

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY  
DAVID J. KEARS, Agency Director

February 8, 2002  
StID #4610/RO0000468

Mr. Reuben Hausauer  
6017 E. 14<sup>th</sup> St.  
Oakland, CA 94621

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

**RE: 3927 E. 14<sup>th</sup> St., Oakland CA 94601**

Dear Mr. Hausauer:

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.

**Site Investigation and Cleanup Summary:**

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

- 940 parts per million (ppm) Total Petroleum Hydrocarbons as gasoline (TPHg), 1700 ppm TPH as diesel, 5000 ppm TPH as motor oil and 0.36, 4.8, 3.1, 19.9 ppm benzene, toluene, ethyl benzene and xylenes (BTEX), respectively remain in the soil at the site.
- 1380 parts per billion (ppb) TPHg, 2440 ppb TPHd, 3100 TPHmo and 184, 23, 39, 58 ppb, BTEX, respectively remain in groundwater at the site.

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: B. Chan, files (letter only)

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

Mr. T. Conner Esq., 10 Monterey Blvd., SF CA 94107  
TrLt3927E14thSt

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY  
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February 8, 2002  
StID #4610/RO0000468

ENVIRONMENTAL HEALTH SERVICES  
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REMEDIAL ACTION COMPLETION CERTIFICATION

Mr. Reuben Hausauer  
6017 E. 14<sup>th</sup> St.  
Oakland, CA 94621

**RE: 3927 E. 14<sup>th</sup> St., Oakland CA 94601**

Dear Mr. Hausauer:

This letter confirms the completion of site investigation and remedial action for the one (1) 500 gallon waste oil/gasoline tank 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

c: B. Chan, Hazardous Materials Division-files  
Chuck Headlee, RWQCB  
Mr. Allan Patton, SWRCB Cleanup Fund  
Mr. L. Griffin, City of Oakland Fire Services, 1605 MLK Jr.  
Dr., Oakland CA 94612  
Mr. Tommy Conner Esq., 10 Monterey Blvd., SF CA 94107  
RACC3927E14thst

**CASE CLOSURE SUMMARY**  
**Leaking Underground Fuel Storage Tank Program**

**I. AGENCY INFORMATION**

Date: May 16, 2000

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: Former New Genico Site  
Site facility address: 3927 E. 14<sup>th</sup> St., Oakland CA 94601  
RB LUSTIS Case No: N/A Local Case No./LOP Case No.: 4610 / R0468  
ULR filing date: None SWEEPS No: N/A

<u>Responsible Parties:</u>	<u>Addresses:</u>	<u>Phone Numbers:</u>
1. Mr. Reuben Hausauer	6017 E. 14 <sup>th</sup> St. Oakland CA 94621	

<u>Tank No:</u>	<u>Size in gal.:</u>	<u>Contents:</u>	<u>Closed in-place or removed?:</u>	<u>Date:</u>
1	500	waste oil/gas	removed	8/10/96

**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: 4  
Proper screened interval? yes, from 6.5'-16.5' bgs  
Highest GW depth: 4.1' bgs Lowest GW depth: 9.4' bgs  
Flow direction: south-southwest

## Leaking Underground Fuel Storage Program

Most sensitive current use: mixed commercial and residential

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  
 and City of Oakland, OES  
 1605 Martin Luther King Dr.  
 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	1-550 gallon	Disposed, by SEMCO as non-haz After rinsing	8/12/96
Rinseate/ Fuel	150 gallons	Disposed by Evergreen Env.	?

### Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppb)	
	1Before	2After	3Before	After 4
TPH (Gas)	410	940	64,000	1380
TPH (Diesel)	1.5	1700	4,600	2440
Benzene	0.16	0.36	3,200	184
Toluene	0.62	4.8	740	23
Ethylbenzene	1.7	3.1	1,800	39
Xylenes	4.1	19.9	2,100	58
Oil and Grease (5520F)	550		360,000	
TPHmo		5,000		3110
VOC's (EPA 8240)	* ND			
MTBE				71
Heavy metals (Cd,Cr,Pb,Ni,Zn)	ND, 63, 45, 200, 79			

### Comments (Depth of Remediation, etc.):

- 1 soil sample #2-550-WO-10' taken by SEMCO @ tank removal, 8/10/96
- \* slant borings B-1 and B-2
- 2 from sidewall samples taken by ATC Environmental @ tank removal after over-excavation, 8/10/96
- 3 initial results from HMW-1 (1994)
- 4 HMW-1 results (12/29/99)

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. A site health and safety plan will be required for any subsurface work.

Should corrective action be reviewed if land use changes? Yes

Monitoring wells Decommissioned: No

Number Decommissioned: 0 Number Retained: 4

List enforcement actions taken: N/A

List enforcement actions rescinded: N/A

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Barney M. Chan Title: Hazardous Materials Specialist

Signature: *Barney M. Chan* Date: 6-15-00

Reviewed by

Name: Tom Peacock Title: Manager

Signature: *Tom Peacock* Date: 6-12-00

Name: Larry Seto Title: Senior HMS

Signature: *Larry Seto* Date: 4-18-2000

VI. RWQCB NOTIFICATION

Date Submitted to RB: RB Response: *concur*

RWQCB Staff Name: C. Headlee Title: AEG

Signature: *C. Headlee* Date: 6/27/00

## Leaking Underground Fuel Storage Tank Program

### VII. ADDITIONAL COMMENTS, DATA, ETC.

This site is located at the intersection of 40<sup>th</sup> Ave. and E. 14<sup>th</sup> St.. (See Figure 1). Our office was notified in 7/93 of the presence of a closed-in-place 550 gallon waste oil tank located on the sidewalk. The closure plan proposed to take soil samples beneath the tank to determine whether a release had occurred.

On **September 9, 1993**, two slant borings, B-1 and B-2, were advanced to the north (east) and south (west) of the existing UST, respectively. Two soil samples were collected from each boring, one at 4' and one at 7' bgs. Up to 150 ppm TOG, 360 ppm TPHg and ND, 0.58, 2.8, 9.9 ppm, BTEX respectively, was found in these soil samples. The metals, cadmium, chromium, lead, nickel and zinc were also run, with unremarkable results. No chlorinated solvents or volatiles other than BTEX were detected as analyzed by EPA Method 8240. ( See Figures 2 & 3 and Tables 1-3)

On **March 4, 1994**, two additional borings were advanced at this site. B-3 was advanced 20' north of B-1 and HMW-1 was installed approximately 5' west of B-2 in the assumed down-gradient direction. Soil samples from 5' and approximately 10' bgs were taken from each boring. TPHg and TOG were found at elevated levels in the deeper samples, which were within the capillary fringe. Beneath the concrete pad of the sidewalk, clay was encountered down to ~10' where the sandy gravel water-bearing zone was found. The water sample from HMW-1 exhibited 360 ppm TOG, 4600 ppb TPHD, 64,000 ppb TPHg and 3200, 740, 1800, 2100 ppb, BTEX, respectively. Because of the tank was presumed to have held waste oil and the presence of confirmed gasoline tank release site immediately across the street (1234 40<sup>th</sup> Ave.), the neighboring site was assumed to have impacted this site. A legal complaint of negligence, damage, trespass and nuisance was filed against the owners of 1234 40<sup>th</sup> Ave., Mr. William Owens et al. Ongoing monitoring of HMW-1 confirmed the presence of elevated TPHg, BTEX and TOG in groundwater. (See Figure 4, Tables 1'-3' and the boring log for MW-1)

Because of the legal dispute between these two properties, the case was agreed to be heard and decided by a Special Master/Mediator, Mr. William Nagle, Esq.. As part of Mr. Nagle's decision process, a scoping session was scheduled where the responsible parties, their consultant and attorney could present their case. ACEH was also in attendance at this meeting held on August 14, 1996. Mr. Brian Kelleher acted as the technical consultant for Mr. Nagle. It was decided from this meeting that there had likely been two separate releases. Therefore, each site would be liable for the investigation and remediation of their own release, with the center of 40<sup>th</sup> Ave. being the line separating each site's area of responsibility. To confirm whether or not the UST on 3927 E. 14<sup>th</sup> St. had experienced a release, it was decided to remove this tank. In addition, it was also agreed that further delineation of the extent of the petroleum release should occur simultaneously during the tank pull. This consisted of advancing borings and installing monitoring wells.

## Leaking Underground Fuel Storage Tank Program

On **August 10, 1996**, SEMCO removed the 550 gallon underground tank. Contamination was observed in soils beneath and surrounding the sides of the tank. SEMCO took the required soil sample from beneath the tank, while ATC Environmental took four side-wall and an additional floor sample. During the removal, a former dispenser pad and three pipelines leading from the tank towards the interior of the adjacent building were observed. Therefore, this tank must have at one time dispensed fuel, likely gasoline. A mobile lab was present and provided immediate results of the soil and groundwater samples. A release of TPHg, TOG and minor TPHd was confirmed. Because of site security and low TPH contamination, the excavated soil was reused as backfill. (See Figure 5 and analytical results)

A subsurface investigation was done concurrently. Based on results from grab groundwater samples from temporary borings, two monitoring wells were installed, HMW2 and HMW3. Groundwater gradient was determined to be southerly. The neighboring site, 1234 40<sup>th</sup> Ave, was therefore, cross or down-gradient of the 3927 E. 14<sup>th</sup> site and not likely the source of TPHg contamination. HMW-2, down-gradient of both sites was, expectedly, the highest impacted well. (See Figure 6 and Tables 4 & 5 and the attached boring logs)

From the 10/1/96 scoping session it was decided, a minimum of two additional down-gradient monitoring wells were required to characterize the sites, one on each side of the 40<sup>th</sup> Ave. centerline. In addition, each side should prepare a risk-based corrective action (RBCA) evaluation and a feasibility study. Both properties were to co-operate and share technical information. Monitoring was therefore, scheduled for both sites at the same time and a cumulative gradient map was generated. From the adjacent parcel's vapor extraction test and their groundwater extraction test, it appeared that these were not viable remedial approaches. Natural attenuation parameters were added to the monitoring to evaluate this alternative.

On **November 18, 1997**, HMW-4, a small diameter well (0.6" ID) was installed by direct push technology approximately 250 feet down-gradient of the former UST and approximately 100' down-gradient of HMW-2. A 10' pre-packed screen was set from 5-15'bgs. The initial groundwater sampling event exhibited 1600 ppb TPHg, 400 ppb TPHd, ND TPHmo, ND MTBE and 4.2, 3.1, 1.7, 5.9 BTEX, respectively. (See Figure 7, Table 6 and the boring log for HMW-4)

The Corrective Action Plan (CAP) included a feasibility study (FS). The FS considered vapor extraction and groundwater extraction, natural attenuation and the addition of oxygen-releasing compound, the latter being the recommended method of choice. Our office agreed with this approach based upon the results of extraction tests at the neighboring site.

