



**Subsurface Consultants, Inc.**

ENVIRONMENTAL  
PROTECTION  
96 SEP -6 PM 3:37

R. William Rudolph, P.E.  
President

August 19, 1996  
SCI 946.002

Ms. Shirley Howkins  
c/o Mr. Carlo Mormorunni  
Fitzgerald, Abbott & Beardsley  
1221 Broadway, 21st Floor  
Oakland, California 94612-1837

**Quarterly Groundwater Monitoring  
July 1996 Event  
2528 Adeline Street  
Oakland, California**

Dear Ms. Howkins:

This letter presents the results of the July 1996 groundwater monitoring event for the referenced site. Groundwater monitoring has been performed at the request of the Alameda County Health Care Services Agency (ACHCSA) due to the presence of petroleum hydrocarbons, heavy metals, and volatile organic compounds detected in groundwater beneath the site. The location of the site is shown on the attached Plate 1.

### **Groundwater Sampling**

On July 25, 1996, monitoring wells MW-1, MW-2 and MW-3 were gauged and sampled. In general, the events consisted of (1) measuring groundwater levels using an electric well sounder, (2) checking for free product, (3) purging water from each well until pH, conductivity and temperature had stabilized (approximately 3 well volumes), and (4) after the wells had recovered to at least 80 percent of their initial level, sampling the wells with new disposable bailers. The samples were retained in glass containers pre-cleaned by the supplier in accordance with EPA protocol. The containers were placed in an ice-filled cooler and remained iced until delivery to the analytical laboratory.

### **Analytical Testing**

Analytical testing was performed by Curtis & Tompkins, Ltd., a laboratory certified by the State of California Department of Health Services for hazardous waste and water testing. Samples were analyzed for the following:

1. Total Volatile Hydrocarbons as gasoline and stoddard solvent (TVH, EPA 5030/8015),
2. Benzene, toluene, ethylbenzene, and total xylenes (BTEX, EPA 8020),
3. Total Extractable Hydrocarbons as diesel, kerosene and stoddard solvent (TEH, EPA 8015),
4. Oil and Grease (O&G, SMWW 17:5520 BF),
5. Volatile Organic Compounds (VOC, EPA 5030/8240),
6. Dissolved Barium (EPA 6010A), and
7. Dissolved Selenium (EPA 6010A).

Samples submitted for metals analysis were filtered by the laboratory prior to analysis. Water generated during sampling activities was stored on-site in 55-gallon drums for later disposal by others. A summary of the current and previous analytical test results are presented in the attached Tables 1 through 3. Analytical test reports, Chain-of-Custody documents, and well sampling forms for this event are also attached.

### **Conclusions**

The groundwater level data indicates the local groundwater flow direction is toward the north at a gradient of approximately 2%. Two previous events conducted in August 1995 and April 1996, indicated groundwater flow directions to the west and to the north-northwest with gradients of 5% and 2%, respectively. A summary of groundwater level data is presented in the attached Table 4.

Elevated concentrations of TVH were detected in monitoring wells MW-1 and MW-2. In addition, TEH and ethylbenzene were detected in monitoring well MW-1. The laboratory indicated that the sample chromatographs for TVH and TEH do not exhibit a fuel pattern which

Ms. Shirley Howkins  
c/o Mr. Carlo Mormorunni  
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resembles their respective standards. Neither TVH, TEH, nor BTEX were detected in MW-3. O&G was also not detected in any of the three wells.

Elevated concentrations of 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE) and trichloroethane (1,1,1-TCA) were detected in monitoring well MW-2. 1,1-DCE and 1,1,1-TCA were also detected in monitoring well MW-3. The appearance of these compounds in monitoring wells MW-2 and MW-3, but not MW-1 indicates the potential for an upgradient, off-site source.

Concentrations of selenium slightly above its maximum contaminant level (MCL) of 10 ug/L were detected in monitoring wells MW-1 and MW-2. All concentrations of barium detected in monitoring wells MW-1, MW-2 and MW-3 were below its MCL of 1000 ug/L.

In accordance with the monitoring plan, the next sampling event is scheduled for October 1996.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.



