

James P. Bowers, PE  
R. William Rudolph, Jr., PE

June 24, 1992  
SCI 430.013

ST10 3623

Mr. Paul Smith  
Alameda County Health Care Services Agency  
80 Swan Way, Room 200  
Oakland, California 94621

aka Firehouse  
site

Quarterly Groundwater Monitoring and  
Request for Reduction in Analytical Testing  
Previous Gasoline Release  
13th and Jefferson Streets  
Oakland, California

Dear Mr. Smith:

This letter records the results of groundwater sampling and analytical testing events performed by Subsurface Consultants, Inc. (SCI) for gasoline contamination at the referenced site. In addition, we are requesting a reduction in analytical testing because no detectable concentrations of gasoline or its constituents have been detected in groundwater at the site for more than a year.

Background

SCI previously documented soil remediation activities for gasoline contamination in a closure report dated December 6, 1990. As described in the report, gasoline contaminated soils were excavated, removed from the site and replaced with clean imported fill. The gasoline contamination resulted from underground storage tanks suspected to have existed near the intersection of 13th and Jefferson Streets, as shown on the Site Plan, Plate 1.

Soil contamination resulting from a floor drain sump was also remediated by excavation and off-site disposal. The results of the sump closure are summarized in a report dated September 24, 1990. The sump contaminates consisted primarily of kerosene, oil and grease, and diesel. The location of the sump and soil remediation area are shown on the Site Plan.

■ Subsurface Consultants, Inc.

171 12th Street • Suite 201 • Oakland, California 94607 • Telephone 510-268-0461 • FAX 510-268-0137

Mr. Paul Smith  
Alameda County Health Care Services Agency  
June 24, 1992  
SCI 430.013  
Page 2

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Following completion of soil remediation for both the sump and gasoline release area, a groundwater contamination assessment was conducted by SCI. Our report dated July 8, 1991, presents the groundwater investigation details and the results of previous sampling events. The location of monitoring wells are shown on the Site Plan.

The groundwater assessment indicated that initially, low concentrations of petroleum hydrocarbons, reported as gasoline and its constituents, benzene, toluene, xylenes and ethylbenzene (BTXE) were present in groundwater as a result of the gasoline release near 13th and Jefferson Streets. Low concentrations of 1,2-dichloroethane (DCA) were present in groundwater as a result of the sump release.

#### Quarterly Groundwater Monitoring

Groundwater monitoring has been performed quarterly over the past 2 years. Groundwater level measurements are summarized in Table 1. Groundwater surface contours for the latest event, April 17, 1992, are shown on Plate 1. Groundwater flow patterns have remained relatively consistent except during a several month period during the latter part of 1991 when construction dewatering on the adjacent block to the south temporarily changed flow patterns.

Prior to sampling, the wells were purged of at least 4 well volumes of water using a Teflon bailer. The purged water was disposed of in the existing groundwater treatment plant on-site.

The water samples were retained in pre-cleaned containers, placed in an iced cooler, and kept refrigerated until delivery to the analytical laboratory. The samples were accompanied by chain-of-custody records, copies of which are attached.

Analytical testing was performed by Curtis & Tompkins, Ltd., a State of California Department of Health Services certified analytical laboratory for the tests performed. Water samples were analyzed for the following:

1. Total volatile hydrocarbons (TVH), sample preparation and analysis using EPA Method 5030 (purge and trap extraction) and 8015 (gas chromatograph coupled to a flame ionization detector); and  
TPH-g
2. Benzene, toluene, xylene and ethylbenzene (BTXE), sample preparation and analysis using EPA Method 5030 and 8020 (gas chromatograph coupled to a photo-ionization detector).  
BTXE

contents of USTs?

Mr. Paul Smith  
Alameda County Health Care Services Agency  
June 24, 1992  
SCI 430.013  
Page 3

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*contents of sump?*

Water samples from the wells have also been analyzed for halogenated volatile organics (EPA 8010) because these compounds were associated with the release from the nearby floor drain sump. Additionally, groundwater from Well 48 has been analyzed for oil and grease (SMWW 5520E&F) and extractable hydrocarbons (EPA 8015/3550) because these compounds were also involved in the sump release, and the well is situated adjacent to and downgradient from the previous sump. The most recent floor drain sump groundwater monitoring results are recorded in a letter dated January 29, 1992. For completeness, the results of the analyses have been included herein and are summarized in Tables 2 and 3. Copies of the analytical test reports and chain-of-custody documents are attached.

*TPH-d*

*-check*

*excluding MWS  
45, 46, 29, 31.  
these were  
not tested?*

### Conclusions

Detectible concentrations of petroleum hydrocarbons and BTXE have not been present in the monitoring wells at the site during at least the past six (6) quarterly monitoring events at concentrations in excess of analytical detection limits. We conclude that soil remediation was successful and no significant source of gasoline contamination remains in the area. The analytical data indicates that there has not been any detectable adverse impacts to groundwater quality due to the previous gasoline release.

1,2-Dichloroethane (DCA) has been detected in several wells in the monitoring program. Recently, however, only Well 48 has contained detectable concentrations of DCA. All of the wells that have contained DCA are situated down-gradient of the gasoline contamination area. DCA has never been present in any of the monitoring wells in the area of the gasoline contamination. For these reasons, it is our opinion that the DCA present in groundwater is from a separate source, unrelated to the gasoline contamination problem. Previous studies by SCI have identified the floor drain sump, which was located adjacent to Well 48, as the most probable source of DCA. The sump and underlying soil have been remediated. Groundwater monitoring relative to the sump release is ongoing.

### Request for Reduction in Analytical Testing

On behalf of the City of Oakland Redevelopment Agency, we are requesting that the Alameda County Health Care Services Agency present these groundwater monitoring results to the Regional Water Quality Control Board with a recommendation for a reduction in analytical testing. We request that testing for gasoline and BTXE no longer be required at the site. The wells will continue to be

Mr. Paul Smith  
Alameda County Health Care Services Agency  
June 24, 1992  
SCI 430.013  
Page 4

■ Subsurface Consultants, Inc.

monitored on a quarterly basis for halogenated volatile organics (EPA 8010). No groundwater monitoring wells at the site will be abandoned at this time, since many of them are part of the sump monitoring program.