## Leaking Underground Fuel Storage Tank Program

On November 12, 1998, eight ORC injections were completed in the area near the former UST and a total of 408 pounds of ORC was injected. The ORC slurry was injected from 10-20' bgs. (See Figure 8 for the location of these borings)

Groundwater monitoring has continued up to 12/99. Concentrations of TPH and BTEX indicate an overall decreasing trend. (See Table 7 for historical monitoring results and the 12/29/99 gradient map, typical for the site).

A Tier 2 RBCA was performed on the site. The exposure pathways identified as being viable are:

- Volatilization from soil into on-site indoor air- commercial
- Volatilization from soil into outdoor off-site air- residential
- Volatilization from soil into outdoor on-site air- commercial and
- Volatilization from groundwater into on-site indoor air- commercial
- Volatilization from groundwater into on-site outdoor air- commercial

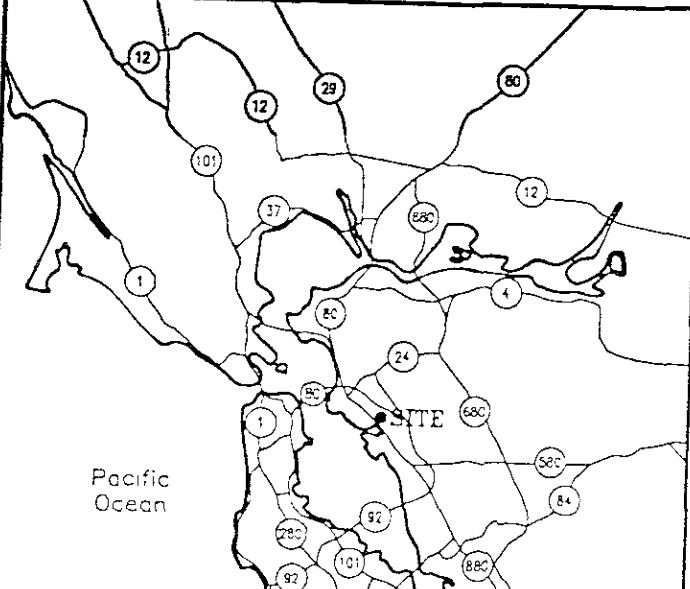
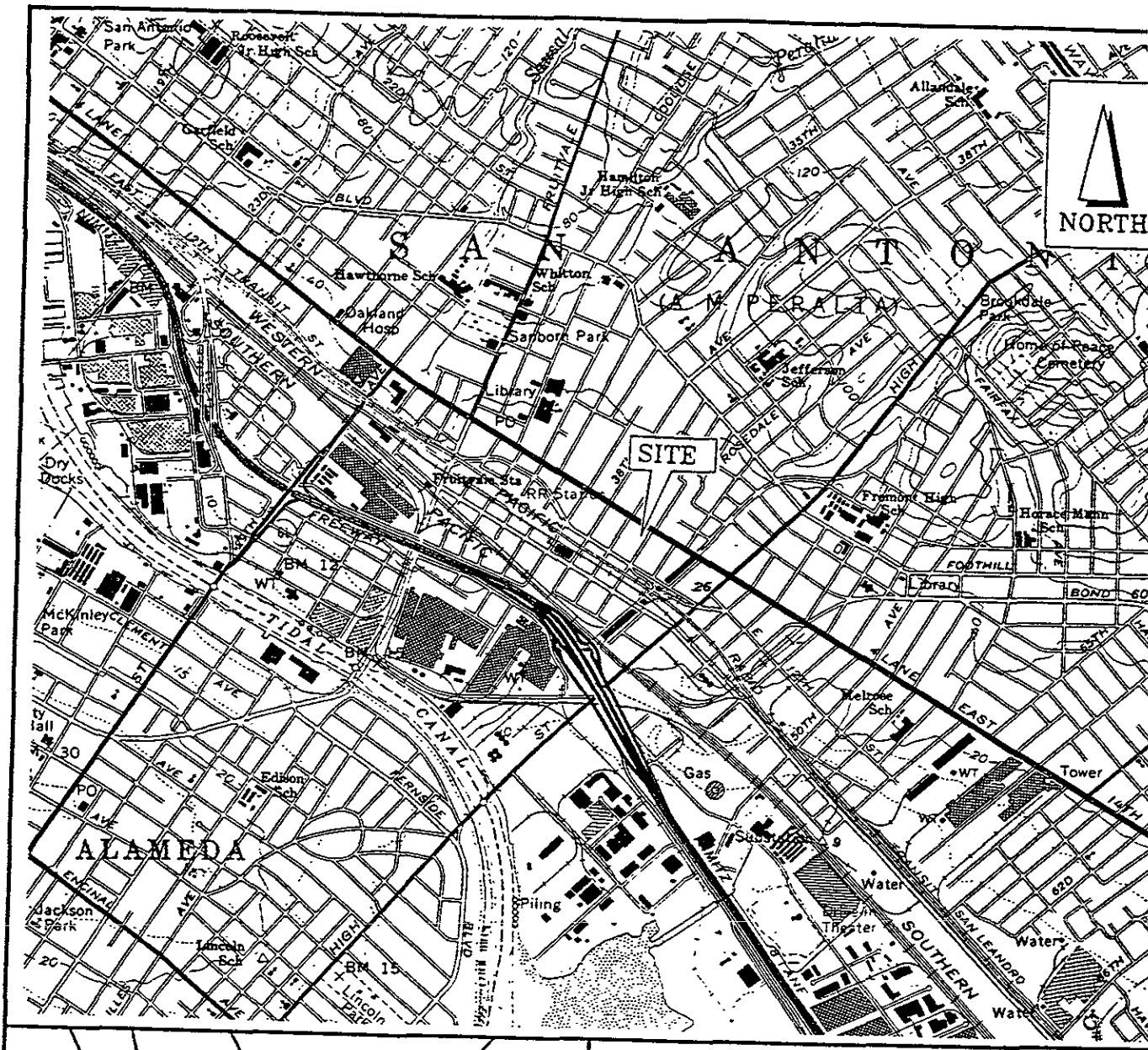
A conservative estimate for residual soil concentration was taken as the average benzene concentration of the sidewall and floor samples from the tank removal, 0.22 ppm. The conservative estimate for residual groundwater concentration was taken as the average benzene concentration for that past four monitoring events in HMW-1 and HMW-3, 0.24 mg/l. These concentrations are less than the calculated SSTL values, 4.8 mg/kg in soil and 0.53 mg/l in groundwater, therefore, no excessive human health risk would be expected. As a comparison to City of Oakland RBSLs, the corresponding RBSLs are 1.2 mg/kg and 2.0 mg/l benzene for the same exposure pathway. (See Tier 2 RBCA printouts)

The site is, therefore, recommended for closure based upon:

- Removal of the source, the underground tank;
- Adequate site characterization;
- No expected risk to human health or the environment;
- Apparent decrease or stabilization of groundwater concentrations and anticipated natural attenuation stimulated by ORC injection.
- No sensitive receptors identified which could be impacted.

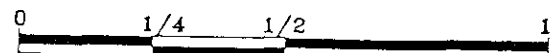


Figure 1



Notes:

- 1) All locations and dimensions are approximate.
- 2) Base map from USGS Oakland East (1961) Quadrangle, 7.5 Minute Series Topographic. Photorevised in 1980.



SCALE (MILES)

**ATC ASSOCIATES INC.**  
Environmental, Geotechnical and Materials Professionals

East 14th Street

different building

3927

East

14th Street

B-1



B-2



Roll-up Door



40th Avenue



JOHN P. CUMMINGS  
& ASSOCIATES

PROJECT #  
3927 E. 14th St.  
Oakland, California

Fig. 2

PARTIAL SITE PLAN  
& BORING LOCATIONS

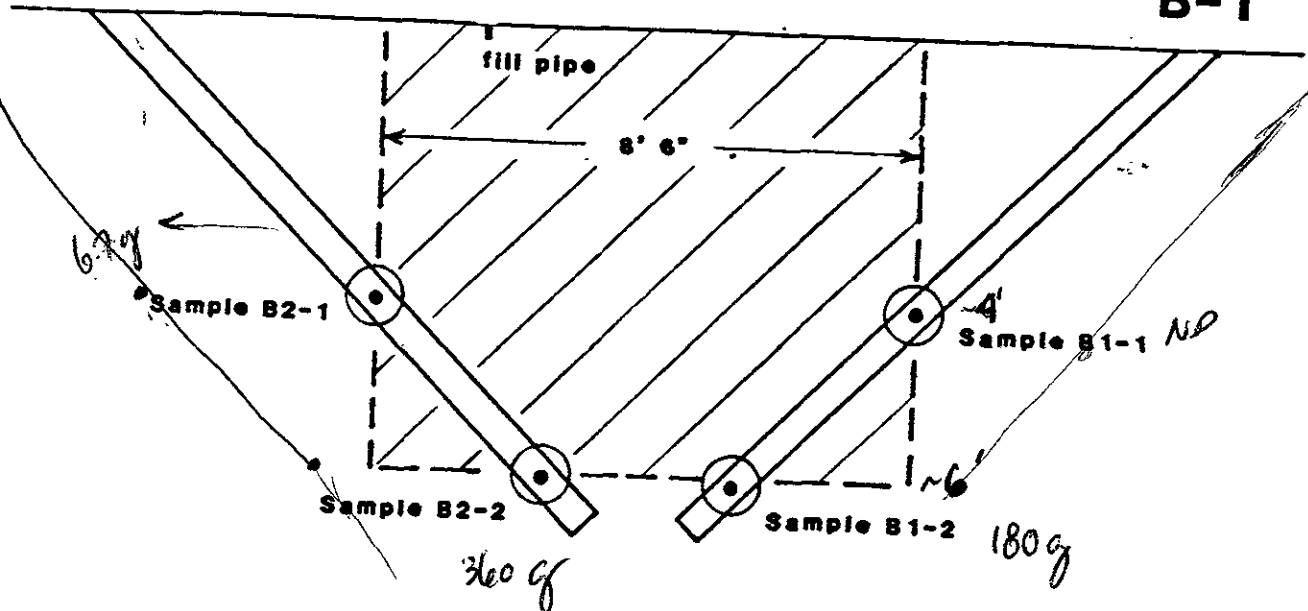
West

40th Avenue

East

B-2

B-1



-Horizontal distance measured.

-Depth of tank pit assumed.

