



R0186

2500 Camino Diablo, Suite 200, Walnut Creek, CA 94597

Phone: (925) 283-6000 Fax: (925) 944-2895

January 6, 2004

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

**Alameda County**

**Subject: Quarterly Groundwater Monitoring Report**  
Twenty First Episode, 4<sup>th</sup> Quarter 2003  
1075 40<sup>th</sup> Street  
Oakland, California  
AEI Project No. 3119

JAN 14 2004

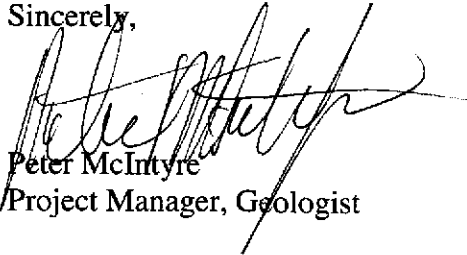
**Environmental Health**

Dear Mr. Chan:

Enclosed is a copy of the quarterly groundwater report for the twenty first episode of sampling.

Please call me at (925) 283-6000 x104, if you have any questions.

Sincerely,



Peter McIntyre  
Project Manager, Geologist

January 6, 2004

Alameda County

JAN 14 2004

Environmental Health

## **GROUNDWATER MONITORING REPORT**

**Twenty First Episode**

*Forth Quarter 2003*

1075 40th Street  
Oakland, California

Project No. 3119

Prepared For

Mr. Monte Upshaw  
Fidelity Roof Company  
1075 40th Street  
Oakland, CA 94608

Prepared By

**AEI Consultants**  
2500 Camino Diablo Blvd., Suite 200  
Walnut Creek, CA 94597  
(925) 283-6000

**AEI**



January 6, 2004

Mr. Monte Upshaw  
Fidelity Roof Company  
1075 40th Street  
Oakland, CA 94608

**Subject: Quarterly Groundwater Monitoring Report  
Twenty First Episode – 4<sup>th</sup> Quarter 2003**  
1075 40th Street  
Oakland, California  
Project No. 3119

Dear Mr. Upshaw:

AEI Consultants (AEI) has prepared this report on behalf of Fidelity Roof Company to document the ongoing groundwater investigation at the above referenced site (Figure 1: Site Location Map). The purpose of this activity was to monitor groundwater quality near the previously removed underground storage tanks (USTs). The work was performed in compliance with requirements of the Alameda County Health Care Services Agency (ACHCSA). This report presents the findings of the twenty first episode of groundwater monitoring and sampling conducted on during the forth quarter 2003 on December 2, 2003.

### Site Description and Background

The site currently supports the operation of Fidelity Roof Company and is located in a mixed residential and commercial area of Oakland at 1075 40th Street.

On December 19, 1995, Tank Protect Engineering, Inc. removed one (1) 1,000 gallon diesel underground storage tank (UST) and one (1) 500 gallon gasoline UST from the southeast corner of the property. The removal of the tanks produced a single excavation. Analysis of the soil samples indicated that soil beneath the 1,000 gallon UST had been impacted by minor concentrations of total petroleum hydrocarbons as gasoline (TPH-g), TPH as diesel (TPH-d), benzene, toluene, ethylbenzene and total xylenes (BTEX) and methyl tertiary butyl ether (MTBE).

On September 12, 1996, AEI advanced four soil borings near the former UST excavation. Analytical results from the subsurface investigation revealed significant levels of gasoline and diesel petroleum hydrocarbons present in soil and groundwater to the south and to the west of the open excavation. Due to the high concentrations of petroleum hydrocarbons within the groundwater, the ACHCSA required further investigation of the extent and magnitude of the groundwater contaminant plume.

On October 25, 1996, AEI extended the excavation laterally 7 feet to the south and 12 feet to the west. Soil was removed to a depth of 9 feet below ground surface (bgs). The dispenser island and associated piping were also removed. Analyses of the soil samples collected from the excavation sidewalls indicated that up to 150 mg/kg of TPH-g, 16 mg/kg of benzene, and 300 mg/kg of TPH-d remained within the western sidewall of the excavation.

On March 6, 1997, AEI installed three groundwater monitoring wells. At the request of the ACHCSA, six additional soil borings were drilled south and west of the well locations on November 4, 1998. TPH-d was detected at a concentration of 2,400 µg/L in groundwater to the south of the former excavation. No significant concentrations of petroleum hydrocarbons were detected from the other borings. Monitoring well MW-4 was installed on July 15, 1999, south of the former tank locations along Yerba Buena Avenue.

### **Summary of Activities**

AEI measured the depth to groundwater in the four wells (MW-1 to MW-4) on December 2, 2003. Well locations are shown on Figure 2. Prior to sampling, the depth to water from the top of the well casings was measured with an electric water level indicator. Each well was then purged of at least 3 well volumes with a submersible pump. Temperature, pH, specific conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) were measured during the purging of the wells and turbidity was visually noted. Once water levels had recovered to at least 90% of their original level, a water sample was collected.

