be chemical resistant, shall be selected using appropriate chemical degradation guides and shall be disposed of as PPE waste. Chemical resistant gloves shall be selected using appropriate chemical degradation guides. Welder's gloves or any other special type of glove are considered outer gloves and are to worn over inner gloves.

5.3 Eye/Face Protection

Eye/Face protection shall be worn by all personnel at the site. All eye/face protection provided shall be ANSI Z87-1989 approved.

5.4 Footwear

Footwear shall be steel-toed safety shoes or steel-toed boots. Chemical-resistant outer boot covers are to be worn when necessary.

5.5 Respiratory Protection

The primary objective of the respiratory protection program shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.

To control and or minimize the threat of occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, respirators shall be provided to all employees, when such equipment is necessary to protect the health of the employee.

Employees will not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. A physician shall determine what health and physical conditions are pertinent.

Only NIOSH approved or accepted respirators shall be used. The respirator furnished shall provide adequate respiratory protection against the particular hazard for which it is designed.

Each respirator shall be individually assigned and not interchanged between workers without cleaning and sanitizing. The cartridges/filters shall be changed at least weekly. More frequent changes shall occur at the first sign of breakthrough based on contaminant warning properties or the user experiences excessive breathing resistance. Respirators shall be cleaned and stored in a uncontaminated atmosphere after each use. Self-contained breathing apparatus/Supplied-air respirators shall be inspected before and after use and at least once monthly, if in storage for emergency use.

All employees who have the potential of wearing a respirator shall be fit tested to ensure they utilize the proper size respirator. The fit test is conducted according to the manufacturer's suggestions. The test shall consist of a taste and odorous vapor qualitative test. Personnel that are unable to pass a fit test as a result of facial hair or facial configuration shall not enter a work area where respiratory protection may be required.

5.6 Levels Of Protection

The level of Personal Protective Equipment must correspond to the level of hazards known, or suspected during a specific activity.

5.6.1 Level B:

Level B equipment, used as appropriate, is as follows:

- Positive pressure, full facepiece self-contained breathing apparatus (SCBA) or positive pressure supplied air respirator with escape SCBA (NIOSH approved)
- Disposable chemical resistant coverall (Polycoated Tyvek)

- Outer gloves: neoprene or nitrile
- Inner gloves: latex or nitrile
- Chemical resistant boots over the safety shoes
- Steel-Toed Safety Shoes
- Hard hat

5.6.2 Level C:

Level C equipment, used as appropriate, is as follows:

- Full-face, air purifying, canister equipped respirators (NIOSH approved) utilizing Organic Vapor/Acid Gas and HEPA cartridges/filters .
- Disposable chemical resistant coverall (Polycoated Tyvek).
- Outer gloves: leather, cotton, neoprene or nitrile
- Inner gloves: latex or nitrile
- Chemical resistant boots over the safety shoes
- Steel-Toed Safety Shoes
- Hard hat
- Safety glasses (if half-mask is utilized)

5.6.3 Modified Level D:

Modified Level D equipment, used as appropriate, is as follows:

- Regular Tyvek coveralls (Polycoated Tyvek as required)
- Outer gloves: leather, cotton, neoprene or nitrile
- Inner gloves: latex or nitrile
- Chemical resistant boots over the safety shoes
- Steel-Toed Safety Shoes
- Hard hat
- Safety glasses

5.6.4 Level D:

Level D equipment, used as appropriate, is as follows:

- Hard hat and Safety glasses
- Steel-Toed Safety Shoes

5.7 Initial Levels of Protection

Based upon the nature of the closure, removal, and installation of underground storage, the initial level of protection to be used is Level D with a contingency upgrade to Level D Modified.

Confined Space Entries will be performed in Level B. The initial level of protection is defined as that level in which work commences.

Air monitoring, using direct reading instruments, will be performed to determine if an upgrade or downgrade is warranted. All decisions concerning the level of protection will be based upon a conservative interpretation of the information provided by air monitoring results, environmental results and other appropriate information..

6.0 DECONTAMINATION PROCEDURES

Decontamination (Decon) is the process of removing or neutralizing potentially harmful contaminants that have accumulated on personnel and equipment in order to reduce the spread of contamination outside the work area. Decontamination is critical to the health and safety of site workers and it protects the community by minimizing the off- site migration of contaminants. One of the most important aspects of controlling contaminated material migration is the prevention of the spread of contamination. Good contamination prevention will minimize employee and public exposure. Tyree will prevent the spread of contamination through the use of engineering controls.