JOHN P. CUMMINGS & ASSOCIATES	PROJECT # 3927 East 14th St. Oakland, California
Fig. 3 CROSS SECTION THROUGH TANK AREA	

he results, in parts per million (ppm), for TPHG and BTEX are shown in Table 1. below. The laboratory data sheets with detection limits and COC documentation are contained in Appendix B.

**TABLE 1.**

Sample ID	ppm				
	TPHG	B	T	E	X
B-1-1	ND	ND	ND	ND	1.2
B-1-2	180	ND	0.22	0.43	3.5
B-2-1	6.7	ND	ND	0.24	0.82
B-2-2	360	ND	0.58	2.8	9.9

ND=Not Detected

The results, in ppm, for Total Hydrocarbons and TOG are shown in Table 2. below. The laboratory data sheets with detection limits and COC documentation are contained in Appendix B.

**TABLE 2.**

Sample ID	ppm	
	Total Oil and Grease	Hydrocarbons
B-1-1	150	220
B-1-2	ND	200
B-2-1	ND	28
B-2-2	ND	130

ND=Not Detected

The results, in ppm, for 5 California Action Metals (CAM 5) are shown in Table 3. below. The laboratory data sheets with detection limits and COC documentation are contained in Appendix B.

**TABLE 3.**

Sample ID	ppm				
	Cadmium	Chromium	Lead	Nickel	Zinc
B-1-1	ND	59	27	93	39
B-1-2	ND	83	66	170	58
B-2-1	ND	54	42	72	35
B-2-2	ND	87	540	170	160

ND=Not Detected

East 14th Street

different building

*only 2 advanced  
1 boring*

B-3

20 feet

B-1

3927

East

14th Street



B-2

MW-1

Roll-up Door

40th Avenue



Proposed boring

Proposed monitoring well

JOHN P. CUMMINGS  
& ASSOCIATES

PROJECT # 0293002.01  
3927 E. 14th St.  
Oakland, California

Fig. 4 PARTIAL SITE PLAN  
& BORING LOCATIONS

data sheets with detection limits and COC documentation are contained in Appendix B.

TABLE 1.

Sample ID	ppm					
	TPHD	TPHG	B	T	E	X
B-3-5	ND	ND	ND	ND	ND	ND
B-3-9.5	31	800	ND	1.8	1.4	5.8
MW-1-5	ND	110	ND	ND	0.19	0.16
MW-1-10	33	1000	ND	2.8	6.9	11

ND=Not Detected

The results, in ppm, of the analysis of the soil samples, utilizing the GC FID method requested by ACDEH, for Total Hydrocarbons and TOG are shown in Table 2. below. The laboratory data sheets with detection limits and COC documentation are contained in Appendix B.

TABLE 2.  
ppm

Sample ID	Total Oil and Grease	Hydrocarbons
B-3-5	ND	ND
B-3-9.5	550	550
MW-1-5	ND	<1 ← ND
MW-1-10	1200	1200

ND=Not Detected

The results for the soil samples, in ppm, for 5 California Action Metals (CAM 5) are shown in Table 3. below. The laboratory data sheets with detection limits and COC documentation are contained in Appendix B.

TABLE 3.  
ppm

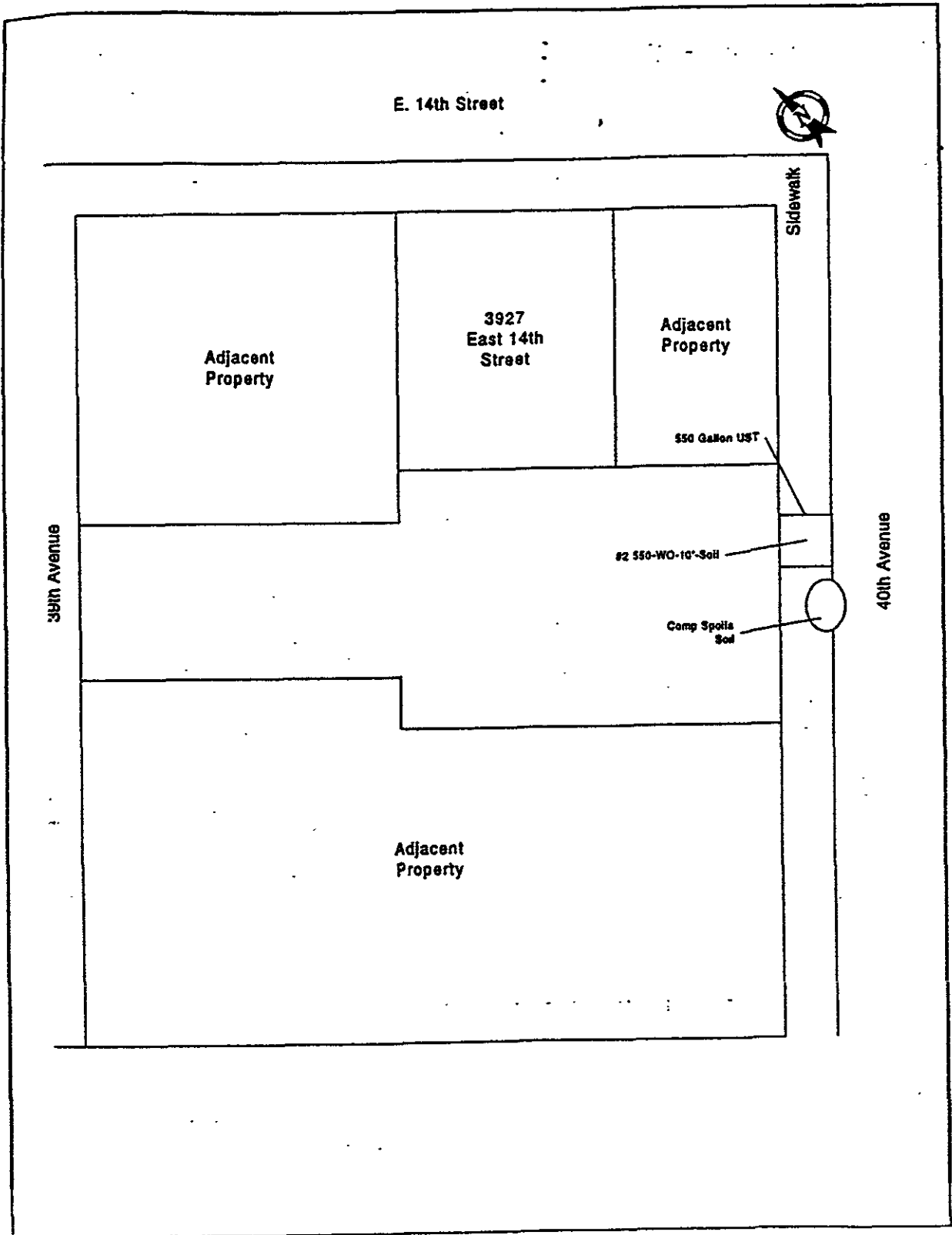
Sample ID	Cadmium	Chromium	Lead	Nickel	Zinc
B-3-5	ND	0.285	ND	3.58	0.36
B-3-9.5	ND	0.265	ND	0.76	0.83
MW-1-5	ND	0.235	ND	3.53	0.365
MW-1-10	0.135	0.635	2.18	3.28	0.48

ND=Not Detected

# WELL LOG

Project	<u>Hauser Property</u>	Well Number	<u>MW-1</u>
Location	<u>40th Ave. west of 14th St., Oakland.</u>	Diameter of Boring	<u>7 3/4 inches</u>
Project #	<u></u>	Total Depth of Boring	<u>20 feet</u>
Geologist	<u>J. Alt, CEG</u>	Date Started	<u>March 4, 1994</u>
Drill Company	<u>Soil Exploration Services</u>	Date Completed	<u>March 4, 1994</u>
Comments	<u></u>		

Depth in Feet	WELL CONSTRUCTION DETAIL	Sample #	Blow Counts	Graphic Log	DESCRIPTION	
0	<p>Schedule 40 PVC pipe</p> <p>Schedule 40 PVC pipe with 0.01" slots</p> <p>grout</p> <p>Bentonite seal</p> <p>Lonestar 2/16 sand</p> <p>Lonestar 2/16 sand</p> <p>screw-on cap</p>				6 inch concrete pad	
1					black CLAY, moist, plastic,	
2						
3						
4						light gray CLAY, moist, plastic.
5						
6			1	12 22 33		blueish-green sandy CLAY, moist, matrix is plastic, greater than 10% sand, fine to coarse; tan mottling.
7						
8						<i>gas odor?</i>
9					∇	olive-green CLAY.
10						
11			2	9 24 36		green SAND with gravel, gravel greater than 15% with pebbles up to 1/2", moist to wet, sand is medium- to coarse-grained.
12						
13						
14						
15						
16			3	15 29 37		as above, except about 20% gravel with cobbles to 1/2", saturated - grading to a sandy CLAY.
17						
18						
19						
20					bottom of boring	



Site Layout and Sampling Locations

Fig. 5





## CERTIFICATE OF ANALYSIS

Lab No: 96-570  
Client: Semco/HK2  
Project: 3927 E. 14th St. Oakland

Date Sampled: 08-10-96  
Date Analyzed: 08-14-96  
Date Reported: 08-14-96

Benzene, Toluene, Ethylbenzene and Xylenes by Method 8020  
Diesel, gasoline range hydrocarbons by EPA method 8015M  
TEPH by Method SM 5520 F & F

SAMPLE NO	CLIENT ID	ANALYTE	METHOD	RESULT
96-570-01	Comp Spoils Soil	Benzene	8020	0.07 mg/Kg
		Toluene	8020	0.40 mg/Kg
		Ethylbenzene	8020	0.43 mg/Kg
		Xylenes	8020	1.3 mg/Kg
		Gasoline	8015M	126 mg/Kg
		Diesel	8015M	85 mg/Kg
		TEPH	5520 F	400 mg/Kg
96-570-02	#2 550-WO- 10'- Soil	Benzene	8020	0.16 mg/Kg
		Toluene	8020	0.62 mg/Kg
		Ethylbenzene	8020	1.7 mg/Kg
		Xylenes	8020	4.1 mg/Kg
		Gasoline	8015M	410 mg/Kg
		Diesel	8015M	1.5 mg/Kg
		TEPH	5520F	550 mg/Kg

NORTH STATE ENVIRONMENTAL  
Attn: JOHN MURPHYPr:  
Reported on August 14Analysis for CAM 17 Metals  
California Administration Code Title 22, Paragraph 66700 & EPA  
Methods SW-846 6010 & 7000 Series

LAB ID	Sample ID	Matrix	Dil. Factor	Moist
21723-01	96-570-01	Soil	1.0	
21723-02 &	96-570-02	Soil	2.0	

