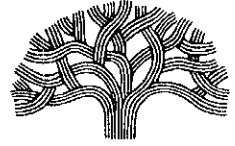


CITY OF OAKLAND



DAIZIEL BUILDING • 250 FRANK H. OGAWA PLAZA, SUITE 5301 • OAKLAND, CALIFORNIA 94612-2034

Public Works Agency
Environmental Services

FAX (510) 238-7286
TDD (510) 238-7644

March 5, 2001

MAR 09 2001

Mr. Barney Chan
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Risk Screening Evaluation and Request For Site Closure
2662 Fruitvale Avenue
Oakland, California 94621

Dear Mr. Chan:

The City of Oakland Environmental Services Division is pleased to present this Risk Screening Evaluation for the above-referenced Site. The City anticipates that the soil removal activities described in this report will commence in June 2001. Following completion of soil removal activities, the City will recommend that Alameda County Health Care Services Agency consider the Site for closure. Supplemental groundwater treatment activities are also being considered to improve groundwater quality and to enhance the public perception regarding the environmental disposition at the Site.

If you have questions or require additional information, please contact me at (510) 238-6259.

Sincerely,



Joseph A. Cotton
CITY OF OAKLAND-Environmental Program Specialist

March 1, 2001

Mr. Joseph Cotton
City of Oakland -Public Works Agency
Environmental Services - Dalziel Building
250 Frank H. Ogawa Plaza, Suite 5301
Oakland CA 94612

Re: **Risk Screening Evaluation**
2662 Fruitvale Avenue
Oakland, California 94621

Dear Mr. Cotton:



Cambria Environmental Technology, Inc. (Cambria) is pleased to provide the City of Oakland (City) with this risk screening evaluation for subsurface compounds at the site referenced above (Site). We understand that the Site was previously occupied by a automobile service station and is to be redeveloped for residential use. This evaluation compares soil and groundwater concentrations primarily to risk-based screening levels in the City of Oakland May 17, 1999 *Oakland Risk-Based Corrective Action: Technical Background Document*. To evaluate lead concentrations in soil, lead concentrations were compared to screening levels in EPA Region 9 Preliminary Remediation Goals. Presented below are a site summary and our risk screening evaluation, conclusions, discussion and recommendations.

SITE SUMMARY

This site summary is based on Cambria's review of the following reports: 1) September 1993 *Phase III Soil and Groundwater Investigation* by Baseline Environmental Consulting (Baseline), 2) September 1995 *Supplemental Groundwater Investigation* by Baseline, and 3) January 30, 2001 *Results of Semi Annual Groundwater Monitoring* by Innovative Technical Solutions, Inc. (ITSI). Previous consultant figures and tables presenting the investigation and analytical data reviewed by Cambria are included as Attachment A.


Oakland, CA
San Ramon, CA
Sonoma, CA
Portland, OR

**Cambria
Environmental
Technology, Inc.**

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

Site Location and UST Status: The Site is located on the northeast corner of Fruitvale Avenue and Davis Street in Oakland, California. Cambria understands that an automobile service station occupied the Site from the 1940s until 1978. The underground storage tanks (USTs), including three gasoline USTs and one additional UST (presumably used for waste oil storage), were removed from the Site in 1978. The City of Oakland purchased the property from Texaco in 1983.

Lithology: Vadose zone soils consist primarily of clays. Below approximately 8-10 ft bgs, sands and gravels are encountered. In the north-eastern portion of the site, sands were encountered between 1 and 4 ft bgs in borings MW-F1, F-11, and F-13. The City of Oakland May 17, 1999 *Oakland Risk-Based Corrective Action: Technical Background Document* provides three general categories for soils within the City of Oakland: Merritt sands, sandy silts, and clayey silts. Based on the boring logs included in the reports reviewed by Cambria and on the site location and regional geology, the site soil type is "clayey silt."



Groundwater Depth and Flow Direction: Depth to groundwater is approximately 8 to 11 ft below ground surface (bgs), and groundwater flows towards the west-southwest with an approximate gradient of 0.02 ft/ft.

Contaminants of Concern: Petroleum hydrocarbons have been detected in onsite and offsite soil and groundwater. The petroleum compounds of concern are benzene, toluene, ethylbenzene, and xylenes (BTEX). Lead has been detected in site soil. Tabulated data from the September 1993 *Phase III Soil and Groundwater Investigation Report*, the September 1995 *Supplemental Groundwater Investigation Report* and the January 30, 2001 *Results of Semi-Annual Groundwater Monitoring* are presented in Attachment A.

Contaminant Distribution: Consistent with leakage from former USTs and subsequent migration via groundwater, petroleum hydrocarbons in soil occur primarily at depths of 8 to 11 ft bgs. Potentially elevated concentrations of lead occur in two shallow soil (0 to 3 ft bgs) locations (F-4 and F-6). In groundwater, petroleum hydrocarbons are primarily located offsite (downgradient) beneath the sidewalk (well MW-F4) and Davis Street (MW-13). During the past year (three semi-annual monitoring events), no petroleum hydrocarbons were detected in onsite groundwater.

RISK SCREENING EVALUATION

For the purposes of this evaluation, Cambria assumes no restrictions on future siting of residential buildings within the Site. Areas not within the footprint of any future building are assumed unpaved. Cambria assumes that site groundwater is not a current or potential future drinking water source. This evaluation uses a 1 meter (3.3 ft) bgs cutoff point between surficial and subsurface soil, consistent with the City of Oakland May 17, 1999 *Oakland Risk-Based Corrective Action: Technical Background Document*.

Exposure Scenarios: Based on assumed future site use, potential future residential exposure scenarios would include inhalation of onsite indoor and outdoor air, direct dermal contact with surficial soil, and soil ingestion/particulate inhalation.

