



**ALL ENVIRONMENTAL, INC.**  
*Environmental Engineering & Construction*

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April 20, 1999

Mr. Barney Chan  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502

**Subject: Quarterly Groundwater Monitoring Report**  
Foothill Square Shopping Center  
10700 MacArthur Boulevard  
Oakland, California  
Project No. 3067

*SUC  
#875*

Dear Mr. Chan:

Enclosed a copy of the Quarterly Groundwater Monitoring and Sampling Report for the former Young's Cleaners issue at the above referenced property.

Please contact me at (925) 283-6000 if you have any questions.

Sincerely,  
**ALL ENVIRONMENTAL, INC.**

Peter McIntyre  
Project Geologist

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Corporate Headquarters:

901 Moraga Road, Suite C  
Lafayette, CA 94549-4567  
Phone : (925) 283-6000  
Fax: (925) 283-6121

(800) 801-3224  
[www.all-environmental.com](http://www.all-environmental.com)

Los Angeles Office:

2309 Pacific Coast Hwy, Suite 206  
Hermosa Beach, CA 90254-2753  
Phone: (310) 798-4255  
Fax: (310) 798-2841

April 20, 1999

**QUARTERLY GROUNDWATER MONITORING  
REPORT**  
*First Quarter 1999*

10700 MacArthur Boulevard  
Oakland, California

Project No. 3067

Prepared For

Mr. Richard Gilcrease  
Drake Builders  
5201 Sacramento Avenue  
Richmond, CA 94804

Prepared By

**All Environmental, Inc.**  
901 Moraga Road, Suite C  
Lafayette, CA 94549  
(925) 283-6000

**AEI**



# ALL ENVIRONMENTAL, INC.

*Environmental Engineering & Construction*

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April 20, 1999

Mr. Richard Gilcrease  
Drake Builders, Inc.  
5201 Sacramento Avenue  
Richmond, CA 94804

**RE: Quarterly Groundwater Monitoring and Sampling Report  
First Quarter 1999**

Foothill Square Shopping Center  
10700 MacArthur Boulevard  
Oakland, California  
Project No. 3067

Dear Mr. Gilcrease:

All Environmental, Inc. (AEI) has prepared this report on behalf of Drake Builders, in response to their request for a groundwater investigation at the above referenced site (Figure 1: Site Location Map). The investigation was initiated by the property owner in accordance with the requirements of the Alameda County Health Care Services Agency (ACHCSA). The purpose of this activity is to monitor groundwater quality associated with a former dry cleaning operation on the property. This report presents the findings of the First Quarter of 1999 groundwater monitoring and sampling conducted on January 29, 1999. Groundwater level measurements were taken at 13 wells and groundwater samples were collected from 7 of the wells.

### **Site Description and Background**

The site is located in a mixed commercial and residential area of Oakland, California. The property is currently developed with the Foothill Square Shopping Center (FSSC), before which the site was a truck manufacturing plant (refer to Figure 1: Site Location Map). One of the former tenants of the FSSC was Young's Cleaners. The cleaners was located in the northern building, centrally on the property. Young's Cleaners operated from between 1984 and 1995. Prior to 1980, a coin operated dry-cleaner, occupied the same location from 1962 to 1980. The cleaners have been on the Cal-SITES database list since 1980. Please refer to Figure 2 for the location of the former Young's Cleaners.

In 1989, Western Geologic Resources (WGR) installed five groundwater monitoring wells (WGR-MW1 through WGR-MW5) on the property to investigate a release associated with the ARCO gas station located west of the property.

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Between 1991 and 1993, RESNA Consultants (RESNA) conducted an investigation on behalf of ARCO to define the extent of hydrocarbon impact relating to the underground fuel release at the ARCO station. As a result of chlorinated solvents detected in several soil samples, the ACHCSA requested further investigation to define the vertical and lateral extent of tetrachloroethylene (PCE) at both the ARCO site and the Foothill Square Shopping Center.

In order to assess the source and extent of PCE impact, Augeas Corporation (Augeas) installed nine groundwater monitoring wells (AMW-1 through AMW-9) on the property between September 1994 and August 1995. Two other wells, MW-6 and MW-7, were also installed on the property by ARCO. Augeas sampled these nine wells and those previously installed on the property from October 1994 through September 1995. This sampling indicated the source of the PCE contamination to be a release of solvents from the former Young's Cleaners location and an associated underground sanitary sewer lateral.

Between October 1995 and January 1996, AEI excavated contaminated soil in and around the former dry cleaning facility. The excavation was extended to between 7 and 18 feet below ground surface. Approximately 2,400 cubic yards of soil was generated during the excavation. With the approval of the Bay Area Air Quality Management District, the stockpiled soil was spread over the southeast corner of the property for aeration. During the excavation, soil aeration, and subsequent paving of the parking lot area, four of the wells, WGR-MW1, WGR-MW5, AMW-2 and AMW-3, were damaged or covered over. Please refer to Figure 2 for locations of the remaining wells.

A Phase II subsurface investigation was performed by PES Environmental, Inc. (PES) in December 1996 and January 1997 to assess whether PCE groundwater contamination had migrated off-site. The results of this off-site groundwater sampling indicated that PCE was not present off-site in the shallow groundwater zone. Concentrations of PCE were detected in the deep groundwater zone to the west of the property along Myers Street and near the ARCO station. PES concluded that the PCE plume had not migrated substantially off-site but recommended the installation of two off-site sentry wells to monitor the stability of the PCE plume in the deep groundwater zone. Two wells, FHS-MW10 and FHS-MW-11 were installed west of the property by PES in March 1997.

Groundwater monitoring conducted by PES indicated that concentrations of PCE up to 4,600 µg/L existed in the groundwater just west of the former Young's Cleaners in AMW-6. Also present in and around AMW-6 were breakdown products of PCE [trichloroethene (TCE), cis 1,2 dichloroethene (cis 1,2 DCE), and trans 1,2 dichloroethene (trans 1,2 DCE)], indicating degradation of PCE is occurring in the subsurface.

In a letter dated October 30, 1998, the ACHCSA requested the further sampling of three shallow wells: AMW-4, AMW-6, and AMW-7 and four deep wells: AMW-9, FHS MW-10, FHS MW-11, and MW-6. The following report describes the groundwater monitoring and sampling activities conducted by AEI on January 29, 1999.

### **Summary of Activities**

AEI measured the depth to groundwater in the 13 remaining wells and collected water samples from 7 of the wells on January 29, 1999. The well locations are shown in Figure 2. The depth from the top of the well casings were measured prior to sampling with an electric water level indicator. The elevations of the top of the well casings were obtained from a previous groundwater monitoring report prepared by PES. The wells were purged using a battery powered submersible pump and a groundwater sample was collected from the seven wells using clean disposable Teflon bailers.

Temperature, pH, and turbidity were measured during the purging of the 7 wells. AEI removed at least 3 well volumes. Once the temperature, pH, and turbidity stabilized, a water sample was collected.

Water was poured from the bailers into 40-ml VOA vials and capped so that there was no head space or visible air bubbles 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).

Seven groundwater samples were submitted for chemical analyses for Volatile Halocarbons (VHCs) by EPA method 601/8010.

### **Field Results**

No solvent odor was observed during the purging and sampling activities. In the shallow groundwater zone located between approximately 42 to 52 feet above mean sea level, flow direction was calculated to be to the west to northwest. This is relatively consistent with results obtained in September 1997. In the deeper groundwater zone located between approximately 28 to 42 feet above mean sea level, groundwater was calculated to flow to the southwest. This is also consistent with previous results.

