

**REPORT**  
**SITE ASSESSMENT**  
**BROADWAY AND LAWTON AVENUE**  
**OAKLAND, CALIFORNIA**

Prepared for

**KNOLL ENTERPRISES**  
**P. O. BOX 30847**  
**OAKLAND, CALIFORNIA 94604**

**Riedel Environmental Services, Inc.**  
**4138 Lakeside Drive**  
**Richmond, California 94806**

**RES Project No. 4205-9001**  
**February 1, 1990**



RIEDEL ENVIRONMENTAL  
SERVICES, INC.

San Francisco Region:  
4138 Lakeside Drive  
Richmond, California 94806  
(415) 222-7810  
FAX: (415) 222-6868

February 1, 1990

Mr. Alfred Knoll  
Knoll Enterprises  
P. O. Box 30847  
Oakland, California 94604

Reference: Site Assessment  
Broadway and Lawton Avenue  
Oakland, California  
RES Project No. 4205-9001

Dear Mr. Knoll:

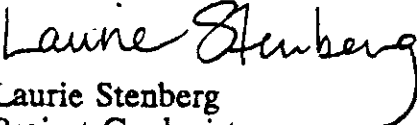
Riedel Environmental Services, Inc. (RES) is pleased to submit this report documenting the site assessment conducted by RES at the above-referenced location in Oakland, California.

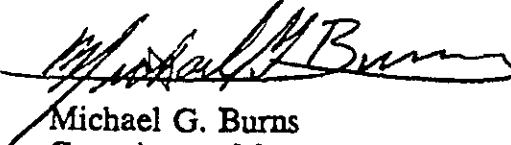
We appreciate the opportunity to perform this work and look forward to working with you in future projects.

If you have any questions or require additional information, please feel free to contact us.

Sincerely,

RIEDEL ENVIRONMENTAL SERVICES, INC.

  
Laurie Stenberg  
Project Geologist

  
Michael G. Burns  
Geosciences Manager

LS:hav

## TABLE OF CONTENTS

- 1.0 INTRODUCTION
  - 1.1 Background
  - 1.2 Scope of Work
  
- 2.0 FIELD INVESTIGATION PROCEDURES
  
- 3.0 SITE HYDROGEOLOGIC CONDITIONS
  
- 4.0 LABORATORY ANALYTICAL PROCEDURES AND RESULTS
  
- 5.0 DISCUSSION AND RECOMMENDATIONS
  
- 6.0 LIMITATIONS

### TABLE

- 1 Summary of Analytical Results

### FIGURES

- 1 Site Plan
- 2 Geologic Cross-Section A-A'

### APPENDIX

- A Chain of Custody Records and Laboratory Analytical Results

## 1.0 INTRODUCTION

This report presents the results of the site assessment performed by Riedel Environmental Services, Inc. (RES) for Knoll Enterprises. The project site is located at the southwest corner of the intersection of Broadway and Lawton Avenue in Oakland, California. The purpose of this site assessment was to determine if residual contamination from a former gasoline service station was present in soil and/or groundwater at the site. The site background is described below.

### 1.1 Background

The site is an approximately 8,000 square foot empty lot. It is RES' understanding that this site was originally a gasoline service station. A total of 6 underground storage tanks are thought to have been removed in about 1960. A 7 foot deep trench was dug and the soils were smelled for the presence of petroleum products during a previous investigation conducted at an unknown date. No petroleum product odors were noted. However, no samples are known to have been analyzed by a certified analytical laboratory, and no tank removal report is known to exist. Knoll Enterprises has apprised RES that wells at a nearby service station located downhill of the site have groundwater at 7 feet below grade.

### 1.2 Scope of Work

Based on the information provided by Knoll Enterprises, RES' original scope of work was as follows:

- o Six groundwater samples were to be collected at locations to be determined by the location of underground utilities and access considerations.
- o Selected groundwater samples would be analyzed for the presence of Total Petroleum Hydrocarbons (TPH) as gasoline and diesel fuel; benzene, toluene, ethyl benzene, and xylenes (BTEX) compounds; and waste oil and grease.

The scope of work was modified due to the following discoveries: 1) buried concrete blocks that the Hydropunch was unable to break through and 2) groundwater that was not present throughout the site. The modified scope of work is as follows:

- o Collected one groundwater sample using a Hydropunch probe;
- o Obtained subsurface hydrogeologic data down to approximately 12 and 18 feet at two points using a cone penetrometer (CPT);
- o Collected three soil samples at a depth of 5 feet;
- o Analyzed the groundwater and soil samples for the presence of TPH as gasoline and diesel fuels, BTEX compounds, and waste oil and grease; and
- o Prepared a cross-section of the subsurface based on the CPT data.

