BASELINE

SUPPLEMENTAL GROUNDWATER INVESTIGATION

SEPTEMBER 1995

2662 FRUITVALE AVENUE
Oakland, California

For:

City of Oakland
Oakland, California

92404-D0

5900 Hollis Street, Suite D • Emeryville, CA 94608 • (510) 420-8686

BASELINE

ENVIRONMENTAL CONSULTING

TRANSMITTAL

TO:	Barney Chan	**DATE:**	14 September 1995
	Alameda County Dept. of Public Health	**PROJECT NO.:**	92404-D0
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SUBJECT: Supplemental Groundwater Investigation - Fruitvale Ave.

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Melinda Bury

Melinda Bury

5900 Hollis Street, Suite D • Emeryville, CA 94608
TEL: (510) 420-8686 • FAX: (510) 420-1707 • INTERNET:baseline@crl.com
Emeryville • Petaluma • San Francisco

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ENVIRONMENTAL CONSULTING

13 September 1995
92404-D0

Mr. Andrew Clark-Clough
City of Oakland
Environmental Affairs Division
1333 Broadway, Suite 330
Oakland, CA 94612

Subject: **Report on Supplemental Groundwater Investigation at 2662 Fruitvale Avenue, Oakland, California**

Dear Andrew:

Enclosed please find four copies of the report referenced above. The report documents the installation of two off-site groundwater monitoring wells and groundwater monitoring at 2662 Fruitvale Avenue in Oakland, California.

Sincerely,

Yane Nordhav
Principal
Reg. Geologist No. 4009

Kevin O'Dea
Senior Geologist

5900 Hollis Street, Suite D • Emeryville, CA 94608 • (510) 420-8686 • FAX: (510) 420-1707
Emeryville Petaluma San Francisco

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(510) 420-8686

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2662 Fruitvale Avenue
Oakland, California

INTRODUCTION

This report documents the installation and development of two groundwater monitoring wells, MW-F5 and MW-F6, downgradient of the 2662 Fruitvale Avenue site in Oakland (Figure 1), and groundwater monitoring activities conducted in June 1995. The two monitoring wells were installed to further define the extent of groundwater affected by total petroleum hydrocarbons as gasoline (TPHg) and aromatic hydrocarbons (BTEX).

BACKGROUND

A Phase I site assessment completed for the site in 1992 indicated that a service station, which included an auto repair facility, was present on the site from the 1940s to the 1980s. In 1983, the City of Oakland purchased the site from Texaco. The site was subsequently rented for retail use as a produce stand and Christmas tree sales lot.

In January and August 1993, BASELINE performed soil and groundwater investigations at the site. The results of these investigations identified the presence of petroleum hydrocarbons at varying concentrations in the soil throughout the site. The groundwater investigation indicated that groundwater quality beneath the site was not significantly impacted. Following the completion of initial investigations, the City of Oakland demolished the structures on-site.

In September 1994, BASELINE installed an additional monitoring well, MW-F4, and five soil borings on-site, and two well points, HP-F1 and HP-F3, off-site (Figure 2). Petroleum hydrocarbons were detected in the groundwater samples from MW-F4, HP-F1, and HP-F3. Oil and grease were detected in soil samples collected in the vicinity of a former sump location. An off-site well, MW-13, installed to investigate a release of petroleum hydrocarbons at 2681 Fruitvale Avenue, was monitored. Floating petroleum hydrocarbon product was identified in this well during the September 1994 sampling event. Product had not been identified during previous sampling of MW-13 performed by others for the investigation of the 2681 Fruitvale Avenue site.

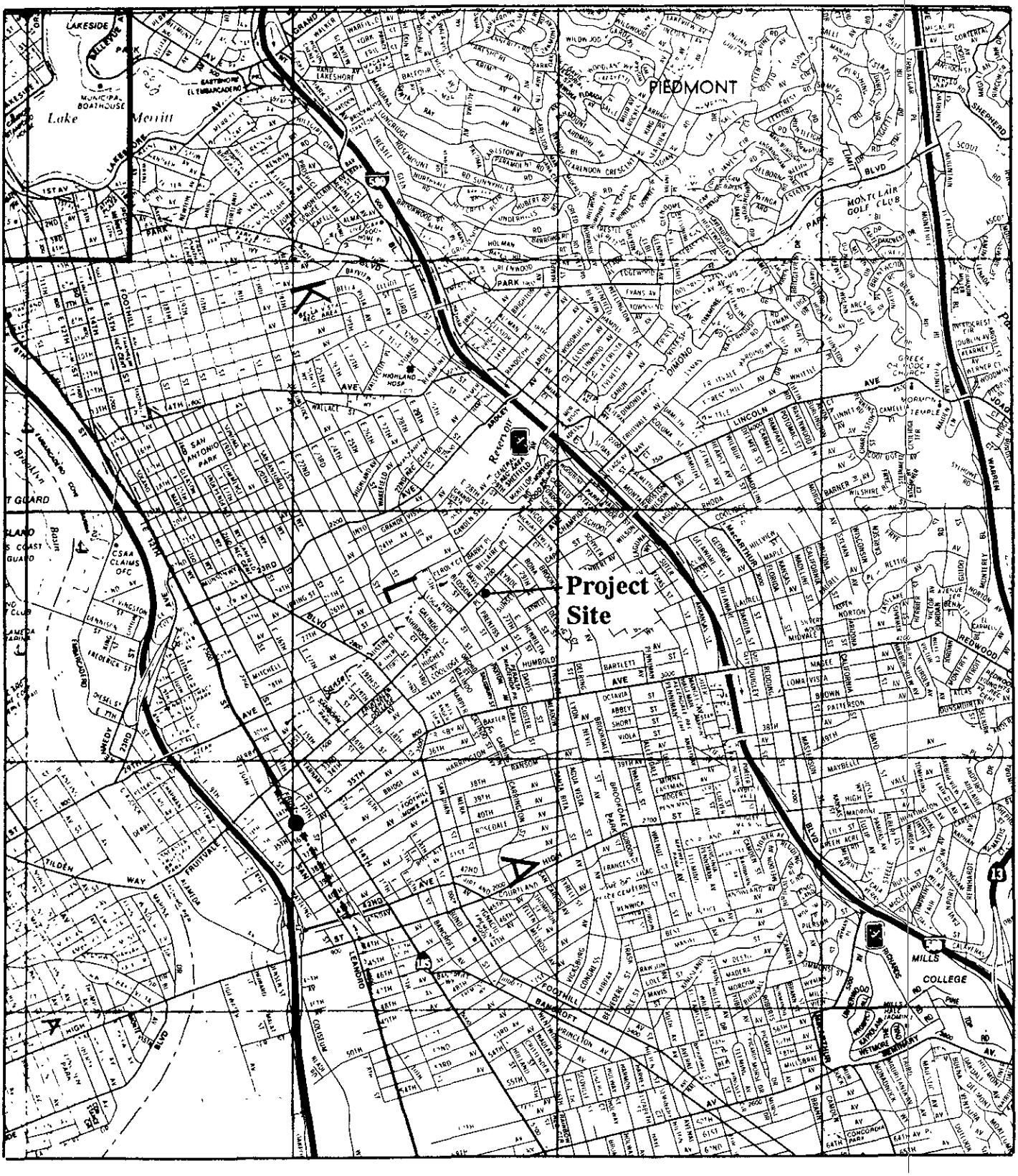
Groundwater samples were collected from monitoring wells MW-F1 through MW-F4 and MW-13 in December 1994 to monitor any changes in groundwater quality. The highest concentrations of TPHg and BTEX were identified in groundwater samples collected from MW-F4. A sheen of free product was detected in MW-13.

HYDROGEOLOGY

The project site is located on the East Bay Plain, a gently sloping surface between the East bay Hills to the east and San Francisco Bay to the west. The plain has been formed by the deposition and modification of coalescing alluvial fans. The stratigraphy and hydrogeology of the project site were evaluated during the installation of numerous borings and monitoring wells (Figure 3) for

REGIONAL LOCATION

Figure 1



2662 Fruitvale Avenue
Oakland, California

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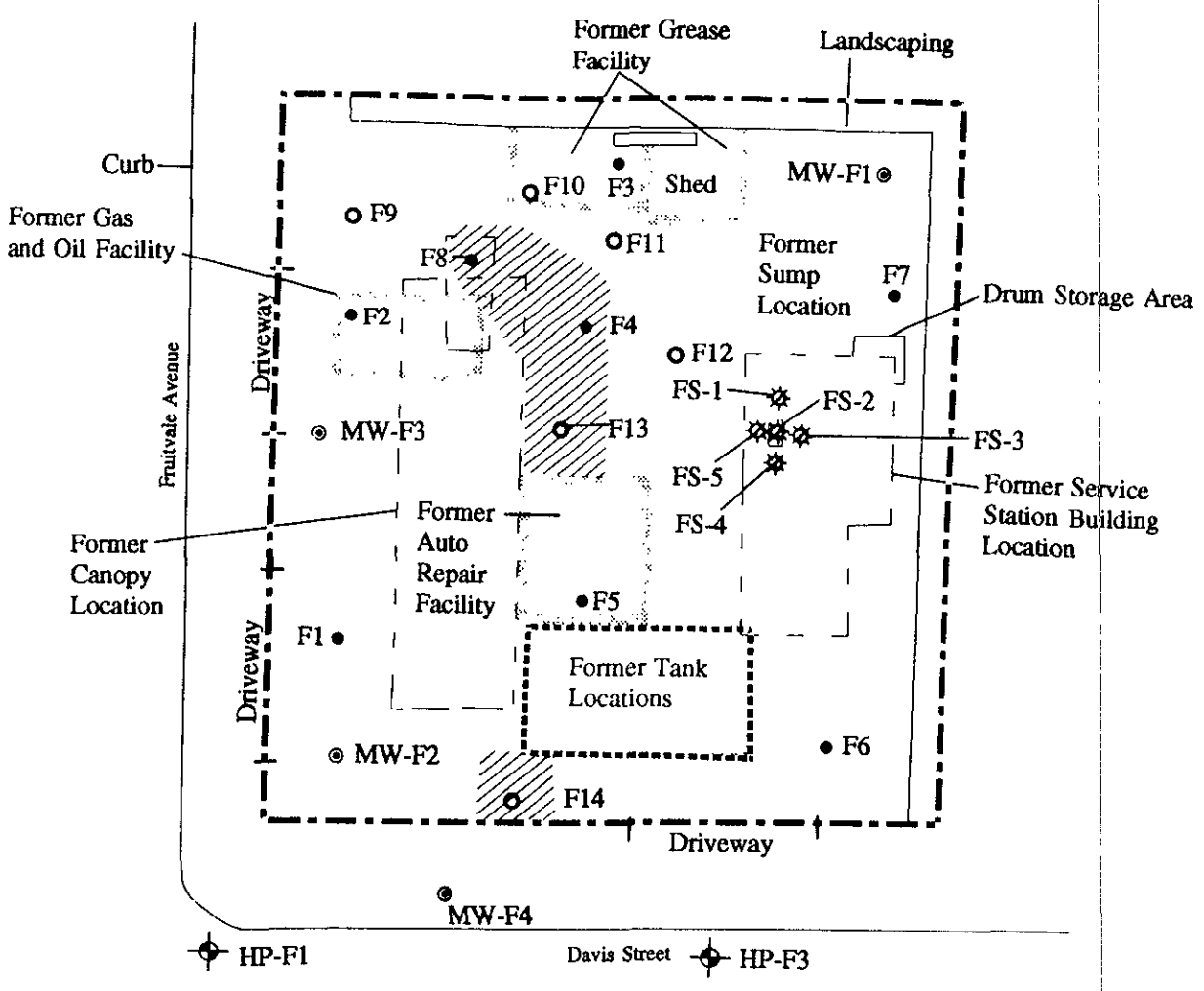
SITE PLAN

