

December 3, 1992  
SCI 430.014

92 DEC -7 PM 2:22

3623

Ms. Jennifer Eberle  
Alameda County Health Care Services Agency  
80 Swan Way, Room 200  
Oakland, California 94621

**Quarterly Groundwater Monitoring**  
**November 1992**  
**Floor Drain Sump**  
**13th and Jefferson Streets**  
**Oakland, California**

Dear Ms. Eberle:

This letter records the results of the November 1992 groundwater sampling and analytical testing event performed by Subsurface Consultants, Inc. (SCI) for DCA<sup>1</sup> contamination at the referenced site. Well locations are shown on the attached Site Plan, Plate 1.

#### Background

SCI previously documented the removal of a concrete floor drain sump and associated contaminated soils in a report dated September 24, 1990. A groundwater contamination assessment report by SCI dated July 8, 1991, presents the monitoring well installation details.

Soil contamination resulting from underground gasoline storage tanks near the intersection of 13th and Jefferson Streets also occurred in the area. Remediation activities for this condition are detailed in our report dated December 6, 1990. Analytical test results from previous quarterly groundwater sampling events for the gasoline contamination were most recently presented in a letter dated September 4, 1992.

#### Quarterly Monitoring

Groundwater monitoring at the site has been performed quarterly over the past two years. Groundwater level measurements are summarized in Table 1. Groundwater surface contours for the latest

<sup>1</sup> DCA = 1,2-Dichloroethane

**Subsurface Consultants, Inc.**

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event, November 3, 1992, are shown on Plate 1. Groundwater flow patterns have remained relatively consistent during recent monitoring events.

Prior to sampling, the wells were purged of at least 4 well volumes of water using a disposable bailer. The purged water was disposed of in the existing groundwater treatment plant on-site. During this event, wells 47, 48, 49, 54 and 59 were sampled.

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 analytically tested for the following:

    Volatile Organic Chemicals, sample preparation and analysis using EPA method 5030 (purge and trap) and 8010 (gas chromatograph coupled to an electrolytic conductivity detector).

Water samples from the wells have also been analyzed in the past for total volatile hydrocarbons (EPA 8015/5030), total extractable hydrocarbons (EPA 8015/3550), hydrocarbon oil and grease (SMWW 17:5520 E&F) and benzene, toluene, xylene and ethylbenzene (EPA 8020), because these compounds were associated with the gasoline tank and sump releases. In our June 24, 1992 letter, we requested a reduction in analytical testing because these compounds had not been detected for at least the previous 6 quarters. Our latest sampling event reflects that reduction in testing. The results of the analyses are summarized in Tables 2 and 3. Copies of the analytical test reports are attached.

### Conclusions

The groundwater level data indicates that the groundwater flow direction is toward the west-northwest at a gradient of approximately 0.5 percent. Groundwater flow direction and gradient remain consistent with previous measurements.

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■ Subsurface Consultants, Inc.

The results of the latest sampling event indicate that none of the wells being monitored contain Volatile Organic Chemicals (EPA 8010) at concentrations in excess of analytical detection limits. Monitoring for volatile organic chemicals (EPA 8010) will continue on a quarterly basis.

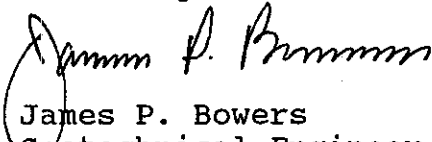
If you have any questions, please call.

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:JPB:egh

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

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Alameda County Health Care Services Agency  
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- 1 copy: Ms. Lois Parr  
Oakland Redevelopment Agency  
City of Oakland  
1333 Broadway, Suite 900  
Oakland, California 94612
- 1 copy: Ms. Julie Carver  
Oakland Redevelopment Agency  
City of Oakland  
1333 Broadway, Suite 800  
Oakland, California 94612
- 1 copy: Mr. John Esposito  
Bramalea Pacific  
1111 Broadway, Suite 1400  
Oakland, California 94607
- 1 copy: Mr. Eddy So  
Regional Water Quality Control Board  
2101 Webster Street, Room 500  
Oakland, California 94612
- 1 copy: Mr. Donnell Choy  
Office of City Attorney  
City of Oakland  
505 14th Street, 12th Floor  
Oakland, California 94612