The groundwater samples were collected from each well using clean disposable bailers. The water samples were collected into 1-liter amber glass bottles and 40 ml glass volatile organic analysis (VOA) vials. The VOAs were capped so no headspace or air bubbles were present within the sample containers. Samples were delivered on ice under proper chain of custody protocol to McCampbell Analytical, Inc. of Pacheco, California (Department of Health Services Certification #1644).

The four groundwater samples were submitted for chemical analysis for TPH-g (EPA Method 8015C), MTBE (EPA Method 8021B), benzene, toluene, ethylbenzene, and xylenes (BTEX) (EPA Method 8021B), and TPH-d (EPA Method 8015C).

### **Field Results**

A strong hydrocarbon odor and sheen were observed during the purging and sampling of MW-3, however no measurable free phase fuel product was present in this well. Groundwater elevations for the current monitoring episode ranged from 33.05 to 37.46 feet above mean sea level (msl). These groundwater elevations were an average of 1.35 feet higher than the previous episode. Based on these water level measurements, the direction of the groundwater flow at the time of measurement was towards the northwest with a hydraulic gradient of 0.05 ft/ft. This flow direction and gradient are consistent with previous episodes.

Groundwater elevation data and groundwater sample analytical data are summarized in Table 1. The groundwater elevation contours and the groundwater flow direction are shown on Figure 3. Refer to Appendix A for Groundwater Monitoring Well Field Sampling Forms, which include field measurements and observations made during the monitoring activities.

### **Groundwater Quality**

Significant concentrations of hydrocarbons remain in MW-1, with TPH-g and TPH-d detected at 68,000 µg/l and 46,000 µg/l, respectively. Benzene was detected in this well at 7,600 µg/l. No petroleum hydrocarbons were present above laboratory detection limits in MW-1. MTBE was detected in wells MW-2 and MW-4 at 3,300 µg/l and 7.7 µg/l, respectively; however, no other target analytes were detected in either of these wells above the reported detected limits.

Groundwater sample analytical data is presented in Table 1. Selected analytical data is presented on Figure 2. Laboratory results and chain of custody documents are included in Appendix B.

### **Summary**

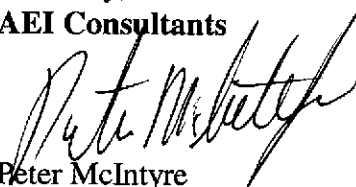
Significant hydrocarbons remain in the groundwater beneath the site, particularly west and north of the former excavation. Although seasonal concentration fluctuations have been observed, long-term concentrations trends do not reveal that significant attenuation is occurring. The ACHCSA will be notified of the schedule for the planned remediation pilot testing, likely to occur in early 2004. In the meantime, monitoring is scheduled to continue, with the next episode scheduled for March 2004.

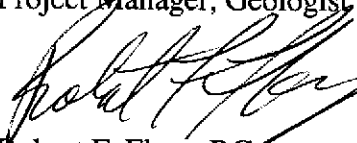
## Report Limitations and Signatures

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 that existed at the time and location of the work.

Sincerely,  
AEI Consultants

  
Peter McIntyre  
Project Manager, Geologist

  
Robert F. Flory, RG  
Senior Project Geologist



### Figures

- Figure 1 Site Location Map
- Figure 2 Site Plan with Sample Analytical Data
- Figure 3 Water Table Contours

