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TANK REMOVAL PLAN
AND SITE/AREA SAFETY PLAN

Pfizer Pigments Inc.
4650 Shellmound Street
Emeryville, California 94608

June 14, 1989

Job No. 04724

Roux Associates
1430 Willow Pass Rd. #140
Concord, CA 94520
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INTRODUCTION

This work plan describes the procedures for tank removal and closure for eleven underground storage tanks at the Pfizer facility located at 4650 Shellmound Street in Emeryville, California. One 10,000 gallon fuel oil tank and nine 10,000 gallon diesel tanks are located in one large tank pit (Figure 1). One 1,000 gallon gasoline tank is located in a separate tank pit (Figure 1) All tanks are to be excavated and removed from the site.

PERMITS

A form for underground tank closure plans is provided by the Alameda County Department of Environmental Health, Hazardous Material Division. This form must be completed, submitted, and approved by the county prior to the start of any operations. The approved closure plan constitutes a permit authorizing the removal project. In addition to the closure plan, a site safety plan, a plot plan, and Pfizer's workmen compensation insurance certificate must be submitted to the county for review. The county also requires a \$1,875.00 deposit to oversee this project. A permit will also have to be obtained from the City of Emeryville Fire Marshall's office.

SUMMARY OF OPERATIONS

A list of tasks and operations to be completed through out this project are given below.

- Prepare bid request
- Bid request to tank removal contractors
- Evaluate bids and hire contractor
- Obtain Closure Plan approval from Alameda County DEH
- Obtain permit from Fire Marshall

- Remove concrete pads over tanks
- Clear piping and backfill from upper portion of tanks and stock pile contaminated backfill
- Dewater tank pit if necessary
- Triple rinse tanks
- Sample rinse water
- Purge tanks of flammable vapors
- Lift and remove tanks
- Over-excavate any contaminated soil
- Purge ground water from tank pit, if necessary
- Soil and water sampling and analysis
- Backfill tank pit
- Treat contaminated soil on-site or transport soil to hazardous waste disposal facility

TANK REMOVAL

Contractor Scope of Work

A tank removal contractor must be selected before submittal of the closure plan to the county. A competitive bid process should be used to select the contractor. The following contractor scope of work should be included in the request for bids.

1. Contractor shall take all precautions to protect employees, Pfizer personnel, and the general public from potential injury as a result of work performed under this contract, to include, but not limited to, using proper protective equipment and provide barricades and roping to prevent unauthorized entry into the work area. All work is to be performed in compliance with applicable OSHA requirements concerning personnel and safety.
2. The contractor shall remove the concrete pad (15-inches thick), piping, and sand backfill from above the tanks. The concrete, piping, and clean fill will be loaded, transported, and properly disposed of by the contractor. Any contaminated backfill will be temporarily stockpiled on-site.
3. A sewer line is in close proximity to the western edge of the diesel tank pit. It is very important that this sewer line not be damaged during excavation. Shoring is recommended for the west side of the excavation (along Shellmound Street) and the east side of the excavation (adjacent to the office building).
4. The contractor shall properly triple rinse the eleven tanks prior to removal. The rinse water is to be stored on site in a vacuum truck or a Baker tank for transport by a licensed hazardous waste hauler and disposed of in an approved facility.
5. The contractor shall provide and install the required amount of dry ice to purge flammable vapors from the underground storage tanks immediately prior to removal.
6. The contractor shall lift from the ground, transport, and dispose of the eleven underground storage tanks. The tanks may have concrete anchors that shall be disconnected.
7. The contractor shall provide a time and materials cost per hour for excavating contaminated soil and pumping contaminated water from the tank pits. Contaminated

soil will be separated from clean soils during excavation and placed on 4-mil thick plastic sheets.

8. The contractor shall provide a significant amount of clean fill to backfill the tank excavations. The backfill shall be compacted to 95% compaction.
9. The contractor shall install a concrete pad over the tank pits.

Contaminated Soil

All contaminated soils encountered during tank removal operations will be excavated and removed from the site. Contaminated soil that exceeds 100 ppm TPH will be treated as hazardous material. The hazardous contaminated soils will be transported to a class I landfill for disposal or treated on-site to reduce contaminants below hazardous levels. Selection of off-site disposal or treatment for hazardous soils will be based upon the total volume of contaminated soil and the contaminant. Contaminated soils that contain less than 100 ppm TPH will be transported to a class III landfill for disposal following sampling and analysis.

