

September 4, 1992
SCI 430.014

92 SEP 10 PM 1:19

3623

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

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

Dear Ms. Eberle:

This letter records the results of the July 1992 groundwater sampling and analytical testing event performed by Subsurface Consultants, Inc. (SCI) for DCA 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 June 24, 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 event, July 28, 1992, are shown on Plate 1. Groundwater flow

¹ DCA = 1,2-Dichloroethane

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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. During the latest sampling event, Monitoring Wells 49 and 54 were inaccessible due to the storage of heavy construction equipment. Wells 51 and 52, located in Jefferson Street between two large construction projects, have not been sampled since September 1991 because of construction related traffic constraints.

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.

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 (EPA 8010), 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 8015/3990), 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 the above listed 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 regional groundwater flow direction is toward the west-northwest at a gradient of

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approximately 1 percent. Groundwater flow direction and gradient remain consistent with previous measurements.

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.

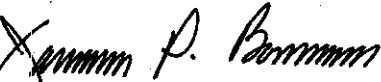
If you have any questions, please call.

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 - Halogenated Volatile Organic Chemical Concentrations in Groundwater
Table 3 - Petroleum Hydrocarbon 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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September 4, 1992

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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>TOC¹ Elevation (ft)</u>	<u>Groundwater Depth² (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			
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			
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	
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		27.28	74.64	
	03/13/91		101.92 ³	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
	07/28/92		27.27	73.10

-
- 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 ¹ (ug/L)	TVH ² (ug/L)	TEH ³ (ug/L)	B ⁴ (ug/L)	T ⁵ (ug/L)	X ⁶ (ug/L)	E ⁷ (ug/L)
MW-47	04/06/90	--	ND ⁸	--	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						
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 DCA¹</u> <u>(ug/L)³</u>	<u>1,2 DCE²</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 ⁴	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 ✓
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 ✓	
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	
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 due to garage tunnel construction			
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
	07/28/92	ND ✓	ND ✓	ND ✓	ND ✓

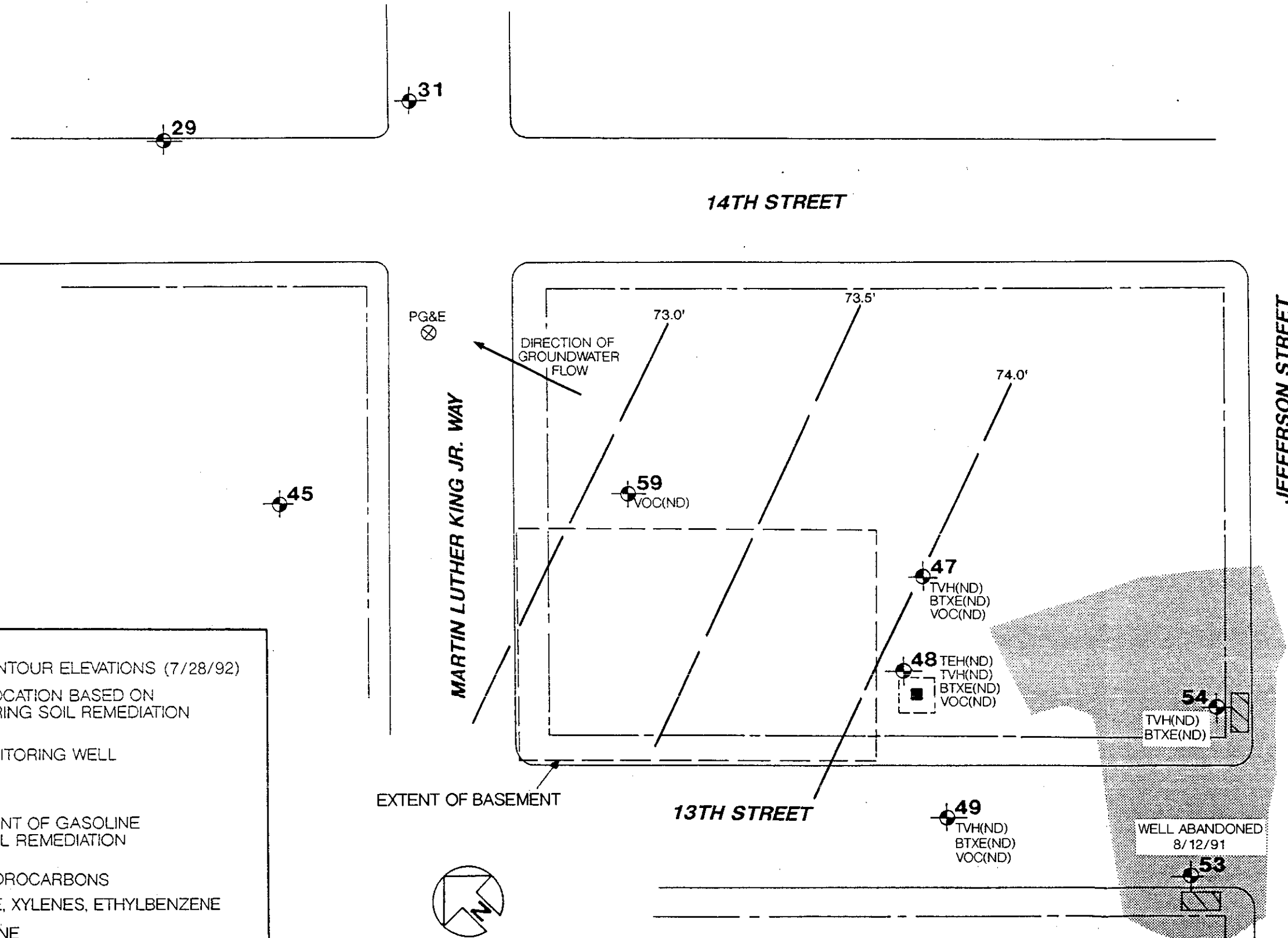
¹ 1,2 Dichloroethane
² 1,2 Dichloroethene
³ Micrograms/liter = parts per billion
⁴ None detected, see test reports for detection limits