All personnel leaving the Exclusion Zone must be decontaminated in the Contamination Reduction Zone prior to entering the Support Zone. The decontamination process is composed of a series of steps performed in a specific sequence. The basic concept is that more heavily contaminated items will be decontaminated and removed first, followed by decontamination and removal of inner, less contaminated items.

6.1 Personal Decontamination

As the worker leaves the Exclusion Zone he approaches the first station where he places his equipment and tools. After the worker places his equipment and tools down, he proceeds to the second station, where all outside protective clothing is washed off and rinsed. This area shall consist of tubs, long handle brushes and garden sprayers/hoses. At the next area, workers are required to remove their outer boots and then outer gloves and place them in plastic garbage bag lined drums. Once outer gloves are removed, workers are to proceed to the next station where workers remove all outer garments and place them in plastic garbage bag lined drums. Once workers are fully decontaminated and all garments are removed, workers proceed and remove their respirators. Used cartridges and inner gloves are placed into plastic garbage bags.

6.2 Equipment Decontamination

Nearly all contractor hardware (not consumable) is considered to be recoverable. As such, they will be decontaminated using the proper equipment, (i.e. brushes, sprayers, detergent). Should equipment become heavily soiled, then the use of a water sprayer and/or scrapers and brushes

shall be used before being decontaminated. In general, the high pressure sprayer will be used for cleaning equipment: every effort will be made to remove adhering material with brushes and the sprayer.

7.0 AIR MONITORING PLAN

The purpose of air monitoring is to identify and quantify airborne contaminants in order to verify and determine the level of worker protection needed. Unlike air sampling devices, which are used to collect samples for subsequent analysis in a laboratory, direct-reading instruments provide information at the time of sampling, enabling rapid decision-making. Data obtained from the real- time monitors are used to assure proper selection of personnel protection equipment, engineering controls, and work practices. Overall, the instruments provide the user with the capability to determine if site personnel are being exposed to concentrations which exceed exposure limits or action levels for specific hazardous materials.

Prior to the start of work each day and periodically throughout the day during underground storage tank replacement activities, all operational areas, will be surveyed with OVMs, combustible gas, and oxygen meters. Air monitoring will concentrate on the workers breathing zone. Real-time air monitoring equipment calibration will be checked in accordance with the manufactures recommendation, prior to field use.

7.1 Operational Action Levels

A decision-making scheme for an upgrade in levels of protection and/or withdrawal of personnel from an area based on atmospheric hazards is outlined in Table 1 - Operational Action Levels. In general the decision making scheme will be followed, with the decision dependent upon actual site condition and contaminants.

7.2 Perimeter Monitoring

Perimeter real-time monitoring for volatile organic compounds will be initiated when onsite monitoring activities indicate non-methane organic vapor levels greater than 5 ppm in the active work area.

8.0 EMERGENCY CONTINGENCY PLAN

This section describes the emergency response plan that shall be implemented by Tyree employees to handle emergencies. It is expected that modifications may be necessary upon actual site set-up and conditions. During the site safety meetings held periodically, all

employees will be trained in and reminded of the location of this plan, the procedures outlined in this plan, the communication systems and evacuation routes used during an emergency.

On a continual basis, individual personnel should be constantly alert for indicators of potentially hazardous situations and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency.

TABLE - 1 OPERATIONAL ACTION LEVELS

Contaminants	Action Level	Action to Take
Volatile Organic Compounds HNU PID	1 To 10 PPM Above Background At The Breathing Zone And Sustained For 1 Minutes	Level D, Continuous Air Monitoring
	10 To 100 PPM Above Background At The Breathing Zone And Sustained For 1 Minutes	Upgrade To Level C, Continuous Air Monitoring
	100 To 300 PPM Above Background At The Breathing Zone And Sustained For 1 Minutes	Upgrade To Level B, Continuous Air Monitoring
	> 300 PPM Above Back Ground At The Breathing Zone And Sustained For 1 Minutes	Stop Work, Evacuate Work Zone And Evaluate with Continuous Air Monitoring
Combustible Gas In Air	Less Than 10% LEL	Continue With Caution And Air Monitoring
	Greater Than 10% LEL	Stop Work, Immediate Withdrawal Of Personnel, Ventilate Space With Manhole Blower
Oxygen In Air	Less Than 19.5%	Stop Work And Ventilate Or Upgrade To Level B
	19.5 To 23.5%	Level D, Continue Work With Air Monitoring
	Greater Than 23.5%	Stop Work, Immediate Withdrawal Personnel And Evaluate

All on-site employees have a role in mitigating an emergency incident. The Project Superintendent has primary responsibility for responding to and directing emergency response operations to correct emergency situations. This includes taking appropriate measures to ensure the safety of site personnel and the public. He/She is additionally responsible for ensuring that corrective measures have been implemented, appropriate authorities notified, and follow-up reports completed.

