

ALAMEDA COUNTY
HEALTH CARE SERVICES



AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

February 2, 2001
StID # 891

REMEDIAL ACTION COMPLETION CERTIFICATION

Mr. Floyd Young
3711 Allendale Ave.
Oakland CA 94619

**RE: Floyd Young Appliance Site, 3775 Brookdale Ave.,
Oakland 94619**

Dear Mr. Young:

This letter confirms the completion of site investigation and remedial action for the one (1) 1000 unleaded gasoline tank, the one (1) 500 gallon leaded gasoline tank, the one (1) 500 gallon waste oil tank and the two underground tanks closed-in-place formerly located at the above described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground tank is greatly appreciated.

Based on information in the above-referenced file and with provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25299.37 of this Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.77 of the Health and Safety Code and that no further action related to the petroleum release(s) as the site is required.

This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code.

Please contact Barney Chan at (510) 567-6765 if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung
Director, Environmental Health

Mr. Floyd Young
February 2, 2001
StID # 891, 3775 Brookdale Ave., Oakland 94619
Remedial Action Completion Certificate
Page 2

✓ c: B. Chan, Hazardous Materials Division-files
Chuck Headlee, RWQCB
Mr. Allan Patton, SWRCB Cleanup Fund
Mr. Leroy Griffin, City of Oakland OES, 1605 Martin Luther
King Dr., Oakland CA 94612

RACC3775Brookdale

ALAMEDA COUNTY
HEALTH CARE SERVICES



AGENCY

February 23, 1997
DAVID J. REARS, Agency Director
StID# 891

Mr. Floyd Young
3711 Allendale Ave.
Oakland CA 94619

ENVIRONMENTAL HEALTH SERVICES

ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700

RE: Fuel Leak Site Case Closure, 3775 Brookdale Ave.,
Oakland CA 94619

Dear Mr. Young:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with the Health and Safety Code, Chapter 6.75 (Article 4, Section 25299.37 h). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Health Services, Local Oversight Program (LOP) is required to use this case closure letter. We are also enclosing the case closure summary. This document confirms the completion of the investigation and cleanup of the reported release at the subject site, UST and non-UST (SLIC).

Site Investigation and Cleanup Summary:

Please be advised that the following conditions exist at the site:

- 1300 parts per million (ppm) Total Petroleum Hydrocarbons as gasoline (TPHg), and 0.25, 4.1, 10, 56 ppm benzene, toluene, ethyl benzene and xylenes, respectively, 1100 ppm TPH as motor oil, 250 ppm TPH as diesel, and 0.99, 220, 72, 120 ppm cadmium, lead, nickel and zinc, respectively remain in the soil at the site.
- 3420 parts per billion (ppb) TPHg, 4810 ppb TPH as motor oil, 70, 4.9, 21 and 16 ppb benzene, toluene, ethyl benzene and xylenes, respectively and 28 ppb methyl tertiary butyl ether (MTBE) remain in the groundwater at the site.

This site should be included in the City's permit tracking system. Please contact me at (510) 567-6765 with any questions.

Sincerely,

Barney M. Chan
Hazardous Materials Specialist

enclosures: Case Closure Letter, Case Closure Summary

c: Mr. L. Griffin, City of Oakland OES, 1605 MLK Jr. Way,
Oakland CA 94612

✓ B. Chan, files (letter only)

Tel: 3775 Brookdale

JUL 17 2001

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

QUALITY CONTROL BOARD

1-11-01

I. AGENCY INFORMATION

Date: ~~October 13, 2000~~

Agency name: Alameda County-Env Health Address: 1131 Harbor Bay Parkway
 Rm 250, Alameda CA 94502

City/State/Zip: Alameda Phone: (510) 567-6700

Responsible staff person: Barney Chan Title: Hazardous Materials Spec.

II. CASE INFORMATION

Site facility name: Floyd Young Appliance Site

Site facility address: 3775 Brookdale Ave., Oakland CA 94619

RB LUSTIS Case No: N/A Local Case No./LOP Case No.: 891

ULR filing date: 7/12/91 SWEEPS No: N/A

<u>Responsible Parties:</u>	<u>Addresses:</u>	<u>Phone Numbers:</u>
Mr. Floyd Young	3711 Allendale Ave. Oakland CA 94619	510-534-7067

<u>Tank No:</u>	<u>Size in gal.:</u>	<u>Contents:</u>	<u>Closed in-place or removed?:</u>	<u>Date:</u>
1-2	unknown	unknown	closed-in-place	5/14/79
3	1000 gal	UL gas	removed	9/20/90
4	500 gal	leaded gas	removed	"
5	55 gal	waste oil	removed	"

III RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: unknown

Site characterization complete? yes

Date approved by oversight agency:

Monitoring Wells installed? Yes Number: 3

Proper screened interval? yes

Highest GW depth: 6.8' bgs Lowest depth: 10.0' bgs

Leaking Underground Fuel Storage Program

Flow direction: south- southwesterly

Most sensitive current use: mixed residential/commercial area

Are drinking water wells affected? No Aquifer name: NA

Is surface water affected? No Nearest affected SW name: NA

Off-site beneficial use impacts (addresses/locations): NA

Report(s) on file? **Yes** Where is report(s)?

