

October 27, 1995  
SCI 469.009

Mr. Robert Mibach  
Director, Physical Plant  
Peralta Community College District  
333 East 8th Street  
Oakland, California 94606

**Quarterly Groundwater Monitoring  
September 1995 Event  
College of Alameda  
555 Atlantic Avenue  
Alameda, California**

ENVIRONMENTAL  
PROTECTION  
95 OCT 31 PM 2:25

Dear Mr. Mibach:

This letter presents the results of quarterly groundwater monitoring conducted by Subsurface Consultants, Inc. (SCI) at the referenced site and a petition to close the site. The monitoring program has been implemented in accordance with Regional Water Quality Control Board and Alameda County Health Care Services Agency (ACHCSA) guidelines due to the presence of petroleum hydrocarbons in the soil beneath previous underground fuel storage tanks. Five wells currently exist at the site. Wells MW-1, MW-3 and MW-5 are being monitored quarterly; wells MW-2 and MW-4 are being monitored semi-annually.

### Groundwater Sampling

The sampling event was performed September 6 and 7, 1995. Initially, the depth to water below the top of casing (TOC) was measured in all the wells using an electric well sounder. Current and previous groundwater elevation data are presented in Table 1.

For this event, wells MW-1, MW-2, MW-3 and MW-5 were sampled. Initially, the wells were checked for free floating product using a steel tape with petroleum product sensitive paste. The slow recharging wells, MW-1 and MW-3, were then purged by bailing them dry with a disposable bailer. Wells MW-2 and MW-5 were purged by bailing with a disposable bailer until temperature, pH, and conductivity measurements had stabilized. Well sampling forms are attached.

■ Subsurface Consultants, Inc.

The wells were sampled after they had recharged to within 80% of their initial volume. The samples were retained in glass containers pre-cleaned by the supplier in accordance with EPA protocol. The samples were placed in an ice chest and remained refrigerated until transmitted to the analytical laboratory. Chain of Custody records accompanied the samples to the laboratory.

### **Analytical Testing**

Groundwater samples were transmitted to Curtis and Tompkins, Ltd., a State of California Department of Health Services certified analytical laboratory. The testing program included the following analyses:

1. Total extractable hydrocarbons (TEH),
2. Benzene, toluene, ethylbenzene, and xylenes (BTEX), and
3. Total oil and grease (TOG).

The results of all analytical testing events are presented in Table 2. Analytical test reports and Chain-of-Custody records for the current event are attached.

### **Conclusions**

Groundwater level measurements indicate that groundwater currently flows in a northwesterly direction. Groundwater flow contours for the current event are presented on Plate 2.

TEH within the diesel range was detected in wells MW-1, MW-2, and MW-3. TEH quantitated as hydraulic oil was detected in MW-5. BTEX and oil and grease were not detected in any wells sampled during this event. The oil and grease that were detected in wells MW-1 and MW-3 during the last monitoring event appear to be an anomalous circumstance since the published data indicate that the quantities are very near the reporting limit and they only occurred during one and two sampling events, respectively.

### **Ongoing Studies**

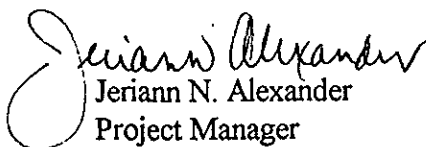
As discussed with Ms. Juliet Shin, Senior Hazardous Materials Specialist with the ACHCSA, additional study is required to further evaluate the site for closure. The additional study will include one additional monitoring event during which water samples will be analyzed for TDS and semivolatile organics in addition to the current testing program. In addition, a hydropunch study will be performed in the area to determine impacts of a hydraulic oil release. The data will then be evaluated using risk based corrective action criteria outlined in ASTM ES 38-94. Specific details of the study will be presented in a work plan.

Mr. Robert Mibach  
Peralta Community College District  
October 27, 1995  
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If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.



Jeriann N. Alexander

Project Manager

Civil Engineer 40469 (exp. 3/31/99)

Registered Environmental Assessor 03130 (exp. 6/30/96)

JD:JNA:sld

2 copies submitted

Attachments: Table 1 - Contaminant Concentrations in Groundwater  
Table 2 - Groundwater Elevations  
Plate 1 - Site Plan  
Plate 2 - Study Area Plan  
Analytical Test Report  
Chain-of-Custody Form  
Well Sampling Forms

cc: Ms. Juliet Shin  
Alameda County Health Care Services Agency  
Hazardous Materials Division  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, California 94502

