

**Revised Workplan
for Demolition and Disposal of the South Brick Wall
at the Rifkin Building
Emeryville, California**

January 10, 1997
LF 3042.96.004

Prepared for:
The Sherwin-Williams Company
101 Prospect Avenue
Cleveland, Ohio 44115

 **Levine·Fricke·Recon**
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

January 10, 1997

LF 3042.95-05

Ms. Susan Hugo
Alameda County Health Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502-6577

Subject: Revised Workplan for Demolition and Disposal of the South Brick Wall of the Rifkin Building

Dear Susan:

On behalf of The Sherwin-Williams Company ("Sherwin-Williams"), Levine-Fricke-Recon Inc. (LFR; formerly Levine-Fricke, Inc. and Recon Environmental) submits this workplan for the demolition of the south block and brick wall ("the Wall") on the Rifkin Property ("Rifkin") in Emeryville, California. This workplan contains additional health and safety and construction information that you requested after reviewing the original workplan submitted to you on December 18, 1996. A health and safety plan is included as Attachment A. This workplan includes responses to comments from Chiron and their representatives.

If you have any questions please call Larry Mencin at 216-566-1768, Dave Gustafson at 216-566-3144 or the undersigned.

Sincerely,



Mark D. Knox, P.E.
Principal Engineer

cc: Larry Mencin, Sherwin-Williams
Dave Gustafson, Sherwin-Williams
John Gerulis, Sherwin-Williams
Frank McHugh, Sherwin-Williams
Sue Free, Sherwin-Williams
Tom Kalinowski, Erlen and Kalinowski
Ric Notini, Chiron
Fred Glueck, Plant Reclamation
Sum Arigala, RWQCB

INTRODUCTION

On behalf of The Sherwin-Williams Company ("Sherwin-Williams"), Levine·Fricke·Recon Inc. (LFR; formerly Levine·Fricke, Inc. and Recon Environmental) submits this workplan for the demolition of the south block and brick wall ("the Wall") on the Rifkin Property ("Rifkin") in Emeryville, California. This workplan contains additional health and safety and construction information that was not included in the original workplan submitted to the Alameda County Health Agency in a letter dated December 18, 1996. A health and safety plan is included as Attachment A. This workplan is organized as follows:

- Site Background
- General Demolition Procedures
- Disposal Procedures and Waste Management
- Dust Control
- Water Control
- Air Monitoring
- Traffic Control
- Permitting
- Public Notification
- Closure Report
- Schedule

Demolition of the Wall will be implemented by Sherwin-Williams prior to demolition of the remainder of the building by Chiron.

Sherwin-Williams contracted Plant Reclamation of Richmond, California, to demolish the Wall (leaving the existing columns in place) prior to demolition of the building by the Chiron demolition contractor. LFR will provide environmental and health and safety confirmation monitoring, coordinate with appropriate landfill operators, and complete any necessary waste manifests.

SITE BACKGROUND

The Wall is shown on Figure 1. There are seven approximately 14 feet by 23 feet high bays that were built using hollow bricks and mortar. There is also an approximately 75 feet by 12.5 feet high wall that was built using solid bricks and mortar. Based on sampling data reviewed to date, LFR believes that the brick, block, and mortar in the eastern area of the Wall (approximately 107 feet by 6 feet high section) will be classified as a hazardous waste due to high concentrations of arsenic or other heavy metals and will be disposed in a Class I landfill. The remainder of the block and brick is expected to be classified as non-hazardous and will be disposed in a Class II landfill, subject to landfill acceptance.

GENERAL DEMOLITION PROCEDURES

Plant Reclamation will obtain all necessary permits prior to starting demolition activities (see section on permits below).

Prior to the start of demolition activities, Chiron will:

- remove and dispose of large objects (i.e. tables, doors, etc.) adjacent to the Wall
- remove or shutoff utilities such as light fixtures and outlets in the building
- remove structure (silo) from southwest roof

After Chiron has performed the above activities, Plant Reclamation will:

- sweep smaller debris from the floor of the building (to protect the floor lining from puncturing due to sharp debris)
- mobilize their equipment and personnel.
- review the site health and safety procedures with personnel.
- prepare the Wall for demolition by draping sheets of polycurtain inside and outside the building. The polycurtain sheets will be installed along the ceiling and from the roof down to the floor level. The purpose of the polycurtain sheets is to mitigate fugitive dust generated during demolition activities from migrating outside the exclusion zone. Plant Reclamation will glue the polycurtain sheets together to prevent dust from migrating between polycurtain sheets. Plant Reclamation will repair or replace (if necessary) polycurtain sheets that are damaged during demolition activities. Plant Reclamation will install two polycurtain sheets (one on top of the other) on the floor of the building as a horizontal barrier. Demolition activities will occur within the confines of the polycurtain sheets. Personnel will be required to wear Level C personal protection equipment while in the demolition area.

where secured?

- place waste material bins outside the demolition area to store debris generated during demolition activities. Plant Reclamation will designate a waste material bin to only store hazardous debris generated during the demolition activities. The hazardous debris bin will be lined with a polycurtain that will cover the top of the waste material bin whenever it is not in use. Plant Reclamation will clearly label the hazardous debris bin.
- remove the hollow brick walls and scrape the cement from the columns using an excavator in bays 2 and 7 from the top of each bay to approximately six feet above Rifkin grade. The debris will be loaded using a bobcat into a waste material bin designated for a Class II landfill.
- install 3 inch by 3 inch angle cross bracing in bays 2 and 7 below the existing cross bracing, with the angles tack welded to the steel columns (Figure 1). This will provide lateral support for the Wall.
- remove the remaining six feet of brick wall (hazardous area), scrape the remaining cement from the columns in bays 2 and 7, and load it into a waste material bin designated for a Class I landfill.
- install another 3 inch by 3 inch angle cross bracing in bays 2 and 7 below the previously installed cross bracing, with the angles tack welded to the steel columns (Figure 1). This will provide lateral support for the lower portion of the Wall.
- remove the block and brick, scrape the columns, and load the debris from the remaining bays in a similar manner to bays 2 and 7, except Plant Reclamation will not install cross bracing.
- shore up the roof on top of the approximately 75 by 12.5 feet high western wall with three 6 inch by 6 inch steel or wood columns prior to demolishing bay 7. Install 2 inch by 6 inch angle cross bracing between the 6 inch by 6 inch columns (Figure 1).
- remove the solid brick wall from the roof to the Rifkin grade and load it into a waste material bin designated for a Class II landfill.
- remove the polycurtains from inside and outside ~~the~~ building and load them into a waste material bin designated for a Class I landfill.
- remove the loose, contaminated dirt in the area immediately above the Rifkin grade to approximately 1 to 2 ft below Rifkin grade and load it into a waste material bin for a Class I landfill.
- install #4 dowels and #4 rebar in the cavity and fill the cavity with concrete (Figure 2)
- wet broom the floor after completion of the work to remove any affected dust and debris that may have collected on the floor slab. After the floor is wet broomed, six 100-square-centimeter areas will be marked off on the floor and wiped with Whatman wipes going from left to right then up and down. Three of the columns will also be

wiped with Whatman wipes. The Whatman wipes will then be placed in a container such as a sealable jar, placed on ice and submitted for arsenic analysis to a state-certified analytical laboratory on a 48-hr turn-around time. Any excess water will be collected in drums and transported to the Sherwin-Williams site for treatment in the groundwater treatment system. ✓

DISPOSAL PROCEDURES AND WASTE MANAGEMENT

Based on the sampling data reviewed to date, LFR believes that the brick, block and mortar in the eastern area approximately 107 feet by 6 feet high section (from Rifkin grade up) of the Wall will be classified as hazardous and will be disposed in a Class I landfill. The remainder of the block and brick is expected to be classified as non-hazardous and will be disposed at a Class II landfill, subject to landfill acceptance.

