

91 FEB 26 8:10:50

**VAPOR PROBE INVESTIGATIONS  
AND SITE REMEDIATION WORK PLAN**

**PROJECT SITE**

**2552 SAN CARLOS AVENUE  
CASTRO VALLEY, CALIFORNIA**

**PREPARED FOR**

**MR. MEL KAUFMAN  
TRUE FIT MANUFACTURING COMPANY  
3515 WEST YOSEMITE AVENUE  
LATHROP, CALIFORNIA  
(800) 431-9999  
(209) 858-4125  
(209) 858-4354 FAX**

**PREPARED BY**

**CERTIFIED ENVIRONMENTAL CONSULTING, INC.  
140 WEST INDUSTRIAL WAY  
BENICIA, CALIFORNIA  
(707) 746-0171  
(800) 447-0171**

**FEBRUARY 1991**



**CERTIFIED  
ENVIRONMENTAL  
CONSULTING INC.**

February 25, 1991

REF: PRO-392.90

Mr Scott O. Seery  
Hazardous Materials Specialist  
County of Alameda  
Dept. of Environmental Health  
80 Swan Way, Room 200  
Oakland, CA 94821  
(415) 271-4320

RE: Site Remediation Work Plan for East Bay Scaffolding, 2442 San Carlos Avenue,  
Castro Valley

Dear Mr. Seery:

Enclosed are the soil gas survey results and site remediation work plan for the above  
referenced project.

We are looking forward to working with you on this project.

Very truly yours,

Stanley L. Klemetson, Ph.D. P.E.  
Vice President



**CERTIFIED  
ENVIRONMENTAL  
CONSULTING INC.**

February 25, 1991

REF: 90-129-365

Mr. Mel Kaufman  
True Fit Manufacturing Company  
3515 West Yosemite Avenue  
Lathrop, California  
(209) 858-4125

Subject: Work Plan for Site Investigation & Remediation Soil Remediation  
Groundwater Quality

Dear Mr. Kaufman:

Certified Environmental Consulting, Inc. is pleased to submit a work plan for the site investigation and remediation for the underground tank removed at 2552 San Carlos Avenue, Castro Valley.

The project has been divided into several tasks to allow for a step-wise evaluation of the work and to minimize the required costs for the work. A detailed description of each task is provided in the attached work plan.

We are looking forward to working with you of this project.

Very truly yours,

Stanley L. Klemetson, Ph.D., P.E.  
Vice President

Scott Parker  
Project Geologist

SLK:clk

Enclosures

cc: Scott Seery, Alameda County

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## WORK PLAN SUMMARY INTRODUCTION

### Statement of Work

The workplan includes the site remediation and monitoring necessary to assure that the release has been mitigated. (See Tab for Vapor Probe Report)

### Site Location

The site is located at 2552 San Carlos Avenue, Castro Valley, California. See Figure 1 for site location diagram.

### Background

On October 30, 1990, SEMCO removed a 550 gallon gasoline tank. The maximum value of TPH-Gasoline and BTEX are summarized below. Groundwater appeared to be at approximately 5 feet. The sampling locations are shown in Figures 2 and 3. Copies of the laboratory results and sampling location maps are shown in the Appendix.

Sample	Location	TPH-G (ppm)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylene (ppb)
1	Soil-3'-W	2000	5400	3700	2000	81000
2	Soil-4'-N	140	1300	90	2300	3600
3	Soil-Bottom	1	9	15	35	41