**Table 1.  
Groundwater Elevations**

<u>Well</u>	<u>TOC Elevation</u>	<u>Date</u>	<u>Groundwater Depth (feet)</u>	<u>Groundwater Elevation (feet)</u>
MW-1	12.16	02/24/92	1.64	10.52
		03/09/92	4.28	7.88
		03/24/92	4.33	7.83
		04/28/92	4.54	7.62
		06/29/92	5.92	6.24
		07/27/92	5.74	6.42
		08/27/92	6.04	6.12
		09/24/92	6.16	6.00
		12/16/92	6.19	5.97
		01/21/93	6.83	5.33
		02/07/94	6.01	6.15
		05/03/94	5.03	7.13
		06/02/94	5.14	7.02
		08/23/94	5.20	6.96
		11/03/94	5.51	6.65
		02/13/95	5.30	6.86
		05/22/95	5.05	7.11
09/06/95	6.52	5.64		
MW-2	11.07	02/24/92	4.45	6.62
		01/21/93	6.83	4.24
		03/24/92	3.73	7.34
		04/28/92	4.25	6.82
		06/29/92	4.40	6.67
		07/27/92	4.00	7.07
		08/27/92	4.33	6.74
		09/24/92	4.36	6.71
		12/16/92	4.08	6.99
		01/21/93	4.40	6.67
		02/07/94	3.60	7.47
		05/03/94	4.04	7.03
		06/02/94	4.17	6.90
		08/23/94	4.28	6.79
		11/03/94	4.33	6.74
		02/13/95	5.95	5.12
		05/22/95	4.10	6.97
09/06/95	4.54	6.53		
MW-3	12.65	02/24/92	13.12	-0.47
		03/09/92	8.75	3.90
		03/24/92	6.87	5.78
		04/28/92	6.31	6.34
		06/04/92	7.10	5.55

**Table 1**  
**Groundwater Elevations**  
**(continued)**

<u>Well</u>	<u>TOC Elevation</u>	<u>Date</u>	<u>Groundwater Depth (feet)</u>	<u>Groundwater Elevation (feet)</u>
		06/29/92	10.78	1.87
		07/27/92	6.88	5.77
		09/24/92	7.38	5.27
		12/16/92	6.50	6.15
		01/21/92	10.25	2.40
		02/07/94	11.44	1.21
		05/03/94	7.02	5.63
		06/02/94	9.15	3.50
		08/23/94	7.13	5.52
		11/03/94	7.54	5.11
		02/13/95	5.80	6.85
		05/22/95	7.87	4.78
		09/06/95	6.47	6.18
MW-4	12.22	02/07/94	5.92	6.30
		05/03/94	5.50	6.72
		06/02/94	5.17	7.05
		08/23/94	5.73	6.49
		11/03/94	6.41	5.81
		02/13/95	4.65	7.57
		05/22/95	4.77	7.45
		09/06/95	5.43	6.79
MW-5	12.69	02/07/94	4.89	7.80
		05/03/94	4.50	8.19
		06/02/94	4.49	8.20
		08/23/94	4.83	7.86
		11/03/94	5.14	7.55
		02/13/95	4.19	8.50
		05/22/95	4.25	8.44
		09/06/95	4.68	8.01

TOC = Top of Casing

Groundwater depth measured below TOC

TOC elevation surveyed relative to mean sea level

**Table 2  
Contaminant Concentrations in Groundwater**

	Sampling Date	TVH (ug/l)	TEH			TOG (mg/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl-Benzene (ug/l)	Total Xylenes (ug/l)	EPA 8010 Chemicals
			Kerosene Range (ug/l)	Diesel Range (ug/l)	Motor Oil Range (ug/l)						
<b><u>Fuel Oil Tank Area</u></b>											
MW-1	2/19/92	--	<50	94	--	--	<0.5	<0.5	<0.5	<0.5	--
	6/29/92	--	<50	110	--	--	<0.5	<0.5	<0.5	<0.5	--
	9/29/92	--	<50	<50	--	--	<0.5	<0.5	<0.5	<0.5	--
	12/22/92	--	<50	180	--	--	<0.5	<0.5	<0.5	<0.5	--
	1/26/94	--	60	<50	--	<5	<0.5	<0.5	<0.5	<0.5	--
	5/4/94	--	<50	<50	--	<5	<0.5	<0.5	<0.5	<0.5	--
	8/25/94	--	*	480†	--	<5	<0.5	<0.5	<0.5	<0.5	--
	11/7/94	--	<50	<50	--	<5	<0.5	<0.5	<0.5	<0.5	--
	2/13/95	--	<50	<50	--	<5	<0.5	<0.5	<0.5	<0.5	--
	5/24/95	--	--	<50	--	9.7	<0.5	<0.5	<0.5	<0.5	--
	9/7/95	--	--	140†	<1300	<5	<0.5	<0.5	<0.5	<0.5	--
MW-4	1/26/94	--	<50	<50	--	<5	<0.5	<0.5	<0.5	<0.5	--
	8/25/94	--	*	530†	--	<5	<0.5	<0.5	<0.5	<0.5	--
	5/27/95	--	--	240†	--	<5	<0.5	<0.5	<0.5	<0.5	--
<b><u>Gasoline Tank Area</u></b>											
Tank Excavation	8/15/91	800	--	--	--	--	78	99	10	52	--