Figure 2



Legend

		Areas with Elevated TPH Concentrations
F1 to F8	•	Soil Boring Location - Phase II
F9 to F14	○	Soil Boring Location - Phase III
FS-1	✲	Sump Area Boring Location
MW-F2	◉	Monitoring Well Location
HP-F1	⊕	Temporary Well Location
		Project Site Boundary

0 30 Feet

2662 Fruitvale Avenue
Oakland, California

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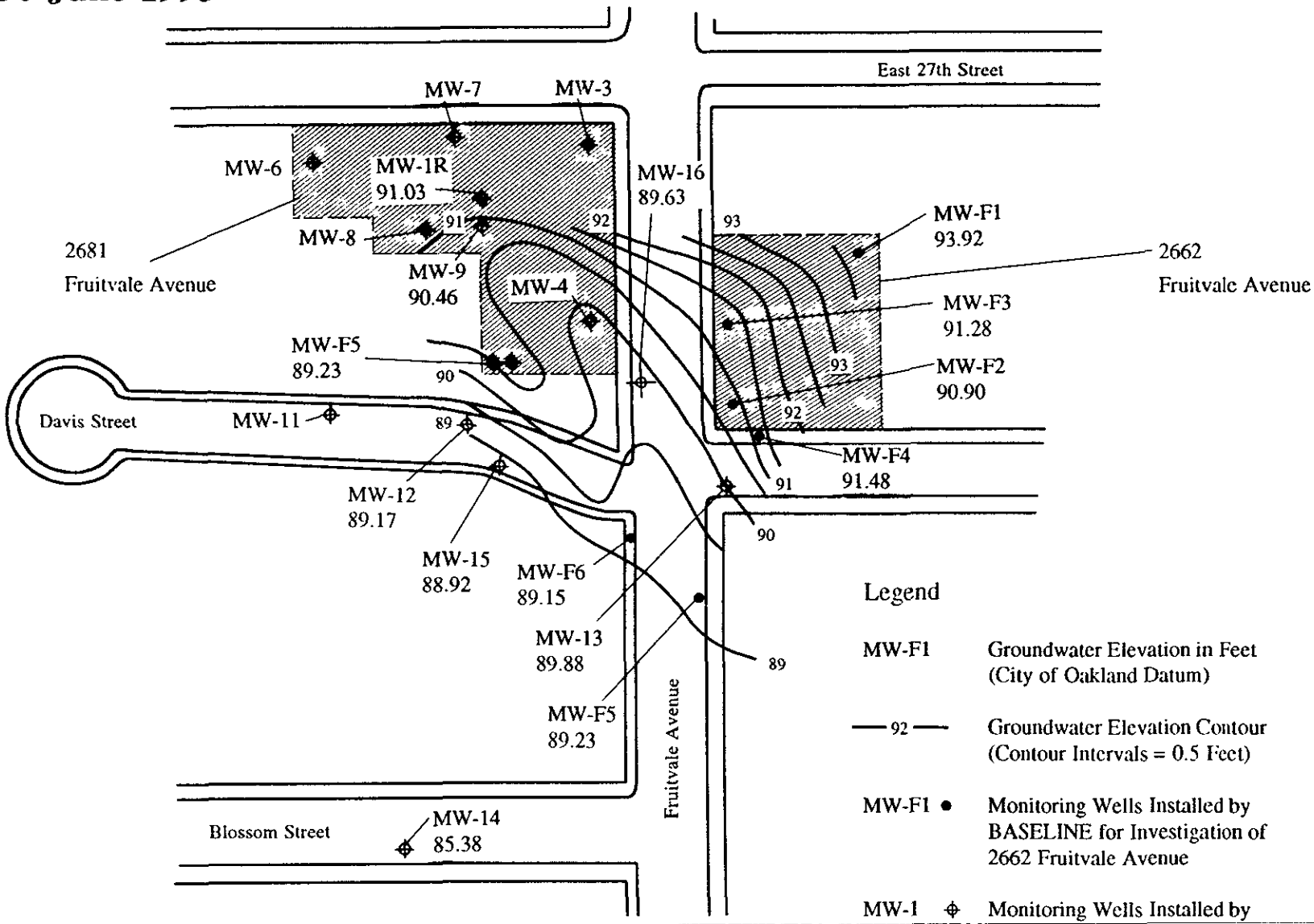
GROUNDWATER ELEVATION CONTOUR MAP
30 June 1995

Figure 3



2662 Fruitvale Avenue
Oakland, California

Source: Base Map - Modified from Groundwater Technology, Inc., 1993, Site Plan Map.

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92404-DO 8/1/95 CADD File N

investigation of potential releases of petroleum hydrocarbons at the site and at a former service station located at 2681 Fruitvale Avenue. The alluvial sediments at the project site and surrounding area are characterized by an upper layer of clay, silty clay, and silt deposits which generally extend from the surface to depths between 8 to 14 feet. The fine-grained sediments are underlain by silty and clayey sands and gravel. These deposits become less clayey with depth and grade into sandy gravels and silty sands.

Boring logs for wells MW-16 and MW-13, installed for the investigation of the 2681 Fruitvale site, indicate that the fine-grained surficial clays and silts and clayey sands and gravels extend to depth of 27 to 33 feet below the ground surface where sands and gravels were encountered. Some of the deepest borings at the site and adjacent areas (MW-11 and MW-13) indicate that the coarse-grained deposits are underlain by clay, silty clay, and silt.

The shallow sand and gravel deposits at and adjacent to the site comprise the uppermost aquifer. Groundwater levels measured in the area indicate a westward groundwater gradient direction (Figure 3). The measured on-site gradients are consistent with regional groundwater flow toward the Bay. The hydraulic conductivity of the uppermost aquifer has not been measured by aquifer tests; however, visual characterization of the sediments indicate a variable hydraulic conductivity in the range of 10^{-5} cm/sec (clayey gravels) to 10^{-1} cm/sec (sandy gravels and sands).

FIELD ACTIVITIES 1995

Field activities were conducted after well permits had been obtained from Alameda County Zone 7 (included in Appendix A), and USA had cleared the proposed well locations. Permits were also obtained from the City of Oakland for drilling in the public right-of-way. All field work was carried out in accordance with a site-specific site safety plan, which included provisions for a pre-drilling tailgate meeting.

Monitoring Well Installation

On 27 April 1995, a 2-inch diameter PVC monitoring well, MW-F5, was installed southwest of the site along Fruitvale Avenue (Figure 2). The well was installed by HEW Drilling Company, Inc., under the direction of a BASELINE geologist. The well boring was advanced to a depth of 25 feet below ground surface using hollow-stem augers. Groundwater was encountered approximately 10.5 feet below ground surface during drilling. The well screen was placed at the depth interval from 9.0 to 24 feet to intercept the uppermost groundwater. The annular space between the well casing and boring was backfilled to above the screened interval with sand (Lonestar #3). A two-feet thick bentonite seal was placed above the sand, and a neat cement grout was tremied into place. The well was completed at the surface with a water-tight traffic-rated concrete box. The PVC casing was topped with a water-tight locking cap.

An attempt was made to install monitoring well MW-F6 on 27 April 1995. However, a utility pipe was encountered in the street during initial drilling activities. The well had to be relocated westward onto the sidewalk, requiring the encroachment and excavation permits to be modified. Permit modifications and scheduling delayed the installation of MW-F6 until 26 June 1995. The well was drilled by Clear Heart Drilling to a depth of 21 feet and constructed similarly to MW-F5. Groundwater was encountered approximately 11 feet below groundwater surface. The well screen

was placed at a depth interval of 9.0 to 21 feet. The drilling logs and well construction summaries for MW-F5 and MW-F6 are included in Appendix A.

Soil samples were collected at approximately five-foot intervals for chemical analyses and lithologic description. Two unsaturated soil samples were collected from each well boring and submitted for chemical analyses. The soil samples were collected by driving a sampler fitted with clean, stainless steel, thin-walled sampling tubes through and in advance of the hollow-stem augers. The sample tubes were then capped with teflon film and plastic caps, sealed with silicon tape, labeled, and stored in a cooled container. The samples were submitted under chain-of-custody procedures to Chromalab, Inc. in San Ramon. The samples were analyzed for TPHg and BTEX.

The soil cuttings and decontaminate rinsate generated during well installation activities were stored in sealed drums on-site pending laboratory analyses. All augers and drilling equipment were decontaminated by steam-cleaning. The cleaning was performed over a trough to prevent decontamination rinsate from being discharged to the groundwater surface. Sampling equipment were decontaminated with a trisodium phosphate (TSP) solution and rinsed with deionized water between each use.

