

HYGIENE AND SAFETY PLAN
BAY CENTER SITE, EMERYVILLE

INTRODUCTION

This Hygiene and Safety Plan has been prepared for use during the soil Excavation Phase of the construction project for The Martin Company Bay Center Site in Emeryville. The Plan represents an effort of the sub contractor, Thermo Analytical, Inc. (EAL). The Plan describes the procedures to be implemented to protect the health and safety of the employees performing the work.

In general, preliminary investigations have indicated that the hazard potential at the site is low and primarily associated with potential contact with lead containing dust. Personal and area air samples for lead and organic vapors will be collected during the different construction processes and locations to insure safe working conditions. Personal air samples will be collected during excavation of a "worst case" area to determine whether or not respirators are necessary.

The purpose of the Plan is to provide construction personnel with adequate protection against possible contamination in the area of Emeryville, California, located in the northeast quadrant of 64th Street/Lacoste Street.

The types of exposure hazards that may potentially be encountered during this investigation are: lead dust and organic vapor exposures. The safety plan will address these two types of hazards.

The prime contractor will assign an Industrial Hygienist to implement the Plan. The Industrial Hygienist is trained in appropriate industrial hygiene and safety information. Training includes, but is not limited to: safety awareness and response, use of respiratory protection equipment, qualitative fit testing of respiratory protection equipment, explosive conditions and lower explosive limits, confined space entry, eye and head protection, skin protection, and use of impervious clothing. Before work at the site begins, the Industrial Hygienist will review the Hygiene and Safety Plan to become

acquainted with the Draft Work Plan and contingency emergency response, requisite for safe work at the site. The Industrial Hygienist will remain on-site during soil excavation activities in order to assess changing exposure conditions and to initiate emergency response plans, if required.

MEDICAL INFORMATION

The preliminary investigation of probable airborne lead levels indicates that levels are not expected to exceed the 30 microgram per cubic meter 8 hour time weighted average, 30 days per year, CAL/OSHA "action level." However, the owner and Industrial Hygienist have agreed that, as a precaution, before and after blood lead tests will be made available to affected workers, if desired, at the owners expense.

In the event that unusual circumstances arise during the performance of field work, the Industrial Hygienist will interview involved employees at the site to determine whether any exposure may have occurred and if the employees are experiencing any symptoms which may be related to contaminant exposure. If the employees indicate any adverse effects or, in the judgement of the Industrial Hygienist, such adverse effects are apparent or probable, the Industrial Hygienist will require each of the involved employees to be evaluated by competent medical personnel. Such evaluation will be noted in the Industrial Hygienist's daily log. Emergency care will be provided.

EDUCATION AND TRAINING PROGRAM

Each employee involved in the plan will be trained in the necessary hygiene and safety precautions. The safety requirements for this type of work are largely dependent upon the professional judgement of the Industrial Hygienist. Two different types of potential hazards are associated with the plan. These are: potential lead exposure and potential exposure to unknown hazardous wastes that are associated with the disposal sites within the general Emeryville area. An Industrial Hygienist, trained in conducting this type of field work, will be responsible for instructing each of the affected construction personnel in the appropriate health and safety measures for corresponding job functions.

All personnel involved in excavation of contaminated soil will be trained in the following aspects:

- ° Health Hazards - All personnel will be made aware of the possible health related problems associated with unmitigated exposure to lead.
- ° All employees who will wear personal protective equipment will be instructed in the use, care and fitting of personal protective equipment and of the necessity for wearing the equipment, its effectiveness and limitation.
- ° The Industrial Hygienist will also be responsible for training affected construction personnel concerning the necessity for protection from the adverse effects of hazards associated with contaminated areas. Affected personnel will be advised of the potential hazards and precautions which are to be taken in the event such materials are encountered.
- ° Proper hygiene, which will include use of wash facilities as appropriate.

The Industrial Hygienist will be responsible for training construction personnel. Personnel will be advised of the notification procedures which are to be followed in the event that odorous or strange appearing materials are encountered.

The Industrial Hygienist will be on-site to oversee all operations and to ensure that proper hygiene and safety measures are being maintained. Construction workers will be required to report any unexpected or irregular occurrences which may be encountered during the field work to the Industrial Hygienist. Such occurrence include, for example, unearthing of drums, pockets of darkened or wet soil, and odors.

In this former landfill site, the fill materials are generally below the surface of the existing asphalt soil. If the activities at the site cause considerable disturbance, the Industrial Hygienist will adjust procedures and protection levels accordingly, making notes of any such changes in the daily log. This procedure will provide continued safety to all personnel on-site.

Since the identities and extent of potential chemical contamination other than lead are not well known, avoidance procedures, monitoring, and personal protection will be required. Added safety precautions will be taken for the inherent hazards of groundwater monitor well drilling and of other drilling procedures.

Specific Hazards and Risks

There is a potential hazard associated with lead-containing dust inhaled during subsurface soil excavation. The greatest risk of inhalation will occur with those activities which disturb surface soil in contaminated area causing airborne dust. There are secondary exposure routes of skin absorption and ingestion. Skin absorption will be reduced or eliminated by the use of gloves and coveralls.

Site Entry Procedures

Eating, drinking, smoking and any other practice which increases the probability of hand-to-mouth transfer is prohibited in the work zones. All field personnel will be instructed to thoroughly wash their hands and face upon leaving the work area. The Industrial Hygienist will be responsible for designating a wash area at each work site.

A first aid kit, eye wash kit, 20 pound ABC fire extinguisher, stretcher and blanket, and potable water will be available at the work site.