Our next sampling event is scheduled for July 17, 1992. We would appreciate a response to our proposed modification to the testing program prior to this date.

Please call, if you need additional information or have any questions.

Yours very truly,

Subsurface Consultants, Inc.



Sean O. Carson  
Civil Engineer 45074 (expires 3/31/94)



James P. Bowers  
Geotechnical Engineer 157 (expires 3/31/95)

SOC:MK:JPB:sld

Attachments: Table 1 - Groundwater Elevation Data  
Table 2 - Petroleum Hydrocarbon Concentrations in Groundwater  
Table 3. Halogenated Volatile Organic Chemical Concentrations in Groundwater

Plate 1 - Site Plan  
Chain-of-Custody Records  
Analytical Test Reports

★ 1 copy: Ms. Lois Parr  
Oakland Redevelopment Agency  
1333 Broadway, Suite 900  
Oakland, California 94612

★ 1 copy: Mr. John Esposito  
Bramalea Pacific  
1111 Broadway, Suite 1400  
Oakland, California 94607

Mr. Paul Smith  
Alameda County Health Care Services Agency  
June 24, 1992  
SCI 430.013  
Page 5

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1 copy: Mr. Eddy So  
Regional Water Quality Control Board  
2101 Webster Street, Room 500  
Oakland, California 94612

1 copy: Mr. Donnell Choy  
City of Oakland  
505 14th Street, 12th Floor  
Oakland, California 94612

Table 1. Groundwater Elevation Data

Well	Date	TOC <sup>1</sup> Elevation (ft)	Groundwater Depth <sup>2</sup> (ft)	Groundwater Elevation (ft)
MW-47	09/24/90	100.50	27.28	73.22
	10/04/90		27.32	73.18
	12/03/90		27.38	73.12
	01/21/91		27.17	73.33
	03/13/91		26.85	73.65
	04/03/91		26.38	74.12
	06/13/91		28.39	72.11
	09/10/91		27.08	73.42
	12/12/91		27.95	72.55
	04/17/92		26.18	74.32
MW-48	07/18/90	102.40	29.08	73.32
	10/04/90		29.29	73.11
	12/03/90		29.28	73.12
	01/21/91		29.03	73.37
	03/13/91		28.72	73.68
	04/03/91		28.24	74.16
	06/13/91		29.47	72.93
	09/10/91		28.94	73.46
	12/12/91		30.39	72.01
	04/17/92		28.07	74.33
MW-49	12/03/90	101.73	28.44	73.29
	01/21/91		28.20	73.53
	03/13/91		27.79	73.94
	04/03/91		27.28	74.45
	06/13/91		27.66	74.07
	09/10/91		28.04	73.69
	12/12/91		30.45	71.28
	04/17/92		27.26	74.47
MW-51	10/04/90	102.64	28.57	74.07
	12/03/90		28.57	74.07
	01/21/91		28.44	74.20
	03/13/91		27.76	74.88
	04/03/91		27.32	75.32
	06/13/91		28.82	73.82
	09/10/91		28.00	74.64
MW-52	10/04/90	102.44	28.41	74.03
	12/03/90		28.38	74.06
	01/21/91		28.24	74.20
	03/13/91		27.57	74.87
	04/03/91		27.16	75.28
	06/13/91		29.41	73.03
	09/10/91		27.85	74.59
MW-53	09/24/90	101.28	27.44	73.84
	10/04/90		27.50	73.78
	12/03/90		27.46	73.82
	01/21/91		28.00	73.28
	03/13/91		27.00	74.28
	06/13/91		27.61	73.67
	08/12/91		Well Abandoned	
MW-54	09/24/90	100.78	27.01	73.77
	10/04/90		27.30	73.48
	12/03/90		27.01	73.77
	01/21/91	101.92 <sup>3</sup>	27.28	74.64
	03/13/91		27.40	74.52
	06/13/91		28.93	72.99
	09/10/91		27.66	74.26
	12/12/91		28.88	73.04
	04/17/92		26.82	75.10
MW-59	02/12/91	100.37	27.45	72.92
	03/13/91		27.60	72.77
	04/03/91		27.36	73.01
	06/13/91		28.01	72.36
	09/10/91		28.00	72.37
	12/12/91		28.53	71.84
	04/17/92		26.91	73.46

- 1 Top of Casing
- 2 Depth measured below top of casing
- 3 Well head damaged and repaired

Assumed datum: The elevation of the PG&E manhole in Martin Luther King, Jr. Way, near the northwest corner of the block, was assumed to have an elevation of 100 feet (see Plate 1)