Plant Reclamation will segregate Class I and Class II debris into waste material bins that will be designated for disposal at the appropriate landfill. Segregation will be accomplished by demolishing the non-hazardous portions of the Wall in separate phases from the hazardous portions. LFR believes that there will be approximately five to seven bins of non-hazardous waste and approximately one bin of hazardous waste. LFR will arrange for transportation and disposal of the debris with the selected Class I and Class II landfills. LFR will also prepare hazardous waste manifests for transportation of the debris from the Rifkin building to the Class I landfill. All bins will be removed from Chiron's property within 72 hours after completion of the work by the contractor.

A portable toilet and hand wash facility will be installed in the demolition area to minimize the need for demolition personnel to leave the demolition area. While in the demolition area, demolition personnel will wear two tyvek suits. The outer suit will be removed from the person before leaving the demolition area. Decontamination of the bins is not anticipated by the contractor because the bins will be located outside of the demolition area (outside of the polycurtain sheets). Vehicles and equipment working within the demolition area will be decontaminated using a high pressure hose after the Wall is demolished. Water generated during decontamination activities will be collected by a wet vacuum and disposed in the groundwater treatment system. Drummed water will be moved to the Sherwin-Williams property prior to the contractor demobilization.

Plant Reclamation will be responsible for the health and safety of its workers and will comply, at a minimum, with health and safety procedures presented in the site health and safety plan (Attachment A).

DUST CONTROL PLAN

This project specific dust control plan follows the format recommended in Chapter Five of the "Handbook - Dust Control at Hazardous Waste Sites" published by the U.S. EPA (U.S. EPA/540/2-85/003, November 1985).

Dust control of the project is critical to reducing the potentially hazardous airborne dust particles which may be generated during demolition activities. During demolition activities, dust will potentially be generated at the sites of demolition and loading waste brick into waste material bins.

Dust Monitoring

? where actual work done by bins down 2 to 4 daily samples

Dust levels will be measured periodically by Levine-Fricke-Recon as described in the air monitoring section (see below).

Identification Of Applied Dust Control Methods

Control method alternatives for dust sources, which are summarized below, will follow Table 5.1 of the "Handbook - Dust Control at Hazardous Waste Sites," published by the U.S. EPA in November 1985. Area water spray is the recommended dust control method for all of the demolition and waste material moving-related work.

A water mist or fog will be applied to the Site to ensure adequate dust control measures meet U.S. EPA specifications. ✓

At all sites where it is anticipated that dust may be generated, dust will be controlled by watering before any waste material is moved.

All vehicles transporting waste from the Site will be adequately covered before departing the Site to prevent dust discharge while in transit.

Before each day's work is completed, all exposed temporary stockpiles will be watered down, or covered with a sturdy impermeable tarp and anchored. ✓

Inspection and Recordkeeping

A dust control manager for the Site will be designated by the demolition contractor. During operations he/she will be responsible for dust control activities and dust control inspections.

Daily inspections of the demolition areas and waste material bins will determine the projected requirements for the day.

Daily reports will be generated, discussing all demolition activities on the Site. Dust control methods and inspections will be addressed in the daily reports. These reports will remain on site at all times, and available for review by project coordinators.

WATER CONTROL

Plant Reclamation will provide and maintain ample means and devices to remove and promptly dispose of all water entering the demolition area. The water may be generated due

to dust control measures, wet brooming the floor, or rain water entering through the polycurtains. Berming using sand bags and wet vacuuming will be used to contain excess water. Plant Reclamation will store water in 55-gallon drums.

Plant Reclamation will dispose of any water collected during demolition activities in the existing groundwater treatment system located on the Sherwin-Williams' property.

AIR MONITORING

Air and dust monitoring will be implemented during demolition and disposal of the South Brick Wall of the Rifkin Building. The objectives of air and dust monitoring are to evaluate the potential for worker exposure to contaminants, to determine appropriate levels of respiratory protection, to verify protection of off-site public and nearby residents and workers, and to evaluate the effectiveness of dust control measures implemented at the Site.

Perimeter ambient air monitoring, personal air monitoring, and site dust monitoring will be conducted using High-Volume Air Samplers, Personal Air Monitors (PAMS), and an MIE miniram dust monitoring device.

All air quality monitoring and sampling, personal sampling, and related recordkeeping will be performed by LFR in conjunction with the demolition and disposal contractor.

Perimeter Ambient Air Monitoring

LFR will install perimeter ambient air monitoring equipment. This equipment will be used to confirm the effectiveness of dust control measures taken by the demolition contractor. Four Graceby/GMW model GMWL-2000 high-volume air samplers with Whatman EPM-2000 glass microfiber filters (complies with CFR 40 Part 50 Appendix B) will be operated during the demolition period. Three perimeter air sampling stations will be established outside, and in proximity to the work area. Air sampling stations will be located upwind, downwind, and midspan of the area of demolition operations. A fourth sampler will be placed within the Rifkin Building, outside of the exclusion zone.

A weather station with wind speed and direction recording capabilities will be installed and operated during on-site demolition activities. The data recorded by a weather station will be used to verify the correct placement of upwind and downwind monitoring stations. Wind direction and speed at the Site will be measured and recorded periodically.

Flow measurement recordings of the high-volume air samples will also be made at the beginning and end of each work day, and will be checked periodically throughout the day. Should any anomalies be detected, the high-volume air sampler will be recalibrated. All air monitoring records will be kept on site for the duration of the field work.

Perimeter air monitoring air samples (using the high-volume air samplers) will be collected during dust-generating demolition activities. All samples will be analyzed for arsenic and

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lead using EPA Methods 7060 and 7421. The initial samples will be analyzed on an expedited 24-hour turn-around. If the initial analytical concentration results for target compounds are below action levels (see below), subsequent samples will be analyzed on a 72-hour turn-around. If the initial analytical concentration results for target compounds are above action levels, work activities will be modified to better suppress dust emissions, and subsequent samples will be analyzed on a 24-hour turn-around until analytical results are below action levels. Off-site public exposure will be evaluated by comparing upwind high-volume sampler arsenic and lead concentrations to downwind high-volume sampler arsenic and lead concentrations. We do not anticipate that downwind arsenic and lead concentrations will exceed the upwind arsenic and lead concentrations (i.e. background concentrations) during the demolition activities. In the event that downwind arsenic and lead concentrations at the property line exceed Proposition 65 no significant risk concentrations (to be calculated prior to the start of work), then proper Proposition 65 warnings will be implemented.

Personal Air Monitoring

Personal Air Monitoring devices (PAMS) will be used to assess the potential for worker exposure to contaminants that could become airborne during demolition activities at the Site. One PAM will be fastened to the worker operating the heavy equipment used to demolish the brick wall, and one PAM will be fastened to a worker that is doing manual labor near the demolishing activities.

The PAMs will consist of a sampling pump manufactured by SKC West, Model 224PCXR7 and a filter cassette that is attached to the pump. Each pump will be set for a flow rate of 1.5 liters per minute and will generally run for a period of between 7 and 8 hours during the work day. Pre- and post-use calibration of the pumps shall be performed by LFR in accordance with the manufacturer's specifications. A log documenting the calibration will be maintained on site by the contractor.