8.1 Evacuation Routes and Procedures

In the event of an emergency which necessitates an evacuation of the site, on-site personnel shall be notified to evacuate the area by immediate emergency exit. The Project Superintendent shall control the scene until the appropriate municipal and state agencies arrive onsite.

In the event of a chemical release into the atmosphere, safe distances of evacuation will be determined, based on a combination of site- and incident-specific factors and the *1996 DOT Emergency Response Handbook Guidelines*.

8.2 Emergency Equipment

Equipment shall be available on-site to handle emergencies such as injuries, fires and spills. This equipment includes first aid supplies, fire extinguishers, and personal protective equipment and spill response equipment.

8.3 Medical Treatment/First Aid

On-site supervisory personnel are trained in CPR and First Aid and shall have first aid kits for use in a medical emergency. First Aid Kits and an eye wash station will be located in the main support areas. Community emergency services (EMS, Fire, and Police) shall be notified immediately if deemed their resources are needed on site. If necessary, the injured or sick party shall be taken to a local area hospital. Please refer to **Attachment III, Route to Area Hospital** for direction to the area hospital and **Emergency Telephone Numbers**.

8.4 Spill Confinement and Containment

Where minor or major spills, leaks or ruptures may occur, adequate quantities of spill containment equipment (ground clay, vermiculite, pads, booms, pillows, etc.) shall be kept available and ready or use. Once a spill has been discovered, the first step is to determine the nature of the spill, its size, and its direction of travel. The Project Superintendent shall be notified immediately and he will determine what actions will be taken to contain the spill.

Prior to entering a spill area, it is necessary to protect oneself from the adverse effects of the spilled material. Do not enter the area alone.

The decision to use confinement techniques, such as diversion, diking, and retention, should be based on the availability of time, personnel, equipment and supplies. It should also be made with a review of the potential harmful effects (review of MSDS) of the leaking material downhill and downwind of the spill.

After a spill is contained, the Project Superintendent shall determine the appropriate cleanup and disposal methods with input from the client and their representatives. Material spills could occur during line breaking and draining, removing liquids and sludges from USTs. Additionally, equipment fueling operations could produce spills. Ultimately, a spill could contaminate sewer systems or cause a release of vapors to the air. A spill of fuel could also ignite. A small spill should be cleaned up immediately, but should not trigger activation of these procedures. Should an on site spill occur, the immediate response will include closing off the source of the spill, if possible, application of the sorbent material or sand bagging, and street sweeping, as appropriate. All spills will be investigated, and a written report will be provided to the regulatory agencies in accordance with applicable regulations (as required).

8.5 Emergency Alarms/Notifications and Procedures

When any emergency occurs on-site, the on-site Project Superintendent shall be notified immediately. The Project Superintendent shall notify the client and his representatives. Please refer to **Attachment III, Route to Area Hospital** for direction to the area hospital and **Emergency Telephone Numbers**. In the event of a medical emergency, fire or spill, personnel will notify the appropriate emergency organization.

9.0 MEDICAL SURVEILLANCE REQUIREMENTS

Medical monitoring programs are designed to track the physical condition of employees on a regular basis as well as survey pre-employment or baseline conditions prior to potential exposures. The medical surveillance program is a part of Tyree's Health and Safety program.

9.1 Baseline Medical Monitoring

Prior to being assigned to a hazardous or a potentially hazardous activity involving exposure to toxic materials, employee must receive a preassignment or baseline physical. The contents of the physical is to be determined by Tyree's medical consultant. The preassignment physical should categorize employees as fit- for-duty and able to wear respiratory protection.

9.2 Periodic Monitoring

In addition to a baseline physical, all employees require a periodic physical within the last 12 months unless the advising physician believes a shorter interval is appropriate.

Personnel assigned to a hazardous or a potentially hazardous activity involving exposure to toxic materials will verify currentness (within 12 months) with respect to medical monitoring.

9.3 Exposure/Injury/Medical Support

As a follow-up to an injury or possible exposure above established exposure limits, all employees are entitled to and encouraged to seek medical attention and physical testing. Depending upon the type of exposure, it is critical to perform follow-up testing within 24-48 hours.