## RESULTS OF ANALYSIS

Compound	21723-01		21723-02	
	Conc.	RL	Conc.	RL
	mg/kg		mg/kg	
Mercury (SW-846 7471)	0.38	0.05	0.12	0.05
Antimony (SW-846 6010)	ND	5.0	ND	10
Arsenic (SW-846 6010)	5.6	5.0	ND	10
Barium (SW-846 6010)	120	0.75	120	1.5
Beryllium (SW-846 6010)	0.5	0.25	ND	0.50
Cadmium (SW-846 6010)	0.75	0.25	ND	0.50
Chromium (SW-846 6010)	58	0.5	63	1.0
Cobalt (SW-846 6010)	16	0.5	20	1.0
Copper (SW-846 6010)	21	1.0	23	2.0
Lead (SW-846 6010)	390	2.5	45	5.0
Molybdenum (SW-846 6010)	ND	1.0	ND	2.0
Nickel (SW-846 6010)	120	1.0	200	2.0
Silver (SW-846 6010)	ND	1.0	ND	2.0
Selenium (SW-846 6010)	ND	5.0	ND	10
Thallium (SW-846 6010)	ND	10	ND	20
Vanadium (SW-846 6010)	40	1.5	40	3.0
Zinc (SW-846 6010)	1100	1.0	79	2.0

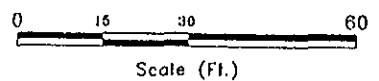
New  
Genico  
Bld



### EXPLANATION

- Groundwater elevation  
(22 August 1996)
- 23.38  
Groundwater Monitoring Well  
HMW-3 (3927 E. 14th St.)
- MW-1  
Groundwater Monitoring Well  
(1234 40th Ave.)
- Groundwater elevation  
contours, 22 August 1996

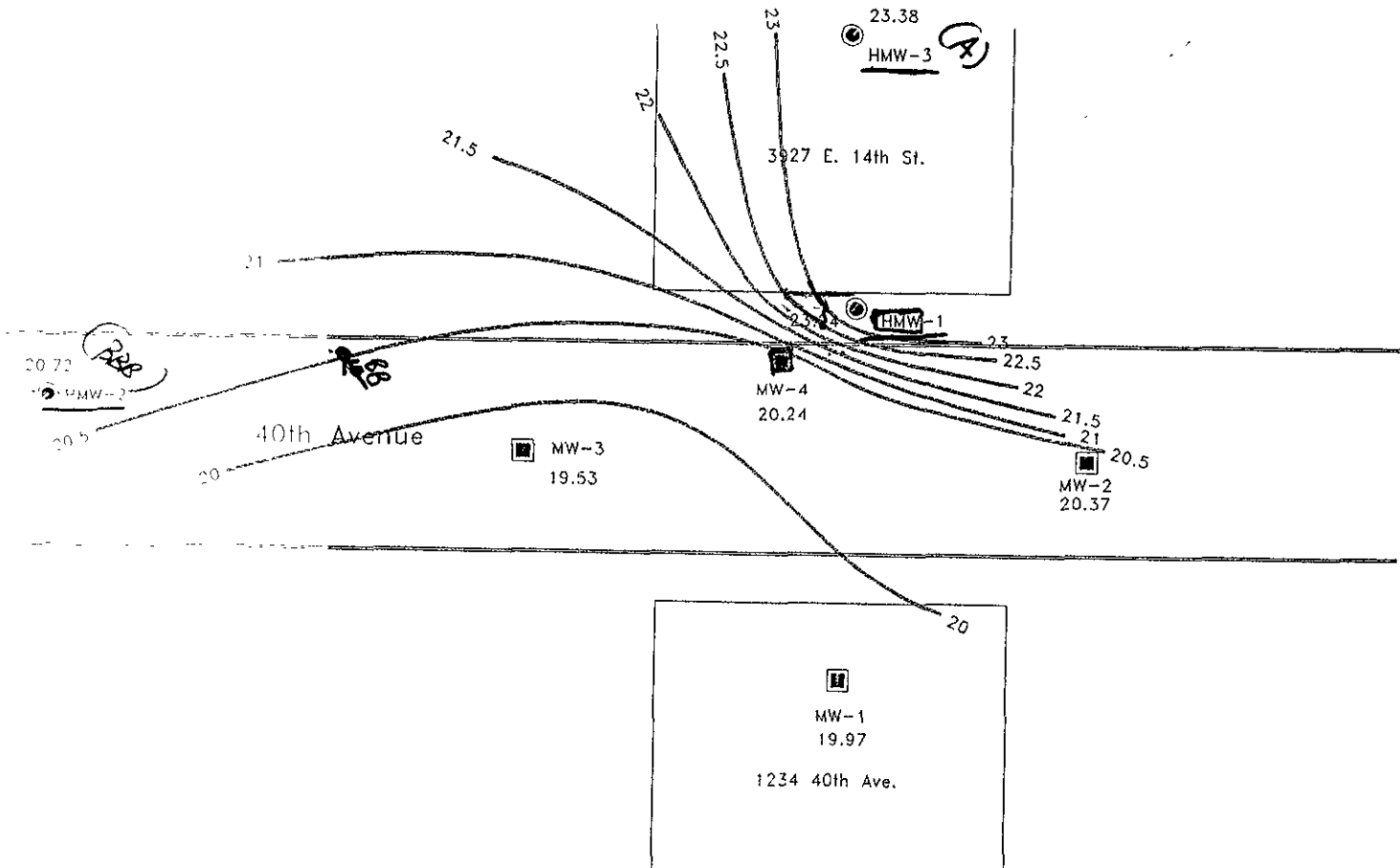
- Notes:
1. Base Map developed from survey map provided by Kier & Wright



**ATC** ENVIRONMENTAL INC.

SITE - MAP  
3927 E. 14th Street  
Oakland, California

Project No. 61137.0001      Figure 6



**Table 4**  
**Summary of Soil Analytical Results**  
**3927 E. 14th Street**  
**Oakland, California**

Sample Identification	Sample Location	Depth (BGS)	TPHmo (mg/kg)	TPHd (mg/kg)	TPHg (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)
B1-4-16	Boring BB	16	-	-	ND	ND	ND	ND	ND
B2-2-10.5	Well MW2 (Boring BBB)	10.5	-	-	2.3	ND	ND	ND	ND
B2-3-16	Well MW2 (Boring BBB)	16	-	-	ND	ND	ND	ND	ND
B2-3-16.5	Well MW2 (Boring BBB)	16.5	-	-	ND	0.0071	ND	ND	ND
B3-3-16	Well MW3 (Boring A)	16	-	-	ND	ND	ND	ND	ND
NW1	NORTH WALL OF TANK EXCAVATION (8' BGS)	8	1,600	560	260	0.17	0.405	0.146	3.34
SW1	SOUTH WALL OF TANK EXCAVATION (8' BGS)	8	4,800	1,500	470	0.11	4.79	3.07	19.9
EW1	EAST WALL OF TANK EXCAVATION (8' BGS)	8	2,800	890	940	0.36	1.79	0.814	4.96
WW1	WEST WALL OF TANK EXCAVATION (8' BGS)	8	5,000	1,700	470	0.272	1.5	0.305	11.2
TANK PIT 10'	BOTTOM OF TANK EXCAVATION (10' BGS)	10	1,800	610	379	0.18	0.768	0.256	11.1

*from 410 s 16 162 1.7 4.1*

*North State Environmental (SEMO)*

- mg/kg = milligrams per kilogram
- TPHd = Total petroleum hydrocarbons as diesel, analyzed in general accordance with EPA Method 8015M.
- TPHg = Total petroleum hydrocarbons as gasoline, analyzed in general accordance with EPA Method 8015M.
- TPHmo = Total petroleum hydrocarbons as motor oil, analyzed in general accordance with EPA Method 8015M.
- BGS = Below the Ground Surface
- ND = Not detectable in concentrations greater than the detection limit.

**Table 5**  
**Summary of Groundwater Analytical Results**  
**3927 E. 14th Street**  
**Oakland, California**

Sample Identification	Sample Date	TPHmo (ug/L)	TPHd (ug/L)	TPHg (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)
BB	10-Aug-96	NA	NA	18,000	340	73	51	230
BBB (1)	10-Aug-96	NA	NA	43,000	110	40	51	350
BBB (2)	10-Aug-96	NA	NA	18,000	150	51	49	330
A	10-Aug-96	NA	NA	4,100	ND	ND	ND	36
A MW 1	22-Aug-96	ND	ND	7,400	1,200	170	530	490
A MW 2	22-Aug-96	2,100	7,400*	6,300	170	57	370	120
A MW 3	22-Aug-96	ND	ND	1,300	3.1	5.9	7.6	12

ug/L = micrograms per liter

TPHd = Total petroleum hydrocarbons as diesel, analyzed in general accordance with EPA Method 8015M.

TPHg = Total petroleum hydrocarbons as gasoline, analyzed in general accordance with EPA Method 8015M.

TPHmo = Total petroleum hydrocarbons as motor oil, analyzed in general accordance with EPA Method 8015M.

BGS = Below the Ground Surface


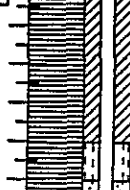
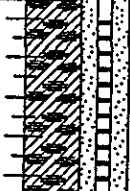
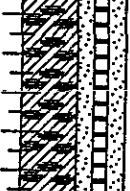

ND = Not detectable in concentrations greater than the detection limit.

\* = Laboratory notes that the concentration for diesel is estimated, due to overlapping fuel patterns. Hydrocarbons reported as motor oil does not match the pattern of the motor oil standard.

