AEI CONSULTANTS
Environmental & Civil Engineering Services

3210 Old Tunnel Road, Suite B, Lafayette, CA 94549-4157
Phone: (925) 283-6000 Fax: (925) 283-6121

RO 307

APR 17 2002

April 15, 2002

Mr. Barney Chan
ACHCSA
1131 Harbor Bay Pkwy, Suite 250
Alameda, CA 94502-6577

Subject: **Quarterly Groundwater Monitoring Report**
1450 Fruitvale Ave.
Oakland, CA
AEI Project No. 3581

Dear Mr. Chan:

Enclosed is the report documenting the activities and results of the sixth episode of groundwater sampling performed at the above referenced site.

Please call Mr. Peter McIntyre at (925) 283-6000 if you have any questions.

Sincerely,

Orion Alcalay, M.S.
Environmental Scientist

3/19/52 Mtg. : discuss addnl site activ.; addnl temp + permanent perimeter wells + RBCA

1/14/52 WP ?

April 15, 2002

QUARTERLY GROUNDWATER MONITORING REPORT

Sixth Episode-April 2002

1450 Fruitvale Avenue
Oakland, CA

Project No. 3581

Prepared For

Fruitvale-Farnam Associates, LLP.
141 Woodland Way
Piedmont, CA 94611

Prepared By

AEI Consultants
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549
(800) 801-3224

AEI

AEI CONSULTANTS
ENVIRONMENTAL & CIVIL ENGINEERING SERVICES

3210 Old Tunnel Road, Suite B, Lafayette, CA 94549-4157
Phone: (925) 283-6000 Fax: (925) 283-6121

April 15, 2002

Fruitvale-Farnam Associates, LLP.
Attention: Mr. Bill Phua
141 Woodland Way
Piedmont, CA 94611

Subject: **Quarterly Groundwater Monitoring and Sampling Report**
Sixth Episode
1450 Fruitvale Avenue
Oakland, California 94601
AEI Project No. 3581

Dear Mr. Jay:

AEI Consultants (AEI) has prepared this report on your behalf to document the continued groundwater investigation at the above referenced property (Figure 1: Site Location Map). This investigation has been performed according to the requirements of the Alameda County Health Care Services Agency (ACHCSA) to monitor the groundwater quality around the former fuel storage and dispensing system. This report presents the findings of the sixth episode of groundwater monitoring and sampling, conducted on March 29, 2002.

Site Description and Background

The property is located on the eastern corner of Fruitvale Avenue and Farnam Street in a residential and commercial area of the City of Oakland. The property is approximately 11,000 square feet in size and is developed with a three-story building that occupies two-thirds of the parcel. The western corner of the parcel is improved with an asphalt parking lot. The property is currently vacant.

The site was reportedly developed as a gas station in 1950 by Atlantic Richfield Oil Company (currently known as ARCO), and operated until at least 1983. There were four underground storage tanks located along the southern property boundary. The fuel dispenser island was located on the northeast corner of the current parking lot. The gas station was demolished, and the existing warehouse was constructed after 1983.

Two soil-boring projects were performed between 1998 and 1999 to determine whether a fuel release had occurred and to what extent soil or groundwater had been impacted. Three groundwater monitoring wells were then installed. Total Petroleum Hydrocarbons (TPH) as gasoline and benzene have been found in the soil up to 360 mg/kg and 0.59 mg/kg respectively. Based on soil analytical data from the borings and the lack of hydrocarbons detected in sidewall

samples from an exploratory excavation dug in the former tank location, the release likely occurred along the product piping or in the former dispenser location.

Summary of Activities

AEI measured the depth to groundwater in the three wells on March 29, 2002. Prior to sampling, the depth to water from the top of the well casings was measured with an electric water level indicator. The wells were purged and sampled using disposable Teflon bailers. Temperature, pH, and specific conductivity were measured during the purging of the wells. A minimum of 3 well volumes of water was removed during purging. Once the water parameters had stabilized and water levels had returned to approximately 90% of their original volume, a water sample was collected. The well locations are shown in Figure 2.

Water was poured from the bailers into 40 ml VOA vials and capped so that neither headspace nor air bubbles were visible within the sample containers. Samples were shipped on ice under proper chain of custody protocol to McCampbell Analytical, Inc. of Pacheco, California (State Certification #1644).