✓ Samples will be collected periodically during dust generating activities. All samples will be analyzed for arsenic and lead using OSHA methods 105 and 125 by a laboratory accredited by the American Industrial Hygiene Association (AIHA). The initial samples will be analyzed on an expedited 24-hour turn-around. If the initial analytical concentration results for target compounds are below action levels (see below), subsequent samples will be analyzed on a 72-hour turn-around. If the initial analytical concentration results for target compounds are above action levels, work activities will be modified to better suppress dust emissions, and subsequent samples will be analyzed on a 24-hour turn-around until analytical results are below action levels.

Miniram Dust Monitoring

Dust monitoring will be performed to monitor dust (potentially affected by the target inorganics) generated by the demolition activities. The dust will be monitored using a miniature real-time aerosol monitor (mini-RAM), which is a passive collection dust monitoring instrument capable of monitoring dust to 0.01 mg/m3. LFR personnel will

perform routine monitoring during site operations to evaluate concentrations of total dusts in employee breathing zones.

Action Levels

Work activities will commence in Level C Protection. During work activities, if either sustained mini-RAM readings, analytical results of high volume air samples, or analytical results of PAM samples indicate concentrations of dust or arsenic above 0.3 mg/m3, engineering controls will be evaluated and more rigidly implemented and PPE will be upgraded to level C with the addition of a full-face APR equipped with HEPA filter cartridges. If either sustained mini-RAM readings, analytical results of high volume air samples, or analytical results of PAM samples indicate concentrations of dust or arsenic above 1.5 mg/m3, all operations must cease and the work area must be evacuated and the Director of Health and Safety and the Project Manager must be notified immediately to determine ways to further mitigate dust generation. Total dust equivalent action levels were determined by multiplying the Cal OSHA PEL by 0.5 (safety factor) and by 10 (protection factor for a 1/2 face respirator) and dividing by the decimal percentage of arsenic in soil (maximum concentration in mg/kg). Example calculation: $(0.01 * 0.5 * 10 / 0.17) = 0.3$ mg/m3. Following is a table summarizing the above.

Cal OSHA
0.6

TABLE 1

Compound.	CAL OSHA PEL	Total Dust Equivalent Action Level	Action
Arsenic or Dust	0.01 ✓ mg/m3	0 to 0.3 mg/m3	Evaluate engineering controls Level C with half-face air-purifying respirator
Arsenic or Dust	0.01 ✓ mg/m3	0.3 to 1.5 mg/m3 ✓	Re-evaluate engineering controls Level C with full-face air-purifying respirator
Arsenic or Dust	0.01 mg/m3	>1.5 mg/m3 ✓	Cease operations and evacuate work area. Contact Director of Health and Safety and Project Manager immediately.

Action levels for off-site public exposure are non-detectable concentrations of arsenic in filter samples collected by high volume air samplers located on the perimeter of the work area.

TRAFFIC CONTROL

Plant Reclamation will conduct demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities. Roads, streets, walks or other occupied or used facilities will not be blocked or obstructed without written permission from authorities having jurisdiction.

The transport of debris, material or equipment on- or off-site will meet with the City of Emeryville Traffic Regulations.

PERMITTING

Prior to starting demolition activities, Plant Reclamation will obtain the following permits:

- Traffic permit from the City of Emeryville
- Demolition permit from the City of Emeryville

Based on a telephone conversation between Fred Glueck of Plant Reclamation and a representative of the Source Control Division of the Bay Area Air Quality Management District (BAAQMD) on December 20, 1996, an air permit from BAAQMD is not necessary since Plant Reclamation is not demolishing the entire building.

PUBLIC NOTIFICATION

Chiron has indicated that they will notify the public of the demolition activities as part of their ongoing building demolition activities. Listed below are the Sherwin-Williams and LFR personnel to be contacted in case of questions or emergency.

Larry Mencin, Sherwin-Williams, (216) 566-1768

Sue Free, Sherwin-Williams, (510) 652-2700

Mark Knox, LFR, (510) 596-9512

Michael Glaser, LFR, (510) 596-9633

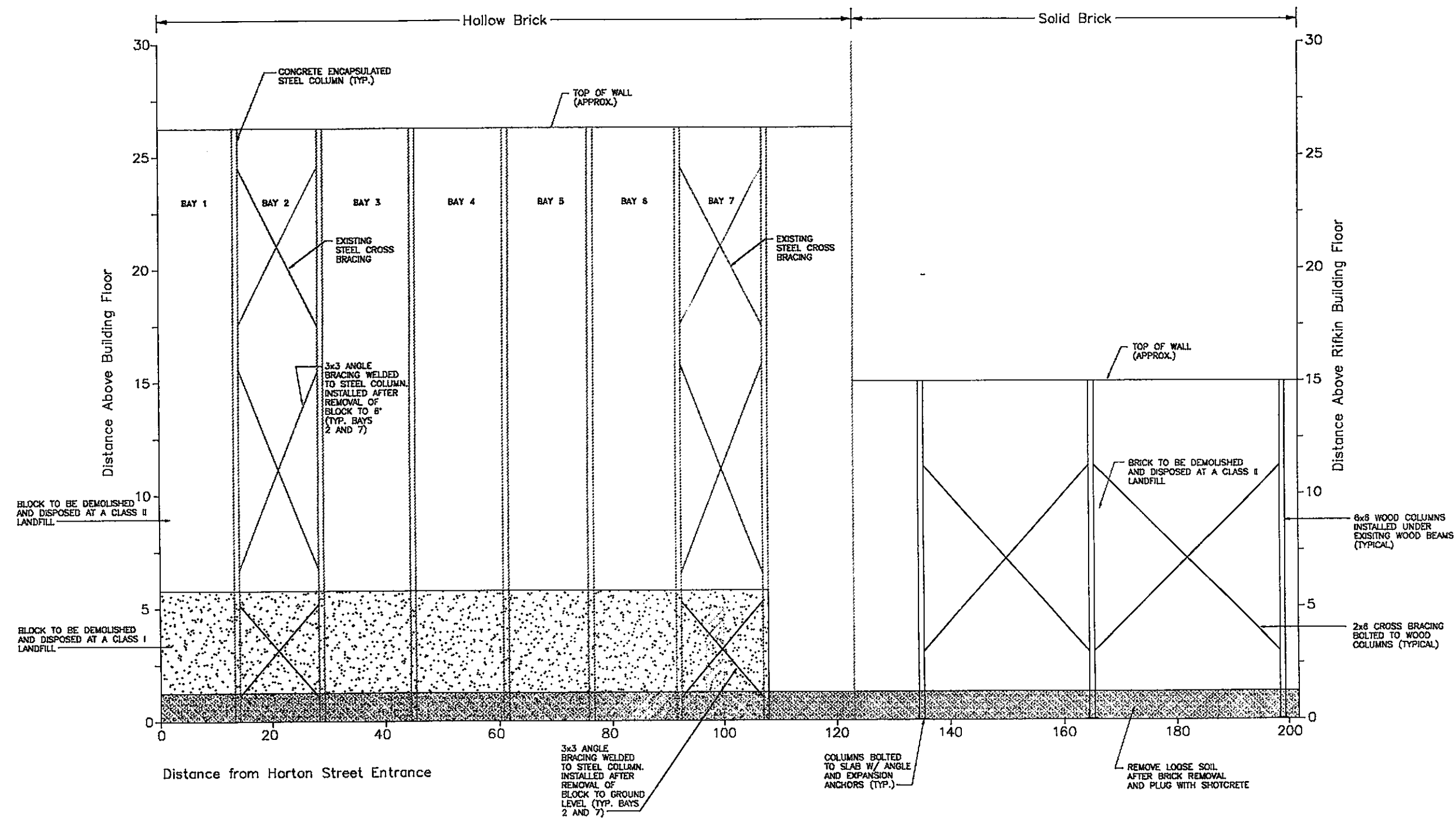
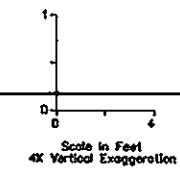
CLOSURE REPORT

LFR will prepare a closure report including air monitoring results, copies of hazardous waste manifests, water disposal data, and confirmation sampling results. The closure report will be submitted to all parties involved with the Rifkin property.