Alameda County	and	City of Oakland OES
1131 Harbor Bay Parkway,		1605 MLK Jr. Way
Room 250, Alameda CA 94502-6577		Oakland CA 94612

Treatment and Disposal of Affected Material:

<u>Material</u>	<u>Amount (include units)</u>	<u>Action (Treatment of Disposal w/destination)</u>	<u>Date</u>
Tanks	1-2	closed-in-place with concrete	5/14/79
	3-5	disposed, H&H Shipping, SF	7/31/90
Soil	60 cy	disposed, Altamont Landfill	11/16/95

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

<u>Contaminant</u>	<u>Soil (ppm)</u>		<u>Water (ppb)</u>	
	<u>1Before</u>	<u>After2</u>	<u>3Before</u>	<u>After 4</u>
TPH (Gas)	1300		5800	3420
Benzene	9.7		100	70
Toluene	6.3		21	4.9
Ethylbenzene	13		87	21
Xylenes	29		48	16
MTBE (8020)/(8260)				33 /28
TOG	1100			4810
TPHd	250			ND
HVOCs	ND		NA	ND
Metals: Cd,Pb,Ni,Zn	0.99, 220, 72, 120			ND (Pb)
Semi-volatiles				ND

Comments (Depth of Remediation, etc.):

- 1 soil sidewall sample (C) from tank removal
- 2 no over-excavation done
- 3 maximum concentrations detected in MW-1 on 1/97
- 4 6/1/00 sampling event

Leaking Underground Fuel Storage Tank Program

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Undetermined

Does corrective action protect public health for current land use? YES

Site management requirements: site should be included in the City of Oakland Permit Tracking System.

Should corrective action be reviewed if land use changes? Yes

Monitoring wells Decommissioned: No

Number Decommissioned: 0 Number Retained: 3

List enforcement actions taken: 8/30/91 & 10/1/91 citation hearings

List enforcement actions rescinded: above

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Barney M. Chan Title: Hazardous Materials Specialist

Signature: *Barney M Chan* Date: 1/9/01

Reviewed by

Name: Tom Peacock Title: Manager

Signature: *Tom Peacock* Date: 1-5-01

Name: Eva Chu Title: Hazardous Materials Specialist

Signature: *Eva Chu* Date: 10/13/00

VI. RWQCB NOTIFICATION

Date Submitted to RB: RB Response: *Concur*

RWQCB Staff Name: C. Headlee Title: AEG

Signature: *Cheryl Headlee* Date: 1/25/01

VII. ADDITIONAL COMMENTS, DATA, ETC.

See attached site summary.

Site Summary for 3775 Brookdale Ave., Oakland CA 94619
StID # 891

This site is located at the corner of 38th Ave. and Brookdale Ave. in the Fruitvale area of Oakland, near the MacArthur Freeway. See Figure 1.

According to the owner, Mr. Floyd Young, the site was previously used as a Shell service station from the early 1950s to approximately 1967. Mr. Young purchased the property in 1977 and has used the site since as a workshop and appliance repair facility.

On May 14, 1979 two of the underground tanks were closed-in-place by filling them with concrete. These tanks are located on the 38th Ave. property boundary in the sidewalk. Their size and contents are unknown, however, it is likely that they were fuel tanks like those removed in 1990. Closure of these tanks was consistent with prevailing requirements at that time, however, no other information exists on these tanks. Circular metal covers are apparent on the sidewalk indicating the location of these tanks.

On September 20, 1990 three underground tanks were removed from the site. Two of the tanks, one 1000 gallon unleaded (Tank A) and one 500 gallon leaded gasoline (Tank B), were located in the sidewalk of Brookdale Ave. The other "tank", (Tank C) was actually a buried 55 gallon drum located on the southern portion of the site used to store waste oil. Field notes from the Alameda County inspector, observed stained soil and petroleum odors in the soil beneath these tanks. Problems with the consultant prevented the owner from obtaining a formal tank closure report. Ultimately, only the analytical results were submitted to our office. One soil sample was collected beneath each of the gasoline tanks, two beneath the waste oil "drum" and a three-point composite from the stockpile soil. The highest residual TPHg concentration was found in the sample beneath the 500 gallon tank (Tank B) where 1300 ppm was exhibited. This sample also exhibited 9.7, 6.3, 13, 29 ppm BTEX, respectively. The sample beneath the waste oil tank exhibited 1100 ppm TOG, 390 ppm TPHg, 250 ppm TPHd, ND for HVOCs, low levels of TEX and metals concentrations. The metal concentrations were less than the residential PRG values. The lead concentration in this soil sample (220 ppm) was slightly above the RWQCB RBSL Residential (200 ppm), however, it appears that this contaminant is limited in extent since all soil samples from borings and monitoring wells had lead concentrations ranging from 12-28 ppm. A three-point composite sample taken from the stockpile exhibited relatively high TPHg and BTEX indicating that heavily impacted shallow soils were partially removed. See Figure 2 and Table 1.

