



**WORK PLAN  
FOR THE CLOSURE AND ABANDONMENT IN-PLACE  
OF THE UNDERGROUND STORAGE TANK**

at  
**Fairmont Hospital  
15401 Foothill Boulevard  
San Leandro, California**

**614201-01**

Report prepared for

**Alameda County General Services Agency  
4400 MacArthur Boulevard  
Oakland, California 94619**

by  
**GeoStrategies Inc.**

*copy  
7-13-94*

**ACCEPTED\***

**DEPARTMENT OF ENVIRONMENTAL HEALTH  
470 - 27th Street, Third Floor  
Oakland, CA 94612  
Telephone: (415) 874-7237**

*[Signature]*  
**Lisa L. Kelly  
Staff Engineer**

These plans have been reviewed and found to be acceptable and essentially meet the requirements of State and local health laws. Changes to your plans indicated by this Department are in compliance with State and local laws. The permit application herein is now released for issuance of a permit for construction.

*[Signature]*  
**Steven P. Viani  
Senior Engineering Manager  
R.C.E. C30965**



**June 14, 1994**

On all accepted plans must be on the job and direct all contractors and craftsmen involved with the installation.  
Any change or addition of these plans and specifications must be submitted to this Department and to the Fire and Building Department to determine if such changes meet the requirements of State and local laws.  
Not to be performed at least **48 hours prior to the following required inspections:**

- Pre-Covering of Tank and Piping
- Final Inspection

Issuance of a permit to operate is dependent on compliance with accepted plans and all applicable laws and regulations.

**THERE IS A FINANCIAL PENALTY FOR NOT COMPLYING WITH THESE REQUIREMENTS.**

*\* piping must be capped and removed and/or capped*



**GeoStrategies Inc.**

July 13, 1994

Mr. Scott Seery  
Senior Hazardous Materials Inspector  
Alameda County Health Agency  
1131 Harbor Bay Parkway  
Alameda, California 94502-6577

Subject: Transmittal of Closure Plan  
Fairmont Hospital  
San Leandro, California

Dear Mr. Seery:

Attached please find the above referenced documents for in-place abandonment of an underground storage tank at Fairmont Hospital in San Leandro.

Also attached, please find information regarding Cellufoam, a lightweight concrete alternative. This lightweight concrete was used at the County's ALCO Park facility and was approved by Mr. Thomas F. Peacock. We will probably use this material at Fairmont Hospital because of the minimization of voids.

As we discussed, the County is interested in gaining quick approval so that the tank can be closed during the month of July.

Please call me if you have any questions regarding our submittal.

Sincerely,



Steven P. Viani, P.E.  
Chief Operating Officer

cc: Pete Kinney

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## 1.0 INTRODUCTION

At the request of Alameda County General Services Agency (GSA), GeoStrategies Inc. (GSI) has prepared this Work Plan for the closure and abandonment in-place of the underground storage tank (UST) #1 at the subject site. This document details the proposed work.

The work to be performed includes: (1) contacting the County of Alameda Fire Department and obtaining a tank closure permit and notifying the Alameda County Department of Environmental Health; (2) familiarizing all involved personnel with the site specific health and safety plan, and scheduling equipment and personnel; (3) removing all liquids, residues and vapors from the UST; (4) filling UST, vent, and fill lines with an inert solid; and (5) preparing a final report documenting closure activities to the Alameda County Department of Environmental Health.

## 2.0 SITE DESCRIPTION AND HISTORY

### 2.1 Site Description

Fairmont Hospital (Fairmont) is an operating hospital facility located at 15401 Foothill Boulevard, in San Leandro, California, as shown on the Vicinity Map, Figure 1. Situated on the western slope of the San Leandro Hills, the site rests at an approximate elevation of 110 feet above Mean Sea Level and is approximately 100 yards west of the western fault trace of the Hayward Fault. The site vicinity is underlain by unconsolidated alluvial deposits generally less than 30 feet thick that overlie intrusive gabbro and serpentine bedrock.

Positioned near the truck loading dock of one of Fairmont's buildings are two 12,000 gallon USTs (UST #1 and UST #2) and one 1,000 gallon UST (UST #3). The location and details of the USTs can be seen on Figure 2, Soil Boring Locations.

*removed*  
7/93

UST #1 lies adjacent to and within three feet of the truck loading dock. A four inch diameter underground storm drain parallels the southeast side of the hospital building and is located between the northwest side of the tank and the truck loading dock. A ten inch diameter underground storm drain parallels the northeast side of the hospital building and lies between the southwest end of UST #1 and the existing concrete walkway and stairs to the truck loading dock. The ten inch diameter underground storm drain is situated within four and a half feet of the UST and within eight feet of the concrete walkway. UST #1 has an interior diameter of eight feet and the tank invert is approximately twelve feet below ground surface (bgs) at the fill line.

**GeoStrategies Inc.**

## 2.2 Site History

The USTs were installed during initial facility construction and prior to the construction of the truck loading dock which was built along the side of the hospital building next to the USTs. The actual date of the USTs installation is unknown. USTs #1 and #2 were previously utilized to store domestic No. 5 fuel to operate the hospital boiler during emergencies. UST #3 previously held diesel fuel to operate the emergency generator.

During June 1988, Gregg & Associates, Inc. (Gregg), conducted a facility audit and subsurface investigation at the site and documented the results in a site characterization report in August 1988. In April 1993 Environmental Science & Engineering, Inc. (ESE) directed another subsurface investigation focused on UST #1 with the purpose of investigating alleged low concentrations of hydrocarbons found during Gregg's investigation. The outcomes of ESE's investigation are documented in ESE's Subsurface Investigation Report dated June 1, 1993. During the work performed by ESE, no hydrocarbons were detected in the soil surrounding UST #1. ESE concluded that the previous investigations results may have been anomalous and are probably not representative of existing soil conditions. ESE recommended that UST #1 be approved for abandonment in-place because of the soil conditions and its proximity to the loading dock.

In a letter addressed to Mr. Jim de Vos of GSA, dated July 12, 1993, Mr. Robert Weston, a Hazardous Materials Specialist of Alameda County Health Care Services Agency, Department of Environmental Health, Hazardous Materials Division, approved the abandonment in-place of UST #1 based on the information presented in both the Gregg and ESE reports and due to the proximity of UST #1 to critical building structures. A copy of this letter is presented in Appendix A.

## 3.0 PREVIOUS ENVIRONMENTAL WORK

In June 1988, Gregg & Associates, Inc. (Gregg), conducted a facility audit and subsurface investigation at the site. Three backfill vadose zone monitoring wells, designated as FHB-1, FHB-2, and FHB-3 (Figure 2) were installed to depths ranging from 15 to 17 feet bgs. At that time, Total Recoverable Petroleum Hydrocarbons, as reported for analyses by EPA Method 418.1, were detected in soil samples collected at depths of 12 and 17 feet bgs from boring FHB-1 at concentrations of 53 and 166 parts per million (ppm), respectively.

On April 21, 1993, ESE directed a second subsurface investigation which focused on UST #1. Based on measurements made through the fill port, the orientation and approximate dimensions of UST #1 were delineated. An ESE representative drilled three vertical soil borings, SB-1, SB-2, and SB-3, to depths ranging from 21.5 to 24.5 feet bgs. Soil samples collected at five foot intervals were analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-D) using EPA Method 3550/8015 modified and for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) using EPA Method 3550/8020. During drilling activities, no discolored soil or noticeable odors were observed and the analytical results of the soil samples submitted for analyses reported non-detectable concentrations of TPH-D and BTEX at method reporting limits. Laboratory analytical results and Chain-of-Custody forms for the soil samples collected on April 21, 1993, by ESE, are presented in Appendix B.