9.4 Exit Physical

At termination of employment or reassignment to an activity or location which does not represent a risk of exposure to hazardous substances, an employee shall require an exit physical. If his/her last physical was within the last 6 months, the advising medical consultant has the right to determine adequacy and necessity of an exit exam.

9.5 Medical Records

The results of medical testing and full medical records will be maintained in accordance with 29 CFR Part 1910.20. A copy of the medical certification will be kept at the Division Office for each person entering the contamination reduction zone and exclusion zone.

10.0 TRAINING REQUIREMENTS

Consistent with OSHA's 29 CFR 1910.120 regulation covering Hazardous Waste Operations and Emergency Response, all site personnel who will be performing a hazardous or a potentially hazardous activity involving exposure to toxic materials, are required to be trained in accordance with the standard. At a minimum all personnel are required to be trained to recognize the hazards on-site, the provisions of this HASP, and the responsible personnel.

10.1 Initial and Annual Refresher Training

Prior to arrival on site, Tyree will certify that employees working in hazardous areas meet the requirements of preassignment training, consistent with OSHA 29 CFR 1910.120 paragraph (e)(3). Each general site worker has received 40 hours of instruction off the site. All personnel must also receive 8 hours of refresher training annually.

10.2 Site Supervisors Training

Consistent with OSHA 29 CFR 1910.120 paragraph (e)(4), individuals designated as site supervisors require an additional 8 hours of training.

10.3 Site Specific Training

All personnel working on site will receive a site specific training session prior to commencing work at the site.

10.4 Training Records

A copy of all training certificates will be kept at the Division Office for each person working at the site.

11.0 CONFINED SPACE ENTRY

The purpose of this procedures is to establish the requirements and procedures for the safety and health of workers who work in, and in connection with, confined spaces during the closure, removal, and installation of underground storage tank systems. Detailed procedures and good communication systems as well as a systematic review for hazards, the communication of this information to the employees and an approval sign-off process for entrants, are all necessary for safe confined space work.

11.1 Confined Space Definition

A "confined or enclosed space" means any space having a limited means of egress and can have any of the following characteristics:

- Its primary function is not designed for continuous worker occupancy.
- Has restricted entry and exit because of limited openings and or physical impediment of the body to enter or exit.
- Is subject to the accumulation of toxic or flammable containments or oxygen deficient/enriched atmosphere.
- May contain potential or known hazards and/or has unfavorable natural ventilation that could contain or provide dangerous air contaminants.

- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or a floor which slopes downward and tapers to a small cross section.

A confined space found on the jobsite may have a combination of these characteristics, which can complicate working in and around these spaces as well as rescue operations during emergencies. Examples of confined spaces include, but are not limited to storage tanks, manholes, process vessels, crawl spaces, chimneys, pipelines, sewer, utility vaults, ventilation or exhaust ducts, machinery housing, tunnels, and open top spaces greater than 4 feet in depth, such as vaults and vessels. At this project, the underground storage tank itself is the Confined Space.

11.2 Confined Space Hazards

Hazards involved in entering and working in a confined space are:

- An atmosphere that may be or is injurious to occupants by reason of: oxygen deficiency (below 19.5%) risk of asphyxiation; or oxygen enriched (above 23.5%), which poses a serious fire hazard.

- Flammable gas vapor or mist in excess of 10% of its lower flammable limit (LEL); or explosively, (an airborne combustible dust at a concentration that obscures vision at a distance of five feet or less)

- Toxic gases such as methane, hydrogen sulfide and carbon monoxide.

11.3 Confined Space Entry Training

Training in accordance with 29 CFR 1910.146(g), is provided to all employees who may have to enter confined spaces as defined in Section 11.1 of this procedure, The training address comprehensively the issues of; evaluating and identifying potential confined spaces, evaluating the associated potential hazards, communicating information concerning these hazards, and establishing appropriate procedures, the responsibilities of the entrant, attendant and supervisor, and protective measures for employees.

11.4 General Procedures

The Superintendent with the assistance from the Division Health and Safety representative, shall determine if the workplace contains confined spaces that have been identified as having actual or potential hazards and require written authorization for entry, for this project, all entries into underground storage tanks will be a permitted confined space.

A space requiring written authorization for entry shall be referred to as a "permit confined space." If there are changes in a space which previously was not a permit space, the Superintendent shall re-evaluate that space to determine if it has become a "permit confined space".