The three groundwater samples were analyzed for TPH as gasoline (EPA Method 5030/8015), MTBE (EPA Method 8020/602), and benzene, toluene, ethyl-benzene, and xylenes (BTEX) (EPA Method 8020/602).

Field Results

A light to strong hydrocarbon odor was observed during the sampling of all wells. No sheen or free product were encountered during sampling activities. Groundwater levels for the current monitoring episode ranged from 33.12 to 34.17 feet above mean sea level (msl). These groundwater elevations were an average of 7.02 feet higher than the previous monitoring episode. The direction of the groundwater flow at the time of measurement was towards the northwest with a calculated gradient of 0.032 ft/ft.

Water table elevation and flow direction data are summarized in Table 1. Water table contours and flow direction are shown in Figure 2. Refer to Appendix A for the Groundwater Monitoring Well Field Sampling Forms.

Groundwater Quality

TPH as gasoline was detected in all three wells, ranging from 7,100 µg/l in MW-1, and up to 29,000 µg/l in MW-3. Benzene was also detected in all three wells, ranging from 880 µg/l in MW-1, and up to 2,100 µg/l in MW-3. No concentrations of MTBE were detected above laboratory detection limits in any of the wells. Please refer to Figure 3 for a graphic summary of hydrocarbon concentrations in groundwater from the three wells.

A summary of groundwater quality data is presented in Table 2. Laboratory results and chain of custody documents are included in Appendix B.

Conclusions

Elevated hydrocarbon concentrations remain in the three monitoring wells. As requested by the ACHCSA, further investigation will be necessary to further define the extent of the hydrocarbon plume. Monitoring of the existing wells will continue, with the next episode scheduled for June 2002.

References

1. Phase I Environmental Site Assessment - July 1998, prepared by Glenfos, Inc.
2. Subsurface Investigation Report – June 11, 1999, prepared by AEI.
3. Subsurface Investigation Report – August 1999, prepared by AEI.
4. Workplan – July 17, 2000
5. Monitoring Well Installation and Sampling Report - November 22, 2000, prepared by AEI.
6. Quarterly Groundwater Monitoring Report – January 29, 2001, prepared by AEI.
7. Quarterly Groundwater Monitoring Report – May 4, 20001, prepared by AEI.
8. Quarterly Groundwater Monitoring Report – September 10, 2001, prepared by AEI.
9. Quarterly Groundwater Monitoring Report – December 12, 2001, prepared by AEI.

Report Limitations and Signatures

This report presents a summary of work completed by AEI Consultants including observations and descriptions of site conditions. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide required information, but it cannot be assumed that they are entirely representative of all areas not sampled. All conclusions and recommendations are based on these analyses, observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document.

These services were performed in accordance with generally accepted practices in the environmental engineering and construction field which existed at the time and location of the work.

Sincerely,
AEI Consultants

Orion Alcalay, M.S.
Environmental Scientist

Joseph P. Derhake, PE
Principal

Figures

Figure 1	Site Location Map
Figure 2	Well Locations with Water Table Contours
Figure 3	Contaminant Concentrations

Tables

Table 1	Water Table Data
Table 2	Groundwater Sample Analytical Data

Appendices

Appendix A	Groundwater Monitoring Well Field Sampling Forms
Appendix B	Laboratory Analyses With Chain of Custody Documentation

cc: Mr. Barney Chan, ACHCSA
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Mr. John Jay
10700 Foothill Blvd., Suite 200
Oakland, CA 94605