#### **4.0 PROPOSED WORK**

GSI proposes to abandon in-place UST #1 as follows:

##### **4.1 Administrative Preparation for Abandonment In-Place of the UST**

GSI will notify the Alameda County Department of Environmental Health of the closure in-place of UST #1, contact the Alameda County Fire Department and obtain a tank closure permit, familiarize all involved personnel with the health and safety plan, and schedule equipment and personnel. A copy of the health and safety plan is included as Appendix C.

##### **4.2 On-Site Preparation for Abandonment in Place of the UST**

Prior to starting work, the site will be secured as specified in the health and safety plan. This includes restricting access to work areas through the use of barricades, flagging and vehicles.

Precautions will be taken to minimize exposure of tools and personal protective equipment to contaminants. If tools or personal protective equipment become contaminated, they will be decontaminated. Tools will be steam cleaned, the rinse water will be collected and removed from the site by a licensed hazardous waste hauler. Personal protective equipment will be washed thoroughly with detergent solution and water.

#### **4.3 Removal of Liquids, Residues and Vapors from the UST**

As the UST was a holding vessels for potentially flammable, combustible and hazardous materials, it is necessary to remove any remaining product before the UST can be filled and sealed. The removal of the material will be executed in two steps.

First, any liquids and water soluble residues will be removed from the UST by means of a vacuum truck. All removed material will be considered hazardous waste and handled appropriately. A licensed hazardous waste hauler will be contracted to transport and dispose of removed material. The vacuum pump exhaust gases shall be discharged through a hose of adequate size and length downwind of the truck and tank area. Once all liquids have been extracted from the UST, water will be used to triple rinse the fill line, as well as the interior of the tank. This rinsate will be extracted using a vacuum truck.

The final rinsate will be sampled by the hauler to provide evidence that the tank has been cleaned of all hazardous material. Samplers and the laboratory will follow formal chain-of-custody documentation procedures. Laboratory results will be submitted to the Department of Environmental Health for approval. If the laboratory results indicate rinsing procedures were not effective, rinsing of the tanks will be repeated and the final rinsate will again be sampled and analyzed. Once the Department of Environmental Health indicates all water soluble residue has been removed to satisfactory levels, GSI will then proceed to displace any vapors present in the UST.

In this second step, solid carbon dioxide (dry ice) is inserted into the UST to displace any possibly flammable vapors and oxygen. All accessible tank fixtures will be removed. All non-product lines will be capped or removed except for the vent line. A minimum of 360 pounds of dry ice will be inserted into the UST (3 pounds for each 100 gallons of tank volume). Displaced vapors will be discharged through the vent lines. The UST will be monitored until the tank atmosphere reaches less than 20% of the lower flammable limit.

#### **4.4 Filling of UST with an Inert Material**

The UST will be filled by pumping through the fill line a sand grout slurry containing one 94 pound sack of cement per cubic yard. Air relief will occur by means of the vent line.

#### 4.5 Securing of Site

Upon completion of the UST grouting operations, fill lines will be grouted to the surface and the vent lines will be cut and grouted to the surface to prevent their use.

#### 4.6 Preparing of Final Report

Once the UST has been closed and abandoned in-place, a final report documenting closure activities will be prepared by GSI. This report will be reviewed, signed and stamped by a registered civil engineer.

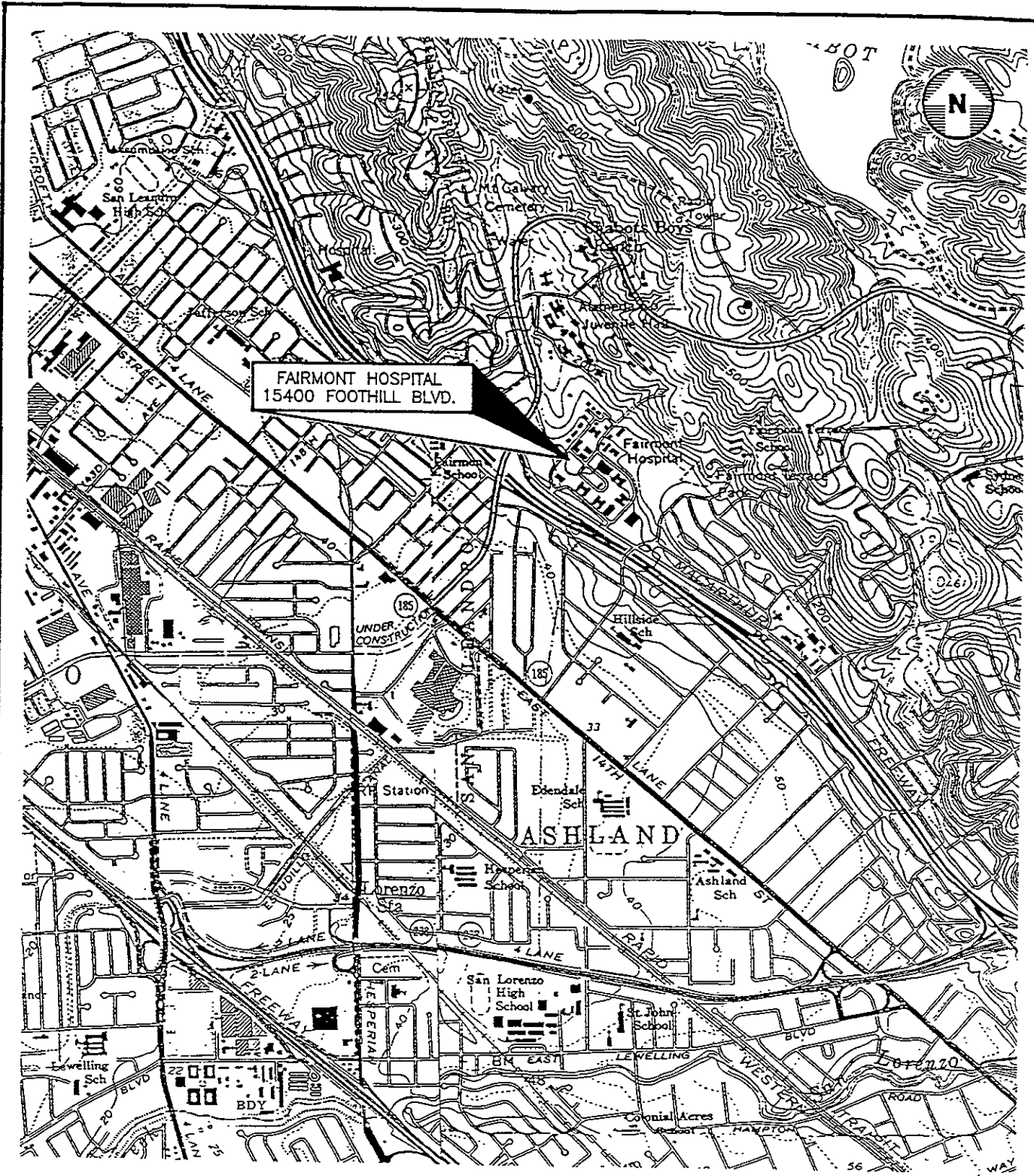
#### 5.0 REFERENCES

American Petroleum Institute, Second Edition, 1987. Removal and Disposal of Used Underground Petroleum Storage Tanks, Section 3.