Groundwater elevation data is summarized in Table 1. The groundwater elevation contours and the groundwater flow direction are shown in Figure 3 and Figure 4. Refer to Appendix A for the Groundwater Monitoring Well Field Sampling Forms.

## **Groundwater Quality**

Significant levels of PCE, TCE, cis 1,2 DCE, and trans 1,2 DCE were detected in the shallow water samples taken from AMW-4, AMW-6, and AMW-7, with the highest concentrations detected in AMW-6, just south of the former Young's Cleaners. Levels of PCE up to 90 µg/L were also detected in deep water samples taken from AMW-9 and MW-6. PCE was detected at 7 µg/L in sentry well FHS MW-11, east of the property, across MacArthur Boulevard.

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

## **Conclusions and Recommendations**

Significant levels of PCE remain in the groundwater in the vicinity of the former Young's Cleaners. The presence of TCE; cis 1,2 DCE; and trans 1,2 DCE in shallow wells AMW-6 and AMW-7 indicate the degradation of PCE is occurring in the subsurface. Results of samples analyzed from the off-site sentry wells indicate that the contaminant plume is not migrating significantly off-site in the deeper groundwater zone.

All Environmental, Inc. recommends the continued quarterly ground water monitoring and sampling of the wells. AEI proposes to collect water samples from the same wells sampled during the previous episode and obtain water level measurements from all accessible wells. The next monitoring and sampling episode is scheduled for early May 1999, as per the requirements of the ACHCSA.

## **References**

- Augeas Corporation. *Report of Subsurface Investigation, Young's Cleaners, 10700 MacArthur Boulevard, Oakland, California, December 1995*
- All Environmental, Inc. *Soil Remediation and Excavation Project Summary, Young's Cleaners, Foothill Shopping Center, 10700 MacArthur Boulevard, Oakland, California, February 7, 1996*
- PES Environmental, Inc. *Groundwater Monitoring Well Installation, Foothill Square Shopping Center, 10700 MacArthur Boulevard, Oakland, California, February 3, 1997*
- PES Environmental, Inc. *Results of Additional Groundwater Investigation and Risk Evaluation, Former Young's Cleaners, Foothill Square Shopping Center, 10700 MacArthur Boulevard, Oakland, California, March 24, 1997*

*Drake Builders, Inc.*

*Project No. 3067*

*April 20, 1999*

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PES Environmental, Inc. Quarterly Monitoring and Well Installation Report, *Former Young's Cleaners, Foothill Square Shopping Center, 10700 MacArthur Boulevard, Oakland, California, January 22, 1998*

## Report Limitations and Signatures


This report presents a summary of work completed by All Environmental, Inc., 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.

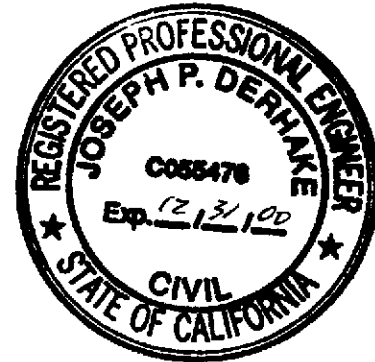
Sincerely,  
All Environmental, Inc.



Peter McIntyre  
Project Geologist



J. P. Derhake, PE, CAC  
Senior Author



### Figures

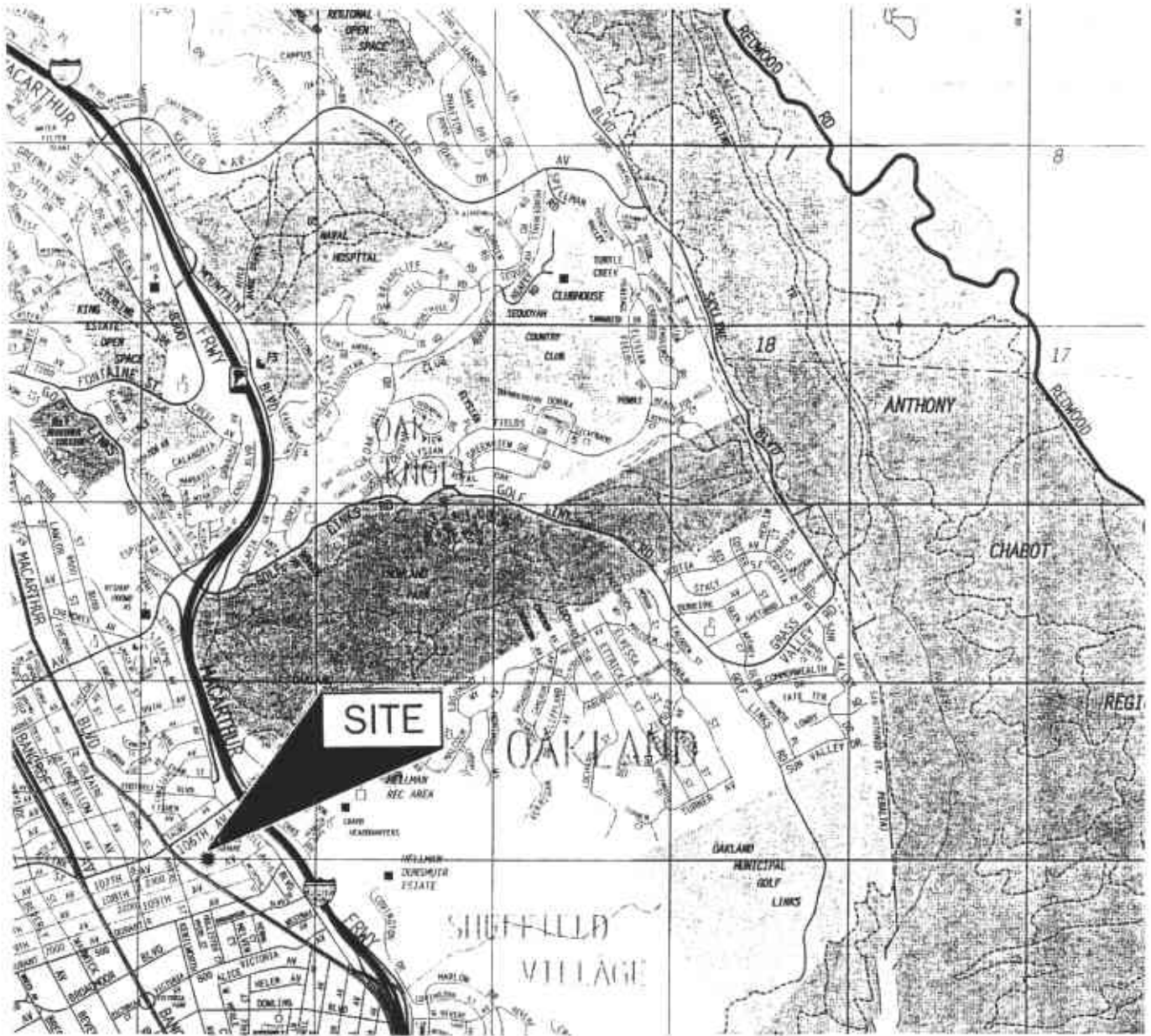
- |          |                                      |
|----------|--------------------------------------|
| Figure 1 | Site Location Map                    |
| Figure 2 | Site Plan                            |
| Figure 3 | Groundwater Elevation – Deep Zone    |
| Figure 4 | Groundwater Elevation – Shallow Zone |
| Figure 5 | PCE Concentrations – Deep Zone       |
| Figure 6 | PCE Concentrations – Shallow Zone    |

