



7/10/99 - Piping in basement never removed.  
Doesn't look like the SS. were taken  
either.

**FINAL REPORT DOCUMENTING  
THE CLOSURE AND ABANDONMENT IN-PLACE  
OF THE UNDERGROUND STORAGE TANKS**


at  
Jackson and 12th Streets  
ALCOPARK Facility  
165 13th Street  
Oakland, California


613801-02

Report prepared for

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

by  
GeoStrategies Inc.

  
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R.C.E. C30965

August 10, 1994



Before site  
closure we may  
need results from  
removal at state  
Bldg - see JE

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## 1.0 INTRODUCTION

At the request of Alameda County General Services Agency (Alameda County), GeoStrategies Inc. (GSI) has prepared this Final Report documenting the closure and abandonment in place of the two underground storage tanks (USTs) at the subject site. This document details the work performed during closure activities.

The work performed conformed with the Work Plan dated June 14, 1994 and included: (1) administrative preparation for closure activities; (2) on-site preparation for closure activities; (3) removal of all liquids, residues and vapors from the USTs; and (4) filling of the USTs, manholes, vent, fill and vapor lines with an inert solid.

## 2.0 SITE DESCRIPTION AND HISTORY

### 2.1 Site Description

Alameda County Parking Garage (ALCOPARK) is an operating parking garage located at 165 13th Street, in Oakland, California, as shown on the Vicinity Map, Figure 1. In the southwest corner of ALCOPARK, near the intersection of Jackson and 12th Streets, there were two 10,000 gallon USTs that had previously been used to store gasoline for refueling county operated vehicles. The location of the USTs can be seen on the Site Plan, Figure 2. The dispenser for these tanks was located in the basement of the parking garage. In 1979, Alameda County installed and began operation of a new outdoor gasoline filling station located at the corner of 13th and Jackson Streets. The use of the subject tanks located at 12th and Jackson Streets stopped in the early 1980's, at which time the dispenser in the basement was removed. According to a long-time employee, the gasoline in the subject tanks was removed in the mid 1980's.

Both subject USTs, numbered 1921-1 and 1921-2, were 10,000 gallon capacity and were single wall steel construction. Both tanks were located below the water table surface and were secured by two, 2-inch diameter steel rods attached to a reinforced concrete pad that was 26 feet, 8 inches below ground surface (bgs). Both USTs were accessible through their own 36 inch precast manhole shaft with rungs. UST details can be found in Cross Section AA', Figure 3.

Tank Information Summary Sheets prepared previously can be found in Appendix A. These summaries state the USTs were fiberglass and had a capacity of 8,000 gallons. It is unlikely the USTs were composed of fiberglass, as fiberglass USTs were not yet being manufactured in 1956, the time of their installation. Based on a review of information provided to GSI, this is the only reference to the USTs being 8,000 gallon tanks rather than 10,000 gallon tanks, therefore GSI assumed the tanks had a 10,000 gallon capacity.

## 2.2 Site History

In 1956 both USTs were installed at the ALCOPARK on the corner of Jackson and 12th Streets. While Tank Information Summary Sheets indicate UST 1921-1 was originally used to store regular gasoline and UST 1921-2 was originally used to store unleaded gasoline, site observations suggest both tanks held the same type of fuel, as the USTs appear to have operated on a suction system and only one dispenser was used for both tanks. According to a long-time employee, after the new outdoor gasoline filling station at the corner of 13th and Jackson Streets began operation in 1979, the UST 1921-1 and UST 1921-2 were both used to dispense the same type of gasoline. In the early 1980's, the Fire Marshall shut down operation of the subject tanks as the gasoline dispenser was unsafely located in the basement. The gasoline in UST 1921-1 and UST 1921-2 was removed in the early 1980's according to the long-time employee. In October 1992 Environmental Science & Engineering, Inc. (ESE) supervised the attempted drilling of boring SB-1A and the drilling of soil borings SB-1, SB-2, SB-3 and SB-4. The location of all five borings can be found on the Site Plan.

On December 17, 1993, Mr. Andrew B. Garcia of Alameda County General Services Agency, wrote Mr. Thomas F. Peacock, Supervising Hazardous Materials Specialist, Division of Hazardous Materials, Department of Environmental Health, summarizing their November 22, 1993 discussion and their December 15, 1993 telephone conversation regarding the then current status and future compliance requirements at ALCOPARK Facility. On December 23, 1993, Mr. Thomas F. Peacock signed the document, concurring with the letter's contents. A copy of this letter can be found in Appendix B. Regarding the UST removal at 12th and Jackson Street, the following conclusions were made:

- (1) analytical results from ESE's report supported the case that groundwater contamination is coming from a source upgradient of ALCOPARK;
- (2) the County would explore the option to close the two USTs in place;
- (3) Environmental Health would not require the County to do additional soil borings or install additional groundwater monitoring wells at this time;
- (4) since closure of the two USTs is part of an on-going site closure, the County would only need to submit closure plans, no new permits would be required.

### **3.0 PREVIOUS ENVIRONMENTAL WORK**

On October 13, 1992 ESE supervised the attempted drilling of boring SB-1A, which was not completed due to difficult drilling conditions. On October 27 and 28, 1992 ESE supervised the drilling of soil borings SB-1, SB-2, SB-3 and SB-4. ESE took soil and ground water samples from borings SB-1 through SB-4 and analyzed them for total petroleum hydrocarbons as gasoline (TPH-G) and benzene, toluene, ethylbenzene and total xylenes (BTEX). The analytical results of these samples are summarized in Table 1, Analytical Data: Soil Samples, and Table 2, Analytical Data: Ground Water Samples, as compiled by ESE and found in ESE's "Report of Findings, Subsurface Investigation for Underground Storage Tanks at Jackson and 12th Streets, ALCOPARK Facility, 165 13th Street, Oakland, California," issued on April 19, 1993. Laboratory analytical results, as reported in the same document, for the soil and groundwater samples are included in Appendix C.

### **4.0 WORK PERFORMED DURING CLOSURE ACTIVITIES**

A photojournal, containing Figures 1 through 17 which document the work performed during UST closure activities, is presented in Appendix D. Figures 1 through 4 of Appendix D portray the subject site and delineate the locations of the manways, and gauging, vent, fill, and vapor recovery lines.

#### **4.1 Administrative Preparation for Abandonment in Place of the USTs**

GSI submitted the appropriate closure plan forms to both the Alameda County Department of Environmental Health and the City of Oakland Fire Department. A underground storage tank closure permit was obtained from the City of Oakland Fire Department after concurrence from the Department of Environmental Health. A copy of the tank closure permit comprises Appendix E. GSI then familiarized all personnel involved, including subcontractors, with the health and safety plan, and scheduled equipment and personnel.

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

Prior to starting work, the site was secured as specified in the health and safety plan. This included restricting access to the exclusion zone and the staging area (placements shown on Figure 4) through the use of barricades, flagging and vehicles.

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

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

As the two USTs were holding vessels for potentially flammable, combustible and hazardous materials, it was necessary to remove any remaining product before the USTs could be filled and sealed. On June 29, 1994, Erickson, Inc. (Erickson) was contracted as the licensed hazardous waste hauler to transport and dispose of removed material. All removed material was considered hazardous waste and handled appropriately. The removal of the material was executed as follows.

Fill, vent, gauging, and vapor recovery lines for both USTs were located and accessed. These eight lines were rinsed by Erickson personnel with hot water and then with a soap and water mixture. Once the tank lines were clean, the USTs were triple rinsed. Rinse water was introduced through the vent line and all rinse water and previously present material was removed by a vacuum line fitted through the tank gauging line (see Figure 5, Appendix D).

Once all material had been removed from the USTs, the rinsate from both USTs was sampled. Figure 6 of Appendix D depicts sampling of the rinsate. The sampler and the laboratory followed formal chain-of-custody documentation procedures. The values for the constituents in the rinsate from the UST closest to the corner were higher than the values for the rinsate from the other UST. Total purgeable hydrocarbons as gasoline ranged from 390 parts per million (ppm) to 180 ppm. Benzene ranged from 0.32 ppm to 0.072 ppm. Laboratory analytical results are presented in Appendix F. A copy of the manifest for the material removed by Erickson is shown in Appendix G.

Also on June 29, 1994, the steel containers and concrete blocks surrounding the vapor recovery lines were removed (see Figure 7, Appendix D) and a dispenser line's riser was located in the basement of ALCOPARK (see Figures 8 and 9, Appendix D).

#### **4.4 Filling of USTs with an Inert Material and Securing of Site**

The USTs were allowed to "breathe" over night, permitting any remaining liquids to evaporate, leaving the tanks dry prior to filling with concrete. On June 30, 1994 both USTs were filled with concrete. Before work began, the USTs' vapors were monitored by GSI personnel and found to be at background levels. These vapors were determined to be safe and filling of the USTs began. Anning-Johnson Company was contracted to fill the tanks using Cellufoam brand Terra-Fill 190 concrete, in place of a sand grout containing one 94 pound sack of cement per cubic yard. The concrete mixing set-up and the preparation of concrete is illustrated in Figures 10 through 13 of Appendix D. Information on Cellufoam brand concrete can be found in Appendix H. Both USTs were filled through their respective vent lines (see Figure 14, Appendix D). Air relief occurred by means of the fill and gauging lines. Once the USTs were full, the manways, fill and gauging lines were filled with concrete (see Figures 15 through 17, Appendix D). The USTs were then topped off and the vent lines filled. The fill, gauging, and vent lines were then cut off and capped with concrete. The manways were capped with concrete and grouted flush with the surface. In ALCOPARK's basement, the dispenser line's riser was removed and capped with concrete.

On July 1, 1994 a back-hoe was introduced on-site and used to remove the vapor recovery lines which lay horizontally and were positioned approximately 1.5 feet below ground surface.

#### **5.0 CONCLUSIONS**

The underground storage tanks UST 1921-1 and UST 1921-2 located at the corner of 12th and Jackson Streets were safely and properly closed in-place on June 29 and 30, 1994. Based on the December 17, 1993 letter from Mr. Andrew B. Garcia, Alameda General Services Agency to Mr. Thomas F. Peacock, Department of Environmental Health, GSI concurs that the Alameda General Services Agency should not be required to perform additional environmental work at the subject site until the Alameda County Department of Environmental Health concludes their investigation of possible upgradient contaminant sources.

6138  
Work Plan  
613801-02

August 10, 1994

## 6.0 REFERENCES

Environmental Science & Engineering, Inc., April 19, 1993. Report of Findings, Subsurface Investigation for Underground Storage Tanks at Jackson and 12th Streets, ALCOPARK Facility, 165 13th Street, Oakland, California. Project No. 6-92-5395.

GeoStrategies Inc., June 14, 1994. Work Plan for the Closure and Abandonment In- Place of the Underground Storage Tanks at Jackson and 12th Streets, ALCOPARK Facility, 165 13th Street, Oakland, California. Job No. 613801-01.