Risk Screening Levels: Cambria used risk screening levels for BTEX as published by the City of Oakland in its May 17, 1999 *Oakland Risk-Based Corrective Action: Technical Background Document*. The City of Oakland did not publish a screening level for lead, so we used the EPA Region 9 Preliminary Remediation Goal (PRG) as a screening level. The San Francisco Bay Regional Water Quality Control Board (RWQCB - SFBR) recently published RBSLs for soil and groundwater (August 2000 *Application of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater*, Interim Final) that cover the City of Oakland as well as the San Francisco Bay Area. Cambria confirmed with Dr. Roger Brewer of the RWQCB that the RWQCB-SFBR continues to endorse the City of Oakland risk-based screening levels (RBSLs) and site-specific target levels (SSTLs).

Representative Concentrations: Cambria used maximum detected concentrations for BTEX and lead within each onsite medium: surficial soil (0 to 3.3 ft bgs), subsurface soil (>3.3 ft bgs), and groundwater. The surficial and subsurface soil data sets include all analytical results for onsite soil samples in the reports reviewed by Cambria. The groundwater data set includes analytical results for samples collected from onsite monitoring wells during the past year (semi-annual monitoring events conducted on January 21, 2000, June 27, 2000 and December 22, 2000). To be additionally conservative, Cambria also used maximum concentrations for BTEX within soil and groundwater immediately adjacent the site (from offsite boring MW-F4 and offsite wells MW-F4 and MW-13). For offsite groundwater, Cambria used the maximum concentration detected within the past year (year 2000). Maximum hydrocarbon and lead concentrations are presented below in Tables A and B, respectively.

Comparison to Screening Levels: Table A below presents Cambria's comparison of screening levels and the maximum onsite and offsite hydrocarbon concentrations. Since screening levels for inhalation of indoor air are more restrictive than levels for inhalation of outdoor air, Cambria evaluated inhalation exposure to indoor air only. Table B below presents Cambria's comparison for lead concentrations.

Table A - Results of Hydrocarbon Exposure Pathways (Residential)
 Based on Onsite and Offsite Concentrations using
 City of Oakland Tier 2 SSTLs for Clayey Silt

Exposure Scenario	Target Risk Level	SSTL	Maximum Site Concentration	Result
Benzene				
Volatilization from subsurface soil to indoor air	1x10 ⁻⁵	3.3 mg/kg	0.3 mg/kg (onsite) 1.7 mg/kg (offsite)	Potential health risk is below target level.
Volatilization from groundwater to indoor air	1x10 ⁻⁵	1.4 mg/l	<0.005 mg/l (onsite) 0.270 mg/l (offsite)	Potential health risk is below target level.
Ingestion/ Inhalation/ dermal contact with surficial soil	1x10 ⁻⁵	19 mg/kg	<0.2 mg/kg	Potential health risk is below target level.
Toluene				
Volatilization from subsurface soil to indoor air	1x10 ⁻⁵	1,600 mg/kg	3.7 mg/kg (onsite) 11 mg/kg (offsite)	Potential health risk is below target level.
Volatilization from groundwater to indoor air	1x10 ⁻⁵	>SOL	<0.005 mg/l (onsite) 0.035 mg/l (offsite)	Potential health risk is below target level.
Ingestion/ Inhalation/ dermal contact with surficial soil	1x10 ⁻⁵	7,100 mg/kg	0.75 mg/kg	Potential health risk is below target level.
Ethylbenzene				
Volatilization from subsurface soil to indoor air	1x10 ⁻⁵	SAT	8.8 mg/kg (onsite) 66 mg/kg (offsite)	Potential health risk is below target level.
Volatilization from groundwater to indoor air	1x10 ⁻⁵	>SOL	<0.005 mg/l (onsite) 1.1 mg/l (offsite)	Potential health risk is below target level.
Ingestion/ Inhalation/ dermal contact with surficial soil	1x10 ⁻⁵	3,900 mg/kg	3.4 mg/kg	Potential health risk is below target level.
Xylenes				
Volatilization from subsurface soil to indoor air	1x10 ⁻⁵	SAT	17 mg/kg (onsite) 230 mg/kg (offsite)	Potential health risk is below target level.
Volatilization from groundwater to indoor air	1x10 ⁻⁵	>SOL	<0.005 mg/l (onsite) 0.34 mg (offsite)	Potential health risk is below target level.
Ingestion/ Inhalation/ dermal contact with surficial soil	1x10 ⁻⁵	53,000 mg/kg	1.5 mg/kg	Potential health risk is below target level.
SSTL = Site-Specific Target Level SAT = SSTL exceeds saturated soil concentration of chemical >SOL = SSTL exceeds solubility of chemical in water NA = Not applicable				

Table B - Results of Lead Exposure Pathways (Residential)
Based on Lead Concentrations using
EPA Region 9 Preliminary Remediation Goal

Exposure Scenario	Target Risk Level	SSTL	Maximum Site Concentration	Result
Lead				
Volatilization from subsurface soil to indoor air	1x10 ⁻⁵	NA	NA	NA
Volatilization from groundwater to indoor air	1x10 ⁻⁵	NA	NA	NA
Ingestion/ Inhalation/ dermal contact with surficial soil	1x10 ⁻⁶	400 mg/kg (EPA PRG)	480 mg/kg	Maximum site concentration exceeds SSTL.
SSTL = Site-Specific Target Level NA = Not applicable				



CONCLUSIONS

Petroleum hydrocarbon concentrations in site soil and groundwater do not exceed the site-specific target levels in the Oakland risk-based corrective action guidance document. This suggests that residual hydrocarbons onsite and immediately adjacent to the site do not pose a significant risk to human health. Lead concentrations, however, in one shallow soil sample (480 mg/kg in F4-2' located 2 ft bgs) slightly exceeded the EPA PRG risk screening criteria of 400 mg/kg.

DISCUSSION

Cambria's risk screen evaluation is based primarily on guidance provided by the City of Oakland. During a conversation on February 21, 2001, Mr. Roger Brewer of the RWQCB-SFBR suggested that Cambria use the May 17, 1999 *Oakland Risk-Based Corrective Action: Technical Background Document* for our risk screening. Dr. Roger Brewer is the author of the RWQCB-SFBR guidelines published in its August 2000 *Application of Risk Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater*.



