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PES Environmental, Inc.
Engineering & Environmental Services

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FAX TRANSMITTAL

Number of pages including cover sheet: 7

To:	Barney Chan ACDEH
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To:	Sum Argala RWQCB - SF Bay Region
Fax:	510-286-1380
Subject:	Hydropunch Results & Proposed Monitoring Well Locations Foothill Square Shopping Center

From: PES Environmental, Inc.
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Sent By: Will Mast

PES Project: 502.0201.003

Hardcopy to follow: Yes No

Urgent For your review Reply ASAP Please Comment

REMARKS:

Here are the results of the preliminary groundwater sampling (Hydropunch) phase of work for the Foothill Square Shopping Center (FHS). Both tabulated and posted versions are included. The posted data consist of: (1) all results for the HydroPunch program; (2) the most recent results of groundwater monitoring well sampling for both the FHS site and the ARCO Station; and (3) the results for the grab groundwater samples collected in August 1996 at the west boundary of the FHS site.

We have also presented our planned locations for the sentry wells, as proposed initially in the PES document *Program Workplan for Further Groundwater Investigation and Health Risk Evaluation*, dated December 19, 1996. The above data indicate that two sentry wells (FHS-MW-10 and -MW-11) screened in the deep groundwater zone will provide adequate coverage downgradient of the plume. Well locations, shown on the plates, will be finalized after utility clearance. We are planning to begin the well installation program at the end of this week. I will call you in the next day or so to discuss the current status of the project.

