Subsurface Consultants, Inc.

R. William Rudolph, P.E.
President

May 14, 1998
SCI 447.055

Mr. George Hill
655 University Avenue, Suite 100
Sacramento, California 95825

Mr. Gordon Linden
150 LaSalle Avenue
Piedmont, California 94611

Groundwater Monitoring
February 1998 Quarterly Event
Connell Oldsmobile Facility
3093 Broadway
Oakland, California

Dear Messrs. Hill & Linden:

This letter records the results of the February 1998 groundwater monitoring event; as well as the December 1997, January, and February 1998 free product recovery events performed by Subsurface Consultants, Inc. (SCI) at the Connell Oldsmobile facility in Oakland, California. The facility is situated at the southwest corner of the intersection of Hawthorne Street and Broadway, as shown on the Site Plan, Plate 1.

BACKGROUND

On December 18, 1989, three underground storage tanks (USTs), which previously contained gasoline, diesel fuel, and waste oil, were removed within a sidewalk area located adjacent to the existing Connell Oldsmobile facility. A fuel dispenser island located within the existing building was also removed at the time. SCI understands that the pipelines connecting the fuel dispenser island with the USTs remained in-place.

Twelve wells have been periodically sampled at the site since 1990 to evaluate impacts to groundwater due to previous UST releases. Groundwater monitoring is performed in accordance with the program outlined in SCI's Corrective Action Plan Work Plan (Work Plan) dated

November 6, 1995, and approved by the Alameda County Health Care Services Agency (ACHCSA) in a letter dated November 29, 1995. On May 30, 1997, ACHCSA modified the groundwater monitoring program to include quarterly sampling of wells MW-1, MW-4, and MW-9 whenever free product is absent in those wells.

Since 1991, free product recovery has been conducted on a monthly basis by hand-bailing product from site wells. In October 1996, an internal combustion engine was installed to remove product from MW-6 by soil vapor extraction (SVE).

MONITORING ACTIVITIES

Groundwater Monitoring

On February 9, 1998, depth-to-water and free product thickness were measured in all wells. Groundwater and free product elevation data are summarized in Table 1. The groundwater flow direction is generally towards the east-southeast at gradients varying from 0.01 to 0.1 foot vertical to 1 foot horizontal. Groundwater table contours are presented on Plate 2.

On February 9, 1998, monitoring wells MW-1, MW-4, MW-7, MW-8, MW-9, and MW-13 were purged by removing water with new disposable bailers. As described in the Work Plan, sampling of this group of wells is performed on a semi-annual or annual basis. The wells were purged until measurements of pH, temperature, and conductivity had stabilized. After the wells recharged to within 80 percent of their initial level, they were sampled with new disposable bailers. Purge water was placed in a depression created on top of an existing soil stockpile onsite (see Plate 1) and allowed to evaporate.

Samples were retained in pre-cleaned containers supplied by the analytical laboratory and were placed in ice-filled coolers and remained iced until delivery to the analytical laboratory. Chain-of-custody records accompanied the samples to the laboratory.

Chemical Analyses

Chemical analyses of the samples were performed by Curtis & Tompkins, Ltd., a state-certified chemical testing laboratory in Berkeley, California. A summary of sample preparation and test methods is presented below.

Analysis	Sample Preparation Method	Analysis Method
Total Volatile Hydrocarbons	EPA 5030	EPA 8015 Mod.
Total Extractable Hydrocarbons	EPA 3520	EPA 8015 Mod.
Benzene, Toluene, Ethylbenzene, Xylenes	EPA 5030	EPA 8020
Methyl Tertiary Butyl Ether (MTBE)	EPA 5030	EPA 8020
1,1- and 1,2 Dichloroethane (1,1- and 1,2-DCA)	EPA 5030	EPA 8260
Semivolatile Organic Compounds (MW-1 only)	EPA 3520	EPA 8270
Hydrocarbon Oil & Grease (Gravimetric) (MW-1 only)		SMWW 17:5520BF

Analytical test results are summarized in Table 2. Field sampling forms, analytical test reports, and chain-of-custody documents are attached.

Free Product Removal

SCI currently measures separate-phase product thickness and the depth to water in all wells on a monthly basis. Data from the December 1997, January 1998, and February 1998 monthly measurements are summarized in this report. Field forms for these events are attached. Future reporting on the monthly measurements will continue on a quarterly basis.

Free product is intermittently present in three of the site wells (MW-1, MW-4, and MW-6). Between December 1997 and February 1998, the free product thickness in MW-1 ranged from 0 to 0.5 feet. In the same period, no free product was detected in MW-4. At MW-6 where the SVE system formerly removed free product, the thickness of free product ranged from 0.1 to 0.89 feet.

A summary of free product removed from site wells by hand-bailing is presented in Table 3. A summary of product removed from MW-6 by the SVE is presented on Table 4.

DISCUSSION OF RESULTS

Free Product

In December 1997, free product was present in wells MW-1 and MW-6. Subsequent measurements in January and February 1998 indicate that free product was present only in MW-6. The variations in product thickness in MW-1, MW-4, and MW-6 appear to coincide with seasonal fluctuations of the groundwater table. Its occurrence appears to be highly dependent on the presence and thickness of permeable sand and gravel layers within the screened intervals of

the wells, and hydraulic contact with the groundwater table. The occurrence of free product is also likely related to its redistribution along preferential flow paths.

Dissolved Hydrocarbon Plume

The concentrations of dissolved hydrocarbons in MW-1 and MW-4 (Table 2) appear to be similar to the previous monitoring event. Benzene concentrations in MW-8 continue to show a decreasing trend. Benzene was also detected in MW-9 at 48 micrograms per liter (µg/l). Dissolved hydrocarbons were not detected in MW-7 and MW-13, the farthest downgradient well. Samples from MW-13 contained 1,2-DCA at 2.9 µg/l. This compound has been detected in MW-13 at relatively low concentrations (less than 7 µg/l) since 1995.

In this event, MTBE was detected in wells MW-1, MW-4, MW-8, and MW-9. MTBE has not been detected in previous events for which it has been sampled. Concentrations of MTBE ranged from less than 2 µg/l (MW-7 and MW-13) to 2,300 µg/l (MW-1). Potential sources and distribution will be assessed during the 12 well monitoring event, discussed below.

Ongoing Monitoring and Planned Additional Work

Interim product recovery by SVE ceased at well MW-6 in March 1998. SCI will continue to remove product by hand bailing and record water level measurements on a monthly basis. The next monitoring event will be the annual 12 well event which will occur in May 1998. The next report will be submitted by June 30, 1998.

The distribution of free product beneath the existing building is largely unknown. Because of the continued presence of free product in MW-1 and MW-6, and because of the possible presence of an ongoing source of free product in and around the in-place pipelines, SCI recommended an additional subsurface investigation beneath the existing building. SCI received work plan approval from the ACHCSA for the additional site investigation. We anticipate that the additional investigation will be conducted during May of 1998.

We trust that this provides the required information. If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

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Attachments: Table 1 - Groundwater and Free Product Elevation Data
Table 2 - Summary of Contaminant Concentrations in Groundwater
Table 3 - Free Product Recovery by Hand Bailing
Table 4 - Free Product Recovery by SVE from MW-6
Plate 1 - Site Plan
Plate 2 - Groundwater Elevation Contours, 2/5/98
Field Forms- December 1997 through February 1998
Analytical Test Reports
Chain-of-Custody Documents

cc: Ms. Susan Hugo
Senior Hazardous Materials Specialist
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Mr. Jonathan Redding
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TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-1	94.48	10/3/90	26.40	68.08	NM	--
		3/5/91	27.46	67.02	NM	--
		3/18/91	26.88	67.60	NM	--
		4/12/91	25.49	68.99	NM	--
		12/23/91	26.86	67.62	1.15	68.77
		12/26/91	26.08	68.40	0.22	68.63
		1/13/92	26.53	67.95	0.66	68.61
		2/28/92	27.75	66.73	0.42	67.15
		5/18/92	24.75	69.73	NM	--
		6/29/92	25.09	69.39	0.04	69.43
		7/29/92	25.46	69.02	0.15	69.17
		8/28/92	25.56	68.92	0.29	69.21
		10/28/92	26.44	68.04	0.52	68.56
		11/24/92	26.63	67.85	NM	--
		12/22/92	26.37	68.11	NM	--
		4/5/93	23.77	70.71	0	--
		7/20/93	24.51	69.97	0.6	70.57
		11/9/93	26.06	68.42	1.17	69.59
		8/30/95	21.73	72.75	0.23	72.98
		9/15/95	21.88	72.61	0.15	72.75
		10/2/95	22.42	72.06	0.42	72.48
		11/3/95	23.10	72.74	0.76	73.5
		11/30/95	23.38	72.54	0.7	73.24
		1/3/96	23.30	72.62	0.78	73.4
		2/2/96	22.96	72.28	0.84	74.12
		3/1/96	21.69	72.79	0.14	72.65
		4/4/96	21.11	73.67	0	--
		5/2/96	20.96	73.83	0	--
		6/5/96	20.98	73.81	0.04	73.85
		7/9/96	21.64	72.84	0.2	73.04
		8/8/96	22.43	72.05	0.33	72.38
		9/10/96	23.25	71.23	0.6	71.83

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-1 (cont.)	94.48	10/1/96	23.58	70.90	0.6	71.5
		11/4/96	24.29	70.19	0.78	70.97
		12/2/96	24.63	69.85	0.88	70.73
		1/3/97	24.08	70.40	0.81	71.21
		2/6/97	22.46	72.02	0.3	72.32
		3/5/97	23.00	71.48	0	--
		4/1/97	22.29	72.19	0.2	72.39
		5/8/97	22.79	71.69	0.33	72.02
		6/6/97	24.33	70.15	1.69	71.84
		7/8/97	24.00	70.48	0.96	71.44
		8/7/97	24.58	69.90	1.29	71.19
		9/10/97	24.93	69.55	1.21	70.76
		10/1/97	24.89	69.59	0.86	70.45
		11/4/97	25.06	69.42	0.77	70.19
		12/4/97	24.76	69.52	0.54	70.06
		1/8/98	23.66	70.82	0	--
		2/5/98	**22.64**	**71.84**	**0**	**--**
MW-2	94.81	3/5/91	27.86	66.95	0	--
		3/18/91	27.46	67.35	0	--
		4/12/91	26.98	67.83	0	--
		5/18/92	26.50	68.31	0	--
		6/29/92	26.80	68.01	0	--
		7/29/92	27.08	67.73	0	--
		8/28/92	27.33	67.48	0	--
		10/28/92	27.65	67.16	0	--
		11/24/92	27.91	66.90	0	--
		12/22/92	27.74	67.07	--	--
		4/5/93	25.95	68.86	0	--
		7/20/93	25.59	69.22	0	--
		11/9/93	26.72	68.09	0	--
		8/30/95	25.75	69.06	0	--

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-2	94.81	10/2/95	25.10	69.71	0	--
(cont.)		11/3/95	25.73	69.02	0	--
		11/30/95	25.34	69.41	0	--
		1/3/96	25.32	69.43	0	--
		2/2/96	25.10	69.65	0	--
		3/1/96	24.05	70.76	0	--
		4/4/96	23.41	71.49	0	--
		5/2/96	23.37	71.53	0	--
		6/5/96	23.75	71.11	0	--
		7/9/96	23.79	71.02	0	--
		8/8/96	24.27	70.54	0	--
		9/10/96	24.87	69.94	0	--
		10/1/96	25.12	69.69	0	--
		11/4/96	25.54	69.27	0	--
		12/2/96	25.74	69.07	0	--
		1/3/97	25.51	69.30	0	--
		2/6/97	24.68	70.13	0	--
		3/5/97	24.14	70.67	0	--
		4/1/97	24.18	70.63	0	--
		5/8/97	24.58	70.23	0	--
		6/6/97	25.20	69.61	0	--
		7/8/97	25.38	69.43	0	--
		8/7/97	25.52	69.29	0	--
		9/10/97	25.77	69.04	0	--
		10/1/97	26.01	68.80	0	--
		11/4/97	26.23	68.58	0	--
		12/4/97	26.31	68.50	0	--
		1/8/98	25.94	68.87	0	--
		2/5/98	**25.10**	**69.71**	**0**	**--**

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-3	90.08	3/6/91	23.17	66.91	NM	--
		3/18/91	22.76	67.32	NM	--
		4/12/91	22.51	67.57	NM	--
		5/12/92	23.17	66.91	NM	--
		6/29/92	22.90	67.18	NM	--
		7/29/92	22.17	67.91	NM	--
		8/28/92	22.28	67.80	NM	--
		10/28/92	22.67	67.41	0	--
		11/24/92	23.01	67.07	0	--
		12/22/92	22.91	67.17	--	--
		4/5/93	22.11	67.97	0	--
		7/20/93	23.93	66.15	0	--
		11/9/93	23.14	66.94	0	--
		8/29/95	20.61	69.47	0	--
		10/2/95	21.18	68.90	0	--
		11/3/95	20.74	69.60	0	--
		11/30/95	20.68	69.66	0	--
		1/3/96	20.58	69.76	0	--
		2/2/96	20.43	69.91	0	--
		3/1/96	20.24	69.84	0	--
		4/4/96	18.50	71.58	0	--
		5/2/96	18.43	71.65	0	--
		6/5/96	18.51	71.57	0	--
		7/9/96	18.97	71.11	0	--
		8/8/96	19.51	70.57	0	--
		9/10/96	19.86	70.22	0	--
		10/1/96	20.04	70.04	0	--
		11/4/96	20.25	69.83	0	--
		12/2/96	20.40	69.68	0	--
		1/3/97	20.33	69.75	0	--
		2/6/97	19.98	70.10	0	--
		3/5/97	19.80	70.28	0	--

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-3 (cont.)	90.08	4/1/97	19.76	70.32	0	--
		5/8/97	19.77	70.31	0	--
		6/6/97	20.18	69.90	0	--
		7/8/97	20.24	69.84	0	--
		8/7/97	20.38	69.70	0	--
		9/10/97	20.55	69.53	0	--
		10/1/97	20.73	69.35	0	--
		11/4/97	20.87	69.21	0	--
		12/4/97	20.89	69.19	0	--
		1/8/98	20.70	69.38	0	--
		2/5/98	**20.37**	**69.71**	**0**	**--**
MW-4	88.84	3/5/91	23.79	65.05	NM	--
		3/18/91	22.30	66.54	NM	--
		4/12/91	21.85	66.99	NM	--
		12/23/91	22.63	66.22	0.98	67.19
		12/26/91	22.52	66.32	0.96	67.28
		1/10/92	22.74	66.10	0.99	67.09
		2/28/92	22.00	66.84	0.67	67.51
		3/11/92	21.71	67.13	0.55	67.68
		3/13/92	21.56	67.28	0.49	67.77
		3/17/92	25.46	63.38	0.44	63.82
		3/18/92	21.38	67.47	0.44	67.9
		3/19/92	21.33	67.51	0.48	67.99
		3/23/92	21.29	67.55	0.42	67.97
		3/24/92	21.31	67.53	0.38	67.9
		3/25/92	21.17	67.67	0.36	68.04
		3/26/92	21.08	67.76	0.35	68.11
		3/27/92	20.92	67.92	0.26	68.18
		3/31/92	21.15	67.69	0.44	68.13
		4/1/92	20.90	67.94	0.24	68.18
		4/2/92	20.90	67.94	0.17	68.11

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-4	88.84	4/10/92	20.91	67.93	0.33	68.26
(cont.)		4/13/92	21.04	67.80	0.42	68.22
		4/20/92	20.74	68.10	0.19	68.29
		5/4/92	20.83	68.01	0.33	68.34
		5/18/92	21.33	67.51	0.23	67.74
		5/26/92	20.83	68.01	0.17	68.18
		6/1/92	20.85	67.99	0.19	68.17
		6/29/92	21.38	67.46	0.53	67.99
		7/29/92	21.69	67.15	0.56	67.71
		8/28/92	21.35	67.49	0.63	68.12
		10/28/92	22.48	66.36	0.84	67.2
		11/24/92	22.60	66.24	NM	--
		12/22/92	22.47	66.37	NM	--
		4/3/93	20.11	68.73	0.51	69.24
		7/20/93	20.48	68.36	0.52	68.88
		11/9/93	21.71	67.13	0.63	67.76
		8/30/95	19.90	68.94	2.2	71.14
		9/15/95	18.76	70.08	0.57	70.65
		10/2/95	19.17	69.67	0.65	70.32
		11/3/95	19.45	69.39	0.44	69.83
		11/30/95	19.50	69.44	0.32	69.76
		1/3/96	19.31	69.53	0.2	69.73
		2/2/96	18.91	69.93	0.2	70.13
		3/1/96	18.25	70.59	0.19	70.78
		4/4/96	17.53	71.31	0.18	71.47
		5/2/96	17.50	71.34	0.25	71.59
		6/5/96	17.67	71.17	0.39	71.56
		7/9/96	18.29	70.55	0.5	71.05
		8/8/96	18.84	70.00	0	--
		9/10/96	19.31	69.53	0.34	69.87
		10/1/96	19.51	69.33	0.29	69.62
		11/4/96	20.13	68.71	0.35	69.06