inaccessible

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''

inaccessible



see map

- 73.0 GROUNDWATER CONTOUR ELEVATIONS (7/28/92)
- 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

DIRECTION OF GROUNDWATER FLOW

73.0'

73.5'

74.0'

59 TVOC(ND)

47 TVH(ND)
BTXE(ND)
VOC(ND)

48 TEH(ND)
TVH(ND)
BTXE(ND)
VOC(ND)

54 TVH(ND)
BTXE(ND)

52 TVH(ND)
BTXE(ND)

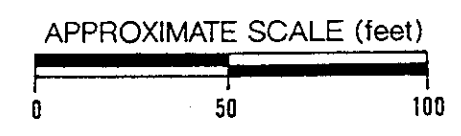
51 TVH(ND)
BTXE(ND)

49 TVH(ND)
BTXE(ND)
VOC(ND)

53

WELL ABANDONED
8/12/91

EXTENT OF BASEMENT



Subsurface Consultants

CONTAMINANT CONCENTRATIONS IN GROUNDWATER 7/28/92			PLATE 1
13TH & JEFFERSON - OAKLAND, CA			
JOB NUMBER	DATE	APPROVED	
430.013	7/28/92		

CHAIN OF CUSTODY FORM

PROJECT NAME: 13th + Jefferson GW
 JOB NUMBER: 430,013 LAB: Curtis + Tompkins
 PROJECT CONTACT: Sean Carson TURNAROUND: Normal
 SAMPLED BY: F. VELEZ, S. PERMUDER 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	H ₂ SO ₄	HNO ₃	ICE	NONE	MONTH	DAY	YEAR	TIME	
	MW-47	X				2				X			X		07	28	92	1000	X
	MW-48	X				2				X			X		07	28	92	1000	X
	MW-49	X				2				X			X		07	28	92	1000	X
	MW-54	X				2				X			X		07	28	92	1000	X
	MW-59	X				2				X			X		07	28	92	1000	X

COMMENTS & NOTES:

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
	7/28/92 1400		
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
		Teresa Morrison	7/28/92 1400

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: 07/28/92
DATE REPORTED: 08/04/92

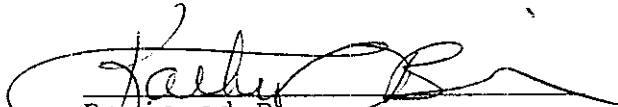
LABORATORY NUMBER: 108081

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 430.013

LOCATION: 13TH & JEFFERSON GW

RESULTS: SEE ATTACHED


Reviewed By


Reviewed By

LABORATORY NUMBER: 108081-1
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 430.013
 LOCATION: 13TH & JEFFERSON GW
 SAMPLE ID: MW-47

DATE SAMPLED: 07/28/92
 DATE RECEIVED: 07/28/92
 DATE ANALYZED: 08/01/92
 DATE REPORTED: 08/04/92

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, %	106
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LABORATORY NUMBER: 108081-2
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 430.013
 LOCATION: 13TH & JEFFERSON GW
 SAMPLE ID: MW-48

DATE SAMPLED: 07/28/92
 DATE RECEIVED: 07/28/92
 DATE ANALYZED: 08/01/92
 DATE REPORTED: 08/04/92

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, %

=====

108

LABORATORY NUMBER: 108081-3
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 430.013
 LOCATION: 13TH & JEFFERSON GW
 SAMPLE ID: MW-59