TABLE 1

## ANALYTICAL DATA: SOIL SAMPLES

ALAMEDA COUNTY ALCOPARK  
12TH AND JACKSON STREETS  
OAKLAND, CALIFORNIA

Soil Borings	Sample Depth (feet)	Date	TPH-G (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl-benzene (mg/Kg)	Total Xylenes (mg/Kg)
SB-1	15	10/27/92	<1	0.019	0.019	0.011	0.042
SB-1	21.5	10/27/92	6.3	0.41	0.68	0.10	0.70
SB-2	15	10/27/92	<1	<0.005	<0.005	<0.005	<0.005
SB-2	22	10/27/92	1.8	0.21	0.19	0.034	0.20
SB-3	15	10/28/92	<1	<0.005	<0.005	<0.005	<0.005
SB-3	22	10/28/92	<1	<0.005	<0.005	<0.005	<0.005
SB-4	15	10/28/92	<1	<0.005	<0.005	<0.005	<0.005
SB-4	22	10/28/92	<1	<0.005	<0.005	<0.005	<0.005

## NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline (TPH-G)

mg/Kg = milligrams per kilogram or parts per million (ppm)

< = less than listed detection limit

TABLE 2

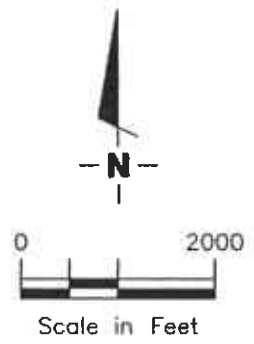
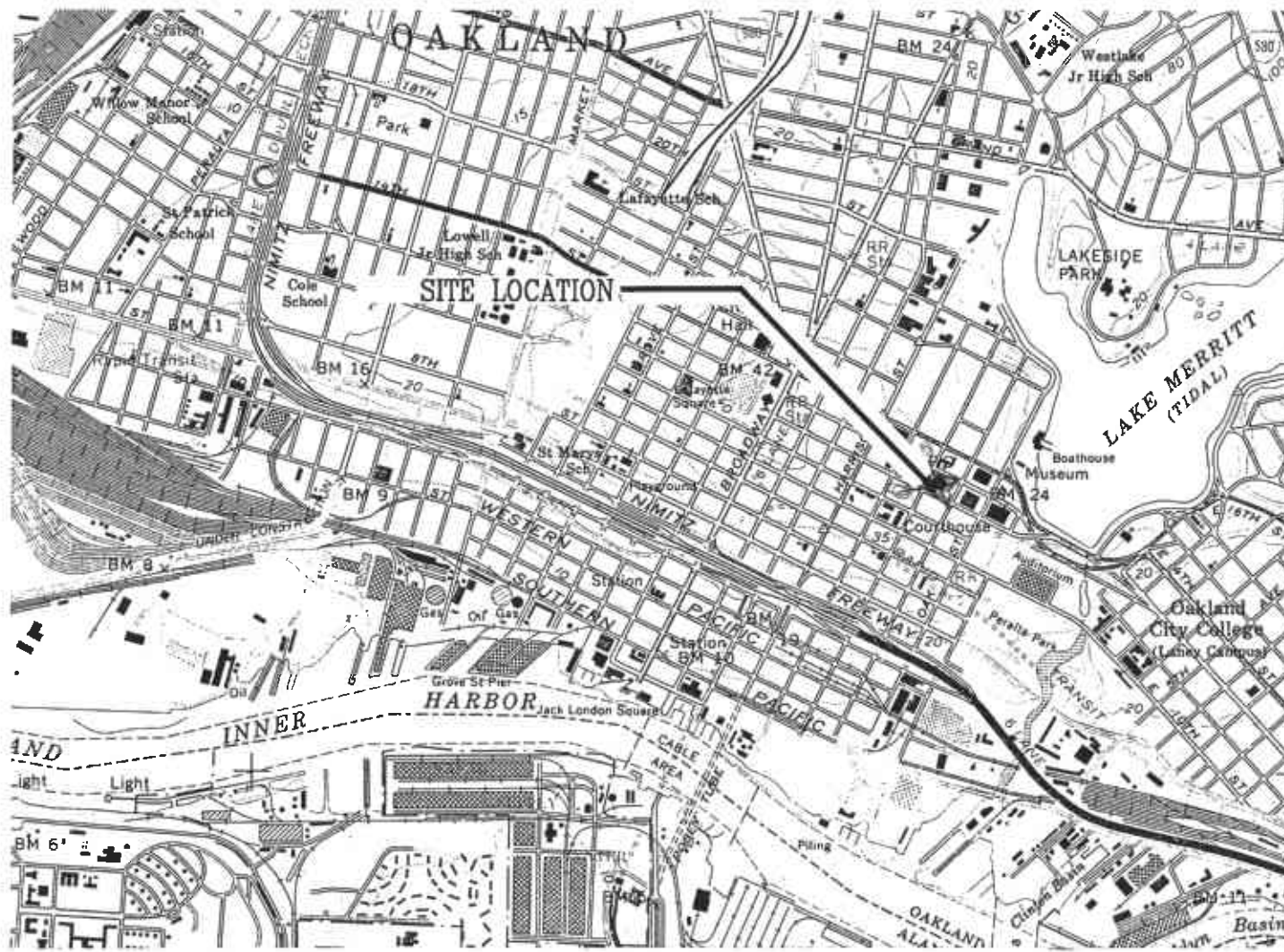
## ANALYTICAL DATA: GROUND WATER SAMPLES

ALAMEDA COUNTY ALCOPARK  
12TH AND JACKSON STREETS  
OAKLAND, CALIFORNIA

Boring	Date	TPH-G ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl- benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )
SB-1	10/27/92	51,000	2,400	9,400	1,400	8,400
SB-2	10/27/92	8,200	560	930	360	620
SB-3	10/28/92	72	0.71	<0.5	0.5	2.4
SB-4	10/28/92	<50	<0.5	<0.5	<0.5	<0.5

## NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline (TPH-G)  
 $\mu\text{g/L}$  = micrograms per liter or parts per billion (ppb)  
< = less than listed detection limit



Base Map: USGS Topographic Map



GeoStrategies Inc.

**VICINITY MAP**  
 Alameda County GSA  
 165 13th Street  
 Oakland, California

FIGURE

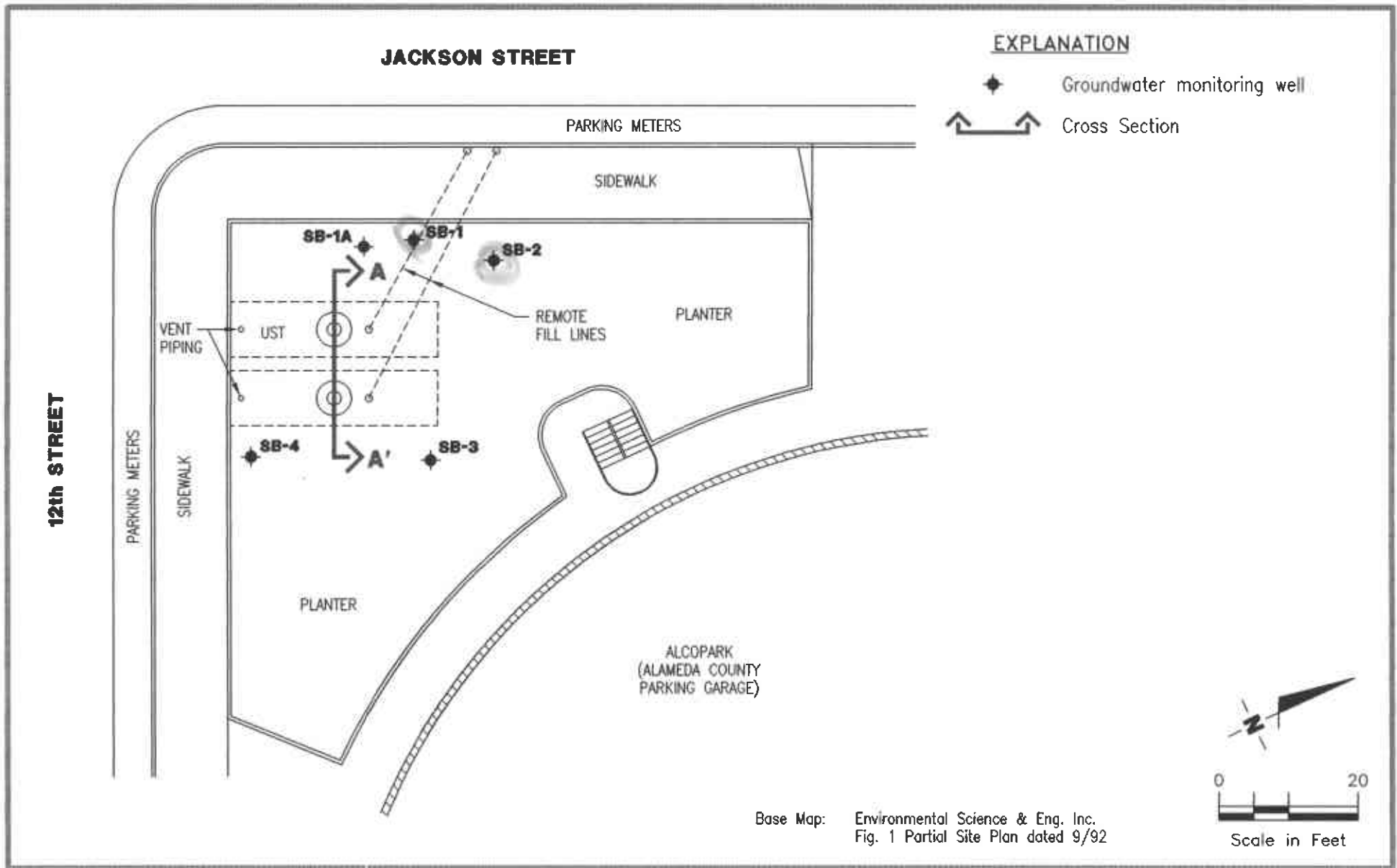
**1**

JOB NUMBER  
6138

REVIEWED BY

DATE  
5/94

REVISED DATE



GeoStrategies Inc.