Meg Mendoza  
Project Engineer



Jeriann N. Alexander, P.E., REA  
Civil Engineer 40469 (expires 3/31/99)  
Registered Environmental Assessor 03130 (exp. 6/30/97)

MM:JNA:RWR:sld

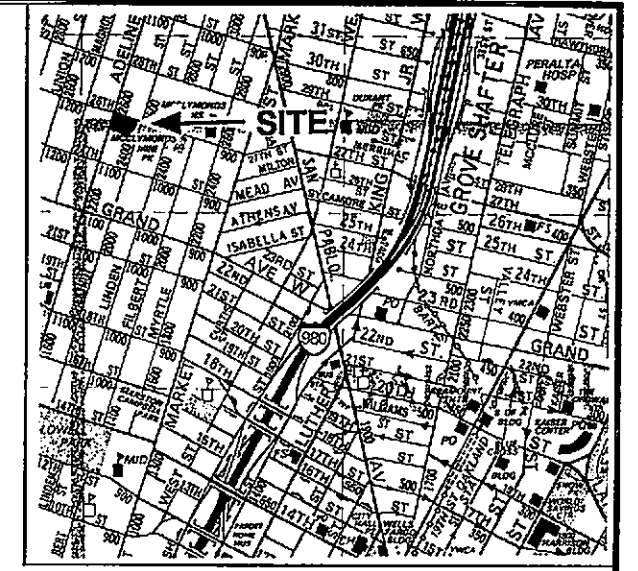
Ms. Shirley Howkins  
c/o Mr. Carlo Mormorunni  
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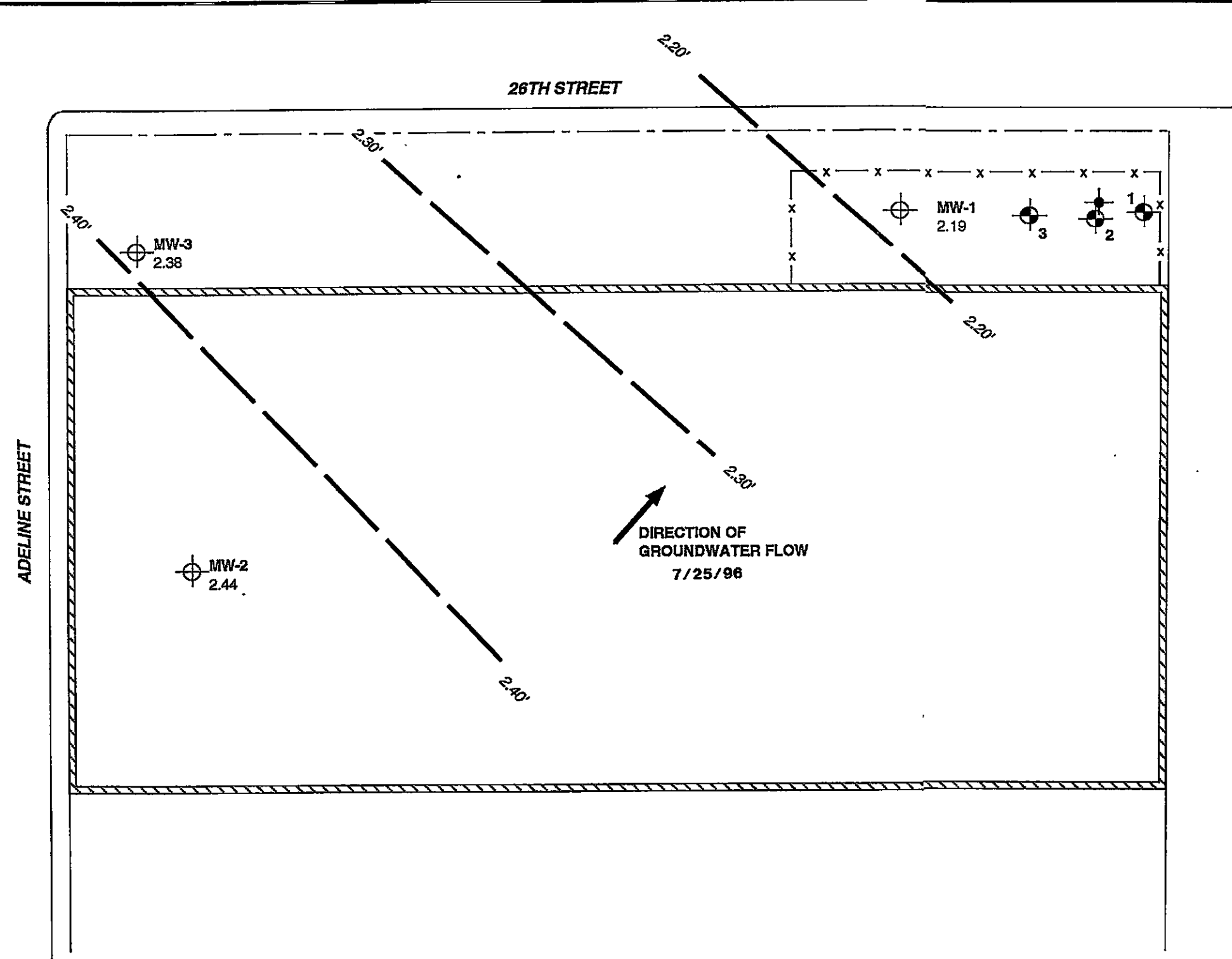
Attachments: Plate 1 - Site Plan  
Table 1 - Petroleum Hydrocarbon Concentrations in Groundwater  
Table 2 - Volatile Organic Compound Concentrations in Groundwater  
Table 3 - Barium and Selenium Concentrations in Groundwater  
Table 4 - Groundwater Elevation Data  
Analytical Test Reports  
Chain-of-Custody Document  
Well Sampling Forms