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-4	88.84	12/2/96	20.23	68.61	0.33	68.94
(cont.)		1/3/97	19.33	69.51	0.1	69.61
		2/6/97	18.13	70.72	0.01	70.73
		3/5/97	18.17	70.67	0.06	70.73
		4/1/97	18.38	70.46	0.05	70.51
		5/8/97	18.63	70.21	0.03	70.24
		6/6/97	18.78	70.06	0.19	70.25
		7/8/97	19.21	69.63	0.02	69.65
		8/7/97	19.50	69.34	0.07	69.41
		9/10/97	19.86	68.98	0.04	69.02
		10/1/97	20.09	68.75	0.37	69.12
		11/4/97	20.19	68.65	0.19	68.84
		12/4/97	20.05	68.79	0	--
		1/8/98	19.53	69.31	0	--
		2/5/98	**18.28**	**70.56**	**0**	**--**
MW-5	84.84	3/18/91	26.31	58.53	NM	--
		3/12/91	26.41	58.43	NM	--
		5/18/92	26.75	58.09	NM	--
		6/29/92	26.73	58.11	NM	--
		7/29/92	26.66	58.18	NM	--
		8/28/92	26.90	57.94	NM	--
		10/28/92	26.39	58.45	0	--
		11/24/92	26.83	58.01	0	--
		12/22/92	27.33	57.51	--	--
		4/3/93	26.62	58.22	0	--
		7/20/93	26.60	58.24	0	--
		11/9/93	27.24	57.60	0	--
		8/30/95	27.46	57.38	0	--
		10/2/95	26.85	57.99	0	--
		11/3/95	26.67	58.87	0	--
		11/30/95	27.05	58.49	0	--

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-5	84.84	1/3/96	26.60	59.04	0	--
(cont.)		2/2/96	26.70	59.14	0	--
		3/1/96	26.00	58.84	0	--
		4/4/96	26.20	58.64	0	--
		5/2/96	26.02	58.82	0	--
		6/5/96	25.91	58.93	0	--
		7/9/96	26.20	58.64	0	--
		8/8/96	26.38	58.46	0	--
		9/10/96	26.42	58.42	0	--
		10/1/96	26.52	58.32	0	--
		11/4/96	26.69	58.15	0	--
		12/2/96	26.70	58.14	0	--
		1/3/97	25.84	59.00	0	--
		2/6/97	26.26	58.58	0	--
		3/5/97	26.20	58.64	0	--
		4/1/97	26.98	57.86	0	--
		5/8/97	26.76	58.08	0	--
		6/6/97	26.33	58.51	0	--
		7/8/97	26.84	58.00	0	--
		8/7/97	26.89	57.95	0	--
		9/10/97	26.76	58.08	0	--
		10/1/97	26.97	57.87	0	--
		11/4/97	27.04	57.80	0	--
		12/4/97	26.34	58.50	0	--
		1/8/98	26.05	58.79	0	--
		2/5/98	**25.31**	**59.53**	**0**	**--**
MW-6	85.62	3/18/91	25.82	59.80	NM	--
		4/12/91	27.23	58.39	NM	--
		12/23/91	28.40	57.22	3.21	60.44
		12/26/91	27.25	58.37	1.67	60.04
		1/10/92	27.23	58.39	0.9	59.29

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-6	85.62	2/4/92	27.71	57.91	2.04	59.95
(cont.)		2/28/92	27.92	57.70	3	60.7
		3/10/92	27.16	58.46	2.06	60.53
		3/12/92	25.96	59.66	0.52	60.18
		3/13/92	25.70	59.92	0.21	60.13
		3/23/92	26.34	59.28	1.09	60.37
		3/30/92	25.73	59.89	0.35	60.25
		4/10/92	25.29	60.33	0.05	60.38
		4/13/92	25.52	60.10	0.21	60.31
		4/20/92	25.38	60.25	0.1	60.35
		5/4/92	25.40	60.22	NM	--
		5/18/92	25.50	60.12	0.17	60.29
		5/26/92	25.46	60.16	0.13	60.29
		6/1/92	25.46	60.16	0.09	60.26
		6/29/92	25.59	60.03	0.14	60.17
		7/29/92	26.90	58.72	1.71	60.43
		8/28/92	25.09	60.53	2.62	63.15
		10/28/92	25.02	60.60	3.94	64.54
		11/24/92	28.87	56.75	NM	--
		4/3/93	26.96	58.66	2.86	61.52
		7/20/93	26.17	59.45	2.6	62.05
		11/9/93	27.51	58.11	3.06	61.17
		8/30/95	28.00	57.62	7.96	65.58
		9/15/95	28.24	57.38	6.14	63.52
		10/2/95	28.39	57.23	6.13	63.36
		11/3/95	26.91	58.71	3.44	62.15
		11/30/95	27.58	58.04	4.41	62.45
		1/3/96	27.58	58.04	4.37	62.41
		2/2/96	27.96	57.68	5.15	62.83
		3/1/96	27.96	57.68	5.41	63.09
		4/4/96	27.69	57.93	5.69	63.62
		5/2/96	26.83	58.79	4.66	63.45

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-6	85.62	6/5/96	27.15	58.47	5.17	63.64
(cont.)		7/9/96	27.08	58.54	4.86	63.4
		8/8/96	26.71	58.91	4.05	62.96
		9/10/96	26.83	58.79	3.82	62.61
		10/1/96	26.96	58.66	3.77	62.43
MW-6*	86.94	11/4/96	NM	NM	NM	NM
		12/2/96	NM	NM	NM	NM
		1/3/97	NM	NM	NM	NM
		2/6/97	25.08	61.86	0.2	62.06
		3/5/97	24.20	62.74	0	--
		4/1/97	24.04	62.90	0	--
		5/8/97	26.54	60.40	1.88	62.28
		6/6/97	25.33	61.61	0.21	61.82
		7/8/97	25.30	61.64	0.07	61.71
		8/7/97	25.52	61.42	0	--
		9/10/97	25.76	61.18	0	--
		10/1/97	25.12	61.82	0	--
		11/4/97	26.16	60.78	0.18	60.96
		12/4/97	26.08	60.86	0.16	61.02
		1/8/98	25.79	61.15	0.1	61.25
		2/5/98	**25.31**	**61.63**	**0.89**	**62.52**
MW-7	85.41	3/18/91	21.63	63.78	NM	--
		4/12/91	22.13	63.28	NM	--
		5/18/92	21.67	63.74	NM	--
		6/29/92	20.75	64.66	NM	--
		7/29/92	21.07	64.34	NM	--
		8/28/92	21.35	64.06	NM	--
		10/28/92	21.81	63.60	0	--
		11/24/92	21.52	63.89	0	--
		12/22/92	obstructed	--	0	--
		4/3/93	20.08	65.33	0	--

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-7	85.41	7/20/93	19.59	65.82	0	--
(cont.)		11/9/93	20.65	64.76	0	--
		8/30/95	18.78	66.63	0	--
		10/2/95	18.73	66.68	0	--
		11/3/95	19.23	66.18	0	--
		11/30/95	19.47	65.94	0	--
		1/3/96	18.52	66.89	0	--
		2/2/96	17.83	67.58	0	--
		3/1/96	17.61	67.80	0	--
		4/4/96	17.28	68.13	0	--
		5/2/96	17.15	68.26	0	--
		6/5/96	17.47	67.94	0	--
		7/9/96	18.06	67.35	0	--
		8/8/96	18.48	66.93	0	--
		9/10/96	18.79	66.62	0	--
		10/1/96	18.90	66.51	0	--
		11/4/96	18.69	66.72	0	--
		12/2/96	18.47	66.94	0	--
		1/3/97	17.98	67.43	0	--
		2/6/97	17.44	67.97	0	--
		3/5/97	16.73	68.68	0	--
		4/1/97	17.32	68.09	0	--
		5/8/97	17.72	67.69	0	--
		6/6/97	17.75	67.66	0	--
		7/8/97	17.94	67.47	0	--
		8/7/97	18.49	66.92	0	--
		9/10/97	18.48	66.93	0	--
		10/1/97	18.42	66.99	0	--
		11/4/97	18.86	66.55	0	--
		12/4/97	18.16	67.25	0	--
		1/8/98	17.87	67.54	0	--
		2/5/98	**17.56**	**67.85**	**0**	**--**

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-8	85.50	10/28/92	27.70	57.80	0	--
		11/24/92	27.62	57.88	0	--
		12/22/92	27.40	58.10	--	--
		4/3/93	26.64	58.86	0	--
		7/20/93	26.60	58.90	0	--
		11/9/93	27.18	58.32	0	--
		8/30/95	26.35	59.15	0	--
		10/2/95	26.60	58.90	0	--
		11/3/95	26.62	58.88	0	--
		11/30/95	26.72	58.78	0	--
		1/3/96	26.64	58.86	0	--
		2/2/96	26.28	59.22	0	--
		3/1/96	25.81	59.69	0	--
		4/4/96	25.81	59.69	0	--
		5/2/96	26.15	60.03	0	--
		6/5/96	26.17	60.01	0	--
		7/9/96	26.32	59.18	0	--
		8/8/96	26.41	59.09	0	--
		9/10/96	26.66	58.84	0	--
		10/1/96	26.65	58.85	0	--
		11/4/96	26.77	58.73	0	--
		12/2/96	26.59	58.91	0	--
		1/3/97	25.98	59.52	0	--
		2/6/97	25.84	59.66	0	--
		3/5/97	25.94	59.56	0	--
		4/1/97	26.34	59.16	0	--
		5/8/97	26.39	59.11	0	--
		6/6/97	26.45	59.05	0	--
		7/8/97	26.65	58.85	0	--
		8/7/97	26.72	58.78	0	--
		9/10/97	26.89	58.61	0	--

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-8	85.50	10/1/97	26.91	58.59	0	--
(cont.)		11/4/97	26.82	58.68	0	--
		12/4/97	26.69	58.81	0	--
		1/8/98	26.39	59.11	0	--
		2/5/98	**25.57**	**59.93**	**0**	**--**
MW-9	90.37	10/28/92	23.37	67.00	0	--
		11/24/92	23.51	66.86	0	--
		12/22/92	23.31	67.06	--	--
		4/3/93	21.14	69.23	0	--
		7/20/93	21.54	68.83	0	--
		11/9/93	27.53	62.84	0	--
		8/30/95	19.59	70.78	0	--
		10/2/95	20.05	70.32	0	--
		11/3/95	20.40	69.97	0	--
		11/30/95	20.65	69.72	0	--
		1/3/96	20.73	69.64	0	--
		2/2/96	20.19	70.18	0	--
		3/1/96	19.53	70.84	0	--
		4/4/96	18.74	71.63	0	--
		5/2/96	18.63	71.74	0	--
		7/9/96	19.15	71.22	0	--
		8/8/96	19.89	70.48	0.35	70.83
		9/10/96	20.11	70.26	0	--
		10/1/96	20.37	70.00	0	--
		11/4/96	20.69	69.68	0	--
		12/2/96	21.43	68.94	0	--
		1/3/97	20.72	69.65	0	--
		2/6/97	19.72	70.65	0	--
		3/5/97	19.59	70.78	0	--
		4/1/97	19.73	70.64	0	--
		5/8/97	19.96	70.41	0	--

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-9	90.37	6/6/97	20.13	70.24	0	--
(cont.)		7/8/97	20.53	69.84	0	--
		8/7/97	20.84	69.53	0	--
		9/10/97	21.15	69.22	0	--
		10/1/97	21.42	68.95	0	--
		11/4/97	21.55	68.82	0	--
		12/4/97	21.62	68.75	0	--
		1/8/98	21.31	69.06	0	--
		2/5/98	**20.21**	**70.16**	**0**	**--**
MW-10	88.60	10/28/92	21.55	67.05	0	--
		11/24/92	21.86	66.74	0	--
		12/22/92	21.68	66.92	--	--
		4/3/93	19.14	69.46	0	--
		7/20/93	19.79	68.81	0	--
		11/9/93	20.83	67.77	0	--
		8/30/95	17.99	70.61	0	--
		10/2/95	18.42	70.18	0	--
		11/3/95	18.82	69.78	0	--
		11/30/95	19.03	69.57	0	--
		1/3/96	18.96	69.64	0	--
		2/2/96	18.55	70.05	0	--
		3/1/96	17.81	70.79	0	--
		4/4/96	17.11	71.49	0	--
		5/2/96	17.04	71.56	0	--
		6/5/96	17.11	71.49	0	--
		7/9/96	17.64	70.96	0	--
		8/8/96	18.24	70.36	0	--
		9/10/96	18.82	69.78	0	--
		10/1/96	19.02	69.58	0	--
		11/4/96	19.59	69.01	0	--
		12/2/96	19.72	68.88	0	--

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-10	88.60	1/3/97	18.86	69.74	0	--
(cont.)		2/6/97	17.76	70.84	0	--
		3/5/97	17.84	70.76	0	--
		4/1/97	18.00	70.60	0	--
		5/8/97	18.36	70.24	0	--
		6/6/97	18.50	70.10	0	--
		7/8/97	18.98	69.62	0	--
		8/7/97	19.18	69.42	0	--
		9/10/97	19.58	69.02	0	--
		10/1/97	19.81	68.79	0	--
		11/4/97	19.95	68.65	0	--
		12/4/97	19.78	68.82	0	--
		1/8/98	19.26	69.34	0	--
		2/5/98	**17.91**	**70.69**	**0**	**--**
MW-11	102.06	11/24/92	33.65	68.41	0	--
		12/22/92	33.37	68.69	--	--
		4/5/93	31.03	71.03	0	--
		7/20/93	31.90	70.16	0	--
		11/9/93	32.60	69.46	0	--
		8/29/95	28.92	73.14		
		10/2/95	29.48	72.58	0	--
		11/3/95	29.73	72.33	0	--
		11/30/95	30.26	71.80	0	--
		1/3/96	30.06	72.00	0	--
		2/2/96	29.67	72.39	0	--
		3/1/96	28.74	73.32	0	--
		4/4/96	28.13	73.93	0	--
		5/2/96	28.26	74.06	0	--
		6/5/96	28.30	74.02	0	--
		7/9/96	28.92	73.14	0	--
		8/8/96	29.64	72.42	0	--

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-11	102.06	9/10/96	30.66	71.40	0	--
(cont.)		10/1/96	30.58	71.48	0	--
		11/4/96	31.14	70.92	0	--
		12/2/96	31.36	70.70	0	--
		1/3/97	30.73	71.33	0	--
		2/6/97	29.38	72.68	0	--
		3/5/97	29.22	72.84	0	--
		4/1/97	29.46	72.60	0	--
		5/8/97	29.93	72.13	0	--
		6/6/97	30.17	71.89	0	--
		7/8/97	30.62	71.44	0	--
		8/7/97	30.95	71.11	0	--
		9/10/97	31.38	70.68	0	--
		10/1/97	31.61	70.45	0	--
		11/4/97	31.88	70.18	0	--
		12/4/97	31.68	70.38	0	--
		1/8/98	31.05	71.01	0	--
		2/5/98	**29.78**	**72.28**	**0**	**--**
MW-13	84.06	11/24/92	26.05	58.01	0	--
		12/22/92	25.08	58.98	--	--
		4/5/93	24.64	59.42	0	--
		7/20/93	24.29	59.77	0	--
		11/9/93	24.23	59.83	0	--
		8/29/95	23.30	60.76	NM	--
		10/2/95	23.78	60.28	0	--
		11/3/95	23.73	60.33	0	--
		11/30/95	23.80	60.26	0	--
		1/3/96	23.95	60.11	0	--
		2/2/96	23.70	60.36	0	--
		3/1/96	23.36	60.70	0	--
		4/4/96	23.27	60.79	0	--

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-13 (cont.)	84.06	5/2/96	23.35	60.87	0	--
		6/5/96	23.07	60.99	0	--
		7/9/96	23.31	60.75	0	--
		8/8/96	23.44	60.62	0	--
		9/10/96	23.66	60.40	0	--
		10/1/96	23.80	60.26	0	--
		11/4/96	24.04	60.02	0	--
		12/2/96	24.00	60.06	0	--
		1/3/97	23.30	60.76	0	--
		2/6/97	23.24	60.82	0	--
		3/5/97	23.24	60.82	0	--
		4/1/97	23.37	60.69	0	--
		5/8/97	23.46	60.60	0	--
		6/6/97	23.57	60.49	0	--
		7/8/97	23.80	60.26	0	--
		8/7/97	23.92	60.14	0	--
		9/10/97	24.07	59.99	0	--
		10/1/97	24.18	59.88	0	--
		11/4/97	24.27	59.79	0	--
		12/4/97	24.05	60.01	0	--
		1/8/98	23.83	60.23	0	--
		2/5/98	**22.89**	**61.17**	**0**	**--**

Reference datum: arbitrary benchmark established by Levine Fricke.
TOC = Top of casing
Groundwater depths are measured below TOC.
NM = Not measured
* New TOC from connection to remediation system.