**SITE PLAN**  
Alameda County GSA  
165 13th Street  
Oakland, California

FIGURE

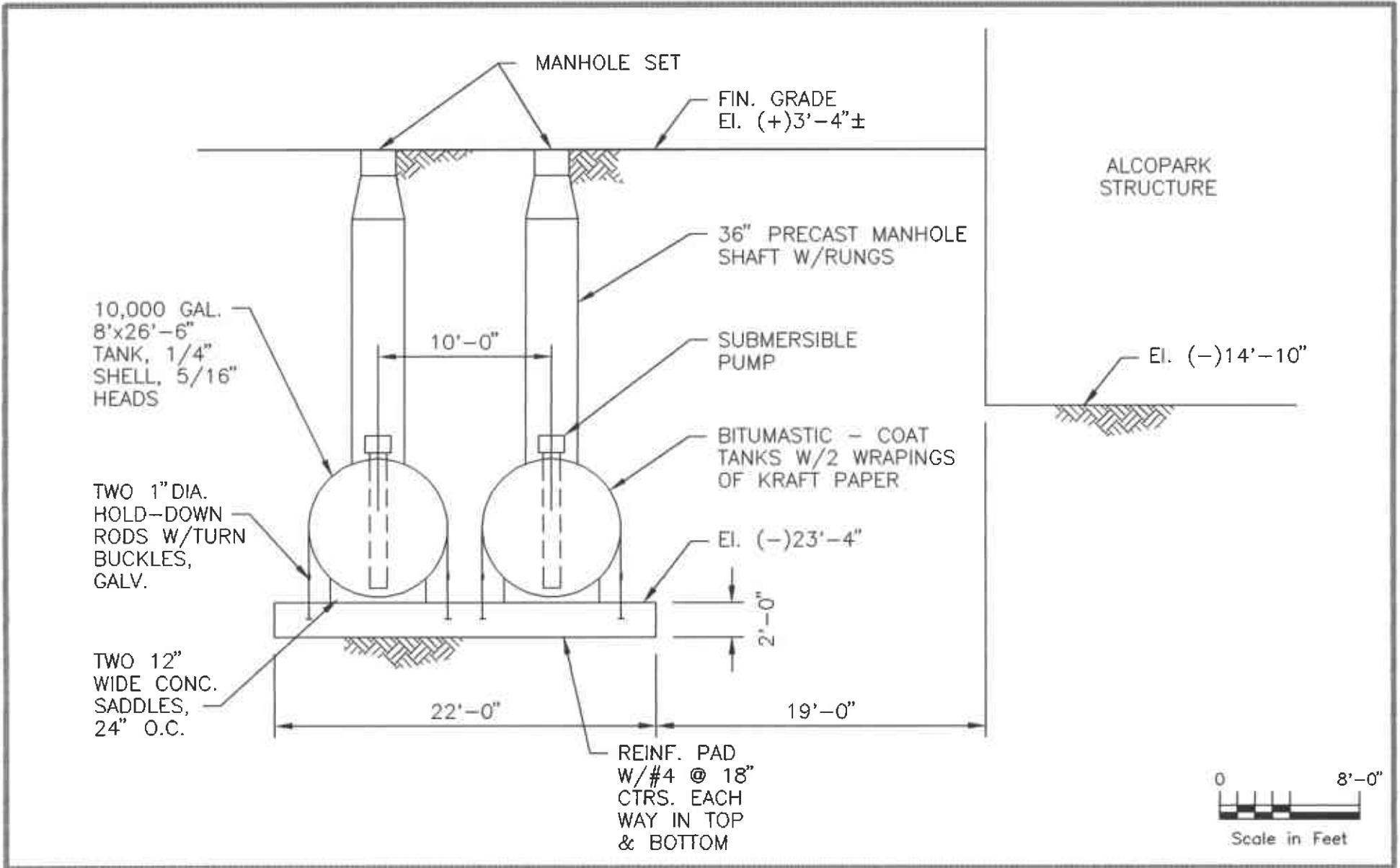
**2**

JOB NUMBER  
613801-1

REVIEWED BY

DATE  
5/94

REVISED DATE



GeoStrategies Inc.

CROSS SECTION AA'  
Alameda County GSA  
165 13th Street  
Oakland, California

FIGURE

3

JOB NUMBER  
613801-1

REVIEWED BY

DATE  
5/94

REVISED DATE

JACKSON STREET

EXPLANATION

◆ Groundwater monitoring well

12th STREET

STAGING

AREA

EXCLUSION AREA

SB-1A

SB-1

SB-2

SB-4

SB-3

Base Map: Environmental Science & Eng. Inc.  
Fig. 1 Partial Site Plan dated 9/92



Scale in Feet



GeoStrategies Inc.

SITE OPERATIONS PLAN

Alameda County GSA  
165 13th Street  
Oakland, California

FIGURE

4

JOB NUMBER  
613801-1

REVIEWED BY

DATE  
5/94

REVISED DATE

**APPENDIX A**

**Tank Information Summary Sheets**

## TANK INFORMATION

TANK NO:	1921-1
TYPE OF TANK:	Underground
CAPACITY:	8,000
CONTENTS:	Reg Gas
DIAMETER:	Unknown
MATERIAL:	Fiberglass
YEAR:	1956
THRUPUT(G/M):	N/A
IN USE:	No
TEST DATE:	N/A
TEST RESULTS(GPH):	N/A
REGISTRATION:	Yes
OPERATING PERMIT:	No
SURFACE MAT:	Planter/Concrete
REPLACEMENT MAT:	Planter/Concrete
MONITORING:	N/A
PIPELINE:	N/A
COMPLIANCE RECOMMENDATIONS:	Remove Tank or Close-In-Place
ESTIMATED COMPLIANCE COSTS:	
LONG TERM RECOMMENDATIONS:	
ESTIMATED COST FOR LONG TERM:	
NOTES:	

1 ft water in tank. Tank bottom 26'8" below grade. Tank in ground water. Possibility of closing in place because of cost to remove at such deep depth.



## TANK INFORMATION

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TANK NO:	1921-2
TYPE OF TANK:	Underground
CAPACITY:	8,000
CONTENTS:	U/L Gas
DIAMETER:	Unknown
MATERIAL:	Fiberglass
YEAR:	1956
THRUPUT(G/M):	N/A
IN USE:	No
TEST DATE:	N/A
TEST RESULTS(GPH):	N/A
REGISTRATION:	Yes
OPERATING PERMIT:	No
SURFACE MAT:	Planter/Concrete
REPLACEMENT MAT:	Planter/Concrete
MONITORING:	N/A
PIPELINE:	N/A
COMPLIANCE RECOMMENDATIONS:	Remove Tank or Close-In-Place
ESTIMATED COMPLIANCE COSTS:	
LONG TERM RECOMMENDATIONS:	
ESTIMATED COST FOR LONG TERM:	
NOTES:	

56" of water in tank. Tank bottom 26'8" below grade. Tank in ground water. Possibility of closing in place because of cost to remove at such deep depth.

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**APPENDIX B**

**Letter from Mr. Andrew B. Garcia,  
Alameda General Services Agency to  
Mr. Thomas F. Peacock,  
Department of Environmental Health,  
Dated December 17, 1993**



# General Services Agency

Darlene Smith, Director

BUILDING MAINTENANCE DEPARTMENT

4400 MacArthur Boulevard

Oakland, California 94619

Telephone (510) 535-6200

FAX (510) 535-6245

Hilton T. Hunt, Deputy Director  
GSA-Building Maintenance Department

December 17, 1993

Mr. Thomas F. Peacock  
Supervising Hazardous Materials Specialist  
Division of Hazardous Materials  
Department of Environmental Health  
80 Swan Way, Room 350  
Oakland, CA 94621

Subject: CURRENT STATUS AND FUTURE COMPLIANCE REQUIREMENTS,  
ALCOPARK FACILITY, 165 13TH STREET, OAKLAND, CALIFORNIA

Dear Tom:

First of all, thank you for meeting with me on November 22, 1993. I appreciate your continued cooperation and suggestions. I feel that our demonstrated team approach will help both organizations to reach our common objectives in the most efficient manner. Below is a summary of our November 22, 1993 discussion and our December 15, 1993 telephone conversation:

- I. Waste Oil Underground Storage Tank (UST) Closure Request - It is the policy of San Francisco Regional Water Quality Control Board that only sites are closed not individual UST's or wells. Therefore, the regulators are considering Alcopark facility as one site. Our October 15, 1993 request for closure of waste oil monitoring well MW-6 can not be granted. Since the County has demonstrated four consecutive quarters that the groundwater samples taken from MW-6 have not exceeded Primary Maximum Contaminated Levels for drinking water, Environmental Health is in agreement that the County can suspend monitoring of well MW-6 and can lock up this well. The County will suspend monitoring and plans no further action.

II. ~~Benzene Contamination at Corner of 13th & Jackson -~~ After reviewing the attached plots of the eight quarters of observed benzene groundwater levels for wells MW-1, MW-5 and MW-4, the corresponding observed direction of the groundwater gradient, and the site soils characterization study that was done, the following conclusions were reached:

A. Since there is no correlation between the observed groundwater TPH-Gasoline and Benzene levels, the observed contamination is due to "old" gasoline. Since the operational tanks are being continuously monitored for leaks and none have been reported, the contamination is not coming from these tanks or from current operation at the active Alcopark gasoline filling station. Since the observed Benzene Concentration levels in groundwater shows a pattern that strongly suggests, when tied into the site characterization study done for the corner of 12th and Jackson, that observed Benzene groundwater contamination is coming upgradient of the Alcopark facility. Therefore, Environmental Health, at this time, will not require the County to install additional monitoring wells or soil borings.

The County requested that the groundwater monitoring of MW-1, MW-4 and MW-5 be suspended. For the time being, Environmental Health will not require quarterly monitoring of the three wells MW-1, MW-4 and MW-5.

B. From a comprehensive search of the records by Environmental Health, the most likely groundwater contamination source is the State of California Office Building located across the street and upgradient of Alcopark. There are currently three UST's located on the site that have been abandoned since 1989. Since they are abandoned, there is no environmental monitoring to confirm or identify that groundwater contamination is coming from this site. Environmental Health is actively pursuing the State of California to come into compliance with these tanks or remove them.

If the contamination source can be discovered, the County can sue the guilty party and recover our clean-up cost associated with identifying this problem. These recoverable costs are as follows:

Groundwater Monitoring @ 13th & Jackson	\$20,250
Removal of Waste Oil Tank & Monitoring	\$30,561
Site Assessment - 12th & Jackson	\$ 9,010
Site Characterization - 13th & Jackson	\$20,645
Future Groundwater Monitoring Expense	<u>\$14,000</u>

**TOTAL RECOVERABLE COSTS** **\$94,466**

Thus, the County appreciates Environmental Health taking the lead to discover the source of the Benzene groundwater contamination.

Mr. Thomas Peacock  
December 17, 1993  
Page 3

III. UST Removal 12th and Jackson - After reviewing the April 19, 1993 Site Characterization Report for the two UST's located at the corner of 12th and Jackson, the following conclusions were reached:

A. This report again shows that the concentration of TPH-Gasoline in the soil samples is below action level but that the upgradient groundwater samples show concentrations of Benzene exceeding MCL's whereas the downgradient samples are below MCL levels. These results are consistent with the groundwater results at the opposite corner, 13th and Jackson as discussed above and again support the case that this groundwater contamination is coming from a source upgradient of Alcopark.