4 copies submitted

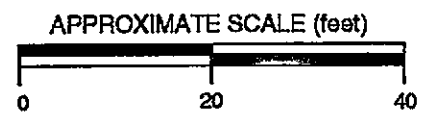
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VICINITY MAP



EXPLANATION	
	PROPERTY BOUNDARY
	FENCE
	EXISTING STRUCTURE
	BORING LOCATION
	MONITORING WELL LOCATION
	FORMER WELL LOCATION
	GROUNDWATER ELEVATION CONTOUR



<b>SITE PLAN</b>		
2528 ADELINE STREET - OAKLAND, CA		
JOB NUMBER 946.002	DATE 8/4/96	APPROVED <i>[Signature]</i>
		PLATE <b>1</b>

**Subsurface Consultants**



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  
3736 Mt. Diablo Blvd.  
Suite 200  
Lafayette, CA 94549

Date: 01-AUG-96  
Lab Job Number: 126371  
Project ID: 946.002  
Location: 2528 Adeline St.

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

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

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TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants  
Project#: 946.002  
Location: 2528 Adeline St.

Analysis Method: CA LUFT (EPA 8015M)  
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126371-001	MW-1	28877	07/25/96	07/26/96	07/31/96	
126371-002	MW-2	28877	07/25/96	07/26/96	07/31/96	
126371-003	MW-3	28877	07/25/96	07/26/96	07/31/96	

Matrix: Water

MW1

MW2

MW3

Analyte	Units	126371-001	126371-002	126371-003
Diln Fac:		1	1	1
Kerosene C10-C16	ug/L	180 Y	<50	<50
Diesel C12-C22	ug/L	190 Y	<50	<50
Surrogate				
Hexacosane	%REC	108	98	94

Y: Sample exhibits fuel pattern which does not resemble standard



Lab #: 126371

## BATCH QC REPORT

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## TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants  
Project#: 946.002  
Location: 2528 Adeline St.

Analysis Method: CA LUFT (EPA 8015M)  
Prep Method: EPA 3520

## METHOD BLANK

Matrix: Water  
Batch#: 28877  
Units: ug/L  
Diln Fac: 1

Prep Date: 07/26/96  
Analysis Date: 07/29/96

MB Lab ID: QC26995

Analyte	Result	
Kerosene C10-C16	<50	
Diesel C12-C22	<50	
Surrogate	%Rec	Recovery Limits
Hexacosane	61	60-140





Lab #: 126371

## BATCH QC REPORT

TEH-Tot Ext Hydrocarbons			
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)		
Project#: 946.002	Prep Method: EPA 3520		
Location: 2528 Adeline St.			
BLANK SPIKE/BLANK SPIKE DUPLICATE			
Matrix: Water	Prep Date:	07/26/96	
Batch#: 28877	Analysis Date:	07/29/96	
Units: ug/L			
Diln Fac: 1			

BS Lab ID: QC26996

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	2099	85	60-140
Surrogate	%Rec	Limits		
Hexacosane	100	60-140		

BSD Lab ID: QC26997

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	2191	89	60-140	4	35
Surrogate	%Rec	Limits				
Hexacosane	102	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



## Volatile Organics by GC/MS

Client: Subsurface Consultants  
 Project#: 946.002  
 Location: 2528 Adeline St.

Analysis Method: EPA 8240  
 Prep Method: EPA 5030

Field ID: ~~MW-1~~  
 Lab ID: 126371-001  
 Matrix: Water  
 Batch#: 28880  
 Units: ug/L  
 Diln Fac: 1

Sampled: 07/25/96  
 Received: 07/25/96  
 Extracted: 07/28/96  
 Analyzed: 07/28/96

Analyte	Result	Reporting Limit
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene Chloride	ND	20
Acetone	ND	20
Carbon Disulfide	ND	5.0
Trichlorofluoromethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
Freon 113	ND	5.0
1,2-Dichloroethane	ND	5.0
2-Butanone	ND	10
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
Vinyl Acetate	ND	50
Bromodichloromethane	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
Trichloroethene	ND	5.0
Dibromochloromethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Bromoform	ND	5.0
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	6.4	5.0
Styrene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	114	68-126
Toluene-d8	100	87-125
Bromofluorobenzene	95	79-122



## Volatile Organics by GC/MS

Client: Subsurface Consultants  
 Project#: 946.002  
 Location: 2528 Adeline St.