On May 18 and 19, 1994, five borings were advanced at the site, three of which were converted into monitoring wells. Although an initial work plan to over-excavate the area beneath the gasoline tanks was submitted, the City of Oakland Public Works requested that the sidewalk be resurfaced for safety reasons. The three monitoring wells were located in the assumed down-gradient direction relative to the removed tanks. The other two borings were located between the removed tanks and next to the concrete filled tanks. Soil samples were collected at 2.5, 5.0 and 10.0' bgs from each boring. TPH was found only in the 10' bgs samples, the general depth to groundwater at the site. It appears that the soil contamination is localized beneath the former USTs, and groundwater is the path of migration of the petroleum release.

These samples also indicated a lack of benzene in shallow soil. The soils encountered consist of a gravelly sand for the first foot, a clay to gravelly clay from 1 to 8-9' bgs and the shallow aquifer is found in a moist clayey gravel lens at 9 to 12' bgs. This geology was consistently found in all five borings. **See Figure 3, Table 2 and the boring log of MW-1.**

Groundwater monitoring has occurred intermittently since the monitoring well installations, four quarters in 1997, one quarter in 1998 and most recently in June of 2000. Contaminant concentrations in groundwater appear stable when comparing the 1998 concentrations with those in 2000. **See Table 3, the attached monitoring results.**

A risk assessment was prepared in July 2000. Benzene and MTBE are the main chemicals of concern. Because of the lack of soil contamination found in the on-site borings to a depth of 5', soil exposure pathways were not considered complete and were not evaluated. The elevated benzene concentration found in soil sample B (9.7 ppm), collected beneath the 500 gallon gasoline tank appears confined to beneath the former tank beneath the sidewalk. Its only exposure pathway would be soil volatilization to outdoor air, however, because it's located beneath the sidewalk, risk to human health seems minimal except during a construction exposure pathway. Notification of residual soil and groundwater contamination is done through the City of Oakland Permit Tracking System.

The average benzene groundwater concentration for the latest monitoring event (33 ppb) was used as a representative concentration for the commercial office worker scenario while the historic high benzene groundwater concentration (100 ppb) was used to evaluate the construction worker exposure. From these groundwater concentrations the soil vapor concentration was estimated. Then the risk of each chemical was calculated. The indoor air concentrations were estimated using the Johnson & Ettinger model and for outdoor air concentration the DTSC box model was used. The total cancer risk for the office worker is estimated at 5.9E-08 and the excess cancer risk for an excavation worker is 8.8 E-08. The hazard index for these exposure pathways is significantly less than 1. **See the attached exposure point concentrations and risk tables.** Soil concentrations were not evaluated given the low levels of benzene in on-site vadose samples. The lone elevated benzene concentration was detected in sample B beneath the 500 gallon UST beneath the sidewalk. In all other soil samples from MW-1 through MW-3 and borings B-4 and B-5, the average vadose benzene soil concentration is 1 ppb.

Site closure is recommended based upon:

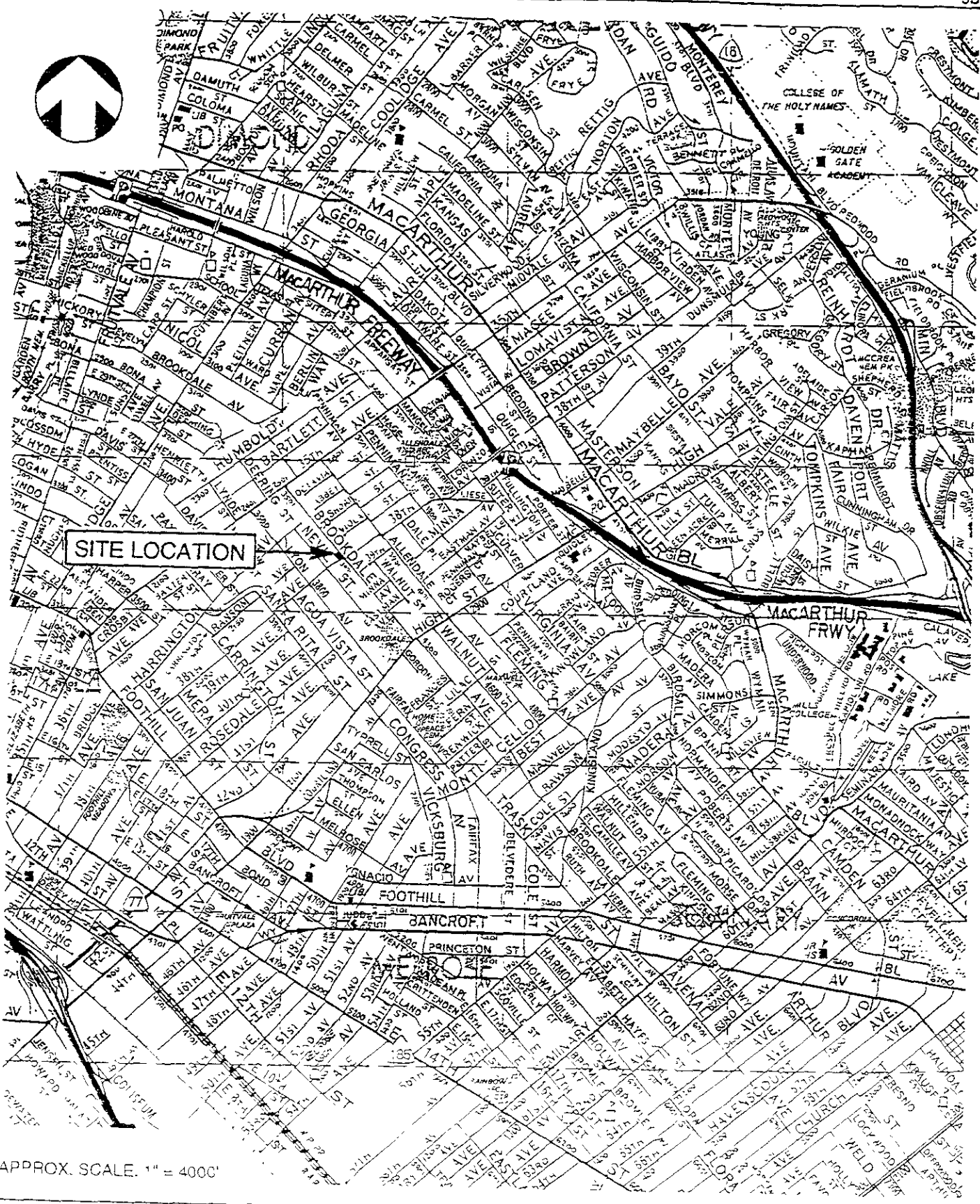
- **Adequate site characterization has occurred.** Soil borings and monitoring wells were advanced down-gradient or adjacent to known residual contamination. Analytical results indicate a limited area of soil contamination immediately beneath the former 500 gallon gasoline and waste oil tanks. Although the up-gradient extent of contamination has not been defined, because the down-gradient soil and groundwater concentrations do not pose a human health risk, the up-gradient contamination would similarly not be expected to pose a threat

Site Summary for 3775 Brookdale Ave., Oakland CA 94619

StID # 891

Page 3.

- The underground tanks have either been removed or closed-in-place. In addition, highly impacted soil was also removed during the tank removal.
- Groundwater monitoring indicates a stable plume with low benzene and MTBE concentrations.
- No human health risk is expected from the RBCA analysis.
- No environmental risk or sensitive receptors has been identified.



APPROX. SCALE. 1" = 4000'

QUESTA ENGINEERING CORPORATION
POINT RICHMOND, CALIFORNIA

SITE LOCATION MAP
3775 BROOKDALE AVENUE, OAKLAND

FIGURE

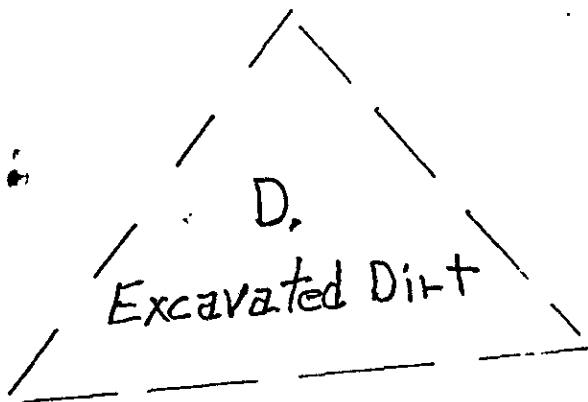


Brookdale Ave

Sidewalk

TANK B.

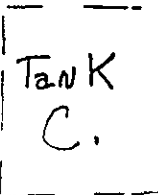
TANK A.



38th AVE

3775 Brookdale Oakland, Ca.

Filled-in -
placed tanks



NTS

Fig. 2

Table 1
OLFACTO - LABS

June 12, 1991

EQUIPMENT FOR TESTING
THE SENSE OF SMELL

91 JUN 13 AM 11:11

P. O. Box 757
El Cerrito, CA 94530

Paul M. Smith
Alameda County Health Care Services Agency
Hazardous Materials Program
80 Swan Way Rm. 200
Oakland, Ca. 94621

(415) 235-0203

also has 2 vst's
closed in place

TANK REMOVALS/ SITE: 3775 BROOKDALE AVE. OAKLAND, CA.