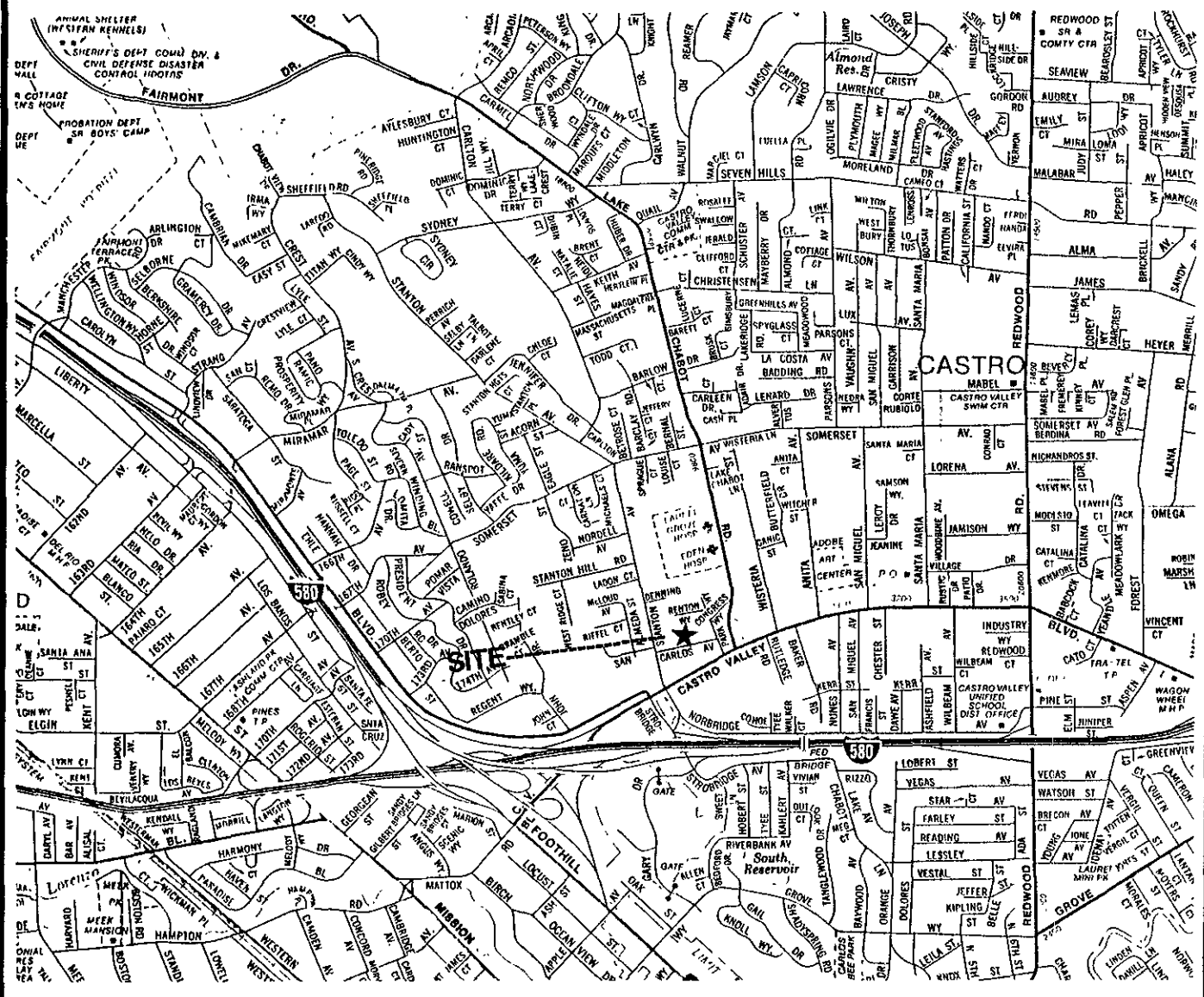
\*ppm = parts per million

\*ppb = parts per billion

A soil gas survey was conducted to determine the vertical and lateral extent of contamination. See attached report for details.

### Site History

The property is located at 2552 San Carlos Avenue and presently occupied by Eastbay Scaffolding. The site was previously occupied by True Fit Manufacturing. True Fit was primarily a machine shop. The underground gasoline tank was used to supply equipment and some personal vehicles. The tank had not been in use for approximately two years. It was decided the tank was not longer required. It was removed in October of 1990. Contaminated soil was present in the tank excavation site and therefore required additional investigation.



**SECRET**

**FIGURE 1**

**SITE LOCATION MAP**

*BUILDING*

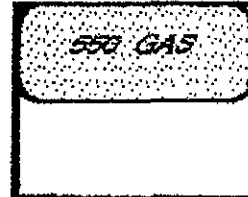
*PUMP*



*SAMPLE #1*

*SAMPLE #2*

*SAMPLE #3*



---

*SAN CARLOS AVENUE*

---

**FIGURE 2**

*SEMCO*

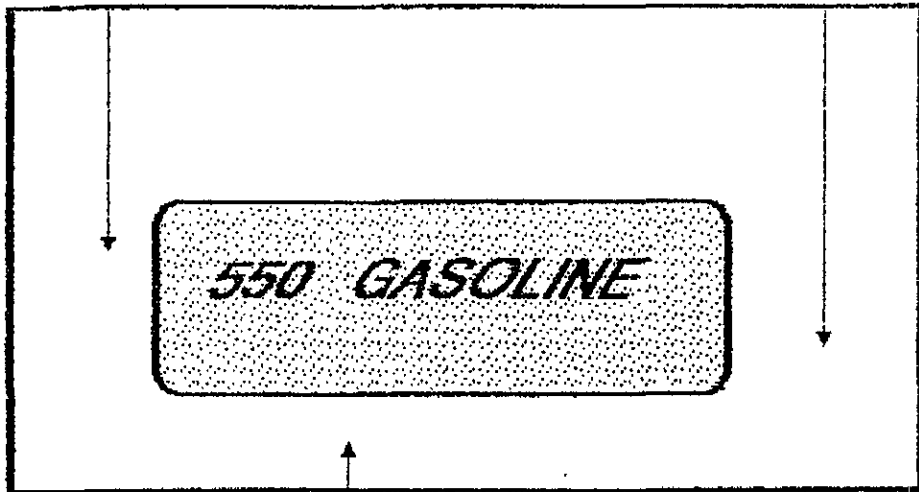
*2552 SAN CARLOS AVE  
CASTRO VALLEY*



# TANK AREA

SAMPLE #1  
#1-550-GW@3'

SAMPLE #2  
#2-550-GN@4'



SAMPLE #3  
#3-550 G B.O.P.

**FIGURE 3**

**SEMCO**

2552 SAN CARLOS AVE  
CASTRO VALLEY





## Site Description

The project site is located at 2552 San Carlos Avenue, Castro Valley, California. An office building is located on 85th Avenue. A fenced storage yard and other shop buildings are located on the property. The 550 gallon underground gasoline tank was removed from inside the fenced area. No other underground tanks, wells or streams were found near the project site.

## GEOLOGY AND HYDROGEOLOGY

The site is underlain by Pleistocene to recent unconsolidated to semi-consolidated valley fill. The fill is probably derived from the surrounding undivided Cretaceous sandstone, shale, conglomerate and minor non-marine rocks associated with the Franciscan Complex.

## SITE REMEDIATION WORK PLAN

The remaining work can be divided into two tasks: soil remediation and monitor well installation.

### Soil Remediation

Based on vapor probe and laboratory results from the tank pull, it appears that soil contamination still exists. Soil excavation is required on three sides of the former tank excavation (see Figure 4).

Sidewall samples will be collected after excavation to determine whether all of the contaminated soil has been removed. The excavated soil will be placed on plastic for further remediation.

There are two options for soil remediation. The available area and regulation will dictate the most feasible option.