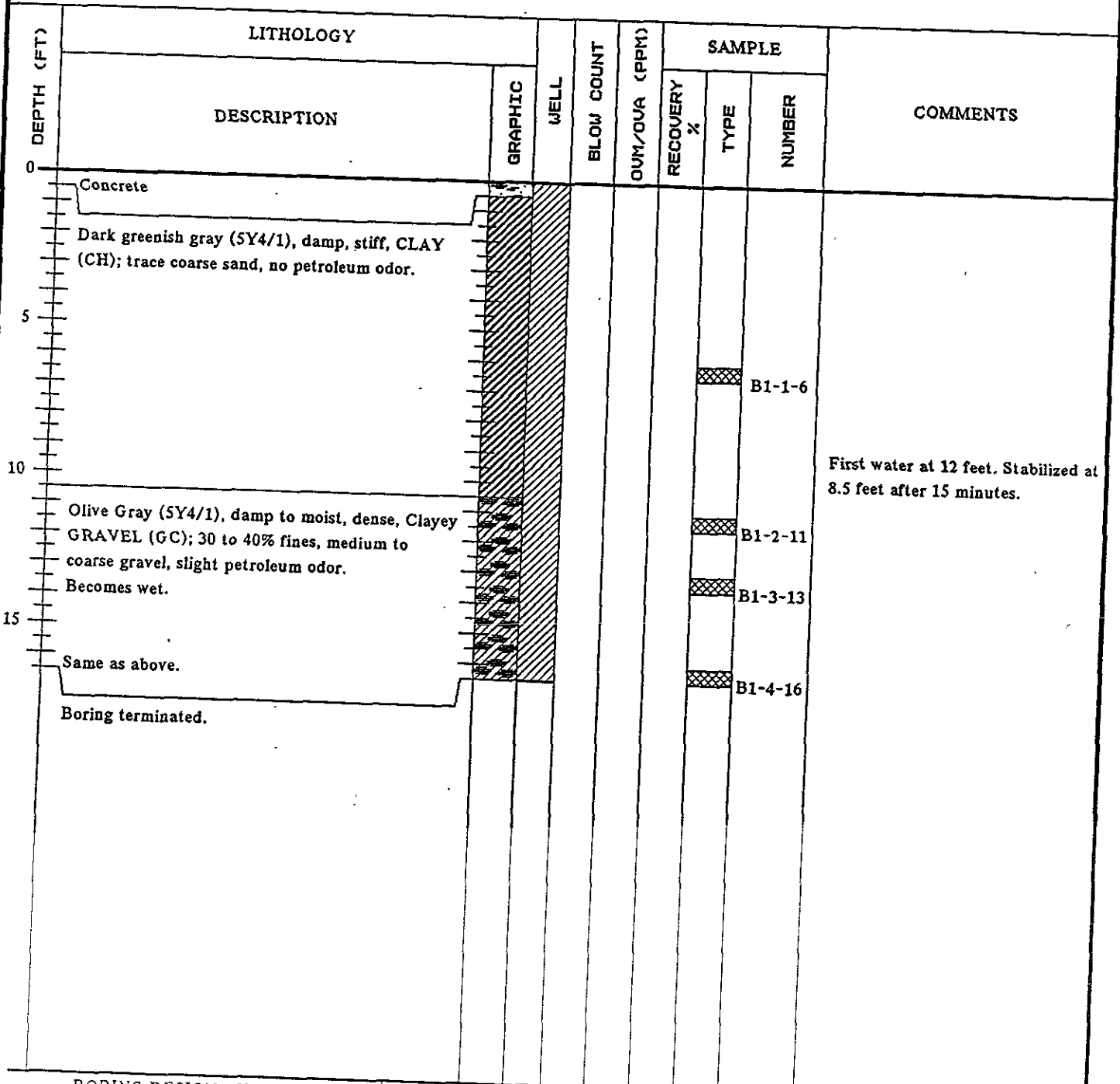
(1) = First run with abundant silt

(2) = Second run

PROJECT ▷ Oakland		<b>ATC</b>	PROJECT NUMBER ▷ 61137.0001	
LOGGED BY ▷ DREW WILLERTON			START DATE ▷ 10 August 1996	
CHECKED BY ▷ WILLIAM THEYSKENS			COMPLETION DATE ▷ 10 August 1996	
GROUND SURFACE ELEVATION DATUM (FT-MSL) ▷			DRILLING COMPANY ▷ GREGG DRILLING	
DRILLING EQUIPMENT ▷ MARL M5T HOLLOW STEM AUGER				
BORING DEPTH (FT) ▷ 17.0		WELL DEPTH (FT) ▷ 17.0		WATER DEPTH (FT)-Initial:      Completion:
WELL MATERIALS ▷ #3 SAND W/SCH 40 PVC 0.020			WELL SCREEN INTERVAL (FT) ▷ 7 TO 17	
WELL CASING ELEVATION (FT-MSL) ▷ 31.48			OVM/OVA ▷ N/A	
BACKFILL MATERIAL ▷ N/A				

DEPTH (FT)	LITHOLOGY		WELL	BLOW COUNT	OVM/OVA (PPM)	SAMPLE			COMMENTS
	DESCRIPTION	GRAPHIC				RECOVERY %	TYPE	NUMBER	
0	Concrete								
0-5	Olive gray (5Y3/2) with light tan mottling, damp, very stiff, Sandy CLAY (CL); 10 to 20% fine to medium grained sand, no petroleum odor.								
5-10	Dark greenish gray (5GY4/1), moist, dense, Clayey GRAVEL (GC); 10 to 20% very fine sand, no petroleum odor.							MW3-1-6	
10-15	Greenish black (5GY2/1), moist to wet, dense, Clayey GRAVEL (GC); 20 to 30% fines, strong petroleum odor. Increasing sand, no to faint "sweet" odor. Becomes wet.							MW3-2-11	
15-17	Boring terminated.							MW3-3-16	

PROJECT ▷ Oakland		<b>ATC</b>	PROJECT NUMBER ▷ 61137.0001	
LOGGED BY ▷ DREW WILLERTON			START DATE ▷ 10 August 1996	
CHECKED BY ▷ WILLIAM THEYSKENS			COMPLETION DATE ▷ 10 August 1996	
GROUND SURFACE ELEVATION DATUM (FT-MSL) ▷		DRILLING COMPANY ▷ GREGG DRILLING		
DRILLING EQUIPMENT ▷ MARL MST HOLLOW STEM AUGER				
BORING DEPTH (FT) ▷ 16.5		WELL DEPTH (FT) ▷ N/A	WATER DEPTH (FT)-Initial:                      Completion:	
WELL MATERIALS ▷ N/A		WELL SCREEN INTERVAL (FT) ▷ N/A TO N/A		
WELL CASING ELEVATION (FT-MSL) ▷ N/A		OVM/OVA ▷ N/A		
BACKFILL MATERIAL ▷ CEMENT				



PROJECT ▷ Oakland		<b>ATC</b>	PROJECT NUMBER ▷ 61137.0001	
LOGGED BY ▷ DREW WILLERTON			START DATE ▷ 10 August 1996	
CHECKED BY ▷ WILLIAM THEYSKENS			COMPLETION DATE ▷ 10 August 1996	
GROUND SURFACE ELEVATION DATUM (FT-MSL) ▷			DRILLING COMPANY ▷ GREGG DRILLING	
DRILLING EQUIPMENT ▷ MARL MST HOLLOW STEM AUGER				
BORING DEPTH (FT) ▷ 17.0		WELL DEPTH (FT) ▷ 17.0		WATER DEPTH (FT)-Initial:      Completion:
WELL MATERIALS ▷ #3 SAND W/SCH 40 PVC 0.020			WELL SCREEN INTERVAL (FT) ▷ 7 TO 17	
WELL CASING ELEVATION (FT-MSL) ▷ 29.43			OVM/OVA ▷ N/A	
BACKFILL MATERIAL ▷ N/A				

DEPTH (FT)	LITHOLOGY			BLOW COUNT	OVM/OVA (PPM)	SAMPLE			COMMENTS
	DESCRIPTION	GRAPHIC	WELL			RECOVERY %	TYPE	NUMBER	
0	Concrete								
0 - 10	Dark yellowish brown (10YR4/2), damp, stiff, CLAY (CL); 10 to 20% fine to medium grained sand, no petroleum odor.								
10 - 15	Greenish black (5GY2/1), damp, dense, Clayey GRAVEL (GC); 20 to 30% fines, no petroleum odor. Increasing sand, no to faint "sweet" odor.								
15 - 16.5	Same as above.								
16.5 - 17.0	Boring terminated.								

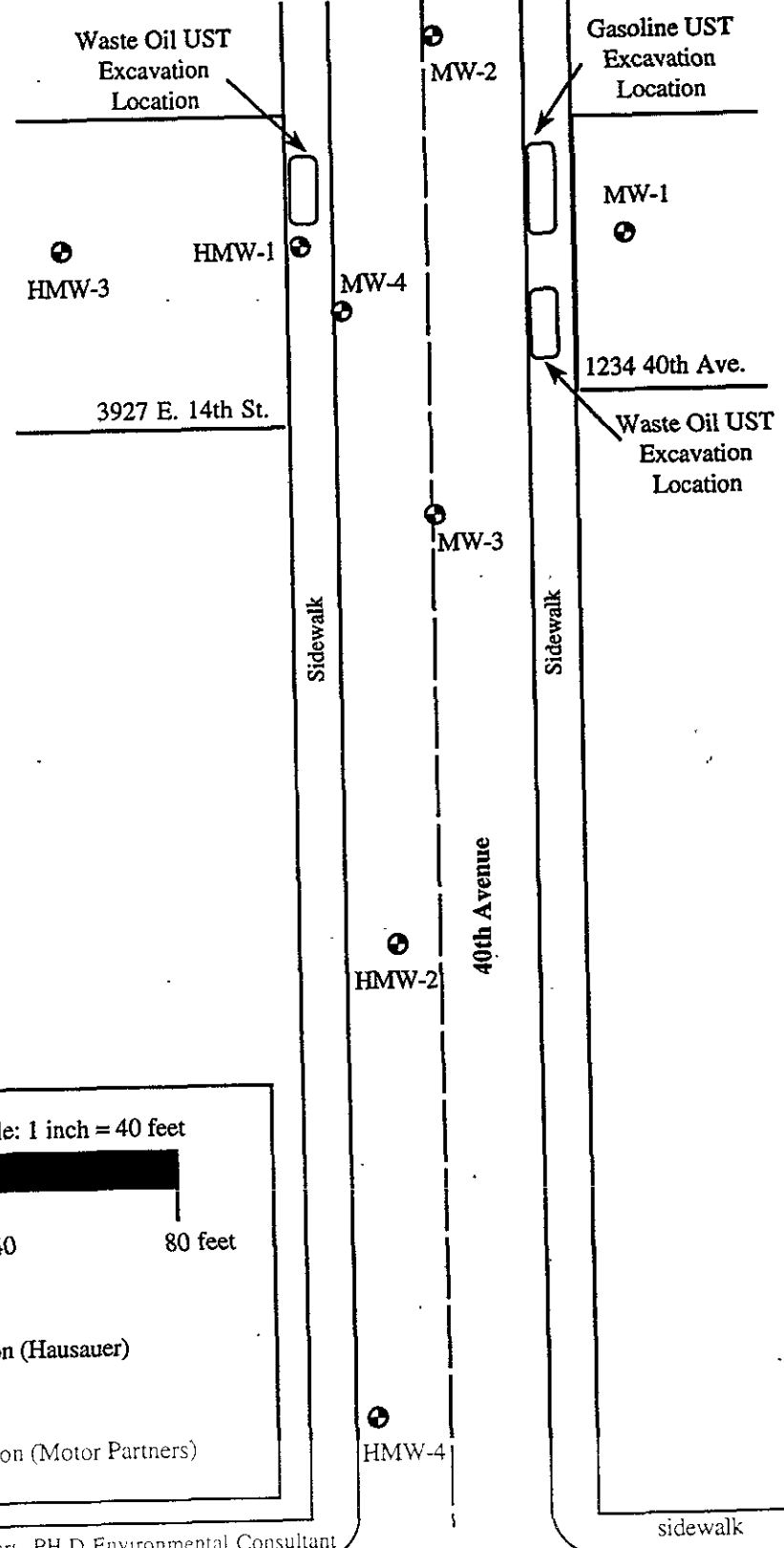
BORING DESIGNATION  
MW2(BBB)