B. The County will explore the option to close these two UST's in place.

C. Environmental Health will not require the County to do additional soil borings or install groundwater monitoring wells.

D. Since closure of these two UST's is part of an on going site closure, the County only needs to submit closure plans. No new permits are required; thus saving the County \$900.

I would appreciate a written confirmation for our records that the above represents our understanding of County's future actions to be taken at Alcopark. Therefore, I would appreciate your prompt acknowledgement by signing both original copies of this letter. Please keep one for your records and return one to me. Again, thank you for your continued cooperation and assistance.

Sincerely,

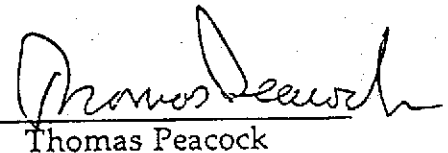


Andrew B. Garcia  
Environmental Project Manager

cc: Mr. Jim de Vos - attachment

Agree and Concur with the above.

12-23-93  
Date



Thomas Peacock

Enclosure

**APPENDIX C**

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



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc. 4090 Nelson Ave., Suite J Concord, CA 94520 Attention: Mike Edmonson	Client Project ID: Alcopark/ #6-92-5393 Sample Matrix: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 210-1030	Sampled: Oct 27, 1992 Relogged: Oct 30, 1992 Reported: Nov 10, 1992
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## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

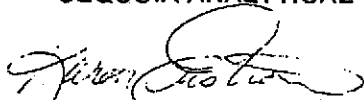
Analyte	Reporting Limit mg/kg	Sample I.D. 210-1030 SB-1@15'	Sample I.D. 210-1031 SB-2 @15'	Sample I.D. 210-1032 SB-3 @15'	Sample I.D. 210-1033 SB-4 @15'
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.
Benzene	0.005	0.019	N.D.	N.D.	N.D.
Toluene	0.005	0.019	N.D.	N.D.	N.D.
Ethyl Benzene	0.005	0.011	N.D.	N.D.	N.D.
Total Xylenes	0.005	0.042	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--

### Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Analyzed:	11/6/92	10/30/92	10/30/92	10/30/92
Instrument Identification:	HP-2	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	99	104	105	103

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering 4090 Nelson Ave., Suite J Concord, CA 94520 Attention: Michael Edmonson	Client Project ID: Alcopark / #6-92-5393 Sample Matrix: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 210-0977	Sampled: 10/27&10/28/92 Received: Oct 29, 1992 Reported: Nov 9, 1992
--	--	--

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION


Analyte	Reporting Limit mg/kg	Sample I.D.	Sample I.D.	Sample I.D.	Sample I.D.
		210-0977 SB-1@21.5'	210-0978 SB-2@22'	210-0981 SB-3@22'	210-0982 SB-4@22'
Purgeable Hydrocarbons	1.0	6.3	1.8	N.D.	N.D.
Benzene	0.005	0.41	0.21	N.D.	N.D.
Toluene	0.005	0.68	0.19	N.D.	N.D.
Ethyl Benzene	0.005	0.10	0.034	N.D.	N.D.
Total Xylenes	0.005	0.70	0.20	N.D.	N.D.
Chromatogram Pattern:		Gasoline	Gasoline	--	--

### Quality Control Data

Report Limit Multiplication Factor:	2.5	1.0	1.0	1.0
Date Analyzed:	10/30/92	10/30/92	10/29/92	10/29/92
Instrument Identification:	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	100	103	100	99

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager





# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering  
4090 Nelson Ave., Suite J  
Concord, CA 94520  
Attention: Michael Edmonson

Client Project ID: Alcopark / #6-92-5393

QC Sample Group: 2100977-984

Reported: Nov 9, 1992

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
	Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 29, 1992	Oct 29, 1992	Oct 29, 1992	Oct 29, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.40	0.40	0.40	1.3
Matrix Spike % Recovery:	100	100	100	108
Conc. Matrix Spike Dup.:	0.40	0.40	0.40	1.3
Matrix Spike Duplicate % Recovery:	100	100	100	108
Relative % Difference:	0.0	0.0	0.0	0.0

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

2100977.ESE <3>



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc. Client Project ID: Alcopark/ #6-92-5393  
4090 Nelson Ave., Suite J  
Concord, CA 94520  
Attention: Mike Edmonson QC Sample Group: 2101030-33

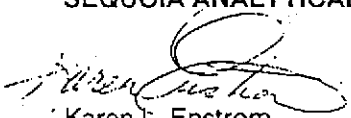
Reported: Nov 10, 1992

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Reporting Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Date Analyzed:	Nov 6, 1992	Nov 6, 1992	Nov 6, 1992	Nov 6, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.36	0.39	0.40	1.2
Matrix Spike % Recovery:	90	98	100	98
Conc. Matrix Spike Dup.:	0.38	0.40	0.41	1.2
Matrix Spike Duplicate % Recovery:	95	100	103	102
Relative % Difference:	5.4	2.5	2.5	4.2

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

CHAIN OF CUSTODY RECORD

DATE 10/27/92 PAGE 1 OF 1



Environmental  
Science &  
Engineering, Inc.

4091 Nelson Avenue  
Suite J  
Concord, CA 94520

(415) 685-4053

Fax (415) 685-5323

PROJECT NAME ALCOPARK  
ADDRESS 16513th St (12th & Jackson)  
OAKLAND  
PROJECT NO. 6-92-5393  
SAMPLED BY KERRY LEFEVER  
NAME \_\_\_\_\_

ANALYSES TO BE PERFORMED										MATRIX	MATRIX	CONTAINER NUMBER OF	REMARKS (CONTAINER, SIZE, ETC.)
TPH-G (9015)	BTEX (9016)												
X	X									SOIL	1	BRASS RING 2101030	
X	X										1		
H	H										1		
X	X										1		
X	X										1		
X	X										4	VAS	
X	X										4	VAS	

SAMPLE #	DATE	TIME	LOCATION
B-1@15'	10/27/92	1005	Alcopark
-1@21.5'		1100	Area @
-2@5'		1500	12th & Jackson
-2@10'		1530	
-2@15'		1600	
-2@22'		1640	
3-1		1345	
3-2		1710	

RELINQUISHED BY: (signature) <u>Kerry LeFever</u>	RECEIVED BY: (signature) <u>Mike Edmonson</u>	date <u>10-29-92</u>	time <u>8:00</u>
<u>Mike Edmonson</u>	<u>J. Ganssman</u>	<u>11/29/92</u>	<u>3:45 PM</u>

TOTAL NUMBER OF CONTAINERS <u>14</u>	REPORT RESULTS TO: <u>MIKE EDMONSON</u>	SPECIAL SHIPMENT REQUIREMENTS
SAMPLE RECEIPT		
CHAIN OF CUSTODY SEALS		
REC'D GOOD COND'TN/COLD		
CONFORMS TO RECORD		

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):  
to Analyze B = VAS Standard Turnaround time

CHAIN OF CUSTODY RECORD

10/28/92 PAGE 1 OF 1



Environmental Science & Engineering, Inc.

4090 Nelson Avenue Suite J Concord, CA 94520

(415) 685-4053

Fax (415) 685-5123

PROJECT NAME ALCO PARK  
 ADDRESS 165 13th STREET  
OAKLAND  
 PROJECT NO. 6-92-5373  
 FILED BY KERRY LEFEVER  
 NAME

ANALYSES TO BE PERFORMED										MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)	
TPH-G (SOIL)	BTEX (SOIL)									MATRIX			
B-3@5'	10/28/92	1000	ALCO PARK	H	H						SOIL	1	BRASS RING
B-3@10'		1030	12th & JACKSON	H	H							1	
B-3@15'		1110		X	X							1	2101032
B-3@20'		1200		X	X					2100981		1	
B-4@5'		1525		H	H							1	
B-4@10'		1555		H	H							1	
B-4@15'		1620		X	X							1	1033
B-4@20'		1645		X	X					2100982		1	
B-3		1245		X	X					2100983 AD	WATER	4	VOAS
B-4		1715		X	X					2100984 AD	WATER	4	VOAS

RELINQUISHED BY: (signature)  
 Kerry LeFever  
 [Signature]

RECEIVED BY: (signature)  
 [Signature]  
 [Signature]

DATE TIME  
 10-29-92 8:00  
 10/29/92 3:45 PM

16  
 REPORT RESULTS TO:  
 MIKE EDMONSON

TOTAL NUMBER OF CONTAINERS  
 SPECIAL SHIPMENT REQUIREMENTS

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

X = Analyze H = Hold Standard Turnaround Time

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



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering  
4090 Nelson Ave., Suite J  
Concord, CA 94520  
Attention: Michael Edmonson

Client Project ID: Alcopark / #6-92-5393  
Sample Matrix: Water  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 210-0977

Sampled: 10/27&10/28/92  
Received: Oct 29, 1992  
Reported: Nov 9, 1992

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION


Analyte	Reporting Limit µg/L	Sample I.D. 210-0977 SB-1	Sample I.D. 210-0978 SB-2	Sample I.D. 210-0983 SB-3	Sample I.D. 210-0984 SB-4
Purgeable Hydrocarbons	50	51,000	8,200	72	N.D.
Benzene	0.5	2,400	560	0.71	N.D.
Toluene	0.5	9,400	930	N.D.	N.D.
Ethyl Benzene	0.5	1,400	360	0.50	N.D.
Total Xylenes	0.5	8,400	620	2.4	N.D.
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline	--

### Quality Control Data

Report Limit Multiplication Factor:	100	10	1.0	1.0
Date Analyzed:	10/29/92	10/29/92	10/29/92	10/29/92
Instrument Identification:	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	104	106	99	100

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager

2100977.ESE <2>



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering  
4090 Nelson Ave., Suite J  
Concord, CA 94520  
Attention: Michael Edmonson

Client Project ID: Alcopark / #6-92-5393

QC Sample Group: 2100977-984

Reported: Nov 9, 1992

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
	Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Oct 29, 1992	Oct 29, 1992	Oct 29, 1992	Oct 29, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	20	20	20	66
Matrix Spike % Recovery:	100	100	100	110
Conc. Matrix Spike Dup.:	20	20	20	65
Matrix Spike Duplicate % Recovery:	100	100	100	108
Relative % Difference:	0.0	0.0	0.0	1.5

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

Karen L. Enstrom  
Project Manager

CHAIN OF CUSTODY RECORD



Environmental Science & Engineering, Inc.