Well Development

On 26 June 1995, development of MW-F5 was initiated using a new disposable PVC bailer. Fine-grained sediment had settled to the bottom of the well since the well was installed. The sediment could not be removed with the bailer. On 29 June 1995, MW-F5 and MW-F6 were developed using a surge block and double diaphragm pump with clean disposable PVC hose. The surge block was used to mobilize the fine sediment, which was then removed by pumping. Groundwater was pumped from the wells until the purged water was relatively clear. The details of well development for MW-F5 and MW-F6 are included in Appendix A.

Groundwater Sampling Activities

Groundwater samples were collected from monitoring wells MW-F1 through MW-F6 and MW-13 on 30 June 1995. The groundwater sampling was performed in coordination with sampling being conducted by others at the former Chevron station 2681 Fruitvale Avenue, northwest of the site. The presence of floating product was checked and water levels were measured in each of the seven wells using a dual-interface probe prior to sampling activities. The probe was decontaminated by washing in a trisodium phosphate solution and rinsing in deionized water between well locations. Floating product was not detected by the probe in any of the wells; however, a petroleum sheen was observed on the probe following its removal from MW-13.

Approximately four to five well volumes were slowly purged from each well using a double-diaphragm pump and new disposable polyethylene tubing. The temperature, pH, and electrical conductivity of the groundwater were monitored during purging until they appeared to have stabilized. Water levels were measured again following purging to ensure that groundwater had sufficiently recharged. Groundwater samples were collected using individual disposable PVC bailers. The samples for volatile analyses were decanted from the bailers into VOA sample bottles preserved with hydrochloric acid; a volatile organic compounds (VOC) attachment was used to decant the sample to reduce potential volatilization and turbulence. The details for groundwater sampling activities are

documented on the groundwater sampling forms presented in Appendix B. All decontamination rinsate and purged groundwater were stored on-site in sealed drums pending laboratory analysis.

At initiation of purging at MW-13, the intake tubing was slowly lowered to the groundwater surface. The double diaphragm pump was operated at slow rate and a sample of the mixture of petroleum hydrocarbon product and water was collected. The sample was transferred to a VOA sample bottle which was labelled and stored in a cool container. The sample was shipped by overnight service to Friedman & Bruya, Inc. in Seattle, Washington. The sample was analyzed by capillary gas chromatography using a flame ionization detector and electron capture detector to provide characterization of the product.

Surveying

Following completion of groundwater sampling, the elevation of the ground surface and top of casing elevations of monitoring wells MW-F1 through MW-F6 were surveyed by Bates and Bailey, land surveyors. The elevations were determined relative to the City of Oakland Datum. The survey did not indicate that the initially determined elevation of the top of casing at MW-F3 had changed as the result of observed disturbance. The report of surveyed elevations are presented in Appendix C.

ANALYTICAL RESULTS

Soil

A summary of the analytical results from all soil samples collected to date at and adjacent to the project site are presented in Table 1. The four soil samples collected from the well borings for MW-F5 and MW-F6 did not contain TPHg or BTEX above the reporting limit. The laboratory reports for the soil samples collected in April and June 1995 are included in Appendix D.

Groundwater

The analytical results of groundwater samples collected at and adjacent to the project site are summarized in Table 2. During the June 1995 groundwater sampling event, TPHg was detected in on-site wells MW-F2 and MW-F3, and off-site wells MW-F4, MW-F5, and MW-13. The highest concentrations were detected in samples from MW-13 (Table 2 and Figure 4). One or more volatile organic compounds (BTEX) were detected in the samples from MW-F4, MW-13, and MW-F2. TPHg and BTEX were not detected in the sample from MW-F1 (on-site) or MW-F6 (off-site). The laboratory report for the June 1995 groundwater samples are presented in Appendix D.

The analysis of the petroleum product collected form MW-13 (Appendix E) indicates that it is a degraded gasoline product. The gas chromatogram for the product is characterized by a pattern of low boiling point compounds in the C_6 to C_{14} range, with maximum peaks near C_{10}. The chromatogram also indicates the possible presence of tetraethyl lead, a common additive to leaded gasoline. The absence of BTEX in the product suggests degradation by evaporation and water solubilization.

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]	Ethyl-benzene[4]	Xylenes[4]
Soil Borings										
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[6,8]	--	<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	<0.005	<0.005
		9.5[10]	**10**	**76**	<30	--	<0.005	<0.005	**0.052**	**0.042**
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 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]	Ethyl-benzene[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**	--	--	--	--
Monitoring Wells										
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]	Ethyl-benzene[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]	Ethyl-benzene[3]	Xylenes[3]
Monitoring Wells							
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**

X .10 = 0.33

X .03

.66

.1-3.5%

3-22%

.4-3% 1-7%

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

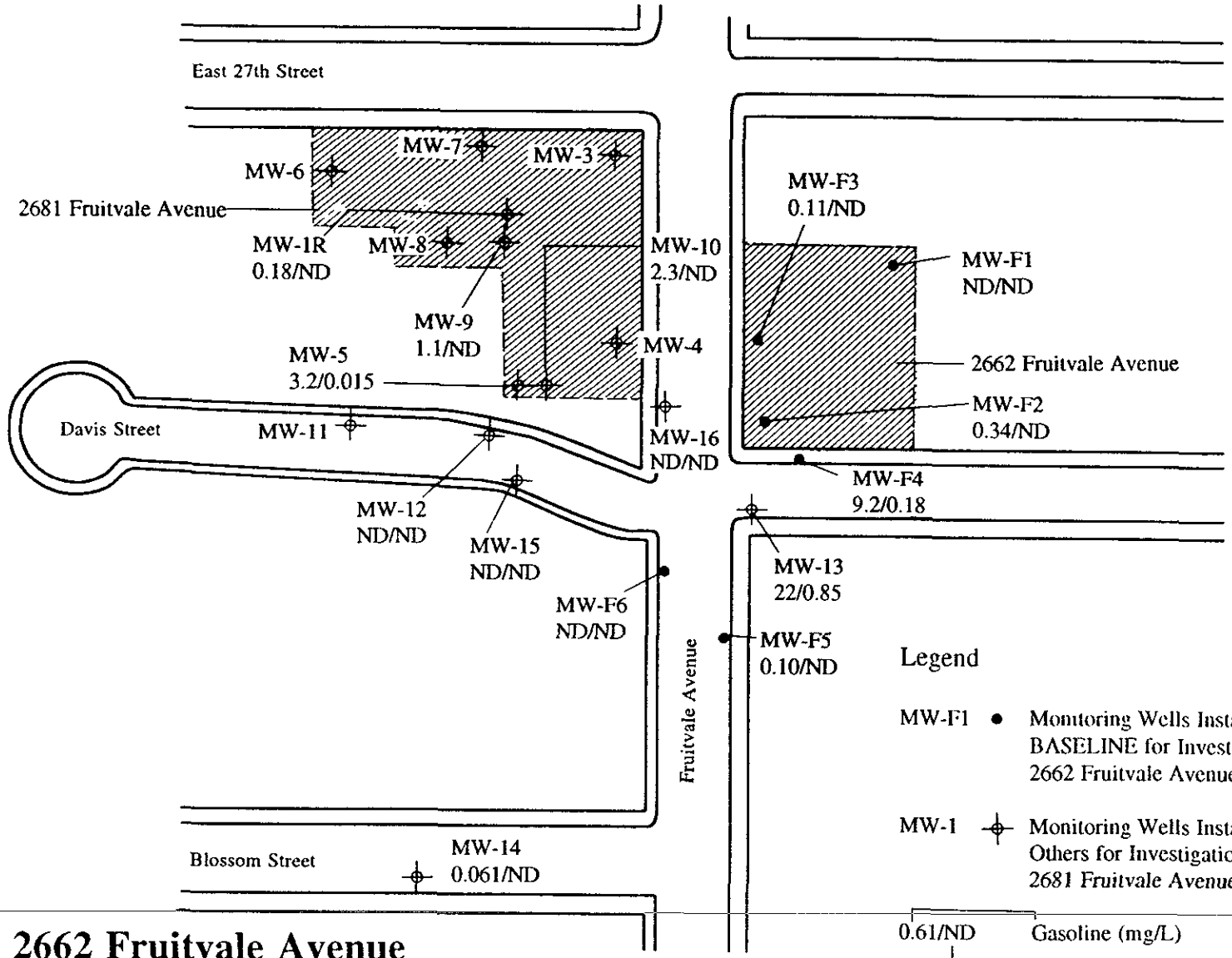
Sample Location	Sample Date	TPH as Gasoline[1]	TPH as Motor Oil[2]	Benzene[3]	Toluene[3]	Ethyl-benzene[3]	Xylenes[3]
Soil Borings							
F1[5]	1-20-93	**13**	<0.5	**0.61**	<0.018	**0.83**	**0.046**
F2[5,6]	1-20-93	**6.8**	<0.5	**0.011**	<0.002	**0.016**	<0.002
F5	1-20-93	<0.05	--	--	--	--	--
F7	1-20-93	<0.05	<0.5	--	--	--	--
Hydropunch							
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**
Wells Monitored by Others[7]							
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 STLC.
[6] Sample contained trans-1,3-dichloropropene.
[7] Samples collected by Blaine Tech Services, Inc. and analyzed by Sequoia Analytical.

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUNDWATER - 30 June 1995

Figure 4



2662 Fruitvale Avenue
Oakland, California

Source. Base Map - Modified from Groundwater Technology, Inc., 1993, Site Plan Map.

92404-DO 8/1/95 CADD File N

BASELINE

Groundwater Gradients

The groundwater elevation data and calculated groundwater flow directions and gradient magnitudes are summarized in Table 3. On 30 June 1995, the depth to groundwater ranged from 10.08 to 11.32 feet below ground surface; this is a lowering of the groundwater table ranging from 0.98 foot (MW-F2) to 2.1 feet (MW-F4) compared to the December 1994 sampling event. The groundwater flow direction in June 1995 was to the west (S86W) with a gradient of 0.025. A groundwater elevation contour map showing the groundwater flow direction at the site and adjacent to the former Chevron site on 30 June 1995 is presented on Figure 3. The contour map was produced using groundwater elevation data collected by BASELINE for wells MW-F1 through MW-F6 and MW-13 and groundwater elevation data provided by Blaine Tech services for wells MW-1R, MW-5, MW-9, MW-10, MW-12, MW-14, MW-15, and MW-16.