SCHEDULE

Based on conversations with Fred Glueck of Plant Reclamation the project schedule expressed in days after regulatory agency approval is as follows:

- mobilizing of equipment and personnel: 1 day ✓
- installing polycurtain sheets and preparing site for demolition: 3 to 4 days ✓
- demolishing walls and installing reinforcing braces: 7 to 9 days *7-9 days*
- demobilizing equipment and personnel and site cleanup: 1 to 2 days *3 wks*



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SHERWIN-WILLIAMS
DEMOLITION PLAN FOR SOUTH
BRICK WALL AT THE RIFKIN BUILDING

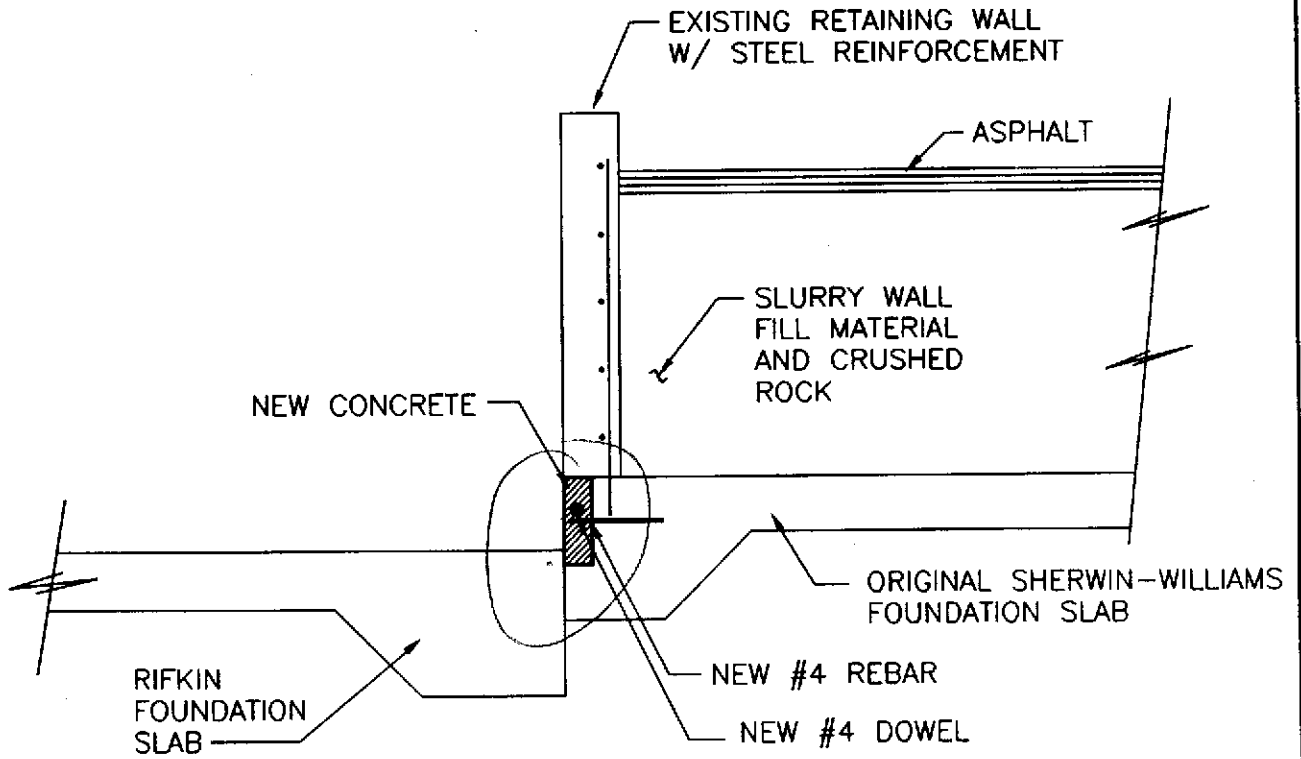
Levine-Fricke-Recon
Project No. 3042

Figure 1



RIFKIN PROPERTY

SHERWIN-WILLIAMS



SHERWIN-WILLIAMS

New Concrete Plug Detail

N.T.S.

Levine-Fricke-Recon

Figure 2

Project No. 3042

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**Health and Safety Plan
for Demolition of the South Brick Wall
at the Rifkin Building
Emeryville, California**

January 10, 1997
LF 3042.96.004

Prepared for:
The Sherwin-Williams Company
101 Prospect Avenue
Cleveland, Ohio 44115

1. GENERAL

This Health and Safety Plan (HSP) has been developed for use during the demolition of the south brick and block wall of the Rifkin Building ("the Wall") at the Rifkin Property in Emeryville, California ("the Site"). All activities conducted at the Site shall be in compliance with applicable Occupational Safety and Health Administration (OSHA) regulations, particularly those in Title 8 California Code of Regulations (CCR) Sections 5192, 5214, and 5216, and other applicable federal, state, and local laws, regulations, and statutes.

This HSP addresses the potential hazards associated with planned field activities at the Site. It presents the minimum health and safety requirements for establishing and maintaining a safe working environment and providing community protection during the course of work as described in the work plan prepared by Levine·Fricke·Recon (LFR) entitled, "Revised Workplan for Demolition and Disposal of the South Brick Wall of the Rifkin Building," dated January 10, 1997. It is intended for use solely by employees of Levine·Fricke·Recon (LFR) and its subcontractors. Other entities conducting work at the Site are responsible for developing and abiding by their own health and safety programs and procedures. In the event of conflicting requirements, the procedures or practices that provide the highest degree of personnel protection shall be implemented. If work plan specifications change or if site conditions encountered during the course of the work are found to differ substantially from those anticipated, the Director of Health and Safety shall be informed immediately, and appropriate changes shall be made to this HSP.

It is the Project Manager's responsibility to ensure that health and safety procedures are enforced at the Site. All project personnel, including subcontractors, must receive a copy of this HSP and sign the form indicating acceptance before on-site project activities begin.

2. SITE DESCRIPTION AND BACKGROUND

Demolition of the wall on the Rifkin Property will be implemented by Sherwin-Williams prior to demolition of the remainder of the building by Chiron. Sherwin-Williams will contract work for the demolition of the brick and block wall prior to demolition of the building by the Chiron demolition contractor.

LFR will provide environmental and health and safety confirmation monitoring during demolition of the Wall. Based on the sampling data reviewed to date, LFR believes that the brick, block, and mortar in the eastern area of the south block and brick wall (107 feet long by 6 feet high) will be classified as hazardous and will be disposed of in a Class I landfill. The remainder of the block and brick is expected to be classified as non-hazardous and will be disposed of in a Class II landfill, subject to landfill acceptance.

3. PLANNED SITE ACTIVITIES

Demolition of the wall will be conducted as described in the LFR workplan entitled, "Revised Workplan for the Demolition and Disposal of the South Brick Wall of the Rifkin Building," dated January 10, 1997.