Gasoline Contaminated Soils

The volume of gasoline contaminated soil is expected to be limited. A shallow soil boring drilled within the gasoline tank's backfill detected no evidence of contamination. The total volume of sand backfill within the gasoline tank pit is estimated to be about 9 cubic yards. Any gasoline contaminated soils encountered in or around the 1000 gallon tank pit will be excavated and spread on the surface for aeration according to Bay Area Air Quality Management District regulations for aeration of organic compounds.

Diesel Or Fuel Oil Contaminated Soils

Some diesel contaminated soils are expected to be encountered along the eastern edge of the large multi-tank pit. One shallow soil boring drilled in the vicinity of tank No. 2 encountered diesel. Five other shallow borings drilled throughout the tank pit did not encounter diesel or fuel oil. Tank No. 7 is a fuel oil tank. The total volume of diesel contaminated soil is estimated to be between 5 cubic yards and 30 cubic yards based on the shallow soil boring information.

If greater than 20 cubic yards of diesel/fuel oil contaminated soil are encountered at the site; on-site above ground soil treatment would be more cost effective than

transporting the soils to a class I landfill for disposal. On-site treatment would involve spreading of the contaminated soil about 1 foot thick over a contained area. Nutrients would be added to the soils and the soil would be mixed (aerated) weekly until diesel fuel levels were reduced to acceptable levels. The soil would then be sampled and analyzed, prior to disposal at a class III land fill.

Contaminated Water

Tank rinse water will be collected and contained within a vacuum truck or a Baker-type storage tank on-site. Any free product observed on the surface of ground water in the tank pit excavation(s) will also be collected and pumped from the excavation. The contaminated water will be transported by a licensed hazardous waste hauler and disposed of in an approved facility.

Ground water pumped to dewater the excavations will be added to Pfizer's water treatment system which discharges to the sanitary sewer. A water sample will be collected at the point of discharge and analyzed for total petroleum hydrocarbons to verify discharge permit compliance.

TANK PIT CLOSURE

Excavation

Soil borings drilled in this area of the plant outside the tanks pit have encountered bay mud from about 3-feet to 21-feet below land surface. The bay mud consists of sandy clay to clay with shells and organic matter. The tank pit contains medium sand backfill around the underground tanks. The native bay mud sediments have a much lower permeability than the sandy backfill material.

The depth to water in the diesel tank pit is about 5-feet below land surface and about 6 feet in the gasoline tank pit. Based on the permeability difference and the depth to water, any fuel released in either tank pit would be expected to be largely contained within the sandy tank pit backfill.

The majority of contaminated soil, if present, will be removed from the tank pits during tank removal. Over excavation of contaminated soil appears to be the best method of soil remediation, given a limited extent of contamination. Therefore, any contaminated soil within the tank pits or along the sidewalls will also be excavated.

Soil And Water Sampling-Diesel Tank Pit

It is anticipated that ground water will be present in the diesel tank pit. Therefore, both soil and water samples will be required. Soil and water samples will be collected and analyzed before the decision to backfill the tank pit is made. ~~Soil~~ soil samples will be collected from the sidewalls of the tank pit at the soil/ground water interface. Soil samples will be collected from any obviously stained or contaminated areas.

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A backhoe will be used to collect the soil from the interface and bring it to the surface. The outer soil will be scraped away and a 2-inch diameter, 6-inch long clean brass tube will be driven into the soil. The ends of the full brass tube will be covered with aluminum foil and plastic end caps. The ends will then be wrapped with electrical tape. The tubes will be labeled and immediately placed on ice for transport to the laboratory.

One ground-water sample will be collected from the open tank pit. The tank pit may be purged and allowed to refill before sampling. The sample will be collected in a stainless steel bailer and transferred to two 40ml VOA vials with as little agitation as possible. The samples will be labeled and immediately placed on ice for transport to the laboratory. The soil and water samples will be analyzed by a Department of Health Services certified laboratory for total petroleum hydrocarbons as diesel fuel and for benzene, toluene, ethylbenzene and total xylenes (BTEX). A chain-of-custody will be maintained from collection through delivery.

Soil Sampling-Gasoline Tank Pit

It is anticipated that ground water will not be present in the gasoline tank pit. Therefore, only one soil sample should be required. The sample will be collected beneath the fill end of the tank at the native soil/backfill interface, using the same soil sampling protocols described above. The soil sample will be analyzed for total petroleum hydrocarbons as gasoline and BTEX.