The groundwater contouring indicates a southward trending trough in the groundwater table extending from the central portion of the site at 2681 Fruitvale Avenue to the intersection of Fruitvale Avenue and Davis Street. This feature may be related to the presence of a more permeable hydrostratigraphic unit, possibly a buried channel or utility trench backfill.

DISCUSSION AND CONCLUSIONS

- Groundwater level measurements at the project site (Table 3) and for the investigation of the site at 2681 Fruitvale Avenue indicate that the groundwater gradient is consistently directed westward (N87W to S82W) with a generally uniform slope (0.025 to 0.030).

- Affected groundwater has been identified in a north-south "band," about 200 feet wide, approximately centered at the intersection of Davis Street and Fruitvale Avenue. Within this "band" is the 2681 Fruitvale Avenue site and portions of the 2662 Fruitvale Avenue site. To the west, the "band" boundary is defined by non-detectable concentrations in MW-12, MW-15, and MW-F6 (Figure 4). To the east, the "band" is bounded by non-detectable concentrations in MW-F1. Within the "band" of affected groundwater, groundwater flow on 30 June 1995 was southward from the 2681 Fruitvale site (Figure 3) and westward from the 2662 Fruitvale site. The groundwater flows from each site converge near MW-13 and it appears that groundwater then moves in the regional westward direction. The highest TPHg concentrations have been found in MW-13, the area of coalescing groundwater from the two sites; thus, it is possible that groundwater in this area contains chemical compounds contributed from sources on 2662 and 2681 Fruitvale Avenue.

- There was an increase in TPHg concentration in the groundwater samples collected from MW-F2 and MW-13 since the previous sampling event. Conversely, the TPHg concentration in the sample from MW-F4 declined since the last event. Xylenes were detected for the first time, at the laboratory reporting limit, in the groundwater sample from MW-F2.

- The relatively low concentrations of TPHg (0.10 mg/L) detected in the groundwater at MW-F5 suggest that this well may be located near the southern boundary of the affected groundwater. Further monitoring of groundwater quality at MW-F5 and MW-F6 should indicate whether the petroleum hydrocarbons are migrating.

TABLE 3
GROUNDWATER ELEVATION AND GRADIENT DETERMINATION DATA
2662 Fruitvale Avenue, Oakland, CA

Monitoring Well	Date	TOC Elevation (feet)[1]	Depth to Groundwater (feet)	Groundwater Elevation (feet)[1]	Groundwater Gradient	
					Direction	Magnitude
MW-F1	08/16/93	104.41	11.13	93.28	S88W	0.025
	06/29/94		10.38	93.53	N87W	0.026
	09/09/94		11.56	92.85	S82W	0.03
	12/21/94		8.96	95.45	S47W	0.028
	06/30/95		10.49	93.92	S86W	0.025
MW-F2	08/16/93	102.22	12.15	90.07		
	06/29/94		11.74	90.48		
	09/09/94		12.21	90.01		
	12/21/94		10.34[4]	91.88		
	06/30/95		11.32	90.90		
MW-F3	08/16/93	102.42	11.99	90.43		
	06/29/94		11.40	91.02		
	09/09/94		12.39	90.03		
	12/21/94		9.32	93.10		
	06/30/95		11.14	91.28		
MW-F4	09/09/94	101.56	11.21	90.35		
	12/21/94		8.00	93.56		
	06/30/95		10.08	91.48		
MW-F5	06/30/95	100.32	11.09	89.23		
MW-F6	06/30/95	100.11	10.96	89.15		
MW-13[2]	09/09/94[3]	101.20	12.27	88.93		
	12/21/94[4,5]		9.32	91.88		
	06/30/95[6]		11.32	89.88		
MW-1R[7]	6/30/95	104.55	13.52	91.03		
MW-5[7]	6/30/95	103.75	13.46	90.29		
MW-9[7]	6/30/95	104.12	13.66	90.46		
MW-10[7]	6/30/95	102.42	11.78	90.64		
MW-12[7]	6/30/95	102.19	13.02	89.17		
MW-14[7]	6/30/95	98.30	12.92	85.38		
MW-15[7]	6/30/95	102.24	13.31	88.92		
MW-16[7]	6/30/95	104.93	12.30	89.63		

1 Elevations are presented as feet above City of Oakland datum (which is three feet below mean sea level datum).
2 Monitoring well installed by Resna for investigation of 2681 Fruitvale Avenue.
3 Approximately 0.04 feet of hydrocarbon product detected by dual interface probe.
4 Groundwater level had not completely stabilized prior to measurement.
5 Approximately 0.25 inch free product measured in bailer prior to purging.
6 Hydrocarbon sheen observed on dual interface probe when removed from the well; hydrocarbon not detected by probe.
7 Groundwater level measurements and top of casing elevations provided by Blaine Tech Services, Inc.; elevations corrected to City of Oakland datum.

- The monitoring of petroleum hydrocarbon product observed in MW-13 indicates that the thickness of the product varies from a sheen to less than 0.1 foot. The lateral extent of the product appears to be limited to the immediate area of MW-13. Further characterization of the vertical and lateral extent of the free product is not warranted. On the basis of the limited thickness and lateral extent of the product, the non-detectable to low levels of volatile organic compounds in the product, and the degree of degradation of the product, recovery of the product is not recommended.

RECOMMENDATIONS

- Semi-annual monitoring of wells MW-F2 through MW-F6 and MW-13 should be performed to further characterize groundwater quality at and adjacent to the site and to confirm the groundwater flow directions. All samples should be analyzed for TPHg (EPA Method 8015M) and BTEX. The samples from MW-F4 and MW-13 should also be analyzed for tetraethyl lead. The groundwater quality monitoring and water level measurements should be coordinated with semi-annual monitoring being performed for the investigation at 2681 Fruitvale Avenue.

- Remediation of petroleum contaminated soils at 2662 Fruitvale Avenue should be initiated as soon as possible. Bid specifications are currently being prepared for soil excavation and disposal activities which were proposed to and approved by Alameda County.

LIMITATIONS

The conclusions presented in this report are professional opinions based on the indicated data described in this report. They are intended only for the purpose, site, and project indicated. Opinions and recommendations presented herein apply to site conditions existing at the time of our study. Changes in the conditions of the subject property can occur with time, because of natural processes or the works of man, on the subject sites or on adjacent properties. Changes in applicable standards can also occur as the result of legislation or from the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control.

APPENDIX A

ZONE 7 PERMIT, DRILLING LOGS, WELL CONSTRUCTION SUMMARIES, AND WELL DEVELOPMENT FORMS

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

6997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 2662 Fruitvale Ave. Oakland, Ca

CLIENT
Name City of Oakland Office of Public Works
Address 1333 Broadway Phone (510) 268-6361
City Oakland Zip 94612

APPLICANT
Name BASELINE Environmental Consulting 5900 Hollis ST. Suite D
Address Phone (510) 420-8686
City Emeryville Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	X
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. 604987

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 30 ft.
Surface Seal Depth min 5 ft. Number 2

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE 4-26-95
ESTIMATED COMPLETION DATE 4-26-95

I hereby agree to comply with all requirements of this Permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE William K Leavitt Date 4-24-95

FOR OFFICE USE

PERMIT NUMBER 95245
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

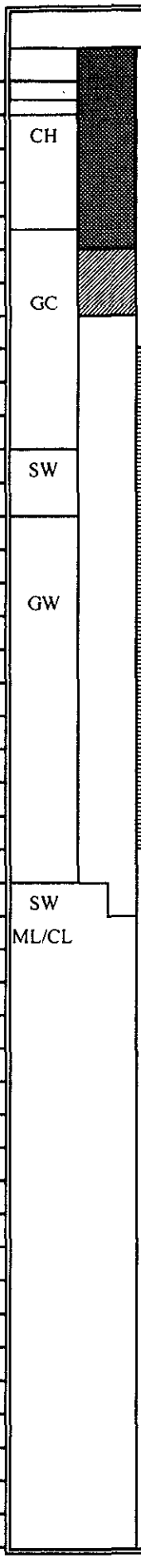
Approved Wyman Hong Date 25 Apr 95
Wyman Hong

121989

WELL CONSTRUCTION SUMMARY

Project name	Fruitvale
Location	2662 Fruitvale Avenue
	Oakland, CA

Project no.	92404-DO
Well no.	MW-F5
Date	4/27/95
Personnel	WKS
Driller	HEW Drilling Co.



DRILLING SUMMARY

Drill rig	Portable D-25
Auger/bits	Hollow-stem
Drilling fluid	None
Boring diameter (inch)	8
Boring depth (feet)	25.8
Surface completion	Traffic-rated Christy box
Ground surface elevation (feet)	100.66
TOC elevation (feet)	100.32 (City of Oakland Datum)

WELL DESIGN

Basis: × Geologic log Geophysical log

Casing Diameter (inch)	Material and Length (feet)		Slot Size	Interval (feet bgs)
2.0	PVC	8.7	--	0.3-9
2.0	PVC	10	0.010	9-19
2.0	PVC	5	0.010	19-24

Centralizer	None	
Filter material	Lonestar #3	8.0-25.0
Bentonite	Pellets	6.0-8.0
Cement	Neat	0-6.0

WATER LEVELS

	Date	Time	Depth (ft bgs)
During drilling:	4/27/95	10:30	10.5
After completion:	4/27/95	13:56	4.81
Before development:			

CONSTRUCTION TIME LOG

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling	4/27/95	9:00	4/27/95	11:25
Geophys log				
Casing	4/27/95	11:45	4/27/95	11:55
Filter placement	4/27/95	12:05	4/27/95	13:00
Cementing	4/27/95	13:15	4/27/95	13:30
Development				
Other				