Environmental Science & Engineering, Inc., June 1, 1993. Results of the Subsurface Investigation, Fairmont Hospital, 15401 Foothill Boulevard, San Leandro, California. Project No. 6-93-5021.



FIGURES



FAIRMONT HOSPITAL  
15400 FOOTHILL BLVD.

ADAPTED FROM USGS HAYWARD AND SAN LEANDRO 7 1/2 MINUTE TOPOGRAPHIC QUADRANGLES



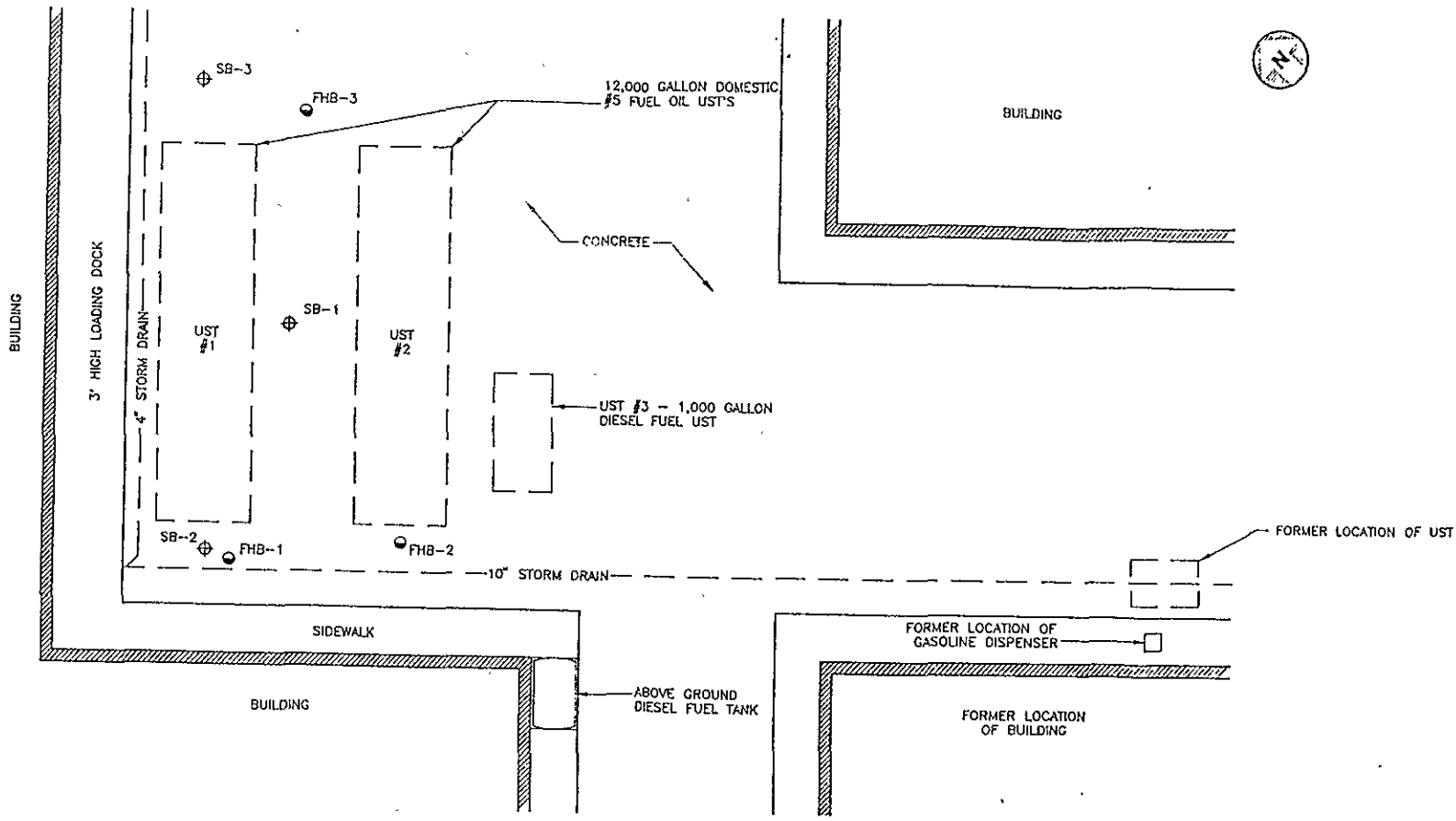
Environmental  
Science &  
Engineering, Inc.

4090 NELSON AVENUE, SUITE J  
CONCORD, CA 94520

DATE 1/93	PROJ. NO. 6-93-5021
DRAWN BY CVS	CAD FILE 50211001
APPROVED BY	REVISED


ALAMEDA CTY. GSA - FAIRMONT HOSPITAL  
15401 FOOTHILL BOULEVARD  
SAN LEANDRO, CALIFORNIA

FIGURE 1  
VICINITY MAP



**LEGEND**

- ⊕ SOIL BORING LOCATION (4/21/93 BY ESE)
- UST UNDERGROUND STORAGE TANK
- BACKFILL VADOSE WELL (INSTALLED JUNE 1988 BY GREGG & ASSOCIATES)

 Environmental Science & Engineering, Inc.	DATE	PROJ. NO.	ALAMEDA CTY. GSA - FAIRMONT HOSPIT. 15401 FOOTHILL BOULEVARD SAN LEANDRO, CALIFORNIA
	1/93	6-93-5021	
	DRAWN BY	CAD FILE	
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	CYS	50211002	<b>FIGURE 2</b> SOIL BORING LOCATIONS
	APPROVED BY	REVISED DWR 5/93	

**APPENDIX A**

**Letter from Mr. Robert Weston  
of Alameda County Health Care Services Agency,  
Department of Environmental Health, Hazardous Materials Division,  
to Mr. Jim de Vos of Alameda County General Services Agency,  
Dated July 12, 1993**

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY  
DAVID J. KEARS, Agency Director

RAFAT A. SHAHID, Assistant Agency Director

JUL 14 1993  
JWA/12/1993

DEPARTMENT OF ENVIRONMENTAL HEALTH  
Hazardous Materials Division  
80 Swan Way, Rm. 200  
Oakland, CA 94621  
(510) 271-4320

July 12, 1993

Mr. Jim de Vos  
Alameda County General Services Agency  
4400 MacArthur Boulevard  
Oakland, CA 94619

Subject: Fairmont Hospital, UST Closure in place

Dear Mr. de Vos:

This Department has received and reviewed the Environmental Science & Engineering, Inc. (ESE) report dated June 1, 1993 detailing the subsurface investigation adjacent to the 12,000-gallon underground storage tank (UST) for #5 fuel oil. The purpose of the investigation was to prepare for closure of UST #1 in place due to the proximity to critical building structures.

Based on data presented in the report as well as the earlier Gregg & Associates, Inc. site characterization report, ESE recommends closure in place for UST #1. This Department concurs with ESE's recommendation.

If you have questions regarding this matter please contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Robert Weston".