Analysis Method: EPA 8240  
 Prep Method: EPA 5030

Field ID: MW-2  
 Lab ID: 126371-002  
 Matrix: Water  
 Batch#: 28882  
 Units: ug/L  
 Diln Fac: 2

Sampled: 07/25/96  
 Received: 07/25/96  
 Extracted: 07/29/96  
 Analyzed: 07/29/96

Analyte	Result	Reporting Limit
Chloromethane	ND	20
Bromomethane	ND	20
Vinyl Chloride	ND	20
Chloroethane	ND	20
Methylene Chloride	ND	40
Acetone	ND	40
Carbon Disulfide	ND	10
Trichlorofluoromethane	ND	10
1,1-Dichloroethene	270	10
1,1-Dichloroethane	77	10
trans-1,2-Dichloroethene	ND	10
cis-1,2-Dichloroethene	ND	10
Chloroform	ND	10
Freon 113	ND	10
1,2-Dichloroethane	ND	10
2-Butanone	ND	20
1,1,1-Trichloroethane	230	10
Carbon Tetrachloride	ND	10
Vinyl Acetate	ND	100
Bromodichloromethane	ND	10
1,2-Dichloropropane	ND	10
cis-1,3-Dichloropropene	ND	10
Trichloroethene	ND	10
Dibromochloromethane	ND	10
1,1,2-Trichloroethane	ND	10
Benzene	ND	10
trans-1,3-Dichloropropene	ND	10
Bromoform	ND	10
2-Hexanone	ND	20
4-Methyl-2-Pentanone	ND	20
1,1,2,2-Tetrachloroethane	ND	10
Tetrachloroethene	ND	10
Toluene	ND	10
Chlorobenzene	ND	10
Ethylbenzene	ND	10
Styrene	ND	10
m,p-Xylenes	ND	10
o-Xylene	ND	10
Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	110	68-126
Toluene-d8	98	87-125
Bromofluorobenzene	91	79-122



## Volatile Organics by GC/MS

Client: Subsurface Consultants  
 Project#: 946.002  
 Location: 2528 Adeline St.

Analysis Method: EPA 8240  
 Prep Method: EPA 5030

Field ID: MW-3  
 Lab ID: 126371-003  
 Matrix: Water  
 Batch#: 28882  
 Units: ug/L  
 Diln Fac: 1

Sampled: 07/25/96  
 Received: 07/25/96  
 Extracted: 07/29/96  
 Analyzed: 07/29/96

Analyte	Result	Reporting Limit
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene Chloride	ND	20
Acetone	ND	20
Carbon Disulfide	ND	5.0
Trichlorofluoromethane	ND	5.0
1,1-Dichloroethene	7.2	5.0
1,1-Dichloroethane	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
Freon 113	ND	5.0
1,2-Dichloroethane	ND	5.0
2-Butanone	ND	10
1,1,1-Trichloroethane	8.0	5.0
Carbon Tetrachloride	ND	5.0
Vinyl Acetate	ND	50
Bromodichloromethane	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
Trichloroethene	ND	5.0
Dibromochloromethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Bromoform	ND	5.0
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	ND	5.0
Styrene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	115	68-126
Toluene-d8	97	87-125
Bromofluorobenzene	92	79-122



Lab #: 126371

BATCH QC REPORT

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EPA 8240 Volatile Organics			
Client:	Subsurface Consultants	Analysis Method:	EPA 8240
Project#:	946.002	Prep Method:	EPA 5030
Location:	2528 Adeline St.		
METHOD BLANK			
Matrix:	Water	Prep Date:	07/28/96
Batch#:	28880	Analysis Date:	07/28/96
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC27014

Analyte	Result	Reporting Limit
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene Chloride	ND	20
Acetone	ND	20
Carbon Disulfide	ND	5.0
Trichlorofluoromethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
Freon 113	ND	5.0
1,2-Dichloroethane	ND	5.0
2-Butanone	ND	10
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
Vinyl Acetate	ND	50
Bromodichloromethane	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
Trichloroethene	ND	5.0
Dibromochloromethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Bromoform	ND	5.0
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	ND	5.0
Styrene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	110	68-126
Toluene-d8	99	87-125
Bromofluorobenzene	93	79-122



Lab #: 126371

## BATCH QC REPORT

## EPA 8240 Volatile Organics

Client: Subsurface Consultants  
Project#: 946.002  
Location: 2528 Adeline St.