A formal procedure for authorizing entry to a confined space is necessary to assure adequate support personnel and supplies are present and proper procedures are followed. The written Confined Space Entry Permit must contain site- specific details regarding hazards anticipated and precautions to be used during the entry. The entry permit defines the conditions under which the permit space may be entered. It lists the eligible attendants the entrants, and the qualified person in charge of the entry. It also states the reason(s) for entering the space. If there are confined spaces which employees are not permitted to enter, the superintendent will take appropriate measures to ensure that the space is not entered by his/her employees, which shall be enforced by the foremen.

11.5 Air Monitoring

During Confined Space Entry Procedures, A Drager Dualarm combination combustible gas/oxygen meter will be utilized to monitor for explosive and oxygen enriched/deficient atmospheres and concentrations of hydrogen sulfide.

11.6 Confined Space Entry Permit

A completed Confined Space Entry Permit is valid for one shift unless the work is interrupted for more than one hour. It must be signed by employees who will perform the entry, designated attendant, and supervisor, and be immediately available at the work site. After completion of entry, the Confined Space Entry Permit is to be retained as part of the project documentation.

The supervisors, entrants and attendants shall be trained in the primary hazards of the confined space, rescue procedures to be used, use of monitoring devices and monitoring attendants, use of personal protective equipment needed, specific chemical training on products to be used, and means of communication. Testing for hazardous atmospheres shall be conducted by a qualified person (Superintendent/Site Safety Officer). If atmospheric levels are not within acceptable limits, the entry shall not proceed until the hazards have been removed or precautions are taken to protect the entrants. Ventilation shall be maintained during occupancy to remove atmospheric contaminants from the confined space. When ventilation is not possible or feasible, alternate protective measures or methods to remove air contaminants and protect occupants shall be determined by the qualified person prior to authorizing entry.

Permits shall be revoked when conditions or work activity are different than those specified on the permit and could introduce a new hazard to the confined space. The permit shall be immediately revoked, by the confined space entry supervisor (Superintendent/) Changing work conditions shall require a new permit to be completed.

A copy of the permit shall remain at the job site until the job is completed. Upon completion of the entry covered by the permit and after all entrants have exited the permit space, the individual authorizing entry shall cancel the permit.

If a permit is to remain in effect, for a particular confined space that may be encountered again and again, (example a manhole), the following must be done before each re-entry: atmospheric test results shall be within acceptable limits.

If the test results are not within acceptable limits, precautions to protect entrants against the hazards shall be addressed on the permit; a qualified person shall verify that all precautions and other measures called for on the permit are still in effect. Only operations or work originally approved on the permit shall be conducted in the permit confined space.

11.7 Non-Permit Confined Space

A "non-permit confined space (NPCS)" is a space that, after evaluation, is found to have little potential for generation of hazards or has the hazards eliminated by engineering controls. Any change to the space, shall require an immediate re-evaluation of the space before entry.

Employees shall be trained in the proper procedure and precautions which must be taken to safely enter the non- permit confined space. The space shall be periodically re- evaluated to assure proper classification. A qualified person shall conduct atmospheric testing . If the space is not within acceptable limits after implementation of the engineering controls, the entry shall not proceed. The NPCS will then be re-classified as a permit confined space.

11.8 Confined Space Check List

The following steps should be utilized, where applicable, in work involving confined space entry.

- The confined space must be physically isolated from all supply, vent and exit lines, and other connections which could introduce chemicals or gases to the confined area. Physical isolation includes disconnection and blanking of chemical, gas and steam lines and closing and locking of water line valves. Manholes, doors or other vessel openings must be secured in the open position.

- Sources of electrical power to the confined space must be locked out or otherwise disconnected (e.g. pulling of fuses) and tagged to prevent accidental actuation during the entry.

- When possible, chemicals must be removed from the confined space, and residues removed by washing or purging with an appropriate agent, prior to entry.

- Entry in enclosed vessels requires provision of fresh air using a forced draft supply, introduced so as to thoroughly purge the vessel (no "dead" spaces) throughout the duration of the entry. Provision of air to other confined spaces is desirable, where feasible.

- Illumination of confined spaces must be provided using properly shielded low voltage (<24 volt) lighting. Only properly grounded tools are to be allowed in confined spaces. In locations where a flammable atmosphere could develop or flammable residues are present, the space must be isolated from all potential sources of ignition.

- The atmosphere within the confined space must be tested (using properly calibrated equipment) prior to entry for oxygen deficiency/enrichment, the presence of flammable or explosive vapors, and toxic vapors. Continuous (where feasible) or frequent approximately every 15 minutes) monitoring of the atmosphere must be performed throughout the duration of the entry.