Table 1. Groundwater Elevation Data

<u>Well</u>	<u>Date</u>	<u>TOC<sup>1</sup> Elevation (ft)</u>	<u>Groundwater Depth<sup>2</sup> (ft)</u>	<u>Groundwater Elevation (ft)</u>
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
	07/28/92		26.48	74.02
	11/03/92		26.86	73.64
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
	07/28/92		28.32	74.08
	11/03/92		28.74	73.66
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	74.64
11/03/92	27.84	73.89		
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	

Table 1. Groundwater Elevation Data (continued)

<u>Well</u>	<u>Date</u>	<u>TOC<sup>1</sup> Elevation (ft)</u>	<u>Groundwater Depth<sup>2</sup> (ft)</u>	<u>Groundwater Elevation (ft)</u>
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		27.28	74.64
	03/13/91	101.92 <sup>3</sup>	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
	11/03/92		27.54	74.38
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
	07/28/92		27.27	73.10
	11/03/92		27.56	72.81

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<sup>1</sup> Top of Casing

<sup>2</sup> Depth measured below top of casing

<sup>3</sup> 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 <sup>8</sup>	--	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
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
	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
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						
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

1 Oil and Grease  
2 Total Volatile Hydrocarbons  
3 Total Extractable Hydrocarbons  
4 Benzene  
5 Toluene  
6 Xylene  
7 Ethylbenzene  
8 ND = Non-detectable, see analytical test reports for detection limits  
9 -- Not tested

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

<u>Well</u>	<u>Date</u>	<u>1,2 DCA<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-29	01/04/91	ND <sup>4</sup>	ND	ND	ND
MW-31	01/04/91	ND	ND	10	ND
MW-45	01/04/91	ND	ND	ND	ND
MW-46	01/04/91	ND	ND	ND	ND
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
	07/28/92	ND	ND	ND	ND
	√11/03/92	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
	07/28/92	ND	ND	ND	ND
	√11/03/92	ND	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
	√11/03/92	ND	ND	ND	ND
MW-51	12/04/90	ND	ND	ND	ND
	06/13/91	ND	ND	1.0	ND
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			
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
	√11/03/92	ND	ND	ND	ND



Table 3. Halogenated Volatile Organic Chemical Concentrations in Groundwater (continued)

<u>Well</u>	<u>Date</u>	<u>1,2 DCA<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-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
	07/28/92	ND	ND	ND	ND
	√11/03/92	ND	ND	ND	ND

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<sup>1</sup> 1,2 Dichloroethane

<sup>2</sup> 1,2 Dichloroethene

<sup>3</sup> Micrograms/liter = parts per billion

<sup>4</sup> None detected, see test reports for detection limits

73.0 GROUNDWATER CONTOUR ELEVATIONS (11/3/92)

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, TOULENE, XYLENES, ETHYLBENZENE