Robert Weston  
Hazardous Materials Specialist

cc: Pete Kinney, GSA  
Chief Ferdinand, Alameda County Fire Department  
Pat Galvin, ESE

**APPENDIX B**

**Laboratory Analytical Reports and Chain-of-Custody Forms  
as Reported by and for the Soil Borings Supervised by  
Environmental Science & Engineering, Inc.**



TO: ENVIRONMENTAL SCIENCE & ENGINEERING, INC.  
4090 NELSON AVE., SUITE J  
CONCORD, CA 94520  
ATTN: MR. KERRY LEFERER

PAGE NUMBER: 1  
REPORT DATE: 04-30-93  
DATE RECEIVED: 04-23-93  
PROJECT NUMBER: 591-5287

CLIENT PROJECT NAME: FAIRMONT HOSPITAL  
CLIENT PROJECT NUMBER: 693-5021

ESE SAMPLE		12123*1	12123*2	12123*3	12123*4			
SAMPLE DATE		04/21/93	04/21/93	04/21/93	04/21/93			
DESCRIPTION	UNITS	SB-105' SOIL	SB-1010' SOIL	SB-1015' SOIL	SB-1020' SOIL	METHOD NO.	DATE ANALYZED	ANALYST
BENZENE	UG/KG	< 5	< 5	< 5	< 5	8020	04-29-93	RMM
TOLUENE	UG/KG	< 5	< 5	< 5	< 5	8020	04-29-93	RMM
ETHYLBENZENE	UG/KG	< 5	< 5	< 5	< 5	8020	04-29-93	RMM
XYLENES, TOTAL	UG/KG	< 5	< 5	< 5	< 5	8020	04-29-93	RMM
TOTAL PETROLEUM HYDROCARBON DIESEL	MG/KG	< 1	< 1	< 1	< 1	8015MOD.	04-29-93	RAU

Report Approved by: Vickie M. Wynkoop  
Vickie M. Wynkoop  
Project Manager



TO: ENVIRONMENTAL SCIENCE & ENGINEERING, INC.  
4090 NELSON AVE., SUITE J  
CONCORD, CA 94520  
ATTN: MR. KERRY LEFERER

PAGE NUMBER: 2  
REPORT DATE: 04-30-93  
DATE RECEIVED: 04-23-93  
PROJECT NUMBER: 591-5287

CLIENT PROJECT NAME: FAIRMONT HOSPITAL  
CLIENT PROJECT NUMBER: 693-5021

ESE SAMPLE SAMPLE DATE		12123*5 04/21/93	12123*6 04/21/93	12123*7 04/21/93	12123*8 04/21/93			
DESCRIPTION	UNITS	SB-2@5' SOIL	SB-2@10' SOIL	SB-2@15' SOIL	SB-2@20' SOIL	METHOD NO.	DATE ANALYZED	ANALYST
BENZENE	UG/KG	< 5	< 5	< 5	< 5	8020	04-28-93	RMM
TOLUENE	UG/KG	< 5	< 5	< 5	< 5	8020	04-28-93	RMM
ETHYLBENZENE	UG/KG	< 5	< 5	< 5	< 5	8020	04-28-93	RMM
XYLENES, TOTAL	UG/KG	< 5	< 5	< 5	< 5	8020	04-28-93	RMM
TOTAL PETROLEUM HYDROCARBON DIESEL	MG/KG	< 1	< 1	< 1	< 1	8015MOD.	04-29-93	RAU

Report Approved by: Vickie M. Wynkoop  
Vickie M. Wynkoop  
Project Manager





TO: ENVIRONMENTAL SCIENCE & ENGINEERING, INC.  
4090 NELSON AVE., SUITE J  
CONCORD, CA 94520  
TN: MR. KERRY LEFERER

PAGE NUMBER: 3  
REPORT DATE: 04-30-93  
DATE RECEIVED: 04-23-93  
PROJECT NUMBER: 591-5287

CLIENT PROJECT NAME: FAIRMONT HOSPITAL  
CLIENT PROJECT NUMBER: 693-5021

ESE SAMPLE		12123*9	12123*10	12123*11	12123*12			
SAMPLE DATE		04/21/93	04/21/93	04/21/93	04/21/93			
DESCRIPTION	UNITS	SB-2@23' SOIL	SB-3@5' SOIL	SB-3@10' SOIL	SB-3@15' SOIL	METHOD NO.	DATE ANALYZED	ANALYST
BENZENE	UG/KG	< 5	< 5	< 5	< 5	8020	04-28-93	RMM
TOLUENE	UG/KG	< 5	< 5	< 5	< 5	8020	04-28-93	RMM
ETHYLBENZENE	UG/KG	< 5	< 5	< 5	< 5	8020	04-28-93	RMM
XYLENES, TOTAL	UG/KG	< 5	< 5	< 5	< 5	8020	04-28-93	RMM
TOTAL PETROLEUM HYDROCARBON DIESEL	MG/KG	< 1	< 1	< 1	< 1	8015MOD.	04-30-93	RAU

Report Approved by: Vickie M. Wynkoop  
Vickie M. Wynkoop  
Project Manager



TO: ENVIRONMENTAL SCIENCE & ENGINEERING, INC.  
4090 NELSON AVE., SUITE J  
CONCORD, CA 94520  
ATTN: MR. KERRY LEFERER

PAGE NUMBER: 4  
REPORT DATE: 04-30-93  
DATE RECEIVED: 04-23-93  
PROJECT NUMBER: 591-5287

CLIENT PROJECT NAME: FAIRMONT HOSPITAL  
CLIENT PROJECT NUMBER: 693-5021

ESE SAMPLE 12123\*13  
SAMPLE DATE 04/21/93

DESCRIPTION	UNITS	SB-3020' SOIL	METHOD NO.	DATE ANALYZED	ANALYST
BENZENE	UG/KG	< 5	8020	04-28-93	RMM
TOLUENE	UG/KG	< 5	8020	04-28-93	RMM
ETHYLBENZENE	UG/KG	< 5	8020	04-28-93	RMM
XYLENES, TOTAL	UG/KG	< 5	8020	04-28-93	RMM
TOTAL PETROLEUM HYDROCARBON DIESEL	MG/KG	< 1	8015MOD.	04-30-93	RAU

Report Approved by: Vickie M. Wynkoop  
Vickie M. Wynkoop  
Project Manager

DATE 4/20/93 PAGE 1 OF 2

CHAIN OF CUSTODY RECORD

PROJECT NAME Fairmont Hospital  
 ADDRESS 15401 Foothill Blvd.  
San Leandro  
 PROJECT NO. 6-93-5021  
 SAMPLED BY KERRY LEFEVER  
 LAB NAME ESE - Peoria

ANALYSES TO BE PERFORMED										MATRIX	CONTAINER NUMBER	REMARKS (CONTAINER, SIZE, ETC.)
TPH-D 5015M	BTEX 5020									MATRIX		
X	X									SOIL	1	BRASS RING 12123- -2 -3 -4 -5 -6 -7 -8 -9
X	X										1	
X	X										1	
X	X										1	
X	X										1	
X	X										1	
X	X										1	
X	X										1	
X	X										1	



Environmental Science & Engineering, Inc.  
 4090 Nelson Avenue Suite J  
 Concord, CA 94520  
 Phone (510) 685-4053  
 Fax (510) 685-5323

RELINQUISHED BY: (signature)  
 1. Kerry Lefever  
 2. Alan R. Hogan  
 3.  
 4.  
 5.