Table 2. Petroleum Hydrocarbon Concentrations in Groundwater

Well	Date	O&G <sup>1</sup> (ug/L)	TVH <sup>2</sup> (ug/L)	TEH <sup>3</sup> (ug/L)	B <sup>4</sup> (ug/L)	T <sup>5</sup> (ug/L)	X <sup>6</sup> (ug/L)	E <sup>7</sup> (ug/L)	
MW-47	04/06/90	--	ND	--	ND	ND	ND	ND	
	10/04/90	---	---	---	ND	ND	ND	ND	
	12/03/90	---	ND	---	ND	ND	ND	ND	
	03/13/91	---	ND	---	ND	ND	ND	ND	
	06/13/91	---	ND	---	ND	ND	ND	ND	
	09/11/91	---	ND	---	ND	ND	ND	ND	
	12/12/91	---	ND	---	ND	ND	ND	ND	
	04/17/92	---	---	---	ND	ND	ND	ND	
MW-48	04/06/90	--	ND	--	ND	ND	ND	ND	
	07/18/90	ND	ND	ND	ND	ND	ND	ND	
	10/04/90	---	---	110	ND	ND	ND	ND	
	12/03/90	ND	ND	ND	ND	ND	ND	ND	
	03/13/91	ND	ND	ND	ND	ND	ND	ND	
	09/11/91	ND	ND	ND	ND	ND	ND	ND	
	12/12/91	ND	ND	ND	ND	ND	ND	ND	
	04/17/92	ND	---	---	ND	ND	ND	ND	
MW-49	04/06/90	--	ND	---	ND	ND	ND	ND	
	12/03/90	---	ND	---	ND	ND	ND	ND	
	03/13/91	---	ND	---	ND	ND	ND	ND	
	06/13/91	---	ND	---	ND	ND	ND	ND	
	09/11/91	---	ND	---	ND	ND	ND	ND	
	12/12/91	---	ND	---	ND	ND	ND	ND	
	04/17/92	---	---	---	ND	ND	ND	ND	
	MW-51	04/06/90	--	ND	---	ND	ND	ND	ND
10/04/90		---	---	---	ND	ND	ND	ND	
12/04/90		---	ND	---	ND	ND	ND	ND	
03/13/91		---	ND	---	ND	ND	ND	ND	
06/13/91		---	ND	---	ND	ND	ND	ND	
09/11/91		---	ND	---	ND	ND	ND	ND	
MW-52		04/06/90	--	ND	---	ND	ND	ND	ND
		10/04/90	---	---	---	ND	ND	ND	ND
	12/04/90	---	ND	---	ND	ND	ND	ND	
	03/13/91	---	ND	---	ND	ND	ND	ND	
	06/13/91	---	ND	---	ND	ND	ND	ND	
	09/11/91	---	ND	---	ND	ND	ND	ND	
	MW-53	09/21/90	---	ND	---	ND	ND	ND	ND
		10/04/90	---	ND	---	ND	ND	ND	ND
12/04/90		---	ND	---	ND	ND	ND	ND	
03/13/91		---	ND	---	ND	ND	ND	ND	
06/11/91		---	ND	---	ND	ND	ND	ND	
08/12/91		Well Abandoned			---	ND	ND	ND	
MW-54		09/21/90	--	1700	---	ND	1.5	20	1.9
		10/04/90	---	1300	---	ND	0.7	12	28
	12/04/90	---	ND	---	ND	ND	ND	ND	
	03/13/91	---	ND	---	ND	ND	ND	ND	
	06/13/91	---	ND	---	ND	ND	ND	ND	
	09/11/91	---	ND	---	ND	ND	ND	ND	
	12/12/91	---	ND	---	ND	ND	ND	ND	
	04/17/92	---	---	---	ND	ND	ND	ND	
MW-59	03/13/91	--	ND	---	ND	ND	ND	ND	

what happened to 6-91?

6 mo.

only 1 Q ND







- 1 Oil and Grease
- 2 Total Volatile Hydrocarbons
- 3 Total Extractable Hydrocarbons
- 4 Benzene
- 5 Toluene
- 6 Xylene
- 7 Ethylbenzene

**Table 3.**  
**Halogenated Volatile Organic Chemical**  
**Concentrations in Groundwater**

<u>Well</u>	<u>Date</u>	<u>1,2 DCE<sup>1</sup></u> <u>(ug/L)<sup>3</sup></u>	<u>1,2 DCE<sup>2</sup></u> <u>(ug/L)</u>	<u>Chloroform</u> <u>(ug/L)</u>	<u>Other</u> <u>EPA 8010</u> <u>(ug/L)</u>
MW-47	12/03/90	ND	11	ND	ND
	01/04/91	16	ND	ND	ND
	03/13/91	6.7	ND	ND	ND
	06/13/91	ND	ND	ND	ND
	09/11/91	ND	ND	ND	ND
	12/12/91	ND	ND	ND	ND
	04/17/92	ND	ND	ND	ND
MW-48	10/04/90	60	ND	ND	ND
	12/03/90	31	ND	ND	ND
	01/04/91	15	ND	ND	ND
	03/13/91	30	ND	ND	ND
	06/19/91	6.1	ND	ND	ND
	09/11/91	5.3	ND	ND	ND
	12/12/91	16	ND	ND	ND
04/17/92	1	ND	ND	ND	
MW-49	12/03/90	ND	ND	ND	ND
	03/03/91	ND	ND	ND	ND
	06/13/91	5.0	ND	ND	ND
	09/11/91	ND	ND	ND	ND
	12/12/91	ND	ND	ND	ND
	04/17/92	ND	ND	ND	ND
2Q5 MW-51	12/04/90	ND	ND	ND	ND
	06/13/91	ND	ND	1.0	ND
2Q5 MW-52	12/04/90	ND	ND	1.3	ND
	06/13/91	ND	ND	2.0	ND
MW-53	10/04/90	ND	ND	1.2	ND
	12/04/90	ND	ND	1.9	ND
	03/13/91	ND	ND	2.0	ND
	06/13/91	ND	ND	8.0	ND
	08/12/91	Well Abandoned - why? →	ND	ND	
MW-54	10/04/90	ND	ND	1.6	ND
	12/04/90	ND	ND	1.5	ND
	01/04/91	ND	ND	ND	ND
	03/13/91	ND	ND	ND	ND
	06/13/91	ND	ND	1.0	ND
MW-59	03/13/91	ND	ND	ND	ND
	04/03/91	ND	ND	ND	ND
	09/11/91	ND	ND	ND	ND
	12/12/91	ND	ND	ND	ND
	04/17/92	ND	ND	ND	ND

1 1,2 Dichloroethane  
2 1,2 Dichloroethene  
3 Micrograms/liter = parts per billion  
4 None detected



- 73.0 GROUNDWATER CONTOUR ELEVATIONS (4/17/92)
-  PROBABLE TANK LOCATION BASED ON OBSERVATIONS DURING SOIL REMEDIATION
-  TEST BORING/MONITORING WELL
-  PROPERTY LINE
-  APPROXIMATE EXTENT OF GASOLINE CONTAMINATED SOIL REMEDIATION
- TVH TOTAL VOLATILE HYDROCARBONS
- BTXE BENZENE, TOLUENE, XYLENES, ETHYLBENZENE
- DCA 1,2, DICHLOROETHANE
- VOC VOLATILE ORGANIC COMPOUND (EPA 8010)
- ND NONE DETECTED
-  PREVIOUS SUMP LOCATION
-  EXTENT OF SUMP REMEDIATION