TABLE 2
SUMMARY OF CONTAMINANT CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	TVH µg/l	TEH µg/l	B µg/l	T µg/l	E µg/l	X µg/l	1,2-DCA µg/l	Other Purgeable Halocarbons+ µg/l	Oil & Grease mg/l	Semi-volatile Compounds µg/l	MTBE µg/l
MW-1	10/1/90	620,000	<500	33,000	50,000	7,900	41,000	2,900	ND	--	--	--
	10/1/92	490,000	--	51,000	59,000	5,000	27,000	1,300	--	--	--	--
	11/1/92	320,000	4,600	35,000	43,000	4,200	22,000	1,600	ND	--	--	--
	4/1/93	270,000	25,000	50,000	58,000	4,600	25,000	1,800	ND	--	--	--
	7/1/93	FP	--	--	--	--	--	--	--	--	--	--
	11/1/93	FP	--	--	--	--	--	--	--	--	--	--
	8/1/95	FP	--	--	--	--	--	--	--	10	--	--
	12/1/95	FP	--	--	--	--	--	--	--	--	**	--
	5/1/96	340,000	32,000	57,000	73,000	7,200	38,000	1,200	--	<5	**	--
	11/5/96	270,000	--	43,000	56,000	4,500	34,000	--	--	9.8	--	--
	5/9/97	240,000	28,000 [1,2]	36,000	45,000	3,300	17,900	930	--	20	***	--
	11/5/97	240,000	28,000 [1,2]	42,000	48,000	3,600	18,800	1,200	--	ND	****	<1,000
	2/9/98	220,000	27,000 [1,2]	47,000	60,000	5,200	29,800	1,500	ND	<5	(&)	2,300
MW-2	3/1/91	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	11/1/92	<50	<50	<0.5	1.1	<0.5	1.5	<1	ND	--	--	--
	4/1/93	<50	870	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	7/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	11/1/93	<50	240	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	8/1/95	<50	150*	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	--
	5/1/96	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	5/8/97	<50	<50	<0.5	0.7	<0.5	<0.5	<1	--	--	--	--
MW-3	3/1/91	<50	<50	<50	0.6	<0.5	<0.5	<1	ND	--	--	--
	11/1/92	50	160	<0.5	0.9	<0.5	2	<1	ND	--	--	--
	4/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	7/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--

TABLE 2
SUMMARY OF CONTAMINANT CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	TVH µg/l	TEH µg/l	B µg/l	T µg/l	E µg/l	X µg/l	1,2-DCA µg/l	Other Purgeable Halocarbons+ µg/l	Oil & Grease mg/l	Semi-volatile Compounds µg/l	MTBE µg/l
MW-3	11/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
(cont.)	8/1/95	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	--
	5/1/96	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	5/8/97	<50	<50	<0.5	0.7	<0.5	<0.5	<1	--	--	--	--
MW-4	3/1/91	150,000	<500	20,000	38,000	2,800	14,000	610	ND	--	--	--
	10/1/92	230,000	--	15,000	32,000	2,500	14,000	430	--	--	--	--
	11/1/92	210,000	1,600	14,000	31,000	2,500	14,000	500	ND	--	--	--
	4/1/93	FP	--	--	--	--	--	--	--	--	--	--
	7/1/93	FP	--	--	--	--	--	--	--	--	--	--
	11/1/93	FP	--	--	--	--	--	--	--	--	--	--
	8/1/95	FP	--	--	--	--	--	--	--	--	--	--
	12/1/95	FP	--	--	--	--	--	--	--	--	--	--
	5/1/96	140,000	9,200	24,000	50,000	3,000	15,100	420	ND	--	--	--
	11/4/96	160,000	4,700 [1,2]	16,000	38,000	2,700	14,000	380	ND	--	--	--
	5/8/97	170,000	5,100 [1,2]	16,000	37,000	2,400	15,900	290	--	--	--	--
	11/5/97	190,000	3,700 [1,2]	15,000	31,000	2,200	14,600	290	--	--	--	<400
	2/9/98	110,000	4,800 [1,2]	19,000	42,000	2,500	18,300	300	--	--	--	1300 [3]
MW-5	3/1/91	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	11/1/92	<50	50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	4/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	7/1/93	<50	190	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	11/1/93	<50	170	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	8/1/95	<50	180*	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	--
	5/1/96	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	5/8/97	<50	<50	<0.5	0.5	<0.5	<0.5	<1	--	--	--	--

TABLE 2
SUMMARY OF CONTAMINANT CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	TVH µg/l	TEH µg/l	B µg/l	T µg/l	E µg/l	X µg/l	1,2-DCA µg/l	Other Purgeable Halocarbons+ µg/l	Oil & Grease mg/l	Semi-volatile Compounds µg/l	MTBE µg/l
MW-6	3/1/91	80,000	<50	12,000	13,000	1,100	5,400	1,400	1,2-DCA (1,400) Dibromochloromethane (160)	--	--	--
	10/1/92	19,000	--	3,200	1,400	200	560	840	--	--	--	--
	12/1/92	FP	--	--	--	--	--	--	--	--	--	--
	4/1/93	FP	--	--	--	--	--	--	--	--	--	--
	7/1/93	FP	--	--	--	--	--	--	--	--	--	--
	11/1/93	FP	--	--	--	--	--	--	--	--	--	--
	8/1/95	FP	--	--	--	--	--	--	--	--	--	--
	5/1/96	130,000	9,000	37,000	50,000	3,200	14,200	2,400	ND	--	--	--
	5/9/97	1,700,000	53,000[1,2]	14,000	27,000	4,000	28,200	1,200	--	--	--	--
	11/5/97	160,000	65,000 [1,2]	13,000	19,000	1,900	14,300	790	--	--	--	<200
MW-7	3/1/91	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	11/1/92	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	4/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	7/1/93	<50	150	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	11/1/93	<50	200	<0.5	1	<0.5	1.7	<1	ND	--	--	--
	8/1/95	<50	170*	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	--
	12/1/95	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	5/1/96	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	8/1/96	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	<2.0
	11/4/96	<50	<50	<1	<1	<1	<1	<1	ND	--	--	--
	2/6/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	<2.0
	5/8/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	--
	8/7/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	<2.0

TABLE 2
SUMMARY OF CONTAMINANT CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	TVH µg/l	TEH µg/l	B µg/l	T µg/l	E µg/l	X µg/l	1,2-DCA µg/l	Other Purgeable Halocarbons+ µg/l	Oil & Grease mg/l	Semi-volatile Compounds µg/l	MTBE µg/l
MW-7	11/5/97	<50	<50	<0.5	<0.5	<0.5	<0.5	1	--	--	--	<2.0
(cont.)	2/9/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	<2.0
MW-8	10/1/92	70	--	20	1	1	3	210	--	--	--	--
	11/1/92	<50	170	<0.5	<0.5	<0.5	<0.5	200	ND	--	--	--
	4/1/93	490	100	15	45	5.1	73	210	ND	--	--	--
	7/1/93	180	90	2.5	3	<0.5	1.9	350	ND	--	--	--
	11/1/93	310	170	23	<0.5	<0.5	<0.5	240	ND	--	--	--
	8/1/95	660	240*	360	6.8	13	2.8	130	--	--	--	--
	12/1/95	250	<50	46	0.9	4.9	<0.5	94	ND	--	--	--
	5/1/96	69	94	110	<0.5	<0.5	1.5	100	ND	--	--	--
	8/1/96	120	250 [1,2]	11	<0.5	<0.5	<0.5	93	ND	--	--	<2.0
	11/5/96	110	<50	20	<1	1	<1	98	ND	--	--	--
	2/6/97	67 [1,2]	130	51	<0.5	0.56	<0.5	81	ND	--	--	<2.0
	5/9/97	110 [1,2]	120 [1,2]	59	<0.5	<0.5	<0.5	76	--	--	--	--
	8/7/97	<50	150 [2]	12 [3]	<0.5	<0.5	<0.5	79	ND	--	--	<2.0
	11/5/97	<50	110 [1,2]	9.4	<0.5	<0.5	<0.5	84	--	--	--	<2.0
	2/9/98	<50	75 [1,2]	6	<0.5	<0.5	<0.5	85	--	--	--	7.3
MW-9	11/1/92	19,000	320	180	590	23	2000	340	Chloroform (15)	--	--	--
	4/1/93	2,300	920	48	4	0.6	13	600	Chloroform (2)	--	--	--
	7/1/93	2,300	450	170	8.1	15	<0.5	1100	ND	--	--	--
	11/1/93	4,400	450	69	7.3	21	9.7	900	ND	--	--	--
	8/1/95	3,200	680	3,900	49	80	22.8	960	--	--	--	--
	5/1/96	<1300	710	2,600	<13	200	<13	550	ND	--	--	--
	11/5/96	1,800	420	280	<5	65	<5	770	ND	--	--	--

TABLE 2
SUMMARY OF CONTAMINANT CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	TVH µg/l	TEH µg/l	B µg/l	T µg/l	E µg/l	X µg/l	1,2-DCA µg/l	Other Purgeable Halocarbons+ µg/l	Oil & Grease mg/l	Semi-volatile Compounds µg/l	MTBE µg/l
MW-9	5/9/97	1,100	490 [1,2]	160	<0.5	42	<0.5	690	--	--	--	--
(cont.)	8/8/97	570 [1,2]	480 [2]	<0.5	<0.5	<0.5	0.78 [3]	680	ND	--	--	<2.0
	11/5/97	490 [1]	370 [1,2]	<0.5	<0.5	6	<0.5	500	--	--	--	<2.0
	2/9/98	270 [1]	410 [1,2]	48	17	5.8	<0.5	520	--	--	--	35
MW-10	10/1/92	28,000	--	2,700	3,800	210	1,300	150	--	--	--	--
	11/1/92	130,000	1,300	9,700	19,000	1,400	8,400	370	ND	--	--	--
	4/1/93	63,000	5,000	6,300	14,000	1,100	7,500	70	ND	--	--	--
	7/1/93	140,000	20,000	16,000	31,000	2,200	13,000	700	ND	--	--	--
	8/1/95	92,000	5,900	13,000	24,000	1,800	9,100	300	--	--	--	--
	5/1/96	81,000	5,600	17,000	29,000	2,100	8,500	320	ND	--	--	--
	5/9/97	63,000	2,500 [1,2]	7,400	13,000	940	4,100	150	--	--	--	--
MW-11	11/1/92	<50	220	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	12/1/92	<50	140	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--
	12/1/92	<50	120	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	4/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	7/1/93	160	150	<0.5	1.8	<0.5	<0.5	<1	ND	--	--	--
	11/1/93	80	60	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	8/1/95	<50	240*	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	--
	5/1/96	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	5/8/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	--	--	--	--
MW-13	11/1/92	<50	3,600	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	12/1/92	<50	210	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--
	12/1/92	<50	100	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	4/1/93	<50	<50	<0.5	0.9	<0.5	<0.5	<1	ND	--	--	--

TABLE 2
SUMMARY OF CONTAMINANT CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	TVH µg/l	TEH µg/l	B µg/l	T µg/l	E µg/l	X µg/l	1,2-DCA µg/l	Other Purgeable Halocarbons+ µg/l	Oil & Grease mg/l	Semi-volatile Compounds µg/l	MTBE µg/l
MW-13	7/1/93	<50	<50	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
(cont.)	11/1/93	<50	160	<0.5	<0.5	<0.5	<0.5	<1	ND	--	--	--
	8/1/95	<50	<50	49	<0.5	<0.5	<0.5	3.6	--	--	--	--
	12/1/95	<50	<50	<0.5	<0.5	<0.5	<0.5	4.1	ND	--	--	--
	5/1/96	<50	<50	<0.5	<0.5	<0.5	<0.5	4	ND	--	--	--
	8/1/96	<50	<50	32	<0.5	<0.5	<0.5	6.4	ND	--	--	<2.0
	11/5/96	<50	<50	<1	<1	<1	<1	5.7	ND	--	--	--
	2/6/97	<50	<50	<0.5	<0.5	<0.5	<0.5	3.5	ND	--	--	<2.0
	5/8/97	<50	<50	81	<0.5	<0.5	<0.5	5.5	--	--	--	--
	8/8/97	<50	<50	<0.5	<0.5	<0.5	<0.5	6.8	ND	--	--	<2.0
	11/5/97	<50	<50	<0.5	<0.5	<0.5	<0.5	5.5	--	--	--	<2.0
	2/9/98	<50	<50	<0.5	<0.5	<0.5	<0.5	2.9	--	--	--	<2.0

NOTES:

µg/l = micrograms per liter = parts per billion = ppb
TVH = Total Volatile Hydrocarbons
TEH = Total Extractable Hydrocarbons
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
1,2-DCA = 1,2-Dichloroethane
MTBE = Methyl tertiary butyl ether
* = Suspect laboratory contamination contributing to test result.
<0.5 = Chemical not present at a concentration in excess of detection limit shown
ND = None detected, chemicals not present at concentrations above detection limits reported on laboratory test reports
MW-1 was initially referred to as Sample 5
-- = Test not requested
FP = Free product encountered in well
+ = Includes 1,1-dichloroethane
** = 2,4-dichlorophenol (1,700 µg/l), naphthalene (1,200 µg/l), 2-methylnapthalene (630 µg/l), bis (2-ethylhexyl) phthalate (240 µg/l) detected during August 1995 event, naphthalene (640 µg/l), 2-methylnapthalene (250 µg/l) during the May 1996 event
*** = Phenol (93 µg/l), Benzoic acid (570 µg/l), Naphthalene (650 µg/l), 2-Methylnaphthalene (280 µg/l) during May 1997 event.
**** = Naphthalene (1500 µg/l), 2-Methylnaphthalene (720 µg/l) during the November 1997 event.
(&) = Phenol (92 µg/l), 3,4 Methylphenol (52 µg/l), Benzoic acid (700 µg/l), Naphthalene (570 µg/l), 2-Methylnaphthalene (160 µg/l) during February 1998 event.
1 = Sample exhibits fuel pattern which does not resemble standard
2 = Lighter hydrocarbons than indicated standard
3 = Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two

TABLE 3
FREE PRODUCT RECOVERY BY HAND BAILING
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Removal Date	Product Removed by Hand Bailing (gallons)	Cumulative Product Removed by Hand Bailing (gallons)
MW-1	12/23/91	2.00	2.00
	12/26/91	0.50	2.50
	1/13/92	1.00	3.50
	2/28/92	2.00	5.50
	11/9/93	0.50	6.00
	11/3/95	0.25	6.75
	11/30/95	0.25	7.00
	1/3/96	0.53	7.53
	2/2/96	0.75	8.28
	3/1/96	0.10	8.38
	4/4/96	0.00	8.38
	5/2/96	0.00	8.38
	6/5/96	0.10	8.48
	7/9/96	0.10	8.58
	8/8/96	0.05	8.63
	9/10/96	0.10	8.73
	10/1/96	0.25	8.98
	11/4/96	0.13	9.11
	12/2/96	0.26	9.37
	1/3/97	0.39	9.76
	2/6/97	0.01	9.77
	3/5/97	0.00	9.77
	4/1/97	0.01	9.78
	5/8/97	0.02	9.80
	6/6/97	0.26	10.06
	7/8/97	0.20	10.26
	8/7/97	1.00	11.26
	9/10/97	1.50	12.76
	10/1/97	0.26	13.02
	11/4/97	0.26	13.28
	12/4/97	0.19	13.47
	1/8/98	0.00	13.47
	2/5/98	**0.00**	**13.47**
MW-4	12/23/91	2.50	2.50
	12/26/91	6.00	8.50
	1/10/92	5.00	13.50