RECEIVED BY: (signature) Alan R. Hogan  
 date 4-23-93 time 9:00 am

TOTAL NUMBER OF CONTAINERS 9  
 REPORT RESULTS TO: PAT GALVIN  
 SPECIAL SHIPMENT REQUIREMENTS  
 SAMPLE RECEIPT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):  
5 DAY TA. PLEASE INCLUDE QA/QC DATA

CHAIN OF CUSTODY SEALS  
 REC'D GOOD COND'TN/COLD  
 CONFORMS TO RECORD

DATE 4/20/93 PAGE 2 OF 2

CHAIN OF CUSTODY RECORD

PROJECT NAME Fairmont Hospital  
 ADDRESS 15401 Fairmont Hosp  
San Leandro, CA  
 PROJECT NO. 6-93-5021  
 SAMPLED BY KERRY LEFEVER  
 LAB NAME ESE - Perkin

ANALYSES TO BE PERFORMED										MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
TPH-D 80150	BTEX 8020											
X	X									SOIL	1	BRASS RING 12123-10
X	X									↓	1	↓ -11
X	X									↓	1	↓ -12
X	X									↓	1	↓ -13



Environmental Science & Engineering, Inc.  
 4090 Nelson Avenue Suite J  
 Concord, CA 94520  
 Phone (510) 685-4053  
 Fax (510) 685-5323

RELINQUISHED BY: (signature) 1. <u>Kerry Lefever</u>	RECEIVED BY: (signature) <u>Chas R. Hogan</u>	date <u>4/23/93</u>	time <u>9:00 am</u>	4	TOTAL NUMBER OF CONTAINERS
2.					REPORT RESULTS TO: <u>PAT GALIN</u>
3.					SPECIAL SHIPMENT REQUIREMENTS
4.					
5.					SAMPLE RECEIPT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):  
5 DAYS TA. PLEASE INCLUDE QA/QC DATA #

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	



Environmental Science and Engineering, Inc.  
Table of Definitions for QC Reports  
Columnar Terms

Item	Title	Definition
FOUND	Sample Concentration	SPIKE SAMPLE CONC - LESS THE UNSPIKED SAMPLE CONC.
FOUND #1	Concentration of UNSPIKED Sample	
FOUND #2	Concentration of Replicate Sample	
%RECV	Percent Recovery:	$100 * (\text{FOUND} / \text{TARGET})$ displayed in appropriate significant figures.
RECV CRIT	Recovery Criteria	Criteria for Percent Recovery set in the parameter record
UNSPIKED	Unspiked Sample Concentration	Concentration of the DA or UN sample.
M*BLK	Concentration of Method Blank	
R.P.D.	Relative Percent Difference (Matrix Spikes)	$100 * (\text{ABS. } (\% \text{RECV SPM}_n - \% \text{RECV SPM}_{n-1}) / (\% \text{RECV SPM}_n + \% \text{RECV SPM}_{n-1}) / 2)$ .
R.P.D.	Replicate Percent Difference (Control Spikes)	$100 * (\text{ABS } (\% \text{RECV SP}_n - \% \text{RECV SP}_1) / (\% \text{RECV SP}_n + \% \text{RECV SP}_1) / 2)$
R.P.D.	Replicate Percent Difference (Replicate Samples)	$100 * (\text{ABS } (\text{Conc Rep \#2} - \text{Conc Rep \#1}) / (\text{Conc Rep \#2} + \text{Conc Rep \#1}) / 2)$ .
MAX % REPL DIFF	Maximum value of Replicate Difference	
C.D.L.	Calibration Curve Detection Limit	
NA	Not Analyzed	
N/A	Not Available	
UNSPIKED = 0		If the parameter is reported as a "LESS THAN", the data is converted to 0 for calculation purposes.
MIN.REC	Minimum Recovery Limit	Average Recovery - Recovery Limit.
MAX.REC	Maximum Recovery Limit	Average Recovery + Recovery Limit.
DA		Refers to sample.
UN		Refers to second analysis of sample for QC purposes.
SP		Spike of reagent (blank) water or soil.
SPM1, SPM2		Duplicate Matrix Spikes of a sample.
SPM		Matrix Spike of a sample.
MB		Refers to Method-Blank.

CONCORD 12123  
 Method Blank (MB) Sample Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	FOUND
BENZENE	UG/KG	34030*PFS	P12827	MB*NONE*1	04/28/93	<1
BENZENE	UG/KG			MB*NONE*2	04/29/93	<1
BENZENE	UG/KG	34010*PFS		MB*NONE*1	04/28/93	<1
BENZENE	UG/KG			MB*NONE*2	04/29/93	<1
FLUOROBENZENE	UG/KG	34371*PFS		MB*NONE*1	04/28/93	<1
FLUOROBENZENE	UG/KG			MB*NONE*2	04/29/93	<1
BENZENES, TOTAL	UG/KG	81551*PFS		MB*NONE*1	04/28/93	<1
BENZENES, TOTAL	UG/KG			MB*NONE*2	04/29/93	<1
AS DIESEL	MG/KG	97468*PCS	P12833	MB*NONE*1		<1

 CONCORD 12123  
 Sample Matrix Spike (SPM) Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.
BENZENE	UG/KG	34030*PFS	P12827	SPM1*12123*9	04/29/93	40	35	88	42-146	0.0		42
BENZENE	UG/KG			SPM2*12123*9		40	27	68	42-146	0.0	26.0	42
BENZENE	UG/KG	34010*PFS		SPM1*12123*9		40	36	90	54-123	0.0		45
BENZENE	UG/KG			SPM2*12123*9		40	28	70	54-123	0.0	25.0	45
AS DIESEL	MG/KG	97468*PCS	P12833	SPM1*12123*1		49	34	69	48-143	0.0		N/A
AS DIESEL	MG/KG			SPM2*12123*1		47	27	57	48-143	0.0	19.0	N/A

 CONCORD 12123  
 Surrogate (SUR) Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	SPIKE CONC
TRIFLUOROTOLUENE	UG/KG	96101*SUR	P12827	MB*NONE*1	04/28/93	40.0	40.0	100.0	34-123	40.0
TRIFLUOROTOLUENE	UG/KG			MB*NONE*2	04/29/93	40.0	40.0	100.0	34-123	40.0
TRIFLUOROTOLUENE	UG/KG			DA*12123*1		40.0	33.6	84.0	34-123	33.6
TRIFLUOROTOLUENE	UG/KG			DA*12123*2		40.0	37.1	92.8	34-123	37.1
TRIFLUOROTOLUENE	UG/KG			DA*12123*3		40.0	36.8	92.0	34-123	36.8
TRIFLUOROTOLUENE	UG/KG			DA*12123*4		40.0	24.8	62.0	34-123	24.8
TRIFLUOROTOLUENE	UG/KG			DA*12123*5		40.0	40.9	102.3	34-123	40.9
TRIFLUOROTOLUENE	UG/KG			DA*12123*6		40.0	35.8	89.5	34-123	35.8
TRIFLUOROTOLUENE	UG/KG			DA*12123*7		40.0	30.9	77.3	34-123	30.9
TRIFLUOROTOLUENE	UG/KG			DA*12123*8		40.0	37.7	94.3	34-123	37.7
TRIFLUOROTOLUENE	UG/KG			DA*12123*9	04/29/93	40.0	41.0	102.5	34-123	41.0
TRIFLUOROTOLUENE	UG/KG			DA*12123*10		40.0	29.7	74.3	34-123	29.7
TRIFLUOROTOLUENE	UG/KG			DA*12123*11	04/28/93	40.0	35.7	89.3	34-123	35.7
TRIFLUOROTOLUENE	UG/KG			DA*12123*12		40.0	34.2	85.5	34-123	34.2
TRIFLUOROTOLUENE	UG/KG			DA*12123*13		40.0	38.0	95.0	34-123	38.0
TRIFLUOROTOLUENE	UG/KG			SPM1*12123*9	04/29/93	40.0	34.2	85.5	34-123	34.2
TRIFLUOROTOLUENE	UG/KG			SPM2*12123*9		40.0	29.8	74.5	34-123	29.8