The Oakland guidance document, like the EPA Region 9 PRG document, does not include risk screen levels for total petroleum hydrocarbons (TPH). TPH is a combination of many specific compounds, including compounds like BTEX. Dr. Brewer stated that the TPH risk screening criteria in the RWQCB guidance document are flexible and also reflect nuisance concerns. It is Cambria's opinion that TPH as gasoline (TPHg) concentrations detected in deeper site soil (approximately 10 ft bgs) do not pose a significant human health risk since the BTEX concentrations are below risk screen levels. However, TPHg detected at a concentration of 940 mg/kg (at 2 ft bgs in boring F4), exceeds the TPHg ceiling value of 500 mg/kg, and may pose a potential nuisance. (Ceiling values for TPH in soil and groundwater are recommended to protect against nuisance odors). The detected TPHg in soil has likely partially or fully biodegraded. Residual TPHg could be removed during future site construction grading or foundation preparation. The 940 mg/kg TPHg concentration was detected in the same sample as the lead concentration of concern.

To provide a very conservative risk screening evaluation, Cambria used maximum concentrations in nearby offsite groundwater. A thickness of approximately 0.1 ft of free product has been observed in well MW-13, which is located approximately 40 ft hydraulically downgradient of the site. Free product is limited to offsite well MW-13.

RECOMMENDATIONS

Cambria recommends removal of shallow soil near sample location F4-2', where lead and TPHg were detected. The excavation and removal could be conducted during future site construction grading or foundation preparation. After removal of the shallow lead-bearing and TPHg-bearing soil, additional analyses are recommended to confirm that residual lead concentrations in soil are beneath human health screening levels, and that residual TPHg concentrations are below nuisance concern levels. The City may wish to conduct additional soil sampling for lead and other metals before or during future site development, especially for any unpaved areas.

C A M B R I A

Mr. Joseph Cotton
March 1, 2001

CLOSING

Cambria appreciates the opportunity to provide environmental consulting services to the City of Oakland. Please contact Bob Clark-Riddell at (510) 420-3303 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.



Robert W. Schultz
Robert W. Schultz, R.G.
Project Geologist

Bob Clark-Riddell
Bob Clark-Riddell, P.E.
Principal Engineer

H:\City of Oakland\2662 Fruitvale\Risk Screening2.wpd

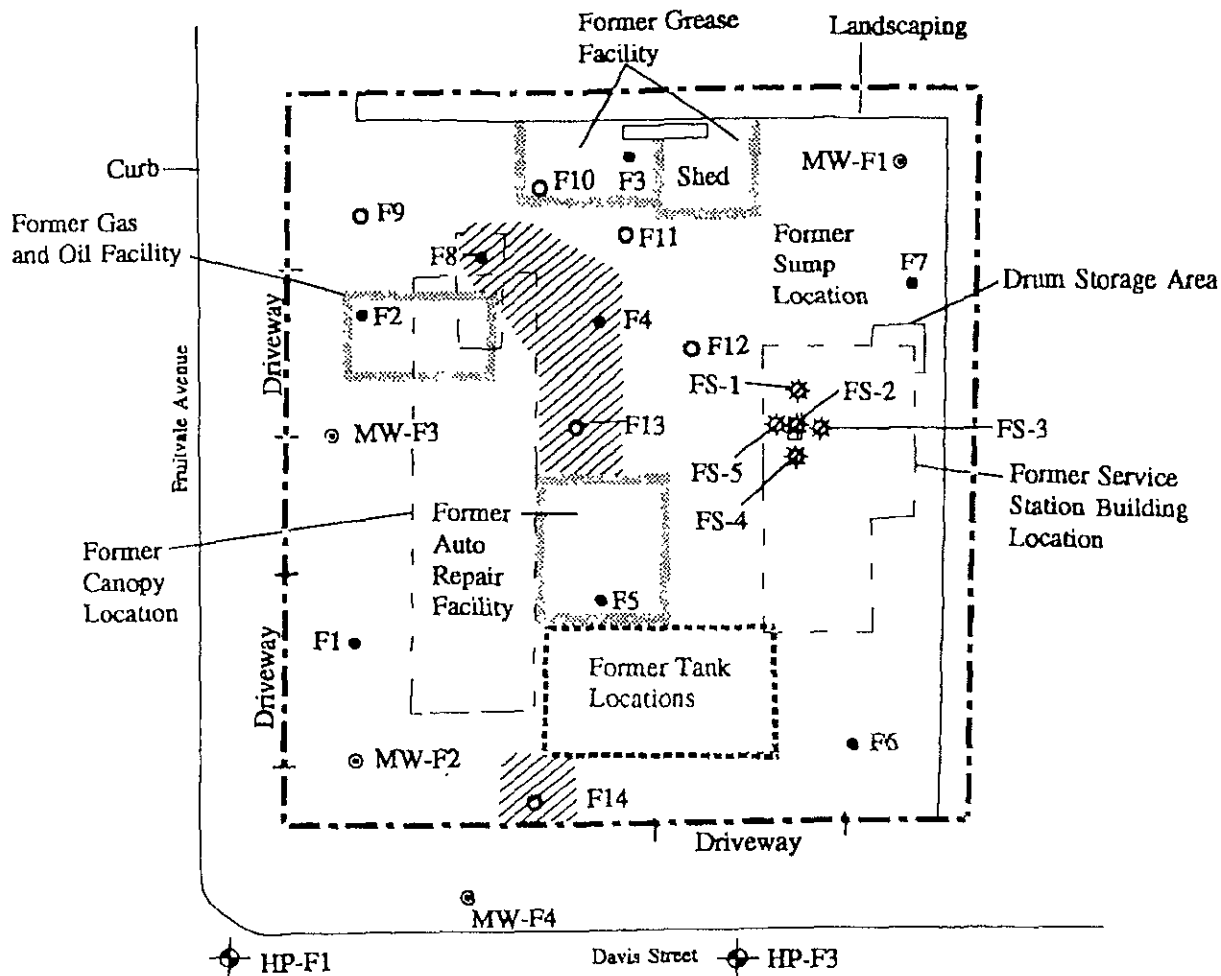
Attachment: A - Soil and Groundwater Data and Figures from Site Investigations