DATE SAMPLED: 9/21/1990 DATE ANALYZED: 9/25 -10/11/1990
SAMPLE DESIGNATIONS:

- SAMPLE A/A1. - 1,000 gal. LEADED GASOLINE
- SAMPLE B - 5,000 gal. LEADED GASOLINE
- SAMPLE C/C1. - 55 gal. WASTE OIL
- SAMPLE D - COMPOSITE 3/1 EXCAVATED DIRT

RESULTS-Parts per million
ANALYSES and SAMPLE: (ppm)

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
TPH/Gasoline	220	1,300	390	3,200
TPH/Diesel	N/A	N/A	250	N/A
OIL/GREASE (5520 F)	N/A	N/A	1,100	N/A
HALOGENATED VOLATILES (8010)	N/A	N/A	(N/D)	N/A

AROMATIC VOLATILES (8020):

Benzene	N/D	9.7	N/D	18
Toluene	0.28	6.3	0.22	120
Xylenes	4.4	29	6.1	160
Ethylbenzene	N/D	13	1.3	26

METALS/SAMPLE:

	<u>A1.</u>	<u>C1.</u>
Organic Lead (DHS)	0.85	N/A
Cadmium (7130)	N/A	0.99
Lead (7420)	N/A	220
Nickel (7520)	N/A	72
Zinc (7950)	N/A	120

TPH=Total Petroleum Hydrocarbons
N/A=No Analyses
N/D=Not Detected

** The support documentation for this report was retained under direction of the SUPERIOR COURT, COUNTY of ALAMEDA; Dept. 15, Case No. 639967-2. Documents held from Sept. 1990 to May 1991

Robert S. O'Neill
Robert S. O'Neill



Residence (Apartment)

BROOKDALE AVENUE

REMOVED FUEL TANK (500 GALLON)

REMOVED FUEL TANK (1000 GALLON)

MW-1

B-5

MW-2

AVENUE

Groundwater Direction

EXISTING BUILDING

Residence
Driveway

CONCRETE FILLED FUEL TANKS

Bldg. (Duplex)

REMOVED WASTE OIL TANK (55 GALLON)

B-4

EXISTING BUILDING

MW-3

38TH

Bldg. Commercial

SCALE: 1" = 20'

QUESTA ENGINEERING CORPORATION
POINT RICHMOND, CALIFORNIA

Residence

SITE PLAN WITH
MONITORING WELL LOCATIONS
3775 BROOKDALE AVENUE, OAKLAND

FIGURE

3

TABLE 2

ANALYTICAL RESULTS
SOIL SAMPLES
3775 Brookdale Avenue, Oakland

May 18 - 19, 1994

SAMPLE NO.*	O & G (ppm)	TPH-g (ppb)	BENZENE (ppb)	TOLUENE (ppb)	ETHYL- BENZENE (ppb)	XYLENE (ppb)	TOTAL Pb (ppm):‡	TPH-d (ppm)	8270 (ppb)**
MW B1 - 2.5	--	ND	ND	ND	ND	ND	24	--	--
B1 - 5.0	--	ND	ND	ND	ND	ND	17	--	--
B1 - 10.0	--	36,000	50	ND	41	74	24	--	--
MW B2 - 2.5	--	ND	ND	ND	ND	ND	22	--	--
B2 - 5.0	--	ND	5.4	ND	ND	ND	17	--	--
B2 - 10.0	--	150,000	ND	ND	ND	340	21	--	--
MW B3 - 2.5	ND	ND	ND	ND	ND	ND	18	--	--
B3 - 5.0	ND	ND	ND	ND	ND	ND	19	--	--
B3 - 10.0	ND	31,000	61	71	110	190	28	--	--
B4 - 2.5	--	ND	ND	ND	ND	ND	24	ND	ND
B4 - 5.0	--	ND	ND	ND	ND	ND	12	--	--
B4 - 10.0	--	260,000	530	ND	ND	ND	17	--	--
B5 - 2.5	--	ND	ND	ND	ND	ND	31	--	--
B5 - 5.0	--	ND	ND	ND	ND	ND	16	--	--
B5 - 10.0	--	95,000	57	ND	ND	ND	23	--	--

Notes:

* Sample No. refers to soil boring location and depth (example: B3 - 10.0 = Boring 3 @ 10 feet)

** See laboratory report for list of constituents.

O & G = Oil and Grease

TPH-g = Total Petroleum Hydrocarbons, as gasoline

TPH-d = Total Petroleum Hydrocarbons, as diesel

8270 = EPA Methodology for Extractable Organics

PROJECT: Young's Appliance Service
 PROJECT LOCATION: 3775 Brookdale, Oakland
 DRILL METHOD: Hollow Stem Auger
 BORING DIAMETER: 8" OD
 SAMPLER: 18" Modified Split Barrel
 OD: 2.5" ID: 2.0"
 DRILLING COMPANY: Clearheart
 DRILLER: Tim

PROJECT NUMBER: 93128
 HOLE NUMBER: B-1 (MW-1)
 DATE STARTED: 5/19/94
 DATE COMPLETED: 5/19/94
 BORING DEPTH: 20'
 GROUNDWATER DEPTH: 9.25'
 LOGGED BY: Randall D. Smith
 CHECKED BY: Will Hopkins