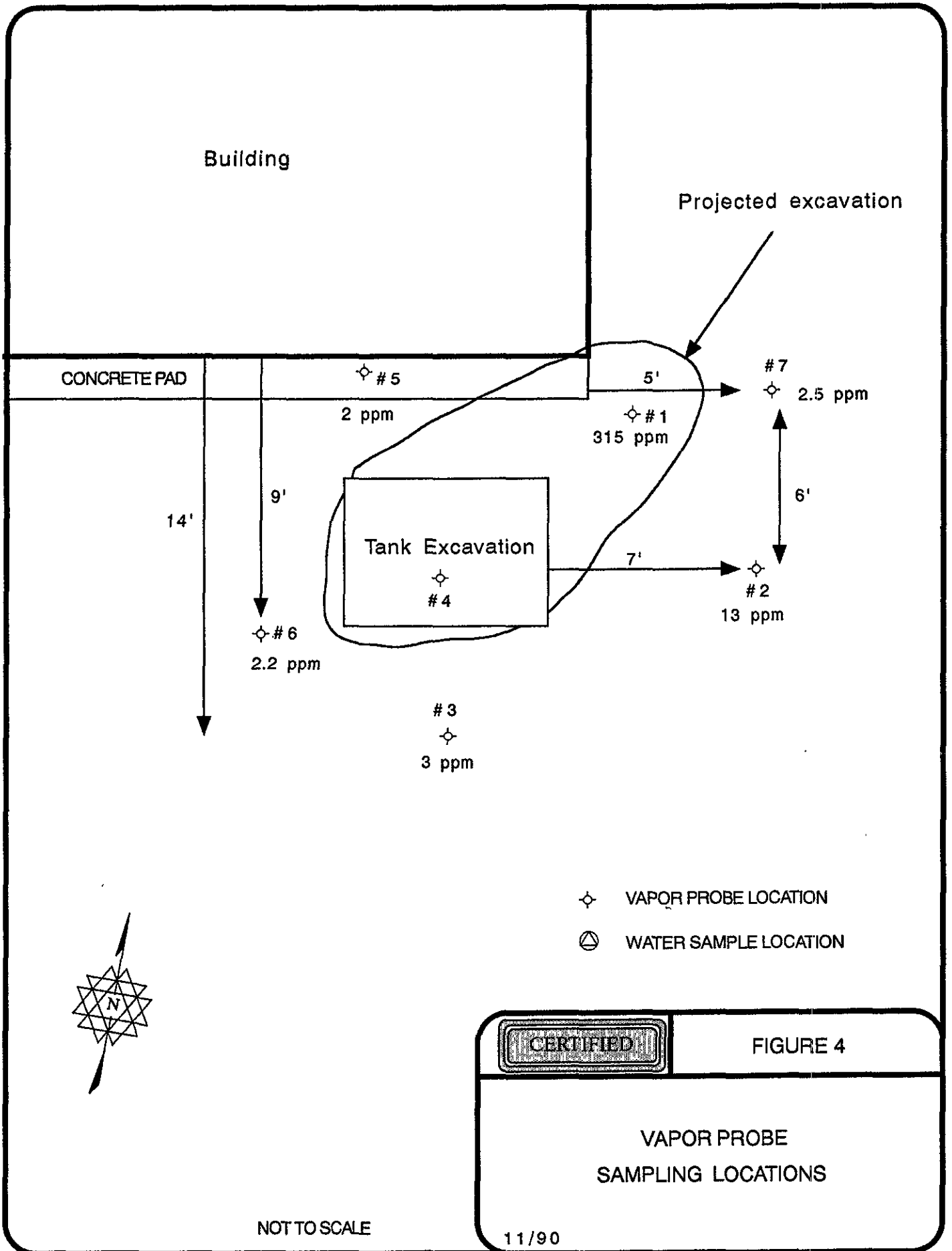
1. Aeration
2. Bioremediation

### Aeration

The soil it must be spread out laterally and tilled once a week. Soil samples will periodically be collected to confirm and monitor progress.

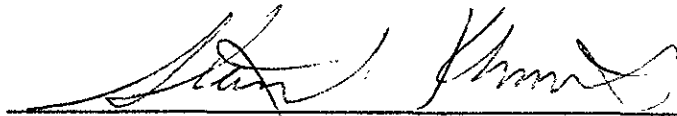
### Bioremediation

The soil will be placed on plastic and treated with micronutrients. Composite soil samples will be collected to monitor the effectiveness of treatment.



## GROUNDWATER QUALITY

1. Install one monitoring well in a "verified down-gradient" direction or install three monitoring wells in a radial pattern around the tank excavation site within 10 feet of excavation. Collect soil samples at five-foot intervals in the unsaturated zone. See attached monitoring well construction guidelines.
2. Determine hydrogeologic characteristics of the aquifer. This may included an evaluation of the transmissivity and particle analysis (ASTM D-422) of clay statrum.
3. Survey wells to determine hydraulic gradient. If possible survey to mean sea level to an established benchmark to 0.01 foot. Prepare a groundwater gradient map.
4. Develop wells and collect water samples. Analyze sample for TPH-G and BTEX. Analyze an initial sample for Total Dissolved Solids.
5. Sample wells monthly for first three months and quarterly thereafter for a total of one year. Determine water level elevations prior to each sampling. If any free product is present, measure depth.
6. Prepare water level contour maps showing groundwater gradient direction, and free and dissolved product plume definition maps.



Stanley L. Klemetson, Ph. D, P.E.  
Vice President  
P.E. No. 40087

Work Plan Acceptance: \_\_\_\_\_

Accepted by: \_\_\_\_\_

Title: \_\_\_\_\_

Agency: \_\_\_\_\_

VAPOR PROBE STUDY

PROJECT SITE

2552 SAN CARLOS AVENUE  
CASTRO VALLEY, CALIFORNIA

PREPARED FOR

MR. MEL KAUFMAN  
TRUE FIT MANUFACTURING COMPANY  
3515 WEST YOSEMITE AVENUE  
LATHROP, CALIFORNIA  
(800) 431-9999  
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FEBRUARY 1991



**CERTIFIED  
ENVIRONMENTAL  
CONSULTING INC.**

February 25, 1991

REF: 90-129-365

Mr. Mel Kaufman  
True Fit Manufacturing Company  
3515 West Yosemite Avenue  
Lathrop, CA 95330  
(800) 431-9999  
(209) 858-4125  
(209) 858-4354 FAX

Subject: Phase I Site Investigation

Dear Mel:

Certified Environmental Consulting, Inc. is pleased to submit the site investigation report and remediation work plan for True Fit Manufacturing Company 2552 San Carlos Avenue, Castro Valley. This portion of the project included a vapor probe study at the former tank location, evaluation of the data and preparation of the site remediation work plan.