WELL DEVELOPMENT

Method: Bail; pump; surge Date: 6-26/29-95

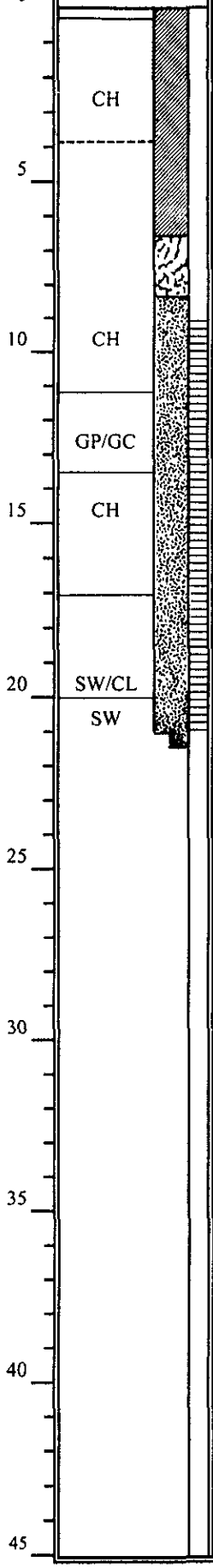
Time	Gallons	Appearance
6/26/95		
7:28	3	Very turbid
7:44	5	Very turbid
6/29/95		
6:30	10	Very turbid
6:45	15	Very turbid
7:05	20	Very turbid
7:23	25	Turbid
7:29	26	Slightly turbid
7:39	30	Very slightly turbid
7:49	35	Very slightly turbid
8:05	40	Clear

COMMENTS

Signature: [signature]

92404WC1(5/5/95)

[Scale: 1 inch = 5 feet]



WELL CONSTRUCTION SUMMARY

Project name	Fruitvale	Project no.	92404-DO
Location	2662 Fruitvale Avenue	Well no.	MW-F6
	Oakland, CA	Date	6-26-95
		Personnel	WKS
		Driller	Clear Heart Drilling

DRILLING SUMMARY

Drill rig	Deep Rock
Auger/bits	Hollow Stem
Drilling fluid	None
Boring diameter (inch)	8 3/4
Boring depth (feet)	21.0
Surface completion	Christy Box
Ground surface elevation (feet)	100.80
TOC elevation (feet)	100.11 (City of Oakland datum)

CONSTRUCTION TIME LOG

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling	6-26-95	10:30	6-26-95	12:00
Geophys log				
Casing	6-26-95	12:05	6-26-95	12:06
Filter placement	6-26-95	12:06	6-26-95	12:40
Cementing	6-26-95	13:20	6-26-95	13:29
Development				
Other				

WELL DESIGN

Basis: × Geologic log Geophysical log

Casing Diameter (inch)	Material and Length (feet)	Slot Size	Interval (feet bgs)
2.0	PVC 8.8	---	0.2-9.0
2.0	PVC 10	0.010	9.0-19.0
2.0	PVC 3	0.010	19.0-21.0

Centralizer	None	
Filter material	#2/12	8.5-21.0
Bentonite	Pellets	6.5-8.5
Cement	Neat	0-6.5

WELL DEVELOPMENT

Method: pump; surge Date: 6/29/95

Time	Gallons	Appearance
8:20	2	Clear
8:26	3	Very slightly turbid
8:31	5	Clear
8:46	7	Clear
8:50	8	Clear

WATER LEVELS

	Date	Time	Depth (ft bgs)
During drilling:	6-26-95		~11.0
After completion:	6-26-95	13:29	13.27
Before development:	6-29-95		

COMMENTS

Signature: _____

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[Scale: 1 inch = 5 feet]

DRILLING LOG

Location	2662 Fruitvale Avenue, Oakland, CA	Boring no.	MW-F5
Driller	HEW	Project no.	92404-D0
Method	Hollow stem auger	Date	4/27/95
Logger	WKS Datum 100.66 (City of Oakland) Bore size 8-inch	Casing size	2-inch

Depth (ft.)	Graphic	Lithology	Notes
0			
		Asphalt top	
1			
		Very dark brown/brown CLAY with silt, high plasticity, stiff-very stiff, very moist.	
2			
	CH		
3			HNu = 0 ppm in breathing zone HNu = 3 ppm in hole HNu = 2 ppm in sample
4			9-24-20 (blow counts)
5			
		Brown, clayey GRAVEL with sand, ½ - ¾ -inch diameter subangular clasts, coarse- to fine-grained sand, high plasticity, dense, moist.	
6			
	GC		
7			Drilling very slow. Water added to cuttings to reduce friction.
8			
9			24-17-5
10			

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DRILLING LOG

Location	2662 Fruitvale Avenue, Oakland, CA	Boring no.	MW-F5
Driller	HEW	Project no.	92404-DO
Method	Hollow stem auger	Date	4/27/95
Logger	WKS Datum 100.66 (City of Oakland) Bore size 8-inch	Casing size	2-inch

Depth (ft.)	Graphic	Lithology	Notes
10			
	GC	Interbedded CLAY with silt, 4 inches thick.	HNu = 0 ppm in breathing zone
▼			HNu = 10 ppm in hole
11		Very dark brown/brown, CLAY with silt, high plasticity, stiff-very stiff, very moist.	HNu = 2 ppm in sample Gastech = 0% LEL
12		Greenish-gray SAND with silt, fine-grained, wet.	Drilling becomes easier at approx. 12 feet.
13	SW		
14		Brown GRAVEL with sand, trace of silt and clay, ½ - 2½-inch diameter, subangular to subrounded clasts, fine to loose sand, medium-dense, wet.	
15	GW	Some interbedding of silty SAND, 2 inches thick.	Free water in hole 10-19-42 HNu = 0 ppm in breathing zone HNu = 4 ppm in hole Gastech = 0% LEL
16			
17			
18			
19			
20			

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DRILLING LOG

Location	2662 Fruitvale Avenue, Oakland, CA	Boring no.	MW-F5
Driller	HEW	Project no.	92404-D0
Method	Hollow stem auger	Date	4/27/95
Logger	WKS Datum 100.66 (City of Oakland) Bore size 8-inch	Casing size	2-inch

Depth (ft.)	Graphic	Lithology	Notes
20			
		Brown GRAVEL with sand, trace of silt and clay, ½ - 2½-inch diameter, subangular to subrounded clasts, fine to loose sand, medium-dense, wet.	
21			
22			
23			
24			
	GW		
25			
		Bluish-gray SAND with gravel and clay, fine-to medium-grained, medium-dense, wet.	25-50 (4 inches)
	SW	Greenish-gray, clayey SILT/Silty CLAY, wet, wood pieces.	
26			
	MC/CL	Total depth = 25.8 feet.	
27			
28			
29			
30			

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DRILLING LOG

Location	2662 Fruitvale Avenue, Oakland, CA	Boring no.	MW-F6
Driller	Clear Heart Drilling	Project no.	92404-D0
Method	Hollow-stem auger	Date	6/26/95
Logger	WKS Datum	Bore size 8 3/4	Casing size

Depth (ft.)	Graphic	Lithology	Notes
0		Sidewalk	
1	CH	Very dark brown-to-black, silty CLAY with trace of sand, high plasticity, stiff, very moist.	
2			
3			
4		Becoming mottled with greenish gray-reddish brown, silty CLAY with trace of sub-angular gravel , 1/2- to 3/4-inch diameter, moderately plastic, stiff, very moist.	4-7-9 (blow counts)
5	CH		Benzene detector tube = ND
6			
7			
8			
9		Increase in gravel content and size.	3-6-11
10			

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DRILLING LOG

Location	2662 Fruitvale Avenue, Oakland, CA	Boring no.	MW-F6
Driller	Clear Heart Drilling	Project no.	92404-DO
Method	Hollow-stem auger	Date	6/26/95
Logger	WKS Datum	Bore size 8 3/4	Casing size

Depth (ft.)	Graphic	Lithology	Notes
10	CH	Becoming mottled with greenish gray-reddish brown, silty CLAY with trace of sub-angular gravel , 1/2- to 3/4-inch diameter, moderately plastic, stiff, very moist.	3-8-7
11	GP/GC	Brown GRAVEL with clay/clayey GRAVEL, 3/4- to 3-inch diameter, subangular sandstone and chert clasts, medium dense, high plasticity, wet.	Some free water between grains
12			
13			
14	CH	Brown CLAY with sand and gravel, fine- to medium-grained sand, 1/2 - 1.5-inch angular clasts, firm, veinlets, wet.	
15			2-5-5 STP 6-inch recovery. Pushed gravel pin
16			
17	SW/CL	Interbedding SAND and silty CLAY, 2-4 inches thick.	Soft, then hard drilling from 17 feet on.
18			
19			
20			

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DRILLING LOG

Location	2662 Fruitvale Avenue, Oakland, CA	Boring no.	MW-F6
Driller	Clear Heart Drilling	Project no.	92404-DO
Method	Hollow-stem auger	Date	6/26/95
Logger	WKS Datum	Bore size 8 3/4	Casing size

Depth (ft.)	Graphic	Lithology	Notes
20			
	SW	Interbedding SAND with silt and CLAY with silt, trace of gravel, fine- to medium-grained, loose, wet.	3-4-6
	CL	Four-inch clay layer.	
21		Interbedding SAND with silt and CLAY with silt, trace of gravel, fine- to medium-grained, loose, wet.	
	SW		
22		Total depth = 21.5 feet	
23			
24			
25			
26			
27			
28			
29			
30			

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WELL DEVELOPMENT

Project no.:	92404-DO	Well no.:	MW-F5	Date:	6-26/29-95
Project name:	Fruitvale	Depth of well from TOC (feet):	24.01		
Location:	2662 Fruitvale Avenue	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):	19-24.01		
Recorded by:	WKS	TOC elevation (feet):	100.32 (City of Oakland datum)		
Weather:	Sunny, warm	Water level from TOC (feet):	10.99/11.06	Time:	7:00/6:30
Precip in past		Product level from TOC (feet):	None	Time:	7:00/6:30
5 days (inch):	None	Water level measurement:	Dual-interface probe		

FIELD MEASUREMENTS

Time	Gallons Removed	Appearance	Recharge: Time	Water Level (feet)
6-26-95				
7:28*	3	Very turbid	Too fast, constant water level at	11.56
7:44*	5	Very turbid	at pump rate of one gallon/min.	
6-29-95				
6:30	10	Very turbid		
6:45	15	Very turbid		
Stopped pumping to empty sediment trap; surged well				
7:00	Resumed pumping			
7:05	20	Very turbid		
Stopped pumping to empty sediment trap				
7:10	Resumed pumping			
7:23	25	Turbid		
7:29	26	Slightly turbid		
7:39	30	Very slightly turbid		
7:49	35	Very slightly turbid		
8:05	40	Clear		

Comments: 6/26/95: Bottom of well at 21.79 feet due to silt settled at bottom. Bailer would not remove settled silt.