REPORT

A tank removal report will be prepared and submitted to the Alameda County Department of Environmental Health Services within 30 days following the tank pit closures. The report will include all soil and water analyses, chain-of-custody forms, sample location maps, manifests, and a description of methods of investigation.

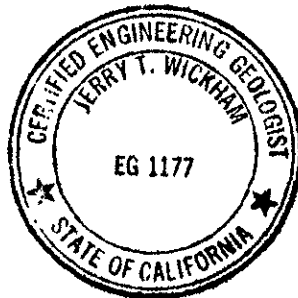
Respectfully Submitted,
ROUX ASSOCIATES WEST, INC.

Paul V. Supple

Paul V. Supple
Project Hydrogeologist

Jerry T. Wickham

Jerry T. Wickham
Cal. CEG No. 1177



EMERYVILLE PLANT MAP

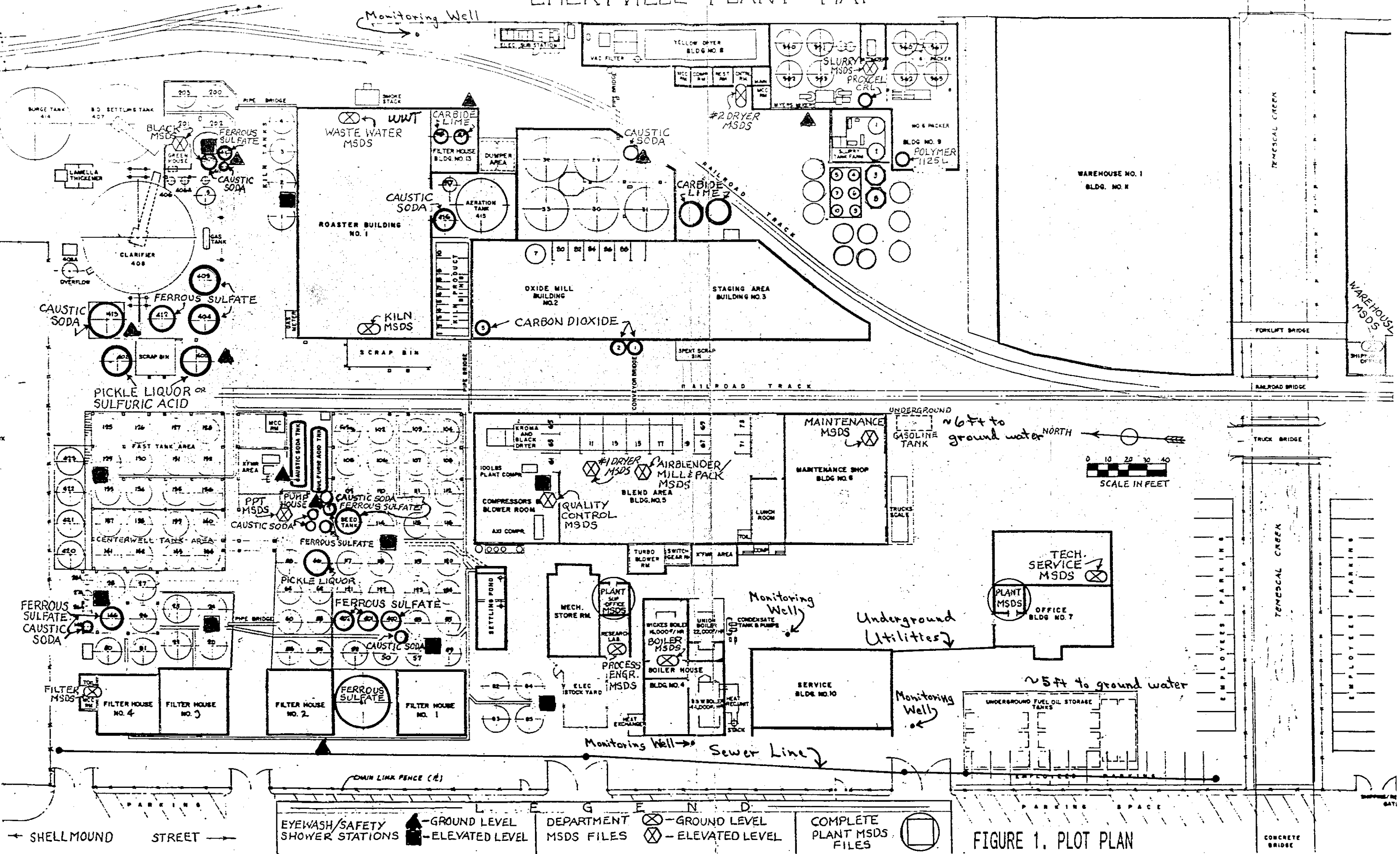


FIGURE 1. PLOT PLAN

EYEWASH/SAFETY SHOWER STATIONS - GROUND LEVEL - ELEVATED LEVEL
 DEPARTMENT MSDS FILES - GROUND LEVEL - ELEVATED LEVEL
 COMPLETE PLANT MSDS FILES

PFIZER PIGMENTS PLANT TANK REMOVAL

SITE/AREA SAFETY PLAN

GENERAL INFORMATION

JOB: 04724

DATE PREPARED: 3-29-89 PREPARED BY: Paul Supple

SITE/AREA NAME: Pfizer Pigments plant

ADDRESS: 4650 Shellmound Street

Emeryville, California 94608

SITE CONTACT: Mr. Michael Herzog

PHONE: (415) 653-6151

PLANNED ACTIVITY AT SITE: Excavation and removal of eleven underground storage tanks in two separate tank pits.

PRESENT SITE USE: Active manufacturing plant

PREVIOUS USES: Long term manufacturing plant

SITE HISTORY (regulatory actions, complaints, injuries):

EXISTING INFORMATION FOR SITE: DETAILED _____ PRELIMINARY XX
SKETCHY _____ NONE _____

PREVIOUS SAMPLING/INVESTIGATION: Preliminary sampling was performed in tank pits in February, 1989.

SITE TOPOGRAPHY: Flat

STATUS: OPEN _____ CLOSED _____ LIMITED ACCESS: XX

SURFACE: PAVED OR CONCRETE XX UNPAVED _____ OTHER _____

UNUSUAL FEATURES (utilities, obstacles, etc.):

HAZARD ASSESSMENT

POTENTIAL CONTAMINANTS:

CONTAMINANT	ANTICIPATED CONCENTRATION	COMMENTS
Diesel Fuel	0 to 500 ppm	May be present in limited area.
Bunker C Fuel Oil	Not expected in excavation.	