## 2.0 FIELD INVESTIGATION PROCEDURES

The Hydropunch and CPT were utilized on January 16, 1990 at the locations shown in Figure 1. Prior to commencement of this work, RES personnel conducted a site survey to locate underground and overhead utilities in the area of investigation. The groundwater sample was collected with the Hydropunch as described in RES' proposal, dated December 20, 1989. Subsurface hydrogeological data was collected with a CPT probe. The CPT probe is a 1.5 inch diameter rod with a conical point. Sensors at the tip and sides of the probe measure penetration resistance and side friction of the soils, respectively. Prior to each use, the Hydropunch and CPT were cleaned with a non-phosphate detergent followed by a tap water and distilled water rinse to prevent cross-contamination between probe locations.

Groundwater samples were collected by submerging a 40 milliliter glass sample bottle in the Hydropunch probe hole and transferring the water to the appropriate EPA-approved containers. The samples were sealed, labeled, placed on ice packs to maintain a maximum temperature of 4°C, and transported directly to a State-certified hazardous materials testing laboratory. Chain of custody procedures were observed.

On January 19, 1990, three soil samples were collected at a depth of approximately 5 feet. The sample locations are shown in Figure 1. These samples were collected using a hand-operated soil auger and sealed into brass sleeves with aluminum foil and end caps. All sampling equipment was decontaminated as previously described. Samples were placed on ice to maintain a maximum temperature of 4°C and delivered directly to a State-certified hazardous materials testing laboratory. Chain of custody procedures were observed.

### 3.0 SITE HYDROGEOLOGIC CONDITIONS

The original scope of work called for the collection of groundwater samples with the Hydropunch probe. Attempts to collect samples with the Hydropunch in the eastern portion of the site were unsuccessful due to unexpected buried concrete blocks. At a point near the north fence (see Figure 1), the Hydropunch reached the bedrock at 17 feet. Once the Hydropunch was removed, the remaining hole filled with water to approximately 4 inches from the surface. The collection chamber, however, was empty. It is apparent that the containment pit for the former tanks collects perched water and that the Hydropunch collection port was below this localized, perched groundwater. Since the water level in the hole rose to within 4 inches of the surface, water samples were collected as previously described.

Due to damage to the Hydropunch that occurred during the 17 foot punch, the CPT was then used to explore the subsurface hydrogeology. The CPT was pushed to depths of 12 and 18 feet at probe locations CP1 and CP2, respectively. Groundwater was not observed to collect in either hole. The CPT encountered interbedded clays, silts and weathered rock layers underlain by bedrock at the total depths explored. Figure 2 presents a geologic cross section based on the CPT results.

Upon completion of the Hydropunch and CPT operations, all holes were backfilled with soil cuttings.

#### 4.0 LABORATORY ANALYTICAL PROCEDURES AND RESULTS

The groundwater and soil samples were analyzed for the presence of TPH as gasoline and diesel fuels, BTEX compounds, and waste oil and grease by EPA Methods 5030, 8015, 8020, 3510, 3550, and 413.1 (gravimetric).

Table 1 summarizes the analytical results. Soil sample S2 contained 985 milligrams per kilogram (mg/kg) of oil and grease. This is above the 100 mg/kg level recommended by the Regional Water Quality Control Board's (RWQCB) Leaking Underground Fuel Tank (LUFT) Field Manual (April 1989). Xylene is below the 1.0 mg/kg LUFT Manual level in all three soil samples. The 25 milligrams per liter (mg/l) of dissolved oil and grease in the water sample HP1 is probably due to the residual soil contamination found in sample S2. The RWQCB sets action levels for TPH contamination of groundwater on a site-specific basis. Copies of the analytical results, along with the chain of custody documentation, are presented in Appendix A.

#### 5.0 DISCUSSION AND RECOMMENDATIONS

The results of this assessment indicate the presence of old residual petroleum product contamination from the former underground fuel tank leaks. The higher concentration of xylene with respect to benzene, toluene, and ethylbenzene indicates an aged petroleum fuel contamination source. The high levels of oil and grease in samples S2 and HP1 will generally require soil remediation.