**Table 2**  
**Contaminant Concentrations in Groundwater**

	Sampling Date	TVH (ug/l)	TEH			TOG (mg/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl-Benzene (ug/l)	Total Xylenes (ug/l)	EPA 8010 Chemicals
			Kerosene Range (ug/l)	Diesel Range (ug/l)	Motor Oil Range (ug/l)						
MW-2	2/19/92	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--
	6/29/92	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--
	9/29/92	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--
	12/22/92	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--
	1/25/94	--	<50	<50	--	<5	<0.5	<0.5	<0.5	<0.5	--
	5/4/94	--	*	50†	--	<5	<0.5	<0.5	<0.5	<0.5	--
	11/4/94	--	<50	<50	--	<5	<0.5	<0.5	<0.5	<0.5	--
	2/13/95	--	<50	<50	--	<5	<0.5	<0.5	<0.5	<0.5	--
	9/7/95	--	--	140†	<1300	<5	<0.5	<0.5	<0.5	<0.5	--
	<b><u>Waste Oil Tank Area</u></b>										
MW-3	2/19/92	<5000+	680	<50	--	<5	<50	<50	<50	84	ND
	6/29/92	<50	*	190	--	<5	<0.5	<0.5	<0.5	<0.5	ND
	9/29/92	<50	*	410	--	<5	<0.5	<0.5	<0.5	<0.5	ND
	12/21/92	<500	*	400	--	<5	<5	<5	<5	<5	ND
	1/26/94	--	70	<50	--	<5	<0.5	<0.5	<0.5	0.8	--
	5/5/94	--	<50	140†	--	<5	<0.5	<0.5	<0.5	<0.5	--
	8/25/94	--	*	900†	--	<5	14.5	5.1	<0.5	<0.5	--
	11/7/94	--	<50	<50	--	<5	<0.5	<0.5	<0.5	<0.5	--
	2/13/95	--	*	310†	--	5.9	<0.5	<0.5	<0.5	<0.5	--
	5/24/95	--	--	390†	--	14	<0.5	<0.5	<0.5	<0.5	--
9/7/95	--	--	440†	<1300	<5	<0.5	<0.5	<0.5	<0.5	--	

**Table 2**  
**Contaminant Concentrations in Groundwater**

	Sampling Date	TEH			TOG (mg/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl-Benzene (ug/l)	Total Xylenes (ug/l)	EPA 8010 Chemicals
		TVH (ug/l)	Kerosene Range (ug/l)	Diesel Range (ug/l)						
MW-5	1/25/94	--	*	5,200 <sup>h</sup>	--	<5	<0.5	<0.5	<0.5	--
	5/4/94	--	*	3,500 <sup>h</sup>	--	<5	<0.5	<0.5	<0.5	--
	8/25/94	--	*	5,000 <sup>h</sup>	--	<5	<0.5	<0.5	<0.5	--
	11/4/94	--	*	4,600 <sup>h</sup>	--	<5	<0.5	<0.5	<0.5	--
	2/13/95	--	*	3000 <sup>h</sup>	--	<5	<0.5	<0.5	<0.5	--
	5/22/95	--	--	3,100 <sup>h</sup>	--	<5	<0.5	<0.5	<0.5	--
	9/7/95	--	--	5,000 <sup>h</sup>	4900 <sup>h</sup>	<5	<0.5	<0.5	<0.5	--

TVH = Total volatile hydrocarbons as gasoline, EPA 8015/5030 modified

TEH = Total extractable hydrocarbons, EPA 3550/8015 modified

TOG = Total oil and grease, EPA 3550 and SMWW 17:5520 B&F

ug/l = Micrograms per liter or parts per billion (ppb)

mg/l = Milligrams per liter or parts per million (ppm)

-- = Test not requested

ND = Not detected at or above reporting limits. Reporting limits vary from 1.0 to 20 ug/l.

See test reports for individual reporting limits.