DATE SAMPLED: 07/28/92
 DATE RECEIVED: 07/28/92
 DATE ANALYZED: 08/01/92
 DATE REPORTED: 08/04/92

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, %	106
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LABORATORY NUMBER: 108081
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 430.013
 LOCATION: 13TH & JEFFERSON GW
 SAMPLE ID: METHOD BLANK

DATE ANALYZED: 08/01/92
 DATE REPORTED: 08/04/92

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, %	106
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LABORATORY CONTROL SAMPLE SUMMARY SHEET FOR EPA 8010/8020

Operator: MBP Spike file: 213W/X002
 Analysis date: 7/31/92 Instrument: GC12 (QUANT COLUMN)
 Sample type: WATER Sequence name: JUL31

LCS SPIKE DATA (spiked at 20 ppb)

	READING	RECOVERY	STATUS	LIMITS
8010 COMPOUNDS				
1,1-Dichloroethene	19.68	98 %	OK	78 - 132
Trichloroethene	21.53	108 %	OK	85 - 124
Chlorobenzene	19.21	96 %	OK	70 - 128
SURROGATES				
Bromobenzene	108.87	109 %	OK	93 - 121
8020 COMPOUNDS				
Benzene	18.48	92 %	OK	86 - 119
Toluene	19.01	95 %	OK	85 - 120
Chlorobenzene	18.90	95 %	OK	87 - 128
SURROGATES				
Bromobenzene	100.01	100 %	OK	93 - 109

SPIKE AND SURROGATE RECOVERY LIMITS
 FROM LCS WATER CONTROL CHARTS (APR. 92).

MS/MSD SUMMARY SHEET FOR EPA 8010/8020
 INSTRUMENT: HP-5890 COLUMN: RESTEK 502.2 DETECTORS: HALL/PID

Operator: MBP Spike file: 216W/X007
 Analysis date: 7/31/92 Spike dup file: 216W/X008
 Sample type: WATER Instrument: GC12
 Sample ID: 108077-005 Sequence name: JUL31

8010 MS/MSD DATA (spiked at 20 ppb) Ave Rec= 104 %

	READING	RECOVERY	STATUS	LIMITS
SPIKE COMPOUNDS				
1,1-Dichloroethene	19.98	100 %	OK	61 - 145
Trichloroethene	22.60	113 %	OK	71 - 120
Chlorobenzene	20.43	102 %	OK	75 - 130
SPIKE DUP COMPOUNDS				
1,1-Dichloroethene	19.51	98 %	OK	61 - 145
Trichloroethene	22.46	112 %	OK	71 - 120
Chlorobenzene	20.40	102 %	OK	75 - 130
SURROGATES				
BROMOBENZENE (MS)	104.59	105 %	OK	75 - 115
BROMOBENZENE (MSD)	103.67	104 %	OK	75 - 115

8020 MS/MSD DATA (spiked at 20 ppb) Ave Rec= 97 %

	READING	RECOVERY	STATUS	LIMITS
SPIKE COMPOUNDS				
Benzene	19.03	95 %	OK	76 - 127
Toluene	19.54	98 %	OK	76 - 125
Chlorobenzene	19.53	98 %	OK	75 - 130
SPIKE DUP COMPOUNDS				
Benzene	19.20	96 %	OK	76 - 127
Toluene	19.78	99 %	OK	76 - 125
Chlorobenzene	19.64	98 %	OK	75 - 130
SURROGATES				
BROMOBENZENE (MS)	99.92	100 %	OK	75 - 120
BROMOBENZENE (MSD)	100.07	100 %	OK	75 - 120

RPD DATA 8010 RPD= 1.0 % 8020 RPD= 0.9 %

	SPIKE	SPIKE DUP	RPD	STATUS	LIMITS
8010 COMPOUNDS					
1,1-Dichloroethene	19.98	19.51	2 %	OK	< 14
Trichloroethene	22.60	22.46	1 %	OK	< 14
Chlorobenzene	20.43	20.40	0 %	OK	< 13
8020 COMPOUNDS					
Benzene	19.03	19.20	1 %	OK	< 11
Toluene	19.54	19.78	1 %	OK	< 13
Chlorobenzene	19.53	19.64	1 %	OK	< 13

SPIKE RECOVERY LIMITS FROM SW-846 METHODS 8010/8020 TABLE 3;
 SURROGATE RECOVERY LIMITS FROM LCS CONTROL CHARTS (NOV. 91);
 RPD LIMITS FROM CLP SOW 2/88 VOLATILES.