**BORING LOG**

PAGE NUMBER  
1 OF 1

FIGURE NUMBER





**Explanation**

Approximate Scale: 1 inch = 40 feet

0 10 20 30 40 80 feet

● Groundwater Monitoring Well Location (Hausauer)  
HMW-1

● Groundwater Monitoring Well Location (Motor Partners)  
MW-1

Map based from ATC Environmental and Gary Rogers, PH.D Environmental Consultant

**ARTESIAN ENVIRONMENTAL**  
229 Tewksbury Avenue  
Point Richmond, California 94801  
Phone (510) 307-9943 Fax (501) 232-2823

**SITE MAP**  
Hausauer Property  
3927 East 14th Street  
Oakland, California

Project No.: 197-002-01

Date: 1/8/98

Prepared By: T. Fortner

Figure 7

Table 6

ARTESIAN ENVIRONMENTAL CONSULTANTS

SUMMARY OF SOIL AND GROUNDWATER LABORATORY ANALYTICAL DATA

Groundwater Monitoring Well Installation

Hausauer Property

3927 East 14th Street

Oakland, California

Soil Sample

Sample Number	Date Sampled	TPH-g mg/Kg	TPH-d mg/Kg	TPH-mo mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethyl Benzene mg/Kg	Total Xylenes mg/Kg	MTBE µg/L
HMW-4-12	11/18/97	29†	14†	<0.005	<0.005	0.070	<0.005	0.19	<0.25

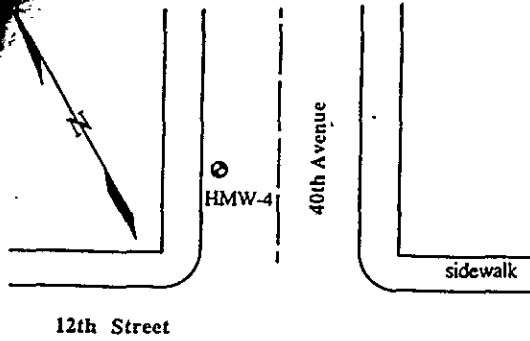
*12' is within capillary zone & is indicative of gw contamination*

Groundwater Sample

Sample Number	Date Sampled	TPH-g µg/L	TPH-d µg/L	TPH-mo µg/L	Benzene µg/L	Toluene µg/L	Ethyl Benzene µg/L	Total Xylenes µg/L	MTBE µg/L
HMW-4	11/26/97	1,600†	400	<250	4.2	3.1	1.7	5.9	<62
MCL		ns	ns	ns	1	150	700	1,750	ns

- TPH-g Total Petroleum Hydrocarbons as gasoline, analysis by EPA Method 8015M
- TPH-d Total Petroleum Hydrocarbons as diesel, analysis by EPA Method 8015M
- TPH-mo Total Petroleum Hydrocarbons as motor oil, analysis by EPA Method 8015M
- mg/Kg milligrams per Kilogram (equivalent to ppm)
- µg/L micrograms per liter (equivalent to ppb)
- ns No Standard
- MTBE Methyl tert-Butyl Ether, analysis by EPA Method 8020
- BTEX Benzene, Toluene, Ethyl benzene, and Total Xylenes, analysis by EPA Method 8020
- MCL Maximum Contaminant Level Established by the State of California Department of Health Services Water Quality Goals-Human Health and Welfare

# BORING HMW-4



## Hausauer-New Genico

3927 East 14th Street  
Oakland, California

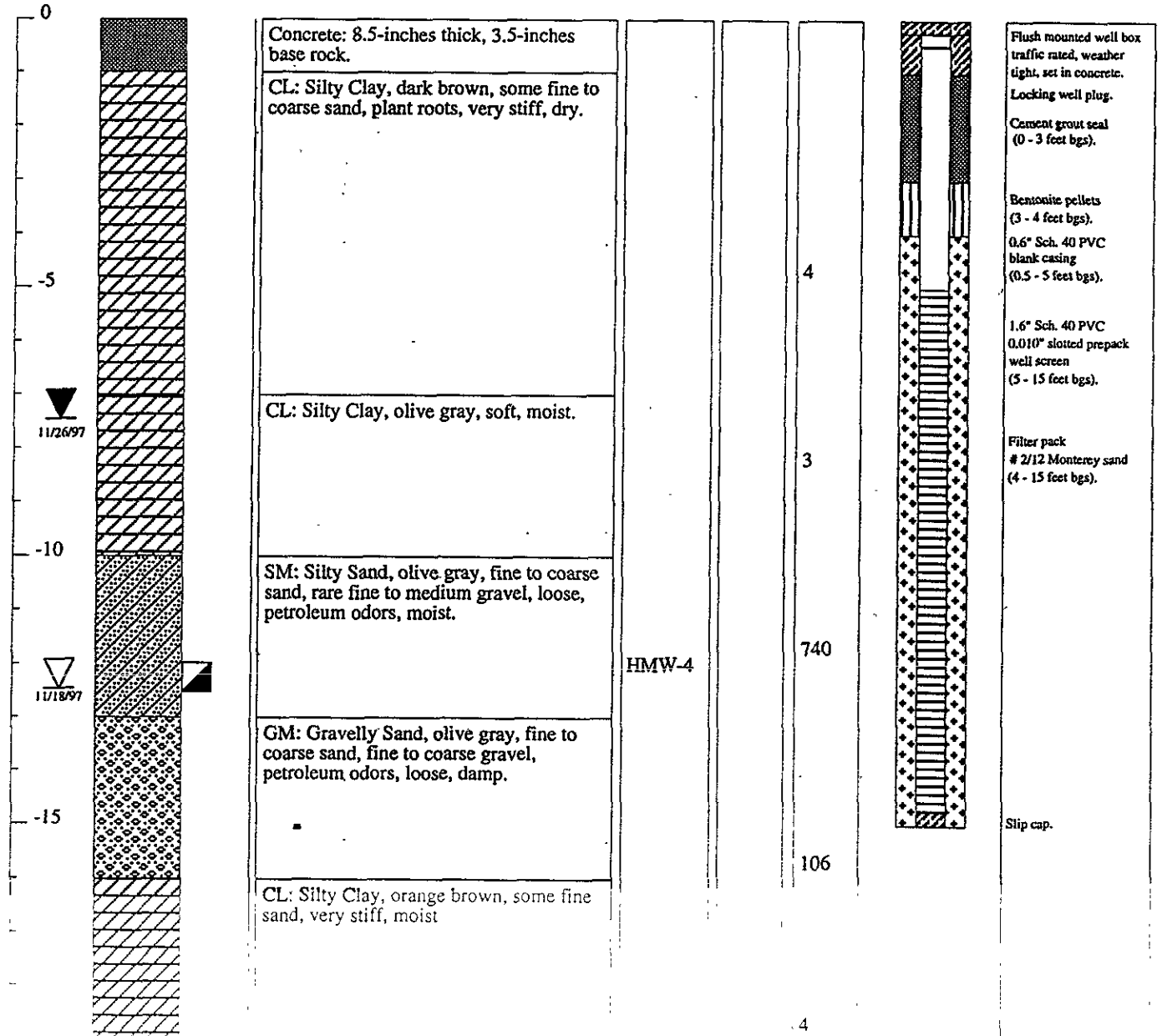
DATES DRILLED: 11/18/97	SAMPLING METH.: 2.2-inch MacroCore
DRILLING CO.: Artesian	TOTAL DEPTH: 19 feet bgs
DRILL TOOLS: Geoprobe 42DU	LOGGED BY: T. Fortner
DRILLER: T. Fortner	DATE DEV.: 11/24/97

PROJECT MANAGER: T. Fortner	DRAWN BY: T. Fortner
ARTESIAN JOB NO.: 197-002-01	DRAW DATE: 1/7/98

### ARTESIAN ENVIRONMENTAL CONSULTANTS

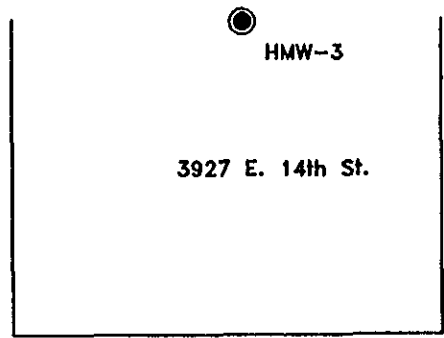
229 Tewksbury Avenue, Point Richmond, California 94801  
TEL (510) 307-9943 • FAX (510) 232-2823

DEPTH (feet)	SOIL SYMBOLS/ FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE NO.	BLOWS /6 in.	PID ppm	COMPLETION DIAGRAM	DESCRIPTION
--------------	----------------------------------	------------------	------------	--------------	---------	--------------------	-------------





NORTH



HMW-3

3927 E. 14th St.



HMW-1

● HMW-4

● HMW-2

■ MW-4

40th Avenue

■ MW-3

■ MW-2



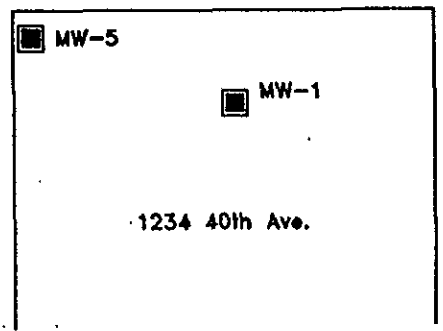
Scale (Ft.)

# EXPLANATION

- HMW-3 Groundwater Monitoring Well (3927 E. 14th St.)
- MW-1 Groundwater Monitoring Well (1234 40th Ave.)
- Designation of sanitary sewer.
- Designation of storm sewer.
- ORC Injection point

### Notes:

1. Base Map developed from survey map provided by Kier & Wright
2. Location of HMW-2 obtained from Artesian Environmental Project No.: 197-002-01 Date: 1/8/98
3. Location of MW-5 obtained from Aquatic & Environmental Applications, Project No.: 1004 Date: 3/27/98



■ MW-5

● MW-1

1234 40th Ave.