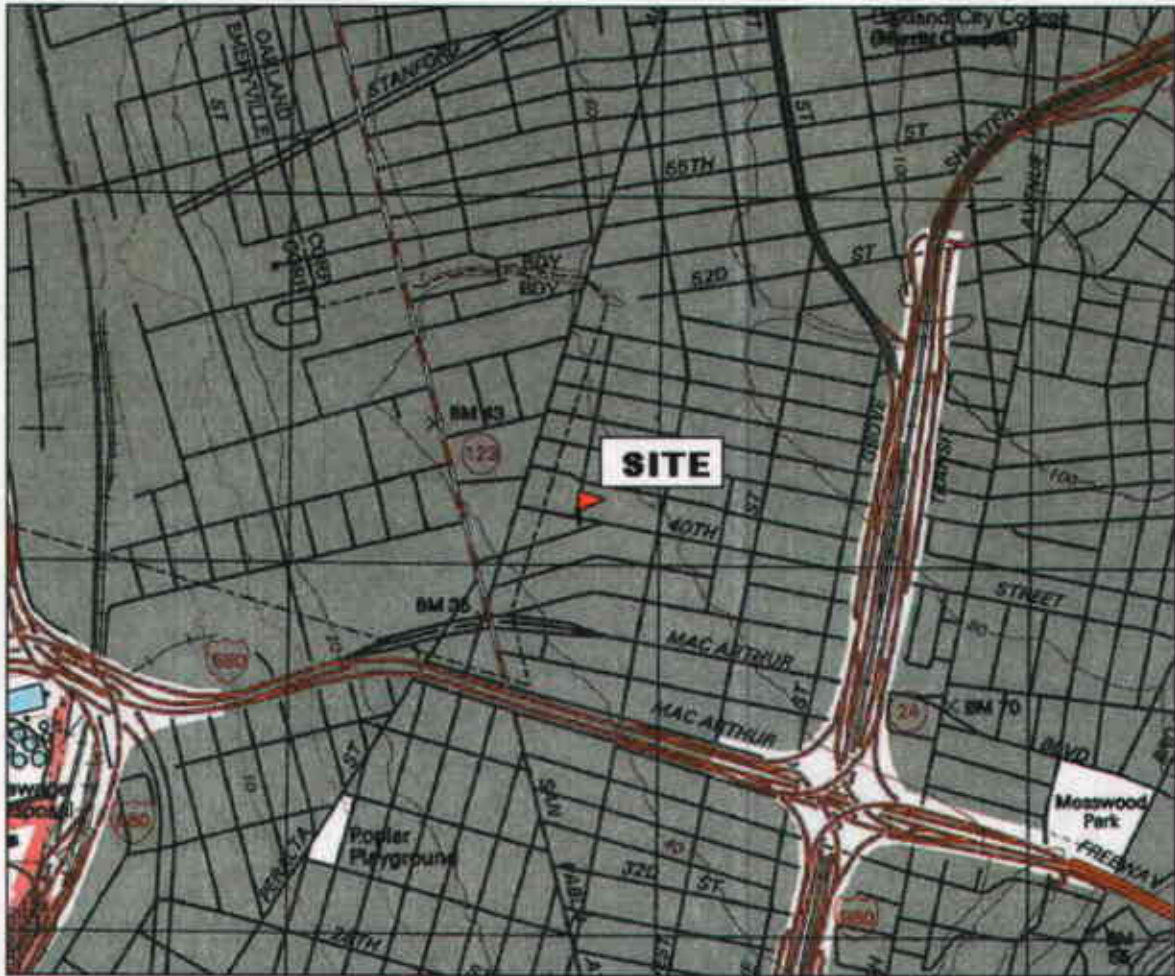
### Tables

- Table 1 Groundwater Data

**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

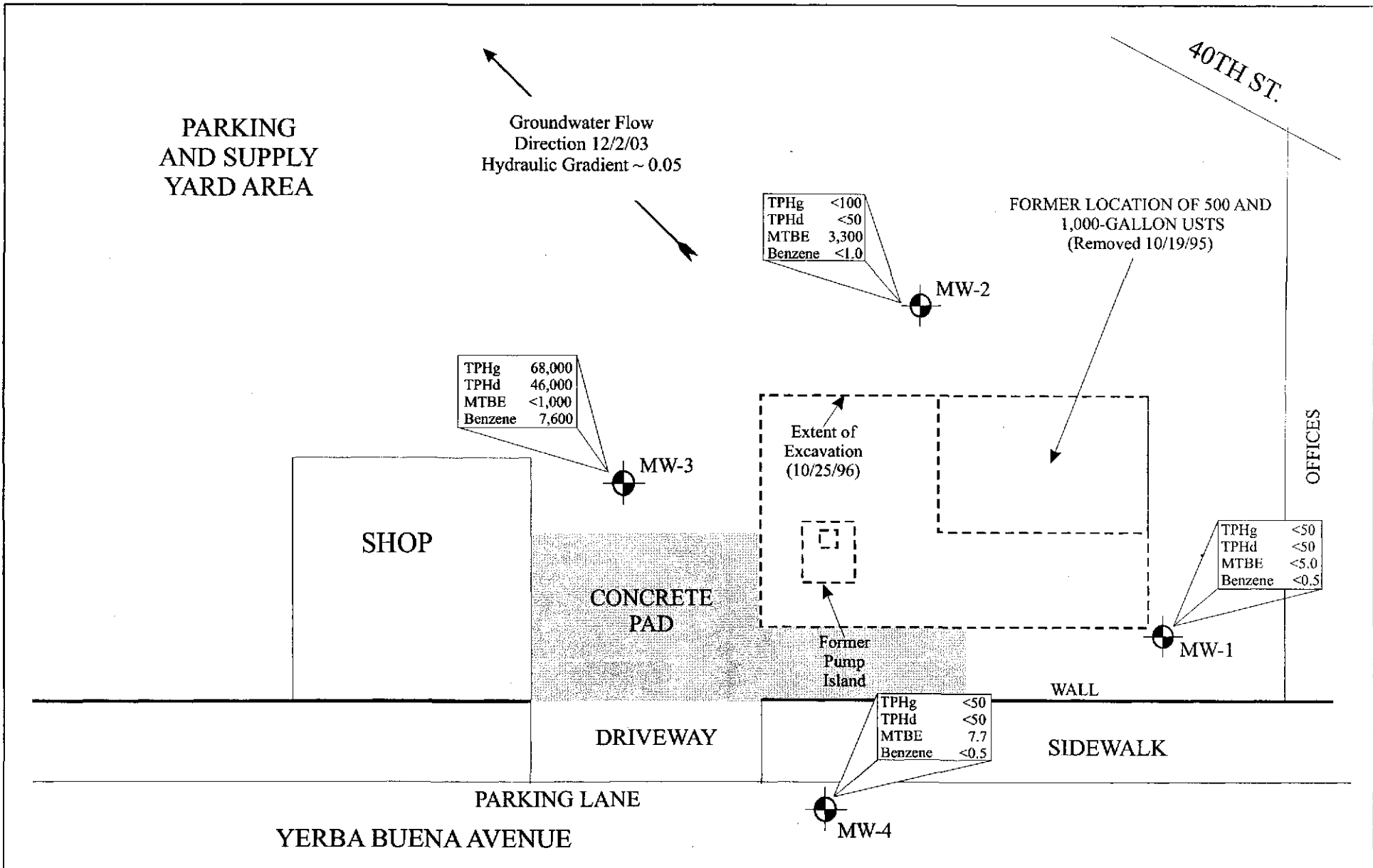


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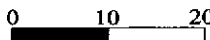
<b>AEI CONSULTANTS</b>	
<b>SITE LOCATION MAP</b>	
1075 40 <sup>th</sup> STREET OAKLAND, CALIFORNIA	<b>FIGURE 1</b> PROJECT NO. 8326



 Monitoring Well

Groundwater results are expressed in µg/L.  
 TPHg = Total petroleum hydrocarbons as gasoline  
 TPHd = Total petroleum hydrocarbons as diesel  
 MTBE = Methyl tertiary butyl ether

Scale: 1" = 20'



**AEI CONSULTANTS**  
 2500 CAMINO DIABLO, SUITE 200, WALNUT CREEK, CA

**SAMPLE ANALYTICAL DATA**

1075 40TH AVENUE  
 OAKLAND, CALIFORNIA

**Figure 2**  
 AEI Project: 3119



Groundwater Flow  
Direction 12/2/03  
Hydraulic Gradient ~ 0.05

PARKING  
AND SUPPLY  
YARD AREA

40TH ST.

MW-2  
(34.02)

MW-3  
(33.05)

SHOP

CONCRETE  
PAD

MW-1  
(36.61)

OFFICES

WALL

DRIVEWAY


37

SIDEWALK

PARKING LANE

MW-4  
(37.46)

YERBA BUENA AVENUE

 Monitoring Well

Water table elevations in feet above mean sea level  
Contours drawn in Surfer v. 7.0  
Contour interval is 0.5 feet

Scale: 1" = 20'