Work is anticipated to last approximately one week.

4. KEY LEVINE-FRICKE-RECON PERSONNEL AND RESPONSIBILITIES

Project Manager Mark D. Knox, P.E.

Site Safety Officer Michael Glaser

Director of Health and Safety James Bucha, CIH

The responsibilities of Levine-Fricke-Recon project personnel are outlined below.

Project Manager

The Project Manager has the ultimate responsibility for the health and safety of Levine-Fricke-Recon personnel at the Site. The Project Manager is responsible for:

- ensuring that all project personnel have received a copy of, and have read and understand, this HSP
- keeping the Director of Health and Safety informed of project developments
- keeping on-site personnel, including subcontractors, informed of the expected hazards and appropriate protective measures at the Site
- ensuring that resources are available to provide a safe and healthy work environment for Levine-Fricke-Recon personnel

Director of Health and Safety

The Director of Health and Safety is responsible for the review, interpretation, and modification of this HSP. Modifications to this HSP that may result in less-stringent precautions cannot be undertaken by the Project Manager or Site Safety Officer (SSO) without the approval of the Director of Health and Safety. In addition, he has the following responsibilities:

- advising the Project Manager and SSO on matters relating to health and safety on this project

- recommending appropriate safeguards and procedures
- modifying this HSP, when necessary
- approving changes in health and safety procedures employed at the Site

Site Safety Officer

The SSO is responsible for enforcing the requirements of this HSP once site work begins. The SSO has the authority to immediately correct all situations where noncompliance with this HSP is noted and to immediately stop work in cases where an immediate danger to site workers or the environment is perceived. Responsibilities of the SSO also include:

- obtaining and distributing personal protective equipment (PPE) and air monitoring equipment necessary for this project
- reviewing air monitoring data
- limiting access at the Site to authorized personnel
- communicating any unusual or unforeseen conditions at the Site to the Project Manager
- supervising and monitoring the safety performance of all site personnel to ensure that required health and safety procedures are followed, and correcting any deficiencies
- conducting daily tailgate safety meetings before each day's activities begin

5. HAZARDS OF KNOWN OR EXPECTED CHEMICALS OF CONCERN

Samples of residue and mortar were collected from the southern brick and block wall by Erler & Kalinowski on October 21, 1996. Samples of brick, mortar, residue, and paint were collected by LFR on November 26 and 27, 1996. Concentrations detected in samples ranged from < 40 mg/kg to 170,000 mg/kg of arsenic, < 3 mg/kg to 23,000 mg/kg of lead, and < 10 mg/kg to 42,000 mg/kg of zinc.

Known Compounds in South Building Materials and Soil	Range of Detected Concentrations (mg/kg)	
	Lowest	Highest
Inorganic Arsenic	< 40	170,000
Lead	< 3	23,000
Zinc	< 10	42,000

Exposure pathways of concern for chemical compounds that may be present at the Site are inhalation of airborne contaminants and direct skin contact with contaminated materials. Dermal contact can be minimized by wearing protective equipment and following decontamination procedures listed in Section 9. Attention to personal hygiene is imperative whenever working with or near arsenic or lead. Workers will be instructed to decontaminate thoroughly on site and shower as soon as practical upon leaving the Site. Eating, drinking, smoking, chewing gum or tobacco products, or applying cosmetics by LFR employees is prohibited at the Site.

To minimize inhalation hazards, dust control measures will be implemented during all phases of the project and action levels will be observed during scheduled activities. Site-specific action levels are presented in Section 10. Descriptions of chemicals of concern, including health effects and exposure limits, are located in Appendix A.

An air monitoring plan prepared by LFR (as part of the January 3, 1997 Workplan) describing methods to monitor exposure to hazardous dusts will be followed during work activities. On-site worker exposure to airborne contaminants will be monitored during all intrusive site activities. Personal air monitoring will consist of industrial hygiene air monitoring using personal air monitoring equipment as well as real-time air monitoring devices which will be used to determine the appropriateness of personal protective equipment in the field.

A miniature real-time aerosol monitor (mini-RAM) will be used to monitor exposure to total dusts. Personnel will perform routine monitoring during site operations to evaluate concentrations of total dusts in employee breathing zones. If total dusts are detected above predetermined action levels specified in Section 10, the procedures found in Section 7 of this HSP will be followed.

Biological monitoring of LFR employees will be conducted prior to commencement and following completion of field activities to evaluate worker exposure to arsenic and lead during the project.

In accordance with the Hazard Communication standard, material safety data sheets (MSDSs) will be maintained on site for chemical products used by Levine·Fricke·Recon personnel at the Site. In addition, all containers will be clearly labeled in English to indicate their contents and appropriate hazard warnings.

6. PHYSICAL HAZARDS

The following potential health and safety hazards may be encountered during scheduled activities at the Site:

- overhead falling objects
- elevated work platforms
- slips, trips, and falls
- heavy equipment
- noise
- electrical sources
- utilities
- container handling
- biological hazards

General Safe Work Practices

All personnel, including subcontractor personnel, shall bring to the attention of the SSO any unsafe condition or practice associated with site activities.

- Workers shall thoroughly clean their hands, faces, and all other potentially contaminated areas before smoking, eating, or leaving the Site.
- Respiratory devices may not be worn with beards or long sideburns, or under other conditions that prevent a proper seal.
- All accidents and/or injuries shall be immediately reported to the SSO. If necessary, a first report will be initiated by the SSO.
- Periodic safety briefings will be held to discuss current site conditions, field tasks being performed, planned modifications, and work concerns.
- Site conditions may include elevated, uneven, unstable, or slippery work surfaces. Substantial care and personal observation is required on the part of each employee to prevent injuries from slips, trips, and falls.
- Workers shall maintain good housekeeping practices during field activities to maintain a safe working environment. The work site shall be kept free of debris, waste, and trash at all times.

- The “buddy system” shall be used whenever appropriate.

Heavy Equipment

Any equipment, including earth-moving equipment, drill rigs, or other heavy machinery, will be operated in strict compliance with the manufacturer’s instructions, specifications, and limitations, as well as any applicable regulations. The operator is responsible for inspecting the equipment daily to ensure that it is functioning properly and safely.

Operation of heavy equipment at the Site for the activities outlined in Section 3 poses potential physical hazards. The following precautions should be observed whenever heavy equipment is in use:

- PPE, including steel-toed boots, safety glasses, and hard hats, must be worn.
- Personnel must be aware at all times of the location and operation of heavy equipment and take precautions to avoid getting in the way of its operation. Workers must never assume that the equipment operator sees them; eye contact and hand signals should be used to inform the operator of intent.
- Traffic safety vests are required for personnel working near mobile heavy equipment or near high traffic areas.
- Personnel should never walk directly in back of, or to the side of, heavy equipment without the operator’s knowledge.
- Nonessential personnel shall be kept out of the work area.

Noise

Noise may result primarily from the operation of mechanical equipment. The use of heavy equipment may generate noise above the Cal/OSHA permissible exposure limit for noise of 90 dBA for an 8-hour time-weighted average. Workers shall wear appropriate hearing protection when operating or working near heavy equipment. If loud noise is present or normal conversation becomes difficult, hearing protection in the form of ear plugs, or equivalent, will be required.

Electric Shock

All electrical equipment to be used during field activities will be suitably grounded and insulated. Ground fault circuit interrupters (GFCI) will be used with all heavy electrical equipment to reduce the potential for electrical shock.