Reporting requirements promulgated by Proposition 65, the Porter-Cologne Water Quality Control Act, and other laws require that the results of this investigation be forwarded to the RWQCB at the following address:

Regional Water Quality Control Board  
1800 Harrison Street, 7th floor  
Oakland, California 94612  
Attention: Tom Callaghan

Handwritten notes: BFL, TOE, 10-12, 1-4, 7/15/89, 860-1257.

Based on our observations of site conditions, the full extent of the residual contamination is probably minor and confined to the former underground storage tank excavation; however, the limited number of samples may not have defined the full extent of contamination.

To continue the assessment process and expedite remediation of the site, RES recommends the following:

1. Excavate the soil in a 30 foot long by 10 foot wide by 12 foot deep area centered on the HP1 and S2 sample locations. This will remove the known contaminated soil to the typical depth of underground storage tanks.
2. Dispose of the soil at a Class II licensed landfill or biotreat the soil on-site if time and space limitations permit.
3. Sample and analyze soil from two locations at the bottom of the excavation to determine if sufficient excavation has been performed.

This technical approach will allow for visual and analytical assessment, as well as remediation of the known contamination. Knoll Enterprises will be notified immediately if visual observations indicate that contamination extends beyond the above-defined area.

The cost to perform the above-described scope of work using the disposal option in Step 2 is estimated to be approximately \$30,000.00 if excavation and disposal of the entire 30 x 10 x 12 foot volume is needed. The estimate includes labor, equipment, and disposal fees. This cost estimate is based on a rate of \$150 per ton of material (disposal fees are based on weight). Actual costs may vary due to changes in landfill prices.

The cost to perform the above-described scope of work using the biotreatment option in Step 2 is estimated to range from \$20,000.00 to \$25,000.00. This cost is based on a rate of approximately \$150.00 per cubic yard and the entire 30 x 10 x 12 foot volume.. The range covers a 90 to 180 day treatment period. Actual costs may vary due to biodegradation rates.



## 6.0 LIMITATIONS

When an assessment is completed with limited subsurface exploration or chemical screening of soil and groundwater beneath the site, as in this study, no statement of scientific certainty can be made regarding latent subsurface conditions which may be the result of on-site or off-site sources. The findings and conclusions of this report are not scientific certainties, but rather, probabilities based on professional judgment concerning the significance of the data gathered during the course of the environmental investigation. RES is not able to represent that the site or adjoining land contains no hazardous waste, oil or other latent condition beyond that detected or observed by RES during the investigation.

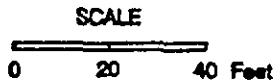
**TABLE 1**  
**SUMMARY OF ANALYTICAL RESULTS**

	Water (mg/l)	Soil (mg/kg)		
	HP-1	S-1	S-2	S-3
Oil and Grease	25	ND	985	ND
Diesel	ND	ND	ND	ND
Gasoline	1.3	ND	ND	ND
Benzene	0.059	ND	ND	ND
Toluene	0.010	ND	ND	ND
Ethylbenzene	0.039	ND	ND	ND
Xylene	0.220	0.064	0.13	0.05

