

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



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

June 18, 1998
StID # 54

REMEDIAL ACTION COMPLETION CERTIFICATION

Mr. Thurman Rosefield
AN-FO Manufacturing
3129 Elmwood Ave.
Oakland CA 94601

RE: AN-FO Manufacturing, 3129 Elmwood Ave., Oakland 94601

Dear Mr. Rosefield:

This letter confirms the completion of site investigation and remedial action for the four (4) approximately 1000 gallon kerosene fuel underground tanks removed from 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 upon the available information and with provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground tank releases is required.

This notice is issued pursuant to a regulation contained in Title 23, Division 3, Chapter 16, Section 2721 (e) of the California Code of Regulations.

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

Sincerely,


Mee Ling Tung
Director, Environmental Health

c: B. Chan, Hazardous Materials Division-files
Chuck Headlee, RWQCB
Mr. Dave Deaner, SWRCB Cleanup Fund
Mr. Leroy Griffin, City of Oakland OES, 505 14th St., Suite
702, Oakland CA 94612

RACC3129

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



June 22, 1998
StID# 54

Mr. Thurman Rosefield
AN-FO Manufacturing
3129 Elmwood Ave.
Oakland CA 94601

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

**RE: Fuel Leak Site Case Closure- AN-FO Manufacturing, Oakland
CA 94601**

Dear Mr. Rosefield:

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. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site.

Site Investigation and Cleanup Summary:

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

* 5000 parts per million (ppm) Total Petroleum Hydrocarbons as kerosene (TPHk), 19 ppm Total Petroleum Hydrocarbons as diesel (TPHd) and 0.46 and 1.9 ppm ethylbenzene and xylenes respectively, remain in the soil at the site.

* 1400 parts per billion (ppb) TPHk and 1800 ppb TPHd remain in groundwater at the site.

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

Sincerely,

Barney M. Chan
Hazardous Materials Specialist

enclosures: Case Closure Letter, Case Closure Summary

c: Mr. L. Griffin, City of Oakland OES, 505 14th St., Suite
702, Oakland CA 94612

B. Chan, files (letter only) tr1t3129

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Date: April 21, 1998

Agency name: Alameda County-HazMat **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: AN-FO Manufacturing Co.

Site facility address: 3129 Elmwood Ave., Oakland CA 94601

RB LUSTIS Case No: N/A **Local Case No./LOP Case No.:** 54

ULR filing date: 7/3/96 **SWEEPS No:** N/A

<u>Responsible Parties:</u>	<u>Addresses:</u>	<u>Phone Numbers:</u>
Mr. Thurman Rosefield	3129 Elmwood Ave. Oakland, CA 94601	(510) 532-2275

<u>Tank No:</u>	<u>Size in gal.:</u>	<u>Contents:</u>	<u>Closed in-place or removed?:</u>	<u>Date:</u>
1	1,000	Kerosene	Removed	5/7/96
2	1,000	Kerosene	Removed	5/7/96
3	1,000	Kerosene	Removed	5/7/96
4	1,000	Kerosene	Removed	5/7/96

III RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: holes observed in the bottom of tanks

Site characterization complete? Yes

Date approved by oversight agency: 7/5/96, 9/24/96 work plans approved

Monitoring Wells installed? Yes **Number:** 3

Proper screened interval? Yes, approximately 5-25'

Leaking Underground Fuel Storage Program

Highest GW depth: 7.2' bgs Lowest depth: 13.62' bgs

Flow direction: east-southeasterly

Most sensitive current use: commercial/industrial

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
 1131 Harbor Bay Parkway,
 Room 250, Alameda CA 94502-6577

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	4-1,000 gallon	Disposed, Erickson, Richmond	5/7/96
Piping		capped, closed in-place	"
Free product/ Liquid waste	2100 gallon	Disposed, McKittrick Treatment, McKittrick CA	5/7/96
Soil	~70 cubic yards	Reused as backfill	

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppb)	
	1Before	After 2	3Before	After4
TPH (kerosene)	5000	5000	970,000	1400
TPH (Diesel)	19	19	ND	1800
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	0.46	0.46	25	ND
Xylenes	1.9	1.9	ND	ND
MTBE	ND		ND	ND

Comments (Depth of Remediation, etc.):

- 1 initial tank removal samples (5/7/96)
- 2 no overexcavation performed
- 3 grab groundwater sample from boring, BH-E, on 7/11/96
- 4 groundwater monitoring results, December 1997

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: none

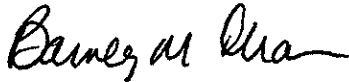
List enforcement actions rescinded: NA

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Barney M. Chan

Title: Hazardous Materials Specialist

Signature:



Date:

4/21/98

Reviewed by

Name: Tom Peacock

Title: Manager

Signature:



Date:

4-15-98

Name: Eva Chu

Title: Hazardous Materials Specialist

Signature:



Date:

4/1/98

VI. RWQCB NOTIFICATION

Date Submitted to RB:

RB Response:

RWQCB Staff Name: C. Headlee

Title: ~~REG~~

Date:

5/11/98



Leaking Underground Fuel Storage Tank Program

VII. ADDITIONAL COMMENTS, DATA, ETC.

This industrial company lies near interstate 880, between Elmwood Ave. and East 7th St. adjacent to Fruitvale Ave. See **Site Location Map, Fig. 1**. The four kerosene underground tanks were not used for current manufacturing processes and had not been used for over 65 years. The tanks lied end to end adjacent to the main building, next to East 7th St. This fact, limited the extent of potential overexcavation.