cc: Richard Gilcrease, Drake Builders
Julie Walters, Beveridge & Diamond

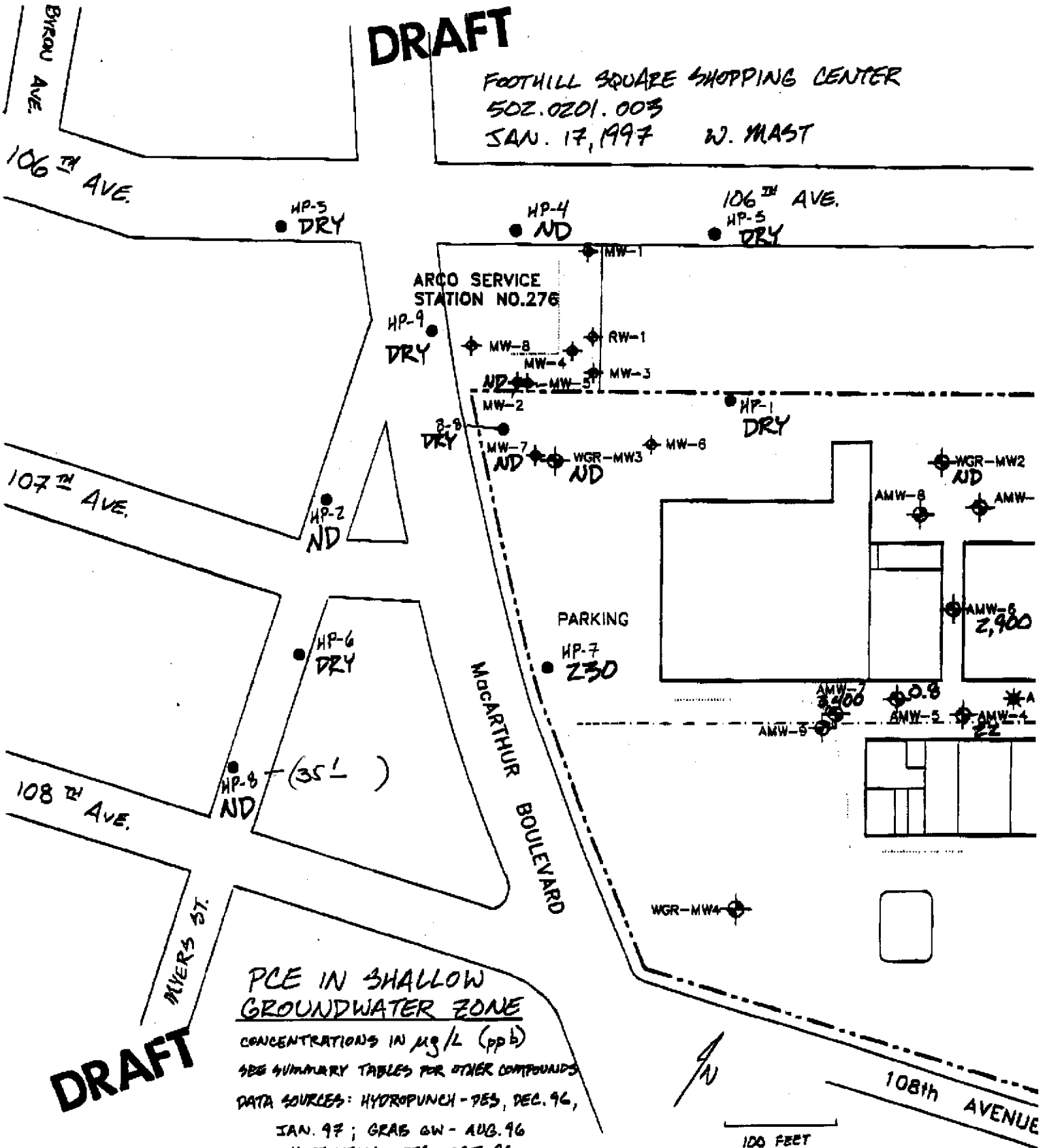
Will Mast

Screen "indeep" well

22-25' Shallow

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FOOTHILL SQUARE SHOPPING CENTER
502.0201.003
JAN. 17, 1997 W. MAST



PCE IN SHALLOW GROUNDWATER ZONE

CONCENTRATIONS IN $\mu\text{g/L}$ (ppb)