TABLE 3
FREE PRODUCT RECOVERY BY HAND BAILING
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Removal Date	Product Removed by Hand Bailing (gallons)	Cumulative Product Removed by Hand Bailing (gallons)
MW-4 (cont.)	2/28/92	4.00	17.50
	3/11/92	3.50	21.00
	3/13/92	3.50	24.50
	3/17/92	2.25	26.75
	3/18/92	2.50	29.25
	3/19/92	1.50	30.75
	3/23/92	4.00	34.75
	3/24/92	1.50	36.25
	3/25/92	1.00	37.25
	3/26/92	1.00	38.25
	3/27/92	0.50	38.75
	3/31/92	0.50	39.25
	4/1/92	0.25	39.50
	4/2/92	0.13	39.63
	4/6/92	0.13	39.76
	4/10/92	0.25	40.01
	4/13/92	0.25	40.26
	4/20/92	0.13	40.39
	5/4/92	0.13	40.52
	5/18/92	0.13	40.65
	5/26/92	0.13	40.78
	6/1/92	0.06	40.84
	6/29/92	0.25	41.09
	7/29/92	1.11	42.20
	8/28/92	1.68	43.88
	4/3/93	0.13	44.01
	11/9/93	0.03	44.04
	8/30/95	1.75	45.79
	10/2/95	0.50	46.29
	11/3/95	0.25	46.54
	11/30/95	0.25	46.79
	1/3/96	0.05	46.84
	2/2/96	0.10	46.94
	3/1/96	0.20	47.14
	4/4/96	0.20	47.34
	5/2/96	0.20	47.54
	6/5/96	0.15	47.59

TABLE 3
FREE PRODUCT RECOVERY BY HAND BAILING
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Removal Date	Product Removed by Hand Bailing (gallons)	Cumulative Product Removed by Hand Bailing (gallons)
MW-4	7/9/96	0.16	47.75
(cont.)	8/8/96	0.00	47.75
	9/10/96	0.05	47.80
	10/1/96	0.05	47.85
	11/4/96	0.02	47.87
	12/2/96	0.02	47.89
	1/3/97	0.02	47.91
	2/6/97	0.01	47.92
	3/5/97	0.00	47.92
	4/1/97	0.00	47.92
	5/8/97	0.00	47.92
	6/6/97	0.00	47.92
	7/8/97	0.00	47.92
	8/7/97	0.00	47.92
	9/10/97	0.00	47.92
	10/1/97	0.00	47.92
	11/4/97	0.00	47.92
	12/4/97	0.00	47.92
	1/8/98	0.00	47.92
	2/5/98	**0.00**	**47.92**
MW-6	12/23/91	7.50	7.50
	12/26/91	2.00	9.50
	1/10/92	1.00	10.50
	2/4/92	2.00	12.50
	2/28/92	3.00	15.50
	3/10/92	2.75	18.25
	3/12/92	2.00	20.25
	3/23/92	1.00	21.25
	3/30/92	0.50	21.75
	4/10/92	0.25	22.00
	4/13/92	0.13	22.13
	4/20/92	0.13	22.26
	5/4/92	0.13	22.39
	5/8/92	0.06	22.45
	5/26/92	0.13	22.58
	6/1/92	0.06	22.64

TABLE 3
FREE PRODUCT RECOVERY BY HAND BAILING
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Removal Date	Product Removed by Hand Bailing (gallons)	Cumulative Product Removed by Hand Bailing (gallons)
MW-6	6/29/92	0.19	22.83
(cont.)	7/29/92	0.60	23.43
	8/28/92	2.40	25.83
	12/2/92	(obstruction in well)	--
	4/3/93	1.75	27.58
	11/9/93	0.83	28.41
	8/30/95	4.50	32.91
	10/2/95	4.00	36.91
	11/3/95	3.00	39.91
	11/30/95	2.50	42.41
	1/3/96	2.50	44.91
	2/2/95	5.00	49.90
	3/1/96	4.00	53.90
	4/4/96	5.00	58.90
	5/2/96	4.50	63.40
	6/5/96	4.00	67.40
	7/9/96	4.50	71.90
	8/8/96	4.00	75.90
	9/10/96	3.50	79.40
	10/1/96	4.00	83.40
	11/4/96	NM*	83.40
	12/2/96	NM*	83.40
	1/3/97	NM*	83.40
	2/6/97	NM*	83.40
	3/5/97	NM*	83.40
	4/1/97	NM*	83.40
	5/8/97	0.40**	83.80**
	6/6/97	0.03	83.83
	7/8/97	0.00	83.83
	8/7/97	0.00	83.83
	9/10/97	0.00	83.83
	10/1/97	0.00	83.83
	11/4/97	0.02	83.85
	12/4/97	0.05	83.90
	1/8/98	0.66	84.56
	2/5/98	**0.00**	**84.56**

TABLE 3
FREE PRODUCT RECOVERY BY HAND BAILING
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Removal Date	Product Removed by Hand Bailing (gallons)	Cumulative Product Removed by Hand Bailing (gallons)
MW-9	8/8/96	0.10	0.10
	9/10/96	0.00	0.10
	10/1/96	0.00	0.10
	11/4/96	0.00	0.10
	12/2/96	0.00	0.10
	1/3/97	0.00	0.10
	2/6/97	0.00	0.10
	3/5/97	0.00	0.10
	4/1/97	0.00	0.10
	5/8/97	0.00	0.10
	6/6/97	0.00	0.10
	7/8/97	0.00	0.10
	8/7/97	0.00	0.10
	9/10/97	0.00	0.10
	10/1/97	0.00	0.10
	11/4/97	0.00	0.10
	12/4/97	0.00	0.10
	1/8/98	0.00	0.10
	2/5/98	**0.00**	**0.10**

Total Product (gallons) removed by bailing	146.05
Total Product (gallons) removed by Soil Vapor Extraction (as of 3/31/98)	223.0
Cumulative Total of Product (gallons) Removed	369.05

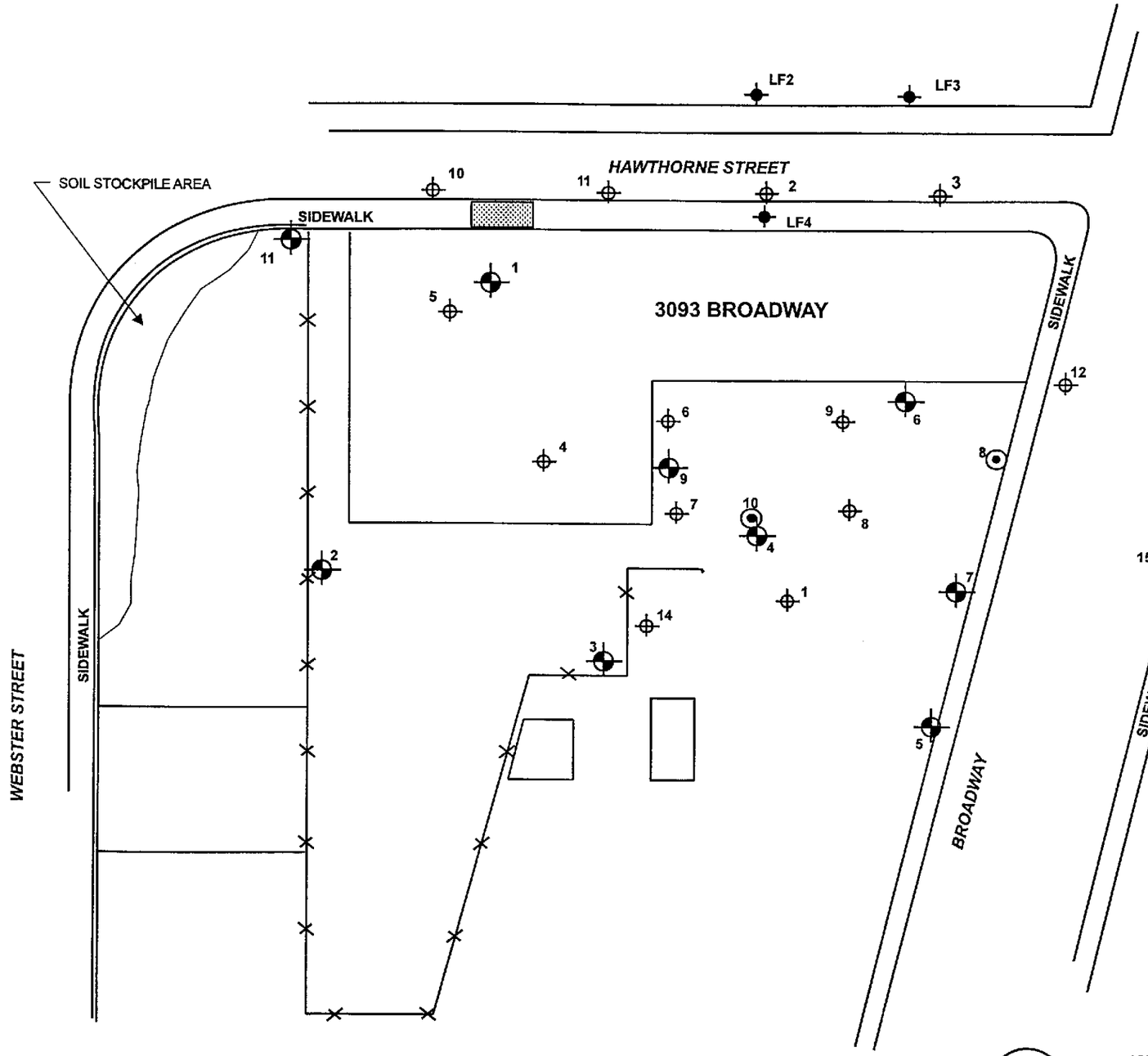
* NM - Not measured. Product is currently being removed by vapor extraction from this well.
** Product levels measured and bailed for annual monitoring event.

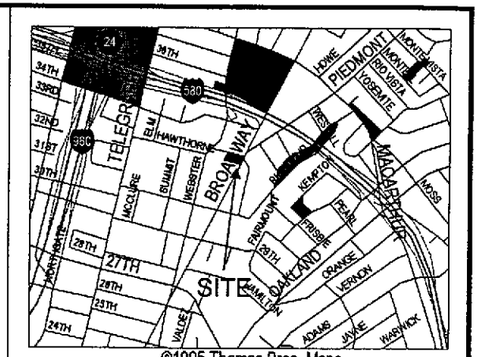
TABLE 4
FREE PRODUCT RECOVERY BY SVE FROM MW-6
3093 BROADWAY
OAKLAND, CALIFORNIA

VAPOR SAMPLING DATE	FREE PRODUCT REMOVED FOR PERIOD (gallons)*	CUMULATIVE FREE PRODUCT REMOVED (gallons)
10/29/96	0.1	0.1
11/4/96	2.8	2.9
11/5/96	3.5	6.4
11/14/96	19.7	26.1
11/25/96	38.4	64.5
12/18/96	20.8	85.3
12/30/96	0.5	85.8
2/4/97	0.0	85.8
2/12/97	7.8	93.6
3/11/97	4.7	98.3
4/21/97	2.1	100.4
5/28/97	2.3	102.7
7/23/97	6.5	109.2
8/7/97	3.4	112.6
9/15/97	14.3	126.9
10/30/97	25.5	152.4
11/1/97	0.0	152.4
12/9/97	70.6	223.0
1/1/98 **	0.0	223.0
2/1/98 **	0.0	223.0
3/1/98 **	0.0	223.0
3/31/98	System Removed	

* Free Product Removed during each period is estimated by (1) monthly sampling and analyses of the vapor stream and (2) performing mass balance calculations based on chemical data and vapor flow rate through the SVE system. Free product calculations assume that the vapor flow rate and hydrocarbon concentrations measured during each sampling event remain constant for that period.

** Operational problems and highwater levels prevented sampling of the SVE during this period.





VICINITY MAP

EXPLANATION

- SCI TEST BORING
- SCI MONITORING WELL
- EXTRACTION WELL
- LEVINE FRICKE MONITORING WELL
- CONE PENETRATION TEST (CPT)
- FENCE
- RETAINING WALL
- FORMER TANK LOCATION

APPROXIMATE SCALE (feet)
0 60 120

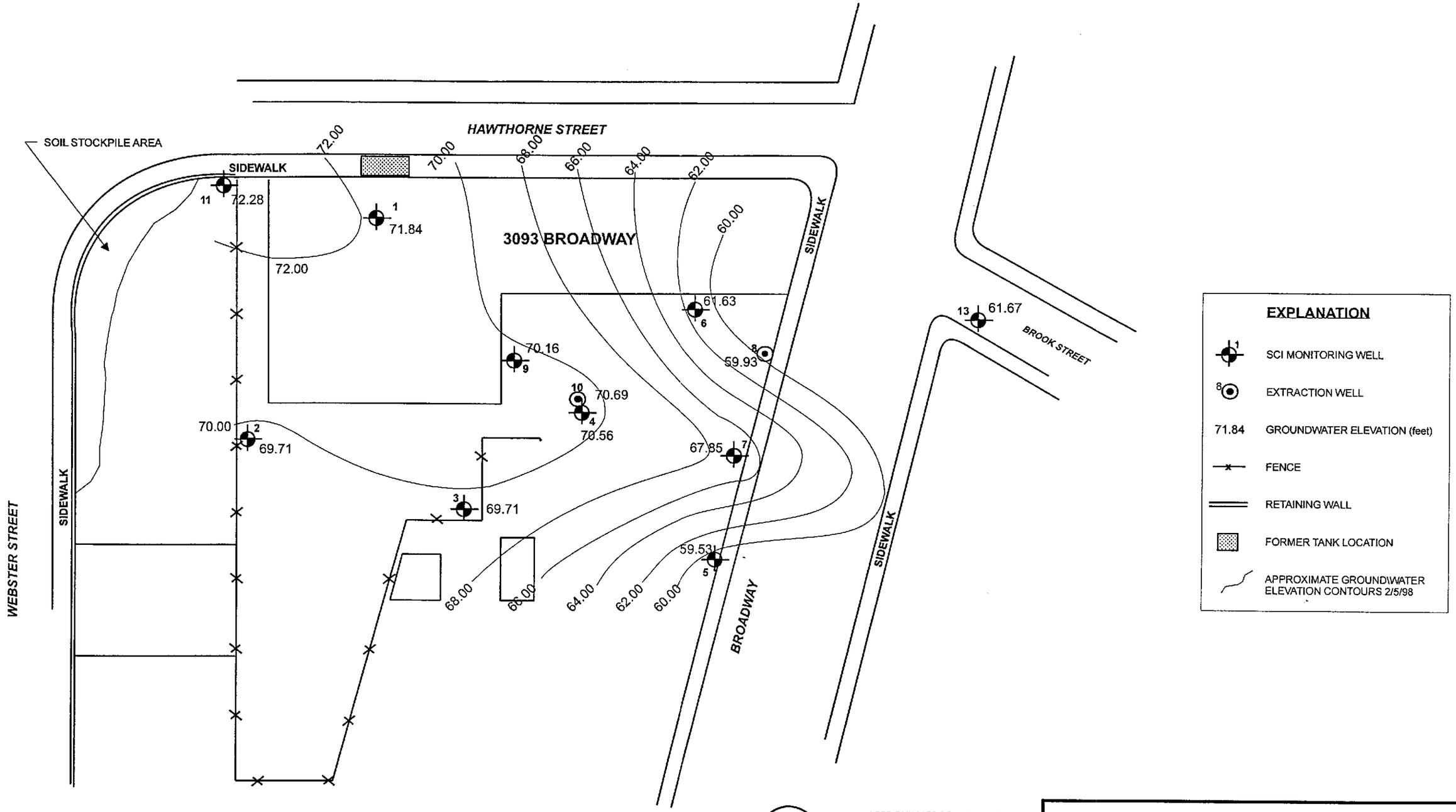
SITE PLAN

SCI Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.055	8/5/97	SCN

PLATE 1



GROUNDWATER ELEVATION CONTOURS FEBRUARY 1998

SCI Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.055	4/29/98	SCW

PLATE 2

GROUNDWATER DEPTHS

Project Name: Connell Olds

Job No.: 447.055

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	12/4/97	0945	24' 9⅛"	Top of Product = 24' 2½" Product thickness = 6⅝" " Bailed = ¾ liter
MW-2		0800	26.31	
MW-3		0805	20.89	
MW-4		0850	20.05	no product
MW-5		0845	26.34	
MW-6		0920	26' 1"	Top of Product = 25' 11 1/16" Product thickness = 1 15/16" ½" " " in bailer " Bailed = 200 ml
MW-7		0820	18.16	
MW-8		0815	26.69	
MW-9		0915	21.62	
MW-10		0810	19.78	
MW-11		0755	31.68	
MW-13		0745	24.05	
				* system not running

GROUNDWATER DEPTHS

Project Name: Connell Olds

Job No.: 447.055

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	1/8/98	1020	23' 7 7/8"	no product
MW-2		0835	25.94	
MW-3		0840	20.70	
MW-4		0950	19.53	no product
MW-5		0920	26.05	
MW-6		1000	25' 9 1/2"	Top of Product = 25' 8 1/4" Product thickness = 1 1/4" 1/8" visible in bailer " Bailed = 3/3 gal. liquid
MW-7		0850	17.87	
MW-8		0845	26.39	
MW-9		0930	21.31	
MW-10		0945	19.26	
MW-11		0830	31.05	
MW-13		0820	23.83	