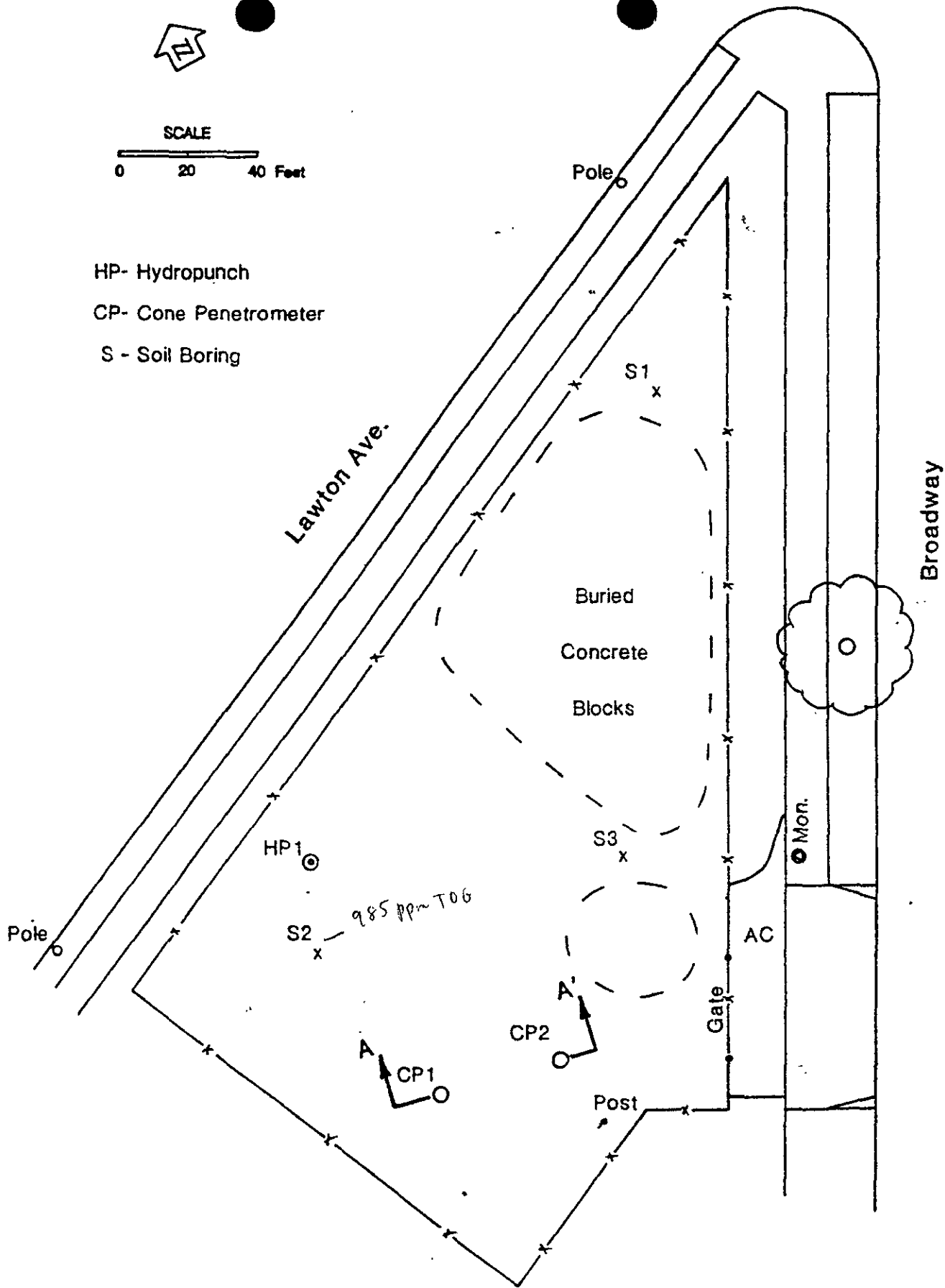
mg/l = milligrams per liter or parts per million

mg/kg = milligrams per kilogram or parts per million

ND = not detected; for detection limits, see analytical results



HP- Hydropunch  
CP- Cone Penetrometer  
S - Soil Boring



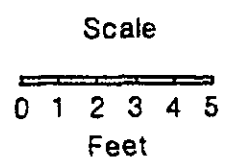
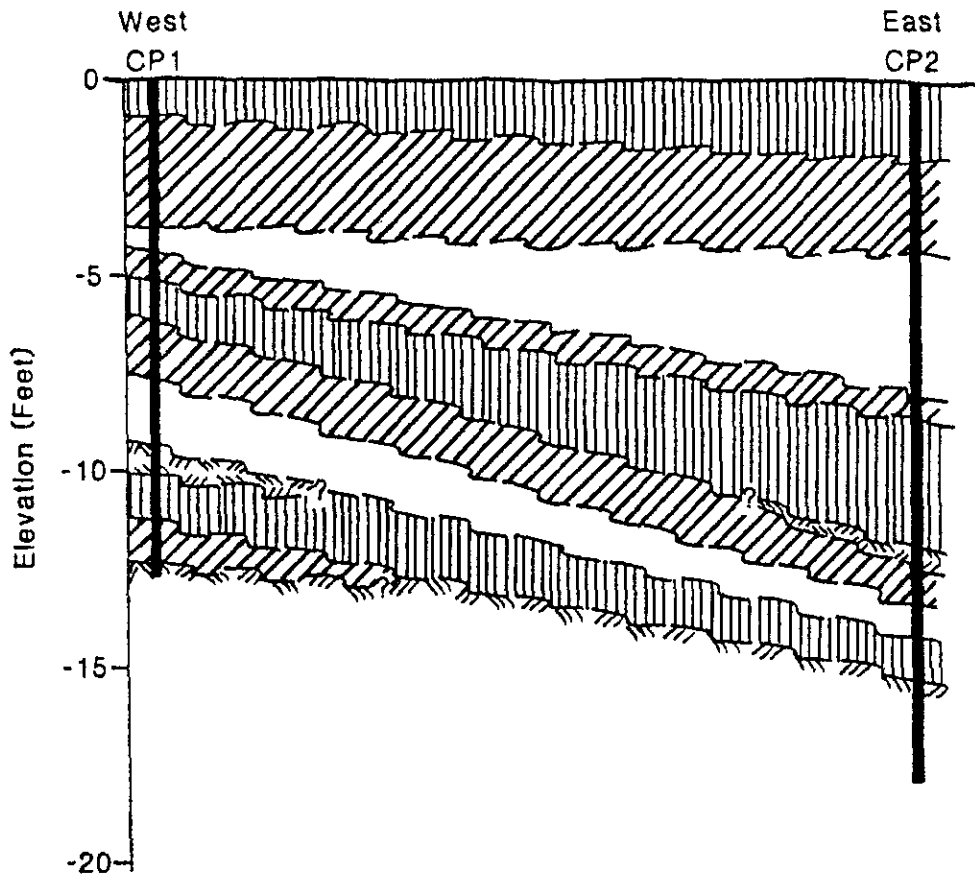
Site Plan