Hydrocarbon vapor concentrations in excess of 10 ppm were detected in borings located to the east of the former 550 gallon gasoline tank excavation. However, the soil was very dense and it is expected the excavation can be limited to the top four feet of soil for areas outside the original tank excavation. The exact limits of the excavation will be determine in the field during the soil excavation work.

Please let me know if you have any questions about the report.

Very truly yours,

Stanley L. Klemetson, Ph.D., P.E.  
Vice President

Scott L. Parker  
Geologist

SLP:cak

Enclosure

## INTRODUCTION

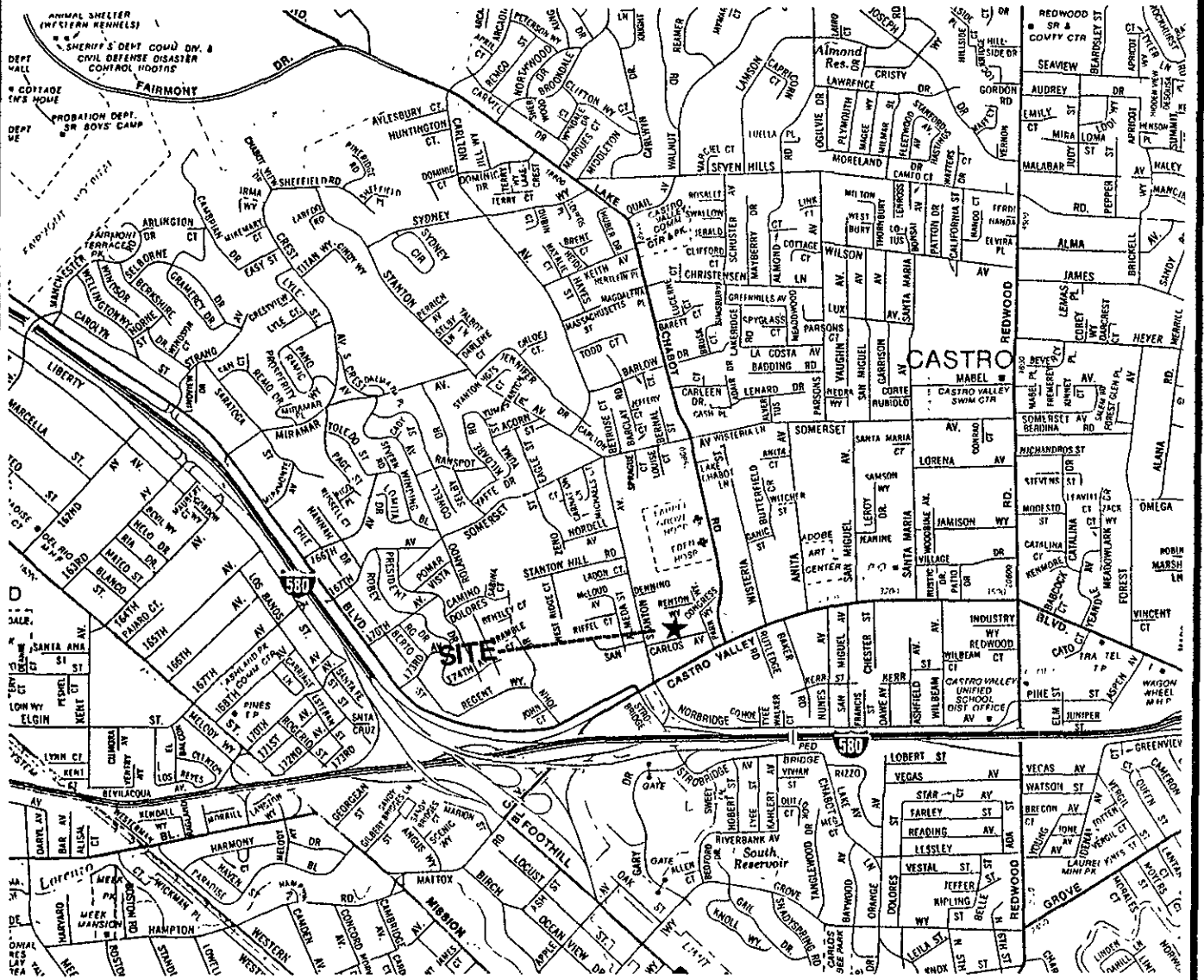
On August 30, 1990, SEMCO removed a 550 gallon underground gasoline tank from East Bay Scaffolding, 2552 San Carlos Avenue, Castro Valley, California (See Figure 1). Elevated concentrations of TPH-G and BTEX were found in the soil at the north and west, edges of the excavation. Concentrations of total petroleum hydrocarbons as gasoline (TPH-Gas) were as high as 2,000 parts per million (ppm) from the excavations west sidewall. Other samples collected from the tank pit ranged from 1.0 ppm to 140 ppm at the northeast wall. On the basis of the data collected during tank removal, it appeared that additional soil would need to be removed from the perimeter of the tank excavation. During excavation water was encountered at approximately 4 feet depth. Alameda County required additional investigation to define the vertical and lateral extent of soil and groundwater contamination. The laboratory data for the samples collected during the tank removal and the letter submitted by Alameda County is included in the Appendix.

## VAPOR PROBE STUDY

On November 20, 1990, Certified Environmental Consulting, Inc., conducted a vapor probe study to determine the lateral extent of the contamination from the underground tank excavation site and the relative hydrocarbon concentrations.