PG&E  
 MARTIN LUTHER KING JR. WAY

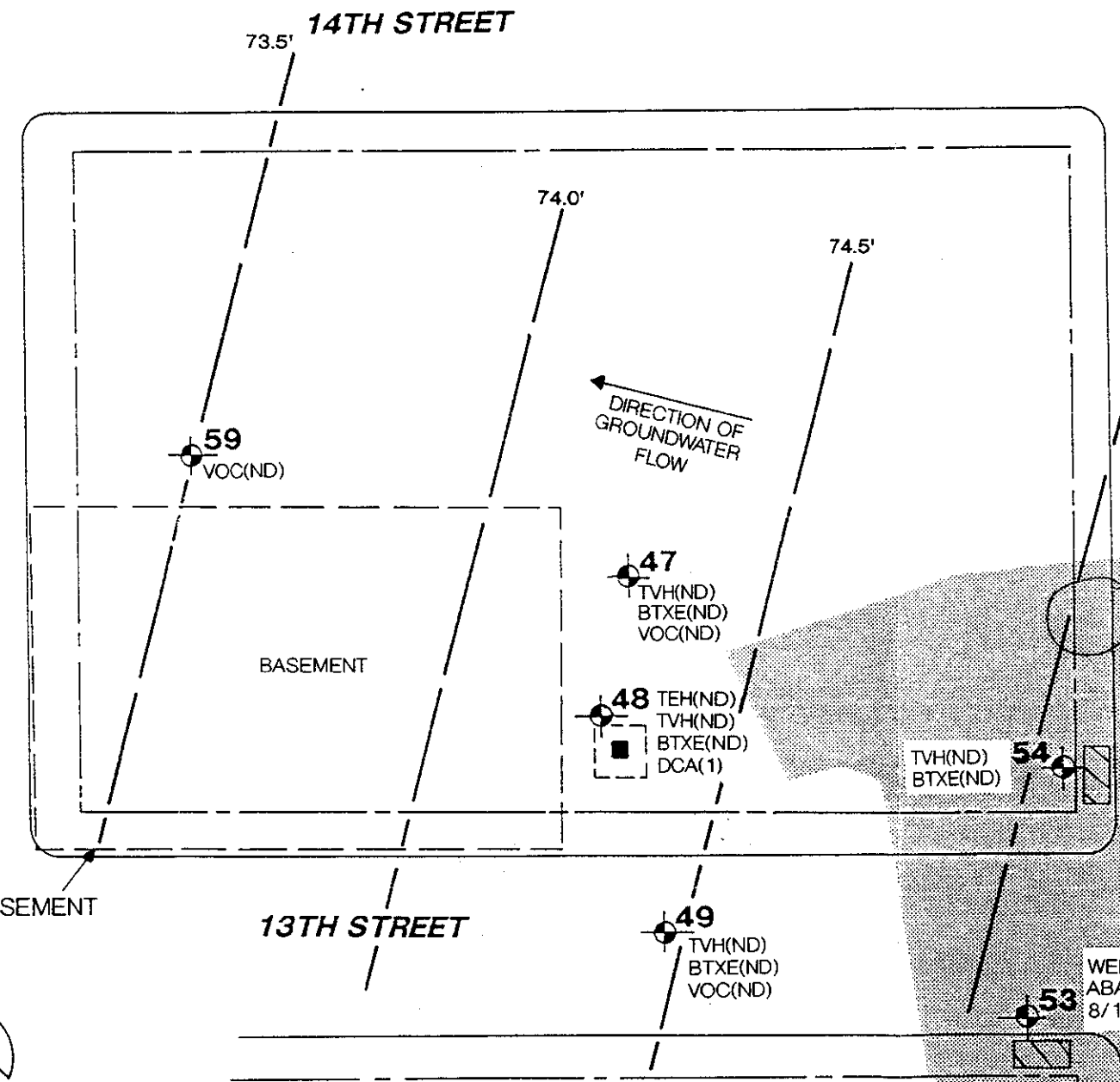
EXTENT OF BASEMENT



TRUE NORTH

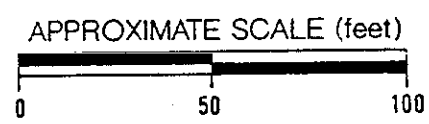


REFERENCE NORTH



JEFFERSON STREET

*30th floor  
 US73 found  
 removed  
 oil, gas, die US73  
 overex to below  
 soil impacted from  
 die 1973  
 8-19-92*



HYDROCARBON CONCENTRATIONS  
 IN GROUNDWATER

Subsurface Consultants

13TH & JEFFERSON - OAKLAND, CA			PLATE
JOB NUMBER	DATE	APPROVED	<b>1</b>
430.013	6/11/92	<i>[Signature]</i>	

# Subsurface Consultants

## CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: 13<sup>th</sup> + Jefferson GW  
 SCI Job Number: 430.013  
 Project Contact at SCI: Sean Carson  
 Sampled By: Fernando Velez  
 Analytical Laboratory: Curtis + Tompkins  
 Analytical Turnaround: Normal

Sample ID	Sample Type <sup>1</sup>	Container Type <sup>2</sup>	Sampling Date	Hold	Analysis	Analytical Method	EPA
<u>47</u>	<u>W</u>	<u>Vx5</u>	<u>6/13/91</u>		<u>TVH/BTEXE VOC's</u>	<u>8015/8020/5030 8010</u>	
<del>48</del>	<del>W</del>	<del>Vx5</del>	<del>6/13/91</del>		<del>TVH/BTEXE VOC's</del>	<del>8015/8020/5030 8010</del>	
		<del>Gx2</del>			<del>D+G TEH</del>	<del>SMWW 520E 8015/3550</del>	
<u>49</u>	<u>W</u>	<u>Vx5</u>	<u>6/13/91</u>		<u>TVH/BTEXE VOC's</u>	<u>8015/8020/5030 8010</u>	
<u>51</u>	<u>W</u>	<u>Vx5</u>	<u>6/13/91</u>		<u>TVH/BTEXE VOC's</u>	<u>8015/8020/5030 8010</u>	
<u>52</u>	<u>W</u>	<u>Vx5</u>	<u>6/13/91</u>		<u>TVH/BTEXE VOC's</u>	<u>8015/8020/5030 8010</u>	
<u>53</u>	<u>W</u>	<u>Vx5</u>	<u>6/13/91</u>		<u>TVH/BTEXE VOC's</u>	<u>8015/8020/5030 8010</u>	
<u>54</u>	<u>W</u>	<u>Vx5</u>	<u>6/13/91</u>		<u>TVH/BTEXE VOC's</u>	<u>8015/8020/5030 8010</u>	
<u>59</u>	<u>W</u>	<u>Vx3</u>	<u>6/13/91</u>		<u>VOC's</u>	<u>8010</u>	