Project 4205-9001







RIEDEL ENVIRONMENTAL SERVICES, INC. Richmond, California

FIGURE 1



Explanation

-  Clay
-  Silt
-  Overconsolidated or Cemented  
? Weathered Bedrock
-  Undefined

Section A-A'

Project 4205-9001



**RIEDEL ENVIRONMENTAL SERVICES, INC.** Richmond, California

**APPENDIX A**

**CHAIN OF CUSTODY RECORDS AND  
LABORATORY ANALYTICAL RESULTS**







### CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 01/17/90  
Reported: 01/30/90  
Job No. #: 71293

Attn: Laurie Stenberg  
Riedel Environmental Services  
4138 Lakeside Drive  
Richmond, CA. 94806

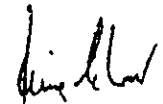
Project: Knoll Enterprises  
Matrix: Water

Oil & Grease Analysis:  
EPA 9070  
mg/l

Lab ID	Client ID	Oil & Grease	MDL
71293-1	Knoll HPI	25	20

QA/QC: Spike Recovery for Oil & Grease: 81%

MDL: Method detection limit: Compound below this level would not be detected.

  
\_\_\_\_\_  
Jaime Chow  
Laboratory Director





### CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 01/17/90  
Reported: 01/30/90  
Job No. #: 71293

Attn: Laurie Stenberg  
Riedel Environmental Services  
4138 Lakeside Drive  
Richmond, CA. 94806

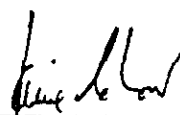
Project: Knoll Enterprises  
Matrix: Water

Total Petroleum Hydrocarbon Analysis  
DHS Method (LUFT)  
ug/l

Lab ID	Client ID	Diesel	Gasoline	MDL
71293-1	Knoll HPI	ND<500	1,300	500

QA/QC: Spike Recovery for Diesel: 118%

MDL: Method detection limit: Compound below this level would not be detected.

  
\_\_\_\_\_  
Jaime Chow  
Laboratory Director

## CERTIFICATE OF ANALYSIS

State License No. 211

Received: 01/17/90

Reported: 01/30/90

Job No #: 71293

Attn: Laurie Stenberg  
 Riedel Environmental Services  
 4138 Lakeside Drive  
 Richmond, CA. 94806

Project: Knoll Enterprises  
 Matrix: Water

Aromatic Volatile Hydrocarbon Analysis:  
 EPA Method 8020  
 ug/l

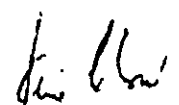
Lab ID	Client ID	Benzene	Toluene	MDL
71293-1	Knoll HPI	59	10	3.0

Lab ID	Client ID	Ethylbenzene	Xylene	MDL
71293-1	Knoll HPI	39	220	3.0

TPH as Gasoline = 1300 ug/l

QA/QC: Spike Recovery for Benzene: 85%  
 Spike Recovery for Toluene: 90%  
 Spike Recovery for O-Xylene: 86%

MDL: Method detection limit; Compound below this level would not be detected.