### Appendices

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

cc: Barney Chan, Alameda County Health Care Services Agency





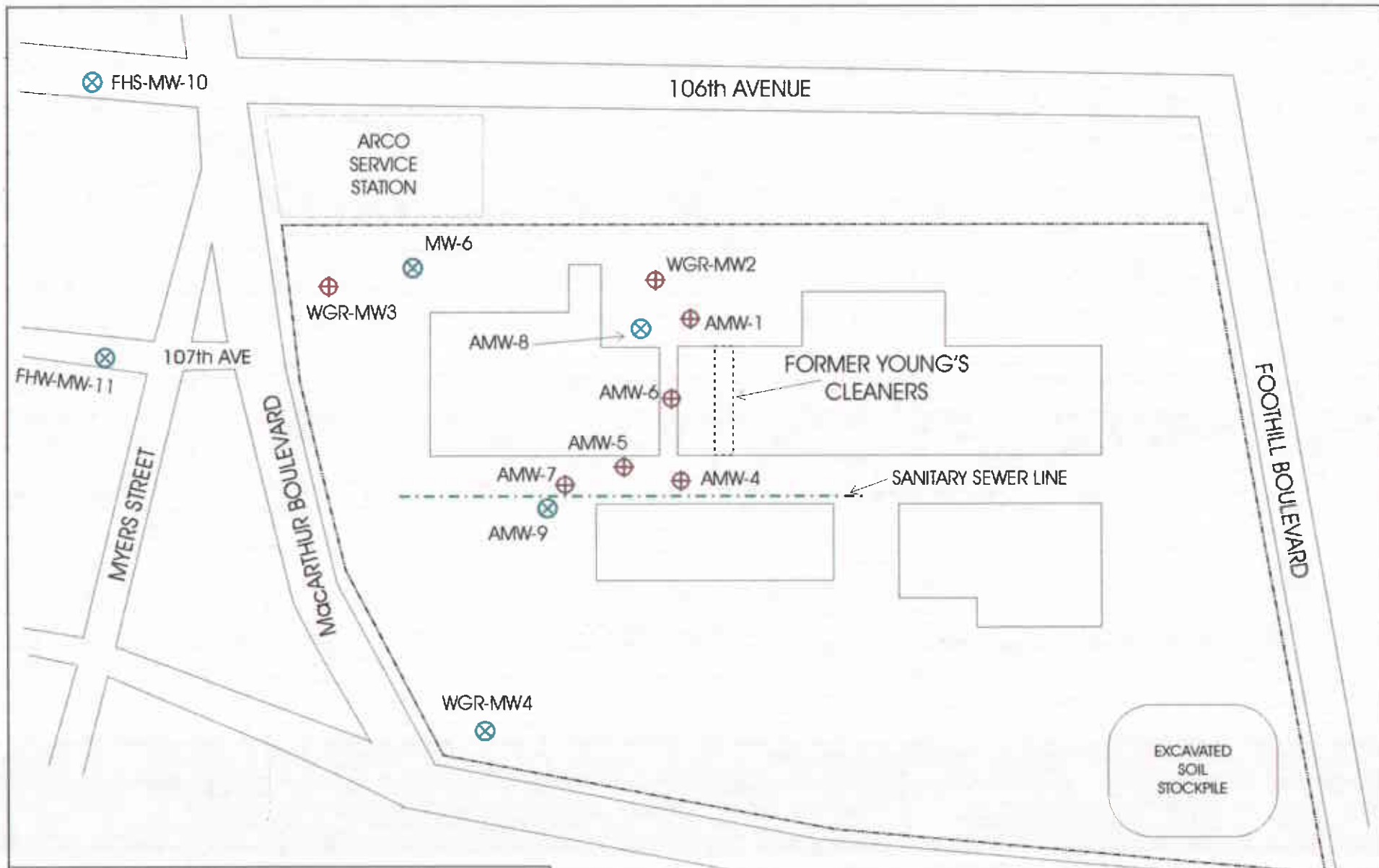
SOURCE:  
 THOMAS GUIDE  
 1997 EDITION  
 SCALE: 1in. = 2,400 ft.