GROUNDWATER DEPTHS

Project Name: Connell Olds

Job No.: 447.055

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	2/5/98	1230	22.64	no product
MW-2		1100	25.10	
MW-3		1110	20.37	
MW-4		1215	18.28	no product
MW-5		1200	25.31	
MW-6		1120	25' 3 3/4"	Top of Product = 24'5" Product thickness = 10 3/4" Bailed = N/A
MW-7		1135	17.56	
MW-8		1115	25.57	
MW-9		1130	20.21	
MW-10		1210	17.91	
MW-11		1050	29.78	
MW-13		1045	22.89	
				* system on 2/5/98
				* system off 2/9/98

WELL SAMPLING FORM

Project Name: Connell Olds | Well Number: MW-1

Job No.: 447.055 | Well Casing Diameter: 2 inches

Sampled By: DWA | Date: 2/9/98

TOC Elevation: | Weather: Sunny

Depth to Casing Bottom (below TOC) 35.00 feet

Depth to Groundwater Before Purging (below TOC) 22.64 feet

Feet of Water in Well 12.36 feet

Depth to Groundwater When 80% Recovered 25.11 feet

Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.0 gallons

Depth Measurement Method (Tape & Paste) / (Electronic Sounder) / Other

Free Product none

Purge Method disposable bailer

moderate recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp (°C) °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
0		6.15	20.0	1325		clear/strong odor/sheen
2		6.19	19.5	1275		semi-clear
4		6.22	19.5	1325		
6		6.26	19.5	1300		

Total Gallons Purged 6 gallons

Depth to Groundwater Before Sampling (below TOC) 25.11 feet

Sampling Method disposable bailer

Containers Used 7 (40 ml) | 3 (liter) | (pint) |

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

WELL SAMPLING FORM

Project Name: Connell olds
Well Number: MW-4
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 2/9/98
TOC Elevation:
Weather: Sunny

Depth to Casing Bottom (below TOC) 24.50 feet
Depth to Groundwater Before Purging (below TOC) 18.28 feet
Feet of Water in Well 6.22 feet
Depth to Groundwater When 80% Recovered 19.52 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 1.0 gallons
Depth Measurement Method (Tape & Paste) / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

FIELD MEASUREMENTS

Immediate recharge

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
1		6.40	22.5	575		semi-clear/strong odor
2		6.40	22.0	575		decreasing turbidity
3		6.42	22.0	575		

Total Gallons Purged 3 gallons
Depth to Groundwater Before Sampling (below TOC) 18.28 feet
Sampling Method disposable bailer
Containers Used 7 (40 ml) / 1 (liter) / (pint)

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

WELL SAMPLING FORM

Project Name: Connell Olds
Well Number: MW-7
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 2/9/98
TOC Elevation:
Weather: Sunny

Depth to Casing Bottom (below TOC) 30.00 feet
Depth to Groundwater Before Purging (below TOC) 17.56 feet
Feet of Water in Well 12.44 feet
Depth to Groundwater When 80% Recovered 20.05 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 2.0 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

FIELD MEASUREMENTS

moderate recharge

Gallons Removed	Time	pH	Temp (°C) / °F	Conductivity (micromhos/cm)	Salinity S%	Comments
0		6.33	19.0	310		clear/no odor
2		6.31	19.5	400		murky
4		6.39	20.0	475		
6		6.37	20.0	700		
8		6.40	20.0	800		

Total Gallons Purged 8 gallons
Depth to Groundwater Before Sampling (below TOC) 20.00 feet
Sampling Method disposable bailer
Containers Used 7 (40 ml) 1 (liter) (pint)

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

WELL SAMPLING FORM

Project Name: Connell Olds
Well Number: MW-8
Job No.: 447.055
Well Casing Diameter: 6 inches
Sampled By: DWA
Date: 2/9/98
TOC Elevation:
Weather: Sunny

Depth to Casing Bottom (below TOC) 39.50 feet
Depth to Groundwater Before Purging (below TOC) 25.57 feet
Feet of Water in Well 13.93 feet
Depth to Groundwater When 80% Recovered 28.36 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 20.6 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

FIELD MEASUREMENTS

moderate recharge

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
20		6.00	20.5	1025		clear/faint odor
30		5.98	21.0	975		clear/no odor
40		6.04	22.0	1025		
50		6.02	22.5	1025		
60		6.06	23.0	1050		

Total Gallons Purged 62 gallons
Depth to Groundwater Before Sampling (below TOC) 28.36 feet
Sampling Method disposable bailer
Containers Used 7 (40 ml) 1 (liter) (pint)

Subsurface Consultants

JOB NUMBER DATE APPROVED

PLATE

WELL SAMPLING FORM

Project Name: Connell olds
Well Number: MW-9
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 2/9/98
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 30.50 feet
Depth to Groundwater Before Purging (below TOC) 20.21 feet
Feet of Water in Well 10.29 feet
Depth to Groundwater When 80% Recovered 22.27 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 1.7 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer slow recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp (°C) °F	Conductivity (micromhos/cm)	Salinity S%	Comments
1		5.92	17.0	775		Semi-clear / slight odor
2		5.86	17.5	825		↓
3		5.86	18.0	875		lightly murky / no odor Dry @ 3.5 gallons
4		5.97	23.0	925		Semi-clear / no odor
5		5.99	22.0	925		↓

Total Gallons Purged 5 gallons
Depth to Groundwater Before Sampling (below TOC) 22.27 feet
Sampling Method disposable bailer
Containers Used 7 (40 ml) | 1 (liter) | (pint) |

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

WELL SAMPLING FORM

Project Name: Connell Olds
Well Number: MW-13
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 2/9/98
TOC Elevation:
Weather: Sunny

Depth to Casing Bottom (below TOC) 40.00 feet
Depth to Groundwater Before Purging (below TOC) 22.89 feet
Feet of Water in Well 17.11 feet
Depth to Groundwater When 80% Recovered 26.31 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.8 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

moderate recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp (°C) / °F	Conductivity (micromhos/cm)	Salinity S%	Comments
1		7.22	17.0	525		clear/no odor
3		7.00	17.0	675		↓
5		6.85	17.0	650		increasing turbidity
7		6.76	17.0	625		↓
9		6.68	17.5	625		semi-clear

Total Gallons Purged 9 gallons
Depth to Groundwater Before Sampling (below TOC) 26.31 feet
Sampling Method disposable bailer
Containers Used 7 (40 ml) 1 (liter) (pint)

Subsurface Consultants

JOB NUMBER DATE APPROVED

PLATE

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

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

Date: 19-FEB-98
Lab Job Number: 132295
Project ID: 447.055
Location: Connell Olds

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 132295
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 02/09/98
DATE RECEIVED: 02/09/98
DATE ANALYZED: 02/12-13/98
DATE REPORTED: 02/19/98
BATCH NO: 39043

EPA 8240

LAB ID	CLIENT ID	1,1-DCA (ug/L)	1,2-DCA (ug/L)	REPORTING LIMIT (ug/L)	SURROGATE RECOVERIES 1	2	3
132295-001	MW-1	ND	1,500	100	112%	106%	99%
132295-002	MW-4	ND	300	100	107%	103%	100%
132295-005	MW-9	ND	520	5.0	110%	103%	103%
132295-006	MW-13	ND	2.9	1.0	111%	103%	104%
METHOD BLANK	N/A	ND	ND	1.0	103%	98%	102%

	Limits
1= 1,2-Dichloroethane-d4	85-121
2=Toluene-d8	92-110
3=Bromofluorobenzene	84-115

ND = Not detected at or above reporting limit.

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 132295
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 02/09/98
DATE RECEIVED: 02/09/98
DATE ANALYZED: 02/12/98
DATE REPORTED: 02/19/98
BATCH NO: 39033

EPA 8240

LAB ID	CLIENT ID	1,1-DCA (ug/L)	1,2-DCA (ug/L)	REPORTING LIMIT (ug/L)	SURROGATE RECOVERIES 1	2	3
132295-003	MW-7	ND	ND	1.0	106%	101%	102%
132295-004	MW-8	ND	85	1.0	106%	103%	102%
METHOD BLANK	N/A	ND	ND	1.0	99%	99%	103%

	Limits
1= 1,2-Dichloroethane-d4	85-121
2=Toluene-d8	92-110
3=Bromofluorobenzene	84-115

ND = Not detected at or above reporting limit.

Lab #: 132295 BATCH QC REPORT Curtis & Tompkins, Ltd.

Halogenated Volatile Organics

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8260
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 132298-005
Matrix: Water
Batch#: 39033
Units: ug/L
Diln Fac: 1

Sample Date: 02/10/98
Received Date: 02/10/98
Prep Date: 02/11/98
Analysis Date: 02/11/98

MS Lab ID: QC64031

Analyte	Spike Added	Sample	MS	%Rec #	Limits
1,1-Dichloroethene	50	<1	53.85	108	63-126
Trichloroethene	50	<1	52.21	104	69-117
Chlorobenzene	50	<1	53.11	106	79-115

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	99	85-121
Toluene-d8	99	92-110
Bromofluorobenzene	98	84-115

MSD Lab ID: QC64032

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	49.61	99	63-126	8	10
Trichloroethene	50	49.35	99	69-117	6	10
Chlorobenzene	50	50.18	100	79-115	6	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	101	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	97	84-115

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 3 outside limits
Spike Recovery: 0 out of 6 outside limits

Lab #: 132295 BATCH QC REPORT Curtis & Tompkins, Ltd. Page 1 of 1

Halogenated Volatile Organics

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8260
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 39033
Units: ug/L
Diln Fac: 1

Prep Date: 02/11/98
Analysis Date: 02/11/98

BS Lab ID: QC64005

Analyte	Spike Added	BS	%Rec #	Limits
1,1-Dichloroethene	50	50.46	101	69-137
Trichloroethene	50	50.28	101	83-116
Chlorobenzene	50	50.99	102	87-117

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	97	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	98	84-115

BSD Lab ID: QC64006

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	52.2	104	69-137	3	14
Trichloroethene	50	51.97	104	83-116	3	10
Chlorobenzene	50	52.63	105	87-117	3	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	96	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	99	84-115

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 3 outside limits
Spike Recovery: 0 out of 6 outside limits

Halogenated Volatile Organics

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8260
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 39043
Units: ug/L
Diln Fac: 1

Prep Date: 02/12/98
Analysis Date: 02/12/98

BS Lab ID: QC64047

Analyte	Spike Added	BS	%Rec	#	Limits
1,1-Dichloroethene	50	49.58	99		69-137
Trichloroethene	50	49.39	99		83-116
Chlorobenzene	50	50.07	100		87-117

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	103	85-121
Toluene-d8	102	92-110
Bromofluorobenzene	98	84-115

BSD Lab ID: QC64048

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
1,1-Dichloroethene	50	52.84	106		69-137	6		14
Trichloroethene	50	51.04	102		83-116	3		10
Chlorobenzene	50	50.8	102		87-117	1		10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	103	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	99	84-115

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 3 outside limits
Spike Recovery: 0 out of 6 outside limits

Curtis & Tompkins, Ltd.

Client: Subsurface Consultants

Laboratory Login Number: 132295

Project Name: Connell Olds
Project Number: 447.055

Report Date: 19 February 98

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

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
132295-001	MW-1	Water	09-FEB-98	09-FEB-98	17-FEB-98	ND	mg/L	5	SDG	39110

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

Curtis & Tompkins, Ltd.

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

Client: Subsurface Consultants
Project Name: Connell Olds
Project Number: 447.055

Laboratory Login Number: 132295
Report Date: 19 February 98

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) **QC Batch Number: 39110**

Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
MB	ND	5	mg/L	SMWW 17:5520BF	17-FEB-98

Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	87%	SMWW 17:5520BF	17-FEB-98
BSD	86%	SMWW 17:5520BF	17-FEB-98

		Control Limits
Average Spike Recovery	86%	80% - 120%
Relative Percent Difference	1.3%	< 20%

TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
132295-001	MW-1	39079	02/09/98	02/13/98	02/17/98	
132295-002	MW-4	39079	02/09/98	02/13/98	02/17/98	
132295-003	MW-7	39079	02/09/98	02/13/98	02/17/98	
132295-004	MW-8	39079	02/09/98	02/13/98	02/17/98	

Matrix: Water

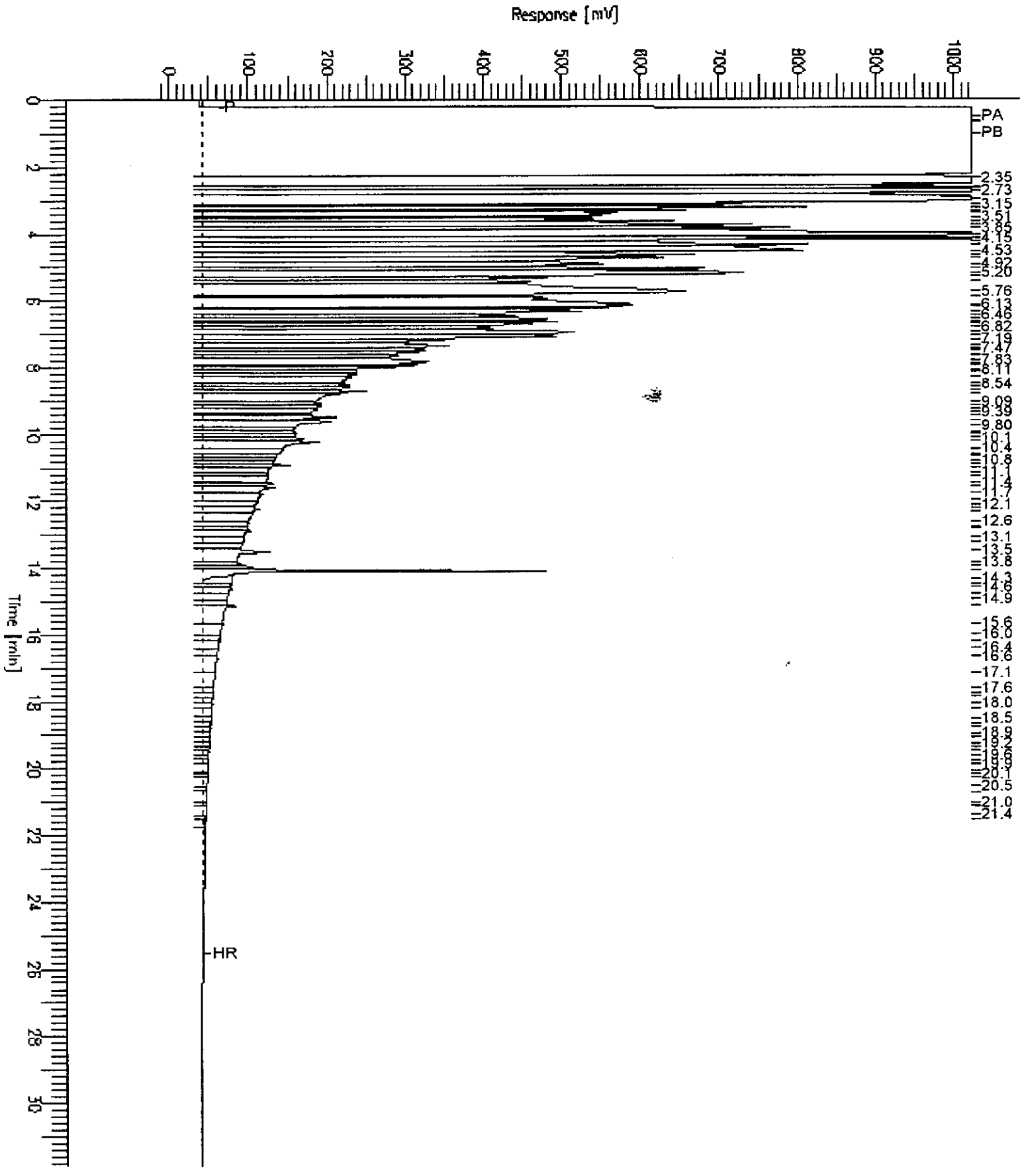
Analyte Diln Fac:	Units	132295-001 1	132295-002 1	132295-003 1	132295-004 1
Diesel C12-C22	ug/L	27000 YL	4800 YL	<50	75 YL
Surrogate					
Hexacosane	%REC	77	88	91	92

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

GC15 Channel B TEH

Sample Name : 132295-001,39079
FileName : G:\GC15\CHB\048B010.RAW
Method : B027TEH.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -14 mV