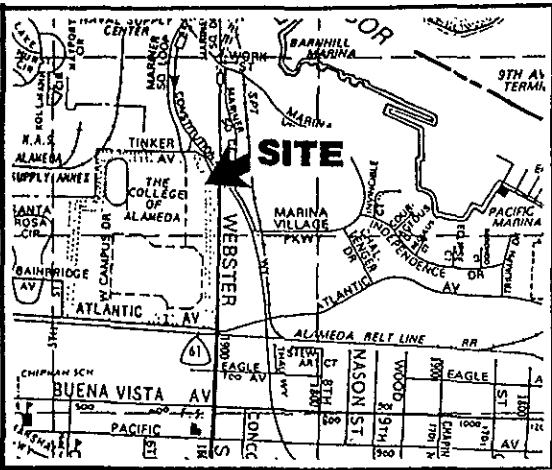
\* = Quantitated as diesel range

+ = Sample diluted due to foaming during purge and trap extraction

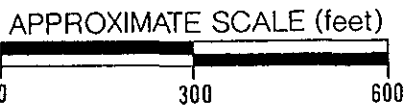
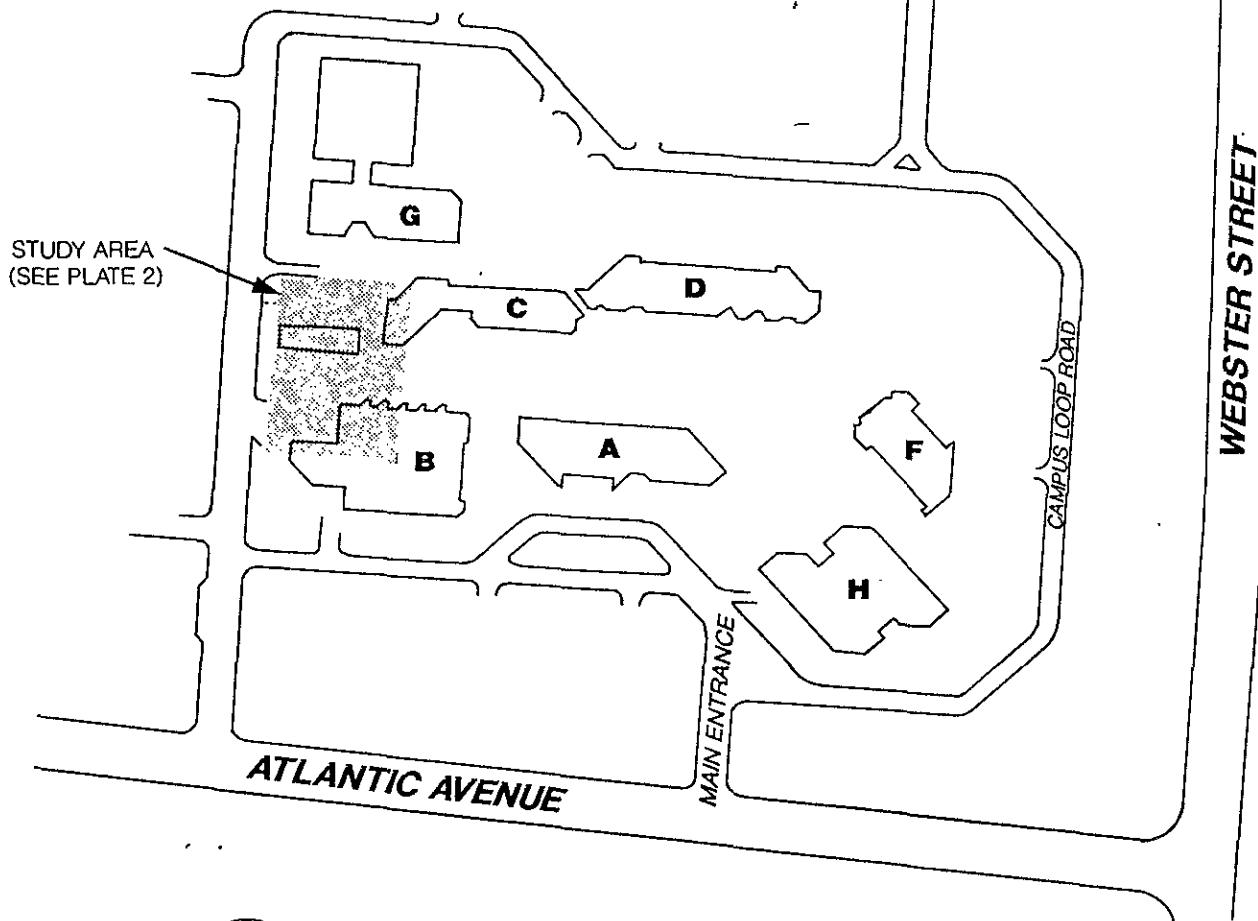
<sup>h</sup> = Laboratory indicates that the sample chromatogram closely resembles hydraulic fluid.