On **May 7, 1996** the four underground tanks were removed from the site. Noticeable holes and breeches in the tank seams were observed in the tanks. A small amount of liquid, either floating product or groundwater was seen in the bottom of the tank pits. The impacted soil smelled of "kerosene" not of gasoline. Soil samples were taken from the ends of the tanks beneath the tank invert. One sidewall sample was taken beneath the piping run as it entered the pit of Tank 3. See **Figure 2, Site & Sampling Plan**. All samples were impacted with TPH as kerosene. The highest concentration, 5000 ppm, was exhibited in sample T2-N-10'. See **Tables 2 and 3** for a summary of analytical results. Approximately 70 cubic yards of spoils was generated from the tank removals. Given that the impact to the soil was greatest beneath the tanks, that the tanks formerly contained kerosene, no BTEX, and that additional site characterization would be required, the spoils were allowed to be reused to backfill the pits. Another factor in making this decision was the closeness of the tank pits to East 7th St. Considerable risk to traffic would exist if the tank pits were not immediately backfilled. Therefore, the excavated soil plus 48 tons of imported fill were used to backfill the tank pits this same day.

On **July 11, 1996** to further characterize the impact to soil and groundwater, five soil borings (BH-A through BH-E) were advanced up- and downgradient of the former USTs. One soil sample, just above groundwater, and one grab groundwater sample was taken from each borehole. See **Figure 3** for the location of these borings. See **Tables 4 and 5** for a summary of the analytical results for the soil and grab groundwater samples, respectively. These results indicated that TPHk contamination had migrated adjacent and downgradient to the former tanks. The soil boring across E. 7th St., BH-E, exhibited the highest TPHk concentration in groundwater, 970 mg/l.

Based upon the results of the July 1996 investigation on **November 26, 1996**, three borings (BH-F through BH-H) were converted into monitoring wells MW-1 through MW-3. The wells were located immediately and further downgradient of the former USTs. See **Figure 4** for the locations of these wells. The soil samples taken from these borings were shallower than those taken in the July investigation, 11' vs. 14' bgs. They did not exhibit any TPHk, TPHd, TPHg, BTEX or MTBE contamination, however, TPHd and TPHk were

Leaking Underground Fuel Storage Tank Program

exhibited in the groundwater samples. See **Table 6**. Monitoring well boring logs are also attached. Both diesel and kerosene were reported, likely because there is an overlap in the boiling range of these compounds; C10-C22 for diesel and C7-C18 for kerosene. Because the initial soil sample results reported only kerosene, it is likely any diesel reported was actually kerosene.

The wells have been monitored for four consecutive quarters after the initial sampling. See **Table 7** for summary of the monitoring results. Analytical results of the most downgradient wells, MW-2 and MW-3, indicate that these wells are only slightly impacted by TPHk. BTEX and MTBE have not been found in these wells.