4090 Nelson Avenue  
Suite J  
Concord, CA 94520

(415) 685-4053

Fax (415) 685-5323

NOV 27/92 PAGE 1 OF

PROJECT NAME ALCOPARK  
ADDRESS 16513th St (12th & Jackson)  
OAKLAND  
PROJECT NO. 6-92-5393  
SAMPLED BY KERRY LEFEVRE  
LABORATORY NAME

ANALYSES TO BE PERFORMED				MATRIX	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
TPH-G (8015)	BTEX (8016)						
X	X			Analyze	SOIL	1	BRASS RING 2101030
X	X			2100977		1	
H	H					1	
H	H			Analyze		1	
X	X			2100978		1	↓ 1031
X	X			2100979AD	WATER	4	VOLAS
X	X			2100980AD	WATER	4	VOLAS

RELINQUISHED BY: (signature) Kerry Lefevre  
 RECEIVED BY: (signature) Mike Edmonson  
 date time 10/29/92 8:00  
11/29/92 3:45pm

TOTAL NUMBER OF CONTAINERS 14  
 REPORT RESULTS TO: MIKE EDMONSON  
 SPECIAL SHIPMENT REQUIREMENTS

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):  
Analyze Volas Standard Turnaround time

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

CHAIN OF CUSTODY RECORD

DATE 10/28/92 PAGE 1 OF 1

PROJECT NAME ALCO PARK  
 ADDRESS 165 13th STREET  
OAKLAND  
 PROJECT NO. 6-92-5373  
 FILED BY KERRY LEFEVER  
 NAME \_\_\_\_\_



Environmental Science & Engineering, Inc.  
 (415) 685-4053  
 4090 Nelson Avenue  
 Suite 1  
 Concord, CA 94520  
 Fax (415) 685-5323

SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED										MATRIX	CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)		
				TPH-G (8015)	BTX (8020)													
B-3@5'	10/28/92	1000	ALCO PARK	H	H											SOIL	1	BRASS RING
B-3@10'		1030	12th St SW	H	H												1	
B-3@15'		1110		X	X											1	2101032	
B-3@22'		1200		X	X											1		
B-4@5'		1525		H	H											1		
B-3-4@10'		1555		H	H											1		
B-3-4@15'		1620		X	X											1	1033	
B-4@22'		1645		X	X											1		
B-3-3		1245		X	X										WATER	4	VOAS	
B-3-4		1715		X	X										WATER	4	VOAS	

RELINQUISHED BY: (signature) Kerry Lefever  
 RECEIVED BY: (signature) Mike Edmonson  
 date time 10-29-92 8:00  
10/29/92 3:45 PM

REPORT RESULTS TO: MIKE EDMONSON  
 SPECIAL SHIPMENT REQUIREMENTS  
 TOTAL NUMBER OF CONTAINERS 16  
 SAMPLE RECEIPT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):  
 X = Analyze H = Hold Standard Turnaround Time

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



**APPENDIX D**

**Photojournal of Underground Storage Tank Closure Activities**

**Photojournal  
of the  
Underground Storage Tanks Closure In-Place  
at  
Jackson and 12th Streets  
ALCOPARK Facility  
165 13th Street  
Oakland, California**

---



**Figure 1: Looking south-east down 12th Street across subject site. Covered manways are visible.**



**Figure 2:** Looking north-east across subject site. Manways, gauging and vent lines are visible.



**Figure 3:** Looking north-east down Jackson Street. Fill lines are visible.



**Figure 4:** Looking south across subject site. Vapor recovery systems are located inside bucket-shaped steel containers.



**Figure 5:** Rinsing and vacuuming of USTs. Vacuum truck visible in background.



**Figure 6: Sampling of rinsate from one of the USTs.**



**Figure 7: Vapor recovery lines after concrete blocks and steel containers were removed.**



**Figure 8:** ALCOPARK's basement: dispenser line's riser is at the base of the dip sticks.



**Figure 9:** ALCOPARK's basement: dispenser line's riser.



Figure 10: Concrete mixing set-up.



Figure 11: Concrete mixing set-up.



**Figure 12:** Preparation of concrete.



**Figure 13:** A fire hydrant provided water for the mixing of concrete.





**Figure 14:** Filling of an UST with concrete through the vent line.



**Figure 15:** View down manway prior to filling with concrete.



Figure 16: View down manway while being filled with concrete.



Figure 17: Manway being topped off with concrete.

**APPENDIX E**

**City of Oakland Fire Department  
Underground Storage Tank Closure Permit**

RECEIVED

JUN 21 1994

GeoStrategies Inc.

8138.0

# CITY OF OAKLAND

Excavation Permit Granted \_\_\_\_\_ No. \_\_\_\_\_

Tank Permit

Permit to Excavate and Install, Repair, or Remove Inflammable Liquid Tanks. No. 9823

Oakland, California, June 17, 1994

PERMISSION IS HEREBY GRANTED TO ~~excavate~~ abandon Gasoline tank and excavate commencing \_\_\_\_\_ feet inside \_\_\_\_\_ line

on the south side of Jackson Street Avenue \_\_\_\_\_ feet \_\_\_\_\_ of \_\_\_\_\_ 12th Street Street Avenue

House No. 165 13th Street Street Avenue Present Storage \_\_\_\_\_

Owner GeoStrategies, Inc. County of Alameda Address 4400 McArthur Blvd. Phone 535-6277

Applicant GeoStrategies, Inc. Address 6747 Sierra Court, Ste. G Dublin Phone 551-7444  
94568

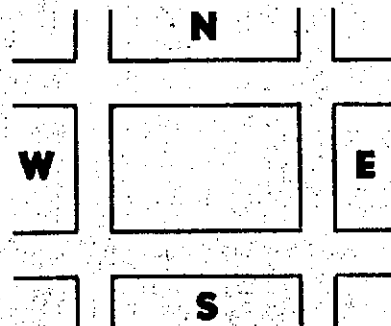
Dimensions of street (sidewalk) surface to be disturbed \_\_\_\_\_ X \_\_\_\_\_ Number of Tanks 2 Capacity 10,000 Gallons, each.

Remarks: \_\_\_\_\_

This Permit is granted in accordance with existing City Ordinances.  
Owner hereby agrees to remove tanks on discontinuance of use or when notified by the City Authorities.  
When installing, removing or repairing tanks, no open flames to be on or near premises.

Approved \_\_\_\_\_ Fire Marshal

Approved \_\_\_\_\_ Drainage Division Engineering Dept.



## EXCAVATING PERMIT

Issued in accordance with Ord. No. 278 CMS, Sec. 6-2.04

\_\_\_\_\_ square feet of digging or removal granted.

The receipt of \$ \_\_\_\_\_ special deposit is hereby acknowledged.

GENERAL DEPOSIT.

BUREAU OF PERMITS AND LICENSES.

## CERTIFICATE OF TANK AND EQUIPMENT INSPECTION

Inspected and passed on \_\_\_\_\_ 19\_\_\_\_

By \_\_\_\_\_ Fire Marshal

Inspection Fee Paid \_\_\_\_\_ \$ 200.00 ck#6156 rec#703623

Received by A. Fucles

FIRE PREVENTION BUREAU

## NOTICE

Before Covering Tanks, Above Certificate Must Be Signed.

When ready for inspection notify Fire Prevention Bureau. <sup>238</sup> 275-3851

OUT of DATE 21

**THIS PERMIT MUST BE LEFT ON THE WORK AS AUTHORITY THEREFOR.**

Mr. LARRY James

4-430  
730-9

**APPENDIX F**

**Final Rinsate Analytical Results**

GETTLER-RYAN, INC.

SAMPLE ID: TANK 2 RINSATE  
 AEN LAB NO: 9406399-01  
 AEN WORK ORDER: 9406399  
 CLIENT PROJ. ID: 6138.01

DATE SAMPLED: 06/29/94  
 DATE RECEIVED: 06/30/94  
 REPORT DATE: 07/12/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	72 *	0.5	ug/L	07/06/94
Toluene	108-88-3	180 *	0.5	ug/L	07/06/94
Ethylbenzene	100-41-4	68 *	0.5	ug/L	07/06/94
Xylenes, Total	1330-20-7	6.400 *	2	ug/L	07/06/94
Purgeable HCs as Gasoline	5030/GCFID	180 *	0.05	mg/L	07/06/94

ND = Not detected at or above the reporting limit  
 \* = Value above reporting limit

## GETTLER-RYAN, INC.

SAMPLE ID: TANK 1 RINSATE  
 AEN LAB NO: 9406399-02  
 AEN WORK ORDER: 9406399  
 CLIENT PROJ. ID: 6138.01

DATE SAMPLED: 06/29/94  
 DATE RECEIVED: 06/30/94  
 REPORT DATE: 07/12/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	320 *	0.5	ug/L	07/06/94
Toluene	108-88-3	3,900 *	0.5	ug/L	07/06/94
Ethylbenzene	100-41-4	2,600 *	0.5	ug/L	07/06/94
Xylenes, Total	1330-20-7	19,000 *	2	ug/L	07/06/94
Purgeable HCs as Gasoline	5030/GCFID	390 *	0.05	mg/L	07/06/94

ND = Not detected at or above the reporting limit  
 \* = Value above reporting limit

Gettler - Ryan Inc.

ENVIRONMENTAL DIVISION

COMPANY ALAMEDA COUNTY PARKING

JOB NO. 6138.01

JOB LOCATION 120 + JACKSON ST

CITY OAKLAND

PHONE NO.

AUTHORIZED [Signature]

DATE 6-29-94

P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
TANK 2 RINSATE	3	LIQUID	6-29-94 1340	THC GAS / BTXE	01A-C
TANK 1 RINSATE	3	LIQUID	6-29-94	THC GAS / BTXE	02A-C

RELINQUISHED BY:

[Signature]

1345

RECEIVED BY:

[Signature]

13:45

RELINQUISHED BY:

[Signature]

6-30-94

RECEIVED BY:

[Signature]

6-30-94

RELINQUISHED BY:

1700  
6-30-94

RECEIVED BY LAB:

17:00

6-30-94

DESIGNATED LABORATORY:

DHS #:

REMARKS:

DATE COMPLETED

6-29-94

FOREMAN

[Signature]



**APPENDIX G**

**Manifest for Material Removed from Site by Erickson, Inc.**

85408

See Instructions on back of page 6.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address <b>County of Alameda General Services Agency 4400 MacArthur Boulevard</b>		6. US EPA ID Number <b>CAD000466392</b>		7. State Manifest Document Number <b>93238471</b>	
4. Generator's Phone <b>(510) 535-6277 Oakland, Ca. 94619</b>		8. US EPA ID Number		8. State Generator's ID	
5. Transporter 1 Company Name <b>Erickson, Inc.</b>		9. US EPA ID Number		9. State Transporter's ID <b>430359</b>	
7. Transporter 2 Company Name		10. US EPA ID Number		10. State Transporter's ID	
9. Designated Facility Name and Site Address <b>Gibson Oil/Pilot Petroleum 475 Sea Port Blvd. Redwood City, CA. 94063</b>		10. US EPA ID Number <b>CA0043260702</b>		11. State Facility's ID <b>415-368-5511</b>	
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers	13. Total Quantity	14. Unit Wt/Vol	15. Waste Number
a. <b>PO Hazardous Waste Liquids NOS (Benzene) 9 NA 3082, PG III D018 ERG #31</b>		No. <b>0101</b>	Type <b>TIT0109100</b>	<b>G</b>	<b>DM8</b>
b.					
c.					
d.					
16. Additional Descriptions for Materials Listed Above <b>Hydrocarbon Mixture with Water (See Water Hydrocarbons)</b>		17. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information <b>Gibson Oil Waste Stream Profile # 10001 ERG 31 24 Hr.</b> <b>Contact Scott Lister 24 Hr. Phone# (510) 551-7555</b> <b>Job# 85408 PO# E-15567</b>					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state and international laws.					
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
17. Transporter 1 Acknowledgement of Receipt of Materials		18. Transporter 2 Acknowledgement of Receipt of Materials		19. Discrepancy Indication Space	
Printed/Typed Name <b>Dennis M'Loy</b>		Signature <i>Dennis M'Loy</i>		Month Day Year <b>016   2   9   94</b>	
Printed/Typed Name <b>Steve Fleming</b>		Signature <i>Steve Fleming</i>		Month Day Year <b>016   2   9   94</b>	
Printed/Typed Name		Signature		Month Day Year	
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name		Signature		Month Day Year	

DO NOT WRITE BELOW THIS LINE.