* Bailer used.

Total gallons removed:	40	Average recharge rate (ft/min):	NA
Development method:	Bailer; double diaphragm pump; surge block	Purged water disposal:	Sealed drum on-site
		Number of drums:	1
Decontamination method:	TSP wash, DI water rinse	Rinsate disposal:	Drum: Purge water MW 5 & 6

92404WD5.XLS (8/1/95)

WELL DEVELOPMENT

Project no.:	92404-DO	Well no.: MW-F6	Date: 6/29/95
Project name:	Fruitvale	Depth of well from TOC (feet):	21.00
Location:	2662 Fruitvale Avenue	Well diameter (inch):	2
	Oakland, CA	Screened interval from TOC (feet):	9.0-21.0
Recorded by:	WKS	TOC elevation (feet):	100.11 (City of Oakland datum)
Weather:	Sunny, warm	Water level from TOC (feet):	10.92 Time: 8:19
Precip in past		Product level from TOC (feet):	None Time: 8:19
5 days (inch):	None	Water level measurement:	Dual-interface probe

FIELD MEASUREMENTS

Time	Gallons Removed	Appearance	Recharge: Time	Water Level (feet)
8:20	2	Clear	8:31:52	15.10
8:23	Stopped pumping, surge blocked		8:32:26	15.00
8:26	3	Very slightly turbid	8:33:06	14.90
8:31	5	Very slightly turbid	8:33:36	14.80
	Stopped pumping		8:34:08	14.70
8:39	Resumed pumping		8:34:43	14.60
8:46	7	Clear	8:35:18	14.50
8:50	8	Clear	8:35:57	14.40
			8:36:35	14.30
			8:37:20	14.20
			8:38:05	14.10

Comments:

Total gallons removed:	8	Average recharge rate (ft/min):	0.145
Development method:	Surge block; double diaphragm pump.	Purged water disposal:	Sealed drum on-site
		Number of drums:	1
Decontamination method:	TSP wash, DI water rinse	Rinsate disposal:	Drum: Purge water MW 5 & 6

92404WD5.XLS (8/1/95)

APPENDIX B

GROUNDWATER SAMPLING FORMS

GROUNDWATER SAMPLING

Project no.:	92404-D0	Well no.:	MW-F1	Date:	6/30/95
Project name:	Fruitvale Avenue	Depth of well from TOC (feet):	25.11		
Location:	2662 Fruitvale Avenue	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):	8.5-25.11		
Recorded by:	WKS	TOC elevation (feet):	104.41 (City of Oakland datum)		
Weather:	Sunny	Water level from TOC (feet):	10.49	Time:	7:50
Precip in past		Product level from TOC (feet):	None	Time:	7:50
5 days (inch):	None	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(25.11 ft) - (10.49 ft)] × (0.083 ft)² × 3.14 × 7.48 =

Well depth Water level Well radius

2.4 gallons in one well volume

11.9 gallons in 5 well volumes

9.5 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	8:05	22.0	7.00-10.01	1,000
Before Purging:	8:06	22.0	7.00-10.01	900
After Purging:	11:36	23.5	7.00-10.01	900

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
9:25	17.5	7.05	400	2.5	Clear
9:31	17.3	7.10	400	5	Clear
9:35	17.4	7.08	400	7.5	Clear
9:37	17.5	7.06	400	9.5	Clear

Water level after purging prior to sampling (feet):	10.50			Time:	12:10
Appearance of sample:	Clear			Time:	12:18
Duplicate/blank number:	None			Time:	--
Purge method:	Double diaphragm pump				
Sampling equipment:	Disposable PVC bailer	VOC attachment:	Used for VOC sample		
Sample containers:	2 40-ml VOAs, 1 one-liter amber glass				
Sample analyses:	TPH as gasoline, BTXE	Laboratory:	Curtis & Tompkins		
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	Drum FW3		

92404J95.XLW (7/18/95)

GROUNDWATER SAMPLING

Project no.:	92404-D0	Well no.: MW-F4	Date: 6/30/95
Project name:	Fruitvale Avenue	Depth of well from TOC (feet):	16.84
Location:	2662 Fruitvale Avenue	Well diameter (inch):	2
	Oakland, CA	Screened interval from TOC (feet):	8.5-16.84
Recorded by:	WKS	TOC elevation (feet):	101.56 (City of Oakland datum)
Weather:	Sunny	Water level from TOC (feet):	10.08 Time: 7:56
Precip in past		Product level from TOC (feet):	None Time: 7:56
5 days (inch):	None	Water level measurement:	Dual interface probe

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(16,84 ft) - (10.08 ft)] × (0.083 ft)² × 3.14 × 7.48 =

Well depth Water level Well radius

0.89 gallons in one well volume
4.4 gallons in 5 well volumes
4.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	8:05	22.0	7.00-10.01	1,000
Before Purging:	8:06	22.0	7.00-10.01	900
After Purging:	11:36	23.5	7.00-10.01	900

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
8:20	18.9	7.29	500	1.0	Clear, petroleum odor
8:28	18.7	7.22	500	3.0	Clear, petroleum odor
8:32	18.7	7.20	500	4.0	Clear, petroleum odor

Water level after purging prior to sampling (feet):	10.46		Time: 13:17
Appearance of sample:	Clear		Time: 13:20
Duplicate/blank number:	None		Time: --
Purge method:	Double diaphragm pump		
Sampling equipment:	Disposable PVC bailer	VOC attachment:	Used for VOC sample
Sample containers:	3 40-ml VOAs		
Sample analyses:	TPH as gasoline, BTXE	Laboratory:	Curtis & Tompkins
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	Drum FW3

92404J95.XLW (7/18/95)

GROUNDWATER SAMPLING

Project no.:	92404-D0	Well no.:	MW-F5	Date:	6/30/95
Project name:	Fruitvale Avenue	Depth of well from TOC (feet):	24.01		
Location:	2662 Fruitvale Avenue	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):	8.5-24.01		
Recorded by:	WKS	TOC elevation (feet):			
Weather:	Sunny	Water level from TOC (feet):	11.09	Time:	7:58
Precip in past		Product level from TOC (feet):	None	Time:	7:58
5 days (inch):	None	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(24.01 ft) - (11.09 ft)] × (0.083 ft)² × 3.14 × 7.48 =

(Well depth, Water level, Well radius)

2.1 gallons in one well volume
10.5 gallons in 5 well volumes
9.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	8:05	22.0	7.00-10.01	1,000
Before Purging:	8:06	22.0	7.00-10.01	900
After Purging:	11:36	23.5	7.00-10.01	900

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:41	19.3	6.97	500	4	Clear to very slightly turbid
10:45	19.1	6.93	500	6	Clear
10:48	19.2	6.96	500	8	Clear
10:52	19.3	6.94	500	9.0	Clear

Water level after purging prior to sampling (feet):	11.13			Time: 13:04
Appearance of sample:	Clear			Time: 13:08
Duplicate/blank number:	None			Time: --
Purge method:	Double diaphragm pump			
Sampling equipment:	Disposable PVC bailer	VOC attachment:	Used for VOC sample	
Sample containers:	2 40-ml VOAs, 1 one-liter amber glass			
Sample analyses:	TPH as gasoline, BTXE	Laboratory:	Curtis & Tompkins	
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	Drum FW3	

92404J95.XLW (7/18/95)

GROUNDWATER SAMPLING

Project no.:	92404-D0	Well no.:	MW-F6	Date:	6/30/95
Project name:	Fruitvale Avenue	Depth of well from TOC (feet):	21.00		
Location:	2662 Fruitvale Avenue	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):			
Recorded by:	WKS	TOC elevation (feet):			
Weather:	Sunny	Water level from TOC (feet):	10.96	Time:	8:00
Precip in past		Product level from TOC (feet):	None	Time:	8:00
5 days (inch):	None	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(21.0 ft) - (10.96 ft)] × (0.083 ft)² × 3.14 × 7.48 =

Well depth Water level Well radius

1.6 gallons in one well volume
8.1 gallons in 5 well volumes
6.5 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	8:05	22.0	7.00-10.01	1,000
Before Purging:	8:06	22.0	7.00-10.01	900
After Purging:	11:36	23.5	7.00-10.01	900

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
9:59	19.0	7.67	800	2	Slightly turbid
10:11	19.1	7.71	800	3.5	Clear to very slightly turbid
10:19	19.3	7.65	700	4.5	Clear
10:26	19.3	7.61	700	5.5	Clear
10:30	19.3	7.63	700	6.5	Clear

Water level after purging prior to sampling (feet):	11.0			Time:	12:54
Appearance of sample:	Clear			Time:	12:58
Duplicate/blank number:	None			Time:	--
Purge method:	Double diaphragm pump				
Sampling equipment:	Disposable PVC bailer	VOC attachment:	Used for VOC sample		
Sample containers:	2 40-ml VOAs, 1 one-liter amber glass				
Sample analyses:	TPH as gasoline, BTXE	Laboratory:	Curtis & Tompkins		
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	Drum FW3		

92404J95.XLW (7/18/95)

GROUNDWATER SAMPLING

Project no.:	92404-D0	Well no.:	MW-13 (Chevron) Date: 6/30/95
Project name:	Fruitvale Avenue	Depth of well from TOC (feet):	24.13 (Soft bottom detected)
Location:	2662 Fruitvale Avenue	Well diameter (inch):	2
	Oakland, CA	Screened interval from TOC (feet):	14.5-24.5
Recorded by:	WKS	TOC elevation (feet):	101.24 (City of Oakland datum)
Weather:	Sunny	Water level from TOC (feet):	11.32 Time: 10:00
Precip in past		Product level from TOC (feet):	Sheen Time: 10:00
5 days (inch):	None	Water level measurement:	Dual interface probe

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(24.13 ft) - (11.32 ft)] × (0.083 ft)² × 3.14 × 7.48 =

Well depth Water level Well radius

2.1 gallons in one well volume
10.4 gallons in 5 well volumes
7.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	8:05	22.0	7.00-10.01	1,000
Before Purging:	8:06	22.0	7.00-10.01	900
After Purging:	11:36	23.5	7.00-10.01	900

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:50	19.4	6.70	700	2.5	Clear
11:04	19.3	6.68	700	5.0	Clear, strong petroluem odor
11:08	19.2	6.70	700	6.5	Clear, strong petroluem odor
11:11	19.3	6.89	700	7.0	Clear, strong petroluem odor

Water level after purging prior to sampling (feet):	11.42			Time: 13:25
Appearance of sample:	Clear			Time: 13:30
Duplicate/blank number:	None			Time: --
Purge method:	Double diaphragm pump			
Sampling equipment:	Disposable PVC bailer	VOC attachment:	Used for VOC sample	
Sample containers:	2 40-ml VOAs, 1 one-liter amber glass			
Sample analyses:	TPH as gasoline, BTXE	Laboratory:	Curtis & Tompkins	
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	Drum FW3	

92404J95.XLW (7/18/95)

APPENDIX C

SURVEY REPORT

BATES AND BAILEY
LAND SURVEYORS
15 SHATTUCK SQUARE • BERKELEY, CA 94704
TELEPHONE (510) 843-2007

P.O. BOX 592
BERKELEY, CA 94701-0592

July 14, 1995

Baseline Environmental
5900 Hollis St. Suite D
Emeryville, CA 94608

Attention: Bill Scott

Dear Bill,

Enclosed are copies of the survey indicating the location of the new wells at 2662 Fruitvale Ave., Oakland and listed below are the elevations of the wells.