Lockout/Tagout procedures in accordance with 8 CCR 3314 will be conducted before activities begin on or near energized or mechanical equipment. Workers conducting the operation will positively isolate the piece of equipment, lock/tag the energy source, and verify effectiveness of the isolation. Only employees who perform the lockout/tagout

procedure may remove their own tags/locks. Employees will be thoroughly trained before initiating this procedure.

Elevated Work Platforms

Elevated work platforms shall be constructed, used, and maintained in accordance with Articles 21 and 22 of the Cal/OSHA Construction Safety Orders. Scaffolds and hoisting lines shall be inspected daily by a competent person to verify the integrity of the components. If a material is determined to be defective, it may not be used for any purpose and will be replaced immediately.

Utilities

The locations of all pipes, electrical conductors, fuel lines, and water and sewer lines must be determined before demolition work is performed. All lines must be de-energized, blocked out, or blinded where feasible. Equipment with articulated upright booms or masts shall not be permitted to pass within 20 feet of an overhead utility line while the boom is in the upright position.

Container Handling and Moving Procedures

The movement and handling of containers and materials on the Site pose a risk to workers in the form of muscle strains and minor injuries. These injuries can be avoided by using safe handling practices, proper lifting techniques, and proper personal safety equipment such as steel-toed boots and sturdy work gloves. Where practical, mechanical devices will be utilized to assist in the movement of containers and materials.

Biological Hazards

Biological hazards that may be encountered at the Site include possible exposure to:

- **Fur-bearing animals.** Animals may potentially carry the rabies virus or ticks that may transmit lyme disease to humans. Avoid contact. Do not attempt to feed or touch.
- **Poisonous reptiles.** Primarily snakes (rattlesnake, water moccasin, copperhead). Avoid contact and areas that may harbor snake populations including high grass, shrubs, and crevices.
- **Poisonous insects.** Common examples include bees and wasps. Avoid contact with insects and their hives.

- **Spiders.** The black widow and brown recluse spiders are the most venomous. Avoid contact with spiders and areas where they may hide.
- **Poisonous plants.** Common examples include poison ivy and poison oak. Avoid contact. Long-sleeved shirts and pants will allow some protection against inadvertent contact.

If any of the above biological hazards are identified at the Site, workers in the area will immediately notify the SSO and remaining Site personnel.

7. PERSONAL PROTECTIVE EQUIPMENT

All LFR personnel will be provided with appropriate personal safety equipment and protective clothing. The SSO is to inform each worker about necessary protection and must provide proper training in the use of the safety equipment. In order to minimized the generation of hazardous dusts, dust control methods will be implemented during all phases of this project.

Conditions Requiring Level D Protection

Activities in the support zone may be conducted in Level D PPE if the likelihood of exposure to contaminants at the Site is determined to be minimal. Level D protection is described as follows:

- work shirt and long pants
- steel-toed boots or safety shoes
- safety glasses
- hard hat

Other personal protection readily available for use, if necessary, includes the following:

- outer nitrile gloves at a minimum for all material handling. Inner nitrile surgical gloves are recommended where practical.
- chemical-resistant clothing (e.g., Tyvek or polycoated Tyvek coveralls) when contact with chemically affected materials is anticipated
- hearing protection

Conditions Requiring Level C Protection

Work activities will commence in Level C PPE. During work activities, sustained mini-RAM readings within action levels specified in Section 10 will require level C protection. Level C protection requires the following in addition to level D protection:

- half-face air-purifying respirator (APR) equipped with high-efficiency particulate air (HEPA) filter cartridges
- chemical-resistant clothing (e.g., Tyvek, polycoated Tyvek, or Saranex coveralls) when contact with chemically affected materials is anticipated
- outer nitrile gloves and inner nitrile surgical gloves
- safety shoes/boots with protective overboots or knee-high PVC polyblend boots when direct contact with chemically affected materials is anticipated
- face shields or ventilated safety goggles in lieu of safety glasses may be required if action levels are exceeded or eye irritation is apparent

During work activities, sustained mini-RAM readings above action levels specified in Section 10 will require level C protection with the addition of a full-face APR equipped with HEPA filter cartridges in lieu of half-face APR and safety glasses.

If sustained mini-RAM readings are above the action levels specified in Section 10, activities must cease, and personnel must evacuate the Exclusion Zone (see Section 9). If questions arise, they should be addressed to the SSO. The Project Manager and Director of Health and Safety will be contacted immediately.

8. SAFETY PROCEDURES

Procedures must be followed to ensure site control so that persons who may be unaware of site conditions are not exposed to hazards. The work area will be barricaded by tape, warning signs, or other appropriate means. Any equipment or machinery will be secured and stored safely.

Access inside the specified work area will be limited to authorized personnel. Only Levine-Fricke-Recon employees and their designated subcontractors, Plant Reclamation employees and their designated subcontractors, designated employees of Sherwin-Williams, designated employees of Chiron and their subcontractors, and designated personell from the concerned regulatory agencies will be admitted to the work site. Only those workers possessing evidence of the required current 40-hour OSHA health and safety training (or current 8-hour refresher) and physician's authorization to conduct hazardous waste activities will be permitted in the designated Exclusion Zone. The SSO will be responsible for ensuring that workers wear proper personal protective clothing. All personnel entering the Site will sign the signature page in this HSP, indicating they have read and accepted the health and safety practices outlined in this plan.

A daily morning briefing to cover safety procedures and contingency plans in the event of an emergency is to be included with a discussion of the day's activities. These daily meetings will be recorded on Levine-Fricke-Recon Daily Tailgate Safety Meeting Forms. A debriefing to cover the activities is to be held upon completion of the work. A copy of the Daily Tailgate Safety Meeting Form is located in Appendix B

Minimum emergency equipment maintained on site shall include a fully charged 20-pound ABC dry chemical fire extinguisher, an adequately stocked first aid kit, and an emergency eyewash station.

All personnel entering the Site will exit at the same location. There must be an alternate exit established for emergency situations. In all instances, worker safety will take precedence over decontamination procedures. If decontamination of personnel is necessary, exiting the Site will include the decontamination procedures described below.

9. WORK ZONES AND DECONTAMINATION PROCEDURES

In some instances it may be necessary to define three established work zones: an Exclusion Zone, a Contamination Reduction Zone, and a Support Zone. Work zones may be established based on anticipated contamination and projected work activities. The physical dimensions and applicability of work zones will be determined for each area based on the nature of job activity and hazards present. Within these zones, prescribed operations will occur using appropriate PPE. Movement between zones will be controlled at checkpoints.

Considerable judgment is needed to ensure a safe working area for each zone, balanced against practical work considerations. Physical and topographical barriers may constrain ideal locations. Field measurements combined with climatic conditions may, in part, determine the control zone distances. Even when work is performed in an area that does not require the use of chemical-resistant clothing, work zone procedures may still be necessary to limit the movement of personnel and retain adequate site control.

Despite protective procedures, personnel may come in contact with potentially hazardous compounds while performing work tasks. If so, decontamination needs to take place using an Alconox or TSP wash, followed by a rinse with deionized water. Standard decontamination procedures for levels C are as follows:

- equipment drop
- boot cover and glove wash and rinse
- boot cover and outer glove removal
- suit wash and rinse
- safety boot and suit removal
- inner glove wash and rinse
- respirator removal
- inner glove removal
- field wash of hands and face

Workers should employ only applicable steps in accordance with level of PPE worn and extent of contamination present. All disposable items will be disposed of in a dry container. Wash and rinse water generated from decontamination activities will be drummed on-site and then discharged into the Sherwin-Williams on-site groundwater extraction and treatment system. Nondisposable items will be sanitized before reuse. The SSO is responsible for the maintenance, decontamination, and sanitizing of the PPE.