**APPENDIX C**

**Site Specific Health and Safety Plan**

**SITE SAFETY PLAN JOB NO. 6142**

**1.0 GENERAL INFORMATION**

**SITE:**                      **Company:**      **County of Alameda General Services Agency,  
Building Maintenance Department**  
                                 **Facility:**       **Fairmont Hospital**  
                                 **Location:**     **15401 Foothill Boulevard**  
                                 **City:**           **San Leandro**  
                                 **State:**          **California**

**PLAN PREPARED BY:** **GeoStrategies Inc.**  
**DATE:**                      **June 14, 1994**

**OBJECTIVE:**              **To provide a plan for the safe completion of the closure in-  
place of the underground storage tank**

**PROPOSED DATE OF TANK CLOSURES:**  
**Upon receipt of permits**

**DOCUMENTATION/SUMMARY:**  
**Hazardous material may be present. Caution is advised.**

**2.0 SITE/WASTE CHARACTERISTICS**

**FACILITY DESCRIPTION:**  
**Fairmont Hospital, tank previously utilized to store emergency  
fuel**

**STATUS:**                      **Hospital is active, tank is no longer used to store fuel**

**WASTE TYPES:** **Liquid, Sludge, and Vapor**

**WASTE CHARACTERISTICS:**  
**Volatile, Flammable and Toxic**





### **3.0 HAZARD EVALUATION**

**PARAMETER:** 10% LEL maximum, 300 ppm THC TLV maximum

#### **SPECIAL PRECAUTIONS AND COMMENTS:**

Applicable safety procedures must be followed per GeoStrategies Inc. Health and Safety Plan. Applicable procedures are attached:

Section 9.1 - Underground Storage Tank Removal and Installation (for inerting, traffic work, electric tools, etc. only)

Section 9.4 - Line Testing

Section 9.6 - Street Work

Section 9.9 - Steam Cleaner and Pressure Washer Use

Section 9.10 - Product Transfer

All personnel working on this project must have been trained pursuant to the provisions of CFR 1910-120. (Records available at GeoStrategies offices.) Provisions must be made to insure vapors are not allowed to accumulate in garage area during degassing.

### **4.0 SITE SAFETY WORK PLAN**

#### **PERIMETER ESTABLISHMENT:**

Use barricades, flagging and vehicles to restrict access to work areas

#### **PERSONAL PROTECTION:**

Level of Protection: EPA Level D

Modifications: Hard hats and red vests required

Surveillance Equipment and Material:  
Gastech

#### **SITE ENTRY PROCEDURES:**

No unauthorized personnel

**DECONTAMINATION PROCEDURES:**

Tools will be steam cleaned, the rinse water will be collected and removed from the site by a licensed hazardous waste hauler. Personal protective equipment will be washed thoroughly with detergent solution and water.

**FIRST AID:** As applicable

**WORK LIMITATIONS (TIME OF DAY, WEATHER, HEAT/COLD STRESS):**  
As applicable

**CLOSURE-DERIVED MATERIAL DISPOSAL:**

All closure-derived material will be disposed of properly by a licensed hazardous waste hauler after applicable analytical tests have been conducted and the results have been reviewed.

**TEAM COMPOSITION:**

GeoStrategies Inc.: Field Engineer (1); Gettler-Ryan Inc.: Site Foreman (1) (Site Foreman is Site Safety Officer), Laborers (2); Subcontractors: Licensed Hazardous Waste Hauler, Slurry Provider, Slurry Pumper

**5.0 EMERGENCY INFORMATION**

**LOCAL RESOURCES:**

Ambulance/Hospital	Dial 911
Police/Sheriff/Highway Patrol	Dial 911

**SITE RESOURCES:**

Water Supply	Fire Extinguisher
Telephone	First Aid Kit
Visqueen	Sorbant Pads

**EMERGENCY CONTACT:**

GeoStrategies Inc.	1-510-551-8777
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**EMERGENCY ROUTES:**

Nearest emergency hospital is: Eden Hospital Medical Center  
(See Attached Information)

HOSPITAL LOCATION IS MARKED ON MAP.

**GeoStrategies Inc.**

## 9.0 SPECIFIC PROCEDURES

### 9.1 UNDERGROUND STORAGE TANK REMOVAL AND INSTALLATION

- 9.1.1 Underground storage tanks are to be removed or installed by employees specifically authorized by the Field Operations Manager.
- 9.1.2 Call Underground Service Alert at 1-800-642-2444 to mark all utilities in the sidewalks surrounding service station. Check to see who is covered by service. Some municipalities do not subscribe. Requests must be made 72 hours in advance.
  - 9.1.2.1 Call any known non-subscribers to USA to mark their lines. ie. local sewer and storm drain agencies.
  - 9.1.2.2 If available, use site drawings of underground lines to mark line locations before any excavating is done.
  - 9.1.2.3 If needed, no parking signs should be posted at this time.
- 9.1.3 Project Manager will conduct a site safety briefing with project foreman prior to the start of work.
  - 9.1.3.1 Project foreman will conduct a preconstruction site safety briefing with his crew and sub-contractors.
  - 9.1.3.2 The foreman is responsible for insuring visitors are aware of site safety requirements.
- 9.1.4 Use sufficient lighted barricades and flagging to secure excavated areas (1 barricade for each ten feet of distance to cover plus 2).
  - 9.1.4.1 Sites and/or excavations will normally be fenced.
- 9.1.5 Shut off all power to station exterior (pumps, lights, etc.) when starting tank excavation. VERIFY power is off (See Section 9.13).
- 9.1.6 Post "No Smoking" signs and enforce them.
- 9.1.7 Observe overhead line clearances. A minimum 10 ft. clearance must be maintained.

9.1.8 Hard hats are to be worn by all personnel while any heavy equipment is in operation. (i.e., hop-to, crane etc)

9.1.8.1 Hard hats will be worn by employees working in the tank excavation or trenches when there is a danger of falling objects.

9.1.9 Fire extinguishers are required on site during tank removal operations. (2-20 lb. ABC minimum)

9.1.10 Use accepted procedures for freeing tanks of vapors:

- Tank may not contain more than 1 gal. of product per 1000 gal. capacity.
- Remove all product from tank after all lines have been purged.
- Add a minimum of 10 gal. of water to tank and allow to settle 5 minutes then pump out into approved drums.
- Recheck tank for liquid product.
- Begin vapor free/tank ventilation with compressed air venturi device. Device must be bonded metal to metal (grounded) to prevent build up of static electricity.
- When LEL is less than 10%.
- Insert 30 lbs of dry ice per 1000 gal. of tank capacity using as many tank openings as possible. Local regulations may require more.
- Add 5 gallons of water to dry ice in tank.
- Use Gastechtor to check vapor levels in tank hole or other excavations to insure vapors have not collected.
- Tank LEL must be less than 10% or as instructed by local fire marshal before it may be moved.
- Drums of extracted water/product are to remain on site for later disposal. Drums must be labeled as to contents. (Tank bottom water is considered a hazardous waste.)
- Tanks must be removed from site as soon as possible and properly disposed of. (manifested)