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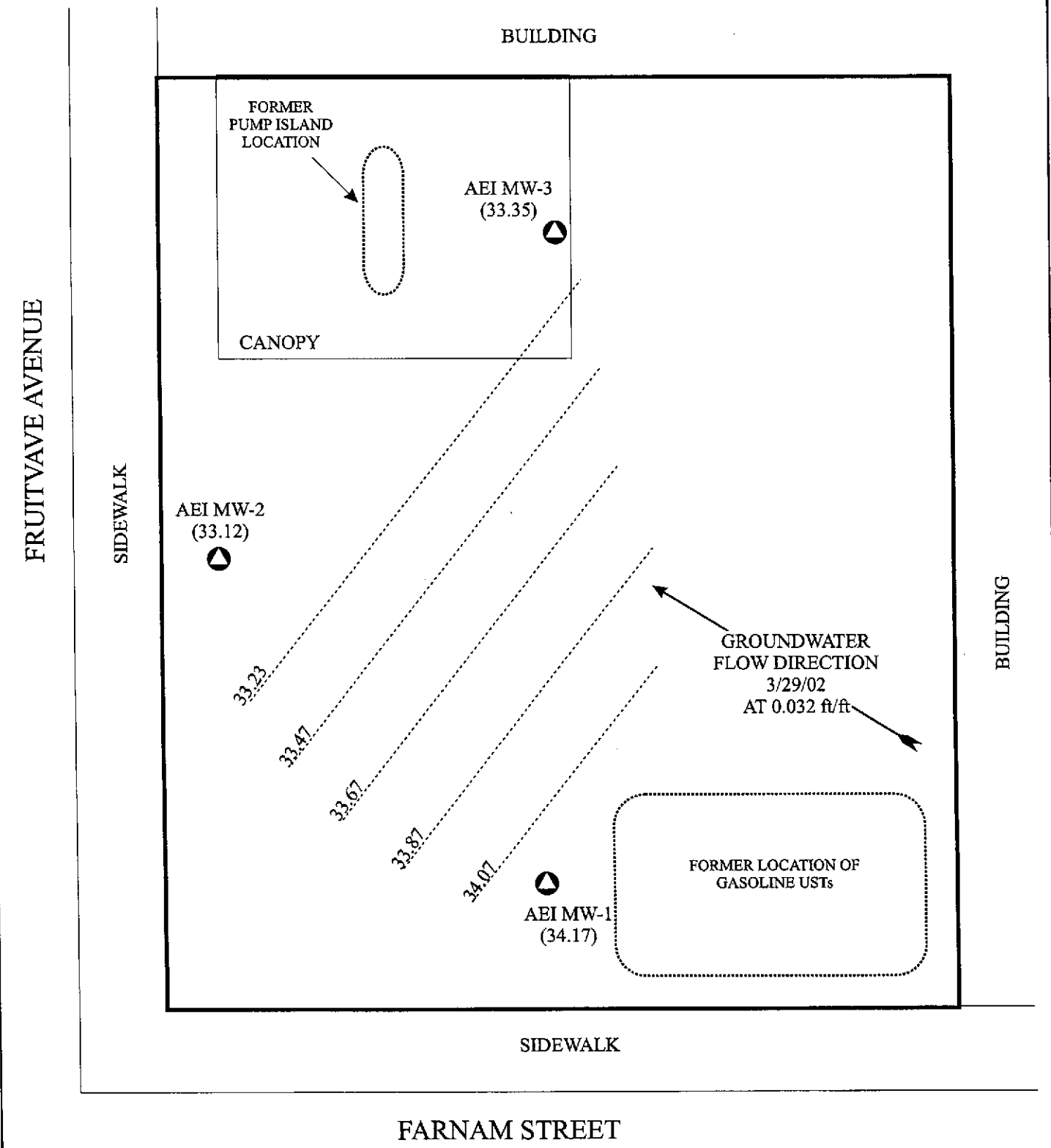
AEI CONSULTANTS 3210 OLD TUNNEL RD, STE B, LAFAYETTE, CA	
SITE LOCATION MAP	
1450 FRUITVALE AVENUE OAKLAND, CALIFORNIA	**FIGURE 1** PROJECT NO. 3581



KEY

- WELL LOCATIONS
- 30.1 WATER TABLE CONTOUR (FEET AMSL) AS OF 11/5/01

SCALE: 1" = 10'