The vapor probe study was conducted by drilling a one-inch diameter hole through the asphalt, driving a hollow tube with a slotted probe tip to the desired depth, drawing a vacuum on the system, and measuring the extracted vapor concentrations with an organic vapor meter (OVM). Samples were collected at 3.0 foot intervals until groundwater was encountered or until the probe could not be driven any deeper. When contamination was detected, the probe was moved further from the source. The soil at this site is a very heavy silty clay which is saturated with water at a shallow depth ( 4-6 feet). Most of the soil removal, other than in the tank excavation site, should be shallow. A water sample (probe location #4) was collected from the tank pit area using the vapor probe system. The sample was analyzed for TPH-gasoline and BTX&E. The results were non-detect on all parameters. A copy of the laboratory results and a chain of custody are in the Appendix.

Figure 2 and Table 1 show the sampling locations and contaminant concentrations. The highest OVM readings were obtained from holes V-1 and V-2, (319 ppm and 13 ppm) located approximately 7 feet from the tank excavation site to the east. The estimated areas of the contaminant ( $> 10$  ppm) extends more than 10 feet from the tank excavation. It should be noted that detectable levels of contamination may exist under the building slab. Initially it is assumed that only soil outside the building will be excavated to a depth of approximately 4 feet depth.



CERTIFIED

FIGURE 1

SITE LOCATION MAP



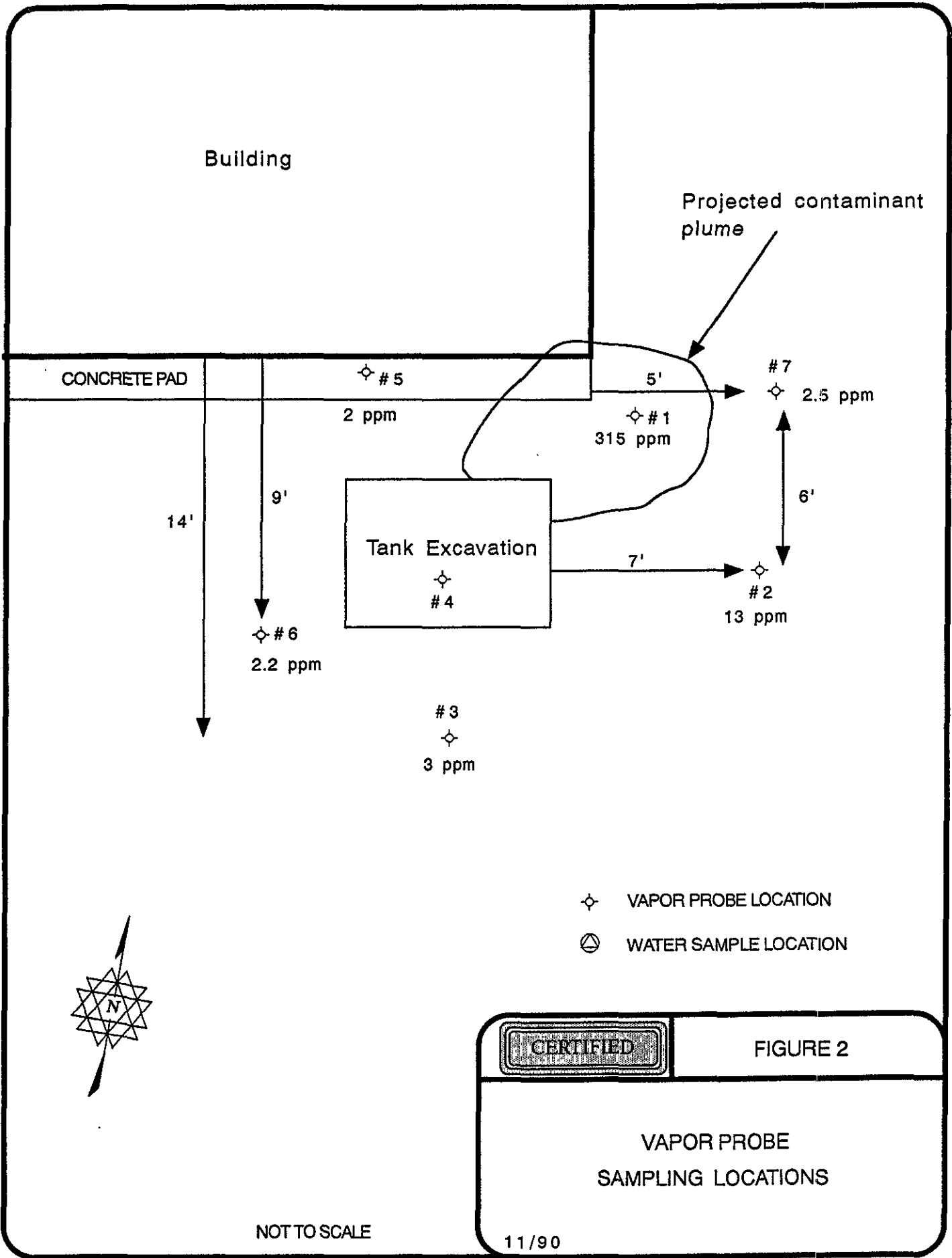


TABLE 1

Vapor Probe Study  
2552 San Carlos Avenue  
Castro Valley, California

<u>Hole Number</u>	<u>Depth (ft)</u>	<u>OVM Conc (ppm)</u>
1	3.0	319
2	3.0	13
3	3.0	3
4	3.0	2
5	3.0	2
6	2.5	2.2
7	3.0	0

\* Very wet zone encountered at 4 - 6 feet.

## RECOMMENDATIONS

It is recommended that the former tank site be re-excavated and additional soil be removed. The vapor probe study was used to determine the lateral limits of the excavation work, and the laboratory samples collected during the tank removal provide data on the concentrations still present in the excavation. The exact limits of the over-excavation will need to be determined during excavation. It is expected that the contaminated soils detected by the vapor probe study are close to the surface since the clay soil was very dense and the soil was water saturated at shallow depths.

During the soil removal the geologist will use an OVM to monitor the soils being removed. Confirming soil samples will be collected under the direction of the Alameda County Regulator and analyzed for TPH-G and BTEX.

It is possible that low levels of hydrocarbons have extended under the building and are near the surface. Since the water table is overlain by dense clays, it may be requested that those soils be left in place. Verification of the vertical extent of the under building contamination can be made in the field during excavations.