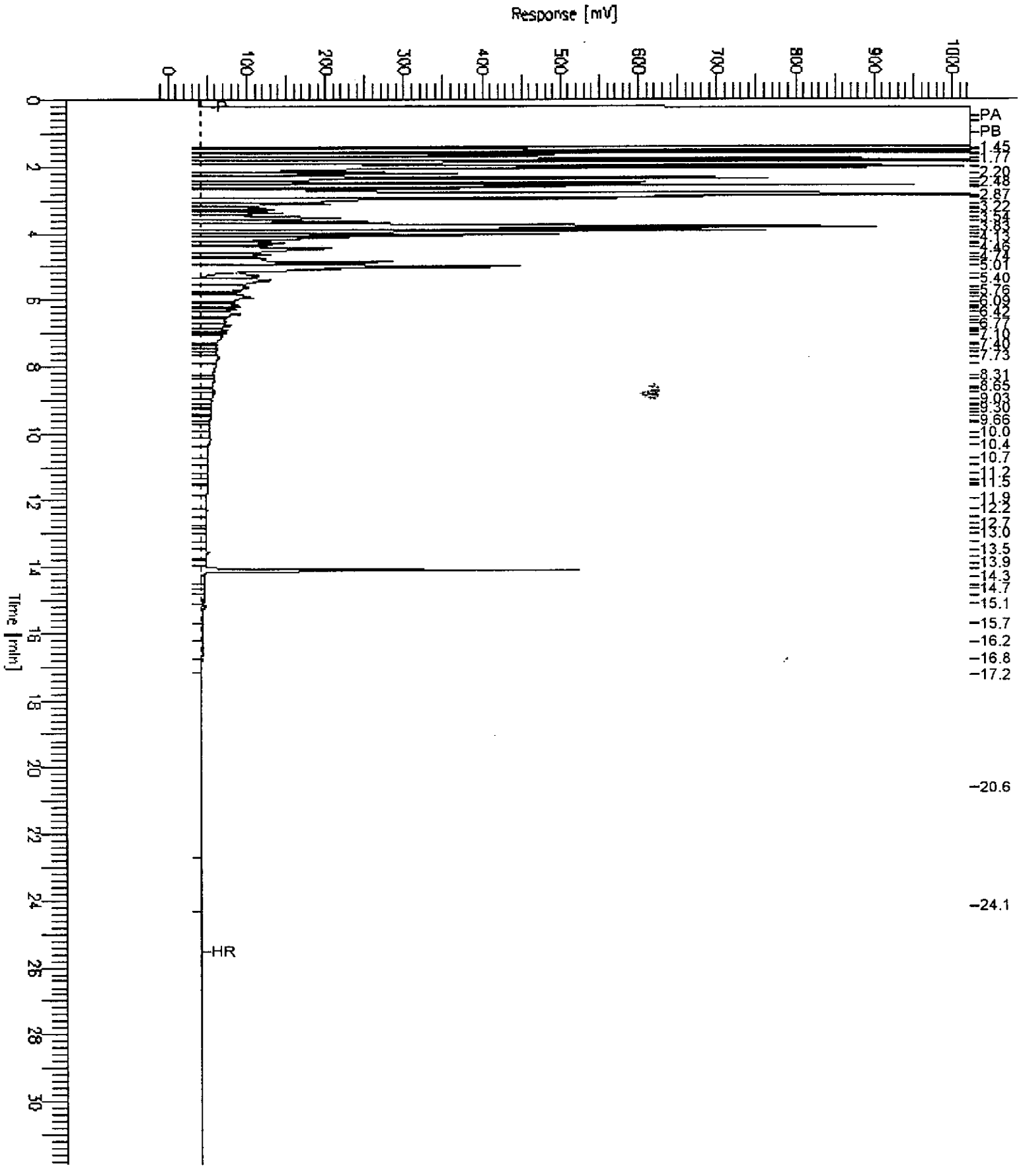
Sample #: 39079 Page 1 of 1
Date : 2/10/98 11:23 AM
Time of Injection: 2/17/98 09:31 PM
Low Point : -13.92 mV High Point : 1024.00 mV
Plot Scale: 1037.9 mV



GC15 Channel B TEH

Sample Name : 132295-002,39079
FileName : G:\GC15\CHB\048B011.RAW
Method : B027TEH.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -13 mV

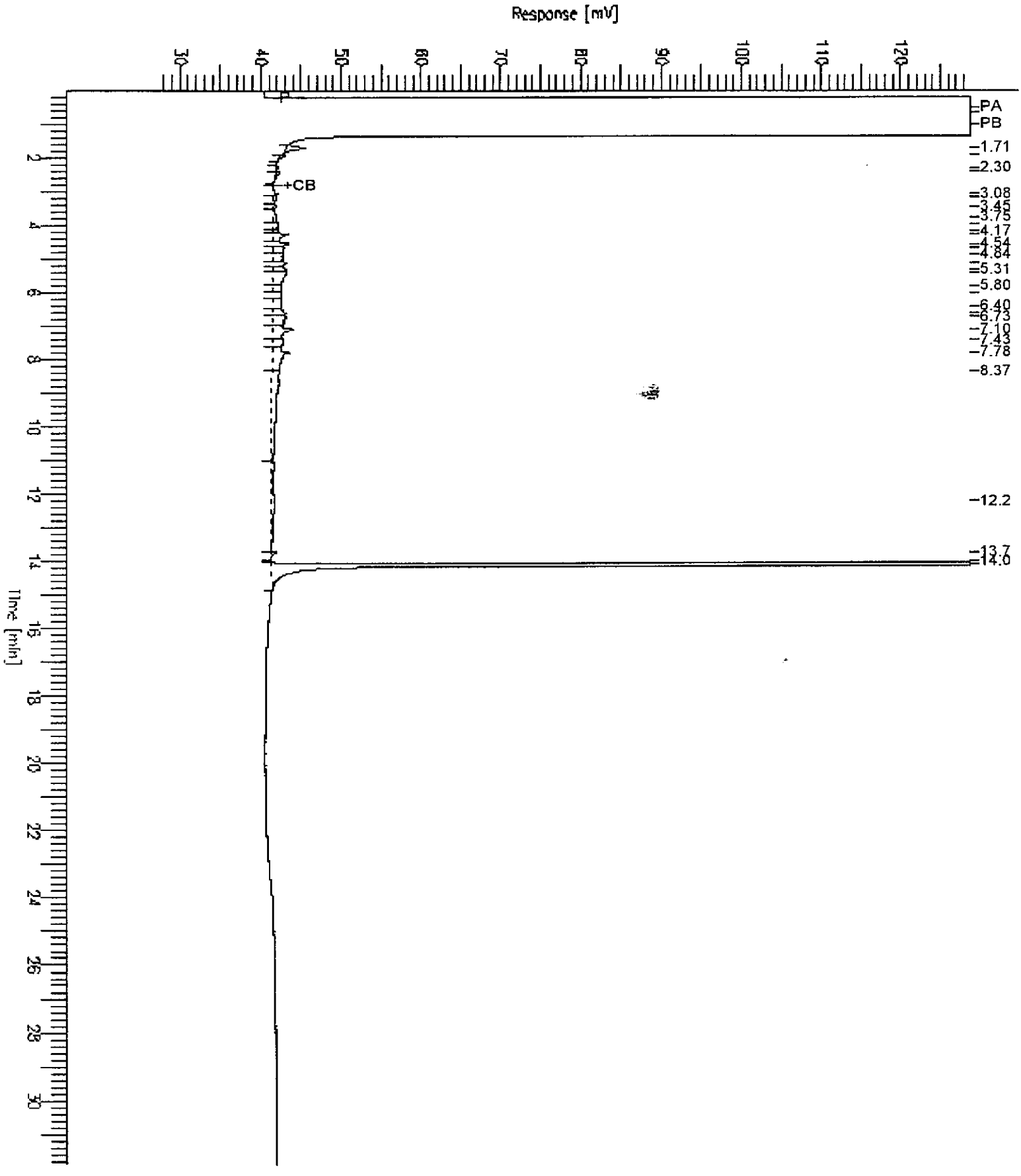
Sample #: 39079 Page 1 of 1
Date : 2/18/98 11:23 AM
Time of Injection: 2/17/98 10:14 PM
Low Point : -12.59 mV High Point : 1024.00 mV
Plot Scale: 1036.6 mV



GC15 Channel B TEH

Sample Name : 132295-004,39079
FileName : G:\GC15\CHB\048B013.RAW
Method : B027TEH.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 27 mV

Sample #: 39079 Page 1 of 1
Date : 2/18/98 11:26 AM
Time of Injection: 2/17/98 11:40 PM
Low Point : 27.28 mV High Point : 128.83 mV
Plot Scale: 101.5 mV



TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
132295-005	MW-9	39079	02/09/98	02/13/98	02/18/98	
132295-006	MW-13	39079	02/09/98	02/13/98	02/18/98	

Matrix: Water

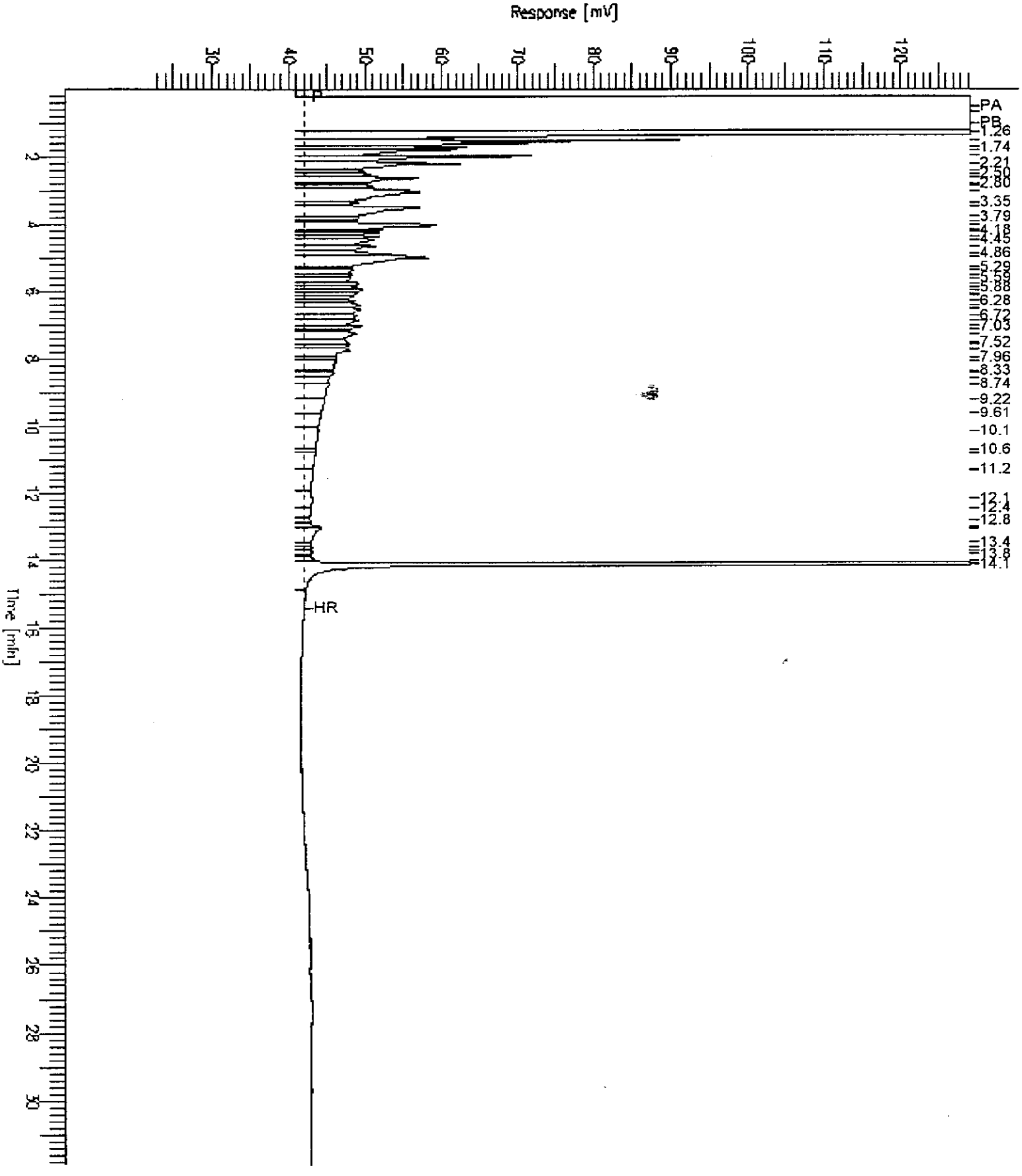
Analyte	Units	132295-005	132295-006
Diln Fac:		1	1
Diesel C12-C22	ug/L	410 YL	<50
Surrogate			
Hexacosane	%REC	97	82

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

GC15 Channel B TEH

Sample Name : 132295-005,39079
FileName : G:\GC15\CHB\048B014.RAW
Method : B027TEH.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 23 mV

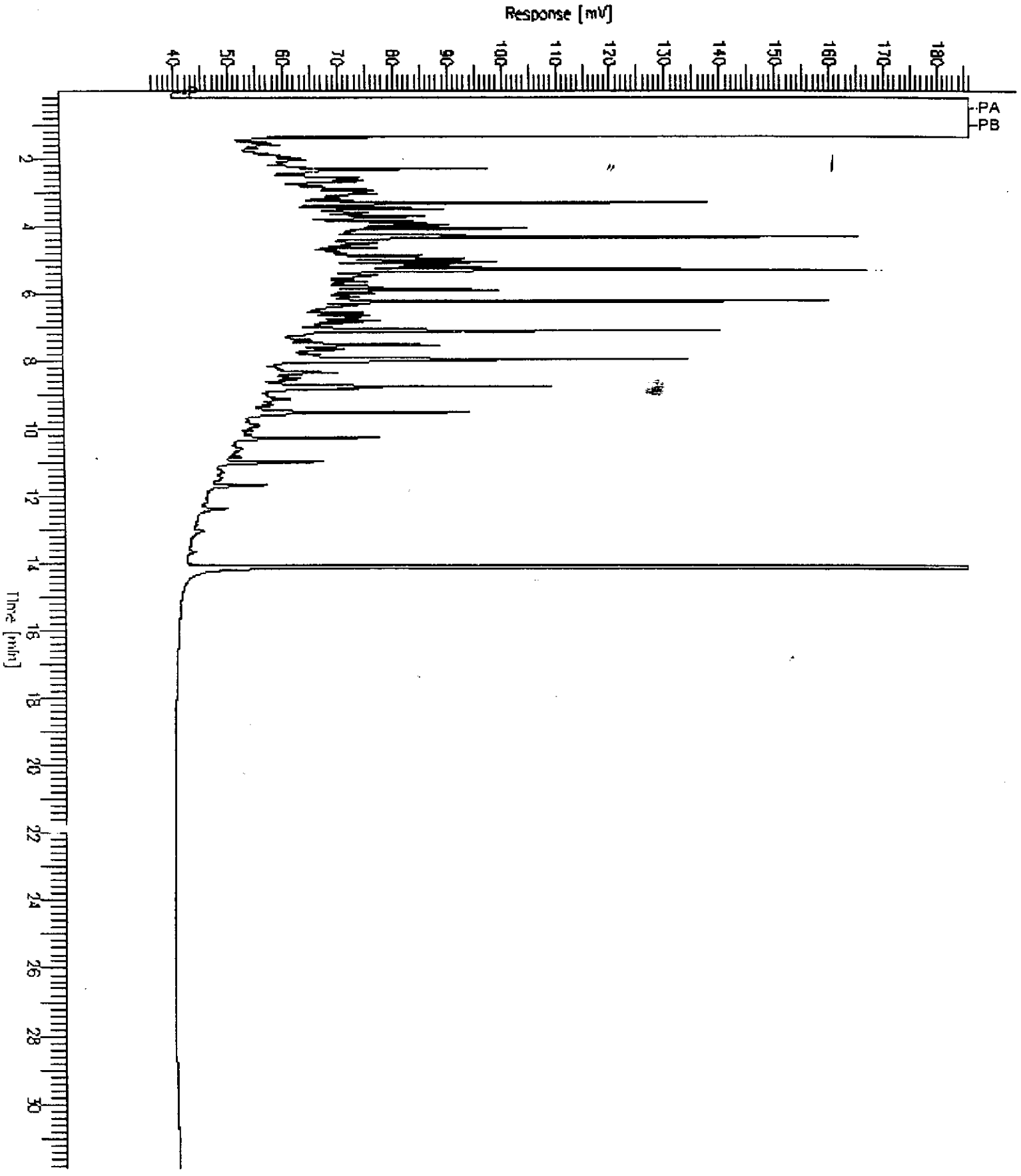
Sample #: 39079 Page 1 of 1
Date : 2/18/98 11:27 AM
Time of Injection: 2/18/98 12:23 AM
Low Point : 22.89 mV High Point : 129.34 mV
Plot Scale: 106.4 mV



Chromatogram - GC15

Sample Name : CCV,98WS5393,DS
FileName : G:\GC15\CHB\048B002.RAW
Method : SNGL.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 36 mV