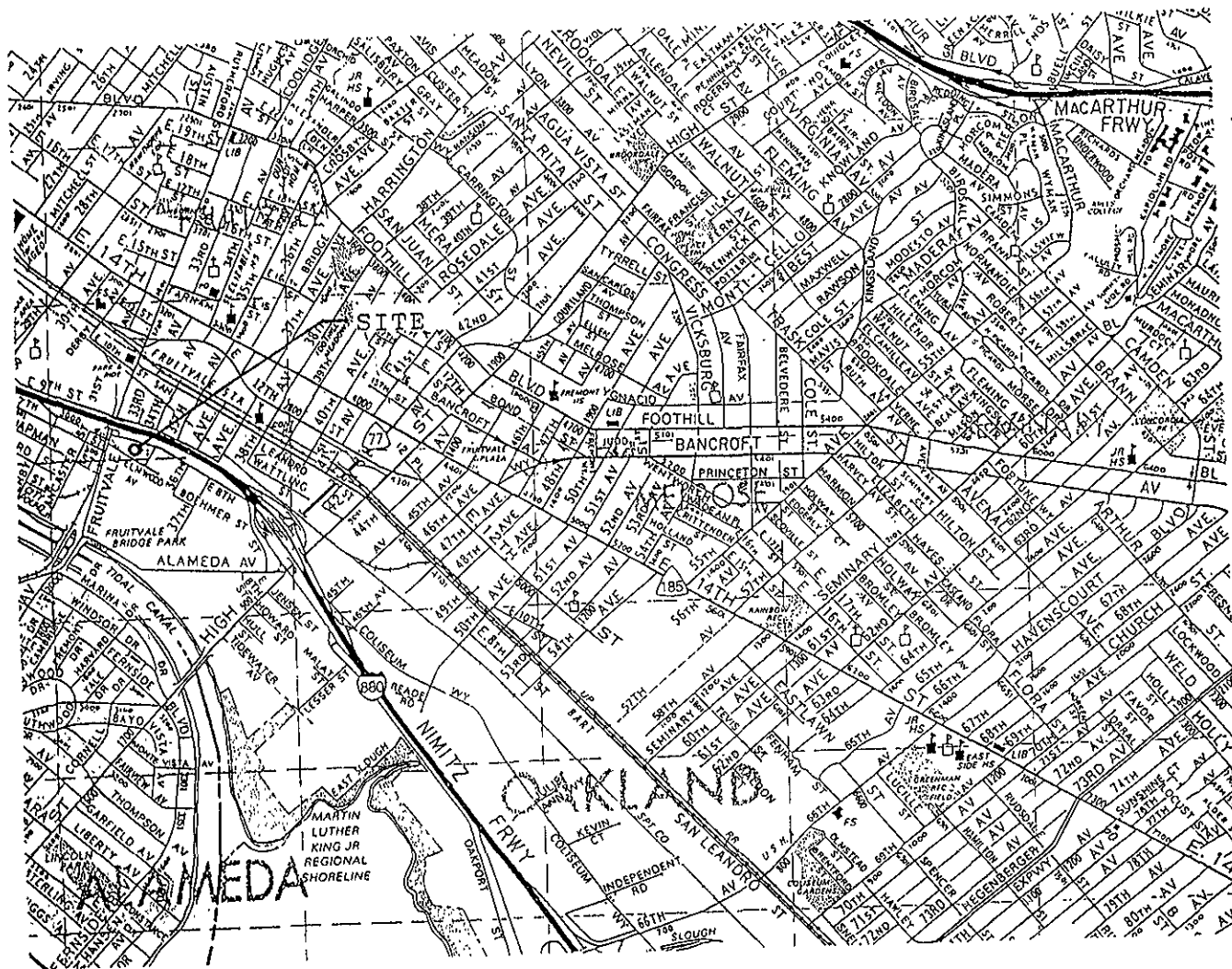
The site has residual TPHk contamination in soil immediately adjacent to the former underground tanks. The contaminant plume lies near and slightly downgradient to the USTs (within 30 ') but has not migrated significantly downgradient (beyond 70'). This release is typical of those studied in the LLNL study.

The site is recommended for closure based upon:

1. Removal of the source ie tanks and the product within these tanks;
2. Adequate site characterization through soil borings and monitoring well installations;
3. Lack of risk to human health posed by residual TPHk and the absence of BTEX and MTBE; shallow groundwater in this area of Oakland is not used for drinking water purposes;
4. Lack of risk to the environment. The nearest surface water body is the Oakland-Alameda estuary over 1200' away. No conduits have been identified which would offer preferential migration.
5. Residual soil and groundwater contamination of this type is known to naturally biodegrade over time.