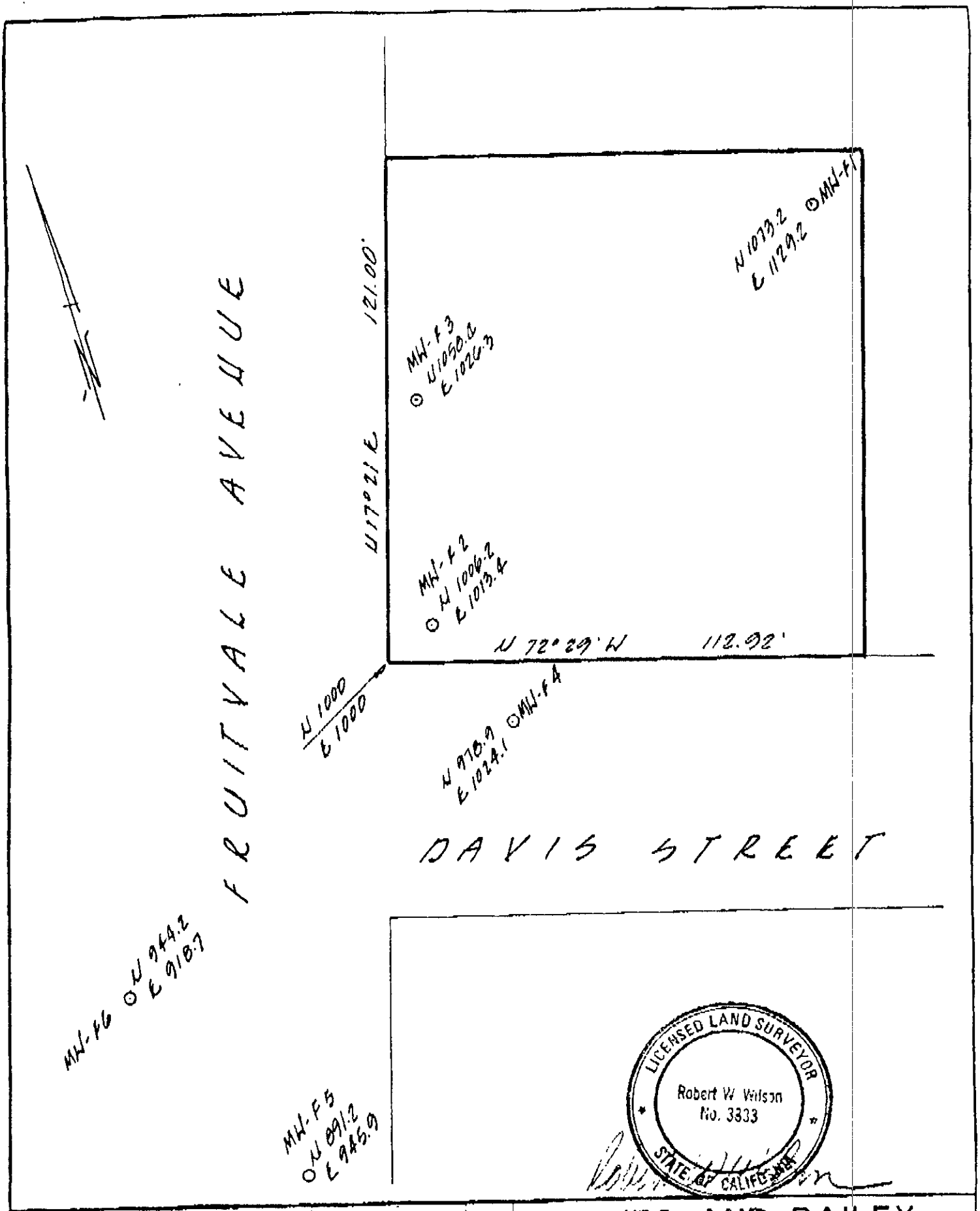
WELL	T.C. ELEVATION	COVER ELEVATION
MW - F1	104.41	104.81
MW - F2	102.22	102.48
MW - F3	102.42	102.73
MW - F4	101.56	101.96
MW - F5	100.32	100.66
MW - F6	100.11	100.80

The elevations are based on City of Oakland datum Bench Mark $\frac{19C}{14}$.

Yours truly,

Robert W. Wilson

RWW/dd
Enc.



For: BASELINE	Scale: 1" = 30'	Job # 14194	BATES AND BAILEY LAND SURVEYORS 15 SHATTUCK SQ., BERKELEY, CA 94704 (510) 843-2007
Survey of: MONITOR WELLS @ 2662 FRUITVALE AVE	Date July 1995		

APPENDIX D

LABORATORY REPORTS - SOIL AND GROUNDWATER

CHROMALAB, INC.

Environmental Services (SDB)

May 5, 1995

BASELINE ENVIRONMENTAL/EMRYVL *Submission #:* 9504382

Atten: Bill Scott

Project: FUITVALE, CITY OF OAKLAND
Project#: 92404-DO

REPORTING INFORMATION

Samples were received cold and in good condition on **April 28, 1995.** They were refrigerated on receipt, and analyzed on the date shown on the attached report. ChromaLab followed EPA or equivalent methods for all analyses reported.

No difficulties were encountered with the analysis. Unknown found outside the gasoline range for MW-F5 5.0-5.5, sample # 86673.

for

Jill Thomas
Quality Assurance Officer

Eric Tam
Laboratory Director

JOB # 92404 I# DO
O/H ACCT. #
APPVD. BY WKS
DATE 5-15-95
VENDOR #

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096

CHROMALAB, INC.

Environmental Services (SDB)

May 5, 1995 *Submission #:* 9504382

BASELINE ENVIRONMENTAL/EMRYVL

Atten: Bill Scott

Project: FUITVALE, CITY OF OAKLAND *Project#:* 92404-DO
Received: April 28, 1995

re: 2 samples for Gasoline and BTEX analysis.

Matrix: SOIL
Sampled: April 27, 1995 *Run#:* 6512 *Analyzed:* May 5, 1995
Method: EPA 5030/8015M/8020

Spl #	CLIENT SMPL ID	Gasoline (mg/Kg)	Benzene (ug/Kg)	Toluene (ug/Kg)	Ethyl Benzene (ug/Kg)	Total Xylenes (ug/Kg)
86673	MW-F5 5.0-5.5	N.D.	N.D.	N.D.	N.D.	N.D.
	Note: UNKNOWN COMPOUNDS FOUND IN GAS RANGE, CONC=.53mg/Kg					
86674	MW-F5 9.5-10.0	N.D.	N.D.	N.D.	N.D.	N.D.
Reporting Limits		1.0	5.0	5.0	5.0	5.0
Blank Result		N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)		107	107	106	111	110

Jack Kelly
Chemist

Ali Kharrazi
Organic Manager

QC JACK 16.10.54

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name BASELINE — Date/Time Received 4/28/95 (Date) / 16:58 (Time)

Project FRUITVALE — Received by B Morrow

Reference/Subm # 21738/9504382 — Carrier name

Checklist completed by: [signature] 5/1/95 (Signature / Date) — Logged in by RN (Initials) / 4/28/95 (Date)

Matrix SOIL

Shipping container in good condition?	NA		Yes	No
Custody seals present on shipping container?	Intact	Broken	Yes	No
Custody seals on sample bottles?	Intact	Broken	Yes	No
Chain of custpdy present?			Yes ✓	No
Chain of custody signed when relinquished and received?			Yes ✓	No
Chain of custody agrees with sample labels?			Yes ✓	No
Samples in proper container/bottle?			Yes ✓	No
Samples intact?			Yes ✓	No
Sufficient sample volume for indicated test?			Yes ✓	No
VOA vials have zero headspace?	NA ✓		Yes	No
Trip Blank received?	NA		Yes	No ✓
All samples received within holding time?			Yes ✓	No

Container temperature? _____

pH upon receipt _____ pH adjusted _____ Check performed by: _____ NA ✓

Any NO response must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted? _____ Date contacted? _____

Person contacted? _____ Contacted by? _____

Regarding? _____

Comments: _____

Corrective Action: _____

SMPLRECD.CK

21738

BASELINE
5900 Hollis Street, Suite D
Emeryville, CA 94608
(510) 420-8686

CHAIN OF CUSTODY RECORD

Turn-around Time: Normal
Lab: Chromalabs
BASELINE Contact Person: Bill Scott

SUBM #: 9504... REP: ...
CLIENT: BASELINE
DUE: 05/05/95
REF #:21738

Project No.: 92404-DO

Project Name and Location: Fruitvale, City of Oakland

Samplers: (Signature) William K Scott

Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	TEH	as Gasoline (TPH with BTX&E)	Oil & Grease	Motor Oil	PNAs	Title 22 Metals	Total Lead						Remarks/ Composite	Detection Limits
MW-F5; 5.0-5.5	4-27-95	9:42	Soil	5.0-5.5	1		X												
MW-F5; 9.5-10.0	4-27-95	10:00	Soil	9.5-10.0	1		X												

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Conditions of Samples Upon Arrival at Laboratory:
William K Scott	4-27-95/17:00	Melinda M. Burry	4-27-95/17:00	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks:
Melinda M. Burry	4/28/95-16:57	[signature]	4-28-95 1658	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	

CHROMALAB, INC.