ALL ENVIRONMENTAL, INC.  
 901 MORAGA ROAD, SUITE C, LAFAYETTE, CA

**SITE LOCATION MAP**

10700 FOOTHILL BOULEVARD  
 OAKLAND, CALIFORNIA

FIGURE I



**ALL ENVIRONMENTAL, INC.**  
 901 MORAGA ROAD, SUITE C, LAFAYETTE, CA

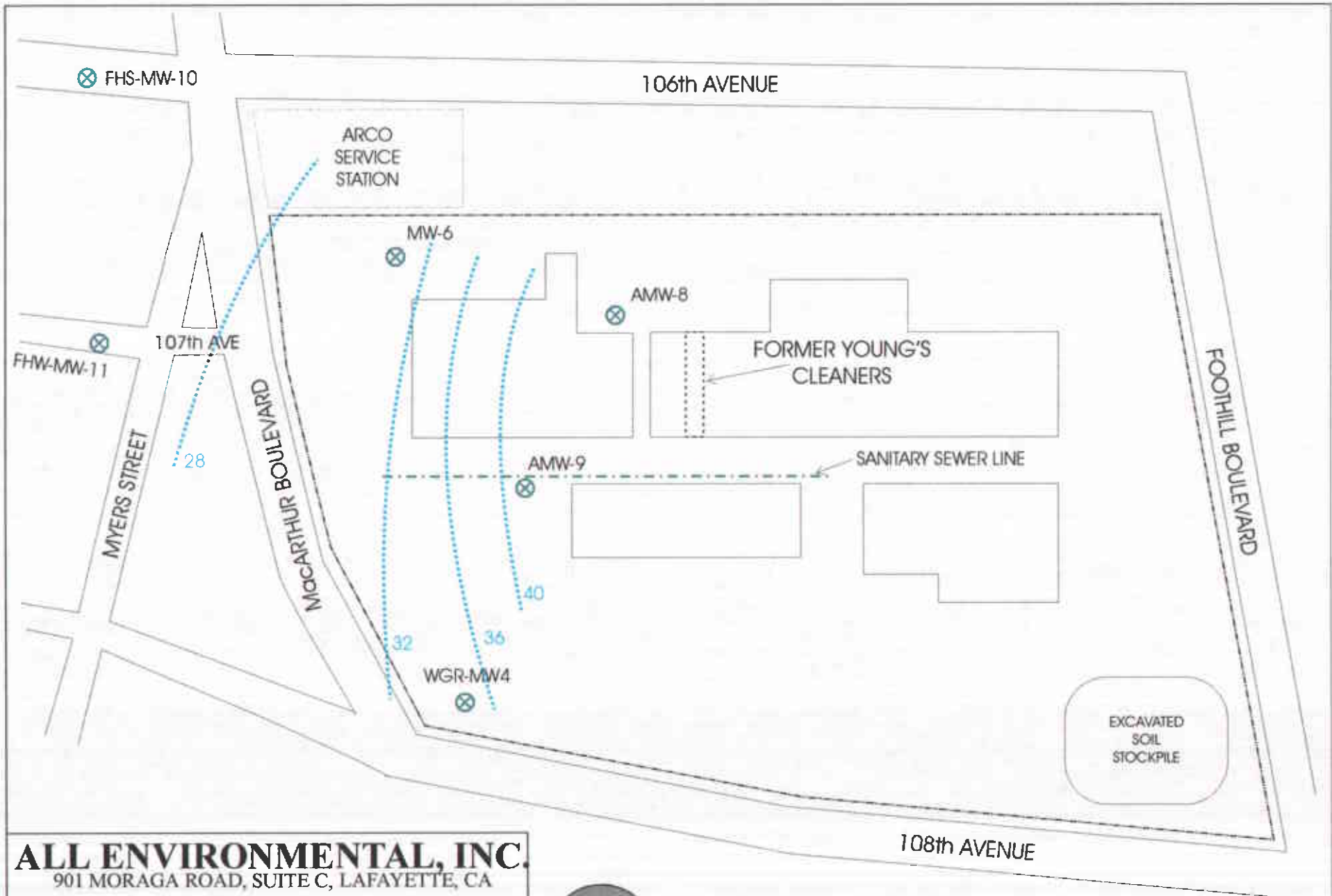
**SITE PLAN**

10700 MACARTHUR BOULEVARD  
 OAKLAND, CALIFORNIA

FIGURE 2



-  SHALLOW GROUNDWATER ZONE WELL
-  DEEP GROUNDWATER ZONE WELL



**ALL ENVIRONMENTAL, INC.**  
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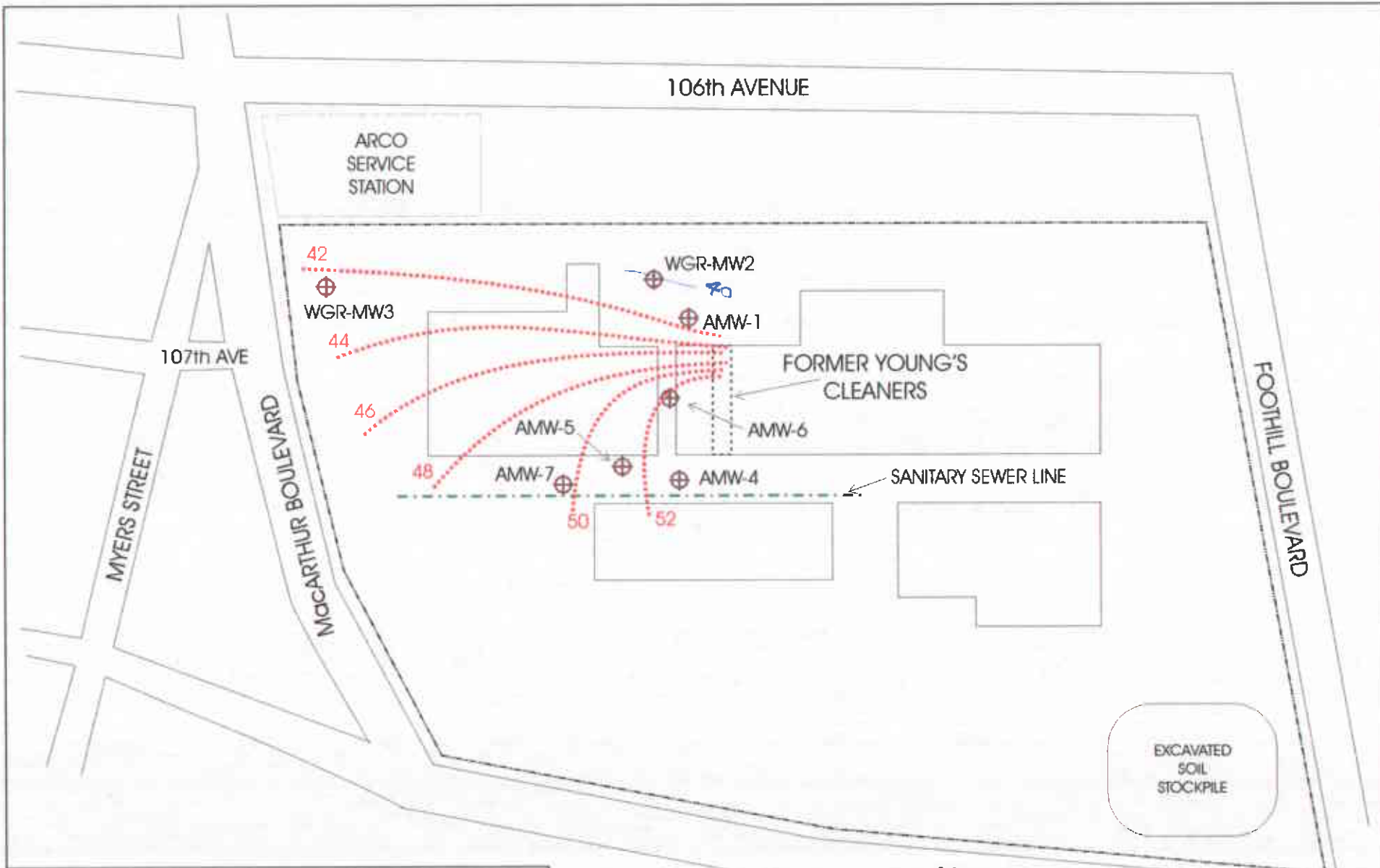
**WATER ELEVATIONS - DEEP ZONE**

10700 MACARTHUR BOULEVARD  
 OAKLAND, CALIFORNIA

FIGURE 3



- ⊗ DEEP GROUNDWATER ZONE WELL
- DEEP ZONE GROUNDWATER CONTOUR (INFERRED)  
 IN FEET ABOVE MEAN SEA LEVEL



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**WATER ELEVATIONS - SHALLOW ZONE**