Analysis Method: EPA 8240  
Prep Method: EPA 5030

## LABORATORY CONTROL SAMPLE

Matrix: Water  
Batch#: 28880  
Units: ug/L  
Diln Fac: 1

Prep Date: 07/28/96  
Analysis Date: 07/28/96

LCS Lab ID: QC27013

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	60.62	50	121	51-180
Trichloroethene	47.83	50	96	73-141
Benzene	49.38	50	99	78-142
Toluene	46.59	50	93	76-150
Chlorobenzene	49.9	50	100	83-129
Surrogate	%Rec	Limits		
1,2-Dichloroethane-d4	105	68-126		
Toluene-d8	99	87-125		
Bromofluorobenzene	95	79-122		

# 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 #: 126371

## BATCH QC REPORT

EPA 8240 Volatile Organics			
Client: Subsurface Consultants	Analysis Method: EPA 8240		
Project#: 946.002	Prep Method: EPA 5030		
Location: 2528 Adeline St.			
LABORATORY CONTROL SAMPLE			
Matrix: Water	Prep Date: 07/29/96		
Batch#: 28882	Analysis Date: 07/29/96		
Units: ug/L			
Diln Fac: 1			

LCS Lab ID: QC27022

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	61.14	50	122	51-180
Trichloroethene	49.32	50	99	73-141
Benzene	51.25	50	102	78-142
Toluene	48.05	50	96	76-150
Chlorobenzene	51.27	50	103	83-129
Surrogate	%Rec	Limits		
1,2-Dichloroethane-d4	104	68-126		
Toluene-d8	97	87-125		
Bromofluorobenzene	92	79-122		

 # 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 #: 126371

## BATCH QC REPORT

Page 1 of 1

EPA 8240 Volatile Organics	
Client: Subsurface Consultants	Analysis Method: EPA 8240
Project#: 946.002	Prep Method: EPA 5030
Location: 2528 Adeline St.	
MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
Field ID: ZZZZZZ	Sample Date: 07/25/96
Lab ID: 126381-006	Received Date: 07/26/96
Matrix: Water	Prep Date: 07/28/96
Batch#: 28880	Analysis Date: 07/28/96
Units: ug/L	
Diln Fac: 1	

MS Lab ID: QC27015

Analyte	Spike Added	Sample	MS	%Rec #	Limits
1,1-Dichloroethene	50	<5	53.19	106	51-180
Trichloroethene	50	<5	43.59	87	73-141
Benzene	50	<5	45.16	89	78-142
Toluene	50	<5	43	86	76-150
Chlorobenzene	50	<5	45.85	92	83-129
Surrogate	%Rec	Limits			
1,2-Dichloroethane-d4	111	68-126			
Toluene-d8	100	87-125			
Bromofluorobenzene	95	79-122			

MSD Lab ID: QC27016

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	49.27	99	51-180	8	14
Trichloroethene	50	43.7	87	73-141	0	14
Benzene	50	46.11	91	78-142	2	11
Toluene	50	43.43	87	76-150	1	13
Chlorobenzene	50	46.16	92	83-129	1	13
Surrogate	%Rec	Limits				
1,2-Dichloroethane-d4	112	68-126				
Toluene-d8	98	87-125				
Bromofluorobenzene	95	79-122				

# 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: 0 out of 10 outside limits





Lab #: 126371

## BATCH QC REPORT

EPA 8240 Volatile Organics	
Client: Subsurface Consultants	Analysis Method: EPA 8240
Project#: 946.002	Prep Method: EPA 5030
Location: 2528 Adeline St.	
MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
Field ID: ZZZZZZ	Sample Date: 07/24/96
Lab ID: 126381-002	Received Date: 07/25/96
Matrix: Water	Prep Date: 07/29/96
Batch#: 28882	Analysis Date: 07/29/96
Units: ug/L	
Diln Fac: 1	

MS Lab ID: QC27049

Analyte	Spike Added	Sample	MS	%Rec #	Limits
1,1-Dichloroethene	50	<5	53.94	108	51-180
Trichloroethene	50	<5	45.54	91	73-141
Benzene	50	<5	47.51	94	78-142
Toluene	50	<5	45.94	90	76-150
Chlorobenzene	50	<5	47.85	96	83-129
Surrogate	%Rec	Limits			
1,2-Dichloroethane-d4	115	68-126			
Toluene-d8	99	87-125			
Bromofluorobenzene	94	79-122			