- Entry is prohibited (or must be terminated) if oxygen deficient/enriched conditions (<19.5%/>23.5%) are measured or the airborne level of any toxic chemical exceeds an Action Level (unless Level B protection is donned), and whenever the Lower Explosive Limit (LEL) exceeds 10%.

- Respiratory protection for confined space entry must be selected (and upgraded if necessary) based upon anticipated hazards including toxic chemicals with poor warning properties or potential oxygen deficient atmospheres.

- Personnel who must enter a confined space from which escape is difficult should be equipped with life lines, harnesses, or wristlets.

- Where ladders are necessary for entry to confined areas, they must be made secure at the top and remain in place throughout the entry. Any ladders used for entry must be in good condition, properly positioned and equipped with non-slip feet.

- Entry must be made under the continuous supervision of a designated observer who will initiate evacuation or trigger emergency rescue should the need arise. The person must be knowledgeable in the use of emergency rescue equipment and have immediate access to communication equipment, alarms or other means to summon emergency assistance including personnel trained in appropriate first aid procedures. The observer must be alert to developing signs of hazardous exposure or conditions, and be in constant communication with the personnel inside (visual, radio, lifeline, etc.)

- Emergency equipment necessary to effect rescue, including a tripod, life lines, positive pressure self-contained breathing apparatus (SCBA) and fire extinguisher must be immediately available at the confined space entry site.

- Sufficient standby personnel must be immediately available to effect emergency rescue and render first aid. At least one properly trained and equipped worker (confined space

attendant) shall standby the outside of the space ready to give assistance in the case of an emergency.

- The attendant may enter the confined space in case of an emergency only after being relieved by another attendant. In addition, a second properly trained and equipped worker standing by at the space to assist in the rescue. The attendant shall attempt to remove the injured worker via his lifeline before attempting an entrance.

- If at any time there is any questionable action or non-movement by the worker inside, a verbal check will be made. If there is no response the worker will be moved immediately. If the worker is disabled due to falling or impact, he/she shall not be moved from the confined space unless there is immediate danger to his/her life. The local fire department rescue personnel shall be notified immediately. The Fire Department telephone number may be found on the entry permit.

- The occurrence of an injury, spill or fire in the confined space, or job interruption for more than one hour, will void the current Confined Space Entry Permit; re-entry will require a new Permit and re-initiation of these general procedures.

11.9 Confined Space Entry Permit Procedures

A formal procedure for authorizing entry to a confined space is necessary to assure adequate support personnel and supplies are present and proper procedures are followed. The written Confined Space Entry Permit must contain site- specific details regarding hazards anticipated and precautions to be used during the entry. A complete Confined Space Entry Permit is valid for one shift (less if the work is interrupted as discussed above). It must be signed by employees who will perform the entry, designated attendant, and the supervisor, and be immediately available at the work site. After completion of entry, the Confined Space Entry Permit is to be retained as part of the project documentation. Please refer to The Confined Space Entry Permit at the end of these procedures.

TYREE ENVIRONMENTAL TECHNOLOGIES
CONFINED SPACE ENTRY PERMIT

Project Number:	Project Name:	Project Supervisor:
Date:	Time: Begin	Time: End
Operating Area/ Work To Be Done:		

NATURE OF HAZARDS

	Y	N
Oxygen Deficiency		
Flammable gas or Vapor		
Toxic gas or Vapors		
Mechanical Hazards		
Electrical Hazard		
Material Harmful To Skin		
Engulfment Hazards		
Welding Cutting Operations		
Other_____		

PREPARATION

	Y	N
Notify Affected Personnel		
Lockout all energy Sources		
Drained, Washed and Purged		
Ventilation to Provide Fresh Air		
Entry Procedures reviewed		
Atmosphere Test in Compliance		
Hot Work Permit		
Emergency Telephone Posted		
Other_____		

EQUIPMENT REQUIRED

	Y	N
Level of PPE		
Lifeline and Safety Harness		
Tripod and Retracting Winch		
Electrical Equipment		
Rescue Equipment		
Fire Protection Equipment		
Other_____		

Entrant:

Entrant:

Entrant:

Attendant:

Supervisor:

Police Department:	Fire Department:	Ambulance Services:	Other:_____

AIR MONITORING

	Limits	Results	Results	Results	Results	Results	Results
Time							
O2	**19.5-22 %**						
LEL	**10 %**						
H2S	**10 PPM**						
CO	**25 PPM**						
Other							

Confined Space Entry Authorization:	Date:	Time:

Attachment I

Activity Hazard Analysis

TASK SPECIFIC HAZARD ANALYSIS

Work Activity	Potential Hazard	Recommended Control
Clean Tanks, Remove Liquids and Sludges, and Disconnect Misc. Piping	Exposure To Chemical Hazards Hand & Power Tools Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard Electrical Hazards Oxygen Deficient Atmosphere Explosive/Fire Hazard	Safety Training, PPE, Decon & Air Monitoring Safety Training, Personal Awareness & Safety Device Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness Proper Wiring/Grounding, & Lock Out/Tag Out Confined Space PPE , Air Monitoring & Training Air Monitoring, Fire Prevention/Protection & Training
Soil Excavation	Exposure To Chemical Hazards Hand & Power Tools Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard Electrical Hazards Oxygen Deficient Atmosphere Excavation Hazard Explosive/Fire Hazard	Safety Training, PPE, Decon & Air Monitoring Safety Training, Personal Awareness & Safety Device Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness Proper Wiring/Grounding, & Lock Out/Tag Out Confined Space PPE , Air Monitoring & Training Competent Person, Slope/Shoring & Safety Training Air Monitoring, Fire Prevention/Protection & Training
Install Shoring System (Icon Box)	Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard	Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness

TASK SPECIFIC HAZARD ANALYSIS

Work Activity	Potential Hazard	Recommended Control
Install Subbase and Mud Mat	Hand & Power Tools Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard	Safety Training, Personal Awareness & Safety Device Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness
Pump Out Contaminated Water from Excavation	Exposure To Chemical Hazards Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard Oxygen Deficient Atmosphere	Safety Training, PPE, Decon & Air Monitoring Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness Confined Space PPE , Air Monitoring & Training
Install New UST, Piping, Electric Lines and Accessories	Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard	Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness
Test Pit Excavation	Exposure To Chemical Hazards Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard Electrical Hazards Oxygen Deficient Atmosphere Excavation Hazard Explosive/Fire Hazard	Safety Training, PPE, Decon & Air Monitoring Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness Proper Wiring/Grounding, & Lock Out/Tag Out Confined Space PPE , Air Monitoring & Training Competent Person, Slope/Shoring & Safety Training Air Monitoring, Fire Prevention/Protection & Training

Work Activity	Potential Hazard	Recommended Control
Drilling Operations • GeoProbe • Hollow Stem Auger • Air Rotary	Exposure To Chemical Hazards Hand & Power Tools Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard Electrical Hazards Explosive/Fire Hazard	Safety Training, PPE, Decon & Air Monitoring Safety Training, Personal Awareness & Safety Device Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness Proper Wiring/Grounding, & Safe Distance Air Monitoring, Fire Prevention/Protection & Training
Sampling Activities	Exposure To Chemical Hazards Hand & Power Tools Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard Excavation Hazard Explosive/Fire Hazard	Safety Training, PPE, Decon & Air Monitoring Safety Training, Personal Awareness & Safety Device Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness Competent Person, Slope/Shoring & Safety Training Air Monitoring, Fire Prevention/Protection & Training
Backfill UST	Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard	Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness
Site Restoration	Hand & Power Tools Heavy Lifting/Back Strain Slip, Trip And Cuts Noise Environment Eye. Face Head & Hazard Toe/Foot Hazard	Safety Training, Personal Awareness & Safety Device Training Proper Lifting Techniques Protective Barriers And Safety Training Hearing Conservation Program, & Hearing Protection Eye/Face/Head Protective Equipment Steel Toed Boots & Personal Awareness