N

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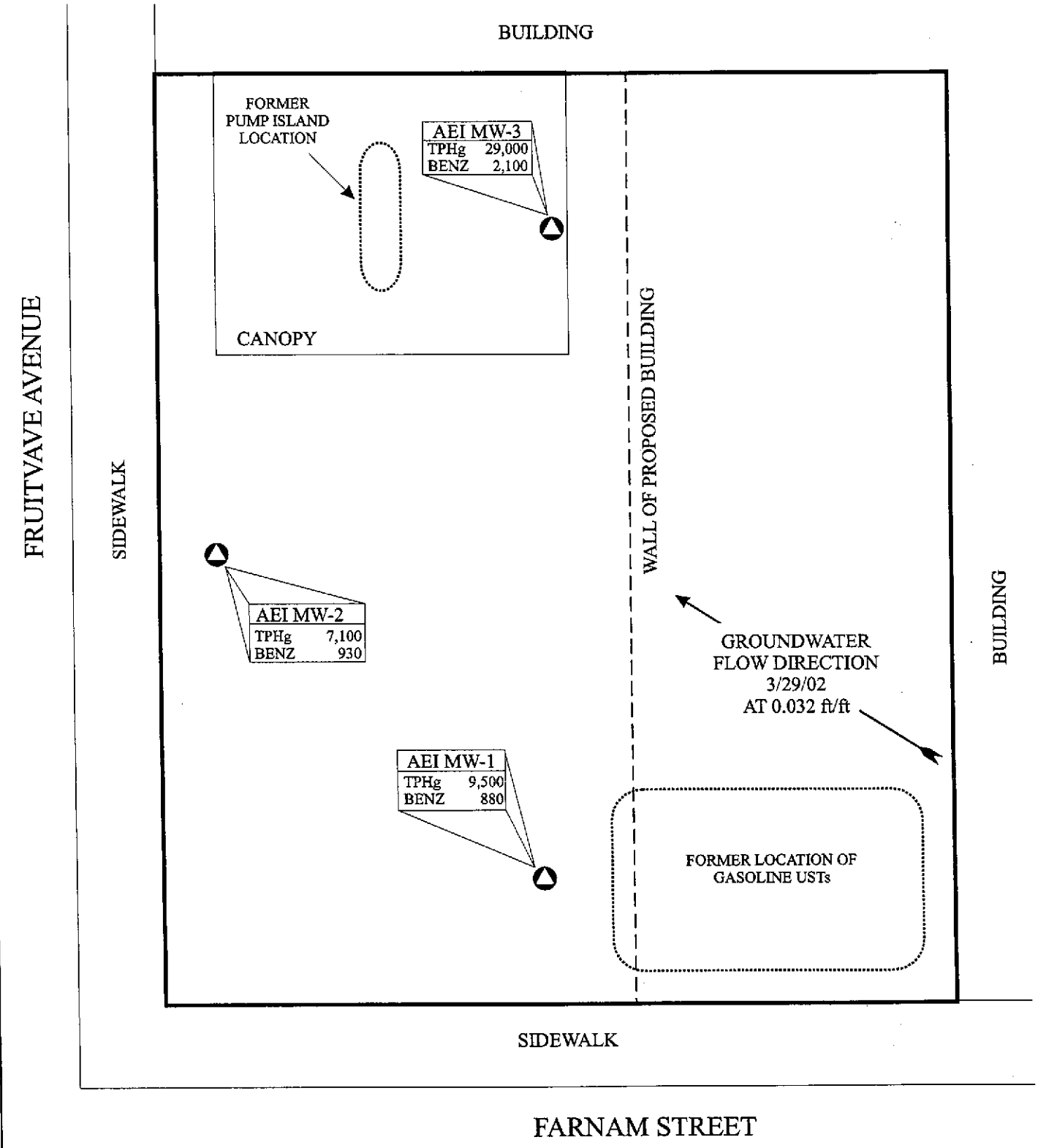
WATER TABLE CONTOURS

1450 FRUITVALE AVENUE OAKLAND, CALIFORNIA	FIGURE 2 AEI Project # 3581



KEY

WELL LOCATIONS

TPHg = Total Petroleum Hydrocarbons as gasoline
Benz = Benzene
All samples measured in ug/L
(micrograms per Liter)

SCALE: 1" = 10'

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3210 OLD TUNNEL RD, SUITE B, LAFAYETTE, CA

CONTAMINANT CONCENTRATIONS
AS OF 3/29/02

1450 FRUITVALE AVENUE
OAKLAND, CALIFORNIA

FIGURE 3
AEI Project # 3581

Table 1
Water Table Data

Well ID	Date	Well Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)
MW-1	10/16/00	42.13	17.72	24.41
	1/19/01	42.13	9.15	32.98
	4/26/01	42.13	9.40	32.73
	8/3/01	42.13	12.38	29.75
	11/5/01	42.13	16.22	25.91
	3/29/02	**42.13**	**7.96**	**34.17**
MW-2	10/16/00	42.08	14.98	27.10
	1/19/01	42.08	9.00	33.08
	4/26/01	42.08	8.34	33.74
	8/3/01	42.08	11.70	30.38
	11/5/01	42.08	15.08	27.00
	3/29/02	**42.08**	**8.96**	**33.12**
MW-3	10/16/00	42.55	17.98	24.57
	1/19/01	42.55	10.90	31.65
	4/26/01	42.55	9.21	33.34
	8/3/01	42.55	12.67	29.88
	11/5/01	42.55	15.90	26.65
	3/29/02	**42.55**	**9.20**	**33.35**