Heavy equipment will be decontaminated as follows:

- An Alconox and water solution will be used to wash the equipment.
- The equipment will be rinsed with tap water.

Each person must follow these procedures to ensure that potential contamination is not transferred off site.

10. ACTION LEVELS

See Section 7 of this HSP for minimum required health and safety procedures. The following action levels have been established for air monitoring using a mini-RAM during demolition activities at the site. Dust control measures will be implemented during all phases of this project to minimized the generation of airborne dusts.

Activity	Action Level	Level of Respiratory Protection
Demolition activities	0 to 0.3 mg/m ³	Level C: Half-face air-purifying respirator fitted with organic vapor/HEPA filter cartridges.
	0.31 to 1.5 mg/m ³	Level C: Full-face air-purifying respirator fitted with organic vapor/HEPA filter cartridges.
	> 1.5 mg/m ³	Cease operations and evacuate work area. Contact Director of Health and Safety and Project Manager immediately.

Results of personal industrial hygiene air monitoring and biological monitoring will be evaluated by the Director of Health and Safety to determine employee exposure to lead and inorganic arsenic.

11. CONTINGENCY PROCEDURES

In the event of an emergency, site personnel will signal distress with three blasts of a horn (a vehicle horn will be sufficient). Communication signals, such as hand signals,

must be established where communication equipment is not feasible or in areas of loud noise.

It is the SSO's duty to evaluate the seriousness of the situation and to notify appropriate authorities. Section 12 of this plan contains emergency telephone numbers as well as directions to the hospital. Nearby telephone access must be identified and available to communicate with local authorities. If a nearby telephone is not available, a cellular telephone will be maintained on site during work activities. Personnel should dial 911 in the event of an emergency.

Injury/Illness

If an exposure or injury occurs, work shall be temporarily halted until an assessment can be made of whether it is safe to continue work. The SSO, in consultation with the Director of Health and Safety, shall make the decision regarding the safety of continuing work. The SSO will conduct an investigation to determine the cause of the incident and steps to be taken to prevent recurrence.

In the event of an injury, the extent and nature of the victim's injuries will be assessed and first aid will be rendered as appropriate. If necessary, the individual may be transported to the nearby medical center. The mode of transportation and the eventual destination will be based on the nature and extent of the injury. A hospital route map is presented in Appendix C. In the event of a life-threatening emergency, the injured person shall be given immediate first aid and emergency medical services will be contacted by dialing 911. The individual rendering first aid shall follow directions given by emergency medical personnel via telephone. A person certified in first aid/CPR techniques will be present on site at all times during field activities.

Fire

In the event of fire, personnel should contact the local fire department immediately by dialing 911. When representatives of the fire department arrive, the SSO, or designated representative, shall advise the commanding officer of the location, nature, and identification of hazardous materials on site. Only trained, experienced fire fighters should attempt to extinguish substantial fires at the Site. Site personnel should not attempt to fight fires, unless properly trained and equipped to do so.

Evacuation

The SSO shall designate evacuation routes and refuge areas to be used in the event of an emergency. Site personnel shall stay upwind from vapors or smoke and upgradient from spills. If workers are in an Exclusion or Contamination Reduction Zone at the start of an emergency, they should exit through the established decontamination areas whenever possible. If evacuation cannot be done through an established decontamination area, site personnel shall go to the nearest safe location and remove contaminated clothing there or,

if possible, leave it near the Exclusion Zone. All personnel shall assemble at the predetermined refuge following evacuation and decontamination. The SSO, or designated representative, shall count and identify personnel to ensure that all have been evacuated safely.

Hazardous Material Spill

If a hazardous material spill occurs, site personnel should locate the source of the spill and determine the hazard to the health and safety of site workers and the public. Attempt to stop or reduce the flow if it can be done without risk to personnel. Isolate the spill area and do not allow entry by unauthorized personnel. De-energize all sources of ignition within 100 feet of the spill, including vehicle engines. Should any spill be of the nature or extent that it cannot be safely contained, or poses an imminent threat to human health or the environment, an emergency cleanup contractor will be called out as soon as possible. Spill containment measures listed below are examples of responses to spills.

- Upright or rotate containers to stop the flow of liquids. This step may be accomplished as soon as the spill or leak occurs, providing it is safe to do so.
- Sorbent pads, booms, or adjacent soil may be used to dike or berm materials, subject to flow, and to solidify liquids.

12. EMERGENCY CONTACTS

Ambulance:	911 or (510) 657-0777
Police:	911 or (510) 596-3700
Fire Department:	911 or (510) 596-3771
Hospital:	911 or (510) 655-4000
National Response Center:	(800) 424-8802
Poison Control Center:	(800) 682-9211
TOXLINE:	(301) 496-1131
CHEMTREC:	(800) 424-9300
Levine·Fricke·Recon Director of Health and Safety (Irvine, CA):	(714) 955-1390
Levine·Fricke·Recon (Emeryville, CA)	(510) 652-4500
Nearby Hospital:	(510) 655-4000

Summit Hospital
350 Hawthorne Avenue
Oakland, California

DIRECTIONS TO HOSPITAL:

Take 45th Street to San Pablo Avenue and turn right; proceed to 27th Street and turn left; proceed to Broadway and turn left; proceed approximately 3 blocks to Hawthorne Avenue and turn left. The hospital is on the corner of Hawthorne and Webster Street.

A hospital route map is presented in Appendix C.

13. LEVINE-FRICKE-RECON APPROVALS

This Health and Safety Plan (HSP) has been prepared for the following project:

The Rifkin Property
4525 Horton Street
Emeryville, California

Levine-Fricke-Recon Project Number 3042.95-005

This Health and Safety Plan (HSP) has been approved by the following
Levine-Fricke-Recon personnel:

Michael Glaser
Site Safety Officer

Date

Mark D. Knox P.E.
Project Manager

Date

James Bucha, CIH
Director of Health and Safety

Date

APPENDIX A

CHEMICAL DESCRIPTIONS

CHEMICAL DESCRIPTIONS

The following chemical descriptions are presented for chemicals that may be present at the Site. Each chemical description includes physical and odor recognition characteristics, health effects associated with exposure, and exposure limits expressed as an eight-hour time weighted average (TWA). Provided are federal OSHA ("OSHA") permissible exposure limits (PELs; located in 29 CFR 1910.1000); California OSHA ("Cal/OSHA") PELs (located in 8 CCR 5155); and American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs).

ARSENIC

Metallic arsenic is most commonly a gray, brittle, crystalline solid. It can also be in a black or yellow amorphous form. Arsenic is also commonly found in its volatile white trioxide form. Arsenic is used in several insecticides, herbicides, defoliants, desiccants, and rodenticides and appears in a variety of forms. It is also used in tanning, pigment production, glass manufacturing, wood preservation, and anti-fouling coatings. Arsenic is classified as a known carcinogen.

Short-term exposure to arsenic can cause marked irritation of the stomach and intestines with nausea, vomiting, and diarrhea. In severe cases the vomiting and stools are bloody and the exposed individual goes into collapse and shock with weak, rapid pulse, cold sweats, coma, and death. Inorganic arsenicals are more toxic than organic arsenicals, and the trivalent form is more toxic than the pentavalent form. Acute arsenic poisoning usually results from ingestion exposures. Blood cell changes, blood vessel damage, and impaired nerve function can also result from chronic arsenic ingestion. Other effects include skin changes, irritation of the throat, increased risk of cancer of the liver, bladder, kidney, and lung.