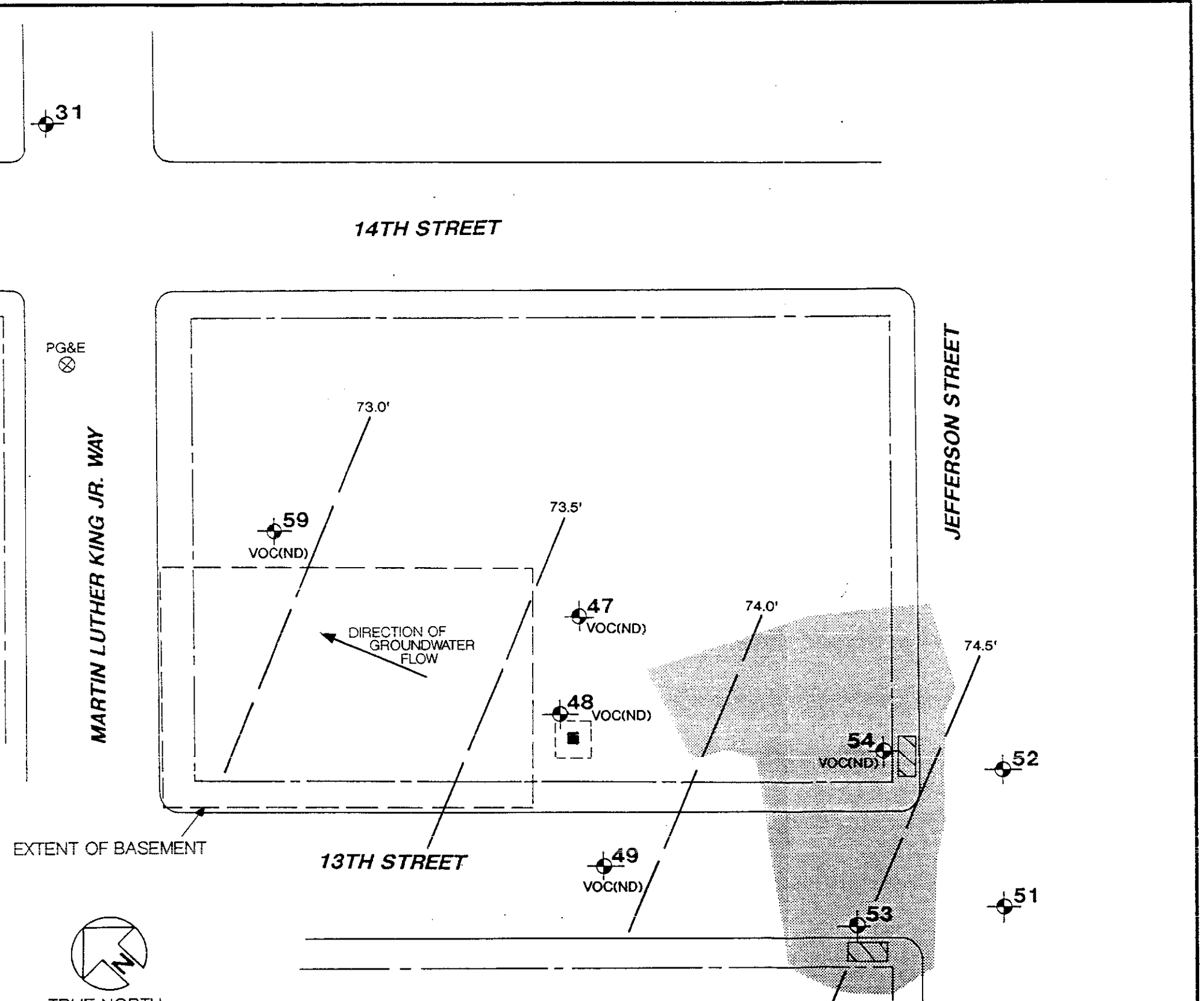
VOC VOLATILE ORGANIC COMPOUNDS (EPA 8010)

DCA 1,2 DICHLOROETHANE

ND NONE DETECTED

PREVIOUS SUMP AND APPROXIMATE EXTENT OF SOIL REMEDIATION

ALL CONCENTRATIONS IN ug/L OR PARTS PER BILLION (ppb)



Subsurface Consultants		CONTAMINANT CONCENTRATIONS IN GROUNDWATER		PLATE <b>1</b>
		13TH & JEFFERSON - OAKLAND, CA		
JOB NUMBER	DATE	APPROVED		
430.013	12/3/92	<i>[Signature]</i>		



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

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

DATE RECEIVED: 11/03/92

DATE REPORTED: 11/10/92

LABORATORY NUMBER: 109161

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 430.014

LOCATION: 13th & JEFFERSON SUMP

RESULTS: SEE ATTACHED

Reviewed by

Reviewed by

This report may be reproduced only in its entirety.