ATTACHMENT A

Soil and Groundwater Data from Site Investigations

Figure 2

SITE PLAN



⊙ MW-13

Legend



Areas with Elevated TPH Concentrations

HP-F1



Temporary Well Location

F1 to F8

• Soil Boring Location - Phase II



Project Site Boundary

F9 to F14

○ Soil Boring Location - Phase III

FS-1

✱ Sump Area Boring Location

MW-F2

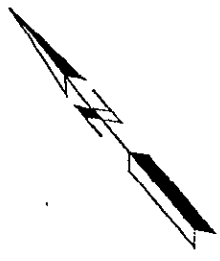
⊙ Monitoring Well Location



2662 Fruitvale Avenue Oakland, California

BASELINE

97-037/F3-Benzene



Fruitvale Avenue

MW-F1
NS

MW-F3
NS

MW-F2
(<0.0005)

MW-F4 (0.054)

Davis Street

MW-13 (0.27)

MW-F6
(<0.0005)

MW-F5
(<0.0005)

0 50 Feet 100 Feet

Approximate Scale


- Legend**
-  Approximate Location of Monitoring Wells
 - 0.035 Concentration of benzene in mg/L
 - Benzene ≥ 0.001 mg/L
 - Benzene ≥ 0.01 mg/L
 - Benzene ≥ 0.1 mg/L

FIGURE 3

**LABORATORY RESULTS FOR
BENZENE FOR SAMPLES COLLECTED ON
DECEMBER 22, 2000**

2662 Fruitvale Avenue
Oakland, California



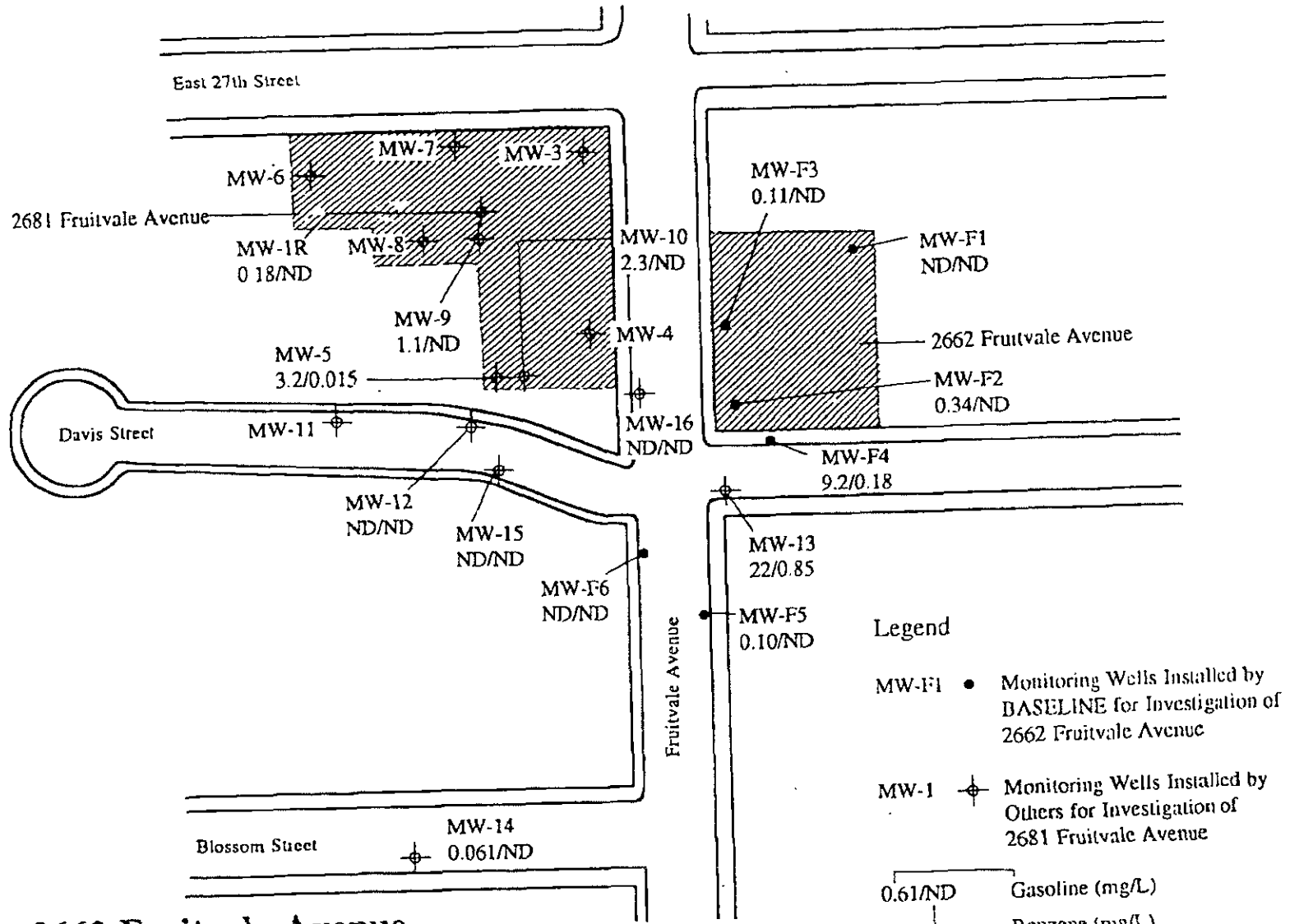
CITY OF OAKLAND

INNOVATIVE TECHNICAL SOLUTIONS, INC.

Source: Modified from Figure 3, Groundwater Elevation Contour Map, 13 December 1996, BASELINE.