**VATC ASSOCIATES INC.**  
ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS

**SITE MAP**  
GENICO  
3927 E. 14th Street  
Oakland, California

Project No. 61137.0005

Figure 8

Table 7

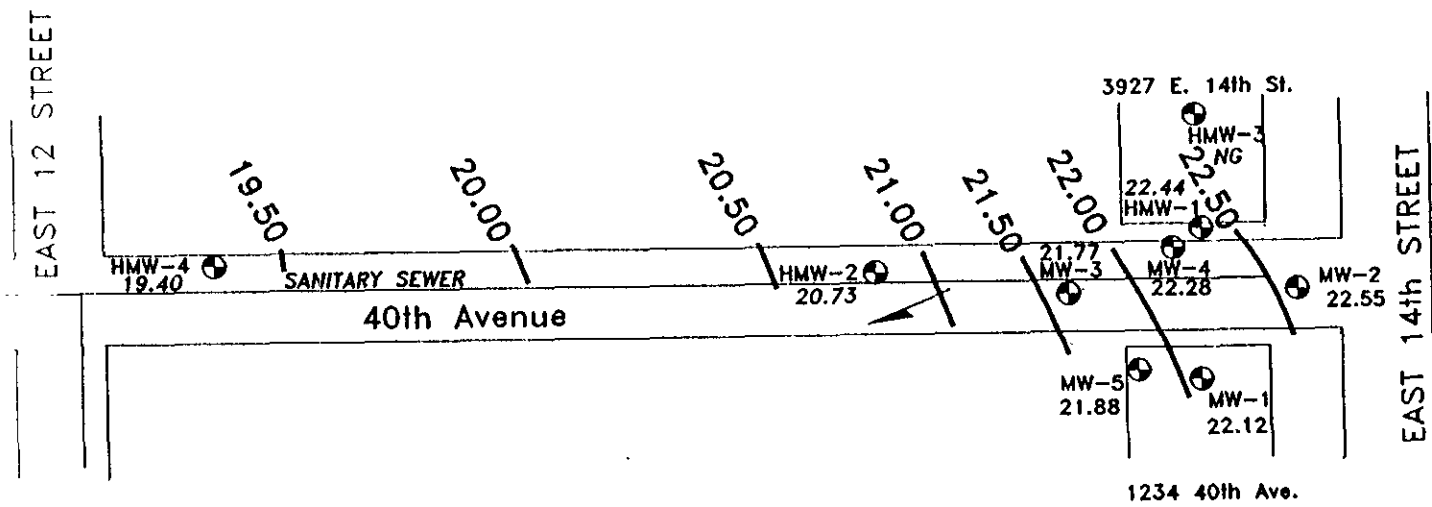
**Cumulative Results of Groundwater Sampling and Analyses**  
**New Genico Facility**  
**3927 East 14th Street**  
**Oakland, California**

Date Sampled	TPH-D (ug/L)	TPH-M (ug/L)	TPH-G (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	Well Elevation (ft above MSL)	Depth to Groundwater (feet)	Groundwater Elevation (ft above MSL)
<i>HMW-3</i>											
08/22/96	ND	ND	1,300	3	6	8	12	NA	31.48	8.10	23.38
02/25/97	70	ND	150	ND	ND	ND	ND	ND	31.48	6.00	25.48
05/28/97	ND	ND	80	ND	ND	0.60	ND	ND	31.48	7.74	23.74
09/02/97	ND***	ND***	140	ND	ND	2.1	ND	ND	31.48	8.60	22.88
11/26/97	50	ND	70	0.6	0.8	0.8	ND	ND	31.48	7.50	23.98
02/09/98	NA	NA	NA	NA	NA	NA	NA	NA	31.48	2.34	29.14
03/17/98	ND	200	ND	ND	ND	ND	ND	ND	31.48	5.23	26.25
06/30/98	ND	ND	ND	ND	ND	ND	ND	ND	31.48	6.60	24.88
09/24/98	ND	ND	58	ND	ND	ND	0.76	ND	31.48	8.32	23.16
12/16/98	ND	ND	ND	ND	ND	ND	ND	NR	31.48	6.71	24.77
02/19/99	NA	NA	NA	NA	NA	NA	NA	NA	NG	NG	NG
03/16/99	70	ND	98	ND	ND	ND	ND	ND	31.48	4.61	26.87
06/23/99	70	ND	71	ND	0.70	ND	1.6	ND	31.48	7.12	24.36
09/23/99	NA	NA	NA	NA	NA	NA	NA	NA	31.48	8.86	22.62
12/29/99	NA	NA	NA	NA	NA	NA	NA	NA	31.48	NG	NG
<i>HMW-4</i>											
08/22/96	NA	NA	NA	NA	NA	NA	NA	NA	NG	NG	NG
02/25/97	NA	NA	NA	NA	NA	NA	NA	NA	NG	NG	NG
05/28/97	NA	NA	NA	NA	NA	NA	NA	NA	NG	NG	NG
09/02/97	NA	NA	NA	NA	NA	NA	NA	NA	NG	NG	NG
11/26/97	400	ND	1,600	4.2	3.1	1.7	5.9	ND	28.80	7.42	21.38
02/09/98	NA	NA	NA	NA	NA	NA	NA	NA	28.80	2.96	25.84
03/17/98	ND	ND	1,300	20	1.4	6.8	3.0	19	28.80	5.72	23.08
06/30/98	ND	ND	940	17	1.5	18	2	10	28.80	7.40	21.40
09/24/98	ND	ND	370	7.2	ND	0.75	1.3	11	28.80	9.80	19.00
12/16/98	ND	ND	830	11.0	ND	2.70	5.0	NR	NG	NG	NG
02/19/99	NA	NA	NA	NA	NA	NA	NA	NA	NG	NG	NG
03/16/99	200	ND	660	6.1	ND	1.0	2.8	7.3	28.80	4.95	23.85
06/23/99	ND	ND	1,100	5.3	1.1	2.0	3.9	27	28.80	7.43	21.37
09/23/99	NA	NA	NA	NA	NA	NA	NA	NA	28.80	9.36	19.44
12/29/99	2,240	911	2,020	33.9	22.7	ND 10.0	11.1	66.2	28.80	9.40	19.40

Table 1

**Cumulative Results of Groundwater Sampling and Analyses**  
**New Genico Facility**  
**3927 East 14th Street**  
**Oakland, California**

Date Sampled	TPH-D (ug/L)	TPH-M (ug/L)	TPH-G (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	Well Elevation (ft above MSL)	Depth to Groundwater (feet)	Groundwater Elevation (ft above MSL)
<i>HMW-1</i>											
08/22/96	ND	ND	7,400	1,200	170	530	490	NA	31.25	8.01	23.24
02/25/97	2,000	ND	5,400	760	110	260	260	ND	31.25	5.95	25.30
05/28/97	2,000	600	6,600	1,100	100	290	340	130	31.25	7.65	23.60
09/02/97	8,700	3,700	4,000	460	40	200	100	ND*	31.25	8.56	22.69
11/26/97	4,700	3,000	7,500	1,000	120	270	320	ND*	31.25	7.50	23.75
03/17/98	ND	16,000	11,000	2,100	290	600	760	1,200	31.25	5.29	25.97
06/30/98	ND	5,900	10,000	1,300	160	390	390	160	31.25	6.63	24.62
09/24/98	ND	6,600	7,100	890	89	230	180	430/ND*	31.25	8.22	23.03
12/16/98	ND	1,400	1,900	290	39	85	100	NR	31.25	6.66	24.59
03/16/99	5,100	8,100	7,700	1,100	120	250	240	100	31.25	4.71	26.54
06/23/99	ND	12,000	3,300	510	52	110	110	70	31.25	7.25	24.00
09/23/99	1,190	540	1,360	150	19.9	37.7	42.5	125/ND*	31.25	8.75	22.50
12/29/99	2,440	3,110	1,380	184	22.7	38.6	57.8	70.7	31.25	8.81	22.44
<i>HMW-2</i>											
08/22/96	7,400**	2,100	6,300	170	57	370	120	NA	29.43	8.71	20.72
02/25/97	90	ND	8,400	150	35	280	70	ND*	29.43	6.00	23.43
05/28/97	130	200	6,000	170	35	170	67	150	29.43	7.65	21.78
09/02/97	4,502	ND***	8,000	210	30	160	90	ND*	29.43	8.59	20.84
11/26/97	180	ND	1,600	41	7.5	40	10	31	29.43	6.82	22.61
02/09/98	NA	NA	NA	NA	NA	NA	NA	NA	29.43	3.24	26.19
03/17/98	ND	ND	8,600	200	96	410	120	330	29.43	4.44	24.99
06/30/98	ND	ND	7,300	180	52	240	88	170	29.43	6.30	23.13
09/24/98	ND	ND	2,900	32	1.5	38	16	ND	29.43	8.20	21.23
12/16/98	ND	ND	5,300	93	25.0	160	53	NR	29.43	6.64	22.79
02/19/99	NA	NA	NA	NA	NA	NA	NA	NA	NG	NG	NG
03/16/99	1,500	730	5,200	83	31	150	45	140*	29.43	4.08	25.35
06/23/99	ND	ND	1,200	31	11	36	12	5.2	29.43	7.02	22.41
09/23/99	NA	NA	NA	NA	NA	NA	NA	NA	29.43	8.74	20.69
12/29/99	1,560	ND 500	4,410	145	45.6	111	80.8	407/ND*	29.43	8.70	20.73

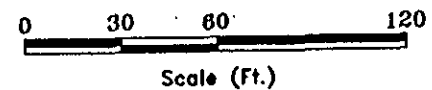


### EXPLANATION

- HMW-3 Groundwater Monitoring Well
- 22.55 Groundwater Elevation in Feet (mean sea level) Measured on December 29, 1999.
- 22.50 Groundwater Elevation Contour Line in Feet (mean sea level)
- ↖ Approximate Groundwater Flow Direction

**Notes:**

1. Base Map developed from survey map provided by Kier & Wright
2. Location of HMW-4 obtained from Artesian Environmental Project No.: 197-002-01 Date: 1/8/98
3. Location of MW-5 obtained from Aquatic & Environmental Applications, Project No.: 1004 Date: 3/27/98
4. HMW-3 not gauged due to well not being accessible at time of gauging.