MSD Lab ID: QC27050

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	60.74	121	51-180	12	14
Trichloroethene	50	45.02	90	73-141	1	14
Benzene	50	46.9	93	78-142	1	11
Toluene	50	45.36	89	76-150	1	13
Chlorobenzene	50	47.95	96	83-129	0	13
Surrogate	%Rec	Limits				
1,2-Dichloroethane-d4	114	68-126				
Toluene-d8	98	87-125				
Bromofluorobenzene	95	79-122				

# 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: 0 out of 10 outside limits



Lab #: 126371

## BATCH QC REPORT

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## EPA 8240 Volatile Organics

Client: Subsurface Consultants  
 Project#: 946.002  
 Location: 2528 Adeline St.

Analysis Method: EPA 8240  
 Prep Method: EPA 5030

## METHOD BLANK

Matrix: Water  
 Batch#: 28882  
 Units: ug/L  
 Diln Fac: 1

Prep Date: 07/29/96  
 Analysis Date: 07/29/96

MB Lab ID: QC27023

Analyte	Result	Reporting Limit
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene Chloride	ND	20
Acetone	ND	20
Carbon Disulfide	ND	5.0
Trichlorofluoromethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
Freon 113	ND	5.0
1,2-Dichloroethane	ND	5.0
2-Butanone	ND	10
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
Vinyl Acetate	ND	50
Bromodichloromethane	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
Trichloroethene	ND	5.0
Dibromochloromethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Bromoform	ND	5.0
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	ND	5.0
Styrene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	105	68-126
Toluene-d8	98	87-125
Bromofluorobenzene	90	79-122

Lab #: 126371

## BATCH QC REPORT

Page 1 of 1

EPA 8240 Volatile Organics		
Client: Subsurface Consultants	Analysis Method: EPA 8240	
Project#: 946.002	Prep Method: EPA 5030	
Location: 2528 Adeline St.		
METHOD BLANK		
Matrix: Water	Prep Date: 07/29/96	
Batch#: 28882	Analysis Date: 07/29/96	
Units: ug/L		
Diln Fac: 1		

MB Lab ID: QC27024

Analyte	Result	Reporting Limit
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene Chloride	ND	20
Acetone	ND	20
Carbon Disulfide	ND	5.0
Trichlorofluoromethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
Freon 113	ND	5.0
1,2-Dichloroethane	ND	5.0
2-Butanone	ND	10
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
Vinyl Acetate	ND	50
Bromodichloromethane	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
Trichloroethene	ND	5.0
Dibromochloromethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Bromoform	ND	5.0
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	ND	5.0
Styrene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	109	68-126
Toluene-d8	98	87-125
Bromofluorobenzene	92	79-122

CLIENT: Subsurface Consultants  
PROJECT ID: 946.002  
LOCATION: 2528 Adeline St.  
MATRIX: Filtrate

DATE REPORTED: 08/01/96

Metals Analytical Report

Barium

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
MW-1	126371-001	07/25/96	07/25/96	110	10	1	28892	EPA 6010A	07/30/96
MW-2	126371-002	07/25/96	07/25/96	130	10	1	28892	EPA 6010A	07/30/96
MW-3	126371-003	07/25/96	07/25/96	33	10	1	28892	EPA 6010A	07/30/96



Curtis & Tompkins, Ltd.

CLIENT: Subsurface Consultants  
PROJECT ID: 946.002  
LOCATION: 2528 Adeline St.  
MATRIX: Filtrate

DATE REPORTED: 08/01/96

Metals Analytical Report

Selenium

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
MW-1	126371-001	07/25/96	07/25/96	11	5.0	1	28892	EPA 6010A	07/30/96
MW-2	126371-002	07/25/96	07/25/96	12	5.0	1	28892	EPA 6010A	07/30/96
MW-3	126371-003	07/25/96	07/25/96	5.4	5.0	1	28892	EPA 6010A	07/31/96



Curtis & Tompkins, Ltd.



Curtis & Tompkins, Ltd.

CLIENT: Subsurface Consultants  
JOB NUMBER: 126371

DATE REPORTED: 08/01/96

BATCH QC REPORT  
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Barium	ND	10	ug/L	1	28892	EPA 6010A	07/30/96
Selenium	ND	5	ug/L	1	28892	EPA 6010A	07/30/96

ND = Not Detected at or above reporting limit

CLIENT: Subsurface Consultants  
 JOB NUMBER: 126371

DATE REPORTED: 08/01/96

BATCH QC REPORT  
 BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Barium	2000	1990	1990	ug/L	100	100	80-120	0	35	28892	EPA 6010A	07/30/96
Selenium	2000	1960	1960	ug/L	98	98	80-120	0	35	28892	EPA 6010A	07/30/96

Client: Subsurface Consultants

Laboratory Login Number: 126371

Project Name: 2528 Adeline St.