\* \* \* \* \*

Released by: [Signature] Received by: \_\_\_\_\_ Date: 6/13/91

Released by: \_\_\_\_\_ Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Received by Laboratory: [Signature] Date: 6/13/91 14:50

Released by Laboratory: \_\_\_\_\_ Date: \_\_\_\_\_

Released by: \_\_\_\_\_ Date: \_\_\_\_\_

<sup>1</sup> Sample Type: W = Water, S = Soil, O = Other (specify)  
<sup>2</sup> Container Type: V = VOA, P = Plastic, G = Glass, T = Brass Tube, O = Other (specify)

NOTES TO LABORATORY:  
 - Notify SCI if there are any anomalous peaks on GC or other scans  
 - Questions/clarifications - Contact SCI at (415) 268-0461

# Subsurface Consultants

## CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: 13<sup>th</sup> + Jefferson GW  
 SCI Job Number: 430,013  
 Project Contact at SCI: Sean Carson  
 Sampled By: Chris O'Dea  
 Analytical Laboratory: Curtis + Tompkins  
 Analytical Turnaround: Normal

Sample ID	Sample Type <sup>1</sup>	Container Type <sup>2</sup>	Sampling Date	Hold	Analysis	Analytical Method
48	W	Vx5	6/14/91		TVH/BTEX VOCs	8015/8020/5030 8010
		Glx2	6/14/91		O+G TEH	SMWW 5020 E 8015/3550

\* \* \* \* \*

Released by: Clalca Received by: \_\_\_\_\_ Date: 6/19/91  
 Released by: \_\_\_\_\_ Received by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by Laboratory: Nancy Weber Date: 6/19/91  
 Released by Laboratory: \_\_\_\_\_ Date: \_\_\_\_\_  
 Released by: \_\_\_\_\_ Date: \_\_\_\_\_

<sup>1</sup> Sample Type: W = Water, S = Soil, O = Other (specify)  
<sup>2</sup> Container Type: V = VOA, P = Plastic, G = Glass, T = Brass Tube,  
 O = Other (specify)

NOTES TO LABORATORY:  
 - Notify SCI if there are any anomalous peaks on GC or other scans  
 - Questions/clarifications - Contact SCI at (415) 268-0461

# CHAIN OF CUSTODY FORM

PROJECT NAME: 13<sup>th</sup> + Jefferson  
 JOB NUMBER: 430.013 LAB: Curtis + Tompkins Ltd  
 PROJECT CONTACT: Sean Carson TURNAROUND: 5 day  
 SAMPLED BY: Craig Fletcher / Marysnn Watada REQUESTED BY: Sean Carson

ANALYSIS REQUESTED			
TVH/BIXE EPA 8015/5030			
VOC's EPA 8010/			
TEH 8015/3550			
DTG smush 5520EE			

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H2SO4	HNO3	ICE	NONE	MONTH	DAY	YEAR	TIME	
	MW-47	X				U				X					09	10	91		X
	MW-48	X				U	2			X									X
	MW-49	X				U				X									X
	MW-51	X				U				X									X
	MW-52	X				U				X									X
	MW-54	X				U				X									X
	MW-59	X				U				X									X

COMMENTS & NOTES:

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
<i>[Signature]</i>	9/11/91 10:15	<i>[Signature]</i>	9/11/91 10:15
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

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







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

2323 Fifth Street, Berkeley, CA 94710. Phone (415) 486-0900

DATE RECEIVED: 06/13/91  
DATE REPORTED: 06/27/91


LAB NUMBER: 104126


CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 430.013

LOCATION: 13th & JEFFERSON GW

RESULTS: SEE ATTACHED

  
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QA/QC Approval

  
-----  
Final Approval

Berkeley

Wilmington

Los Angeles

LABORATORY NUMBER: 104126  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13th & JEFFERSON GW

DATE RECEIVED: 06/13/91  
 DATE ANALYZED: 06/22/91  
 DATE REPORTED: 06/27/91

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions  
 TVH by California DOHS Method/LUFT Manual October 1989  
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
104126-1	47	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
104126-2	49	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
104126-3	51	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
104126-4	52	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
104126-5	53	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
104126-6	54	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit  
 indicated in parentheses.

QA/QC SUMMARY

RPD, % 3  
 RECOVERY, % 111



LABORATORY NUMBER: 104126-1  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13th & JEFFERSON GW  
 SAMPLE ID: 47

DATE RECEIVED: 06/13/91  
 DATE ANALYZED: 06/19/91  
 DATE REPORTED: 06/27/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	103

LABORATORY NUMBER: 104126-2  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13th & JEFFERSON GW  
 SAMPLE ID: 49

DATE RECEIVED: 06/13/91  
 DATE ANALYZED: 06/19/91  
 DATE REPORTED: 06/27/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	5.0	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====  
 RPD, % 5  
 RECOVERY, % 103  
 =====

LABORATORY NUMBER: 104126-3  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13th & JEFFERSON GW  
 SAMPLE ID: 51

DATE RECEIVED: 06/13/91  
 DATE ANALYZED: 06/19/91  
 DATE REPORTED: 06/27/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	1.0	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====  
 RPD, % 5  
 RECOVERY, % 103  
 =====

LABORATORY NUMBER: 104126-4  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13th & JEFFERSON GW  
 SAMPLE ID: 52

DATE RECEIVED: 06/13/91  
 DATE ANALYZED: 06/19/91  
 DATE REPORTED: 06/27/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	2.0	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	103

LABORATORY NUMBER: 104126-5  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13th & JEFFERSON GW  
 SAMPLE ID: 53

DATE RECEIVED: 06/13/91  
 DATE ANALYZED: 06/19/91  
 DATE REPORTED: 06/27/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	8.0	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	103

LABORATORY NUMBER: 104126-6  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13th & JEFFERSON GW  
 SAMPLE ID: 54