SHEET: 1 OF: 2
 TIME: 900
 TIME: 1135

Well Construction	PID (ppm)	Recovery	Sample Number	Submitted Sample	Blow Counts	Depth (feet)	Lithology	USCS Symbol	SOIL DESCRIPTION / FIELD NOTES
GROUT BENTONITE SAND	0					0.0	Asphalt	SP	Gravelly Sand, brown, loose, dry, fine to coarse gravel, moderate est K
					4	1.0	Gravelly Sandy Clay, yellowish-brown, stiff, damp, fine sand to medium gravel, low est K	CL	
					12	2.0			
		0		B1-2.5'	X	13	Gravelly Clay, brown, stiff, dry, with concretions of fractured rock, 30-35% medium to coarse gravel	CL	
						3.0			
		0		B1-5.0'	X	15	Sandy Clay, brownish-yellow with white motting, stiff, damp, 10-15% fine to coarse sand	CL	
						4.0			
						6	Clay, gray with greenish-gray, very stiff, plastic, moist, low est K	CL	
						12			
						6	Clayey Gravel, greenish-gray, medium dense, wet, 20-30% fines, low est K. (Noticeable hydrocarbon odor)	GC	
					7.0				
					6				
	40		B1-10.0'	X	5	10.0			

Questa Engineering Corporation
 Point Richmond, California

LOG OF MONITORING WELL MW-1
 (BORING B-1)
 YOUNG'S APPLIANCE SERVICE
 3775 Brookdale, Oakland

Plate
 1

PROJECT: Young's Appliance Service
 PROJECT LOCATION: 3775 Brookdale, Oakland
 DRILL METHOD: Hollow Stem Auger
 BORING DIAMETER: 8" OD
 SAMPLER: 18" Modified Split Barrel
 OD: 2.5" ID: 2.0"
 DRILLING COMPANY: Clearheart
 DRILLER: Tim

PROJECT NUMBER: 93128 SHEET: 2 OF: 2
 HOLE NUMBER: B-1 (MW-1)
 DATE STARTED: 5/19/94 TIME: 900
 DATE COMPLETED: 5/19/94 TIME: 1135
 BORING DEPTH: 20'
 GROUNDWATER DEPTH: 9.25'
 LOGGED BY: Randall D. Smith
 CHECKED BY: Will Hopkins

Well Construction	PID (ppm)	Recovery	Sample Number	Submitted Sample	Blow Counts	Depth (feet)	Lithology	USCS Symbol	SOIL DESCRIPTION / FIELD NOTES
SAND						11.0	GC	GC	Clayey Gravel, greenish-gray, medium dense, wet, 20-30% fines, low est K
						12.0			
SAND	0		B1-15.0'		3	14.0	CL	CL	Gravelly Clay, dark brown, stiff, moist, 15-20% fines to coarse gravel, low est K
						15.0			
					7	16.0	CL	CL	Clay, light brown with reddish mottling, stiff, damp, low est K
						17.0			
					11	18.0			
						19.0			
	0		B1-20.0'		6	20.0			
						20.0			

Questa Engineering Corporation
 Point Richmond, California

LOG OF MONITORING WELL MW-1
 (BORING B-1)
 YOUNG'S APPLIANCE SERVICE
 3775 Brookdale, Oakland

Plate

1

PROJECT: Young's Appliance Service
 PROJECT LOCATION: 3775 Brookdale, Oakland
 DRILL METHOD: Hollow Stem Auger
 BORING DIAMETER: 8" OD
 SAMPLER: 18" Modified Split Barrel
 OD: 2.5" ID: 2.0"
 DRILLING COMPANY: Clearheart
 DRILLER: Tim

PROJECT NUMBER: 93128
 HOLE NUMBER: B-2 (MW-2)
 DATE STARTED: 5/18/94
 DATE COMPLETED: 5/18/94
 BORING DEPTH: 20'
 GROUNDWATER DEPTH: 9.25'
 LOGGED BY: Randall D. Smith
 CHECKED BY: Will Hopkins

SHEET: 1 OF: 2
 TIME: 1340
 TIME: 1530

Well Construction	PID (ppm)	Recovery	Sample Number	Submitted Sample	Blow Counts	Depth (feet)	Lithology	USCS Symbol	SOIL DESCRIPTION / FIELD NOTES
GROUT	0					0		SP	Gravelly Sand, brown, loose, dry, 20-30% fine to coarse gravel
						1.0		CL	Clay, gray with blue-green gleying, medium stiff, damp, low est K
BENTONITE	0		B2-2.5'	X		2		CL	Clay, light olive with white mottling, stiff, damp, low est K
						5			
SAND	0		B2-5.0'	X		6		GM	Sandy Gravel, dark gray, dense, wet, 10-15% fines, 20% fine to coarse sand, low to moderate est K. (Hydrocarbon odor)
						10			
	105					12			
						18			
			B2-10.0'	X		20			

PROJECT: Young's Appliance Service
 PROJECT LOCATION: 3775 Brookdale, Oakland
 DRILL METHOD: Hollow Stem Auger
 BORING DIAMETER: 8" OD
 SAMPLER: 18" Modified Split Barrel
 OD: 2.5" ID: 2.0"
 DRILLING COMPANY: Clearheart
 DRILLER: Tim

PROJECT NUMBER: 93128
 HOLE NUMBER: B-2 (MW-2)
 DATE STARTED: 5/18/94
 DATE COMPLETED: 5/18/94
 BORING DEPTH: 20'
 GROUNDWATER DEPTH: 9.25'
 LOGGED BY: Randall D. Smith
 CHECKED BY: Will Hopkins