Figure 4

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUNDWATER - 30 June 1995



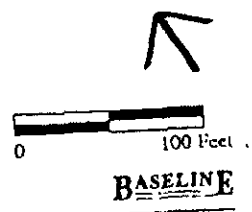
**2662 Fruitvale Avenue
Oakland, California**

Source: Base Map - Modified from Groundwater Technology, Inc., 1993. Site Plan Map.
92404 1X0 8/1/95 CADD File N

Legend

- MW-F1 • Monitoring Wells Installed by BASELINE for Investigation of 2662 Fruitvale Avenue
- MW-1 ⊕ Monitoring Wells Installed by Others for Investigation of 2681 Fruitvale Avenue

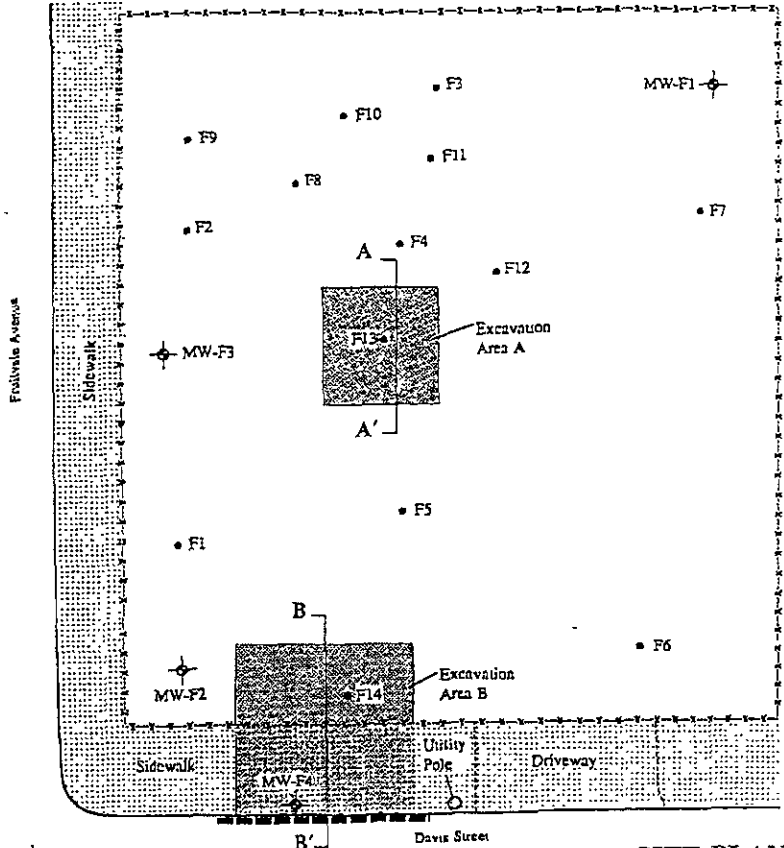
0.61/ND Gasoline (mg/L)
Benzene (mg/L)
(ND = Not Detected)



SITE PLAN AND BACKFILL DETAILS

2662 Fruitvale Avenue
Oakland, California

Figure



Legend

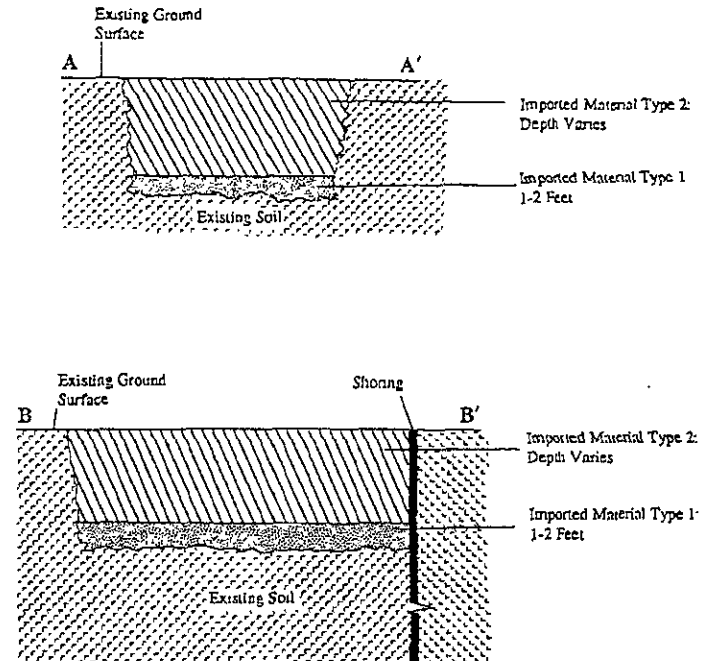
- F5 • Boring
- MW-F1 • Monitoring Well
- Shoring Area
- █ Excavation
- ▨ Sidewalk
- Fence

- Notes
1. Exact limits to be excavation by engineer.
 2. Locations of monitoring wells and borings are approximate

92404-DO 10/3/95

SITE PLAN

Scale 1 inch = 20 feet



BACKFILL DETAILS

Not to Scale

BASELINE

TABLE 1
 SUMMARY OF ANALYTICAL RESULTS, SOIL
 2662 Fruitvale Avenue
 Oakland, California
 (mg/kg, unless indicated)