Report Date: 01 August 96

Project Number: 946.002

ANALYSIS: Hydrocarbon Oil &amp; Grease (Gravimetric)

METHOD: SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
126371-001	MW-1	Water	25-JUL-96	25-JUL-96	30-JUL-96	ND	mg/L	5	TR	28898
126371-002	MW-2	Water	25-JUL-96	25-JUL-96	30-JUL-96	ND	mg/L	5	TR	28898
126371-003	MW-3	Water	25-JUL-96	25-JUL-96	30-JUL-96	ND	mg/L	5	TR	28898

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: 2528 Adeline St.  
 Project Number: 946.002

Laboratory Login Number: 126371  
 Report Date: 01 August 96

ANALYSIS: Hydrocarbon Oil &amp; Grease (Gravimetric)

QC Batch Number: 28898

## Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	5	mg/L	SMWW 17:5520BF	30-JUL-96

## Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	89%	SMWW 17:5520BF	30-JUL-96
BSD	92%	SMWW 17:5520BF	30-JUL-96

		Control Limits
Average Spike Recovery	91%	80% - 120%
Relative Percent Difference	%	< 20%



TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants  
Project#: 946.002  
Location: 2528 Adeline St.

Analysis Method: CA LUFT (EPA 8015M)  
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126371-001	MW-1	28890	07/25/96	07/29/96	07/29/96	
126371-002	MW-2	28890	07/25/96	07/29/96	07/29/96	
126371-003	MW-3	28890	07/25/96	07/29/96	07/29/96	

Matrix: Water

Analyte	Units	126371-001	126371-002	126371-003
Diln Fac:		1	1	1
Gasoline	ug/L	730 Y	110 Y	<50
Stoddard Solvent	ug/L	750 Y	92 Y	<50
Surrogate				
Trifluorotoluene	%REC	89	90	88
Bromobenzene	%REC	100	94	89

Y: Sample exhibits fuel pattern which does not resemble standard



## BTXE

Client: Subsurface Consultants  
Project#: 946.002  
Location: 2528 Adeline St.

Analysis Method: EPA 8020  
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126371-001	MW-1	28890	07/25/96	07/29/96	07/29/96	
126371-002	MW-2	28890	07/25/96	07/29/96	07/29/96	
126371-003	MW-3	28890	07/25/96	07/29/96	07/29/96	

Matrix: Water

Analyte	Units	126371-001	126371-002	126371-003
Diln Fac:		1	1	1
Benzene	ug/L	<0.5	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	26	<0.5	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5	<0.5
Surrogate				
Trifluorotoluene	%REC	95	92	91
Bromobenzene	%REC	96	93	90

Lab #: 126371

## BATCH QC REPORT

Page 1 of 1

TVH-Total Volatile Hydrocarbons			
Client:	Subsurface Consultants	Analysis Method:	CA LUFT (EPA 8015M)
Project#:	946.002	Prep Method:	EPA 5030
Location:	2528 Adeline St.		
METHOD BLANK			
Matrix:	Water	Prep Date:	07/29/96
Batch#:	28890	Analysis Date:	07/29/96
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC27051

Analyte	Result	
Gasoline	<50	
Stoddard Solvent	<50	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	88	69-120
Bromobenzene	87	70-122



Lab #: 126371

## BATCH QC REPORT

Page 1 of 1

## BTXE

Client: Subsurface Consultants  
Project#: 946.002  
Location: 2528 Adeline St.

Analysis Method: EPA 8020  
Prep Method: EPA 5030

## METHOD BLANK

Matrix: Water  
Batch#: 28890  
Units: ug/L  
Diln Fac: 1

Prep Date: 07/29/96  
Analysis Date: 07/29/96

MB Lab ID: QC27051

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	94	58-130
Bromobenzene	91	62-131

Lab #: 126371

## BATCH QC REPORT

Page 1 of 1

TVH-Total Volatile Hydrocarbons			
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)		
Project#: 946.002	Prep Method: EPA 5030		
Location: 2528 Adeline St.			
LABORATORY CONTROL SAMPLE			
Matrix: Water	Prep Date: 07/29/96		
Batch#: 28890	Analysis Date: 07/29/96		
Units: ug/L			
Diln Fac: 1			

LCS Lab ID: QC27052

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	2182	2000	109	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	98	69-120		
Bromobenzene	100	70-122		

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

\* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits



Lab #: 126371

## BATCH QC REPORT

## BTXE

Client: Subsurface Consultants  
 Project#: 946.002  
 Location: 2528 Adeline St.