DATE RECEIVED: 06/13/91  
 DATE ANALYZED: 06/19/91  
 DATE REPORTED: 06/27/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	1.0	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	103

LABORATORY NUMBER: 104126-6  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13th & JEFFERSON GW  
 SAMPLE ID: 54

DATE RECEIVED: 06/13/91  
 DATE ANALYZED: 06/19/91  
 DATE REPORTED: 06/27/91  
 DATE REVISED: 09/27/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	1.0	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	103

LABORATORY NUMBER: 104126-7  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13th & JEFFERSON GW  
 SAMPLE ID: 59

DATE RECEIVED: 06/13/91  
 DATE ANALYZED: 06/19/91  
 DATE REPORTED: 06/27/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	5
RECOVERY, %	103



Client: Subsurface Consultants

Laboratory Login Number: 104199

Project Name: 13th & Jefferson GW  
 Project Number: 430.013

Report Date: 03 July 91

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)      METHOD: SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
104199-001	48	Water	19-JUN-91	19-JUN-91	01-JUL-91	ND	mg/L	5	TR	1904

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: 13th & Jefferson GW  
 Project Number: 430.013

Laboratory Login Number: 104199  
 Report Date: 03 July 91

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch Number: 1904

## Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	5	mg/L	SMWW 17:5520BF	01-JUL-91

## Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	89%	SMWW 17:5520BF	01-JUL-91
BSD	81%	SMWW 17:5520BF	01-JUL-91

		Control Limits
Average Spike Recovery	85%	80% - 120%
Relative Percent Difference	10.1%	< 20%

LABORATORY NUMBER: 104199  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON

DATE RECEIVED: 06/19/91  
 DATE ANALYZED: 06/29/91  
 DATE REPORTED: 07/03/91

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions  
 TVH by California DOHS Method/LUFT Manual October 1989  
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
104199-1	48	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit  
 indicated in parentheses.

QA/QC SUMMARY

RPD, %	<1
RECOVERY, %	102

LABORATORY NUMBER: 104199  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON

DATE RECEIVED: 06/19/91  
 DATE EXTRACTED: 06/25/91  
 DATE ANALYZED: 06/28/91  
 DATE REPORTED: 07/02/91

Extractable Petroleum Hydrocarbons in Aqueous Solutions  
 California DOHS Method  
 LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT* (ug/L)
104199-1	48	ND	ND	50

ND = Not detected at or above reporting limit.

\*Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	92



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

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 09/11/91

DATE REPORTED: 09/17/91


LABORATORY NUMBER: 105131

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 430.013

LOCATION: 13TH & JEFFERSON

RESULTS: SEE ATTACHED

  
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QA/QC Approval

  
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Final Approval

Berkeley

Wilmington

Los Angeles



LABORATORY NUMBER: 105131  
CLIENT: SUBSURFACE CONSULTANTS, INC.  
PROJECT ID: 430.013  
LOCATION: 13TH & JEFFERSON

DATE RECEIVED: 09/11/91  
DATE ANALYZED: 09/14/91  
DATE REPORTED: 09/17/91

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions  
TVH by California DOHS Method/LUFT Manual October 1989  
BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
105131-1	MW-47	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
105131-2	MW-48	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
105131-3	MW-49	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
105131-4	MW-51	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
105131-5	MW-52	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
105131-6	MW-54	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

RPD, %	2
RECOVERY, %	95

Client: **Subsurface Consultants**

Laboratory Login Number: 105131

Project Name: 13th & Jefferson GW  
 Project Number: 430.013

Report Date: 17 September 91

ANALYSIS: **Hydrocarbon Oil & Grease (Gravimetric)**      METHOD: **SMWW 17:5520BF**

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
105131-002	MW-48	Water	10-SEP-91	11-SEP-91	16-SEP-91	ND	mg/L	5	TR	2641

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:       13th & Jefferson GW  
 Project Number:   430.013

Laboratory Login Number: 105131  
 Report Date:               17 September 91

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch Number:       2641

Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	5	mg/L	SMWW 17:5520BF	16-SEP-91

Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	89%	SMWW 17:5520BF	16-SEP-91
BSD	91%	SMWW 17:5520BF	16-SEP-91

		Control Limits
Average Spike Recovery	90%	80% - 120%
Relative Percent Difference	2.1%	< 20%





LABORATORY NUMBER: 105131  
CLIENT: SUBSURFACE CONSULTANTS  
PROJECT ID: 430.013  
LOCATION: 13TH & JEFFERSON

DATE RECEIVED: 09/11/91  
DATE EXTRACTED: 09/12/91  
DATE ANALYZED: 09/15/91  
DATE REPORTED: 09/17/91

Extractable Petroleum Hydrocarbons in Aqueous Solutions  
California DOHS Method  
LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT* (ug/L)
105131-2	MW-48	ND	ND	50

ND = Not Detected at or above reporting limit.

\*Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	10
RECOVERY, %	85

LABORATORY NUMBER: 105131-1  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON  
 SAMPLE ID: MW-47

DATE RECEIVED: 09/11/91  
 DATE ANALYZED: 09/13/91  
 DATE REPORTED: 09/17/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	23
RECOVERY, %	92

LABORATORY NUMBER: 105131-2  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON  
 SAMPLE ID: MW-48

DATE RECEIVED: 09/11/91  
 DATE ANALYZED: 09/13/91  
 DATE REPORTED: 09/17/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	5.3	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	23
RECOVERY, %	92



LABORATORY NUMBER: 105131-3  
CLIENT: SUBSURFACE CONSULTANTS  
PROJECT ID: 430.013  
LOCATION: 13TH & JEFFERSON  
SAMPLE ID: MW-49

DATE RECEIVED: 09/11/91  
DATE ANALYZED: 09/13/91  
DATE REPORTED: 09/17/91

EPA 8010  
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	23
RECOVERY, %	92

LABORATORY NUMBER: 105131-7  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON  
 SAMPLE ID: MW-59

DATE RECEIVED: 09/11/91  
 DATE ANALYZED: 09/13/91  
 DATE REPORTED: 09/17/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	23
RECOVERY, %	92



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2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 12/12/91  
DATE REPORTED: 12/23/91