NORTH



SITE LOCATION MAP

AN-FO MANUFACTURING COMPANY
3129 Elmwood Avenue
Oakland, California

Aqua Science Engineers, Inc. | Figure 1

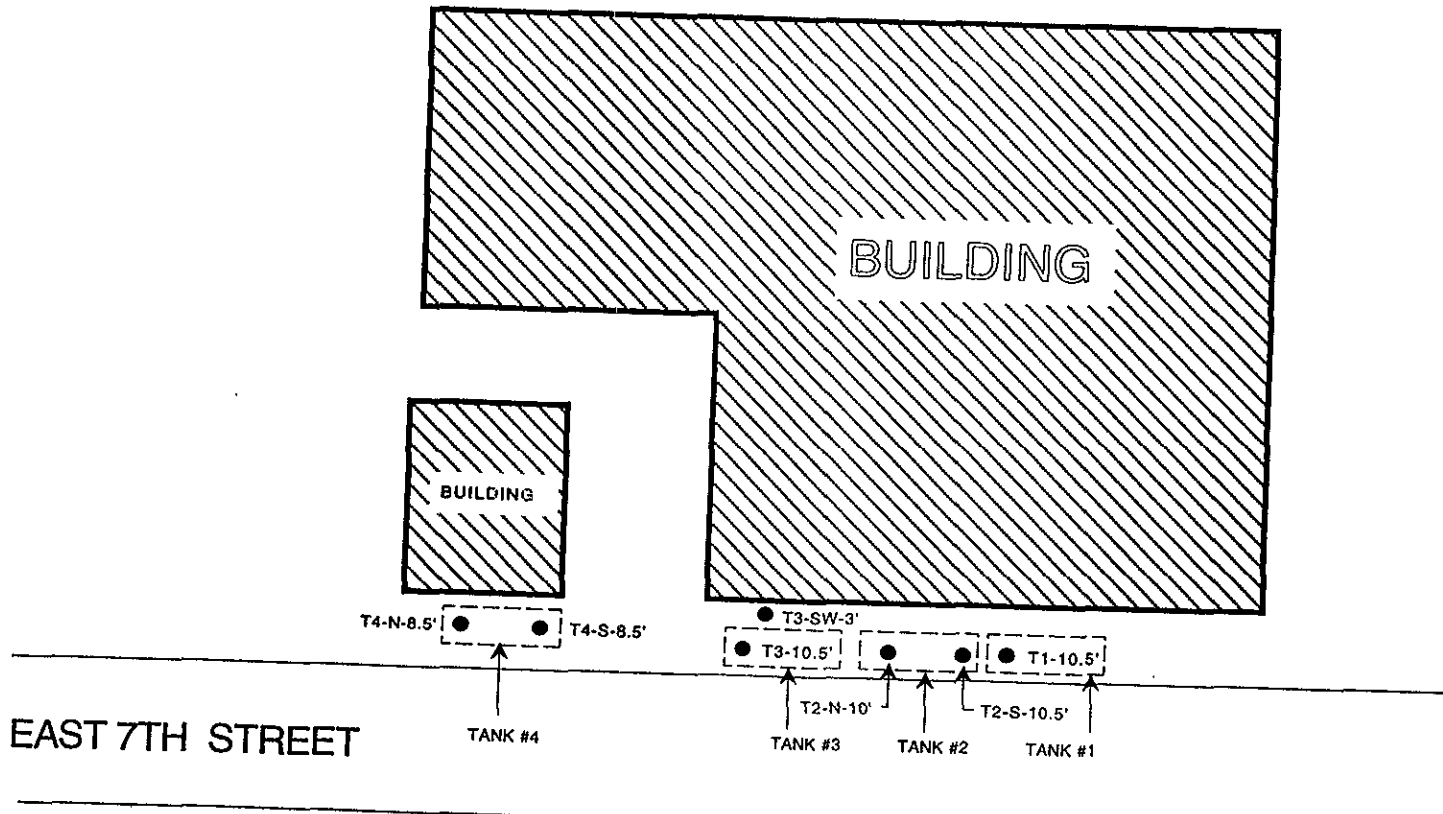
ELMWOOD AVENUE



NORTH

Scale: 1" = 20'

F R U I T V A L E
A V E N U E



EAST 7TH STREET

TANK #4

TANK #3

TANK #2

TANK #1

EXPLANATION

T4-N-8.5'



SOIL SAMPLE LOCATION



FORMER UNDERGROUND
STORAGE TANK

**SITE & SAMPLING
PLAN**

AN-FO MANUFACTURING COMPANY

3129 Elmwood Avenue

Oakland, California

Aqua Science Engineers, Inc. Figure 2

TABLE TWO
SOIL SAMPLE RESULTS
TPH-D, TPH-K TPH-SS and TPH-G
All Results in Parts Per Million

Sample Name	TPH Diesel	TPH Kerosene	TPH Stoddard	TPH Gasoline
T1-10.5'	<1	66	<1	<12
T2-S-10.5'	<1	240	<1	<25
T2-N-10'	<1	5000	<1	<50
T3-10.5'	19	210	<1	<12
T4-S-8.5'	<1	2000	<1	<50
T4-N-8.5'	<1	2200	<1	<25
T3-SW-3'	<1	630	<1	<25
EPA METHOD	8015M	8015M	8015M	8015M

TABLE THREE
SOIL SAMPLE RESULTS
BTEX
All Results in Parts Per Million

Sample Name	Benzene	Toluene	Ethyl-benzene	Total Xylenes
T1-10.5'	<0.05	<0.05	<0.05	0.068
T2-S-10.5'	<0.1	<0.1	<0.1	<0.1
T2-N-10'	<0.20	<0.20	0.46	1.1
T3-10.5'	<0.05	<0.05	<0.05	0.11
T4-S-8.5'	<0.20	<0.20	0.46	1.9
T4-N-8.5'	<0.1	<0.1	<0.1	<0.1
T3-SW-3'	<0.1	<0.1	<0.1	<0.1
EPA METHOD	8020	8020	8020	8020

9.0 EXCAVATION BACKFILLING

On May 7, 1996, ASE backfilled and compacted the excavations with the excavated soil surrounding the USTs and 48 tons of imported granular fill material. Authorization for use of the stockpiled soil as backfill material was granted by Mr. Chan of the ACHCSA due to the belief that if hydrocarbon contamination was detected in the soil, it would not be of the BTEX nature.