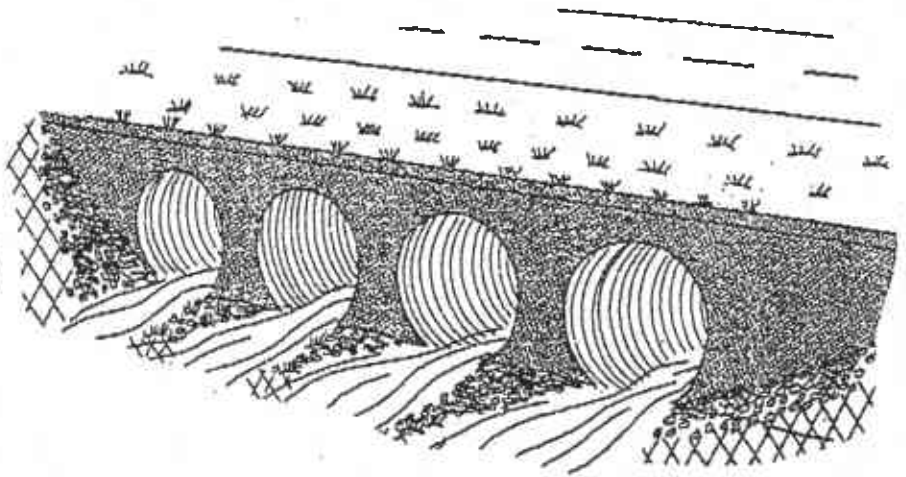
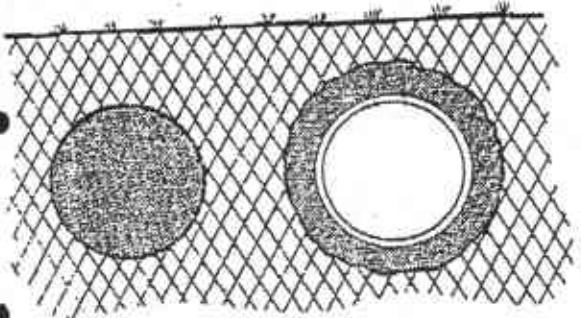
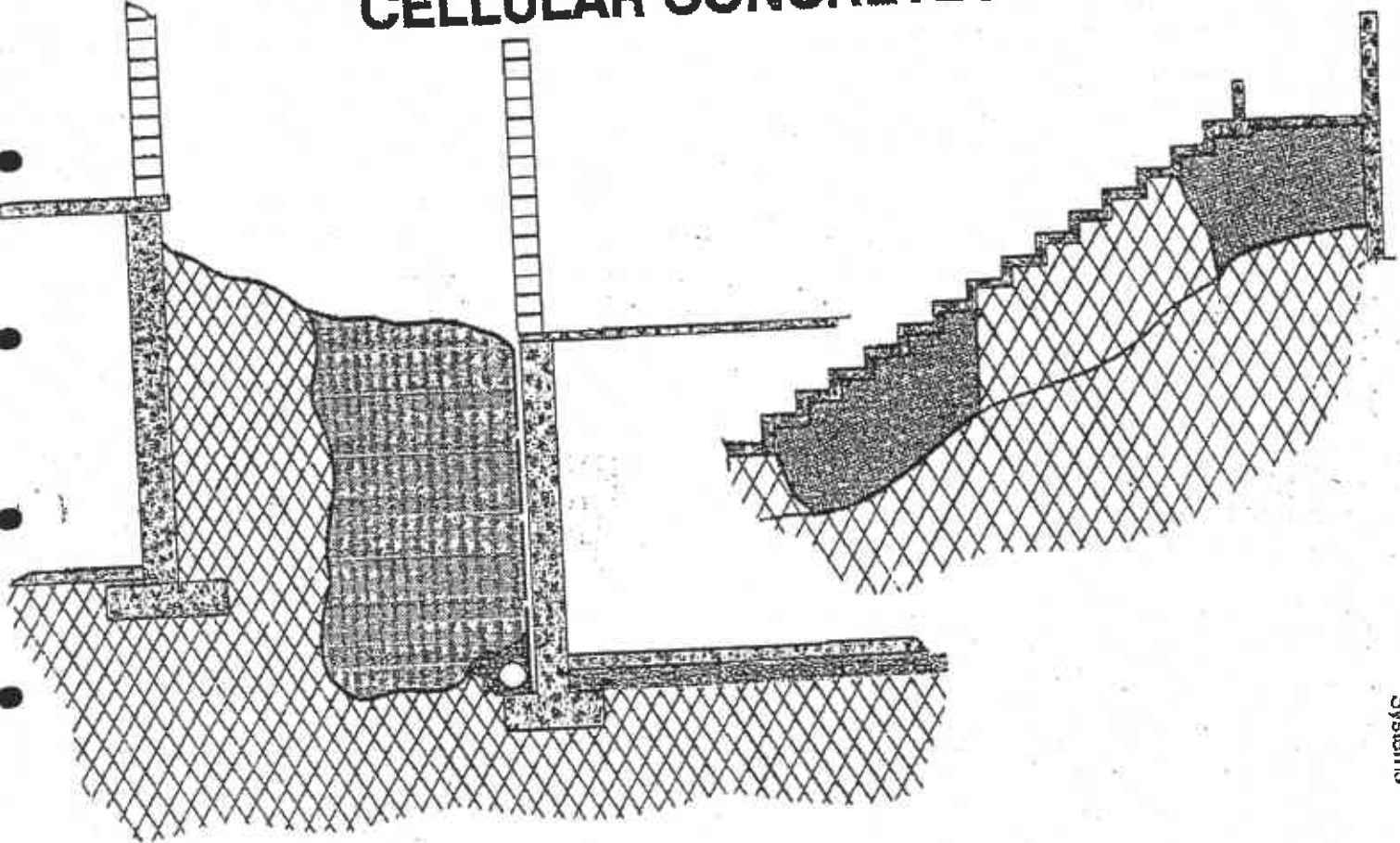
**APPENDIX H**

**Information on Cellufoam Brand Terra-Fill 190 Concrete**



**CELLUFOAM  
CONCRETE  
SYSTEMS**  
A DIVISION OF PATRICK CHADWICK INCORPORATED

CELLUFOAM brand  
**ULTRA-LITE AND TERRA-FILL**  
**GEOTECHNICAL  
CELLULAR CONCRETES**



Cellufoam Concrete 6 **03362** SPECIALLY PLACED CONCRETE  
Systems 87 low density/insulating

# GENERAL INFORMATION

## EXPLANATION

This brochure provides a broad overview of the properties of cellular concrete, its potential geo-technical uses and examples of how Cellufoam brand Ultra-Lite and Terra-Fill cellular concrete licensed contractors have used this unique product and their expertise to meet the challenges imposed by nature and the need to protect our environment.

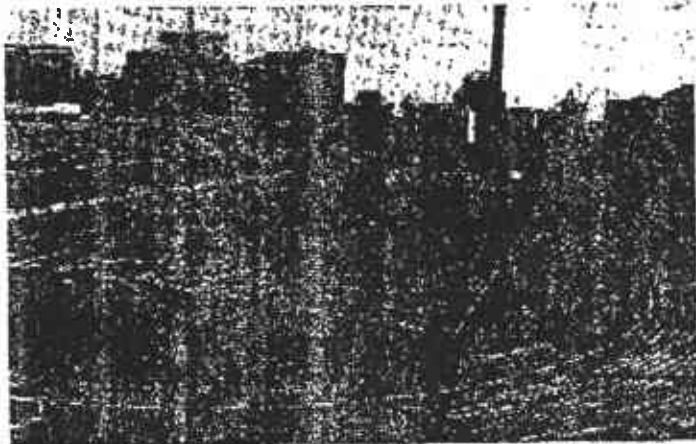
Cellular concrete with a density spectrum of 14-120 PCF (224-1920 kg/m<sup>3</sup>) is the most versatile of all concrete products.

For over twenty years geo-technical engineers and contractors have found cellular concrete to be a cost effective solution to many of their design and construction challenges.

In the late 1950's the U.S. Corp. of Engineers was using cellular concrete as a tunnel lining and annular fill. They also utilized its unique shock (energy) absorption qualities in other specialized types of geo-technical and building construction.

Many State highway departments have found that cellular concrete in the 18-50 PCF (288-800 kg/m<sup>3</sup>) density range resolves the cost and technical difficulties attributable to poor load bearing or unstable soils.

Cellular concrete with specified densities ranging from 20-105 PCF have been used to secure abandoned in-ground structures and to fill voids created by soil subsidence and wash outs.



Voids beneath the stadium, resulting from subsidence of the original (1920) earth form were filled with Ultra-Lite 220. To ensure continued spectator safety and add years to the life expectancy of the structure. — Cincinnati, Ohio

## USE

- Shock (energy) absorption
- Lightweight structural highway base
- Raising highway grades
- Perma frost protection
- Insulating frost susceptible soils
- High temperature pipe insulation

- Stress relief of retaining walls
- Land slip correction and repair
- Load reduction for culvert structures
- Weight reducing landscaping fill
- Mat foundations
- Pipeline fill

- Pipe bedding
- Annular fill
- Silo void fill
- Self supporting structural fill
- Granular fill consolidation
- Non settling utility trench cover

## DESCRIPTION

Cellufoam brand Ultra-Lite cellular concrete consists of a cement, water and pre-generated aqueous foam. The density range is 14-50 PCF (224-800 kg/m<sup>3</sup>). A density selected from this spectrum, to provide the required properties, can be maintained to within  $\pm 5\%$ .