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 OAKLAND, CALIFORNIA

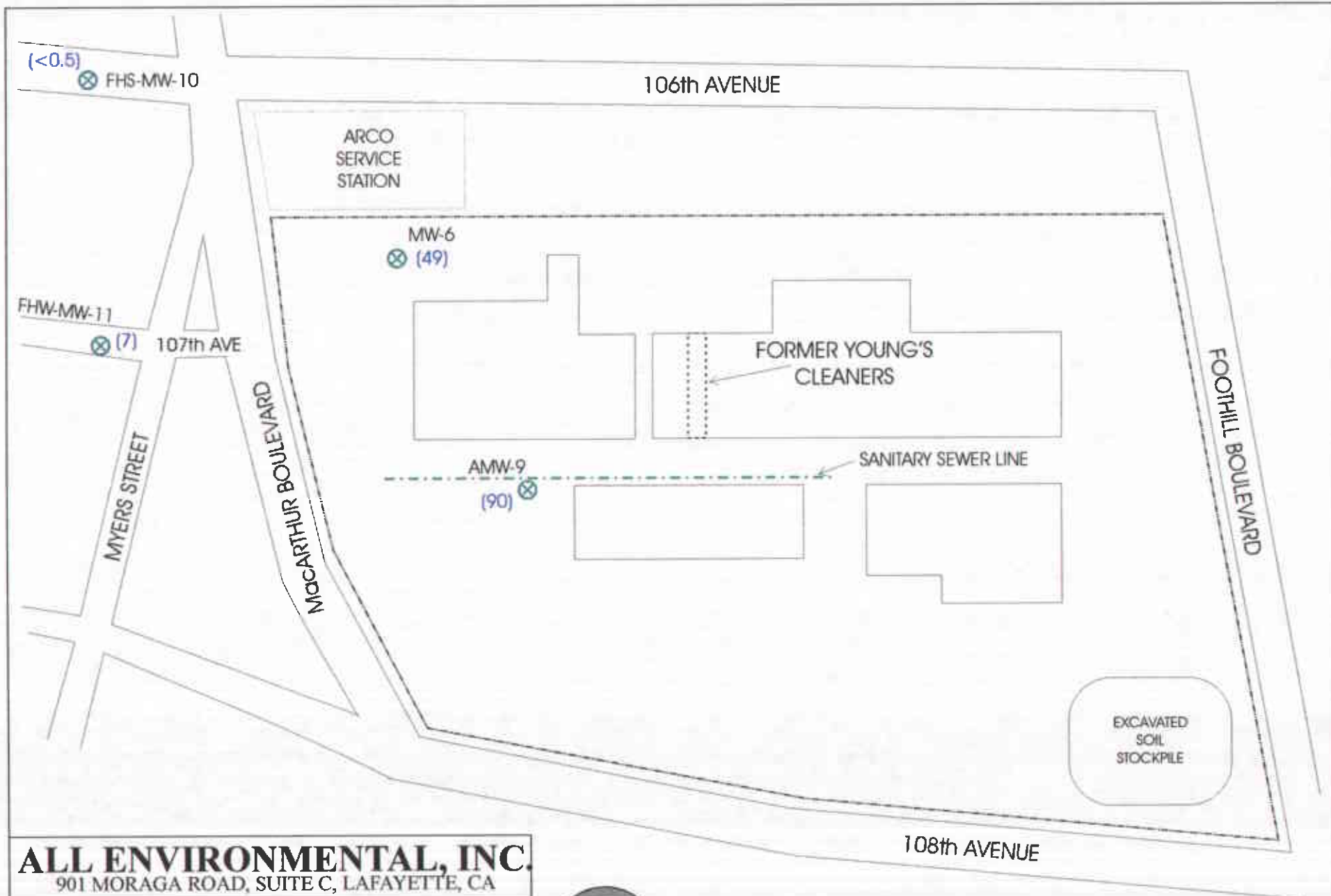
FIGURE 4



⊕ SHALLOW GROUNDWATER ZONE WELL

44 - - - - SHALLOW ZONE GROUNDWATER CONTOUR (INFERRED)  
 IN FEET ABOVE MEAN SEA LEVEL





**ALL ENVIRONMENTAL, INC.**

901 MORAGA ROAD, SUITE C, LAFAYETTE, CA

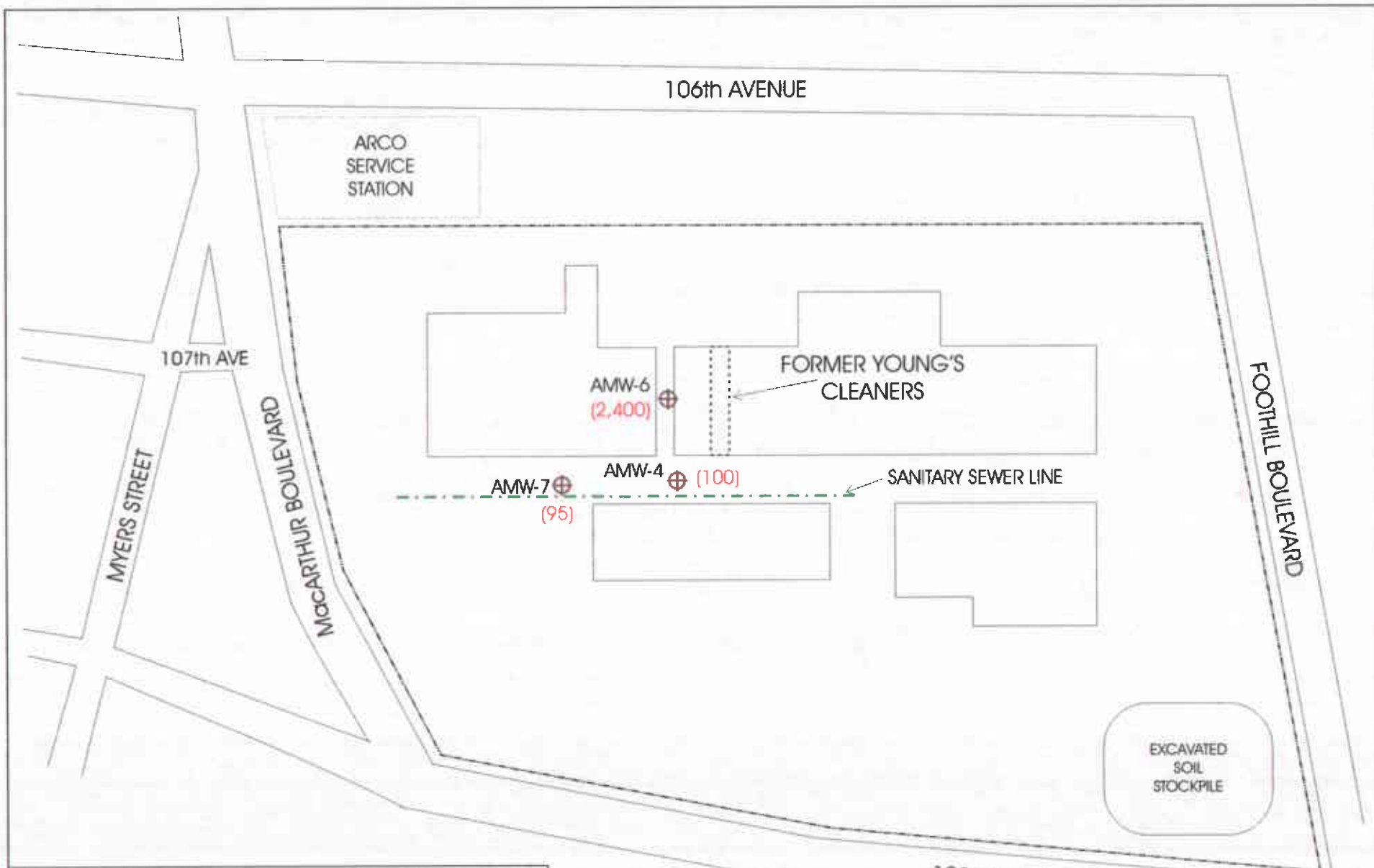
**PCE CONCENTRATIONS - DEEP ZONE**

10700 MACARTHUR BOULEVARD  
OAKLAND, CALIFORNIA

FIGURE 5



- ⊗ DEEP GROUNDWATER ZONE WELL
- (100) CONCENTRATIONS OF PCE IN  $\mu\text{g/L}$  IN DEEP GROUNDWATER ZONE



**ALL ENVIRONMENTAL, INC.**  
 901 MORAGA ROAD, SUITE C, LAFAYETTE, CA

**PCE CONCENTRATIONS - SHALLOW ZONE**

10700 MACARTHUR BOULEVARD  
 OAKLAND, CALIFORNIA

FIGURE 6



- ⊕ SHALLOW GROUNDWATER ZONE WELL
- (100) CONCENTRATIONS OF PCE IN µg/L IN SHALLOW GROUNDWATER ZONE

**Table 1**  
**Groundwater Levels**  
*January 29, 1999*

Well ID	Date	Well Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)	Groundwater Zone
AMW-1	1/29/99	64.51	23.01	41.50	Shallow
AMW-4	1/29/99	64.79	11.51	53.28	Shallow
AMW-5	1/29/99	64.97	13.87	51.10	Shallow
AMW-6	1/29/99	65.10	12.74	52.36	Shallow
AMW-7	1/29/99	64.24	14.91	49.33	Shallow
AMW-8	1/29/99	64.55	16.86	47.69	Deep
AMW-9	1/29/99	63.48	23.22	40.26	Deep
WGR MW-2	1/29/99	63.18	23.41	39.77	Shallow
WGR MW-3	1/29/99	58.34	15.81	42.53	Shallow
WGR MW-4	1/29/99	60.02	26.23	33.79	Deep
FHS MW-10	1/29/99	52.34	23.91	28.43	Deep
FHS MW-11	1/29/99	54.06	26.38	27.68	Deep
MW-6	1/29/99	61.78	32.87	28.91	Deep