ELMWOOD AVENUE

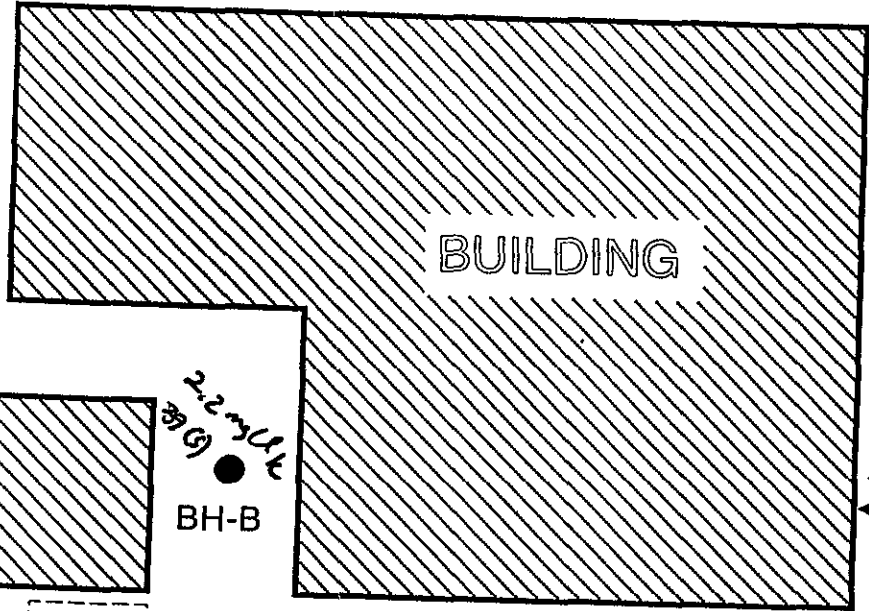


NORTH

Scale: 1" = 20'

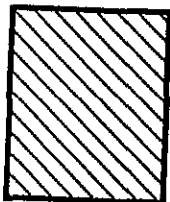
F
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BUILDING

99'



BH-B

2.2 m U/L
330 G

BH-C

330 K
1.8 m U/L



BH-A

320 m U/L

EAST 7TH STREET

BH-D

1000 K
2.5 m U/L



BH-E

370
300 K
1.9 m U/L

EXPLANATION

- Soil Boring
- Former Underground Storage Tank

**BORING
LOCATION MAP**

AN-FO MANUFACTURING COMPANY
3129 Elmwood Avenue
Oakland, California

Aqua Science Engineers, Inc. Figure 3

TABLE 4
Summary of Chemical Analysis of SOIL Samples
All results are in parts per million

Boring	Depth Sampled	TPH Diesel	TPH Kerosene	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
BH-A	14.5'	<1	15	<0.005	<0.005	<0.005	<0.005	<0.005
BH-B	14.5'	<1	39	<0.005	<0.005	<0.005	<0.005	<0.005
BH-C	14.5'	<5	330	<0.005	<0.005	0.041	0.054	<0.005
BH-D	14.5'	<10	1,000	<0.005	<0.005	<0.005	0.27	<0.005
BH-E	14.5'	<1	30	<0.005	<0.005	<0.005	<0.005	<0.005

Notes:

Non-detectable concentrations noted by the less than symbol (<) followed by the detection limit

TPH-K concentrations were detected at 330 parts per million (ppm) and 1,000 ppm in the soil samples collected from 14.5-foot bgs in borings BH-C and BH-D, respectively. TPH-K concentrations below 100 ppm were detected in soil samples collected from 14.5-foot bgs in borings BH-A, BH-B and BH-E. 0.041 ppm ethylbenzene and 0.054 ppm total xylenes were detected in the soil samples collected from 14.5-foot bgs in boring BH-C. 0.27 ppm total xylenes were detected in soil samples collected from 14.5-foot bgs in boring BH-D. None of these concentrations of ethylbenzene or total xylenes exceeded the United States Environmental Protection Agency (US EPA) preliminary remediation goals (PRGs) for residential soil.

not a constituent of kerosene

6.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by Chromalab for TPH-D/K by modified EPA Method 3010/8015 and BTEX and MTBE by EPA Method 8020. The analytical results are tabulated in Table Two, and the certified analytical report and chain of custody forms are included in Appendix D.

TABLE 5
 Summary of Chemical Analysis of **GROUNDWATER** Samples
 All results are in parts per billion

Boring	TPH Diesel	TPH Kerosene	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
BH-A	< 29,000	330,000	< 50	< 50	< 50	< 50	< 500
BH-B	< 62	2,200	< 0.5	< 0.5	< 0.5	1.1	< 5
BH-C	< 83	1,800	< 10	< 10	< 10	< 10	< 100
BH-D	< 1,700	2,800	--	--	--	--	--
BH-E	< 50,000	970,000	< 5	< 5	< 5	25	< 50
DTSC MCL	NE	NE	1.0	100*	680	1,750	NE

Notes:

Non-detectable concentrations noted by the less than symbol (<) followed by the detection limit.