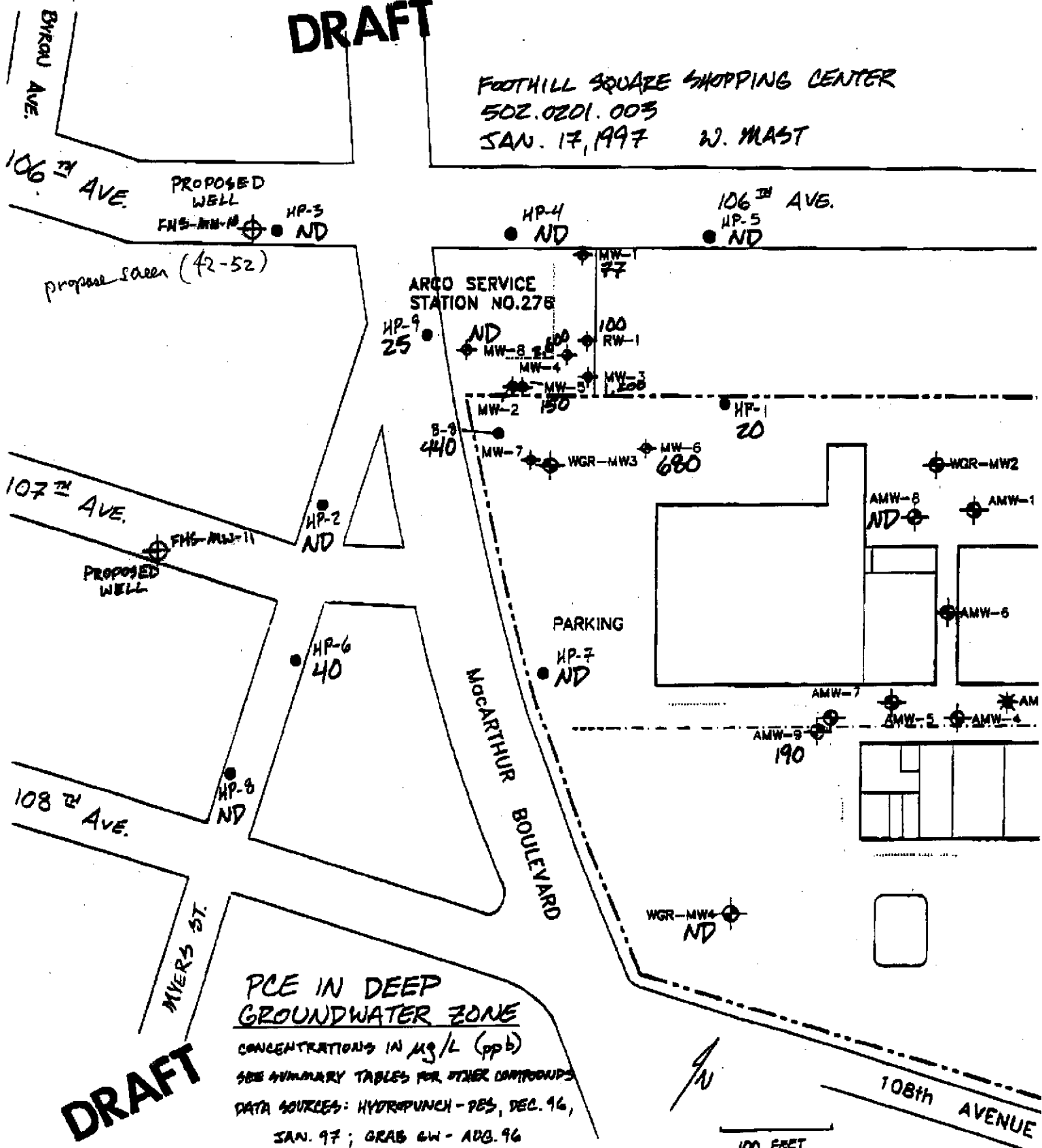
SEE SUMMARY TABLES FOR OTHER COMPOUNDS

DATA SOURCES: HYDROPUNCH - PES, DEC. 96,
JAN. 97; GRAB GW - AUG. 96
ONSITE WELLS - PES, OCT. 96
OFFSITE WELLS - EMCON, AUG. 96

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FOOTHILL SQUARE SHOPPING CENTER
502.0201.003
JAN. 17, 1997 W. MAST



PCE IN DEEP GROUNDWATER ZONE

CONCENTRATIONS IN $\mu\text{g/L}$ (ppb)

SEE SUMMARY TABLES FOR OTHER CONTAMINANTS

DATA SOURCES: HYDRAPUNCH - PES, DEC. 96,

JAN. 97; GRAB GW - AUG. 96

ONSITE WELLS - PES, OCT. 96

OFFSITE WELLS - ERCON, AUG. 96

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Table 1. Summary of Analytical Results for Grab/HydroPunch Groundwater Samples
Foothill Square Shopping Center
Oakland, California

Sample Location	Date Sampled	Sample Depth (ft. bgs)	Concentration in micrograms per liter (µg/L)			Comments
			PCE	TCE	c-1,2-DCE	
HP-1	12/11/96	No free water encountered				
	12/11/96	42-45	21	1.3	0.52	
HP-2	12/11/96	22-25	<0.5	<0.5	<0.5	
	12/11/96	45-48	<0.5	<0.5	<0.5	
HP-3	12/11/96	No free water encountered				
	12/11/96	45-48	<0.5	<0.5	<0.5	
HP-4	12/16/96	13-16	<0.5	0.65	<0.5	Sheen on HydroPunch, petroleum hydrocarbon odor in water sample
	12/16/96	46-49	<0.5	0.79	<0.5	
HP-5	12/16/96	No free water encountered				
	12/16/96	41-44	<0.5	<0.5	<0.5	
HP-6	12/16/96	No free water encountered				
	12/16/96	57-60	40	<0.5	<0.5	
HP-7	1/16/97	22-25	230	43	180	
	1/15/97	39.5-43.5	<5	<5	<5	
HP-8	1/15/97	35-38	<0.5	<0.5	<0.5	
	1/15/97	57-60	<0.5	<0.5	<0.5	
HP-9	1/15/97	No free water encountered				
	1/15/97	42-45	25	<0.5	<0.5	
B-8	7/26/96	25	<0.5	<0.5	<0.5	Bailed from temporary casing Bailed from temporary casing
	7/26/96	49	440	<5	<5	

Notes:

PCE = Tetrachloroethene

TCE = Trichloroethene

c-1,2-DCE = cis-1,2-Dichloroethene

< = Not detected at or above the laboratory reporting limit indicated.