SHEET: 2 OF: 2
 TIME: 1340
 TIME: 1530

Well Construction	PID (ppm)	Recovery	Sample Number	Submitted Sample	Blow Counts	Depth (feet)	Lithology	USCS Symbol	SOIL DESCRIPTION / FIELD NOTES
SAND	0		B2-14.5'		4	11.0	GC	GC	Sandy Gravel, dark gray, dense, wet, 10-15% fines, 20% fine to coarse sand, low to moderate est K
						12.0	CL	CL	
SAND	0		B2-20.0'		12	13.0	CL	CL	Gravelly Clay, brown, stiff, moist, 25-30% medium to coarse gravel, low est K
						14.0	CL	CL	
					5	15.0	CL	CL	Clay, brown with reddish mottles, stiff, damp, low est K (Some cobbles present at 17' to 20' BGS)
					7	16.0	CL		
					7	17.0	CL		
					14	18.0	CL		
						19.0	CL	CL	
						20.0	ROH	ROH	

Questa Engineering Corporation
 Point Richmond, California

LOG OF MONITORING WELL MW-2
 (BORING B-2)
 YOUNG'S APPLIANCE SERVICE
 3775 Brookdale, Oakland

Plate

2

PROJECT: Young's Appliance Service	PROJECT NUMBER: 93128	SHEET: 1 OF: 2
PROJECT LOCATION: 3775 Brookdale, Oakland	HOLE NUMBER: B-3 (MW-3)	
DRILL METHOD: Hollow Stem Auger	DATE STARTED: 5/18/94	TIME: 1555
BORING DIAMETER: 8" OD	DATE COMPLETED: 5/18/94	TIME: 1830
SAMPLER: 18" Modified Split Barrel	BORING DEPTH: 20'	
OD: 2.5" ID: 2.0"	GROUNDWATER DEPTH: 10.25'	
DRILLING COMPANY: Clearheart	LOGGED BY: Randall D. Smith	
DRILLER: Tim	CHECKED BY: Will Hopkins	

Well Construction	PID (ppm)	Recovery	Sample Number	Submitted Sample	Blow Counts	Depth (feet)	Lithology	USCS Symbol	SOIL DESCRIPTION / FIELD NOTES
									Asphalt
	0					0.0		SP	Gravelly Sand, brown, loose, damp, 25-30% fine to coarse gravel
						1.0		CL	Clay, dark brown with blue-green gleying, damp, stiff, low est K
GROUT						2.0			
	0					5.0			
			B3-2.5'	X		7.0			
BENTONITE						3.0		CL	Clay, light olive with black mottling, stiff, damp
						4.0			
	0					7.0			
			B3-5.0'	X		9.0			
SAND						5.0			
						6.0			
						7.0			
						8.0		CL	Gravelly Clay, dark gray, stiff, moist, 20-30% fine to medium gravel
						9.0			
	160					10.0			
			B3-10.0'	X		8			
						9			

Questa Engineering Corporation Point Richmond, California	LOG OF MONITORING WELL MW-3 (BORING B-3) YOUNG'S APPLIANCE SERVICE 3775 Brookdale, Oakland	Plate 3
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 PROJECT LOCATION: 3775 Brookdale, Oakland
 DRILL METHOD: Hollow Stem Auger
 BORING DIAMETER: 8" OD
 SAMPLER: 18" Modified Split Barrel
 OD: 2.5" ID: 2.0"
 DRILLING COMPANY: Clearheart
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PROJECT NUMBER: 93128
 HOLE NUMBER: B-3 (MW-3)
 DATE STARTED: 5/18/94
 DATE COMPLETED: 5/18/94
 BORING DEPTH: 20'
 GROUNDWATER DEPTH: 10.25'
 LOGGED BY: Randall D. Smith
 CHECKED BY: Will Hopkins

SHEET: 2 OF: 2
 TIME: 1555
 TIME: 1830

Well Construction	PID (ppm)	Recovery	Sample Number	Submitted Sample	Blow Counts	Depth (feet)	Lithology	USCS Symbol	SOIL DESCRIPTION / FIELD NOTES
SAND	0		B3-15.0'		5	14.0	CL	CL	First water at 10.25'
					8	11.0	GC	Clayey Gravel, light brown, medium dense, wet, 25-30% fines, 15% fine to coarse sand, low est K	
SAND	0		B3-20.0'		11	15.0	CL	CL	Clay, brown, stiff, moist, low est K
					5	16.0			
					6	19.0			
					10	20.0			