Cellufoam brand Terra-Fill cellular concrete consists of a cement, aggregate, water and pre-generated aqueous foam. The density range is 40-120 PCF (640-1920 kg/m<sup>3</sup>). A density selected from this spectrum, to provide the required properties, can be maintained to within  $\pm 5\%$ .

The late L. M. Legatski, professor emeritus, University of Michigan, best described cellular concrete as a product which, "owes its distinctive properties to a multitude of macroscopic, non-inter connecting air cells uniformly distributed throughout its mass." "These cells may account for up to (94%) of the total volume." "Density, thermal resistance and strength can be adjusted to meet specific design requirements by varying the amount of foam, cement and water." "By introducing an aggregate and adjusting the mix design, compressive strengths of up to 300 p.s.i. (20 MPa) are attainable."

Cellufoam brand products represent a total engineering approach to the production of cellular concrete.

The Cellufoam brand foam generator is a precision built, cavitating, centrifugal pump, factory calibrated to produce an exact liquid to foam expansion ratio. It is designed to eliminate the variables associated with compressed air foam generation and requires no operator adjustment to achieve the specified foam out-put and foam density.

The cellufoam Brand foam concentrate is synthetic. The formulation is a stabilized blend of hydrocarbon ionic surfactants, aliphatic alcohol and selected wetting agents. Specifically blended for cellular concretes the liquid to foam expansion ratio is designed to compliment the Cellufoam brand foam generating equipment. The Concentrate to water ratio is constant and exact. It does not require operator adjustment to accommodate production variations.

The Cellufoam brand Ultra-Lite and Terra-Fill mix designs provided to our licensed contractors are laboratory tested to verify the ascribed properties.

Cellufoam brand Ultra-Lite and Terra-Fill cellular concretes are available only through factory trained, licensed contractors, who are independant contractors with a proven capability in the production and placement of cellular concretes.

CELLUFOAM BRAND

# ULTRA-LITE

## PHYSICAL PROPERTIES

CELLUFOAM brand Ultra-Lite Concretes (ASTM C495-77a)

Oven Dry Unit Wght. PCF (kg/m <sup>3</sup> )	Typical Compressive Strength Range at 28 Days PSI (KPa)
*18-25 (288-400)	20-125 (138-862)
*25-30 (400-480)	60-225 (414-1552)
*30-40 (480-640)	125-450 (862-3105)
*40-50 (640-800)	280-750 (1932-5175)

\*The compressive strength of a given density within the above range can be engineered by Cellufoam to optimize physical properties or cost efficiency.



Ultra-Lite insulates steam duct to conserve energy. — Scarborough, Ontario

### Examples (commonly used mix designs)

Product	Density Wet (kg/m <sup>3</sup> )	Density Oven Dry (kg/m <sup>3</sup> )	Comprehensive Strength (KPa)
Ultra-Lite 125	30 PCF (480)	21 PCF (336)	85 PSI (586)
Ultra-Lite 220	38 PCF (608)	30 PCF (480)	225 PSI (1552)
Ultra-Lite 400	43 PCF (688)	35 PCF (560)	350 PSI (2415)

### Other Properties (Typical)

**Flexural Strength:**  
25% of compressive strength

**Tensile Strength:**  
12% of compressive strength

**Coefficient of Thermal Expansion:**  
5.0 to 7.0 x 10<sup>-6</sup>/°F (9.0 to 12.6 x 10<sup>-6</sup>/°C)

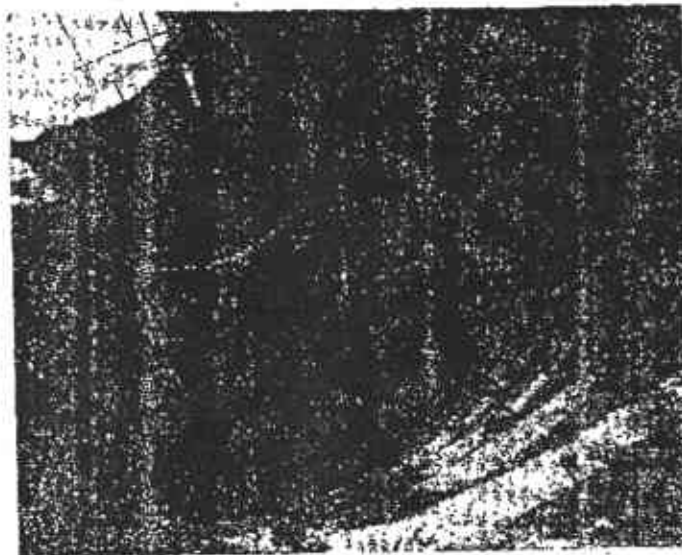
**Modulus of Elasticity (Static):**

$$E = 33w^{1.5} f_c^{0.5}$$

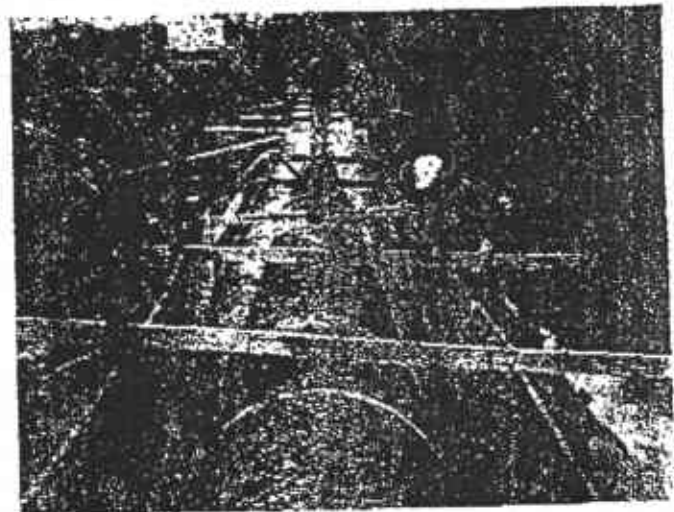
W = density (dry)

f<sub>c</sub> = compressive strength

**Water Absorption (ASTM C796-74T):**  
3.5 to 19% by Volume depending upon density and additive:



Ultra-Lite 400 was used as a shock absorbing annular fill to protect a water transmission line from damage from future rock blasting. — Austin, Texas



Ultra-Lite 260 pumped 3700 feet from one location as a pipe bedding in unstable soil.

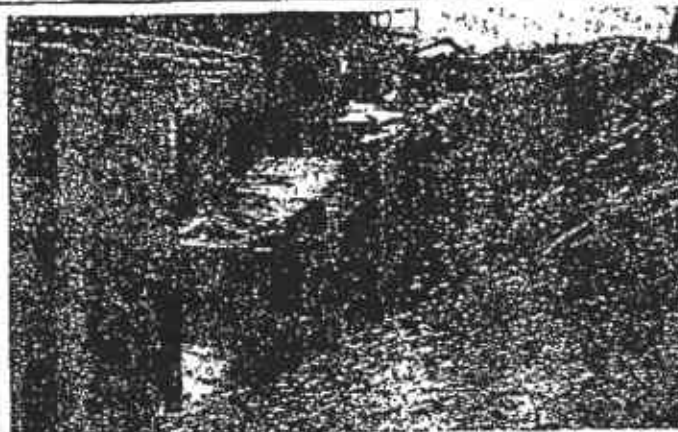


**CELLUFOAM BRAND  
TERRA-FILL**

**PHYSICAL PROPERTIES**

CELLUFOAM brand Terra-Fill Concretes (ASTM C495-83)

Oven Dry Unit Wght. PCF (kg/m <sup>3</sup> )	Typical Compressive Strength Range at 28 Days PSI (KPa)
*40-50 (640-800)	20-750 (138-5175)
*60-70 (960-1120)	200-960 (1380-6624)
*100-120 (1600-1920)	1000-3400 (6900-23460)



Terra-Fill 80, a unique cellular flyash structural back fill 4' wide 50' deep was used for a downtown project. Its use minimized traffic congestion, sped up the construction schedule and eliminated concern about proper compaction. — Kansas City, Kansas

\*The compressive strength of a given density within the above range can be engineered by Cellufoam to optimize physical properties or cost efficiency.

Examples (commonly used mix designs)

Product	Density Wet (kg/m <sup>3</sup> )	Density Oven Dry (kg/m <sup>3</sup> )	Comprehensive Strength (KPa)
Terra-Fill 20	49 PCF (784)	41 PCF (656)	40 PSI (276)
Terra-Fill 100	72 PCF (1152)	63 PCF (1008)	250 PSI (1725)
Terra-Fill 1200	94 PCF (1504)	85 PCF (1360)	1350 PSI (9315)

**Other Properties (Typical)**

**Flexural Strength:**  
25% of compressive strength

**Tensile Strength:**  
12% of compressive strength

**Coefficient of Thermal Expansion:**  
5.0 to 7.0 x 10<sup>-6</sup>/°F (9.0 to 12.6 x 10<sup>-6</sup>/°C)

**Modulus of Elasticity (Static):**

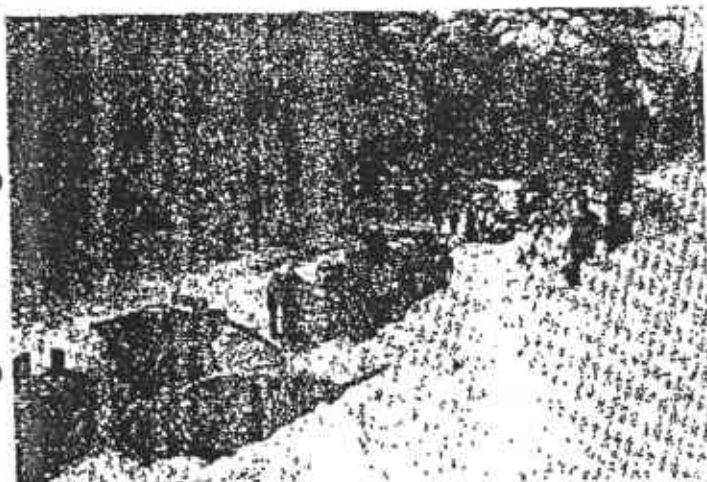
$$E = 33w^{1.5} f_c^{0.5}$$

W = density (dry)