It is proposed that soils removed from the excavation be treated on-site. The excavation will then be backfilled, the materials placed at 90 percent compaction and the are resurfaced.

APPENDIX





# SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319  
DOHS #220

## C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81952

DATE RECEIVED: 11/20/90

CLIENT: Certified Environmental Consulting,

DATE REPORTED: 11/28/90

CLIENT JOB NO.: KAUFMAN

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS  
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/L) Gasoline Range
1	W-1	ND<0.05

mg/L - parts per million (ppm)

Method Detection Limit for Gasoline in Water: 0.05 mg/L

### QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 9  
MS/MSD Average Recovery = 113%; Duplicate RPD = 5

Richard Srna, Ph.D.

*Richard Srna*  
Laboratory Manager

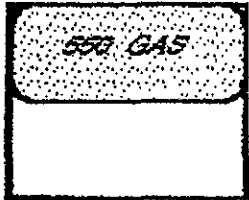


*PUMP*



*SAMPLE #1*

*SAMPLE #2*



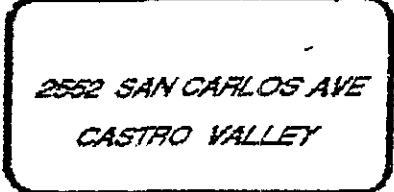
*SAMPLE #3*



*SAN CARLOS AVENUE*



**FIGURE 1**

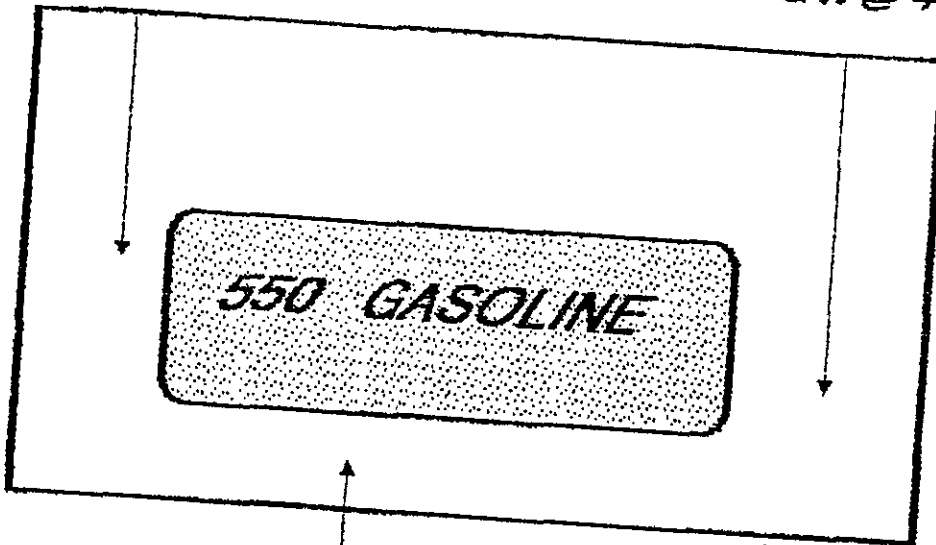




# TANK AREA

SAMPLE #1  
#1-550-GW@3'

SAMPLE #2  
#2-550-GN@4'



SAMPLE #3  
#3-550 G B.O.P.

FIGURE 2

SEMCO

2552 SAN CARLOS AVE  
CASTRO VALLEY

N

**CHAIN OF CUSTODY RECORD**

PROJECT NAME: EAST BAY SCAFFOLDING # 90-0718						Number of Containers	Analysis Required										REMARKS								
SAMPLERS (signature): <i>C. Lipin</i>							TPH-G BTXE-G																		
Station Number	Date	Time	Comp.	Grab	Station Location																				
#1-550	8/30/90	2:00		✓	#1-550-GW-3'	1	✓	✓														GAS			
#2-550	8/30/90	2:15		✓	#2-550-G-N-4'	1	✓	✓														"			
#3-550	8/30/90	2:40		✓	#3-550-G. B.O.P.	1	✓	✓														"			
Relinquished by (signature): <i>C. Lipin</i>						Date / Time: 8/30/90 5:45	Received by (signature): <i>[Signature]</i>						Relinquished by (signature): <i>[Signature]</i>						Date / Time	Received by (signature): <i>[Signature]</i>					
Company or Agency: <i>SEMCO</i>							Company or Agency:						Company or Agency:							Company or Agency:					
Relinquished by (signature): <i>[Signature]</i>						Date / Time	Received by (signature): <i>[Signature]</i>						Relinquished by (signature): <i>[Signature]</i>						Date / Time	Received by (signature): <i>[Signature]</i>					
Company or Agency:							Company or Agency:						Company or Agency:							Company or Agency:					
Relinquished by (signature): <i>[Signature]</i>						Date / Time	Received for Laboratory by (signature): <i>M. Goldenberg</i>						Date / Time: 8/30 17:45	Remarks/Shipping Information: <i>Normal</i>											
Company or Agency:																									

P. 04  
 TO 17077450163  
 FROM SEMCO SAN MATEO CA. DIV.  
 10-19-1990 08:43

RECEIVED  
9-29-90

**SUPERIOR ANALYTICAL LABORATORY, INC.**

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

*Atch - 209  
800 431-9777*

**CERTIFICATE OF ANALYSIS**

LABORATORY NO.: 52436  
CLIENT: SEMCO  
CLIENT JOB NO.: #90-0718 *-East Bay*

DATE RECEIVED: 08/30/90  
DATE REPORTED: 09/07/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS  
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/kg) Gasoline Range
1	#1-550 <i>W - 3</i>	2000
2	#2-550 <i>N - 4'</i>	140
3	#3-550 <i>BOP</i>	1

mg/kg - parts per million (ppm)  
Minimum Detection Limit for Gasoline in Soil: 1mg/kg

QAQC Summary:  
Daily Standard run at 2mg/L: RPD Gasoline = 4 %  
MS/MSD Average Recovery = 99%: Duplicate RPD = 1.7 %

Richard Srna, Ph.D.