Analysis Method: EPA 8020  
 Prep Method: EPA 5030

## LABORATORY CONTROL SAMPLE

Matrix: Water  
 Batch#: 28890  
 Units: ug/L  
 Diln Fac: 1

Prep Date: 07/29/96  
 Analysis Date: 07/29/96

LCS Lab ID: QC27053

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	18.8	20	94	80-120
Toluene	20.1	20	100	80-120
Ethylbenzene	19.9	20	100	80-120
m,p-Xylenes	40.6	40	101	80-120
o-Xylene	20.7	20	104	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	93	58-130		
Bromobenzene	91	62-131		

# 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

# CHAIN OF CUSTODY FORM

126371

PROJECT NAME: 2528 Adeline St.  
 JOB NUMBER: 946.002 LAB: Curtis & Tompkins  
 PROJECT CONTACT: Meg Mendoza TURNAROUND: Normal  
 SAMPLED BY: Dennis Alexander REQUESTED BY: Meg Mendoza

PAGE 1 OF 1  
 ANALYSIS REQUESTED

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES							
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	ICE	NONE	MONTH	DAY	YEAR	TIME								
-1	MW-1	X				6	3			X			X		07	25	96	12:15	X	X	X	X	X	X	X	
-2	MW-2	X				6	3			X			X		07	25	96	11:15	X	X	X	X	X	X	X	
-3	MW-3	X				6	3			X			X		07	25	96	12:45	X	X	X	X	X	X	X	

ANALYSIS REQUESTED
TVH/BTEX + Standard solvent
VOCs (8240)
TEH diesel, kerosene
Org - Silica - SS200
Barium (dissolved)
Selenium (dissolved)

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature) <i>Dennis Alexander</i>	DATE / TIME 7/25/96 1:25 PM	RECEIVED BY: (Signature) <i>[Signature]</i>	DATE / TIME 7/25/96 1:30
RELEASED BY: (Signature) <i>[Signature]</i>	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES: X - Please filter and fix for Barium/Selenium analysis

**Subsurface Consultants, Inc.**  
 171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607  
 (510) 268-0461 • FAX: 510-268-0137





## WELL SAMPLING FORM

Project Name: 2578 Adeline St. Well Number: MW-1  
 Job No.: 946.002 Well Casing Diameter: 2 inch  
 Sampled By: DWA Date: 7/25/96  
 TOC Elevation: \_\_\_\_\_ Weather: Foggy

Depth to Casing Bottom (below TOC) 20.00 feet  
 Depth to Groundwater (below TOC) 8.80 feet  
 Feet of Water in Well 11.20 feet  
 Depth to Groundwater When 80% Recovered 11.04 feet  
 Casing Volume (feet of water x Casing DIA<sup>2</sup> x 0.0408) 1.8 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
0	8.10	75.1	478		<u>clear/no odor</u>
2	7.87	72.2	438		
4	7.76	72.0	440		
6	7.84	71.7	427		<u>Semi clear/no odor</u>

Total Gallons Purged 6 gallons  
 Depth to Groundwater Before Sampling (below TOC) 11.04 feet  
 Sampling Method disposable bailer  
 Containers Used 6 40 ml      3 liter      \_\_\_\_\_ pint

Subsurface Consultants		PLATE
	JOB NUMBER	DATE

## WELL SAMPLING FORM

Project Name: 2528 Adeline St. Well Number: Mw-2  
 Job No.: 946002 Well Casing Diameter: 2 inch  
 Sampled By: DWA Date: 7/25/96  
 TOC Elevation: \_\_\_\_\_ Weather: Sunny

Depth to Casing Bottom (below TOC) 13.50 feet  
 Depth to Groundwater (below TOC) 6.68 feet  
 Feet of Water in Well 6.82 feet  
 Depth to Groundwater When 80% Recovered 8.04 feet  
 Casing Volume (feet of water x Casing DIA<sup>2</sup> x 0.0408) 1.1 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
1	8.15	67.0	480		semi-clear/no odor
2	7.16	66.2	441		↓
3	7.60	65.8	434		↓
4	7.40	65.8	425		murky

Total Gallons Purged 4 gallons  
 Depth to Groundwater Before Sampling (below TOC) 6.90 feet  
 Sampling Method disposable bailer  
 Containers Used \_\_\_\_\_ 40 ml \_\_\_\_\_ liter \_\_\_\_\_ pint

Subsurface Consultants		PLATE
	JOB NUMBER	DATE