  
 \_\_\_\_\_  
 Jaime Chow  
 Laboratory Director



### CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 01/19/90  
Reported: 01/30/90  
Job No. #: 71303

Attn: Laurie Stenberg  
Riedel Environmental Services  
4138 Lakeside Drive  
Richmond, CA. 94806

Project: Knoll Enterprises  
Matrix: Soil

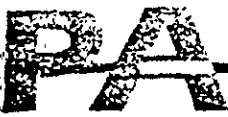
Oil & Grease Analysis:  
EPA 9071  
mg/kg

Lab ID	Client ID	Oil & Grease	MDL
71303-1	S-1	ND<20	20
71303-2	S-2	985	20
71303-3	S-3	ND<20	20

QA/QC: Spike Recovery for Oil & Grease: 84%

MDL: Method detection limit: Compound below this level would not be detected.

  
\_\_\_\_\_  
Jaime Chow  
Laboratory Director



CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 01/19/90
Reported: 01/30/90
Job No. #: 71303

Attn: Laurie Stenberg
Riedel Environmental Services
4138 Lakeside Drive
Richmond, CA. 94806

Project: Knoll Enterprises
Matrix: Soil

Total Petroleum Hydrocarbon Analysis
DHS Extraction Method (LUFT)
mg/kg

Table with 5 columns: Lab ID, Client ID, Diesel, Gasoline, MDL. Rows show results for Lab IDs 71303-1, 71303-2, and 71303-3.

QA/QC: Spike Recovery for Diesel: 108%
Spike Recovery for Gasoline: 106%

MDL: Method detection limit: Compound below this level would not be detected.

Signature of Jaime Chow
Jaime Chow
Laboratory Director

**CERTIFICATE OF ANALYSIS**

State License No. 211

Received: 01/19/90  
Reported: 01/30/90  
Job No #: 71303

Attn: Laurie Stenberg  
Riedel Environmental Services  
4138 Lakeside Drive  
Richmond, CA. 94806

Project: Knoll Enterprises  
Matrix: Soil

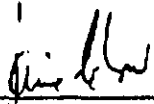
Aromatic Volatile Hydrocarbon Analysis:  
EPA Method 8020  
mg/kg

Lab ID	Client ID	Benzene	Toluene	MDL
71303-1	S-1	ND<0.03	ND<0.03	0.03
71303-2	S-2	ND<0.03	ND<0.03	0.03
71303-3	S-3	ND<0.03	ND<0.03	0.03

Lab ID	Client ID	Ethylbenzene	Xylene	MDL
71303-1	S-1	ND<0.03	0.064	0.03
71303-2	S-2	ND<0.03	0.13	0.03
71303-3	S-3	ND<0.03	0.05	0.03

QA/QC: Spike Recovery for Benzene: 94%  
Spike Recovery for Toluene: 94%  
Spike Recovery for O-Xylene: 90%

MDL: Method detection limit; Compound below this level would not be detected.

  
\_\_\_\_\_  
Jaime Chow  
Laboratory Director



**ES&S Environmental Systems & Service**

P.O. Box 190, 4895 Gaddy Lane, Kelseyville, CA 95451 (707) 279-4223

*Metal location report.*

**ENVIRONMENTAL HAZARD ASSESSMENT REPORT**

SITE OF FORMER SERVICE STATION  
5775 BROADWAY at LAWTON AVENUE,  
OAKLAND, CALIFORNIA

Report Number 89-1214

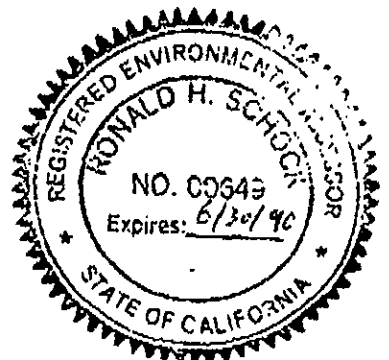
Prepared for;

Rodger E. Hildahl  
Certified Public Accountant, Inc.  
300 South Center Street, Suite 590  
Reno, Nevada 89501-2148

by:  
Environmental Systems & Service

*Ronald H. Schock*

Ronald H. Schock  
Registered Environmental Assessor - No. 00649  
Registration expires 6/30/90



ENVIRONMENTAL ASSESSMENT of SITE, Previously used for gas station

LOCATION: 5775 Broadway at Lawton, Oakland, California.

DESCRIPTION; Lot was triangular in shape, with frontage on both Lawton Avenue and Broadway. These two sides had a chain link fence, with a gate on the West end of the Broadway side. On the West end of the lot there is a house and an office building.

West of the lot and buildings, on the Broadway side, is a Shell gas station.

VISUAL APPEARANCE; grading had been done on the lot and the sidewalks appeared to have been replaced at one time. About 1/4 to 1/3 of the lot was covered by asphalt paving. There was only one driveway entrance at the existing gate, too small for a service station. In all probability the sidewalk was replaced when the tanks were removed.