All analyses by EPA Test Method 8010. Analytes not listed were not detected.

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Table 2. Summary of Analytical Results for Groundwater Samples from Wells - VOCs *
Foothill Square Shopping Center
Oakland, California

Well Number	Date Sampled	Sampled by	Concentration in micrograms per liter (µg/L)				
			PCE	TCE	c-1,2-DCE	t-1,2-DCE	Freon-12
FOOTHILL SQUARE SHOPPING CENTER WELLS							
WGR MW-1 (Shallow Zone)	7/17/96	PES	NS	NS	NS	NS	NS
	10/23/96	PES	NS	NS	NS	NS	NS
WGR MW-2 (Shallow Zone)	4/16/96	PES	<0.5	<0.5	<0.5	<0.5	2
	7/17/96	PES	<0.5	<0.5	<0.5	<0.5	2
	10/23/96	PES	<0.5	<0.5	<0.5	<0.5	2
WGR MW-3 (Shallow Zone)	2/28/96	EMCON	<1	<1	<1	<1	1
	4/16/96	PES	0.6	0.5	<0.5	<0.5	11
	5/28/96	EMCON	<1	<1	<1	<1	1
	7/17/96	PES	<0.5	0.7	<0.5	<0.5	2
	8/19/96	EMCON	<1	<1	<1	<1	1
	10/23/96	PES	<0.5	<0.5	<0.5	<0.5	2
WGR MW-4 (Deep Zone)	4/16/96	PES	<0.5	<0.5	<0.5	<0.5	2
	7/17/96	PES	<0.5	<0.5	<0.5	<0.5	2
	10/23/96	PES	<0.5	<0.5	<0.5	<0.5	2
WGR MW-5 (Shallow Zone)	7/17/96	PES	NS	NS	NS	NS	NS
	10/23/96	PES	NS	NS	NS	NS	NS
AMW-1 (Shallow Zone)	4/16/96	PES	<0.5	<0.5	<0.5	<0.5	2
	7/17/96	PES	<0.5	<0.5	<0.5	<0.5	2
	10/23/96	PES	NS	NS	NS	NS	NS
AMW-2 (Shallow Zone)	Well abandoned during site remediation in 1995.						
AMW-3 (Shallow Zone)	Well abandoned during site remediation in 1995.						
AMW-4 (Shallow Zone)	4/16/96	PES	1,200	10	<10	<10	<40
	7/17/96	PES	860	<10	<10	<10	<40
	10/23/96	PES	22	0.5	<0.5	<0.5	2
AMW-5 (Shallow Zone)	4/16/96	PES	<0.5	<0.5	<0.5	<0.5	2
	7/17/96	PES	0.6	<0.5	<0.5	<0.5	2
	10/23/96	PES	0.8	<0.5	<0.5	<0.5	2
AMW-6 (Shallow Zone)	9/13/95	Auger	930	<25	<25	<25	<25
	4/16/96	PES	1,900	110	20	<10	<40
	7/17/96	PES	3,300	280	<30	<30	<100
	10/23/96	PES	2,900	140	<30	<30	<100

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Table 2. Summary of Analytical Results for Groundwater Samples from Wells - VOCs *
Foothill Square Shopping Center
Oakland, California