0 10 20



**AEI CONSULTANTS**  
2500 CAMINO DIABLO, SUITE 200, WALNUT CREEK, CA

**WATER TABLE CONTOURS**

1075 40TH AVENUE  
OAKLAND, CALIFORNIA

**Figure 3**  
AEI Project: 3119

**Table 1**  
Groundwater Data

Well ID	Date	Elevation of top of casing (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)	TPHg (ug/L)	MTBE (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Xylenes (ug/L)	TPHd (ug/L)
MW - 1	03/19/97	45.41	8.25	37.16	<50	23	<0.5	<0.5	<0.5	<0.5	<50
	06/23/97	45.41	9.10	36.31	1,300	14	150	2.1	12	19	420
	10/08/97	45.41	9.95	35.46	56	5.8	2.8	<0.5	<0.5	<0.5	66
	01/16/98	45.41	7.57	37.84	1,500	<33	95	0.72	69	8.4	910
	08/05/99	45.49	10.16	35.33	160	<15	1.6	<0.5	0.56	1.1	63
	11/18/99	45.49	8.52	36.97	79	<5.0	<0.5	<0.5	<0.5	<0.5	<50
	02/24/00	45.49	7.65	37.84	300	<5.0	14	0.82	3.5	1.6	160
	05/24/00	45.49	8.47	37.02	1,300	<10	93	<0.5	17	1.6	480
	08/29/00	45.49	10.28	35.21	120	<5.0	0.93	<0.5	<0.5	<0.5	<0.5
	01/12/01	45.49	8.50	36.99	360	<5.0	16	<0.5	9.3	0.69	170
	04/18/01	45.49	8.77	36.72	1,100	2,800	63	<0.5	34	0.73	410
	07/27/01	45.49	10.50	34.99	130	<5.0	1.6	<0.5	<0.5	<0.5	66
	11/06/01	45.49	10.28	35.21	<50	<5.0	<0.5	<0.5	<0.5	<0.5	<50
	02/13/02	45.49	8.47	37.02	430	<5.0	17	0.51	11	0.64	270
	05/14/02	45.49	9.50	35.99	340	<5.0	21	<0.5	5.3	0.67	170
	08/15/02	45.49	10.39	35.10	96	<5.0	0.66	<0.5	<0.5	<0.5	53
	11/14/02	45.49	9.08	36.41	66,000	<1,200	8,300	860	3,000	11,000	23,000
	02/12/03	45.49	8.36	37.13	710	<5.0	28	4.3	32	130	120
	05/16/03	45.49	8.49	37.00	1,100	<15	54	4.1	40	100	340
	08/29/03	45.49	9.91	35.58	1,200	<5.0	46	5.1	55	230	280
12/02/03	45.49	8.88	36.61	<50	<5.0	<0.5	<0.5	<0.5	<0.5	<50	
MW - 2	03/19/97	44.94	8.40	36.54	<50	65	<0.5	<0.5	<0.5	<0.5	<50
	06/23/97	44.94	8.85	36.09	<50	70	3.4	<0.5	<0.5	<0.5	<50
	10/08/97	44.94	9.80	35.14	<50	90	<0.5	<0.5	<0.5	<0.5	<50
	01/16/98	44.94	5.28	39.66	<50	65	<0.5	<0.5	<0.5	<0.5	<50
	08/05/99	44.98	9.32	35.66	<50	600	<0.5	<0.5	<0.5	<0.5	<50
	11/18/99	44.98	10.20	34.78	<50	370	<0.5	<0.5	<0.5	<0.5	<50
	02/24/00	44.98	7.03	37.95	<50	880	<0.5	<0.5	<0.5	<0.5	<50
	05/24/00	44.98	8.01	36.97	<250	2,200	<0.5	<0.5	<0.5	<0.5	62
	08/29/00	44.98	11.07	33.91	<200	1,900	<0.5	<0.5	<0.5	<0.5	<50
	01/12/01	44.98	8.60	36.38	470	2,000	8.7	3.1	16	73	70
	04/18/01	44.98	8.80	36.18	<50	2,800	<0.5	<0.5	<0.5	<0.5	<50
	07/27/01	44.98	11.10	33.88	<100	3,300	<0.5	<0.5	<0.5	<0.5	<50
	11/06/01	44.98	12.21	32.77	<100	3,000	<0.5	<0.5	<0.5	<0.5	<50

Well ID	Date	Elevation of top of casing (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)	TPHg (ug/L)	MTBE (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Xylenes (ug/L)	TPHd (ug/L)
MW-2 (cont.)	02/13/02	44.98	7.98	37.00	54	3,200	<0.5	<0.5	<0.5	<0.5	<50
	05/14/02	44.98	10.48	34.50	<150	3,800	4.8	<1.0	<1.0	<1.0	<50
	08/15/02	44.98	10.64	34.34	<50	2,900	<0.5	<0.5	<0.5	<0.5	<50
	11/14/02	44.98	11.69	33.29	<120	3,800	<1.0	<1.0	<1.0	<1.0	<50
	02/12/03	44.98	9.07	35.91	1,100	3,200	57	7	55	210	120
	05/16/03	44.98	11.25	33.73	530	6,000	35	3.6	22	79	85
	08/29/03	44.98	12.19	32.79	2,400	4,800	39	5.8	77	320	1200
	12/02/03	<b>44.98</b>	<b>10.96</b>	<b>34.02</b>	<b>&lt;100</b>	<b>3,300</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>
MW -3	03/19/97	44.32	7.59	36.73	26,000	230	3,000	530	340	2,300	5,000
	06/23/97	44.32	9.98	34.34	25,000	270	4,400	120	540	1,500	7,000
	10/08/97	44.32	8.36	35.96	17,000	<280	4,400	47	280	410	5,100
	01/16/98	44.32	9.18	35.14	29,000	<360	5,600	740	950	3,500	7,300
	08/05/99	44.37	10.56	33.81	31,000	<200	5,400	150	1100	2,300	5,100
	11/18/99	44.37	10.92	33.45	74,000	<1,000	8,100	5,000	2,100	8,100	490,000
	02/24/00	44.37	8.49	35.88	110,000	<200	12,000	1,400	2,900	14,000	6,300
	05/24/00	44.37	8.42	35.95	87,000	<200	13,000	1,900	2,900	14,000	26,000
	08/29/00	44.37	12.00	32.37	49,000	<200	7,400	800	1,800	7,400	9,400
	01/12/01	44.37	10.50	33.87	69,000	<300	8,600	980	2,600	11,000	21,000
	04/18/01	44.37	9.50	34.87	75,000	<500	9,200	1,200	2,500	12,000	13,000
	07/27/01	44.37	11.61	32.76	75,000	<650	8,700	1,100	2,600	12,000	85,000
	11/06/01	44.37	11.73	32.64	89,000	<200	7,900	910	2,800	12,000	86,000
	02/13/02	44.37	9.36	35.01	85,000	<2000	8,500	830	2,600	11,000	13,000
	05/14/02	44.37	9.00	35.37	94,000	<1000	9,700	1,100	3,400	15,000	35,000
	08/15/02	44.37	11.72	32.65	37,000	<1200	5,200	430	1,800	5,900	9,700
	11/14/02	44.37	11.28	33.09	<50	<5.0	<0.5	<0.5	<0.5	<0.5	<50
	02/12/03	44.37	10.17	34.20	61,000	<500	6,800	500	2,400	9,800	8,400
	05/16/03	44.37	11.47	32.90	59,000	<500	6,200	320	2,000	6,500	17,000
	08/29/03	44.37	11.92	32.45	78,000	<1200	6,800	440	2,900	11,000	100,000
12/02/03	<b>44.37</b>	<b>11.32</b>	<b>33.05</b>	<b>68,000</b>	<b>&lt;1000</b>	<b>7,600</b>	<b>450</b>	<b>2,900</b>	<b>10,000</b>	<b>46,000</b>	