Sample #: 500MG/L Page 1 of 1
Date : 2/18/98 12:50 PM
Time of Injection: 2/17/98 10:15 AM
Low Point : 35.81 mV High Point : 186.01 mV
Plot Scale: 150.2 mV



TEH-Tot Ext Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	447.055	Prep Method:	EPA 3520
Location:	Connell Olds		

METHOD BLANK

Matrix:	Water	Prep Date:	02/13/98
Batch#:	39079	Analysis Date:	02/17/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC64178

Analyte	Result	
Diesel C12-C22	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	94	53-136

TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8015M
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 39079
Units: ug/L
Diln Fac: 1

Prep Date: 02/13/98
Analysis Date: 02/17/98

BS Lab ID: QC64179

Analyte	Spike Added	BS	%Rec	#	Limits
Diesel C12-C22	2475	1875	76		58-110

Surrogate	%Rec	Limits
Hexacosane	90	53-136

BSD Lab ID: QC64180

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Diesel C12-C22	2475	2070	84		58-110	10		21

Surrogate	%Rec	Limits
Hexacosane	99	53-136

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Semivolatile Organics by GC/MS

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8270B
Prep Method: EPA 3520

Field ID: MW-1
Lab ID: 132295-001
Matrix: Water
Batch#: 39078
Units: ug/L
Diln Fac: 5

Sampled: 02/09/98
Received: 02/09/98
Extracted: 02/13/98
Analyzed: 02/18/98

Analyte	Result	Reporting Limit
Phenol	92	47
2-Chlorophenol	ND	47
Benzyl alcohol	ND	47
2-Methylphenol	ND	47
3,4-Methylphenol	52	47
2-Nitrophenol	ND	240
2,4-Dimethylphenol	ND	47
Benzoic acid	700	240
2,4-Dichlorophenol	ND	47
4-Chloro-3-methylphenol	ND	47
2,4,6-Trichlorophenol	ND	47
2,4,5-Trichlorophenol	ND	47
2,4-Dinitrophenol	ND	240
4-Nitrophenol	ND	240
4,6-Dinitro-2-methylphenol	ND	240
Pentachlorophenol	ND	47
N-Nitrosodimethylamine	ND	47
Aniline	ND	47
bis(2-Chloroethyl)ether	ND	47
1,3-Dichlorobenzene	ND	47
1,4-Dichlorobenzene	ND	47
1,2-Dichlorobenzene	ND	47
bis(2-Chloroisopropyl) ether	ND	47
N-Nitroso-di-n-propylamine	ND	47
Hexachloroethane	ND	47
Nitrobenzene	ND	47
Isophorone	ND	47
bis(2-Chloroethoxy)methane	ND	47
1,2,4-Trichlorobenzene	ND	47
Naphthalene	570	47
4-Chloroaniline	ND	47
Hexachlorobutadiene	ND	47
2-Methylnaphthalene	160	47
Hexachlorocyclopentadiene	ND	240
2-Chloronaphthalene	ND	47
2-Nitroaniline	ND	240
Dimethylphthalate	ND	47
Acenaphthylene	ND	47

Semivolatile Organics by GC/MS

Field ID:	MW-1	Sampled:	02/09/98
Lab ID:	132295-001	Received:	02/09/98
Matrix:	Water	Extracted:	02/13/98
Batch#:	39078	Analyzed:	02/18/98
Units:	ug/L		
Diln Fac:	5		

Analyte	Result	Reporting Limit
2,6-Dinitrotoluene	ND	47
3-Nitroaniline	ND	240
Acenaphthene	ND	47
Dibenzofuran	ND	47
2,4-Dinitrotoluene	ND	47
Diethylphthalate	ND	47
4-Chlorophenyl-phenylether	ND	47
Fluorene	ND	47
4-Nitroaniline	ND	240
N-Nitrosodiphenylamine	ND	47
Azobenzene	ND	47
4-Bromophenyl-phenylether	ND	47
Hexachlorobenzene	ND	47
Phenanthrene	ND	47
Anthracene	ND	47
Di-n-butylphthalate	ND	47
Fluoranthene	ND	47
Pyrene	ND	47
Butylbenzylphthalate	ND	47
3,3'-Dichlorobenzidine	ND	240
Benzo(a)anthracene	ND	47
Chrysene	ND	47
bis(2-Ethylhexyl)phthalate	ND	47
Di-n-octylphthalate	ND	47
Benzo(b,k)fluoranthene	ND	47
Benzo(a)pyrene	ND	47
Indeno(1,2,3-cd)pyrene	ND	47
Dibenz(a,h)anthracene	ND	47
Benzo(g,h,i)perylene	ND	47

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	116*	17-107
Phenol-d5	95	18-115
2,4,6-Tribromophenol	107	14-121
Nitrobenzene-d5	94	36-115
2-Fluorobiphenyl	85	36-113
Terphenyl-d14	59	17-115

* Values outside of QC limits

EPA 8270 Semi-Volatile Organics

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8270B
Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
Batch#: 39078
Units: ug/L
Diln Fac: 1

Prep Date: 02/13/98
Analysis Date: 02/17/98

MB Lab ID: QC64175

Analyte	Result	Reporting Limit
Phenol	ND	10
2-Chlorophenol	ND	10
Benzyl alcohol	ND	10
2-Methylphenol	ND	10
3,4-Methylphenol	ND	10
2-Nitrophenol	ND	50
2,4-Dimethylphenol	ND	10
Benzoic acid	ND	50
2,4-Dichlorophenol	ND	10
4-Chloro-3-methylphenol	ND	10
2,4,6-Trichlorophenol	ND	10
2,4,5-Trichlorophenol	ND	10
2,4-Dinitrophenol	ND	50
4-Nitrophenol	ND	50
4,6-Dinitro-2-methylphenol	ND	50
Pentachlorophenol	ND	10
N-Nitrosodimethylamine	ND	10
Aniline	ND	10
bis(2-Chloroethyl)ether	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
1,2-Dichlorobenzene	ND	10
bis(2-Chloroisopropyl) ether	ND	10
N-Nitroso-di-n-propylamine	ND	10
Hexachloroethane	ND	10
Nitrobenzene	ND	10
Isophorone	ND	10
bis(2-Chloroethoxy)methane	ND	10
1,2,4-Trichlorobenzene	ND	10
Naphthalene	ND	10
4-Chloroaniline	ND	10
Hexachlorobutadiene	ND	10
2-Methylnaphthalene	ND	10
Hexachlorocyclopentadiene	ND	50
2-Chloronaphthalene	ND	10
2-Nitroaniline	ND	50
Dimethylphthalate	ND	10
Acenaphthylene	ND	10
2,6-Dinitrotoluene	ND	10
3-Nitroaniline	ND	50

EPA 8270 Semi-Volatile Organics

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8270B
Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
Batch#: 39078
Units: ug/L
Diln Fac: 1

Prep Date: 02/13/98
Analysis Date: 02/17/98

MB Lab ID: QC64175

Analyte	Result	Reporting Limit
Acenaphthene	ND	10
Dibenzofuran	ND	10
2,4-Dinitrotoluene	ND	10
Diethylphthalate	ND	10
4-Chlorophenyl-phenylether	ND	10
Fluorene	ND	10
4-Nitroaniline	ND	50
N-Nitrosodiphenylamine	ND	10
Azobenzene	ND	10
4-Bromophenyl-phenylether	ND	10
Hexachlorobenzene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Di-n-butylphthalate	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Butylbenzylphthalate	ND	10
3,3'-Dichlorobenzidine	ND	50
Benzo(a)anthracene	ND	10
Chrysene	ND	10
bis(2-Ethylhexyl)phthalate	ND	10
Di-n-octylphthalate	ND	10
Benzo(b,k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

Surrogate	%Rec	Recovery Limits
2-Fluorophenol	80	17-107
Phenol-d5	78	18-115
2,4,6-Tribromophenol	85	14-121
Nitrobenzene-d5	79	36-115
2-Fluorobiphenyl	78	36-113
Terphenyl-d14	86	17-115

Lab #: 132295

BATCH QC REPORT

Curtis & Tompkins, Ltd.

EPA 8270 Semi-Volatile Organics

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8270B
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 39078
Units: ug/L
Diln Fac: 1

Prep Date: 02/13/98
Analysis Date: 02/17/98

BS Lab ID: QC64176

Analyte	Spike Added	BS	%Rec	#	Limits
Phenol	100	73.13	73		45-110
2-Chlorophenol	100	76.79	77		50-110
4-Chloro-3-methylphenol	100	74.76	75		48-110
4-Nitrophenol	100	63.98	64		30-110
Pentachlorophenol	100	82.71	83		10-110
1,4-Dichlorobenzene	50	31.78	64		38-110
N-Nitroso-di-n-propylamine	50	28.52	57		29-110
1,2,4-Trichlorobenzene	50	31.91	64		41-110
Acenaphthene	50	41.59	83		50-110
2,4-Dinitrotoluene	50	38.26	77		40-110
Pyrene	50	40.2	80		43-110

Surrogate	%Rec	Limits
2-Fluorophenol	75	17-10[redacted]
Phenol-d5	75	18-115
2,4,6-Tribromophenol	80	14-121
Nitrobenzene-d5	81	36-115
2-Fluorobiphenyl	77	36-113
Terphenyl-d14	77	17-115

BSD Lab ID: QC64177

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Phenol	100	71.81	72		45-110	2		23
2-Chlorophenol	100	74.09	74		50-110	4		23
4-Chloro-3-methylphenol	100	74.09	74		48-110	1		20
4-Nitrophenol	100	62.85	63		30-110	2		26
Pentachlorophenol	100	82.3	82		10-110	0		44
1,4-Dichlorobenzene	50	29.78	60		38-110	6		21
N-Nitroso-di-n-propylamine	50	27.9	56		29-110	2		22
1,2,4-Trichlorobenzene	50	29.98	60		41-110	6		21
Acenaphthene	50	38.89	78		50-110	7		18
2,4-Dinitrotoluene	50	36.25	73		40-110	5		19
Pyrene	50	38.91	78		43-110	3		19

Surrogate	%Rec	Limits
2-Fluorophenol	74	17-107
Phenol-d5	76	18-115
2,4,6-Tribromophenol	87	14-121
Nitrobenzene-d5	77	36-115
2-Fluorobiphenyl	76	36-113
Terphenyl-d14	86	17-115

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: TVH
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
132295-001	MW-1	39087	02/09/98	02/16/98	02/16/98	
132295-002	MW-4	39105	02/09/98	02/18/98	02/18/98	
132295-003	MW-7	39071	02/09/98	02/13/98	02/13/98	
132295-004	MW-8	39071	02/09/98	02/13/98	02/13/98	

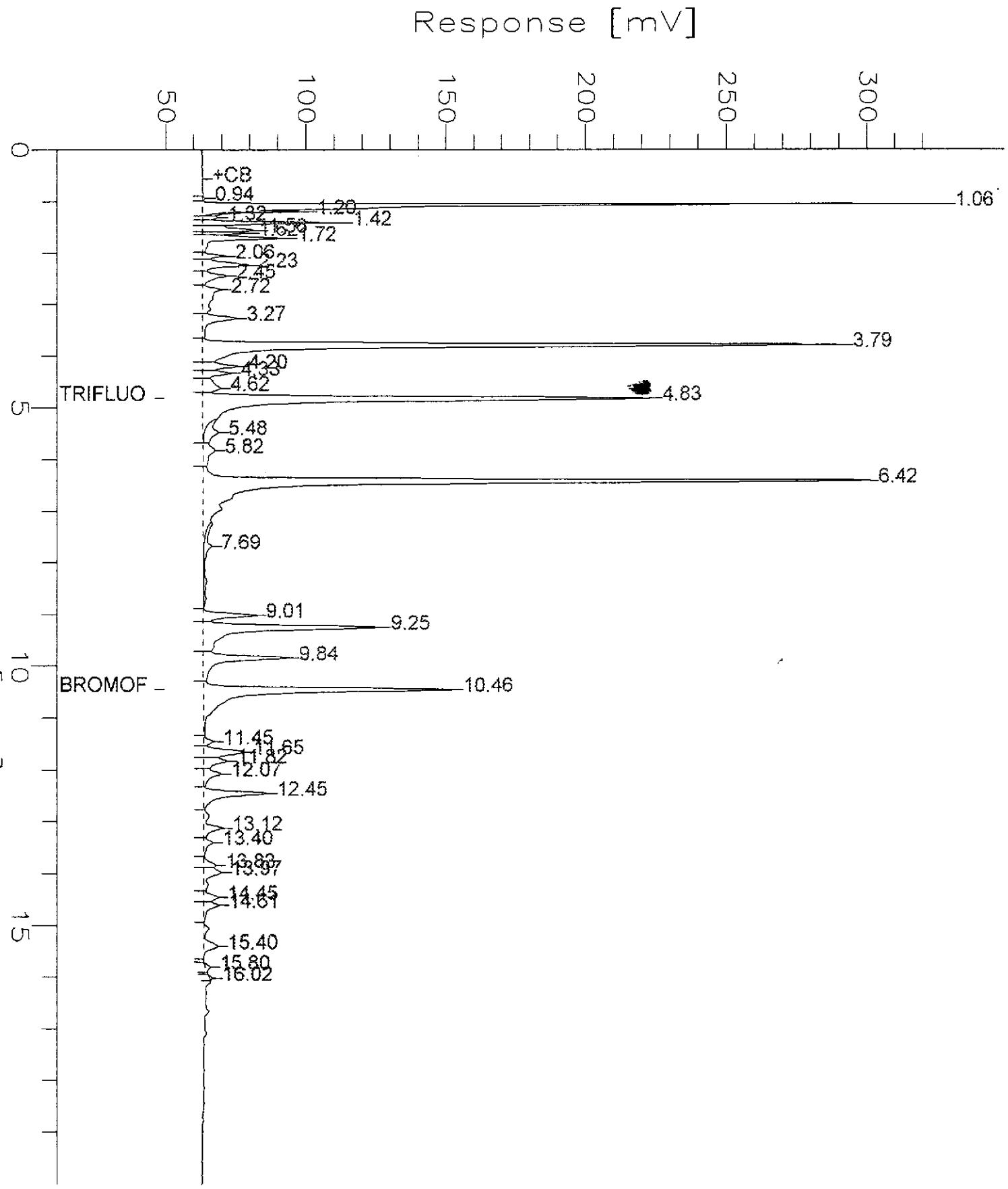
Matrix: Water

Analyte Diln Fac:	Units	132295-001 500	132295-002 250	132295-003 1	132295-004 1
Gasoline C7-C12	ug/L	220000	110000	<50	<50
Surrogate					
Bromofluorobenzene	%REC	87	87	74	75

GC04 TVH 'J' Data File Rtx1FID

Sample Name : RR,D,132295-001,39087
FileName : G:\GC04\DATA\046J009.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 50 mV