† = Samples exhibits pattern which does not resemble standard





VICINITY MAP



### SITE PLAN

COLLEGE OF ALAMEDA - ALAMEDA, CA

PLATE





# Subsurface Consultants

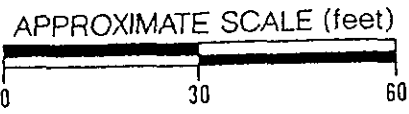
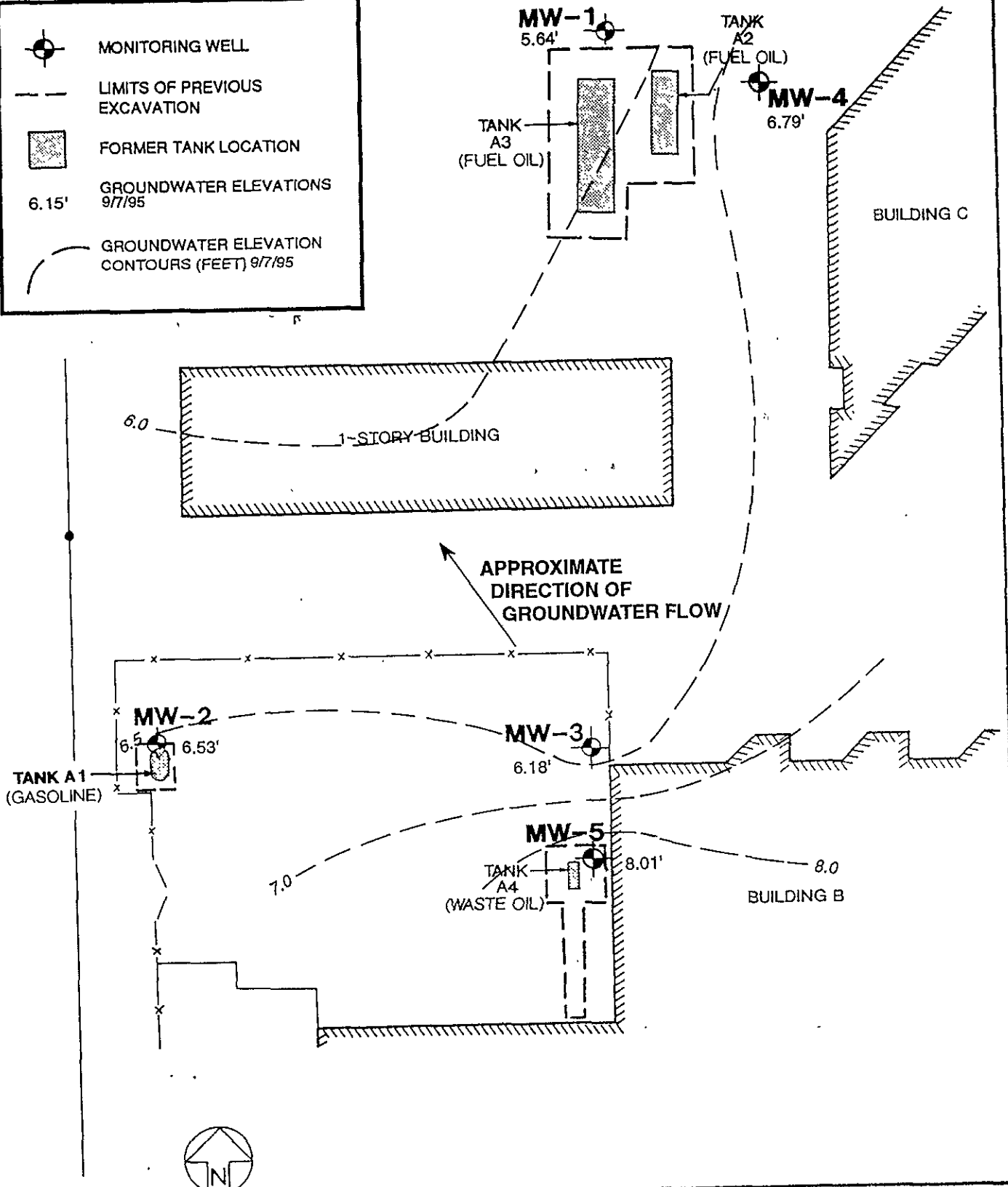
JOB NUMBER  
469.009

DATE  
3/12/92

APPROVED  
UW

# 1

 MONITORING WELL  
 LIMITS OF PREVIOUS EXCAVATION  
 FORMER TANK LOCATION  
 6.15' GROUNDWATER ELEVATIONS 9/7/95  
 GROUNDWATER ELEVATION CONTOURS (FEET) 9/7/95