Attachment II

Material Safety Data Sheets

Attachment III

Route the Area Hospital Emergency Telephone Numbers

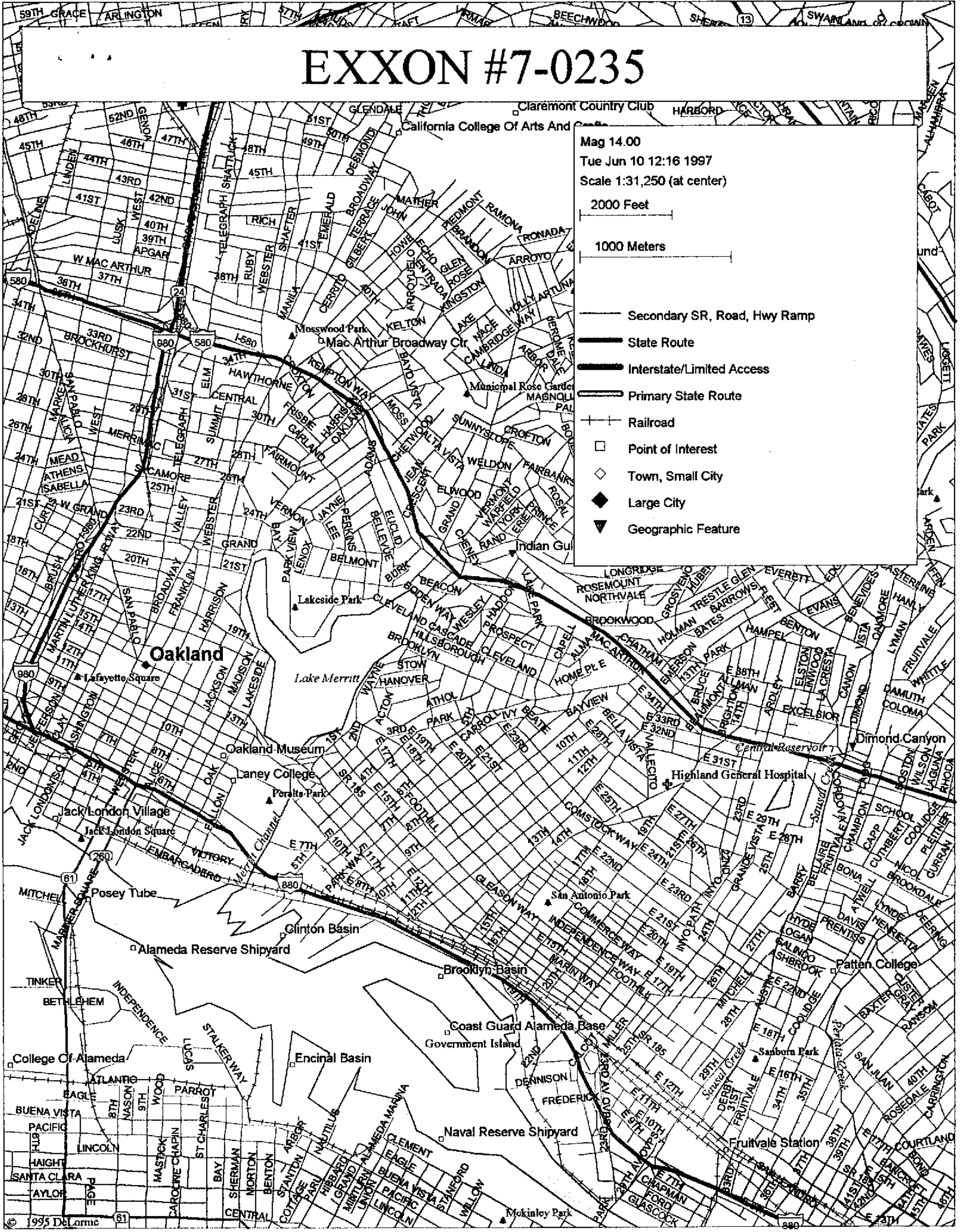
Area Hospital

HIGHLAND HOSPITAL
1411 EAST 31st. Street
OAKLAND, CA 94602
Phone: (510) 534-8055

Take Telegraph to 580 South, go to 14th. Avenue get off and go South on 14th. Ave. to 31st Street. Hospital is on right.

Police Department:	911
Fire /Ambulance Department:	911
Area Hospital:	(510) 534-8055
Tyree Organization, Ltd. Health and Safety Manager: Aldo M. Gonzalez Project Manager: Frank Kramer	 1-800-249-7211, ext. 365 310-468-0051

EXXON #7-0235


Mag 14.00
Tue Jun 10 12:16 1997
Scale 1:31,250 (at center)
2000 Feet
1000 Meters
Secondary SR, Road, Hwy Ramp
State Route
Interstate/Limited Access
Primary State Route
Railroad
Point of Interest
Town, Small City
Large City
Geographic Feature
Oakland
Lake Merritt
Lakeside Park
Lafayette Square
Oakland Museum
Laney College
Peralta Park
Jack London Village
Jack London Square
Posey Tube
Clinton Basin
Alameda Reserve Shipyard
Brooklyn Basin
Coast Guard Alameda Base
Government Island
Encinal Basin
College Of Alameda
Naval Reserve Shipyard
Mckinley Park
Fruitvale Station
Sanborn Park
San Antonio Park
Patten College
Highland General Hospital
Central Reservoir
Dimond Canyon
Indian Gulch
Municipal Rose Garden
Mosswood Park
Mac Arthur Broadway Ctr
Claremont Country Club
California College Of Arts And Crafts
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