Episode #	Date	Average Water Table (ft msl)	Change from Previous Episode	Flow direction (gradient)
1	10/16/00	25.36	-	E/SE (0.116)
2	1/19/01	32.57	+7.21	E/NE (0.041)
3	4/26/01	33.27	+0.70	SE (0.034)
4	8/3/01	30.00	-3.27	ESE (0.024)
5	11/5/01	26.52	-3.48	SE (0.033)
6	**3/29/02**	**33.54**	**7.02**	**NW (0.032)**

Notes:
All well elevations are measured from the top of the casings
ft msl = feet above mean sea level

Table 2
Groundwater Sample Analytical Data

Well/Sample ID	Date Collected	Consultant/ Lab	TPHg µg/L	MTBE µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L
MW-1	10/16/00	AEI/MAI	4,500	<20	560	14	53	62
	01/19/01	AEI/MAI	13,000	<100	790	46	1,100	210
	04/26/01	AEI/MAI	7,500	<30	470	23	720	120
	08/03/01	AEI/MAI	4,500	<10	440	11	55	6.6
	11/05/01	AEI/MAI	1,700	<10	100	6.0	4.6	2.1
	03/29/02	**AEI/MAI**	**9,500**	**ND<100**	**880**	**32**	**400**	**59**
MW-2	10/16/00	AEI/MAI	4,600	<300	380	3.8	95	33
	01/19/01	AEI/MAI	4,200	<10	450	4.7	120	50
	04/26/01	AEI/MAI	5,600	<20	810	12	210	65
	08/03/01	AEI/MAI	2,900	<20	360	3	97	46
	11/05/01	AEI/MAI	2,400	<85	280	3.2	76	25
	03/29/02	**AEI/MAI**	**7,100**	**ND<100**	**930**	**11**	**220**	**39**
MW-3	10/16/00	AEI/MAI	12,000	<10	570	32	680	1,200
	01/19/01	AEI/MAI	27,000	<200	3,400	110	2,200	2,700
	04/26/01	AEI/MAI	33,000	<200	3,300	190	2,800	3,400
	08/03/01	AEI/MAI	23,000	<50	2,300	52	1,800	1,400
	11/05/01	AEI/MAI	30,000	<200	1,900	58	2,000	1,600
	03/29/02	**AEI/MAI**	**29,000**	**ND<100**	**2,100**	**57**	**2,500**	**1,700**
MRL			50.0	5.0	0.5	0.5	0.5	0.5

MRL = Method Reporting Limit, unless otherwise shown
µg/L = micrograms per liter
AEI = AEI Consultants
MAI = McCampbell Analytical, Inc.
TPHg = total petroleum hydrocarbons as gasoline
MTBE = methyl tertiary butyl ether

APPENDIX A

WELL FIELD SAMPLING FORMS

AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM	
Monitoring Well Number: MW-1	
Project Name: Jay Phares	Date of Sampling: 03/29/02
Job Number: 3581	Name of Sampler: OA/DP
Project Address: 1450 Fruitvale Avenue	
MONITORING WELL DATA	
Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Cement, good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	42.13
Depth of Well	28.00
Depth to Water	7.96
Water Elevation	34.17
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	10.10
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	10.0
Appearance of Purge Water	Clear
GROUNDWATER SAMPLES	
Number of Samples/Container Size	2 VOAs

Time	Vol Remvd (gal)	Temp (deg c)	pH	Cond (us)	Comments
10:10	2	18.4	7.18	633	
10:11	4	17.9	7.25	615	
10:13	6	17.7	6.97	628	
10:14	8	18.1	6.78	691	
10:15	10	18.8	7.06	606	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)
Strong gasoline odor

TD - Total Depth of Well
DTW - Depth To Water

AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-2

Project Name: Jay Phares	Date of Sampling: 03/29/02
Job Number: 3581	Name of Sampler: OA/DP
Project Address: 1450 Fruitvale Avenue	