LABORATORY NUMBER: 106030


CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 430.013

LOCATION: 13TH & JEFFERSON GW

RESULTS: SEE ATTACHED

  
-----  
QA/QC Approval

  
-----  
Final Approval

Berkeley

Wilmington

Los Angeles



Client: Subsurface Consultants

Laboratory Login Number: 106030

Project Name: 13th & Jefferson GW  
Project Number: 430.013

Report Date: 23 December 91

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)      METHOD: SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
106030-002	MW-48	Water	12-DEC-91	12-DEC-91	18-DEC-91	ND	mg/L	5	TR	3711

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: 13th & Jefferson GW  
 Project Number: 430.013

Laboratory Login Number: 106030  
 Report Date: 23 December 91

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch Number: 3711

## Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	5	mg/L	SMWW 17:5520BF	18-DEC-91

## Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	89%	SMWW 17:5520BF	18-DEC-91
BSD	85%	SMWW 17:5520BF	18-DEC-91

		Control Limits
Average Spike Recovery	87%	80% - 120%
Relative Percent Difference	4.5%	< 20%





LABORATORY NUMBER: 106030  
CLIENT: SUBSURFACE CONSULTANTS  
PROJECT ID: 430.012  
LOCATION: 13TH & JEFFERSON GW

DATE RECEIVED: 12/12/91  
DATE EXTRACTED: 12/18/91  
DATE ANALYZED: 12/20/91  
DATE REPORTED: 12/23/91

Extractable Petroleum Hydrocarbons in Aqueous Solutions  
California DOHS Method  
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT* (ug/L)
106030-2	MW-48	ND	ND	50

ND = Not detected at or above reporting limit.

\*Reporting limit applies to all analytes.

QA/QC SUMMARY

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RPD, %                                     5
RECOVERY, %                               119
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LABORATORY NUMBER: 106030  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW

DATE RECEIVED: 12/12/91  
 DATE ANALYZED: 12/18/91  
 DATE REPORTED: 12/23/91

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions  
 TVH by California DOHS Method/LUFT Manual October 1989  
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
106030-1	MW-47	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
106030-2	MW-48	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
106030-3	MW-49	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
106030-4	MW-54	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit  
 indicated in parentheses.

QA/QC SUMMARY

RPD, %	2
RECOVERY, %	83

LABORATORY NUMBER: 106030-1  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-47

DATE RECEIVED: 12/12/91  
 DATE ANALYZED: 12/18/91  
 DATE REPORTED: 12/23/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl chloride	ND	2.0
Chloroethane	ND	2.0
Methylene chloride	ND	1.0
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethylene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
2-Chloroethylvinyl ether	ND	2.0
Bromoform	ND	1.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	112
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LABORATORY NUMBER: 106030-2  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-48

DATE RECEIVED: 12/12/91  
 DATE ANALYZED: 12/18/91  
 DATE REPORTED: 12/23/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl chloride	ND	2.0
Chloroethane	ND	2.0
Methylene chloride	ND	1.0
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	16	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethylene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
2-Chloroethylvinyl ether	ND	2.0
Bromoform	ND	1.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	110
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LABORATORY NUMBER: 106030-3  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-49

DATE RECEIVED: 12/12/91  
 DATE ANALYZED: 12/18/91  
 DATE REPORTED: 12/23/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl chloride	ND	2.0
Chloroethane	ND	2.0
Methylene chloride	ND	1.0
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethylene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
2-Chloroethylvinyl ether	ND	2.0
Bromoform	ND	1.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	113
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LABORATORY NUMBER: 106030-5  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-59

DATE RECEIVED: 12/12/91  
 DATE ANALYZED: 12/18/91  
 DATE REPORTED: 12/23/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl chloride	ND	2.0
Chloroethane	ND	2.0
Methylene chloride	ND	1.0
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethylene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
2-Chloroethylvinyl ether	ND	2.0
Bromoform	ND	1.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

Surrogate Recovery, %

=====

112

LABORATORY NUMBER: 106030  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: METHOD BLANK

DATE ANALYZED: 12/18/91  
 DATE REPORTED: 12/23/91

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl chloride	ND	2.0
Chloroethane	ND	2.0
Methylene chloride	ND	1.0
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethylene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
2-Chloroethylvinyl ether	ND	2.0
Bromoform	ND	1.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	111
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## MS/MSD SUMMARY SHEET FOR EPA 8010\8020

Operator: AV  
 Analysis date: 12/18/91  
 Sample type: WATER  
 Sample ID: 105943-2

Spike file: 351W/X015  
 Spike dup file: 351W/X016  
 Instrument: GC12  
 Sequence Name: dec 17

## 8010 MS/MSD DATA (spiked at 20 ppb)

SPIKE COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
1,1-Dichloroethene	23.49	117 %	OK	60 - 133
Trichloroethene	23.26	116 %	OK	88 - 125
Chlorobenzene	21.17	106 %	OK	90 - 127
SPIKE DUP COMPOUNDS				
1,1-Dichloroethene	22.36	112 %	OK	60 - 133
Trichloroethene	22.78	114 %	OK	88 - 125
Chlorobenzene	21.74	109 %	OK	90 - 127
SURROGATES				
BROMOBENZENE (MS)	108.00	108 %	OK	98 - 115
BROMOBENZENE (MSD)	109.00	109 %	OK	98 - 115

## 8020 MS/MSD DATA (spiked at 20 ppb)

SPIKE COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
Benzene	23.42	117 %	OK	62 - 120
Toluene	23.19	116 %	OK	61 - 121
Chlorobenzene	17.85	89 %	OK	84 - 115
SPIKE DUP COMPOUNDS				
Benzene	22.88	114 %	OK	62 - 120
Toluene	22.60	113 %	OK	61 - 121
Chlorobenzene	19.42	97 %	OK	84 - 115
SURROGATES				
BROMOBENZENE (MS)	101.00	101 %	OK	91 - 107
BROMOBENZENE (MSD)	101.00	101 %	OK	91 - 107

## RPD DATA

8010 COMPOUNDS	SPIKE	SPIKE DUP	RPD	STATUS	LIMITS
1,1-Dichloroethene	23.49	22.36	5 %	OK	<= 14
Trichloroethene	23.26	22.78	2 %	OK	<= 14
Chlorobenzene	21.17	21.74	3 %	OK	<= 13
8020 COMPOUNDS					
Benzene	23.42	22.88	2 %	OK	<= 11
Toluene	23.19	22.60	3 %	OK	<= 13
Chlorobenzene	17.85	19.42	8 %	OK	<= 13