Berkeley

Los Angeles

LABORATORY NUMBER: 109161-1  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.014  
 LOCATION: 13th & JEFFERSON  
 SAMPLE ID: MW-47

DATE SAMPLED: 11/03/92  
 DATE RECEIVED: 11/03/92  
 DATE ANALYZED: 11/08/92  
 DATE REPORTED: 11/10/92

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
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	109
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LABORATORY NUMBER: 109161-2  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.014  
 LOCATION: 13th & JEFFERSON  
 SAMPLE ID: MW-48

DATE SAMPLED: 11/03/92  
 DATE RECEIVED: 11/03/92  
 DATE ANALYZED: 11/08/92  
 DATE REPORTED: 11/10/92

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
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	104
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LABORATORY NUMBER: 109161-3  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.014  
 LOCATION: 13th & JEFFERSON  
 SAMPLE ID: MW-49

DATE SAMPLED: 11/03/92  
 DATE RECEIVED: 11/03/92  
 DATE ANALYZED: 11/08/92  
 DATE REPORTED: 11/10/92

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
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	99
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LABORATORY NUMBER: 109161-4  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.014  
 LOCATION: 13th & JEFFERSON  
 SAMPLE ID: MW-54

DATE SAMPLED: 11/03/92  
 DATE RECEIVED: 11/03/92  
 DATE ANALYZED: 11/08/92  
 DATE REPORTED: 11/10/92

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
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	104
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LABORATORY NUMBER: 109161-5  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.014  
 LOCATION: 13th & JEFFERSON  
 SAMPLE ID: MW- 59

DATE SAMPLED: 11/03/92  
 DATE RECEIVED: 11/03/92  
 DATE ANALYZED: 11/08/92  
 DATE REPORTED: 11/10/92

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
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	99
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LABORATORY NUMBER: 109161-METHOD BLANK  
 CLIENT: SUBSURFACE CONSULTANTS  
 PROJECT ID: 430.014  
 LOCATION: 13th & JEFFERSON

DATE ANALYZED: 11/08/92  
 DATE REPORTED: 11/10/92

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
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
2-Chloroethylvinyl ether	ND	2
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

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Surrogate Recovery, %

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95

## MS/MSD SUMMARY SHEET FOR EPA 8010

Laboratory Number: 109161  
 Client: Subsurface Consultants  
 Analysis date: 11/08/92  
 Sample type: Water

Spike file: 313w007  
 Spike dup file: 313w008

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

SPIKE COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
1,1-Dichloroethene	22.31	112 %	OK	61 - 145
Trichloroethene	23.01	115 %	OK	71 - 120
Chlorobenzene	20.75	103 %	OK	75 - 130
SPIKE DUP COMPOUNDS				
1,1-Dichloroethene	21.58	108 %	OK	61 - 145
Trichloroethene	21.51	108 %	OK	71 - 120
Chlorobenzene	20.33	101 %	OK	75 - 130
SURROGATES				
Bromobenzene (MS)	103.80	104 %	OK	75 - 125
Bromobenzene (MSD)	98.31	98 %	OK	75 - 125
MATRIX RESULTS				
1,1-Dichloroethene	0			
Trichloroethene	0			
Chlorobenzene	0.126			

## RPD DATA

8010 COMPOUNDS	SPIKE	SPIKE DUP	RPD	STATUS	LIMITS
1,1-Dichloroethe	22.31	21.58	3 %	OK	<= 14
Trichloroethene	23.01	21.51	7 %	OK	<= 14
Chlorobenzene	2.00	20.33	2 %	OK	<= 13

# CHAIN OF CUSTODY FORM

PAGE 1 OF 1

PROJECT NAME: 13<sup>th</sup> + Jefferson Sump  
 JOB NUMBER: 430.014 LAB: Curtis + Tompkins  
 PROJECT CONTACT: Sean Carson TURNAROUND: Normal  
 SAMPLED BY: Fernando Velez REQUESTED BY: Sean Carson

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	H2SO4	HNO3	ICE	NONE	MONTH	DAY		YEAR		TIME			
																							1	2	1	2		
1091601-1	MW-47	X					W	W									X	X		11	03	9	2					XXXXX EPA 8010
2	MW-48	X					W	W									X	X		11	03	9	2					
3	MW-49	X					W	W									X	X		11	03	9	2					
4	MW-54	X					W	W									X	X		11	03	9	2					
5	MW-59	X					W	W									X	X		11	03	9	2					

COMMENTS & NOTES:

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature) <i>Dennis DeLand</i>	DATE/TIME 11/3/92 12:30	RECEIVED BY: (Signature) <i>[Signature]</i>	DATE/TIME 11/3/92
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

## Subsurface Consultants, Inc.

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