TABLE 3

**ANALYTICAL RESULTS GROUNDWATER SAMPLING
3775 Brookdale, Oakland**

Monitoring Well	O & G (ppm)	TPH-g (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylene (ppb)	MTBE (ppb)	TPH-d (ppm)	8270 (ppb)
<i>May 26, 1994 (Initial Sampling)</i>									
MW-1	NA	2,200	26	5.0	ND	13	ND	---	---
MW-2	NA	180	20	0.7	0.9	ND	ND	---	---
MW-3	ND	450	17	ND	ND	2.2	ND	0.26	ND
<i>January 10, 1997</i>									
MW-1	NA	5,800	100	21	87	48	NA	NA	NA
MW-2	NA	1,200	78	5	1.3	1.7	NA	NA	NA
MW-3	NA	810	17	3.9	0.66	1.4	NA	NA	NA
<i>April 9, 1997</i>									
MW-1	NA	1,140	50.5	9.0	12.1	6.9	NA	NA	NA
MW-2	NA	350	37.2	2.1	1.2	1.0	NA	NA	NA
MW-3	0.9 ¹	150	3.4	0.9	ND	ND	NA	ND ¹	NA

Notes:

- O & G = Oil and Grease
 TPH-g = Total Petroleum Hydrocarbons, as gasoline
 TPH-d = Total Petroleum Hydrocarbons, as diesel
 8270 = EPA Methodology for Extractable Organics
 NA = Not Analyzed
 ND = Not Detected
 ppm = parts per million
 ppb = parts per billion
¹ Sample analyzed for TPH-d, found to contain 0.9 ppm motor oil.

TABLE 3

**ANALYTICAL RESULTS
GROUNDWATER SAMPLING
3775 Brookdale, Oakland**

Monitoring Well	O & G (ppm)	TPH-g (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylene (ppb)	MTBE (ppb)	TPH-d (ppm)	8270 (ppb)
<i>July 10, 1997</i>									
MW-1	NA	200	0.7	0.9	0.6	0.6	NA	NA	NA
MW-2	NA	160	0.5	0.9	ND	ND	NA	NA	NA
MW-3	0.9 ¹	130	0.5	0.7	0.7	0.5	NA	ND ¹	NA
<i>October 29, 1997</i>									
MW-1	NA	ND	ND	ND	ND	ND	NA	NA	NA
MW-2	NA	ND	ND	ND	ND	ND	NA	NA	NA
MW-3	NA	ND	ND	ND	ND	ND	NA	ND	NA
<i>February 20, 1998</i>									
MW-1	NA	2,900	63	6.5	44	<2.5	NA	NA	NA
MW-2	NA	1,370	68.4	9.1	8.5	1.7	NA	NA	NA
MW-3	6.6	1,030	15.4	7.4	4.2	1.3	NA	<2.5	NA
<i>June 1, 2000</i>									
MW-1	NA	3,420	70.3	4.93	21.2	16.2	9.39	NA	NA
MW-2	NA	1,110	24.7	0.71	2.07	1.60	11.0	NA	NA
MW-3	4.81	2,100	4.69	ND	2.83	7.77	33.4	NA	NA

Table 1-1. Exposure Point Concentrations Used in the Office Worker Scenario.
 Scenario: Based on average concentrations.

Substance	Exposure Point Concentrations	
	Groundwater ($\mu\text{g/l}$)	Soil Gas * ($\mu\text{g/l}$)
VOCs:		
Benzene	33.2	7.5
Toluene	4.9	1.3
Ethylbenzene	13.4	4.3
Xylene	7.4	2.2
MTBE	17.9	0.43
TRPH:		
TPHg (n-hexane for GRO)	1372	6735
TPHd (n-nonane for DRO)	260	1276

*Based on groundwater concentration.

Table 1-6. Cancer Risk to the Office Worker Receptor Via All Exposure Pathways. /
 Scenario: Based on average concentrations.

Substance	Risk		
	Inhalation of Vapors Indoors	Inhalation of Vapors Outdoors	Total Risk
VOCs: Benzene Toluene Ethylbenzene Xylene MTBE	5.9E-08	3.0E-10	5.9E-08
TRPH: TPHg (n-hexane for GRO) TPHd (n-nonane for DRO)	3.0E-11	1.3E-13	3.0E-11
Total Risk	5.9E-08	3.0E-10	5.9E-08

Table 2-1. Exposure Point Concentrations Used in the Trenching/Excavation Worker Scenario.*
 Scenario: Based on maximum concentrations.

historic

Substance	Exposure Point Concentrations	
	Groundwater ($\mu\text{g/l}$)	Soil Gas * ($\mu\text{g/l}$)
VOCs:		
Benzene	100.0	22.7
Toluene	21.0	5.7
Ethylbenzene	87.0	28.0
Xylene	48.0	14.3
MTBE	33.4	0.80
TRPH:		
TPHg (n-hexane for GRO)	5800	28465
TPHd (n-nonane for DRO)	260	1276

*Based on groundwater concentration.

Table 2-4. Cancer Risk to the Trenching/Excavation Worker Receptor Via All Exposure Pathways.
 Scenario: Based on maximum concentrations.

Substance	Risk		
	Inhalation of Vapors Outdoors	Dermal Contact with Groundwater	Total Risk
VOCs: Benzene Toluene Ethylbenzene Xylene MTBE	8.6E-11	8.8E-08	8.8E-08
TRPH: TPHg (n-hexane for GRO) TPHd (n-nonane for DRO)	2.4E-14	4.8E-10	4.8E-10
Total Risk	8.6E-11	8.8E-08	8.8E-08