DTSC MCL is the California Department of Toxic Substances Control maximum contaminant level for drinking water.

NE = DTSC MCLs are not established.

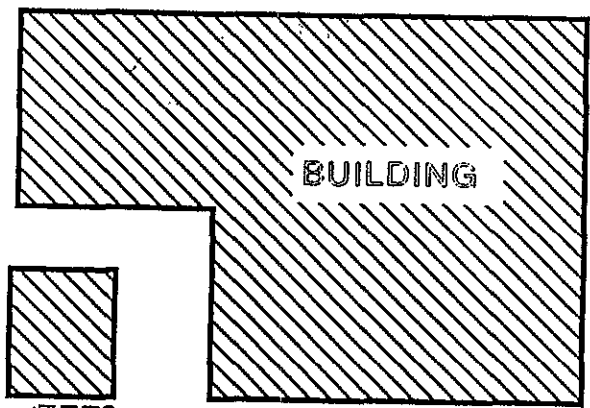
* = DTSC recommended action level for drinking water; MCL is not established.

Relatively high TPH-K concentrations were detected in groundwater samples collected from borings BH-B, BH-C and BH-D. Very high TPH-K concentrations were detected in groundwater samples collected from borings BH-A and BH-E. Only very low concentrations of total xylenes were detected in groundwater samples collected from borings BH-B and BH-E. These total xylenes concentrations are below the California Department of Toxic Substances Control (DTSC) maximum contaminant level (MCL) for drinking water. No benzene, toluene or ethylbenzene concentrations were detected in groundwater samples collected from any of the borings.

7.0 CONCLUSIONS AND RECOMMENDATIONS

None of the hydrocarbon concentrations detected in the soil during this assessment exceeded United States Environmental Protection Agency (US

ELMWOOD AVENUE



MW-1
(BH-F)

EAST 7TH STREET

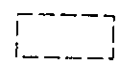
MW-2
(BH-G)

MW-3
(BH-H)

F R U I T V A L E
A V E N U E

EXPLANATION

 MW-3 Monitoring Well Location
(BH-H) With Boring I.D.

 Former Underground
Storage Tank



NORTH

Scale: 1" = 30'

**MONITORING WELL
LOCATION MAP**

AN-FO MANUFACTURING COMPANY
3129 Elmwood Avenue
Oakland, California

TABLE 6
Summary of Chemical Analysis of SOIL Samples
 All results are in parts per million

Boring	Depth Sampled	TPH Diesel	TPH Kerosene	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
BH-F	11.0'	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.005
BH-G	11.0'	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.005
BH-H	11.0'	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.005

Notes:

Non-detectable concentrations are noted by the less than symbol (<) followed by the detection limit

6.0 MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Groundwater monitoring wells MW-1, MW-2 and MW-3 were installed in borings BH-F, BH-G and BH-H, respectively. The wells were constructed with 2-inch diameter, 0.020-inch slotted, flush-threaded, Schedule 40 PVC well screen and blank casing. Each well is screened between 5-feet bgs and 25-feet bgs to monitor the first water bearing zone encountered. Lonestar #3 Monterey sand occupies the annular space between the borehole and the casing from the bottom of the boring to approximately 1.5-feet above the well screen. A 0.5-foot thick hydrated bentonite layer separates the sand from the overlying cement surface seal. The wellheads are secured with locking wellplugs beneath at-grade traffic-rated vaults.

On December 2, 1996, ASE environmental specialist Scott Ferriman developed each monitoring well using at least two episodes of surge-block agitation and bailer evacuation. Over ten well casing volumes of water were removed from each well during development, and evacuation continued until the water was relatively clear. A 0.02-foot layer of free-floating hydrocarbons was present on the surface of groundwater in monitoring well MW-1 during well development. A sheen was present on the surface of groundwater in monitoring well MW-2 during well development. No free-floating hydrocarbons or sheen was present on the surface of groundwater in monitoring well MW-3 during well development.

Project Name: AN-FO Manufacturing Project Location: 3129 Elmwood Avenue, Oakland, CA Page 1 of 1

Driller: Soils Exploration Services Type of Rig: CME 55 Size of Drill: 8" O.D. Hollow-Stem Augers

Logged By: Robert E. Kitay Date Drilled: November 26, 1996 Checked By: David M. Schultz, P.E.