<b>VATC ASSOCIATES INC.</b> <small>ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS</small>	
<b>GROUNDWATER ELEVATION CONTOUR MAP (DECEMBER 29, 1999)</b> NEW GENICO 3927 E. 14th Street Oakland, California	
Project No. 61137.0008	Figure 2

# RBCA TIER 1/TIER 2 EVALUATION

# Output Table 1

Site Name: Hausauer  
Site Location: Oakland, CA

Job Identification: 61137.0004  
Date Completed: 1/7/00  
Completed By: Beata Goodrich

Software: GSI RBCA Spreadsheet  
Version: 1.0.1

NOTE values which differ from Tier 1 default values are shown in bold italics and underlined.

Exposure Parameter	Definition (Units)	Residential			Commercial/Industrial	
		Adult	(1-6yrs)	(1-16 yrs)	Chronic	Constrctn
ATc	Averaging time for carcinogens (yr)	70				
ATn	Averaging time for non-carcinogens (yr)	30	6	16	25	1
BW	Body Weight (kg)	70	15	35	70	
ED	Exposure Duration (yr)	30	6	16	25	1
t	Averaging time for vapor flux (yr)	30			25	180
EF	Exposure Frequency (days/yr)	350			250	
EF Derm	Exposure Frequency for dermal exposure	350			1	
IRgw	Ingestion Rate of Water (L/day)	2			50	100
IRs	Ingestion Rate of Soil (mg/day)	100	200			
IRadj	Adjusted soil ing. rate (mg-yr/kg-d)	1.1E+02			9.4E+01	
IRa in	Inhalation rate indoor (m <sup>3</sup> /day)	15			20	
IRa out	Inhalation rate outdoor (m <sup>3</sup> /day)	20			20	10
SA	Skin surface area (dermal) (cm <sup>2</sup> )	5.8E+03		2.0E+03	5.8E+03	5.8E+03
SAadj	Adjusted dermal area (cm <sup>2</sup> -yr/kg)	2.1E+03			1.7E+03	
M	Soil to Skin adherence factor	1			FALSE	
AAFs	Age adjustment on soil ingestion	FALSE			FALSE	
AAFd	Age adjustment on skin surface area	FALSE			FALSE	
tox	Use EPA tox data for air (or PEL based)?	TRUE				
gwMCL?	Use MCL as exposure limit in groundwater?	FALSE				

Surface Parameters	Definition (Units)	Residential	Constrctn
A	Contaminated soil area (cm <sup>2</sup> )	<u>4.6E+04</u>	<u>4.6E+04</u>
W	Length of affect. soil parallel to wind (cm)	1.5E+03	1.0E+03
W.gw	Length of affect. soil parallel to groundwater (cm)	1.5E+03	
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02	
delta	Air mixing zone height (cm)	2.0E+02	
Lss	Thickness of affected surface soils (cm)		
Pe	Particulate areal emission rate (g/cm <sup>2</sup> /s)	6.9E-14	

Groundwater Definition (Units)	Value	
delta.gw	Groundwater mixing zone depth (cm)	2.0E+02
I	Groundwater infiltration rate (cm/yr)	3.0E+01
Ugw	Groundwater Darcy velocity (cm/yr)	2.5E+03
Ugw.tr	Groundwater seepage velocity (cm/yr)	6.6E+03
Ks	Saturated hydraulic conductivity (cm/s)	
grad	Groundwater gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	
Sd	Depth of groundwater source zone (cm)	
phi eff	Effective porosity in water-bearing unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	1.0E-03
Is BIO?	Is bioattenuation considered?	FALSE
BC	Biodegradation Capacity (mg/L)	

Matrix of Exposed Persons to Complete Exposure Pathways	Residential		Commercial/Industrial	
	Chronic	Constrctn	Chronic	Constrctn
<b>Outdoor Air Pathways:</b>				
SS v	Volatiles and Particulates from Surface Soils	FALSE	FALSE	TRUE
S v	Volatilization from Subsurface Soils	FALSE	TRUE	
GW v	Volatilization from Groundwater	FALSE	TRUE	
<b>Indoor Air Pathways:</b>				
S b	Vapors from Subsurface Soils	FALSE	TRUE	
GW b	Vapors from Groundwater	FALSE	TRUE	
<b>Soil Pathways</b>				
SS d	Direct Ingestion and Dermal Contact	FALSE	FALSE	FALSE
<b>Groundwater Pathways:</b>				
GW i	Groundwater Ingestion	FALSE	FALSE	FALSE
S i	Leaching to Groundwater from all Soils	FALSE	FALSE	FALSE

Soil	Definition (Units)	Value
hc	Capillary zone thickness (cm)	<u>0.1E+00</u>
hv	Vadose zone thickness (cm)	<u>2.4E+02</u>
rho	Soil density (g/cm <sup>3</sup> )	1.7
foc	Fraction of organic carbon in vadose zone	0.01
phi	Soil porosity in vadose zone	0.38
Lgw	Depth to groundwater (cm)	<u>2.5E+02</u>
Ls	Depth to top of affected subsurface soil (cm)	<u>2.1E+02</u>
Lsubs	Thickness of affected subsurface soils (cm)	<u>3.7E+01</u>
pH	Soil/groundwater pH	6.5
		<b>capillary      vadose      foundation</b>
phi w	Volumetric water content	0.342      0.12      0.12
phi.a	Volumetric air content	0.038      0.26      0.26

Matrix of Receptor Distance and Location On- or Off-Site	Residential		Commercial/Industrial	
	Distance	On-Site	Distance	On-Site
GW	Groundwater receptor (cm)	FALSE	FALSE	TRUE
S	Inhalation receptor (cm)	FALSE	FALSE	TRUE

Building	Definition (Units)	Residential	Commercial
Lb	Building volume/area ratio (cm)	2.0E+02	<u>1.1E+03</u>
ER	Building air exchange rate (s <sup>-1</sup> )	1.4E-04	2.3E-04
Lcrk	Foundation crack thickness (cm)	1.5E+01	
eta	Foundation crack fraction	<u>0.204</u>	

Matrix of Target Risks	Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	<u>1.0E-05</u>
TRc	Target Risk (class C carcinogens)	1.0E-05
THQ	Target Hazard Quotient	1.0E+00
Opt	Calculation Option (1, 2, or 3)	2
Tier	RBCA Tier	2

Transport Parameters	Definition (Units)	Residential	Commercial
<b>Groundwater</b>			
ax	Longitudinal dispersivity (cm)		
ay	Transverse dispersivity (cm)		
az	Vertical dispersivity (cm)		
<b>Vapor</b>			
dcy	Transverse dispersion coefficient (cm)		
dcz	Vertical dispersion coefficient (cm)		



**RBCA SITE ASSESSMENT**

Tier 2 Worksheet 9.3

Site Name: Hausauer  
 Site Location: Oakland, CA

Completed By: Beata Goodrich  
 Date Completed: 1/7/2000

1 OF 1

Calculation Option: 2

**GROUNDWATER SSTL VALUES**

Target Risk (Class A & B) 1.0E-5  MCL exposure limit?  
 Target Risk (Class C) 1.0E-5  PEL exposure limit?  
 Target Hazard Quotient 1.0E+0

**SSTL Results For Complete Exposure Pathways ("x" if Complete)**

CONSTITUENTS OF CONCERN		Representative Concentration	Groundwater Ingestion			X	Groundwater Volatilization to Indoor Air	X	Groundwater Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential: (on-site)	Commercial: (on-site)	(mg/L)	<input type="checkbox"/> "If yes"	Only if "yes" left	
71-43-2	Benzene	<del>1.0E-4</del> 2.4E-1	NA	NA	NA	NA	5.3E-1	NA	6.1E+1	5.3E-1	<input type="checkbox"/>	<1	

>Sol indicates risk-based target concentration greater than constituent solubility

## Representative Benzene Concentration

The constituent of concern for the ASTM Tier 2 RBCA evaluation was benzene. ATC used benzene concentrations from the last three quarterly monitoring events (1999) from groundwater monitoring wells HMW-1, ~~HMW-2~~, HMW-3, and ~~HMW-4~~ to estimate a representative concentration of 0.12 mg/L. The representative concentration was calculated using the RBCA software and is the 95<sup>th</sup> percentile Upper Confidence Limit of the calculated mean benzene concentration, based on data collected during the four quarterly groundwater sampling events in 1999.

## Results of RBCA Modeling

$\bar{x}$  of [B] for HMW-1 + HMW-3  
0.24

Using the above referenced representative concentration, the indoor and outdoor air pathways were evaluated. Cleanup goals for the site, or Site Specific Target Levels (SSTL's) were estimated for soil and groundwater (results attached)

The groundwater SSTL's for benzene are presented below in comparison to the representative benzene concentration in groundwater.

Scenario	target risk	Exposure	SSTL (mg/L)	Representative Concentration (mg/L)
Volatilization from groundwater into on-site indoor air	1.0 E-5	Commercial	0.53	<del>0.12</del> 0.24
Volatilization from groundwater into on-site outdoor air	1.0 E-5	Commercial	61	<del>0.12</del> 0.24

The applicable SSTL would be the lowest calculated SSTL which is 0.53 mg/L. As shown on the table above this SSTL is higher than the representative groundwater concentration of 0.12 mg/L. Therefore, the representative concentration of benzene beneath the site is below the site-specific cleanup goal calculated using the ASTM Tier 2 RBCA methodology.

Based on the information presented in this report, current regulatory guidelines, and the judgment of ATC, the following conclusions are presented:

- Using a target risk of  $1 \times 10^{-5}$ , slope factor of 0.1, and representative benzene concentrations using site 1999 data, the representative concentration of benzene in groundwater is below the calculated SSTL.

**RBCA SITE ASSESSMENT**

Tier 2 Worksheet 9.2

Site Name Hausauer  
Site Location Oakland, CA

Completed By: Beata Goodrich  
Date Completed: 1/7/2000

1 OF 1

**SUBSURFACE SOIL SSTL VALUES  
( > 0 FT BGS)**

Target Risk (Class A & B) 1.0E-5     MCL exposure limit?    Calculation Option: 2  
Target Risk (Class C) 1.0E-5     PEL exposure limit?  
Target Hazard Quotient 1.0E+0

**SSTL Results For Complete Exposure Pathways ("x" if Complete)**

CONSTITUENTS OF CONCERN		Representative Concentration (mg/kg)	Soil Leaching to Groundwater			Soil Volatilization to Indoor Air		Soil Volatilization to Outdoor Air		Applicable SSTL (mg/kg)	SSTL Exceeded ? *■* if yes	Required CRF
CAS No	Name		Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL) (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential: (on-site)	Commercial: (on-site)			
71-43-2	Benzene	2.2E-1	NA	NA	NA	NA	4.6E+0	NA	5.4E+2	4.6E+0	<input type="checkbox"/>	<1

>Res Indicates risk-based target concentration greater than constituent residual saturation value