Well ID	Date	Elevation of top of casing (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)	TPHg (ug/L)	MTBE (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Xylenes (ug/L)	TPHd (ug/L)
MW-4	08/05/99	43.48	8.79	34.69	<50	37	<0.5	<0.5	<0.5	<0.5	<50
	11/18/99	43.48	8.11	35.37	<50	20	<0.5	<0.5	<0.5	<0.5	<50
	02/24/00	43.48	5.19	38.29	<50	20	<0.5	<0.5	<0.5	<0.5	<50
	05/24/00	43.48	7.23	36.25	120	31	1.3	<0.5	<0.5	<0.5	140
	08/29/00	43.48	9.04	34.44	<50	22	<0.5	<0.5	<0.5	<0.5	<0.5
	01/12/01	43.48	6.40	37.08	<50	25	<0.5	<0.5	<0.5	<0.5	81
	04/18/01	43.48	7.30	36.18	30	35	2.4	1.1	0.66	4.2	170
	07/27/01	43.48	9.16	34.32	87	26	1.8	<0.5	2	10	110
	11/06/01	43.48	9.03	34.45	200	21	4.5	1	5.2	24	59
	02/13/02	43.48	6.60	36.88	<50	15	<0.5	<0.5	<0.5	<0.5	91
	05/14/02	43.48	7.19	36.29	260	26	12	2.7	11	49	140
	08/15/02	43.48	8.97	34.51	<50	12	<0.5	<0.5	<0.5	<0.5	<50
	11/14/02	43.48	7.52	35.96	<50	11	<0.5	<0.5	<0.5	<0.5	<50
	02/12/03	43.48	6.37	37.11	170	16	3.1	0.66	6.4	27	130
	05/16/03	43.48	6.81	36.67	<50	23	<0.5	<0.5	<0.5	<0.5	60
	08/29/03	43.48	8.56	34.92	610	10	16	2.7	30	130	120
	12/02/03	43.48	6.02	37.46	<50	7.7	<0.5	<0.5	<0.5	<0.5	<50

Notes:

ug/L= micrograms per liter

MTBE= Methyl Tertiary Butyl Ether

TPHg= Total Petroleum Hydrocarbons as gasoline

TPHd= Total Petroleum Hydrocarbons as diesel

Please refer to Appendix B (laboratory reports) for dilution factors and QA/QC data for recent analyses

**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: MW-1**

Project Name:	Fidelity Roof Company	Date of Sampling:	12/2/2003
Job Number:	3119	Name of Sampler:	Adrian Nieto
Project Address:	1075 40th Avenue, Oakland		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	45.49		
Depth of Well	21.00		
Depth to Water (from top of casing)	8.88		
Water Elevation (feet above msl)	36.61		
Well Volumes Purged	3		
Calculated Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	5.8		
Actual Volume Purged (gallons)	7.0		
Appearance of Purge Water	clear		
Free Product Present?	No	Thickness (ft):	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				2 40mL VOA, 1 1L			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity ( $\mu$ sec/cm)	DO (mg/L)	ORP (meV)	Comments
	1	20.60	7.23	811	1.22	-198.5	
	3	20.79	6.94	836	0.56	-227.7	
	5	20.77	6.87	856	0.42	-238.9	
	7	20.59	6.88	828	0.54	-190.7	

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

Clears quickly, no hydrocarbon odor or sheen

**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: MW-2**

Project Name:	Fidelity Roof Company	Date of Sampling:	12/2/2003
Job Number:	3119	Name of Sampler:	Adrian Nieto
Project Address:	1075 40th Avenue, Oakland		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK <input type="button" value="▼"/>		
Elevation of Top of Casing (feet above msl)	44.98		
Depth of Well	21.00		
Depth to Water (from top of casing)	10.96		
Water Elevation (feet above msl)	34.02		
Well Volumes Purged	3		
Calculated Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	4.8		
Actual Volume Purged (gallons)	6.0		
Appearance of Purge Water	clear at 2gal		
Free Product Present?	No	Thickness (ft):	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				2 40mL VOA, 1 1L			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
	2	22.20	6.87	1328	1.62	-103.5	
	4	21.91	6.82	1499	0.63	-180.3	
	6	21.70	6.84	1461	0.37	-209.3	