There were no visual indications that any wastes or underground tanks were still on property.

RECORDS; The City of Oakland had on file, in the Fire Department, a permit (No. 7665) to remove 6 flammable liquid tanks, this was issued on March 30, 1973 and a inspection of work was passed and signed on April 13, 1973, by the Fire Marshal. (copy of permit attached)

The contractor listed on the permit could not be located.

PHYSICAL INSPECTION; The ground was scanned with a tank & pipe locator, this indicated three areas where metal was present.

To investigate these areas, a backhoe was used to excavate where the metal was indicated, and one additional area on the East end of the parcel, near the point.

One shallow hole (A) was dug straight in from the gate, near the middle, this turned up conduit with wires in it. Hole (B) was dug next to the fence on the Lawton Ave. side. Hole (C) was dug near the junction of Broadway & Lawton. Hole (D) was dug on the Broadway side, near the gate at a 90 degree angle to Broadway. No excavation was done on the West end of the lot near the buildings as there were cars parked there and the area was mostly covered with asphalt, with no indication of any tanks having been there.

All trenches, except (A) were dug to an approximate depth of 7-8 feet, at this point hard packed, dry earth was encountered that appeared to have been original. The earth excavated was visually inspected and smelled for any indication or odor of gasoline or oil. There was none. All the soil was dry. A sample of dirt from each trench was mixed in a glass jar and a petroleum test strip was placed in jar and left for seven days, no petroleum was indicated on the test strips. Several feet of pipe was found in hole B but had no odor of gasoline in it.

*Does it identify what was in B, C & D? I think it does.*

TEST WELLS; The Shell gas station on the West end of the block is relatively new and has test wells installed. In a conversation with the manager of this station he said that no contamination had been detected in his wells. This station is down hill from 5775 Broadway, and the expected water flow would be toward it, as water flowed from the hills on the East to the bay on the West. (we didn't see copies of the test reports).

SUMMARY; A permit had been issued and signed off to remove tanks, surface and subsurface inspection did not show any indication of contamination or tanks. Monitoring wells nearby do not indicate any contamination. All investigation done has revealed no contamination.

While no guarantee can or is made or implied that no part of the site is contaminated, as the only way to do that would be to dig up the entire area, and this would not be reasonable, unless there was some indication that contamination did indeed exist and at this point there is no indication of contamination.

Additional testing could be done in a series of test holes drilled around the perimeter and in the center of the site, but this work would be expensive. Another alternative would be to drive test probes into the soil at a number of locations and take sub-soil gas samples and analyze them for hydrocarbons.

I had a telephone conversation with personnel of the Alameda County, hazardous materials program, underground tank section as to any requirements, regulations, permits or interest for this type of assessment, they stated they did not, unless we found contamination.

Submitted by;

Environmental Systems & Service

*Ronald H. Schock*

Ronald H. Schock  
Registered Environmental Assessor No. 00649

Enclosures;

Copy of permit.  
Sketch of excavation locations.





Copy for INSPECTOR

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

# 9

# CITY OF OAKLAND

Tank Permit No. 7665

Permit to Excavate and Install, Repair, or Remove Inflammable Liquid Tanks. No. 7665

Oakland, California, March 30 1913

PERMISSION IS HEREBY GRANTED TO ~~INSTALL~~ **REMOVE** ~~INSTALL~~ Gasoline tank and excavate commencing 4 feet inside curb line

on the North side of Leaton ~~Street~~ Avenue 118 feet front of Bronchway Street Avenue

House No. 577 Bronchway Street Avenue Present Storage 1 x 1,000 1-7,500 1-6,000

or Standard Oil Address ~~XXXXXX~~ Phone ~~XXXXXX~~

Applicant V.L. Stevens Co Address 990 - 98th Ave Phone 271-0538

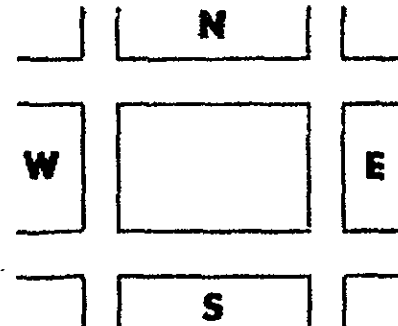
Dimensions of street (sidewalk) surface to be disturbed 9' x 25' Number of Tanks 1 Capacity ~~XXXXXX~~ Gallons, each.

Remarks: Remove 6 Tanks

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 flame 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.