Sample Location	Sample Date	Depth (feet)	TPH as Gasoline ¹	TPH as Kerosene ²	TPH as Motor Oil ²	Total/ Nonpolar Oil & Grease ³	Benzene ⁴	Toluene ⁴	Ethylbenzene ⁴	Xylenes ⁴
<u>Soil Borings</u>										
F1	1-20-93	2.0 ⁵	<1	<1.0	<10	--	<0.005	<0.005	<0.005	<0.005
		9.5 ⁵	6	<1.0	<10	--	<0.005	<0.005	0.014	<0.005
		11.0 ⁵	66	<1.0	<10	--	<0.005	0.072	0.260	<0.005
F2	1-21-93	2.0 ⁵	<1	<1.0	11	--	<0.005	<0.005	<0.005	<0.005
		8.0 ⁵	1.1	<1.0	<10	--	<0.005	<0.005	<0.005	<0.005
F3	1-20-93	2.0	--	<1.0	<10	--/ <50	--	--	--	--
		8.0	--	<1.0	14	--/300	--	--	--	--
F4	1-20-93	2.0 ⁶	3.7	<5.0	940	--	<0.005	<0.005	0.0064	<0.005
		10.0 ⁵	15	<1.0	<10	--	<0.005	<0.005	0.320	<0.005
F5	1-20-93	2.0 ^{7,8}	<1	<1.0	<10	--	<0.005	<0.005	<0.005	<0.005
		8.0 ^{7,8}	<1	<1.0	<10	--	<0.005	<0.005	<0.005	<0.005
F6	1-21-93	2.0 ^{8,9}	--	<1.0	<10	--	<0.005	<0.005	<0.005	<0.005
		8.0 ^{8,9}	--	<1.0	<10	--	<0.005	<0.005	<0.005	<0.005
F7	1-20-93	2.0 ^{7,8}	--	<1.0	13	--	<0.005	<0.005	<0.005	<0.005
		8.5 ^{7,8}	--	<1.0	<10	--	<0.005	<0.005	<0.005	<0.005
F8	1-20-93	2.0 ⁵	220	<1.0	44	--	<0.005	<0.005	3.400	17.000
		8.5 ⁵	810	<1.0	<10	--	<0.005	<0.005	5.400	<0.005
F9	8-10-93	3.0 ¹⁰	<1	<1	<30	--	<0.005	<0.005	0.052	0.042
		9.5 ¹⁰	10	76	<30	--	<0.005	<0.005	<0.005	<0.005
F10	8-10-93	3.0 ¹⁰	<1	<1	<30	--/ <50	<0.005	<0.005	<0.005	<0.005
		10.0 ¹⁰	30	33	<30	--/ <50	<0.005	<0.005	0.073	0.250

(Continued)

Table I - Summary of Analytical Results, Soil (continued)

Sample Location	Sample Date	Depth (feet)	TPH as Gasoline ¹	TPH as Kerosene ²	TPH as Motor Oil ²	Total/ Nonpolar Oil & Grease ³	Benzene ⁴	Toluene ⁴	Ethylbenzene ⁴	Xylenes ⁴
F11	8-10-93	2.5 ¹⁰	<1	2	<30	--/ <50	<0.005	<0.005	<0.005	<0.005
		10.0 ¹⁰	2	6	<30	--/ <50	<0.005	0.012	<0.005	0.009
F12	8-10-93	2.5 ¹⁰	2	2	<30	--	<0.005	0.007	<0.005	<0.005
		9.5 ¹⁰	2	<1	<30	--	<0.005	<0.005	<0.005	<0.005
F13	8-10-93	3.0 ¹⁰	230	12	90	--	<0.030	0.75	0.55	1.5
		9.5 ¹⁰	1,500	650	<30	--	<0.200	3.7	8.8	8.1
F14	8-10-93	3.0 ¹⁰	<1	<1	<30	--	<0.005	<0.005	<0.005	<0.005
		10.5 ¹⁰	1,600	150	<30	--	0.3	3.1	5.7	6.0
F-S1	9-8-94	5.5	--	--	--	<50/ <50	--	--	--	--
F-S2	9-8-94	6.0 ^{8,11}	<1	--	650	--/ 1,600	<0.005	<0.005	<0.005	<0.005
		11.0 ^{8,11}	<1	--	<10	--/ <50	<0.005	<0.005	<0.005	<0.005
F-S3	9-8-94	5.5	--	--	--	<50/ <50	--	--	--	--
F-S4	9-8-94	4.5	--	--	--	<50/ <50	--	--	--	--
F-S5	9-8-94	5.5	--	--	--	210/200	--	--	--	--
<u>Monitoring Wells</u>										
MW-F1	8-11-93	3.0 ¹⁰	<1	--	<10	--	<0.005	<0.005	<0.005	<0.005
		10.0 ¹⁰	<1	--	<10	--	<0.005	<0.005	<0.005	<0.005
MW-F2	8-10-93	3.0 ¹⁰	<1	<1	<30	--	<0.005	<0.005	<0.005	<0.005
		12.0 ¹⁰	<1	3	<30	--	<0.005	<0.005	<0.005	<0.005
MW-F3	8-11-93	3.0 ¹⁰	<1	--	<10	--	<0.005	<0.005	<0.005	<0.005
		10.0 ¹⁰	33	--	<10	--	<0.015	<0.015	0.077	<0.005
MW-F4	9-7-94	5.5	<1	37 ¹³	<30	--	<0.005	<0.005	<0.005	<0.005
		11.0	2,100 ^{12,13}	420 ¹³	<300	--	1.7 ¹²	11 ¹²	66 ¹²	230 ¹²

(Continued)

Table 1 - Summary of Analytical Results, Soil (continued)

Sample Location	Sample Date	Depth (feet)	TPH as Gasoline ¹	TPH as Kerosene ²	TPH as Motor Oil ²	Total/ Nonpolar Oil & Grease ³	Benzene ⁴	Toluene ⁴	Ethylbenzene ⁴	Xylenes ⁴
MW-F5	4-27-95	5.0 ¹⁴	<1	--	--	--	<0.005	<0.005	<0.005	<0.005
		9.5	<1	--	--	--	<0.005	<0.005	<0.005	<0.005
MW-F6	6-26-95	5.0	<1	--	--	--	<0.005	<0.005	<0.005	<0.005
		11.0	<1	--	--	--	<0.005	<0.005	<0.005	<0.005

Notes: <x.x = Compound not identified above detection limits.
 x.x = Bold values indicate compound identified above detection limits.
 -- = Compound not analyzed.
 TPH = Total Petroleum Hydrocarbons.
 Sample locations are shown on Figure 2.
 Laboratory reports for April and June 1995 samples are included in Appendix D.
 TTLC = Total threshold limit concentration.
 STLC = Soluble threshold limit concentration.