Well Number	Date Sampled	Sampled by	Concentration in micrograms per liter ($\mu\text{g/L}$)				
			PCE	TCE	c-1,2-DCE	t-1,2-DCE	Freon-12
AMW-7 (Shallow Zone)	9/12/95	Augeas	2,350	340	<25	<25	<25
	4/18/96	PES	2,300	500	2,200	60	<100
	7/17/96	PES	2,400	530	2,100	<30	<100
	10/23/96	PES	3,400	610	3,100	50	<100
AMW-8 (Deep Zone)	9/11/95	Augeas	95	<25	<25	<25	<25
	4/18/96	PES	0.5	<0.5	<0.5	<0.5	<2
	7/17/96	PES	1.6	<0.5	<0.5	<0.5	<2
	10/23/96	PES	<0.5	<0.5	<0.5	<0.5	<2
AMW-9 (Deep Zone)	4/18/96	PES	170	4	7	<3	<10
	7/17/96	PES	190	4	<3	<3	<10
	10/23/96	PES	190	<3	<3	<3	<10
ARCO SERVICE STATION WELLS							
MW-1 (Deep Zone)	2/28/96	EMCON	97	<1	<1	<1	-
	5/28/96	EMCON	160	<5	<5	<5	-
	8/19/96	EMCON	77	<1	<1	<1	-
MW-2 (Shallow Zone)	2/28/96	EMCON	<1	<1	<1	<1	-
	5/28/96	EMCON	<1	<1	<1	<1	-
	8/21/96	EMCON	<1	<1	<1	<1	-
MW-3 (Deep Zone)	2/28/96	EMCON	1,100	<10	<10	<10	-
	5/28/96	EMCON	1,700	<20	<20	<20	-
	8/19/96	EMCON	1,200	<10	<10	<10	-
MW-4 (Deep Zone)	2/28/96	EMCON	2,400	<20	<20	<20	-
	6/28/96	EMCON	2,700	<20	<20	<20	-
	8/19/96	EMCON	2,600	<20	<20	<20	-
MW-5 (Deep Zone)	2/28/96	EMCON	1,100	<10	<10	<10	-
	5/28/96	EMCON	360	<5	<5	<5	-
	8/21/96	EMCON	150	<1	2	<1	-
MW-6 (Deep Zone)	2/28/96	EMCON	960	<20	<20	<20	-
	4/18/96	PES	1,400	10	<10	<10	100
	5/28/96	EMCON	970	<20	<20	<20	-
	7/17/96	PES	590	<5	<5	<5	30
	8/18/96	EMCON	820	<20	<20	<20	-
	10/23/96	PES	660	<5	<5	<5	<20

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Table 2. Summary of Analytical Results for Groundwater Samples from Wells - VOCs *
Foothill Square Shopping Center
Oakland, California

Well Number	Date Sampled	Sampled by	Concentration in micrograms per liter (µg/L)				
			PCE	TCE	c-1,2-DCE	t-1,2-DCE	Freon-12
MW-7 (Shallow Zone)	2/28/96	EMCON	<10	<10	<10	<10	-
	4/16/96	PES	<0.5	<0.5	<0.5	<0.5	8
	5/28/96	EMCON	<10	<10	<10	<10	-
	7/17/96	PES	<0.5	0.8	0.8	<0.5	<2
	8/21/96	EMCON	<1	<1	<1	<1	-
	10/23/96	PES	<0.5	<0.5	0.8	<0.5	<2
MW-8 (Deep Zone)	2/28/96	EMCON	3	<1	<1	<1	-
	5/28/96	EMCON	<1	<1	<1	<1	-
	8/21/96	EMCON	<1	<1	<1	<1	-
RW-1 (Deep Zone)	2/28/96	EMCON	6	<1	<1	<1	-
	5/28/96	EMCON	12	<1	<1	<1	-
	8/21/96	EMCON	100	<1	<1	<1	-

Notes:

PCE = Tetrachloroethene

TCE = Trichloroethene

c-1,2-DCE = cis-1,2-dichloroethene

t-1,2-DCE = trans-1,2-dichloroethene

Freon 12 = Dichlorodifluoromethane

- = Compound not analyzed

EMCON = EMCON Associates

PES = PES Environmental, Inc.

<0.1 = Concentration not detected at or above the indicated detection limit

NS = Not sampled because well was inaccessible

* = Only data from 1996 sampling events are presented. See quarterly reports for historical data.
 EMCON Data Source: Third Quarter 1996 Groundwater Monitoring Report (12/17/96).