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

Initially grey color - clears by 2 gallons. Slightly hc odor

**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: MW-3**

Project Name:	Fidelity Roof Company	Date of Sampling:	12/2/2003
Job Number:	3119	Name of Sampler:	Adrian Nieto
Project Address:	1075 40th Avenue, Oakland		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	44.37		
Depth of Well	21.00		
Depth to Water (from top of casing)	11.32		
Water Elevation (feet above msl)	33.05		
Well Volumes Purged	3		
Calculated Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	4.6		
Actual Volume Purged (gallons)	6.0		
Appearance of Purge Water	Free Product Present?    yes                      Thickness (ft):    sheen		

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				2 40mL VOA, 1 1L			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
	2	21.32	6.70	1632	1.19	-251.3	
	4	21.33	6.67	1762	0.94	-215.6	
	6	21.27	6.69	1733	1.55	-195.8	

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

Initially light brown, dry at 2.5 gallons, recharges in 5 minutes but dry again at 6 gallons.
Strong hydrocarbon odor and sheen observed during purging and sample collection

**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: MW-4**

Project Name:	Fidelity Roof Company	Date of Sampling:	12/2/2003
Job Number:	3119	Name of Sampler:	Adrian Nieto
Project Address:	1075 40th Avenue, Oakland		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK ▼		
Elevation of Top of Casing (feet above msl)	43.48		
Depth of Well	20.00		
Depth to Water (from top of casing)	6.02		
Water Elevation (feet above msl)	37.46		
Well Volumes Purged	3		
Calculated Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	6.7		
Actual Volume Purged (gallons)	8.0		
Appearance of Purge Water	clear very quickly		
Free Product Present?	No	Thickness (ft):	

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				2 40mL VOA, 1 1L			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
	2	22.31	6.81	983	1.48	-67.4	
	4	22.53	6.83	947	1.52	-89.9	
	6	22.79	6.80	1023	1.13	-87.3	
	8	22.43	6.84	1052	1.24	-30.2	

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

Clears by 1.5 gallons, slight turbidity increase at 6.5 gallons.
No sheen or odor observed





McC Campbell Analytical Inc.

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<http://www.mcccampbell.com> E-mail: [main@mcccampbell.com](mailto:main@mcccampbell.com)

All Environmental, Inc. 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #3119; Fidelit Roof Com.	Date Sampled: 12/02/03
		Date Received: 12/02/03
	Client Contact: Peter Hoverson	Date Reported: 12/09/03
	Client P.O.:	Date Completed: 12/09/03

WorkOrder: 0312035

December 09, 2003

Dear Peter:

Enclosed are:

- 1). the results of 4 analyzed samples from your #3119; Fidelit Roof Com. 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. McC Campbell 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,

Angela Rydelius, Lab Manager

All Environmental, Inc.  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #3119; Fidelit Roof Com.	Date Sampled: 12/02/03
	Client Contact: Peter Hoverson	Date Received: 12/02/03
	Client P.O.:	Date Extracted: 12/04/03-12/08/03
		Date Analyzed: 12/04/03-12/08/03

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

Extraction method: SW5030B                                  Analytical methods: SW8021B/8015Cm                                  Work Order: 0312035

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1	W	ND	ND	ND	ND	ND	ND	1	89.8
002A	MW-2	W	ND<100,j	3300	ND<1.0	ND<1.0	ND<1.0	ND<1.0	2	92.8
003A	MW-3	W	68,000,a,h	ND<1000	7600	450	2900	10,000	200	111
004A	MW-4	W	ND	7.7	ND	ND	ND	ND	1	97.3

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell 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 / mineral spirit?); 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) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.



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All Environmental, Inc.  
 2500 Camino Diablo, Ste. #200  
 Walnut Creek, CA 94597

Client Project ID: #3119; Fidelit Roof  
 Com.

Date Sampled: 12/02/03

Date Received: 12/02/03

Client Contact: Peter Hoverson

Date Extracted: 12/02/03

Client P.O.:

Date Analyzed: 12/03/03-12/04/03

**Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel\***

Extraction method: SW3510C

Analytical methods: SW8015C

Work Order: 0312035

Lab ID	Client ID	Matrix	TPH(d)	DF	% SS
0312035-001B	MW-1	W	ND	1	84.3
0312035-002B	MW-2	W	ND	1	84.4
0312035-003B	MW-3	W	46,000,d,b,h	100	---#
0312035-004B	MW-4	W	ND	1	83.3

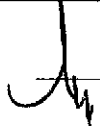
Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

# cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) unknown *medium boiling* point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.