¹ Test Method = DOHS Method/LUFT, EPA 5030/8015.
² Test Method = DOHS Method/LUFT, EPA 3550/8015.
³ Test Method = SMWW 17:5520EF for total and 5520E&F for nonpolar.
⁴ Test Method = EPA 5030/8020.
⁵ Sample also analyzed for lead; lead concentration less than TTLC and less than ten times STLC.
⁶ Sample also analyzed for lead; lead concentration (480 mg/kg) less than TTLC, and greater than ten times STLC; soluble lead concentration (1.1 mg/L) less than STLC.
⁷ Sample also analyzed for Title 26 metals; all metal concentrations less than TTLC and less than ten times STLC.
⁸ Sample also analyzed for volatile organic compounds (EPA 8240); no compounds detected above reporting limits.
⁹ Sample also analyzed for Title 26 metals; lead concentration (120 mg/kg) less than TTLC, and greater than ten times STLC; soluble lead concentration (0.6 mg/L) less than STLC.
¹⁰ Sample also analyzed for halogenated hydrocarbons (EPA 8010); no compounds detected above reporting limits.
¹¹ Sample also analyzed for soluble lead; soluble lead not identified above reporting limits.
¹² Results obtained past the recommended holding time.
¹³ Sample chromatogram does not match the pattern of the standard.
¹⁴ Unknown compound (0.53 mg/kg) was identified outside the gasoline range, as reported by the laboratory.

TABLE 2
SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER
2662 Fruitvale Avenue
Oakland, California
(mg/L)

Sample Location	Sample Date	TPH as Gasoline ¹	TPH as Motor Oil ²	Benzene ³	Toluene ³	Ethylbenzene ³	Xylenes ³
<u>Monitoring Wells</u>							
MW-F1	08-16-93 ⁴	<0.05	<0.5	<0.002	<0.002	<0.002	<0.002
	06-29-94	<0.05	--	<0.0005	<0.0005	<0.0005	<0.0005
	09-09-94	<0.9	--	<0.0009	<0.0009	<0.0009	<0.0009
	12-21-94	<0.05	--	<0.0005	<0.0005	<0.0005	<0.0005
	06-30-95	<0.05	--	<0.0005	<0.0005	<0.0005	<0.0005
MW-F2	08-16-93 ⁴	<0.05	<0.5	<0.002	<0.002	<0.002	<0.002
	06-29-94	<0.05	--	<0.0005	<0.0005	<0.0005	<0.0005
	09-09-94	<0.9	--	<0.0009	<0.0009	<0.0009	<0.0009
	12-21-94	0.096	--	<0.0005	<0.0005	<0.0005	<0.0005
	06-30-95	0.34	--	<0.0005	<0.0005	<0.0005	0.0005
MW-F3	08-16-93 ⁴	<0.1	<0.5	<0.002	<0.002	<0.002	<0.002
	06-29-94	<0.05	--	<0.0005	<0.0005	<0.0005	<0.0005
	09-09-94	<0.9	--	<0.0009	<0.0009	<0.0009	<0.0009
	12-21-94	0.13	--	<0.0005	0.0013	<0.0005	<0.0005
	06-30-95	0.11	--	<0.0005	<0.0005	<0.0005	<0.0005
MW-F4	09-09-94	3.4-3.5	--	0.029/0.028	0.0030/0.0028	0.038/0.033	0.094/0.099
	12-21-94	37	--	0.66	<0.1	2.3	5.9
	06-30-95	9.2	--	0.18	0.019	0.76	1.0
MW-F5	06-30-95	0.10	--	<0.0005	<0.0005	<0.0005	<0.0005
MW-F6	06-30-95	<0.05	--	<0.0005	<0.0005	<0.0005	<0.0005
MW-13	12-21-94	3.3	--	0.33	<0.013	0.024	0.24
	06-30-95	22	--	0.85	<0.0005	1.2	1.6

Table 2 - Summary of Analytical Results, Groundwater (continued)

Sample Location	Sample Date	TPH as Gasoline ¹	TPH as Motor Oil ²	Benzene ³	Toluene ³	Ethylbenzene ³	Xylenes ³
<u>Soil Borings</u>							
F1 ⁵	1-20-93	13	<0.5	0.61	<0.018	0.83	0.046
F2 ^{5,6}	1-20-93	6.8	<0.5	0.011	<0.002	0.016	<0.002
F5	1-20-93	<0.05	--	--	--	--	--
F7	1-20-93	<0.05	<0.5	--	--	--	--
<u>Hydropunch</u>							
HP-F1	9-09-94	26	--	0.46	0.16	1.5	4.4
HP-F3	9-09-94	0.21	--	0.0009	0.0007	0.0049	0.02
<u>Wells Monitored by Others⁷</u>							
MW-1R	06-30-95	0.18	--	<0.0005	<0.0005	0.0026	0.00069
MW-5	06-30-95	3.2	--	0.015	<0.005	0.02	0.0073
MW-9	06-30-95	1.1	--	<0.002	<0.002	0.041	0.064
MW-10	06-30-95	2.3	--	<0.005	<0.005	0.013	0.011
MS-12	06-30-95	<0.05	--	<0.0005	<0.0005	<0.0005	<0.0005
MW-14	06-30-95	0.061	--	<0.0005	<0.0005	<0.0005	<0.0005
MW-15	06-30-95	<0.05	--	<0.0005	<0.0005	<0.0005	<0.0005
MW-16	06-30-95	<0.05	--	<0.0005	<0.0005	<0.0005	<0.0005

Notes: <x.x = Compound not identified above reporting limits.
x.x = Bold values indicate compound identified above reporting limits.
 x.x/x.x = Analytical testing results for duplicate samples.
 -- = Compound not analyzed.
 TPH = Total Petroleum Hydrocarbons.
 Sample locations are shown on Figures 2 and 3.
 Laboratory reports for June 1995 groundwater analyses are included in Appendix D.