*Cecilia G. Joaquin (for)*  
Laboratory Director

**SUPERIOR ANALYTICAL LABORATORY, INC.**

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

**C E R T I F I C A T E   O F   A N A L Y S I S**

LABORATORY NO.: 52136  
CLIENT: SEMCO  
CLIENT JOB NO.: #90-0718 *East Bay*

DATE RECEIVED: 08/30/90  
DATE REPORTED: 09/07/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES  
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/kg)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
1	#1-550	5400	3700	2000	81000
2	#2-550	1300	90	2300	3600
3	#3-550	9	15	35	41

ug/kg - parts per billion (ppb)

Minimum Detection Limit in Water: 0.3ug/L

**QAQC Summary:**

Daily Standard run at 20ug/L: RPD = <15%  
MS/MSD Average Recovery = 98 % : Duplicate RPD = <1.5 %

Richard Srna, Ph.D.

*Cecilia G. Joaquin (for)*  
Laboratory Director

ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



Certified Mailer # P 062 128 276

DEPARTMENT OF ENVIRONMENTAL HEALTH  
Hazardous Materials Program  
80 Swan Way, Rm. 200  
Oakland, CA 94621  
(415)

September 28, 1990

Mr. Mel Kauffman  
True Fit Manufacturing Company  
3515 West Yosemite Avenue  
Lathrop, CA 95330

RE: UNDERGROUND STORAGE TANK CLOSURE REPORT; EAST BAY SCAFFOLDING,  
2552 SAN CARLOS AVENUE, CASTRO VALLEY: REQUEST FOR PRELIMINARY  
SITE ASSESSMENT (PSA) PROPOSAL.

Dear Mr. Kauffman:

This Department has completed review of the report of laboratory analyses, as submitted under SEMCO/James C. Bateman Petroleum Services, Inc. cover dated September 13, 1990. This report documents the analyses performed upon soil samples collected August 30, 1990 during the closure of one (1) fuel underground storage tank (UST) at the referenced site.

The results of laboratory analyses indicate that elevated levels of contamination are present in native soils in proximity to the tank. Concentrations of total petroleum hydrocarbons as gasoline (TPH-G) were as high as 2,000 parts per million (ppm) in sample #1 collected from the west sidewall of the excavation. Other samples collected from the UST pit ranged from 1.0 ppm at the bottom, to 140 ppm at the northeast wall.

Floating brown product was seen upon ground water welling into the pit; workers stated that this water was approximately at the midline of the tank when first uncovered. Other observations made during removal of this tank indicate native soil was discolored in a distinct "band" at the ground water interface. The distinct odor of gasoline was present. Additionally, a fresh coat of fiberglass resin covered the top half of the tank, likely evidence of an unauthorized repair of a leaking tank.

As a result of the noted observations made at the time of closure and the results of laboratory analyses, it is evident that an unauthorized release of hazardous materials from the UST system has occurred at this site. Consequently, you are requested to perform additional investigative work, in the form of a Preliminary Site

Mr. Mel Kauffman  
RE: 2552 San Carlos Avenue  
September 28, 1990  
Page 2 of 3

This requisite PSA will help to define the vertical and lateral impact upon ground water and soils resulting from any releases from the tank prior to its removal. The information gathered by this investigation will be used to determine an appropriate course of action to remediate the site. The PSA must be conducted in accordance with the RWQCB Staff Recommendations for the Initial Evaluation and Investigation of Underground Tanks. The major elements of such an investigation are summarized in the attached Appendix A.

In order to proceed with a site investigation, you should obtain professional services of a reputable environmental/geotechnical firm. Your responsibility is to have the consultant submit for review a proposal outlining planned activities pertinent to meeting the criteria broadly outlined in this letter and the attached Appendix A.

This Department will oversee the assessment and remediation for this site. This oversight will include our review and comment on work proposals and technical guidance on appropriate investigative approaches. The issuance of well drilling permits, however, will be through the Alameda County Flood Control and Water Conservation District, Zone 7. The RWQCB may choose to take over as lead agency if it is determined following the completion of the initial assessment that there has been a substantial impact upon ground water.

This PSA proposal is due within 30 days of the date of this letter, or by October 28, 1990. Once this proposal has been reviewed and approved, work should commence no later than November 28, 1990. Accompanying this proposal must be an additional check payable to Alameda County totalling \$375 to offset expenses incurred by this Department during oversight of this project.

A report must be submitted within 30 days after the completion of this phase of work at the site. Subsequent reports must be submitted quarterly until this site qualifies for final RWQCB "sign off". Such quarterly reports are due the first day of the second month of each subsequent quarter (i.e., November 1, February 1, May 1, and August 1).

The referenced quarterly reports should describe the status of the investigation and must include, among others, the following elements:

- o Details and results of all work performed during the designated period of time: records of field observations and data, boring and well construction logs, water level data, chain-of-custody forms, laboratory results for all samples collected and analyzed, tabulations of free product thicknesses and dissolved fractions, etc.

10-1971990 00740 ROH BENCH SAN MATEO CA. 010. TO 17077450163 P.09

Mr. Mel Kauffman  
RE: 2552 San Carlos Avenue  
September 28, 1990  
Page 3 of 3

- o Status of ground water contamination characterization
- o Interpretation of results: water level contour maps showing gradients, free and dissolved product plume definition maps for each target component, geologic cross sections, etc.
- o Recommendations or plans for additional investigative work or remediation

All reports and proposals must be submitted under seal of a California-Registered Geologist, -Certified Engineering Geologist, or -Registered Civil Engineer. Please include a statement of qualifications for each lead professional involved with this project.