<b>STUDY AREA PLAN</b>		
COLLEGE OF ALAMEDA - ALAMEDA, CA		PLATE
JOB NUMBER	DATE	APPROVED
469.009	9/21/95	MW
		<b>2</b>

Subsurface Consultants



## WELL SAMPLING FORM

Project Name: College of Alameda Well Number: MW-1  
 Job No.: 469-009 Well Casing Diameter: 2 inch  
 Sampled By: DWA Date: 9/6/95  
 TOC Elevation: \_\_\_\_\_ Weather: Sunny

Depth to Casing Bottom (below TOC) 12.00 feet  
 Depth to Groundwater (below TOC) 6.52 feet  
 Feet of Water in Well 5.48 feet  
 Depth to Groundwater When 80% Recovered 7.62 feet  
 Casing Volume (feet of water x Casing DIA<sup>2</sup> x 0.0408) .9 gallons  
 Depth Measurement Method Tape & Paste / **Electronic Sounder** / Other  
 Free Product none  
 Purge Method disposable bailer

### FIELD MEASUREMENTS

*slow recharge (overnight)*

*sulfur from  
carbonating  
bottle used?  
may need  
soils*

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
<u>1</u>	<u>6.67</u>	<u>80.1</u>	<u>13,620</u>		<u>clear/rotten egg odor</u>
<u>2</u>	<u>6.94</u>	<u>76.9</u>	<u>15,500</u>		<u>milky</u>
<u>3</u>					<u>den @ 2.5 gals.</u>

Total Gallons Purged 3 2.5 gallons

Depth to Groundwater Before Sampling (below TOC) 9:46 on 9/6/95 @ 10:00 a.m. feet

Sampling Method disposable bailer

Containers Used 2 40 ml 2 liter \_\_\_\_\_ pint

**Subsurface Consultants**

			PLATE
JOB NUMBER	DATE	APPROVED	

## WELL SAMPLING FORM

Project Name: College of Alameda Well Number: MW-2  
 Job No.: 469.009 Well Casing Diameter: 2 inch  
 Sampled By: DWA Date: 9/6/95  
 TOC Elevation: \_\_\_\_\_ Weather: Sunny

Depth to Casing Bottom (below TOC) 10.00 feet  
 Depth to Groundwater (below TOC) 4.54' feet  
 Feet of Water in Well 5.46 feet  
 Depth to Groundwater When 80% Recovered 5.63 feet  
 Casing Volume (feet of water x Casing DIA<sup>2</sup> x 0.0408) .9 gallons  
 Depth Measurement Method Tape & Paste / Electronic Sounder / Other  
 Free Product none  
 Purge Method disposable bailer

### FIELD MEASUREMENTS

*fast recharge*

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
<u>1</u>	<u>6.91</u>	<u>81.3</u>	<u>3250</u>	_____	<u>semi-clear/slight odor</u>
<u>2</u>	<u>6.93</u>	<u>80.2</u>	<u>2780</u>	_____	↓
<u>3</u>	<u>6.87</u>	<u>80.3</u>	<u>2960</u>	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Total Gallons Purged 3 gallons  
 Depth to Groundwater Before Sampling (below TOC) 5.00 feet  
 Sampling Method disposable bailer  
 Containers Used 2 40 ml 2 liter \_\_\_\_\_ pint

Subsurface Consultants

JOB NUMBER

DATE

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PLATE

## WELL SAMPLING FORM

Project Name: College of Alameda Well Number: MW-3  
 Job No.: 469.009 Well Casing Diameter: 2 inch  
 Sampled By: DWA Date: 9/6/95  
 TOC Elevation: \_\_\_\_\_ Weather: Sunny

Depth to Casing Bottom (below TOC) 15.00 feet  
 Depth to Groundwater (below TOC) 6.47 feet  
 Feet of Water in Well 8.53 feet  
 Depth to Groundwater When 80% Recovered 8.18 feet  
 Casing Volume (feet of water x Casing DIA<sup>2</sup> x 0.0408) 1.4 gallons  
 Depth Measurement Method Tape & Paste Electronic Sounder / Other  
 Free Product None  
 Purge Method disposable bailer

### FIELD MEASUREMENTS

*very slow recharge (overnight) from aquifer? bio?*

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
1	6.79	73.0	11,800		clear/rotten egg odor
2	6.66	68.7	11,460		↓
3	6.41	66.3	12,070		
4	6.12	65.1	12,700		murky/dry @ 4 gals.
<del>5</del>					

Total Gallons Purged 5 gallons  
 Depth to Groundwater Before Sampling (below TOC) 12.38' on 9/7/95 @ 9:45am. feet  
 Sampling Method disposable bailer  
 Containers Used 2 40 ml 2 liter \_\_\_\_\_ pint