- The OSHA PEL is listed as 0.01 mg/m^3 for inorganic forms of arsenic and 0.5 mg/m^3 for organic forms.
- The Cal/OSHA PEL is listed as 0.01 mg/m^3 for inorganic forms of arsenic and 0.2 mg/m^3 for organic forms.
- The TLV is listed as 0.01 mg/m^3 for inorganic forms of arsenic.

LEAD

Lead (inorganic) is a bluish-white, silver or gray odorless solid. Short-term exposure to lead can cause decreased appetite, insomnia, headache, muscle and joint pain, colic, and

constipation. Considerable data exists on the effects of lead exposure in humans. It is a poison by ingestion and a suspected human carcinogen of the lungs and kidneys. There are data to suggest that lead is a mutagen and can cause reproductive effects. Human systemic effects by ingestion and inhalation (the two routes of absorption) include loss of appetite, anemia, malaise, insomnia, headache, irritability, muscle and joint pains, tremors, flaccid paralysis without anesthesia, hallucinations and distorted perceptions, muscle weakness, gastritis, and liver changes. Recent experimental evidence suggests that blood levels of lead below 10 $\mu\text{g}/\text{dl}$ (micrograms per deciliter) can have the effect of diminishing the IQ scores of children.

- The OSHA PEL is listed as $0.05 \text{ mg}/\text{m}^3$.
- The Cal/OSHA PEL is listed as $0.05 \text{ mg}/\text{m}^3$.
- The TLV is listed as $0.05 \text{ mg}/\text{m}^3$.

ZINC

Zinc is a bluish-white, lustrous metallic element, and zinc oxide is a white fume. Short-term exposure to zinc oxide fume can cause a flu-like illness called metal fume fever. Symptoms of metal fume fever include headache, fever, chills, muscle ache, nausea, vomiting, weakness, and tiredness. Pure zinc powder, dust, and fume is relatively non-toxic to humans by inhalation. However, the inhalation of zinc oxides may cause a sweet taste, throat dryness, cough, weakness, generalized aches, chills, nausea, and vomiting. It is flammable in the form of dust when exposed to heat or flame and may ignite spontaneously in air when dry. It is explosive in the form of dust when reacted with acids.

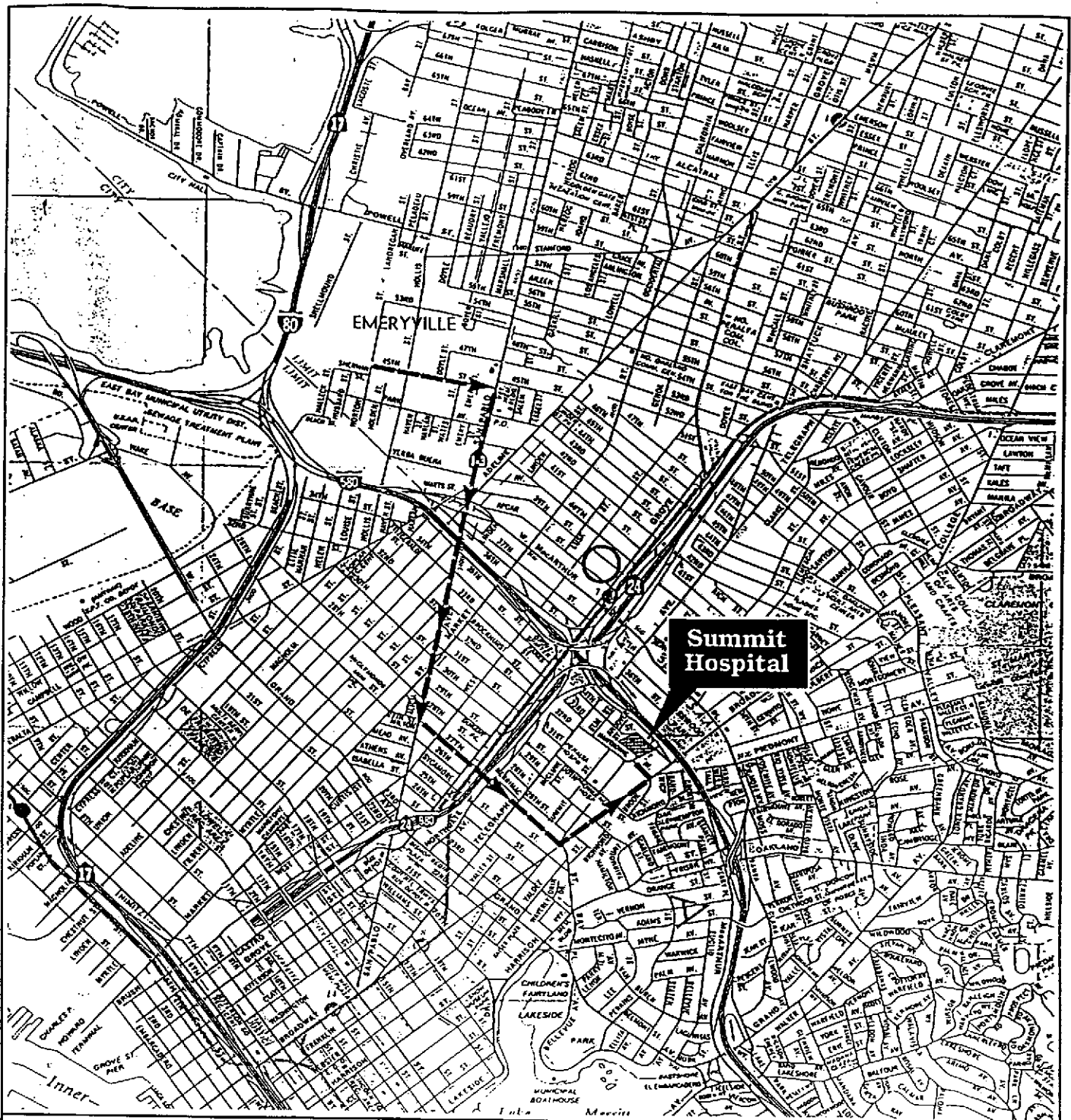
- The OSHA PEL is listed as $15 \text{ mg}/\text{m}^3$ for total zinc oxide dust, and $5 \text{ mg}/\text{m}^3$ for zinc oxide fume and the respirable fraction of dust.
- The Cal/OSHA PEL is listed as $10 \text{ mg}/\text{m}^3$ for total zinc oxide dust, and $5 \text{ mg}/\text{m}^3$ for zinc oxide fume and the respirable fraction of dust.
- The TLV is listed as $10 \text{ mg}/\text{m}^3$ for zinc oxide dust, and $5 \text{ mg}/\text{m}^3$ for zinc oxide fume.

APPENDIX B

LEVINE-FRICKE-RECON FORMS

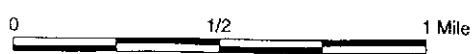
APPENDIX C

HOSPITAL ROUTE MAP



Summit Hospital

DIRECTION:
 Summit Hospital: Take 45th Street to San Pablo Avenue and turn right; proceed to 27th Street and turn left; proceed to Broadway and turn left; proceed approximately 3 blocks to Hawthorne Avenue and turn left. The hospital is on the corner of Hawthorne and Webster Street. The telephone to the emergency room is 420-6116.



RIFKIN PROPERTY

Route to Summit Hospital

Levine-Fricke-Recon

Project No. 3042

010297