Environmental Services (SDB)

June 30, 1995 *Submission #:* 9506364

BASELINE ENVIRONMENTAL/EMRYVL

Atten: Bill Scott

Project: 2662 FRUITVALE AVE *Project#:* 92404-DO
Received: June 26, 1995

re: 2 samples for Gasoline and BTEX analysis.
Method: EPA 5030/8015M/8020

Sampled: June 26, 1995 *Matrix:* SOIL
Run: 7424-B *Analyzed:* June 29, 1995

Spl # Client Sample ID	Gasoline (mg/Kg)	Benzene (ug/Kg)	Toluene (ug/Kg)	Ethyl Benzene (ug/Kg)	Total Xylenes (ug/Kg)
93952 MW-F6 5.0-5.5	N.D.	N.D.	N.D.	N.D.	N.D.
93953 MW-F6 11.0-11.5	N.D.	N.D.	N.D.	N.D.	N.D.
Reporting Limits	1.0	5.0	5.0	5.0	5.0
Blank Result	N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	105	96	94	100	103

Billy Thach
Chemist

Ali Kharrazi
Organic Manager

07/03 610 420 1707 | 0C8280 BILLY 15 21 14

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name BASELINE — Date/Time Received 6/26/95 (Date) / 1719 (Time)

Project FRUITVALE AVE - OAK — Received by B Monroe

Reference/Subm # 22644/9506364 — Carrier name

Checklist completed by: CRowley (Signature) / 6/27/95 (Date) — Logged in by RN (Initials) / 6/27/95 (Date)

Matrix SOIL

Shipping container in good condition?	NA___	Yes___	No___
Custody seals present on shipping container?	Intact___ Broken___	Yes___	No___
Custody seals on sample bottles?	Intact___ Broken___	Yes___	No___
Chain of custody present?		Yes✓	No___
Chain of custody signed when relinquished and received?		Yes✓	No___
Chain of custody agrees with sample labels?		Yes___	No✓
Samples in proper container/bottle?		Yes✓	No___
Samples intact?		Yes✓	No___
Sufficient sample volume for indicated test?		Yes✓	No___
VOA vials have zero headspace?	NA✓	Yes___	No___
Trip Blank received?	NA___	Yes___	No✓
All samples received within holding time?		Yes✓	No___

Container temperature?_____

pH upon receipt _____ pH adjusted_____ Check performed by:_____ NA✓

Any NO response must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted? Left message for Bill Scott — Date contacted? 6/27/95

Person contacted? — Contacted by? CRowley

Regarding?

Comments: Chain of custody reads sample ID: MW-F6; 5.5-6.0, Sample container reads: MW-F6; 5.0-5.5

Corrective Action: SAMPLE ID SHOULD BE MW F6-5.0-5.5 AS PER PHONE CONVERSATION W/BILL SCOTT 6/28/95

SMPLRECD.CK

CHROMALAB Change request received by: CR Date Requested: 6/28/95

SAMPLE STATUS CHANGE FORM

Submission#	Client Samp.ID	Old Status Description	Description of Changes	Requested by (Client's name)
9506364	MWFL55-6.0		SAMPLE ID SHOULD BE: MWF6 5.0-5.5	Bill Scott

Changes were done in lims by(login): C Ronley On: 6/28/95

CC: ✓ Lab.Director ✓ Dept.manager ✓ Analyst ✓ Proj.Manager

BASELINE
5900 Hollis Street, Suite D
Emeryville, CA 94608
(510) 420-8686

LIENT: BASELINE
JE: 07/03/95
EF #:22644

Turn-around Time: Normal
Lab: Chromalabs
BASELINE Contact Person: Bill Scott

Project No.	Project Name and Location
92404-DO	2662 Fruitevale Ave, Oakland

Samplers: (Signature) William K Scott

Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	TEH	(TPH with BTX&E)	Oil & Grease	Motor Oil	PNAs	Title 22 Metals	Total Lead	Remarks/ Composite	Detection Limits
MW-F6; 5.5-6.0	6-26-95	11:00	Soil	5.5-6.0	1		X							
MW-F6 11.0-11.5	6-26-95	11:30	Soil	11.0-11.5	1		X							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	
William K Scott	6-26-95/15:00	[illegible signature]	6-26-95 17:19	Conditions of Samples Upon Arrival at Laboratory:
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks:
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	

CHROMALAB, INC.

Environmental Services (SDB)

July 10, 1995 *Submission #:* 9506447

BASELINE ENVIRONMENTAL/EMRYVL

Atten: KEVIN O'DEA

Project: 2662 FRUITVALE, OAKLAND *Project#:* 92404-DO
Received: June 30, 1995

re: 7 samples for Gasoline and BTEX analysis.
Method: EPA 5030/8015M/602/8020

Sampled: June 30, 1995 *Matrix:* WATER
Run: 7503-J *Analyzed:* July 5, 1995

Spl #	Client Sample ID	Gasoline (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
94617	MW-F1	N.D.	N.D.	N.D.	N.D.	N.D.
94618	MW-F2	0.34	N.D.	N.D.	N.D.	0.5
94619	MW-F3	0.11	N.D.	N.D.	N.D.	N.D.
94620	MW-F4	9.2	180	19	760	1000
	For above sample:	*GAS DET.LIMIT=1.0mg/L,BTEX DET.LIMIT=10ug/L*				
94621	MW-F5	0.10	N.D.	N.D.	N.D.	N.D.
94622	MW-F6	N.D.	N.D.	N.D.	N.D.	N.D.
94623	MW-13	22	850	N.D.	1200	1600
	For above sample:	*GAS DET.LIMIT=5.0mg/L,BTEX DET.LIMIT=50ug/L*				
	Reporting Limits	0.05	0.5	0.5	0.5	0.5
	Blank Result	N.D.	N.D.	N.D.	N.D.	N.D.
	Blank Spike Result (%)	105	106	107	105	104

Jack Kelly
Chemist

Ali Kharrazi
Organic Manager

07/10 510-420 1707

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096

ME:DC706 JACK 10 21

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name BASELINE

Project 21662 FRUITVALE

Reference/Subm # 22742/9506447

Checklist completed by: [signature] / 7/3/95 (Signature / Date)

Date/Time Received 6/30/95 (Date) / 1648 (Time)

Received by K Sales

Carrier name

Logged in by KAIN (Initials) / 6/30/95 (Date)

Matrix H2O

Shipping container in good condition?	NA___	Yes___	No___
Custody seals present on shipping container?	Intact___ Broken___	Yes___	No✓
Custody seals on sample bottles?	Intact___ Broken___	Yes✓	No___
Chain of custody present?		Yes✓	No___
Chain of custody signed when relinquished and received?		Yes✓	No___
Chain of custody agrees with sample labels?		Yes✓	No___
Samples in proper container/bottle?		Yes✓	No___
Samples intact?		Yes✓	No___
Sufficient sample volume for indicated test?		Yes✓	No___
VOA vials have zero headspace?	NA___	Yes✓	No___
Trip Blank received?	NA___	Yes___	No✓
All samples received within holding time?		Yes✓	No___

Container temperature?___

pH upon receipt _____ pH adjusted_____ Check performed by:_____ NA✓

Any NO response must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted?_____ Date contacted?_____

Person contacted?_____ Contacted by?_____

Regarding?

Comments: pH Checked by chemist

Corrective Action:

SMPLRECD.CK

BASELINE
5900 Hollis Street, Suite D
Emeryville, CA 94608
(510) 420-8686

CHAIN OF CUSTODY RECORD

Turn-around Time: Normal 5 Day
Lab: Chromalab
BASELINE Contact Person: Kaiser Opea

Project No.	Project Name and Location
92404-DO	2662 Fruitvale Ave, Oakland

Samplers: (Signature) William K Scott

SUBM #: 9506447 REP: P
CLIENT: BASELINE
DUE: 07/10/95
REF #:22742

Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	TEH	Gasoline (TPH with BTX&E)	Oil & Grease	Motor Oil	PNAs	Title 22 Metals	Total Lead	Remarks/ Composite	Detection Limit
MW-F1	6-30-95	12:18	Water		3		X							
MW-F2		12:40			3		X							
MW-F3		12:35			3		X							
MW-F4		13:20			3		X							
MW-F5		13:06			3		X							
MW-F6		12:58			3		X							
MW-13		13:30			3		X							

Please note that Sample MW-13 May Contain High levels of gasoline. Product in well During Sampling.

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Conditions of Samples Upon Arrival at Laboratory:
William K Scott	6-30-95	Melinda Barry	6-30-95	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks:
Melinda Barry	6-30-95/4:45 PM	Federal Express	6/30/95 16:45	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	

APPENDIX E

LABORATORY REPORT - PETROLEUM HYDROCARBON PRODUCT

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

July 7, 1995

Kevin O' Day, Project Leader
Baseline Environmental Consulting
5900 Hollis Street, Suite D
Emeryville, CA 94608

Dear Mr. O' Day:

Enclosed are the results from the testing of material submitted on July 3, 1995 from your 92404-DU project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kelley Wilt
Chemist

sao
Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: July 7, 1995
Date Received: July 3, 1995
Project: 92404-DU
Date Samples Extracted: July 3, 1995

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID	GC Characterization
MW-13, Product	The GC trace using the flame ionization detector (FID) showed the presence of low boiling compounds. The patterns displayed by these peaks are indicative of gasoline. The low boiling compounds appeared as a ragged pattern of peaks eluting from *n*-C_6 to *n*-C_{14} showing a maximum near *n*-C_{10}. The GC/ECD trace showed the possible presence of tetraethyl lead, a common additive to leaded gasolines. The low boiling product appears to have undergone degradation by evaporative processes, as well as degradation by water solubilization processes due to the selective loss of benzene, toluene, ethylbenzene and the xylenes. The low boiling product appears to have undergone chemical or biological degradation. – how can they tell ? The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second internal standard peak seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.