Please be advised that this is a formal request for technical reports pursuant to California Water Code Section 13267 (b). Failure to respond or a late response could result in the referral of this case to the RWQCB for enforcement, possibly subjecting the responsible party to civil penalties to a maximum of \$1,000 per day. Any extensions of the stated deadlines, or modifications of the required tasks, must be confirmed in writing by either this agency or the RWQCB.

Should you have any questions about the content of this letter, please call me at 415/271-4320.

Sincerely,



Robert O. Sperry  
Hazardous Materials Specialist

enclosure

cc: Rafat A. Shahid, Assistant Agency Director, Environmental Health  
Edgar Howell, Chief, Hazardous Materials Division  
Gil Jensen, Alameda County District Attorney's Office  
Lester Feldman, RWQCB  
Howard Hatayama, DHS  
Bob Bohman, Castro Valley Fire Department  
Chuck Kiper, SEMCO  
Brian Burns, East Bay Scaffolding, Inc.  
files

## Appendix A

Workplan for Initial Subsurface Investigation

There are a large number of initial site investigations related to unauthorized releases of fuel products. The number of workplans and reports to be reviewed and approved require that these documents have uniform organization and content. The purpose of this appendix is to present an outline to be followed by professional engineering or geologic consultants in preparing workplans to be submitted for approval to the Regional Board and local agencies.

A statement of qualifications and registration number for the California registered engineer and/or registered geologist responsible for the project will need to be included with the submitted workplan and reports.

This appendix should be referred to in context with the "Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks".

## PROPOSAL FORMAT

## I. Introduction

- A. Statement of Scope of Work
- B. Site location
- C. Background
- D. Site History

1. Brief description of the type of business and associated activities that take place at the site, including the number and capacity of operating tanks.
2. Description of previous businesses at the site.
3. Complete description of tank activities, tank and tank removal.
  - a. Number of underground tanks, uses, etc. (include the volume of each tank, construction material, and tank condition)
  - b. Date of tank removal and condition of tank.
  - c. Description of all waste removal, including copies of all manifests.
  - d. Filing status and copy of unauthorized release form, if not previously submitted.
  - e. Previous tank testing results and date. Include discussion of inventory reconciliation methods and results for previous three years.



- f. Estimate of the total quantity of product lost.
4. Other spill, leak and accident history at the site, including any previously removed tanks.
5. Describe any previous subsurface work at the site or adjacent sites.

## II. Site Description

- A. Vicinity description and hydrogeologic setting.
- B. Vicinity map (including wells located on-site or on adjoining lots, as well as any nearby streams).
- C. Site map to include:
  1. Adjacent streets.
  2. Site building locations.
  3. Tank locations.
  4. Island locations and piping to pumps from tanks.
  5. Any known subsurface conduits, underground utilities, etc.
- D. Existing soil contamination and excavation results.
  1. Provide sampling procedures used.
  2. Indicate depth to groundwater, if encountered.
  3. Describe soil strata encountered in excavation.
  4. Provide results in tabular form and location of all soil sampling ( and water sampling, if appropriate). The date sampled, the identity of the sampler, and signed laboratory data sheets need to be included.
  5. Identify underground utilities
  6. Describe any unusual problems encountered.
  7. Completely describe methods for storing and disposal of all contaminated soil.
  8. Reference all required permits, including those issued by the Air Quality Management District and local underground tank permitting agency.

## III. Plan for determining extent of soil contamination on site.

- A. Describe method/technique for determining extent of contamination within the excavation.

B. Describe sampling methods and procedures to be used.

1. If a soil gas survey is planned, then:
  - a. Identify number of boreholes, location, sampling depth, etc.
  - b. Identify subcontractors, if any
  - c. Identify methods or techniques used for analysis
  - d. Provide quality assurance plan for field testing
2. If soil borings are to be used to determine the extent of soil contamination, then:
  - a. Identify number and location (mapped) of proposed borings.
  - b. Describe depth of borings
  - c. Describe soil classification system, soil sampling method and rationale
  - d. Describe boring drilling method, including decontamination procedures.
  - e. Describe boring abandonment method

C. Describe method and criteria for screening clean versus contaminated soil, including a complete description of procedures to be used for storing and disposal of any excavated soil. If on-site soil aeration is to be utilized, then a complete description of the treatment method is required:

1. Volume and rate of aeration/turning.
2. Method of containment and cover
3. Wet weather contingency plans.

Other on-site treatments (such as bioremediation) requires permits issued by the Regional Board. Off-site storage or treatment also requires permits issued by the Regional Board.

D. Security measures planned for excavated hole and contaminated soil (i.e., six foot fence around hole, ripped up piping, spoil piles, etc.)

IV. Plan for determining groundwater contamination.

Construction and placement of wells should adhere to the requirements of the "Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks". If the verified down gradient location has been established, then a complete description of the rationale must be provided.

- A. Placement and rationale for location of monitoring wells, including a map to scale.
- B. Drilling method for construction of monitoring wells, including decontamination procedures.
  - 1. Expected depth and diameter of monitoring wells
  - 2. Date of expected drilling.
  - 3. Method and location of soil sampling of borings.
  - 4. Casing type, diameter, screen interval, and pack and slot sizing technique.
  - 5. Depth and type of seal.
  - 6. Construction diagram for wells.
  - 7. Development method and criteria for determination of adequacy of development.
  - 8. Plans for disposal of cuttings and development water.
  - 9. Surveying plans for wells (requirements include surveying to established benchmark to 0.01 foot)
- C. Groundwater sampling plans (include plans for sampling and on-site domestic wells)
  - 1. Water level measurement procedure
  - 2. Methods for free product measurement, observation of sheen and odor.
  - 3. Well purging procedures.
  - 4. Well purge water disposal plans.
  - 5. Sample collection procedures.
  - 6. Sample analyses to be used
  - 7. Quality assurance plan
  - 8. Chain of custody procedures
- V. Include a site safety plan [MUST ADHERE TO 40 CFR 1910.120 CRITERIA]

A report will need to be submitted following collection of the information proposed and approved in the workplan. The report should set out the collected information in an orderly fashion and include any recommendations for additional needed work.