Inspection Fee Paid . . . . . \$ 10.00 (OR 10.00)  
(Inc # 85-31)

Received by Carol White PREVENTION BUREAU

## CERTIFICATE OF TANK AND EQUIPMENT INSPECTION

Inspected and passed on April 13 1913

By Ray J. McElmurry Fire Marshal

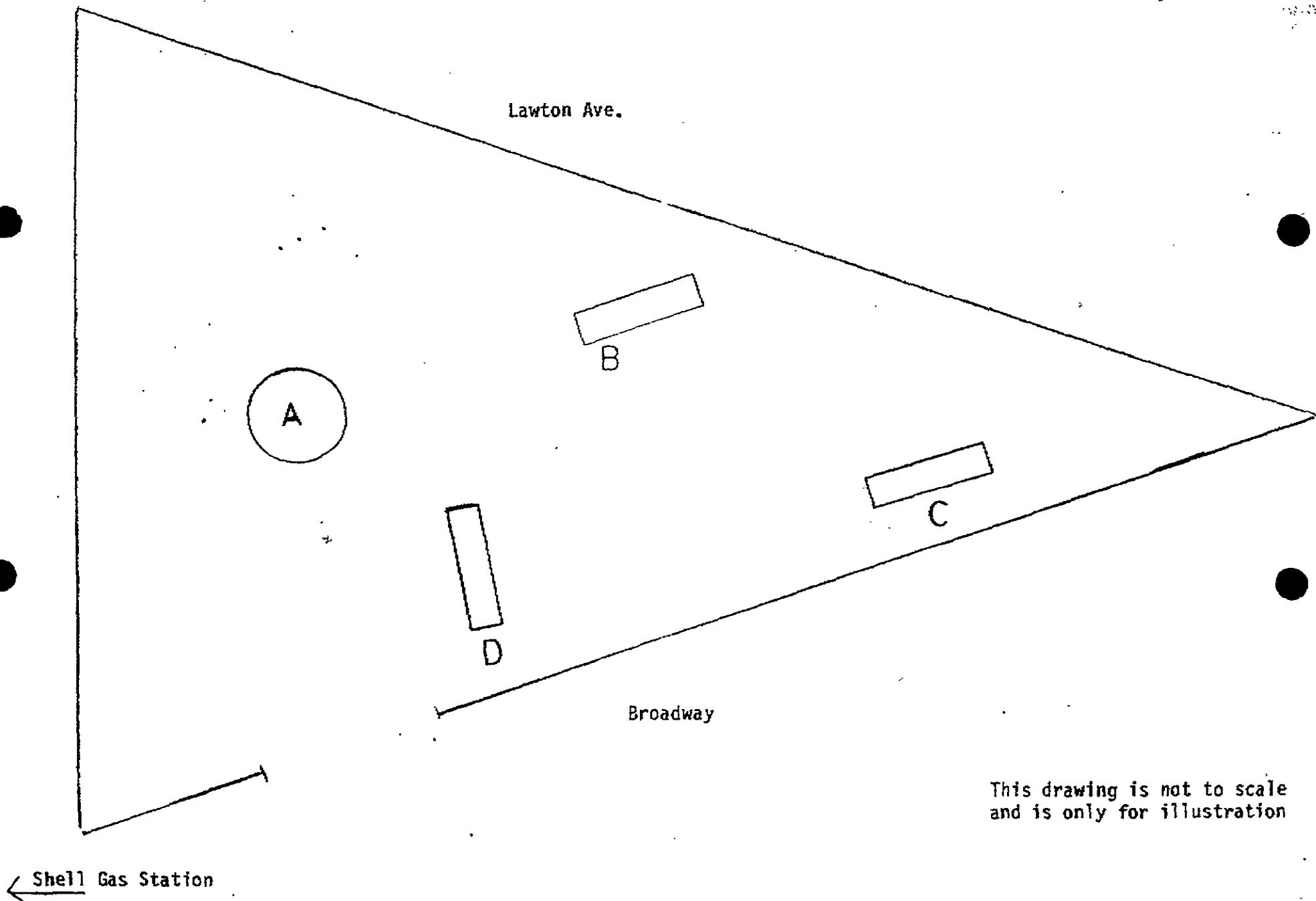
## NOTICE

Before Covering Tanks, Above Certificate Must Be Signed.

When ready for inspection notify Fire Prevention Bureau, 273-3851

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

5775 Broadway & Lawton  
Oakland, Calif.



This drawing is not to scale  
and is only for illustration