- 9.1.11 Use of electrically powered tools in tank excavation while old UGST are in ground is prohibited.
  - 9.1.11.1 A manual four wheel cutter is recommended for cutting lines when necessary.
  - 9.1.11.2 Pneumatic tools may be used providing LEL in tank area is confirmed below 20% Gastechtor reading.
- 9.1.12 All persons not required to be working at the excavation should remain outside work area.
  - 9.1.12.1 Watch for fellow workers walking around excavation, hopto, loader and other heavy equipment.
- 9.1.13 No personnel may enter a tank excavation deeper than five feet below grade for any reason unless the excavation is properly shored, sloped or benched. (See section 9.12)
  - 9.1.13.1 Personnel may enter the excavation to walk on the tank top during purging, LEL checks or to attach chains for removal, as per above.
  - 9.1.13.2 Use extreme caution when walking on any tank top as they can be very slippery.
- 9.1.14 When working in the street, all personnel must wear red vests and hard hats. Stop/slow paddles must be used by traffic control personnel. Traffic control personnel must be used any time normal street traffic is affected. i.e. Loading or unloading tanks.
- 9.1.15 If a vehicle or piece of equipment is protruding into the street, it must be coned and/or barricaded. Two way traffic must be maintained.
- 9.1.16 When tanks are being loaded or unloaded, no personnel are allowed to be under the tanks.
- 9.1.17 No personnel are allowed to work on a tank top while tank is above ground or on a trailer.
  - 9.1.17.1 Ladders must be used or tank may be rolled such that necessary work i.e., air testing may be performed from ground level.

- 9.1.18 A temporary vent must be installed in each newly installed tank.
  - 9.1.18.1 Tanks taken out of service but not immediately removed must be vented above grade.
- 9.1.19 Tanks will be ballasted with water to avoid tank floating. Gasoline may be used at the direction of the customer only.
- 9.1.20 All driveways and excavated areas must be barricaded and flagged at all times except to allow worker and equipment access.
- 9.1.21 Insure all public right of ways (street and sidewalks) are clean and free of job caused hazards.
- 9.1.22 Fence excavation as required.
- 9.1.23 Nail 2"x4" lumber between barricades around excavated areas and driveways where fencing is not used.
- 9.1.24 Cover trenches with 1 1/8" plywood where needed for walking. Barricade all others, regardless of fencing.
- 9.1.25 Keep area lighted at night when possible.
- 9.1.26 A 24 hour guard will be maintained on site when required. e.g. an excavation over 5 feet deep containing water, excessive vapors are present or there is exposed piping which has been tested.

#### 9.4.1 Petrotite Testing (Hydrostatic)

- 9.4.1.1 Turn off power to submersible pumps before opening any line.
- 9.4.1.2 Lockout/Tagout breaker switch and post warning sign. Inform station personnel of affected products. (See Section 9.3)
- 9.4.1.3 Secure all nozzles on affected products.
- 9.4.1.4 Follow all manufacturers procedures for equipment set up.
- 9.4.1.5 Use cones and barricades as necessary to close off working area. Wearing of red warning vests while working on service islands is recommended.
- 9.4.1.6 When removing dispenser door panels:
  - Do not stand panels up against anything (they may fall and hit cars or people).
  - Lay panels flat, out of the way, if possible.
- 9.4.1.7 Avoid product spillage. Use absorbent materials and pans if required.
- 9.4.1.8 If Petrotite line test fails:
  - Do not put system back into service until repairs are made, the line retested, the test holds, and the system is without defects.
  - If line is to be left out of service, screw down product check valve, trip all product impacts and tape off product breaker switch.

9.4.2 Air, nitrogen or helium testing of lines

- 9.4.2.1 Two men recommended for all pressure testing.
- 9.4.2.2 Lines will be isolated from tanks when testing above 5 psi. (maximum pressure is 100 psi. unless otherwise specified).
- 9.4.2.3 Turn off power to submersible pump and secure product nozzles of affected products when testing product lines.
- 9.4.2.4 Keep air compressor as far away as possible from tank complex and pump islands.
- 9.4.2.5 Always remove fill caps and, if possible, drop tubes from ALL tanks when testing lines.
- 9.4.2.6 Confirm line configuration. Check for crossed lines.
- 9.4.2.7 Use two good/serviceable gauges.
- 9.4.2.8 All primary piping is to be tested at 90 to 100 PSI. Use 0-120 PSI gauge.
- 9.4.2.9 Test will be left on for 1 hour minimum.
- 9.4.2.10 If product line test fails:
  - Do not put system back into service until repairs are made, the line is retested, the test holds, and the system is without defects.
  - If line is to be left out of service screw down product check valve, trip all impacts and lock out product breaker switch.



9.4.2.11 When testing is complete:

- Bleed pressure off slowly.
- Watch for vapor accumulation in surrounding area.
- Remove all plugs.
- Reconnect all lines.
- Reset all impact valves.
- Check for and repair any product leaks.
- Insure all systems are operational prior to leaving site.
- Systems that fail testing are not to be put back into service until repairs are made.

9.6 STREET WORK

- 9.6.1 All planned street work will be submitted to the Safety Manager a minimum of 72 hours prior to commencement of work.
- 9.6.2 The Safety Manager is responsible for formulating a traffic safety plan for the site.

- 9.6.3 The Safety Manager or Superintendent will physically check each site for street layout.
- 9.6.3.1 All digging/drilling locations should be marked with white paint at this time.
- 9.6.3.2 USA will be notified immediately after marking.
- 9.6.3.3 If needed, no parking signs should be posted a minimum of 72 hours prior to commencement of work.
- 9.6.4 The traffic safety plan will include as a minimum:
- map of location with excavation points marked.
  - lanes to be affected.
  - traffic control devices needed.
- 9.6.5 A traffic safety plan will be made for each site requiring regular monitoring and/or sampling of street wells. This plan will become a part of the work order.
- 9.6.6 Two persons are required for all street work requiring a traffic lane closure. Two persons recommended for all other street work.
- 9.6.7 A red safety vest with reflective stripes will be worn by all personnel working in the street or by those crossing a street on regular basis to work. Hard hats are recommended while working in the street to provide additional protection and visibility to motorists.
- 9.6.8 The State of California Department of Transportation (CALTRANS) guidelines will be used as the traffic control guide unless specifically supplemented by local requirements.
- 9.6.9 No work in the street will commence until the affected lanes have been closed off and all traffic control devices are in place.

- 9.6.10 Vehicles should be parked so as to provide maximum protection for personnel. At least 1 vehicle must be equipped with a warning light other than hazard flashers.
  
- 9.6.11 All excavations in the street including parking areas will be covered by trench plates when practical.
  
- 9.6.12 Any cones or delineators left overnight in or near the street must have reflective sleeves.
  - 9.6.12.1 Unattended 28" cones are not to be used to block a lane of traffic at night.
  
- 9.6.13 Barricades left overnight must be lighted. Use of unattended barricades in the street is not recommended.