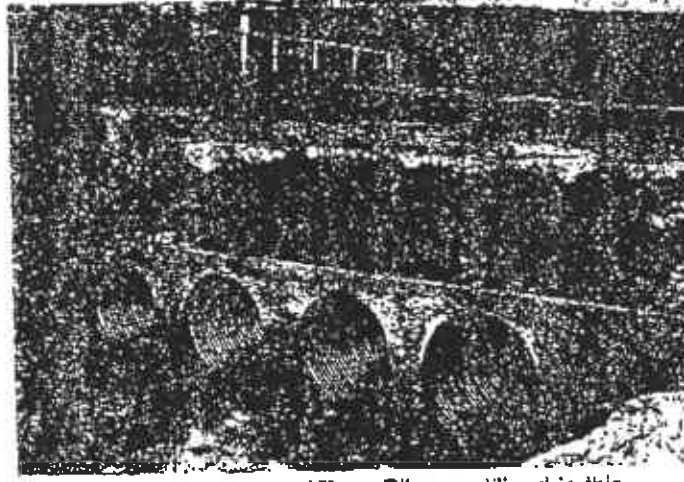
f<sub>c</sub> = compressive strength

**Water Absorption (ASTM C796-74T):**

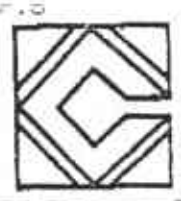
3.5 to 19% by-Volume depending upon density and additives



Grout delivered by transit truck is surcharged with cellufoam and discharged by pumping into an abandoned water transmission line. — Walla Walla, Washington



The structural capacity of Terra-Fill was utilized in this culvert fill to overcome heavy traffic loading on a roadway with minimal top cover over the culvert. — La Cygne, Kansas



# PRODUCT DATA

## FEATURES

- PUMPABILITY** can be pumped further and higher than conventional fills under low pump pressures.
- GRAVITY FLOWS** 300-500 linear feet (some mix designs).
- FLUIDITY** ensures elimination of voids, conforms to irregular surfaces.
- NO COMPACTION REQUIRED** does not shrink or settle.
- LOW HYDRAULIC HEAD PRESSURE** minimizes the structural requirements of bulkheads and form work.
- REDUCED FLOTATION** in trench fills and pipe bedding.
- COMPRESSIVE STRENGTH** exceeds that of compacted earth fills.
- FAST SETTING TIME** minimizes down time, speeds construction schedules.
- LOAD REDUCTION** eliminates continual settlement by predictably distributing weight and traffic loads.
- REDUCES LATERAL LOADING** significant savings in original footing and wall design, stress relieves load on existing structures.
- THERMAL EFFICIENCY** Thermal resistance of R 1.9 to R 0.4 depending upon density.
- QUALITY CONTROL** density and compressive strengths are maintained from start to finish by qualified on-site personnel.
- ON SITE BATCHING** reduces construction traffic.

## TEST METHODS

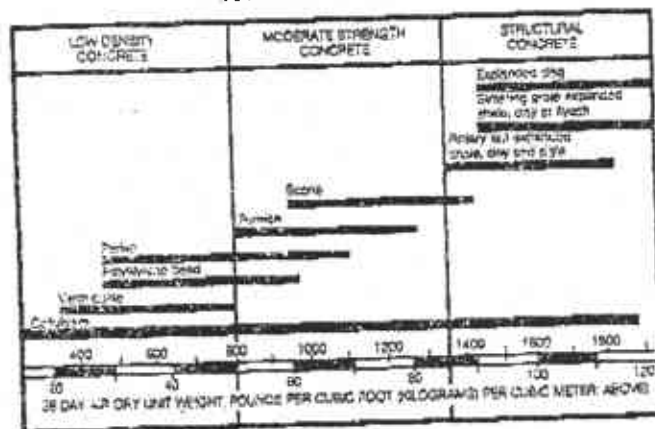
- Compressive Strength – ASTM C495-83  
– ASTM C495-77a
- Foaming Agents – ASTM C869-80  
– ASTM C796-80
- Thermal Conductivity – ASTM C177-83

## PRODUCT HANDLING

The pre-generated aqueous foam used in Cellufoam brand Ultra-Lite and Terra-Fill cellular concretes is non-toxic and non-flammable. Tests conducted by an independent agency confirm that it is not harmful to human skin or the environment. The safe handling instruction labels on each container should be read and complied with. Our licensed contractors have the pertinent M.S.D.S. on hand.

Cellufoam brand Ultra-Lite and Terra-Fill cellular concrete may contain cement in higher than normal levels. Direct contact with any part of the body should be avoided. Flush any part of the body so exposed with water immediately upon contact. In case of large exposure or exposure to sensitive organs, consult a physician immediately.

THE CELLUFOAM DENSITY SPECTRUM

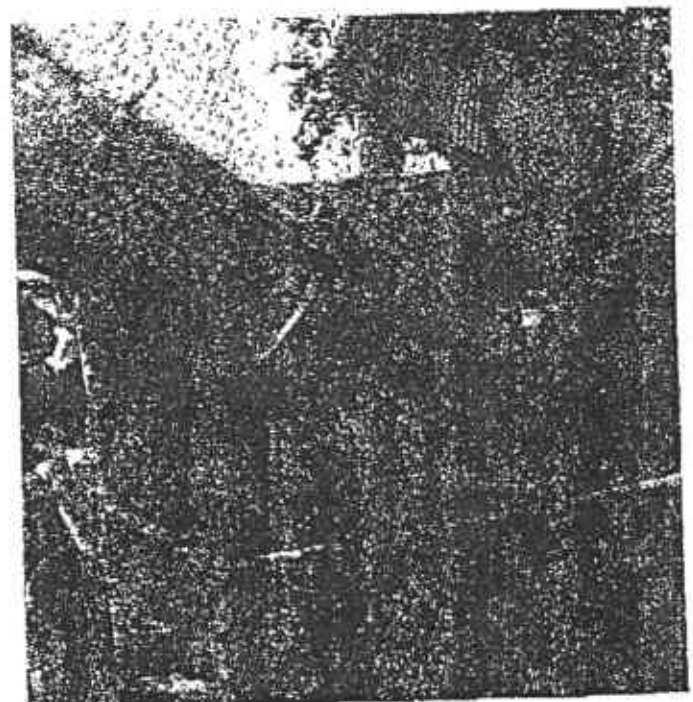


## LIMITATIONS

The properties of a specific mix design will depend upon the type of cement, and or aggregate used. The type of cement and or aggregate used may require adjustment to the water cement ratio. Curing conditions and other job site variables may also affect the given properties. Cellufoam Concrete Systems is available to advise and assist in the evaluation of these variables.

## RELATED REFERENCES

- ACI 64-44 (Guide for Cast-in-Place Low Density Concretes)
- ACI SP29 (Lightweight Aggregate, Insulating & Cellular Concretes)
- ACI P29-10 (Fire Resistance of Lightweight Insulating Concretes)



Licensed contractor checking density to verify conformance to specification.



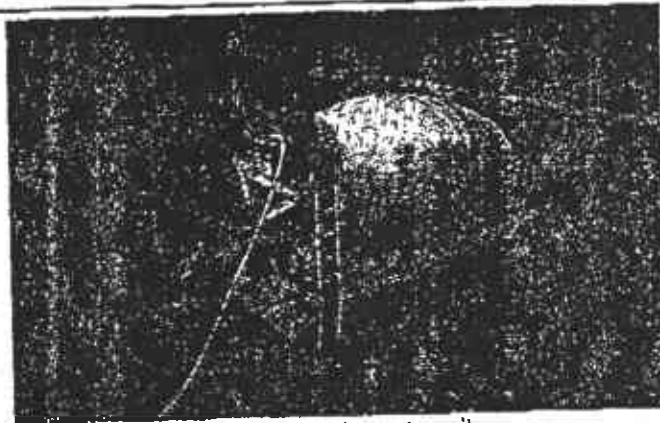
# EQUIPMENT AND QUALITY CONTROL

## QUALITY ASSURANCE

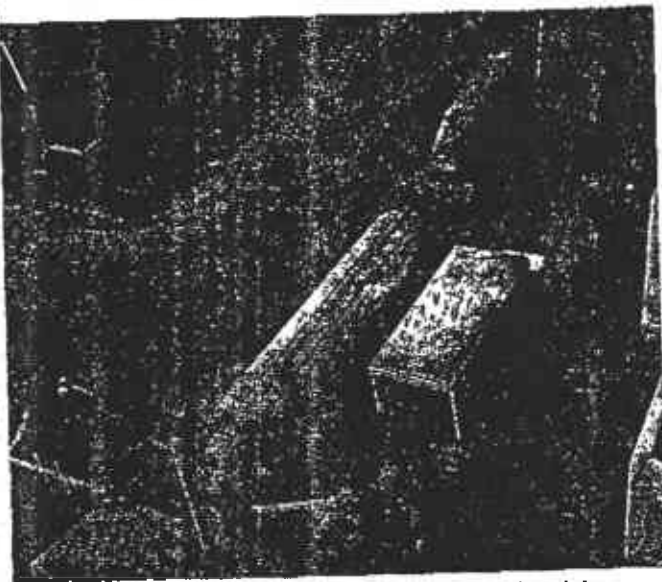
Through its licensed contractor programme Cellufoam and the contractor provide a joint commitment to quality control.

Cellufoam equipment, chemicals and mix designs represent a total engineering approach to cellular concrete and provides the predictability and consistency engineers and contractors can rely on.

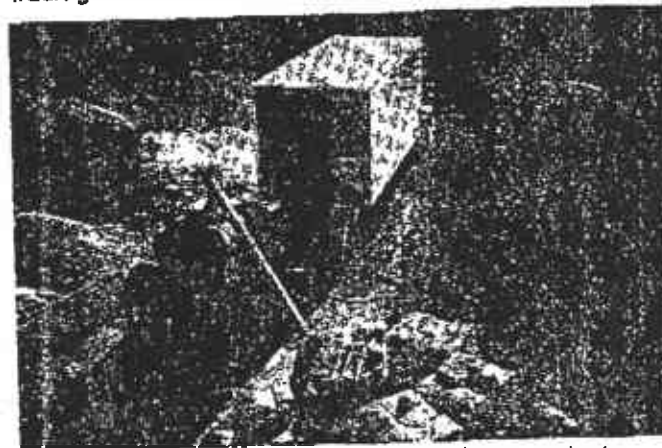
Licensed contractors are factory trained and fully equipped to continuously monitor product quality.



Terra-Fill contractor surcharging a transit. Truck grout mix with Cellofoam\*.



Ultra-Lite, bulk cement and continuous batch mixing and pumping equipment maximizes production capacity



Ultra-Lite equipment set up for small volume project — use of bag cement limits production capacity

## OTHER USES

- Fireproof roof fill
- Encapsulated insulation roofing system
- Sound attenuating floor underlayment

- Residential housing systems — precast, tilt-up and poured in-place
- Explosion attenuation panels
- Fragmentation shielding



**CELLUFOAM  
CONCRETE  
SYSTEMS**  
A DIVISION OF PATRICK CHADWICK INCORPORATED

MANUFACTURERS, FORMULATORS & DISTRIBUTORS OF SPECIALTY CONCRETE PRODUCTS

~~1700 The Glen Road, Toronto, Ontario M8Z 1R7  
TELEPHONE (416) 598-0300 TELETYPE (416) 598-0300~~ (PLEASE BACK SLASHED JOB)

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