Notes: All well elevations are measured from the top of casing not from the ground surface.  
ft msl = feet above mean sea level

**Table 2**  
**Groundwater Sample Analytical Data**  
*January 29, 1999*

Compound	AMW-4 (shallow) µg/L	AMW-6 (shallow) µg/L	AMW-7 (shallow) µg/L	AMW-9 (deep) µg/L	FHS MW-10 (deep) µg/L	FHS MW-11 (deep) µg/L	MW-6 (deep) µg/L	M.C.L.s µg/L
cis 1,2-Dichloroethene (cis 1,2 DCE)	<3	270	22	<4	<0.5	<0.5	1.4	6
trans 1,2-Dichloroethene (trans 1,2 DCE)	<3	77	<3	<4	<0.5	<0.5	<1.3	10
Tetrachloroethene (PCE)	100	2,400	95	90	<0.5	7	49	5
Trichloroethene (TCE)	<3	390	12	<4	<0.5	<0.5	3	5
All others by EPA method 601/8010	<3	<63	<3	<4	<0.6	<0.6	<1.3	

M.C.L.s = Maximum Contaminant Levels, listed for detected chemicals only



**APPENDIX A**

**GROUNDWATER MONITORING WELL FIELD  
SAMPLING FORMS**

**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: AMW-1 (shallow)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Blvd, Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	Replace
Elevation of Top of Casing	64.51
Depth of Well	34
Depth to Water	23.01
Water Elevation	41.5
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	5.28
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	
Appearance of Purge Water	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size					
Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments

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

Well not purged or sampled

TD - Total Depth of Well  
DTW - Depth To Water

**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: AMW-4 (shallow)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Boulevard, Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	Replace
Elevation of Top of Casing	64.79
Depth of Well	25
Depth to Water	11.51
Water Elevation	53.28
<b>Three Well Volumes (gallons)*</b>	
2" casing: (TD - DTW)(0.16)(3)	6.48
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	7
Appearance of Purge Water	Slightly turbid

**GROUNDWATER SAMPLES**

Number of Samples/Container Size	2 VOAs
----------------------------------	--------

Time	Vol Remvd (gal)	Temp (deg C)	PH	Cond (mS)	Comments
	2	61.8	1043	1850	
	4	61.6	1039	2000	
	6	62.1	1040	2060	

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

TD - Total Depth of Well  
DTW - Depth To Water

**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: AMW-5 (shallow)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Blvd, Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	Replace
Elevation of Top of Casing	64.97
Depth of Well	30
Depth to Water	13.87
Water Elevation	51.1
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	7.74
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	
Appearance of Purge Water	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size					
Time	Vol Remvd (gal)	Temp (deg C)	PH	Cond (mS)	Comments

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

Well not purged or sampled

TD - Total Depth of Well  
DTW - Depth To Water

ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM					
<b>Monitoring Well Number: AMW-6 (shallow)</b>					
Project Name: Drake Builders			Date of Sampling: 1/29/99		
Job Number: 3067			Name of Sampler: PJM		
Project Address: 10700 Foothill Blvd., Oakland					
MONITORING WELL DATA					
Well Casing Diameter (2"/4"/6")			2"		
Seal at Grade -- Type and Condition			Cement / Good		
Well Cap & Lock -- OK/Replace			Replace		
Elevation of Top of Casing			65.1		
Depth of Well			25		
Depth to Water			12.74		
Water Elevation			52.36		
Three Well Volumes (gallons)*					
2" casing: (TD - DTW)(0.16)(3)			5.88		
4" casing: (TD - DTW)(0.65)(3)					
6" casing: (TD - DTW)(1.44)(3)					
Actual Volume Purged (gallons)			6		
Appearance of Purge Water			Slightly turbid		
GROUNDWATER SAMPLES					
Number of Samples/Container Size			2 VOAs		
Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments
	2	59.2	10.21	2430	
	4	58.5	10.04	2430	
	6	59.1	10.28	2370	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)					

TD - Total Depth of Well  
DTW - Depth To Water

ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM					
Monitoring Well Number: AMW-7 (shallow)					
Project Name: Drake Builders			Date of Sampling: 1/29/99		
Job Number: 3067			Name of Sampler: PJM		
Project Address: 10700 Foothill Blvd, Oakland					
MONITORING WELL DATA					
Well Casing Diameter (2"/4"/6")			2"		
Seal at Grade -- Type and Condition			Cement / Good		
Well Cap & Lock -- OK/Replace			Replace		
Elevation of Top of Casing			64.24		
Depth of Well			24.75		
Depth to Water			14.91		
Water Elevation			49.33		
Three Well Volumes (gallons)*					
2" casing: (TD - DTW)(0.16)(3)			4.72		
4" casing: (TD - DTW)(0.65)(3)					
6" casing: (TD - DTW)(1.44)(3)					
Actual Volume Purged (gallons)			5		
Appearance of Purge Water			Turbid, clears		
GROUNDWATER SAMPLES					
Number of Samples/Container Size					
Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments
	2	67.7	10.26	2110	
	4	67.3	10.40	2110	
	5	66.1	10.33	2070	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)					
Slight rotten eggs smell during purging					

TD - Total Depth of Well  
DTW - Depth To Water

**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: AMW-8 (deep)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Blvd, Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	Replace
Elevation of Top of Casing	64.55
Depth of Well	45
Depth to Water	16.86
Water Elevation	47.69
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	
Appearance of Purge Water	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size					
Time	Vol Remvd (gal)	Temp (deg C)	PH	Cond (mS)	Comments

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

Well not purged or sampled

TD - Total Depth of Well  
DTW - Depth To Water

**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: AMW-9 (deep)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Boulevard, Oakland	

**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	63.48
Depth of Well	54.30
Depth to Water	23.22
Water Elevation	40.26
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	14.92
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	17
Appearance of Purge Water	Clear

**GROUNDWATER SAMPLES**

Number of Samples/Container Size		2 VOAs			
Time	Vol Remvd (gal)	Temp (deg C)	PH	Cond (mS)	Comments
	4	63.8	10.42	2180	Slow recharge
	10	65.5	10.46	2140	
	14	67.3	10.31	2280	Turbid