## 9.9 STEAM CLEANER/PRESSURE WASHER USE

- 9.9.1 All personnel using the steam cleaner/pressure washers (SC/PW) must read the operators manual on the equipment.
- 9.9.2 Eye and hand protection are required while operating this equipment. Face shields, goggles and insulated rubber gloves are strongly recommended.
- 9.9.3 Use only diesel in the burner unit. Use only regular gas in engine, DO NOT CONFUSE TANKS.
- 9.9.4 Turn unit off completely while refueling.
- 9.9.5 Do not spray water on electrical components.
- 9.9.6 Grip steam cleaning wand securely before starting washer. Serious injury can be inflicted if an unsecured wand starts whipping.
- 9.9.7 Units with shut off guns should not be operated in the shut off position for extended periods. Insure burner shuts off when gun is shut off.
- 9.9.8 Protect discharge hose(s) from vehicular traffic.
  - 9.9.8.1 Replace any discharge hose which has signs of damage or wear.
- 9.9.9 Protect the public and all property from flying debris and wand discharge.
- 9.9.10 Drum and label all cleaning water as required by local regulations.
- 9.9.11 Use proper containment for equipment being cleaned.

## 9.10 PRODUCT TRANSFER

- 9.10.1 During the course of our operations we may be required to transfer flammable products (gasoline/diesel primarily) from tank to tank, dispenser to drum, tank to drum, etc. for on site storage or tank and line testing.
- 9.10.2 During any product transfer extreme care must be taken to prevent the build up of static electricity through bonding and grounding.
- 9.10.3 Spills must always be avoided. Have absorbent materials readily accessible.

9.10.4 The primary means of transfer are the use of:

- approved flammable liquid transfer pump.
- approved hand operated transfer pump.
- gasoline dispenser to calibration bucket, safety can or drum.

9.10.4.1 When using the pneumatic gasoline transfer pump, care must be taken to insure:

- tank truck hoses are being used.
- pump is grounded.
- 20 lb ABC fire extinguisher is readily accessible.
- discharge nozzle is below product level when possible.
- discharge hose is bonded to container by use of grounding wire and/or that nozzle is below product level.
- intake should be below product level to minimize air intake.

9.10.4.2 When using hand transfer pump, care must be taken to insure:

- discharge hose is bonded to tank or drum. (use ground wire or tip of standard steel braid gasoline hose)
- discharge nozzle is below surface of product.

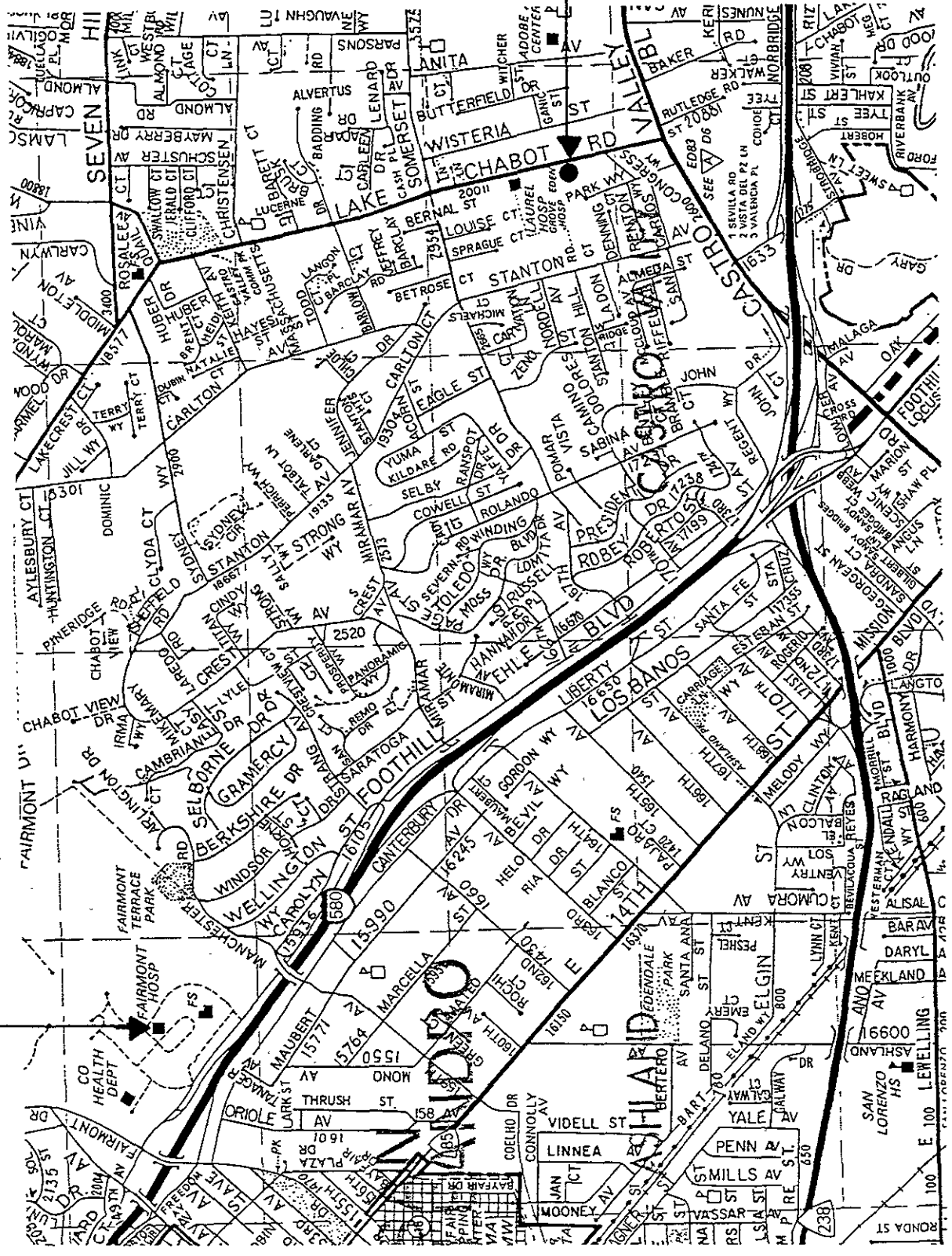
9.10.4.3 When using gasoline dispenser to transfer product care must be taken to insure:

- nozzle tip rests against the metal container.
- a bonding (grounding) wire is used whenever lines are being purged of air. (Metal to metal contact is required).
- DO NOT use a plastic bucket!

9.10.5 Do not use trash or other water pumps for fuel transfer.

- 9.10.6 When necessary, approved safety cans will be used to store gasoline and diesel on Gettler-Ryan Inc. vehicles. Five (5) gallons of each product is the maximum allowable storage.
- 9.10.7 When pouring gasoline/diesel into tank or any container use approved funnels.
- 9.10.8 Flammable liquids will be stored on site only in DOT approved drums. (closed top with 1-2" bung and 1-3/4" bung) Drums must be properly labeled.

WORK SITE - FAIRMONT HOSPITAL  
15401 FOOTHILL BLVD.



EDEN HOSPITAL  
MEDICAL CENTER  
(See INFORMATION  
NEXT PAGE)



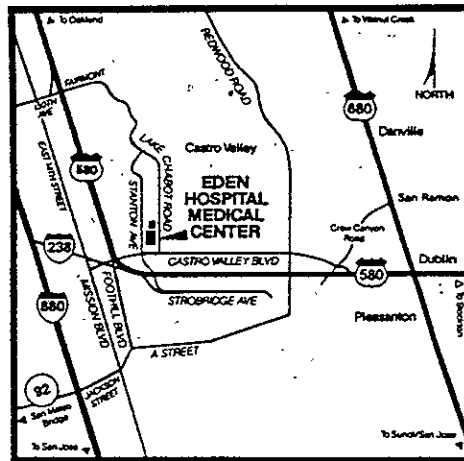
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