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DATE RECEIVED: 04/17/92

DATE REPORTED: 04/30/92

LABORATORY NUMBER: 107170

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 430.013

LOCATION: 13TH & JEFFERSON GW

RESULTS: SEE ATTACHED

Reviewed By

Reviewed By

Berkeley

Wilmington

Los Angeles

Client: Subsurface Consultants

Laboratory Login Number: 107170

Project Name: 13th & Jefferson GW  
 Project Number: 430.013

Report Date: 30 April 92

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)      METHOD: SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
107170-002	MW-48	Water	17-APR-92	17-APR-92	20-APR-92	ND	mg/L	5	TR	5002

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: 13th & Jefferson GW  
 Project Number: 430.013

Laboratory Login Number: 107170  
 Report Date: 30 April 92

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch Number: 5002

## Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	5	mg/L	SMWW 17:5520BF	20-APR-92

## Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	82%	SMWW 17:5520BF	20-APR-92
BSD	85%	SMWW 17:5520BF	20-APR-92

		Control Limits
Average Spike Recovery	84%	80% - 120%
Relative Percent Difference	3.3%	< 20%



LABORATORY NUMBER: 107170-1  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-47

DATE SAMPLED: 04/17/92  
 DATE RECEIVED: 04/17/92  
 DATE ANALYZED: 04/23/92  
 DATE REPORTED: 04/30/92

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	REPORTING LIMIT ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethylene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	1
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

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SURROGATE RECOVERY, %

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114

LABORATORY NUMBER: 107170-1  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-47

DATE SAMPLED: 04/17/92  
 DATE RECEIVED: 04/17/92  
 DATE ANALYZED: 04/23/92  
 DATE REPORTED: 04/30/92

EPA 8020: Volatile Aromatic Hydrocarbons in Water

COMPOUND	RESULT ug/L	REPORTING LIMIT ug/L
Benzene.....	ND	1
Toluene.....	ND	1
Ethyl Benzene.....	ND	1
Total Xylenes.....	ND	1
Chlorobenzene.....	ND	1
1,4-Dichlorobenzene.....	ND	1
1,3-Dichlorobenzene.....	ND	1
1,2-Dichlorobenzene.....	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

SURROGATE RECOVERY, %	101
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LABORATORY NUMBER: 107170-2  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-48

DATE SAMPLED: 04/17/92  
 DATE RECEIVED: 04/17/92  
 DATE ANALYZED: 04/23/92  
 DATE REPORTED: 04/30/92

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	REPORTING LIMIT ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	1	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethylene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	1
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

SURROGATE RECOVERY, %	114
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LABORATORY NUMBER: 107170-2  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-48

DATE SAMPLED: 04/17/92  
 DATE RECEIVED: 04/17/92  
 DATE ANALYZED: 04/23/92  
 DATE REPORTED: 04/30/92

EPA 8020: Volatile Aromatic Hydrocarbons in Water

COMPOUND	RESULT ug/L	REPORTING LIMIT ug/L
Benzene.....	ND	1
Toluene.....	ND	1
Ethyl Benzene.....	ND	1
Total Xylenes.....	ND	1
Chlorobenzene.....	ND	1
1,4-Dichlorobenzene.....	ND	1
1,3-Dichlorobenzene.....	ND	1
1,2-Dichlorobenzene.....	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

SURROGATE RECOVERY, %	101
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LABORATORY NUMBER: 107170-3  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-49

DATE SAMPLED: 04/17/92  
 DATE RECEIVED: 04/17/92  
 DATE ANALYZED: 04/23/92  
 DATE REPORTED: 04/30/92

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	REPORTING LIMIT ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethylene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	1
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

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SURROGATE RECOVERY, %

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115



LABORATORY NUMBER: 107170-3  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-49

DATE SAMPLED: 04/17/92  
 DATE RECEIVED: 04/17/92  
 DATE ANALYZED: 04/23/92  
 DATE REPORTED: 04/30/92

EPA 8020: Volatile Aromatic Hydrocarbons in Water

COMPOUND	RESULT ug/L	REPORTING LIMIT ug/L
Benzene.....	ND	1
Toluene.....	ND	1
Ethyl Benzene.....	ND	1
Total Xylenes.....	ND	1
Chlorobenzene.....	ND	1
1,4-Dichlorobenzene.....	ND	1
1,3-Dichlorobenzene.....	ND	1
1,2-Dichlorobenzene.....	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

SURROGATE RECOVERY, %	101
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LABORATORY NUMBER: 107170-5  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-59

DATE SAMPLED: 04/17/92  
 DATE RECEIVED: 04/17/92  
 DATE ANALYZED: 04/24/92  
 DATE REPORTED: 04/30/92

EPA 8010  
 Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethylene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	1
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

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Surrogate Recovery, %	116
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LABORATORY NUMBER: 107170  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW  
 SAMPLE ID: MW-54

DATE SAMPLED: 04/17/92  
 DATE RECEIVED: 04/17/92  
 DATE ANALYZED: 04/24/92  
 DATE REPORTED: 04/30/92

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020  
 Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)	REPORTING LIMIT * (ug/L)
107170-4	MW-54	ND	ND	ND	ND	1

ND = Not detected at or above reporting limit.

\* Reporting Limit applies to all analytes.

QA/QC SUMMARY: SURROGATE RECOVERY

RECOVERY, %

101

LABORATORY NUMBER: 107170  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.013  
 LOCATION: 13TH & JEFFERSON GW

DATE SAMPLED: 04/17/92  
 DATE RECEIVED: 04/17/92  
 DATE EXTRACTED: 04/22/92  
 DATE ANALYZED: 04/22/92  
 DATE REPORTED: 04/30/92

Extractable Petroleum Hydrocarbons in Aqueous Solutions  
 California DOHS Method  
 LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT* (ug/L)
107170-2	MW-48	ND	ND	50

ND = Not detected at or above reporting limit.

\*Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	8
RECOVERY, %	110