DHS Certification No. 1644

  
 Angela Rydelius, Lab Manager



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### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0312035

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 9524		Spiked Sample ID: 0312031-001A				
	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	97.6	97.5	0.148	98.9	100	1.56	70	130
MTBE	ND	10	104	104	0	90.2	92.5	2.50	70	130
Benzene	ND	10	104	105	1.11	106	106	0	70	130
Toluene	ND	10	102	104	1.30	107	106	0.136	70	130
Ethylbenzene	ND	10	102	104	1.40	107	107	0	70	130
Xylenes	ND	30	103	107	3.17	110	110	0	70	130
%SS:	113	100	106	107	1.00	110	109	0.797	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
 NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ; RPD =  $100 * (MS - MSD) / ((MS + MSD) / 2)$ .

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



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### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0312035

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 9526		Spiked Sample ID: 0312043-003A				
	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	105	109	3.74	107	109	1.62	70	130
MTBE	ND	10	96.5	98.1	1.65	88.8	91.1	2.52	70	130
Benzene	ND	10	114	106	7.57	106	109	2.98	70	130
Toluene	ND	10	111	103	7.05	102	105	2.28	70	130
Ethylbenzene	ND	10	114	108	6.04	107	111	3.68	70	130
Xylenes	ND	30	107	100	6.45	100	103	3.28	70	130
%SS:	105	100	111	102	8.29	103	105	2.08	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
 NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ; RPD =  $100 * (MS - MSD) / ((MS + MSD) / 2)$ .

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



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### QC SUMMARY REPORT FOR SW8015C

Matrix: W

WorkOrder: 0312035

EPA Method: SW8015C		Extraction: SW3510C			BatchID: 9501		Spiked Sample ID: N/A			
	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(d)	N/A	7500	N/A	N/A	N/A	105	105	0	70	130
%SS:	N/A	100	N/A	N/A	N/A	107	106	0.528	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ; RPD =  $100 * (MS - MSD) / ((MS + MSD) / 2)$ .

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

**McCAMPBELL ANALYTICAL INC.**

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHICO, CA 94553-5560

Telephone: (925) 798-1620

Fax: (925) 798-1622

**CHAIN OF CUSTODY RECORD**

**TURN AROUND TIME**

RUSH 24 HR  48 HR  72 HR  5 DAY

EDF Required?  Yes  No

Report To: Peter McIntyre Bill To:  
Company: AEI Consultants  
2500 Camino Diablo, Suite 200  
Walnut Creek, CA 94597 E-Mail:  
Tele: (925) 944-2899 Fax: (925) 944-2895  
Project #: 3119 Project Name: Fidelit Roof Com.  
Project Location: 1075 40th Ave. Oakland  
Sampler Signature: Adriana Nieto

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				Analysis Request	Other	Comments
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other			
+ MW-1		12/26/03	Am	3	VOAS 100ml	X					X	X					
+ MW-2			Pm	1		X					X	X					
+ MW-3			Pm	1		X					X	X					
+ MW-4			Am	1		X					X	X					

Relinquished By: Adriana Nieto Date: 12/26/03 Time: 3:30 Received By: [Signature]  
 Relinquished By: Date: Time: Received By:  
 Relinquished By: Date: Time: Received By:

ICE/°  PRESERVATION   
 GOOD CONDITION  APPROPRIATE  
 HEAD SPACE ABSENT  CONTAINERS  
 DECHLORINATED IN LAB  PERSERVED IN LAB

VOAS  O&G METALS OTHER

0312035

100

McC Campbell Analytical Inc.



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

# CHAIN-OF-CUSTODY RECORD

WorkOrder: 0312035

Report to:

Jeff Rosenberg  
All Environmental, Inc.  
2500 Camino Diablo, Ste. #200  
Walnut Creek, CA 94597

TEL: (925) 283-6000  
FAX: (925) 283-6121  
ProjectNo: #31119; Fidelit Roof Corn.  
PO:

Bill to:

Lesliegh Alderman  
All Environmental, Inc.  
2500 Camino Diablo, Ste. #200  
Walnut Creek, CA 94597

Requested TAT: 5 days

Date Received: 12/2/03

Date Printed: 12/2/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)																		
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				
0312035-001	MW-1	Water	12/2/03	<input type="checkbox"/>		B																	
0312035-002	MW-2	Water	12/2/03	<input type="checkbox"/>		B																	
0312035-003	MW-3	Water	12/2/03	<input type="checkbox"/>		B																	
0312035-004	MW-4	Water	12/2/03	<input type="checkbox"/>		B																	

Test Legend:

1	G-MBTX_W	2	TPH(D)_W	3		4		5	
6		7		8		9		10	
11		12		13		14		15	

Prepared by: Melissa Valles

Comments:

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.