Oil and Grease	Not expected in excavation.	Oil and grease from possibly old, unknown source encountered in nearby areas.
Gasoline	Not expected in excavation.	

POTENTIAL HIGH HAZARD MATERIALS:

NAME	WARNING PROPERTIES
Acetone	Fragrant, mint-like odor.
Methyl ethyl ketone	Fragrant, mint-like, moderately sharp odor.
Methyl isobutyl ketone	Pleasant odor.

EVALUATION OF EXPECTED HAZARD (operational considerations, routes of exposure, health effects, material stability):

Normal hazards associated with excavation and tank removal operations. Normal explosion and chemical hazards for gasoline, diesel, and Bunker C in underground storage tanks.

SITE SAFETY SUPERVISOR

SITE SAFETY SUPERVISOR: Excavation contractor supervisor

PERSONNEL PROTECTION

GENERAL LEVEL OF PROTECTION REQUIRED: A____ B____ C____ D XX

STANDBY EQUIPMENT: Level C Standby

ADDITIONAL EQUIPMENT REQUIRED: Two fire extinguishers on job site. All personnel on site must have hard hats, safety glasses, and steel-toed boots at all times while outside of plant buildings. This includes anyone inspecting or supervising operations.

DETECTION EQUIPMENT: Explosimeter required to monitor tank atmospheric conditions prior to removal.

MONITORING PROCEDURES (use and employment of fixed, portable, real-time, continuous and/or periodic monitoring devices): A photoionization meter will be available as needed.

PERMANENT ON-SITE EQUIPMENT: Eye wash stations, fire extinguishers, first aid equipment.

PERIMETER CONTROL: Ropes and barricades in excavation area.

EMERGENCY PROCEDURES

LOCATION OF NEAREST WORKING PHONE: Lobby of administration building and office building.

EMERGENCY PHONE NUMBERS:

AMBULANCE: 911

FIRE: 911

POLICE: 911

HOSPITAL: 547-1700

REGULATORY AGENCIES: Alameda C. Haz. Materials Div. 271-4320_

ADDITIONAL RESOURCES: _____

PLAN APPROVED BY: Jerry Wickham DATE: 3-29-89