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

Rotten egg smell

TD - Total Depth of Well  
DTW - Depth To Water



**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: WGR-MW-2 (shallow)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Blvd., Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	4"
Seal at Grade -- Type and Condition	Cement /Good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	63.18
Depth of Well	28
Depth to Water	23.41
Water Elevation	39.77
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	
Appearance of Purge Water	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size					
Time	Vol Remvd (gal)	Temp (deg C)	PH	Cond (mS)	Comments

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

Well not purged or sampled

TD - Total Depth of Well  
DTW - Depth To Water

**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: WGR-MW-3 (shallow)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Blvd., Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	4"
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	58.34
Depth of Well	26.94
Depth to Water	15.81
Water Elevation	42.53
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	
Appearance of Purge Water	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size					
Time	Vol Remvd (gal)	Temp (deg C)	PH	Cond (mS)	Comments

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

Well not purged or sampled

TD - Total Depth of Well  
DTW - Depth To Water

**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: WGR-MW-4 (deep)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Blvd., Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	4"
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	60.02
Depth of Well	44.96
Depth to Water	26.23
Water Elevation	33.79
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	
Appearance of Purge Water	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size					
Time	Vol Remvd (gal)	Temp (deg C)	PH	Cond (mS)	Comments

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

Well not purged or sampled

TD - Total Depth of Well  
DTW - Depth To Water

ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM					
<b>Monitoring Well Number: FHS-MW 10 (deep)</b>					
Project Name: Drake Builders			Date of Sampling: 1/29/99		
Job Number: 3067			Name of Sampler: PJM		
Project Address: 10700 Foothill Boulevard, Oakland					
MONITORING WELL DATA					
Well Casing Diameter (2"/4"/6")			2"		
Seal at Grade -- Type and Condition			Cement / Good		
Well Cap & Lock -- OK/Replace			Replace		
Elevation of Top of Casing			52.34		
Depth of Well			51.94		
Depth to Water			23.91		
Water Elevation			28.43		
Three Well Volumes (gallons)*					
2" casing: (TD - DTW)(0.16)(3)			13.45		
4" casing: (TD - DTW)(0.65)(3)					
6" casing: (TD - DTW)(1.44)(3)					
Actual Volume Purged (gallons)			15		
Appearance of Purge Water			Clear		
GROUNDWATER SAMPLES					
Number of Samples/Container Size			2 VOAs		
Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments
	3	59.5	10.17	566	
	7	62.2	10.37	578	
	12	62.8	10.36	578	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)					
Clear - no odor					

TD - Total Depth of Well  
DTW - Depth To Water

**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: FHS MW-11 (deep)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Blvd., Oakland	

**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	54.06
Depth of Well	64.07
Depth to Water	26.38
Water Elevation	27.68
<b>Three Well Volumes (gallons)*</b>	
2" casing: (TD - DTW)(0.16)(3)	18.09
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	20
Appearance of Purge Water	Clear

**GROUNDWATER SAMPLES**

Number of Samples/Container Size	2 VOAs
----------------------------------	--------

Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments
	3	63.2	10.39	639	
	7	66.2	10.48	744	
	14	66.9	10.47	757	

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

TD - Total Depth of Well  
DTW - Depth To Water

**ALL ENVIRONMENTAL INC. - GROUNDWATER MONITORING WELL  
FIELD SAMPLING FORM**

**Monitoring Well Number: MW-6 (deep)**

Project Name: Drake Builders	Date of Sampling: 1/29/99
Job Number: 3067	Name of Sampler: PJM
Project Address: 10700 Foothill Blvd., Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	Replace
Elevation of Top of Casing	61.78
Depth of Well	48.69
Depth to Water	32.87
Water Elevation	28.91
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	7.59
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	8
Appearance of Purge Water	Clear

**GROUNDWATER SAMPLES**

Number of Samples/Container Size	2 VOAs
----------------------------------	--------

Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments
	2	64.5	10.48	1880	
	4	64.5	10.24	1820	
	7	63.4	10.31	1780	

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

TD - Total Depth of Well  
DTW - Depth To Water

**APPENDIX B**

**LABORATORY ANALYSES WITH  
CHAIN OF CUSTODY DOCUMENTATION**



McCAMPBELL ANALYTICAL INC.

110 Second Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

All Environmental, Inc. 901 Moraga Road, Suite C Lafayette, CA 94549	Client Project ID: #3067; Drake	Date Sampled: 01/29/99
		Date Received: 01/29/99
	Client Contact: Peter McIntyre	Date Extracted: 01/29/99
	Client P.O:	Date Analyzed: 01/29/99

02/05/99

Dear Peter:

Enclosed are:

- 1). the results of 7 samples from your #3067; Drake project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director





McCAMPBELL ANALYTICAL INC.

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 Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

All Environmental, Inc. 901 Moraga Road, Suite C Lafayette, CA 94549	Client Project ID: #3067; Drake	Date Sampled: 01/29/99
	Client Contact: Peter McIntyre	Date Received: 01/29/99
	Client P.O:	Date Extracted: 02/01-02/04/99
		Date Analyzed: 02/01-02/04/99

**Volatile Halocarbons**

EPA method 601 or 8010

Lab ID	02586	02587	02588	02589
Client ID	AMW-4	AMW-6	AMW-7	AMW-9
Matrix	W	W	W	W
Compound	Concentration			
Bromodichloromethane	ND<3	ND<63	ND<3	ND<4
Bromoform <sup>(b)</sup>	ND<3	ND<63	ND<3	ND<4
Bromomethane	ND<3	ND<63	ND<3	ND<4
Carbon Tetrachloride <sup>(c)</sup>	ND<3	ND<63	ND<3	ND<4
Chlorobenzene	ND<3	ND<63	ND<3	ND<4
Chloroethane	ND<3	ND<63	ND<3	ND<4
2-Chloroethyl Vinyl Ether <sup>(d)</sup>	ND<3	ND<63	ND<3	ND<4
Chloroform <sup>(e)</sup>	ND<3	ND<63	ND<3	ND<4
Chloromethane	ND<3	ND<63	ND<3	ND<4
Dibromochloromethane	ND<3	ND<63	ND<3	ND<4
1,2-Dichlorobenzene	ND<3	ND<63	ND<3	ND<4
1,3-Dichlorobenzene	ND<3	ND<63	ND<3	ND<4
1,4-Dichlorobenzene	ND<3	ND<63	ND<3	ND<4
Dichlorodifluoromethane	ND<3	ND<63	ND<3	ND<4
1,1-Dichloroethane	ND<3	ND<63	ND<3	ND<4
1,2-Dichloroethane	ND<3	ND<63	ND<3	ND<4
1,1-Dichloroethene	ND<3	ND<63	ND<3	ND<4
cis 1,2-Dichloroethene	ND<3	270	22	ND<4
trans 1,2-Dichloroethene	ND<3	77	ND<3	ND<4
1,2-Dichloropropane	ND<3	ND<63	ND<3	ND<4
cis 1,3-Dichloropropene	ND<3	ND<63	ND<3	ND<4
trans 1,3-Dichloropropene	ND<3	ND<63	ND<3	ND<4
Methylene Chloride <sup>(f)</sup>	ND<5	ND<95	ND<5	ND<4
1,1,1,2-Tetrachloroethane	ND<3	ND<63	ND<3	ND<4
Tetrachloroethene	100	2400	95	90
1,1,1-Trichloroethane	ND<3	ND<63	ND<3	ND<4
1,1,2-Trichloroethane	ND<3	ND<63	ND<3	ND<4
Trichloroethene	ND<3	390	12	ND<4
Trichlorofluoromethane	ND<3	ND<63	ND<3	ND<4
Vinyl Chloride <sup>(g)</sup>	ND<3	ND<63	ND<3	ND<4
% Recovery Surrogate	99	102	101	99
Comments				

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil and sludge samples in ug/kg, wipe samples in ug/wipe  
 Reporting limit unless otherwise stated: water/TCLP/SPLP extracts, ND<0.5ug/L; soils and sludges, ND<5ug/kg; wipes, ND<0.2ug/wipe  
 ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) tribromomethane; (c) tetrachloromethane; (d) (2-chloroethoxy) ethene; (e) trichloromethane; (f) dichloromethane; (g) chloroethene; (h) a lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content.