Levels of Protection

The site will be considered a Zone D work area. Level D Personal Protection will be required. This designation is based upon the existing knowledge that airborne concentrations of lead are expected to be below the present permissible exposure limit (PEL) of 50 microgram/cubic meter of air time-weight average established by CAL/OSHA. The Zone D designation will exist at all operations. Zone D safe guards will include:

- ° Where necessary, air purifying respirators approved by NIOSH for toxic dusts, and mists.
- ° Coveralls and gloves and, where necessary, chemical-resistant Tyvek-type clothing, or equivalent.

- 0 Rubber boots with steel toes, or equivalent.
- 0 Hard hat.

All drilling activities will start at Level D protection (Level D protection is described in the U.S. EPA Standard Operating Safety Guides, November 1984) with continuous organic vapor monitoring. Disposable latex gloves, hard hat, and eye protection will be used to minimize injury from engine-driven drilling equipment and to minimize illnesses from skin contact of chemicals. The ground around drilling activities will be wetted to prevent entrainment of airborne dust.

The level of protection will be upgraded to Level C if the drilling encounters irregular materials or, if organic vapor levels exceed 0.5 ppm above background levels continuously for more than five minutes. Personal protective equipment at Level C will include, at a minimum, the following:

- 0 Double cartridge respirator for organic vapors
- 0 Escape masks
- 0 Underwear - cotton
- 0 Coveralls - chemical resistant
- 0 Apron - PVC, butyl rubber, or other material impervious to chemicals
- 0 Gloves - PVC, butyl rubber, or other material impervious to chemicals
- 0 Safety boots - neoprene or other material impervious to chemicals
- 0 Boots - chemical resistant, steel toes and shank
- 0 Hard hat with face shield
- 0 Safety glasses when face shield not used

CONTAMINATION REDUCTION

All disposable protective clothing will be put into plastic bags, sealed, and provided with a label describing the contents before field personnel leave the sampling area. The plastic bags will be retained on-site until chemical analyses are performed on the field samples. Disposable clothing shall not be re-used from day to day.

PERSONAL MONITORING

Lead Monitoring

Air samples will be taken in the breathing zone for peak exposures during digging and soil handling operations and long-term exposures in high activity operations. All samples will be taken as personal samples worn by the individuals.

Site perimeter samples will be taken in a similar fashion, except that the samples will be collected as fixed source area samples. The monitors will be set at approximately 5-feet above the ground at the site boundary. These samples will be analyzed by NIOSH Method P & CAM 173.

Organic Vapor Monitoring

The Industrial Hygienist will monitor for ambient levels of organic vapors using a Century Organic Vapor Analyzer (GC/FID). The Industrial Hygienist will be notified if organic vapor levels exceed ambient levels. Drilling will cease, equipment will be shut down, and personnel will withdraw from the area if any of the following conditions occur:

- ° The organic vapor concentrations in the operator's breathing zone exceeds 5 ppm
- ° The organic vapor concentration 2-feet above the bore hole exceeds 5,000 ppm or 50% of the lower explosive limit

The Industrial Hygienist will determine when personnel may return to the work area.

In the event low levels of organic vapors are detected, personnel will wear appropriate respirators until construction activities at the location are completed and the Industrial Hygienist determines that respirators are not needed. The Industrial Hygienist will attempt to identify the nature and source of the vapors. If industrial debris is apparent in the boring, drilling at the locations will be terminated.

CONTINGENCY PLAN

The Industrial Hygienist designated by the contractor will be present at sampling sites during all drilling and environmental sampling operations. The

Industrial Hygienist will be knowledgeable of expected contaminants, hazards, and risks, and will be responsible for coordinating emergency responses. It will also be the responsibility of the Industrial Hygienist to inform and train the work party members before the work begins at each site. Training will include information on the risks that may be encountered, and techniques to minimize exposures from these hazardous materials. The Industrial Hygienist will also implement the safety plan, hold safety meetings with employees, evaluate employees understanding of risks and preventive measures, inform all employees of designated escape routes and locations of all emergency medical aid.

Before site work begins, the Industrial Hygienist will notify emergency response personnel who may be called upon to respond to emergency situations if they occur, and will brief them on the nature of anticipated hazard and potential emergency scenarios. The groups to be notified will include local clinics and/or hospitals, and fire personnel. The name of the clinics and/or hospitals which have been designated to serve construction personnel shall be posted on-site and made available to construction personnel.

The Industrial Hygienist's primary responsibility in the event of an accident will be evacuation, first aid, and decontamination of injured team members. The Industrial Hygienist will determine safe evacuation areas and begin first aid, and decontamination of injured team members. Injured parties will be taken through decontamination procedures, if possible. However, the procedure will be omitted when it may aggravate or cause more harm to the injured party. A qualified member of the work team will accompany the injured party to the medical facility to advise on matters concerning contamination. A specific evacuation route will be selected based on traffic congestion at the time of the emergency.

Emergency Procedures

In the event of a medical emergency, the injured party will be taken through decontamination procedures, if necessary and possible. However, the procedure will be omitted when it may aggravate or cause more harm to the injured party. A qualified member of the work team will accompany the injured party to the medical facility to advise on matters concerning potential contamination.

RECORD KEEPING

The Industrial Hygienist will maintain a record of all health and safety related matters in a daily log. Air monitoring data and any unusual field data will be recorded in the daily log. In addition, the Industrial Hygienist will maintain pertinent medical records of all field personnel, safety and health documentation, contingency plans, and communications and contracts on-site. These records will be available to all employees upon request.