¹ Test Method = EPA 5030/8015.
² Test Method = EPA 3510/8015.
³ Test Method = EPA 602 or 624.
⁴ Water collected from open boreholes in January 1993.
⁵ Sample also analyzed for Title 26 metals; all metal concentrations less than STLIC.
⁶ Sample contained trans-1,3-dichloropropene.
⁷ Samples collected by Blaine Tech Services, Inc. and analyzed by Sequoia Analytical.

Table 2

Summary of Laboratory Results for Groundwater Samples
2662 Fruitvale Avenue
Oakland, California

Monitoring Well ID	Date Sampled	TPHg (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Iron (mg/L)	Soluble Iron (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Note	
MW-F1	08/16/93	<0.05	<0.002	<0.002	<0.002	<0.002	-	-	-	-	1	
	06/29/94	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	09/09/94	<0.9	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	1	
	12/21/94	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	06/30/95	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	12/29/95	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	12/13/96	-	-	-	-	-	-	<0.10	8.5	38	38	1
	06/26/97	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.1	<0.10	7.7	38	38	1
	03/11/98	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.90	<0.10	11	38	38	1
	12/11/98	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	7.1	38	38	1
	06/29/99	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	30	35	35	1
No longer part of semi-annual monitoring program												
MW-F2	08/16/93	<0.05	<0.002	<0.002	<0.002	<0.002	-	-	-	-	1	
	06/29/94	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	09/09/94	<0.9	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	1	
	12/21/94	0.096	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	06/30/95	0.34	<0.0005	<0.0005	<0.0005	0.0005	-	-	-	-	1	
	12/29/95	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	06/27/96	0.064	0.0012	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	12/13/96	0.06	<0.0005	<0.0005	<0.0005	<0.0005	-	0.24	0.20	8	8	1
	06/26/97	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.1	<0.10	<0.05	7.4	7.4	1
	03/11/98	0.20	0.00088	<0.0005	<0.0005	<0.0005	4.8	0.18	<0.05	7.1	7.1	1
	12/11/98	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.25	<0.10	<0.05	7.8	7.8	1
	06/29/99	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	<1.0	<1.0	<1.0	1
	01/21/00	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	<0.2	9	9	1
	06/27/00	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	53	<0.10	<1.0	2	2	1
12/22/00	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	<1.0	9.9	9.9	1	
MW-F3	08/16/93	<0.1	<0.002	<0.002	<0.002	<0.002	-	-	-	-	1	
	06/29/94	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	09/09/94	<0.9	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	1	
	12/21/94	0.13	<0.0005	0.0013	<0.0005	<0.0005	-	-	-	-	1	
	06/30/95	0.11	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	12/29/95	0.35	0.0008	<0.0005	0.0012	0.0007	-	-	-	-	1	
	06/27/96	0.088	0.002	<0.0005	<0.0005	<0.0005	-	-	-	-	1	
	12/13/96	0.18	<0.0005	<0.0005	<0.0005	<0.0005	-	0.11	0.69	23	23	1
	6/26/97	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.46	0.16	0.70	23	23	1
	3/11/98	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.11	0.20	2.5	28	28	1
	12/11/98	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.31	0.12	0.97	30	30	1
6/29/99	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	3	38	38	1	
No longer part of semi-annual monitoring program												

Table 2 (Continued)

Summary of Laboratory Results for Groundwater Samples
2662 Fruitvale Avenue
Oakland, California

Monitoring Well ID	Date Sampled	TPHg (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Iron (mg/L)	Soluble Iron (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Note
MW-F4	09/9/94*	3.5	0.029	0.003	0.038	0.099	-	-	-	-	1
	12/21/94	37	0.66	28	2.3	5.9	-	-	-	-	1
	06/30/95	9.2	0.18	<0.1	0.76	1.0	-	-	-	-	1
	12/29/95	38	0.61	0.019	4.3	5.8	-	-	-	-	1
	06/27/96	6.2	0.081	0.14	0.52	0.29	-	-	-	-	1
	12/13/96	27	0.39	0.05	3.2	3.7	-	6.6	<0.05	<2	1
	06/26/97	6.2	0.16	0.018	0.71	0.32	2.4	3.1	<0.05	0.2	
	03/11/98	9.5	0.062	0.03	1.0	0.80	1.2	3.0	<0.05	<0.1	
	12/11/98	12	0.34	0.051	2.0	0.62	5.7	5.9	<0.05	1.5	
	06/29/99	10	0.23	0.032	1.8	0.30	0.93	0.90	<1.0	9	
	01/21/00	7.9	0.033	<0.005	1.0	0.25	13	2.7	<0.2	<1.0	
	06/27/00	10	0.08	<0.025	1.1	0.32	160	<0.10	<1.0	<1.0	
	10/6/00	3	0.011	0.0018	0.12	0.069	0.24	<0.10	2.1	38	
11/13/00	3.9	0.039	0.016	0.84	0.30	0.14	<0.10	<1.0	13		
12/22/00	4.7	0.051	0.0096	0.85	0.34	0.32	0.17	<1.0	11		
MW-F5	06/30/95	0.10	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1
	12/29/95	<0.05	<0.0005	<0.0005	<0.0005	0.0007	-	-	-	-	1
	06/27/96	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1
	12/13/96	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	6.6	45	1
	06/26/97	<0.05	0.0032	0.0064	0.00073	0.0042	0.21	<0.1	6.1	45	
	03/11/98	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	6.1	45	
	12/11/98	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.58	0.19	6.0	41	
	06/29/99	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	23	50	
	01/21/00	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.14	<0.10	5.2	42	
	06/27/00	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	60	<0.10	20	37	
12/22/00	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	23	56		
MW-F6	06/30/95	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1
	12/29/95	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1
	06/27/96	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	1
	12/13/96	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.10	0.44	39	1
	06/26/97	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.22	0.18	<0.05	47	
	03/11/98	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	<0.10	0.14	49	
	12/11/98	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.24	0.11	0.06	43	
	06/29/99	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.10	0.93	<1.0	54	
	01/21/00	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.11	<0.10	0.5	42	
	06/27/00	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	10	<0.10	<1.0	9	
	12/22/00	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	0.29	0.15	1.1	61	