McCAMPBELL ANALYTICAL INC.

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All Environmental, Inc. 901 Moraga Road, Suite C Lafayette, CA 94549	Client Project ID: #3067; Drake	Date Sampled: 01/29/99
		Date Received: 01/29/99
	Client Contact: Peter McIntyre	Date Extracted: 02/01-02/04/99
	Client P.O:	Date Analyzed: 02/01-02/04/99

**Volatile Halocarbons**

EPA method 601 or 8010

Lab ID	02590	02591	02592	
Client ID	FHSMW-10	FHSMW-11	MW-6	
Matrix	W	W	W	
Compound	Concentration			
Bromodichloromethane	ND	ND	ND<1.3	
Bromoform <sup>(b)</sup>	ND	ND	ND<1.3	
Bromomethane	ND	ND	ND<1.3	
Carbon Tetrachloride <sup>(c)</sup>	ND	ND	ND<1.3	
Chlorobenzene	ND	ND	ND<1.3	
Chloroethane	ND	ND	ND<1.3	
2-Chloroethyl Vinyl Ether <sup>(d)</sup>	ND	ND	ND<1.3	
Chloroform <sup>(e)</sup>	ND	ND	ND<1.3	
Chloromethane	ND	ND	ND<1.3	
Dibromochloromethane	ND	ND	ND<1.3	
1,2-Dichlorobenzene	ND	ND	ND<1.3	
1,3-Dichlorobenzene	ND	ND	ND<1.3	
1,4-Dichlorobenzene	ND	ND	ND<1.3	
Dichlorodifluoromethane	ND	ND	ND<1.3	
1,1-Dichloroethane	ND	ND	ND<1.3	
1,2-Dichloroethane	ND	ND	ND<1.3	
1,1-Dichloroethene	ND	ND	ND<1.3	
cis 1,2-Dichloroethene	ND	ND	1.4	
trans 1,2-Dichloroethene	ND	ND	ND<1.3	
1,2-Dichloropropane	ND	ND	ND<1.3	
cis 1,3-Dichloropropene	ND	ND	ND<1.3	
trans 1,3-Dichloropropene	ND	ND	ND<1.3	
Methylene Chloride <sup>(f)</sup>	ND	ND	ND<1.3	
1,1,2,2-Tetrachloroethane	ND	ND	ND<1.3	
Tetrachloroethene	ND	7.0	49	
1,1,1-Trichloroethane	ND	ND	ND<1.3	
1,1,2-Trichloroethane	ND	ND	ND<1.3	
Trichloroethene	ND	ND	3.0	
Trichlorofluoromethane	ND	ND	ND<1.3	
Vinyl Chloride <sup>(g)</sup>	ND	ND	ND<1.3	
% Recovery Surrogate	99	98	99	
Comments				

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil and sludge samples in ug/kg, wipe samples in ug/wipe  
 Reporting limit unless otherwise stated: water/TCLP/SPLP extracts, ND<0.5ug/L; soils and sludges, ND<5ug/kg; wipes, ND<0.2ug/wipe  
 ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) tribromomethane; (c) tetrachloromethane; (d) (2-chloroethoxy) ethene; (e) trichloromethane; (f) dichloromethane; (g) chloroethene; (h) a lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content.

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553  
 Tele: 925-798-1620 Fax: 925-798-1622

QC REPORT FOR EPA 8010/8020/EDB

Date: 02/01/99-02/02/99

Matrix: WATER

Analyte	Concentration (ug/L)				% Recovery		
	Sample (#02456)	MS	MSD	Amount Spiked	MS	MSD	RPD
1,1-DCE	0.0	8.4	8.3	10.0	84	83	1.1
Trichloroethene	0.0	9.4	8.9	10.0	94	89	5.8
EDB	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorobenzene	0.0	9.8	9.5	10.0	98	95	3.6
Benzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorobz (PID)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

**ALL ENVIRONMENTAL, INC.**  
 901 Moraga Road, Suite C  
 Lafayette, CA 94549

(925) 283-6000 FAX: (925) 283-6121

13841 XALE350

Chain of Custody

DATE: 1/29/99 PAGE: 1 OF 1

AEI PROJECT MANAGER: Peter McIntyre  
 PROJECT NAME: Drake  
 PROJECT NUMBER: 3067  
 TOTAL # OF CONTAINERS: 14  
 RECD. GOOD COND./COLD: Good / cold

**ANALYSIS REQUEST**

SAMPLE I.D.	DATE	TIME	MATRIX
+ AMW - 4	1/29/99		w
+ AMW - 6			
+ AMW - 7			
2+ AMW - 9			
(+) FHS MW - 10			
(+) FHS MW - 11			
2+ MW - 6			

TPH-Gasoline (EPA 5030, 8015) w/ BTEX and MTBE (EPA 802, 8090)	TPH-Diesel (EPA 3510/3550, 8015)	TOTAL OIL & GREASE (EPA 3520 E&F)	VOLATILE HALOCARBONS (EPA 801 or 8010)	VOLATILE ORGANIC COMPOUNDS (EPA 8240)	TOTAL LEAD (AA) (EPA 7420)	LIIFT Metals (EPA 7130, 7190, 7430, 7530, 7930)	STLC CAM 17 (EPA 1310/8010)	RCI REACTIVITY CORROSTIVITY (USEPA CCR 6088, 2, 3)	Hold	NUMBER OF CONTAINERS	
				X						02586	N
				X						02587	N
				X						02588	N
				X						02589	N
				X						02590	N
				X						02591	N
				X						02592	N

+  
+  
+  
2+  
(+)  
(+)  
2+

ICEP®  GOOD CONDITION  
 HEAD SPACE ABSENT  
 PRESERVATION APPROPRIATE  
 CONTAINERS  
 VOLATILES  
 METALS  
 OTHER

ANALYTICAL LAB: M Campbell  
 ADDRESS: \_\_\_\_\_  
 PHONE: ( ) \_\_\_\_\_ FAX: ( ) \_\_\_\_\_  
 INSTRUCTIONS/COMMENTS: \_\_\_\_\_

RELINQUISHED BY: 1  
 Signature: Peter McIntyre  
 Printed Name: Peter McIntyre  
 Company: AEI  
 Time: 6:40 Date: 1/29/99

RECEIVED BY: 1  
 Signature: Gina A. Butler  
 Printed Name: Gina A. Butler  
 Company: MAI  
 Time: 6:40 pm Date: 1/29

RELINQUISHED BY: 2  
 Signature: \_\_\_\_\_  
 Printed Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Time: \_\_\_\_\_ Date: \_\_\_\_\_

RECEIVED BY: 2  
 Signature: \_\_\_\_\_  
 Printed Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Time: \_\_\_\_\_ Date: \_\_\_\_\_