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Cement, good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	42.08
Depth of Well	28.00
Depth to Water	8.96
Water Elevation	33.12
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	9.62
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	10.0
Appearance of Purge Water	Clear

GROUNDWATER SAMPLES

Number of Samples/Container Size	2 VOAs

Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (us)	Comments
9:55	2	22.4	6.87	1062	
9:56	4	20.5	6.92	1089	
9:57	6	19.3	6.68	1075	
9:59	8	19.6	6.68	1076	
10:00	10	19.7	6.50	1021	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Strong HC odor

TD - Total Depth of Well
DTW - Depth To Water

AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-3

Project Name: Jay Phares	Date of Sampling: 03/29/02
Job Number: 3581	Name of Sampler: OA/DP
Project Address: 1450 Fruitvale Avenue	

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Cement, good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	42.55
Depth of Well	28.00
Depth to Water	9.20
Water Elevation	33.35
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	8.20
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	8.20
Appearance of Purge Water	Clear

GROUNDWATER SAMPLES

Number of Samples/Container Size	2 VOAs

Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (uS)	Comments
9:37	2	19.6	6.56	1097	
9:38	4	19.2	6.66	1008	
9:40	6	18.7	6.58	995	
9:41	8.2	18.9	6.61	1010	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Strong HC odor

TD - Total Depth of Well
DTW - Depth To Water

APPENDIX B

LABORATORY ANALYTICAL AND CHAIN OF CUSTODY DOCUMENTATION

McCampbell Analytical Inc.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc.	Client Project ID: #3581; Fruitvale	Date Sampled: 03/29/02
3210 Old Tunnel Rd., Ste. B		Date Received: 03/29/02
Lafayette, CA 94549-4157	Client Contact: Orion Alcalay	Date Extracted: 03/30/02-03/31/02
	Client P.O.:	Date Analyzed: 03/30/02-03/31/02

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with MTBE and BTEX*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0203516

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1	W	9500,a	ND<100	880	32	400	59	20	---#
002A	MW-2	W	7100,a	ND<100	930	11	220	39	20	---#
003A	MW-3	W	29000,a	ND<100	2100	57	2500	1700	20	---#
Reporting Limit for DF =1;		W	50	5	0.5	0.5	0.5	0.5		ug/L
ND means not detected at or above the reporting limit		S	1	0.05	0.005	0.005	0.005	0.005		mg/Kg

*water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipe samples in ug/wipe, and TCLP extracts in ug/L.

DF = dilution factor.

cluttered chromatogram; sample peak coelutes with surrogate peak.

(The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Direct

McCampbell Analytical Inc.
110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0203516

Client:
All Environmental, Inc.
3210 Old Tunnel Rd., Ste. B
Lafayette, CA 94549-4157

TEL:
FAX:
ProjectNo: #3581; Fruitvale
PO:

29-Mar-02

Sample ID	ClientSampID	Matrix	Collection Date	Bottle	Requested Tests 8021B/8015
0203516-001	MW-1	Water	3/29/02		A
0203516-002	MW-2	Water	3/29/02		A
0203516-003	MW-3	Water	3/29/02		A

Comments:

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

NOTICE: Solid samples are discarded after 60 days and Non-Solid samples are discarded after 30 days unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

zale533.doc 0203516

McCAMPBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

Report To: Orion Alcalay Bill To:
Company: All Environmental
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549-4157
Tele: (925) 283-6000 Fax: (925) 283-6121
Project #: 3581 Project Name: FRUITVALE
Project Location: 450 FRUITVALE/OAKLAND
Sampler Signature: David Rao

	SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	Soil	Air	Sludge	Other	METHOD PRESERVED Ice	HCl	HNO_3	Other	BTEX & TPH as Gas (602/8020 + 8015)/ MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Comments
(1)	MW-1		3/29/02		2		X					X	X			X																
(2)	MW-2		↓		2		↓					↓	↓			↓																
(3)	MW-3		↓		2		↓					↓	↓			↓																

Relinquished By:	Date:	Time:	Received By:
[signature]	3/29/02	12:12	[signature] 3/29/02 12:12
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Remarks:

ICE/T ☐ GOOD CONDITION ☐ HEAD SPACE ABSENT ☐ PRESERVATION APPROPRIATE ☐ CONTAINERS ☐ VOAS O&G METALS OTHER