WATER AND WELL DATA
 Total Depth of Well Completed: 25.0'
 Depth of Water First Encountered: 17'
 Well Screen Type and Diameter: 2" Diameter PVC
 Static Depth of Water in Well: 12'
 Well Screen Slot Size: 0.020"
 Total Depth of Boring: 26.0'
 Type and Size of Soil Sampler: 2.0" I.D. California Sampler

Depth In Feet	WELLBORING DETAIL	Description	SOIL/ROCK SAMPLE DATA				Depth In Feet	DESCRIPTION OF LITHOLOGY
			Interval	Blow Ct.	OMV (ppmv)	Graphic Log		standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0	Street Box Locking Well Cap					0	Clayey SILT (MH); dark yellow brown; medium stiff; damp; 70% silt; 30% clay; high plasticity; very low estimated K; no odor	
5	Bentonite Seal		3 8 13	0		5		
10	2" ID Blank Sch 40 PVC Class "H" Portland Cement		13 23 38	20		10	SILT (ML); olive; medium stiff; moist; 90% silt; 5% fine sand; 5% clay; low plasticity; low estimated K; slight hydrocarbon odor ▽ Static Groundwater Level	
15	2" I.D. 0.020" Slotted PVC Well Screen No. 2 Washed Monterey Sand		16 20 23	28		15	▼ Groundwater First Encountered	
20			13 26 32	78		20	Silty SAND (SM); olive; medium dense; wet; 75% fine to coarse sand; 25% silt; non-plastic; medium estimated K; moderate hydrocarbon odor	
25			10 16			25	SILT (ML); olive; medium stiff; wet; 95% silt; 5% clay; low plasticity; low estimated K; moderate hydrocarbon odor	
25						25	Clayey SILT (MH); yellow brown; medium stiff; wet; 85-90% silt; 10-15% clay; high plasticity; very low estimated K; no odor	
30						30	End of boring at 26'	

BORING LOG AND WELL COMPLETION DETAILS

Monitoring Well MW-2/Boring BH-G

Project Name: AN-FO Manufacturing

Project Location: 3129 Elmwood Avenue, Oakland, CA

Page 1 of 1

Driller: Soils Exploration Services

Type of Rig: CME 55

Size of Drill: 8" O.D. Hollow-Stem Augers

Logged By: Robert E. Kitay

Date Drilled: November 26, 1996

Checked By: David M. Schultz, P.E.

WATER AND WELL DATA

Total Depth of Well Completed: 25.0'

Depth of Water First Encountered: 14'

Well Screen Type and Diameter: 2" Diameter PVC

Static Depth of Water in Well: 10'

Well Screen Slot Size: 0.020"

Total Depth of Boring: 25.0'

Type and Size of Soil Sampler: 2.0" I.D. California Sampler

Depth in Feet	WELLBORING DETAIL	Description	SOIL/ROCK SAMPLE DATA				Depth in Feet	DESCRIPTION OF LITHOLOGY
			Interval	Blow Ct.	OMV (ppmv)	Graphic Log		standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0		Street Box Locking Well Cap					Asphaltic concrete	
0		Bentonite Seal					Clayey SILT (MH); yellow brown; stiff; damp; 70% silt; 30% clay; high plasticity; very low estimated K; no odor	
5		Class "H" Portland Cement						
5		2" ID Blank Sch 40 PVC	6 23 25		0		▽ <i>Static Groundwater Level</i> slight hydrocarbon odor at 10' ▼ <i>Groundwater First Encountered</i>	
10		2" I.D. 0.020" Slotted PVC Well Screen	12 15 16		0			
15		No. 2 Washed Monterey Sand	9 14 15		0			
15							Silty SAND (SM); yellow brown mottled olive; medium dense; wet; 70% fine to medium sand; 30% silt; non-plastic; high estimated K; slight hydrocarbon odor	
20			12 13 14		0		Clayey SILT (ML); yellow brown; medium stiff; wet; 85-90% silt; 10-15% clay; trace sand; medium plasticity; low estimated K; no odor	
25							End of boring at 25'	
30								

BORING LOG AND WELL COMPLETION DETAILS

Monitoring Well MW-3/Boring BH-H

Project Name: AN-FO Manufacturing

Project Location: 3129 Elmwood Avenue, Oakland, CA

Page 1 of 1

Driller: Soils Exploration Services

Type of Rig: CME 55

Size of Drill: 8" O.D. Hollow-Stem Augers

Logged By: Robert E. Kitay

Date Drilled: November 26, 1996

Checked By: David M. Schultz, P.E.

WATER AND WELL DATA

Depth of Water First Encountered: 14'

Total Depth of Well Completed: 25.0'

Well Screen Type and Diameter: 2" Diameter PVC

Static Depth of Water in Well: 13'

Well Screen Slot Size: 0.020"

Total Depth of Boring: 25.0'