<b>Subsurface Consultants</b>	JOB NUMBER	DATE	APPROVED	PLATE

## WELL SAMPLING FORM

Project Name: College of Alameda Well Number: MW-5  
 Job No.: 469.009 Well Casing Diameter: 2 inch  
 Sampled By: DWA Date: 9/6/95  
 TOC Elevation: \_\_\_\_\_ Weather: Sunny

Depth to Casing Bottom (below TOC) 13.50 feet  
 Depth to Groundwater (below TOC) 4.68' feet  
 Feet of Water in Well 8.82 feet  
 Depth to Groundwater When 80% Recovered 6.44 feet  
 Casing Volume (feet of water x Casing DIA<sup>2</sup> x 0.0408) 1.5 gallons  
 Depth Measurement Method Tape & Paste / Electronic Sounder / Other  
 Free Product none  
 Purge Method disposable bailer

### FIELD MEASUREMENTS

*immediate recharge*  
*From aquifer below?*

Gallons Removed	pH	F Temp (°C)	Conductivity (micromhos/cm)	Salinity S%	Comments
1	7.87	75.3	9200		<i>clear/slight rotten egg od</i> <div style="text-align: center;">↓</div>
2	7.60	75.2	7850		
3	7.49	75.2	7820		
4	7.36	75.4	8000		

Total Gallons Purged 5 gallons  
 Depth to Groundwater Before Sampling (below TOC) 4.68' feet  
 Sampling Method disposable bailer  
 Containers Used 2 40 ml 2 liter \_\_\_\_\_ pint

<h1 style="margin: 0;">Subsurface Consultants</h1>	JOB NUMBER	DATE	APPROVED	PLATE



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

A N A L Y T I C A L   R E P O R T

Prepared for:

Subsurface Consultants  
171 12th Street  
Suite 201  
Oakland, CA 94608

Date: 27-SEP-95  
Lab Job Number: 122546  
Project ID: 469.009  
Location: College of Alameda

Reviewed by: \_\_\_\_\_

Reviewed by: \_\_\_\_\_

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TEH-Tot Ext Hydrocarbons	
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)
Project#: 469.009	Prep Method: LUFT
Location: College of Alameda	

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
122546-001	MW-1	23197	09/07/95	09/11/95	09/22/95	
122546-002	MW-2	23197	09/06/95	09/11/95	09/22/95	
122546-003	MW-3	23197	09/07/95	09/11/95	09/22/95	
122546-004	MW-5	23197	09/06/95	09/11/95	09/22/95	

Analyte	Units	122546-001	122546-002	122546-003	122546-004
Diln Fac:		1	1	1	1
Diesel Range	ug/L	140 YH	140 YH	440 YH	5000 YH
Motor Oil Range	ug/L	<1300	<1300	<1300	4900 YL
Surrogate					
Hexacosane	%REC	114	133	126	115

Y: Sample exhibits fuel pattern which does not resemble standard  
H: Heavier hydrocarbons than indicated standard  
L: Lighter hydrocarbons than indicated standard

Lab #: 122546

## BATCH QC REPORT

Page 1 of 1

TEH-Tot Ext Hydrocarbons			
Client:	Subsurface Consultants	Analysis Method:	CA LUFT (EPA 8015M)
Project#:	469.009	Prep Method:	3520
Location:	College of Alameda		
METHOD BLANK			
Matrix:	Water	Prep Date:	09/11/95
Batch#:	23197	Analysis Date:	09/21/95
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC03818

Analyte	Result	
Diesel Range	<50	
Motor Oil Range	<1300	
Surrogate	%Rec	Recovery Limits
Hexacosane	108	60-140

Lab #: 122546

## BATCH QC REPORT

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TEH-Tot Ext Hydrocarbons			
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)		
Project#: 469.009	Prep Method: 3520		
Location: College of Alameda			
BLANK SPIKE/BLANK SPIKE DUPLICATE			
Matrix: Water	Prep Date:	09/11/95	
Batch#: 23197	Analysis Date:	09/21/95	
Units: ug/L			
Diln Fac: 1			

BS Lab ID: QC03819

Analyte	Spike Added	BS	%Rec #	Limits
Diesel Range	2565	2463	96	60-140
Surrogate	%Rec	Limits		
Hexacosane	112	60-140		

BSD Lab ID: QC03820

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel Range	2565	2419	94	60-140	2	<35
Surrogate	%Rec	Limits				
Hexacosane	111	60-140				

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

Client: Subsurface Consultants

Laboratory Login Number: 122546

 Project Name: College of Alameda  
 Project Number: 469.009

Report Date: 16 September 95

ANALYSIS: Hydrocarbon Oil &amp; Grease (Gravimetric)

METHOD: SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
122546-001	MW-1	Water	07-SEP-95	08-SEP-95	13-SEP-95	ND	mg/L	5	TR	23263
122546-002	MW-2	Water	06-SEP-95	08-SEP-95	13-SEP-95	ND	mg/L	5	TR	23263
122546-003	MW-3	Water	07-SEP-95	08-SEP-95	13-SEP-95	ND	mg/L	5	TR	23263
122546-004	MW-5	Water	06-SEP-95	08-SEP-95	13-SEP-95	ND	mg/L	5	TR	23263

ND = Not Detected at or above Reporting Limit (RL).

## Q C B a t c h R e p o r t

Client: Subsurface Consultants  
 Project Name: College of Alameda  
 Project Number: 469.009

Laboratory Login Number: 122546  
 Report Date: 16 September 95

ANALYSIS: Hydrocarbon Oil &amp; Grease (Gravimetric)

QC Batch Number: 23263

## Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
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## Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	88%	SMWW 17:5520BF	13-SEP-95
BSD	83%	SMWW 17:5520BF	13-SEP-95

		Control Limits
Average Spike Recovery	86%	80% - 120%
Relative Percent Difference	4.9%	< 20%



## BTXE

Client: Subsurface Consultants  
Project#: 469.009  
Location: College of Alameda

Analysis Method: BTXE  
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
122546-001	MW-1	23229	09/07/95	09/12/95	09/12/95	
122546-002	MW-2	23229	09/06/95	09/12/95	09/12/95	
122546-003	MW-3	23229	09/07/95	09/12/95	09/12/95	
122546-004	MW-5	23229	09/06/95	09/12/95	09/12/95	

Analyte	Units	122546-001	122546-002	122546-003	122546-004
Diln Fac:		1	1	1	1
Benzene	ug/L	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	98	95	97	94
Bromobenzene	%REC	108	103	108	105

Lab #: 122546

## BATCH QC REPORT

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BTXE			
Client:	Subsurface Consultants	Analysis Method:	BTXE
Project#:	469.009	Prep Method:	EPA 5030
Location:	College of Alameda		
METHOD BLANK			
Matrix:	Water	Prep Date:	09/12/95
Batch#:	23229	Analysis Date:	09/12/95
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC03964

Analyte	Result	
Benzene	<0.5	
Toluene	<0.5	
Ethylbenzene	<0.5	
m,p-Xylenes	<0.5	
o-Xylene	<0.5	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	103	75-125
Bromobenzene	102	75-125

Lab #: 122546

## BATCH QC REPORT

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BTXE			
Client: Subsurface Consultants	Analysis Method: BTXE		
Project#: 469.009	Prep Method: EPA 5030		
Location: College of Alameda			
LABORATORY CONTROL SAMPLE			
Matrix: Water	Prep Date: 09/12/95		
Batch#: 23229	Analysis Date: 09/12/95		
Units: ug/L			
Diln Fac: 1			

LCS Lab ID: QC03963

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	19.1	20	96	85-115
Toluene	19.1	20	96	85-115
Ethylbenzene	19.3	20	97	85-115
m,p-Xylenes	20.3	20	102	85-115
o-Xylene	18	20	90	85-115
Surrogate	%Rec	Limits		
Trifluorotoluene	96	75-125		
Bromobenzene	94	75-125		

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits



Lab #: 122546

## BATCH QC REPORT

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BTXE	
Client: Subsurface Consultants	Analysis Method: BTXE
Project#: 469.009	Prep Method: EPA 5030
Location: College of Alameda	
MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
Field ID: ZZZZZZ	Sample Date: 09/06/95
Lab ID: 122554-001	Received Date: 09/09/95
Matrix: Water	Prep Date: 09/12/95
Batch#: 23229	Analysis Date: 09/12/95
Units: ug/L	
Diln Fac: 1	

MS Lab ID: QC03965

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5000	20.2	101	85-115
Toluene	20	<0.5000	20.7	102	85-115
Ethylbenzene	20	<0.5000	30.2	101	85-115
m,p-Xylenes	40	<0.5000	34.4	109	85-115
o-Xylene	20	<0.5000	24.5	111	85-115
Surrogate	%Rec	Limits			
Trifluorotoluene	97	75-125			
Bromobenzene	104	75-125			

MSD Lab ID: QC03966

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	21.4	107	85-115	6	<11
Toluene	20	21.9	108	85-115	6	<13
Ethylbenzene	20	31	105	85-115	3	<25
m,p-Xylenes	40	35.5	114	85-115	3	<25
o-Xylene	20	25.6	117 *	85-115	4	<25
Surrogate	%Rec	Limits				
Trifluorotoluene	95	75-125				
Bromobenzene	106	75-125				

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 1 out of 10 outside limits