Type and Size of Soil Sampler: 2.0" I.D. California Sampler

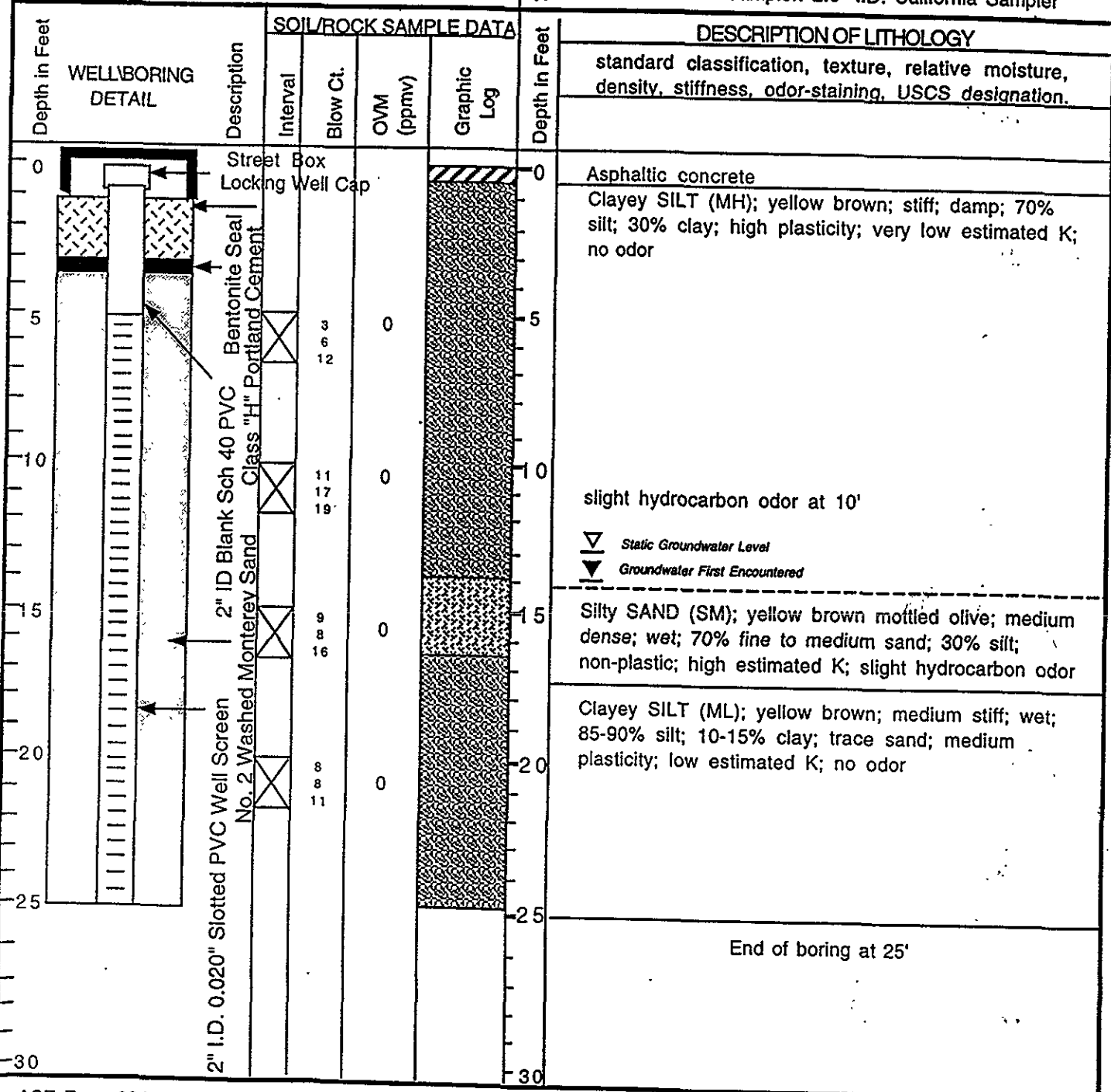


TABLE 7
Certified Analytical Results of GROUNDWATER Samples
 All results are in parts per billion

Well ID & Dates Sampled	TPH-D	TPH-K	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
<u>MW-1</u>							
12-04-96	3,200	4,400	< 0.5	< 0.5	< 0.5	1.3	< 5
03-03-97	< 50	1,900	< 0.5	< 0.5	< 0.5	< 0.5	< 5
06-04-97	430*	< 50	< 0.5	0.52	2.4	6.7	< 5
09-24-97	4,400	< 51	< 0.5	< 0.5	1.4	2.1	< 5
12-09-97	< 50	1,400	< 0.5	< 0.5	< 0.5	0.58	< 5
<u>MW-2</u>							
12-04-96	2,200	1,100*	< 0.5	< 0.5	< 0.5	7.3	< 5
03-03-97	1,400*	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
06-04-97	2,400	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
09-24-97	1,700	< 51	< 0.5	< 0.5	< 0.5	< 0.5	< 5
12-09-97	1,800	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
<u>MW-3</u>							
12-04-96	81	< 50	< 0.5	< 0.5	< 0.5	1.5	< 5
03-03-97	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
06-04-97	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
09-24-97	56*	< 51	< 0.5	< 0.5	< 0.5	< 0.5	< 5
12-09-97	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
DTSC MCLs	NE	NE	1	100**	680	1,750	NE
EPA METHOD	3510/ 8015M	3510/ 8015M	8020	8020	8020	8020	8020

Notes:

* = Non-typical chromatogram pattern

** = DTSC recommended action level; MCL not established

NE = DTSC MCLs and RALs not established