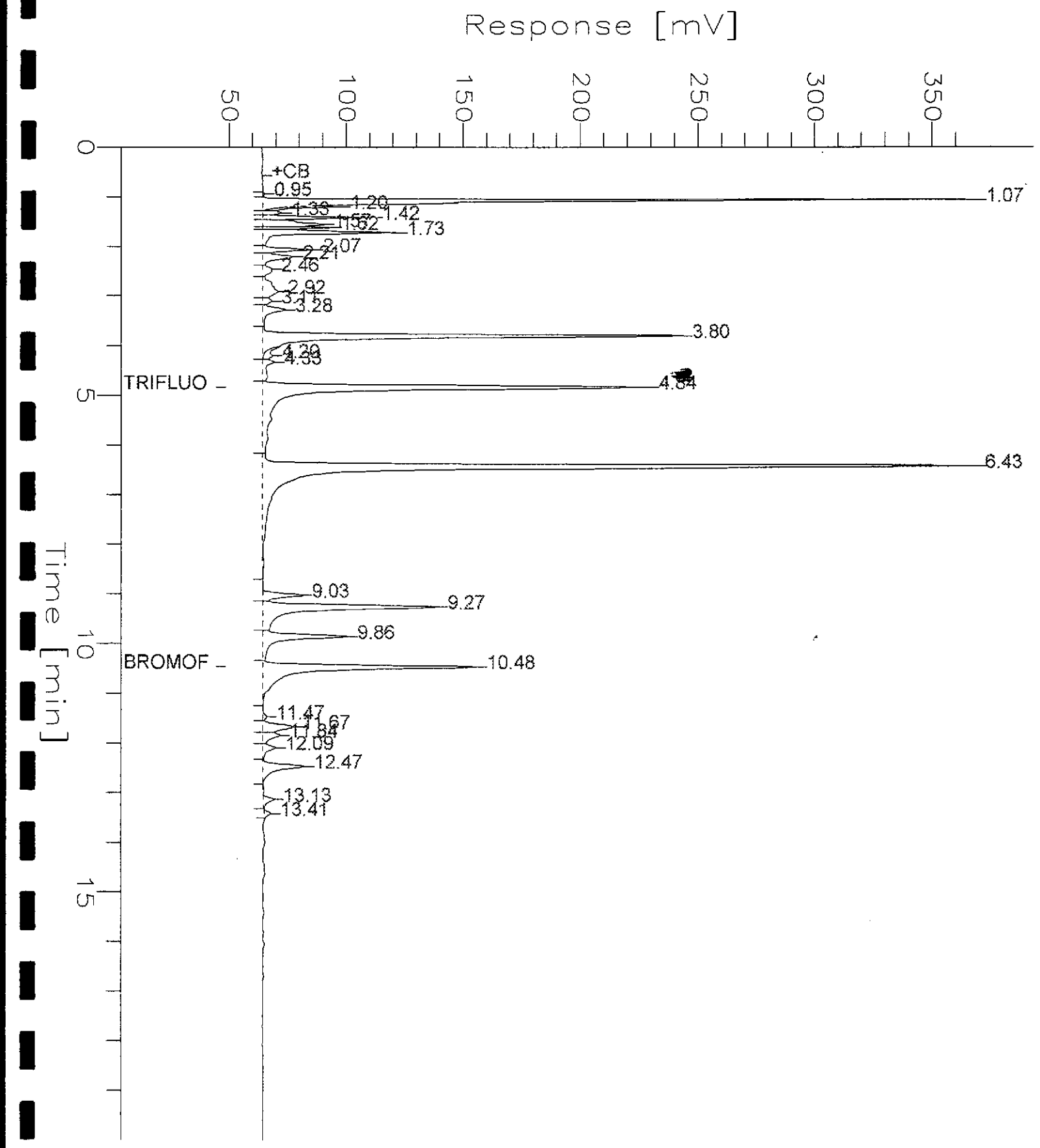
Sample #: Page 1 of 1
Date : 2/16/98 06:23 AM
Time of Injection: 2/16/98 06:03 AM
Low Point : 49.59 mV High Point : 328.23 mV
Plot Scale: 278.6 mV



GC04 TVH 'J' Data File Rtx1FID

Sample Name : RR,D,132295-002,39105,
FileName : G:\GC04\DATA\048J038.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 49 mV

Sample #: Page 1 of 1
Date : 2/18/98 01:26 AM
Time of Injection: 2/18/98 01:08 AM
Low Point : 48.65 mV High Point : 369.05 mV
Plot Scale: 320.4 mV



BTXE

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8020A
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
132295-001	MW-1	39087	02/09/98	02/16/98	02/16/98	
132295-002	MW-4	39105	02/09/98	02/18/98	02/18/98	
132295-003	MW-7	39071	02/09/98	02/13/98	02/13/98	
132295-004	MW-8	39071	02/09/98	02/13/98	02/13/98	

Matrix: Water

Analyte Diln Fac:	Units	132295-001 500	132295-002 250	132295-003 1	132295-004 1
MTBE	ug/L	2300	1300 C	2 N/A	7.3
Benzene	ug/L	47000	19000	<0.5	6
Toluene	ug/L	60000	42000	<0.5	<0.5
Ethylbenzene	ug/L	5200	2500	<0.5	<0.5
m,p-Xylenes	ug/L	20000	12000	<0.5	<0.5
o-Xylene	ug/L	9800	6300	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	87	92	96	98
Bromofluorobenzene	%REC	74	81	80	81

C: Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: TVH
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
132295-005	MW-9	39071	02/09/98	02/13/98	02/13/98	
132295-006	MW-13	39071	02/09/98	02/13/98	02/13/98	

Matrix: Water

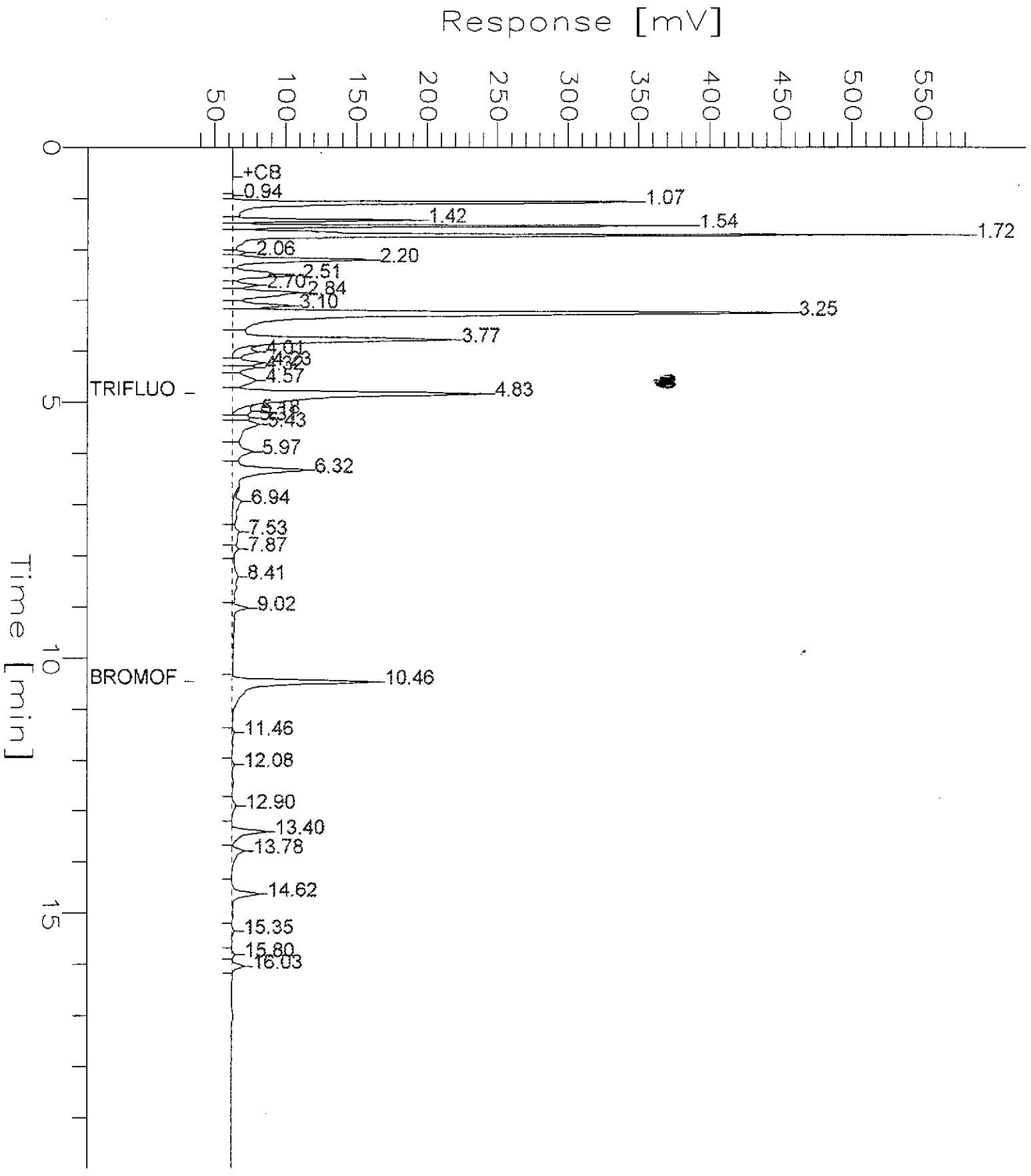
Analyte	Units	132295-005		132295-006
Diln Fac:		1		1
Gasoline C7-C12	ug/L	270	L	<50
Surrogate				
Bromofluorobenzene	%REC	95		71

L: Lighter hydrocarbons than indicated standard

GC04 TVH 'J' Data File Rtx1FID

Sample Name : S,132295-005,39071
FileName : G:\GC04\DATA\044J023.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 36 mV

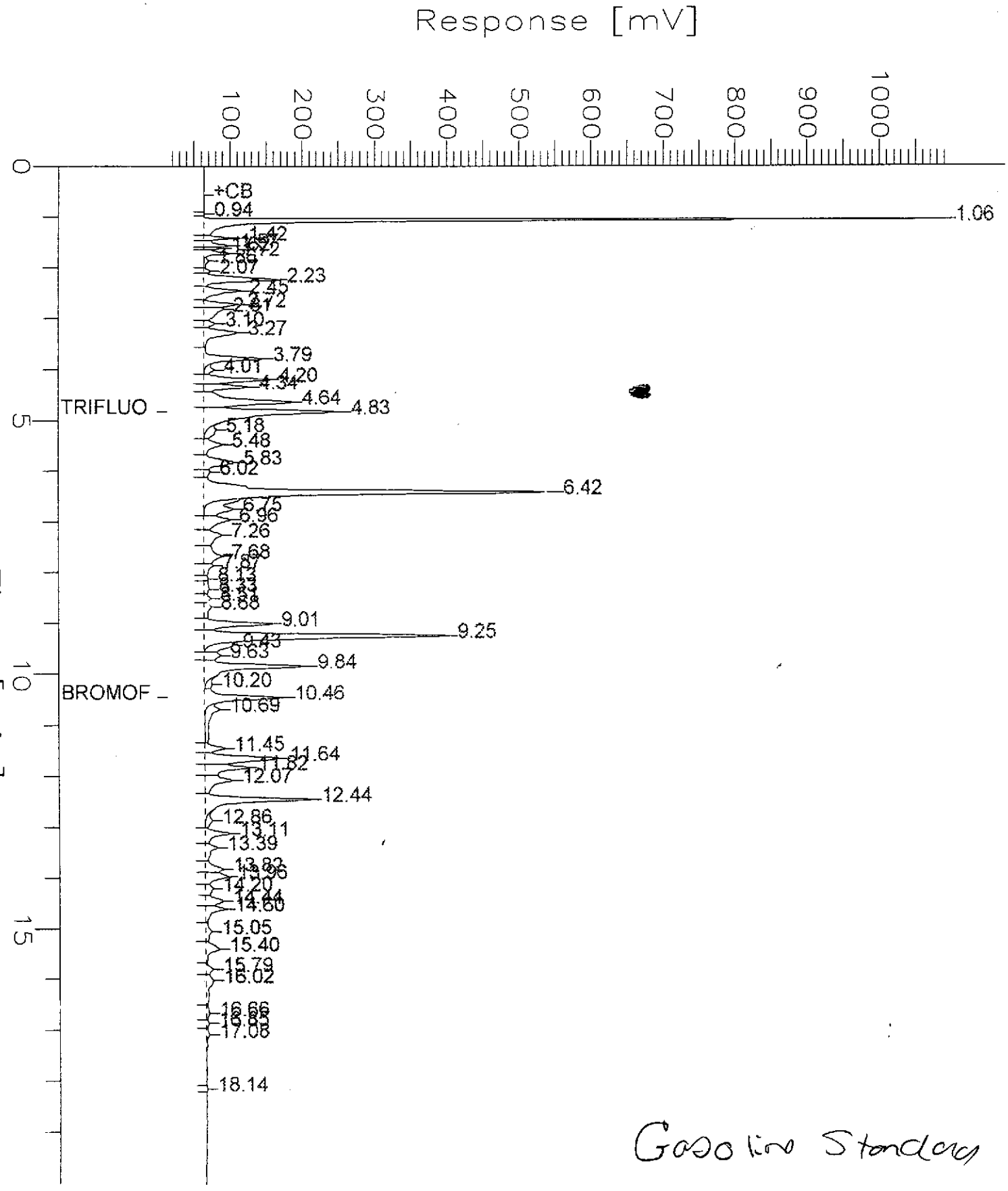
Sample #: Page 1 of 1
Date : 2/13/98 08:15 PM
Time of Injection: 2/13/98 07:55 PM
Low Point : 35.85 mV High Point : 581.87 mV
Plot Scale: 546.0 mV



GC04 TVH 'J' Data File Rtx1FID

Sample Name : CCV/LCS,QC64148,98WS5257,39071,
FileName : G:\GC04\DATA\044J002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 20.00 min
Scale Factor: 1.0 Plot Offset: 12 mV

Sample #: GAS Page 1 of 1
Date : 2/13/98 08:06 AM
Time of Injection: 2/13/98 07:46 AM
Low Point : 12.33 mV High Point : 1092.23 mV
Plot Scale: 1079.9 mV



Gasoline Standard

BTXE

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8020A
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
132295-005	MW-9	39071	02/09/98	02/13/98	02/13/98	
132295-006	MW-13	39071	02/09/98	02/13/98	02/13/98	

Matrix: Water

Analyte	Units	132295-005	132295-006
Diln Fac:		1	1
MTBE	ug/L	35	2 N/A
Benzene	ug/L	48	<0.5
Toluene	ug/L	17	<0.5
Ethylbenzene	ug/L	5.8	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5
Surrogate			
Trifluorotoluene	%REC	111	92
Bromofluorobenzene	%REC	86	78

Lab #: 132295 BATCH QC REPORT Curtis & Tompkins, Ltd. Page 1 of 1

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	TVH
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

METHOD BLANK

Matrix:	Water	Prep Date:	02/13/98
Batch#:	39071	Analysis Date:	02/13/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC64150

Analyte	Result	
Gasoline C7-C12	<50	
Surrogate	**%Rec**	**Recovery Limits**
Bromofluorobenzene	76	59-162

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client:	Subsurface Consultants	Analysis Method:	EPA 8020A
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

METHOD BLANK

Matrix:	Water	Prep Date:	02/13/98
Batch#:	39071	Analysis Date:	02/13/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC64150

Analyte	Result
MTBE	<2.0
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	94	53-124
Bromofluorobenzene	76	41-142

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	TVH
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

METHOD BLANK

Matrix:	Water	Prep Date:	02/16/98
Batch#:	39087	Analysis Date:	02/16/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC64214

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Bromofluorobenzene	71	59-162

BTXE

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 39087
Units: ug/L
Diln Fac: 1

Prep Date: 02/16/98
Analysis Date: 02/16/98

MB Lab ID: QC64214

Analyte	Result
MTBE	<2.0
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	88	53-124
Bromofluorobenzene	74	41-142

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	TVH
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

METHOD BLANK

Matrix:	Water	Prep Date:	02/18/98
Batch#:	39105	Analysis Date:	02/18/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC64265

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Bromofluorobenzene	76	59-162

BTXE

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 39105
Units: ug/L
Diln Fac: 1

Prep Date: 02/18/98
Analysis Date: 02/18/98

MB Lab ID: QC64265

Analyte	Result
MTBE	<2.0
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	88	53-124
Bromofluorobenzene	73	41-142

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	TVH
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	02/13/98
Batch#:	39071	Analysis Date:	02/13/98
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC64148

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	2061	2000	103	80-119

Surrogate	%Rec	Limits
Bromofluorobenzene	96	59-162

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 132295 BATCH QC REPORT Curtis & Tompkins, Ltd.

BTXE

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8020A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 39071
Units: ug/L
Diln Fac: 1

Prep Date: 02/13/98
Analysis Date: 02/13/98

LCS Lab ID: QC64149

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	20.02	20	100	65-135
Benzene	20.04	20	100	69-109
Toluene	21.74	20	109	72-116
Ethylbenzene	21.15	20	106	67-120
m,p-Xylenes	45.24	40	113	69-117
o-Xylene	22.4	20	112	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	90	53-124
Bromofluorobenzene	75	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 6 outside limits

Lab #: 132295

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	TVH
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	02/16/98
Batch#:	39087	Analysis Date:	02/16/98
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC64212

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1957	2000	98	80-119

Surrogate	%Rec	Limits
Bromofluorobenzene	94	59-162

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: EPA 8020A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 39087
Units: ug/L
Diln Fac: 1

Prep Date: 02/16/98
Analysis Date: 02/16/98

LCS Lab ID: QC64213

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	19.02	20	95	65-135
Benzene	19.82	20	99	69-109
Toluene	21.58	20	108	72-116
Ethylbenzene	21.43	20	107	67-120
m,p-Xylenes	45.61	40	114	69-117
o-Xylene	23.11	20	116	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	91	53-124
Bromofluorobenzene	74	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 6 outside limits

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	TVH
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	02/17/98
Batch#:	39105	Analysis Date:	02/17/98
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC64263

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1854	2000	93	80-119

Surrogate	%Rec	Limits
Bromofluorobenzene	91	59-162

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 132295

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client:	Subsurface Consultants	Analysis Method:	EPA 8020A
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	02/17/98
Batch#:	39105	Analysis Date:	02/17/98
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC64264

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	18.16	20	91	65-135
Benzene	16.91	20	85	69-109
Toluene	19.08	20	95	72-116
Ethylbenzene	17.79	20	89	67-120
m,p-Xylenes	38.66	40	97	69-117
o-Xylene	20.49	20	102	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	90	53-124
Bromofluorobenzene	72	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 6 outside limits

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: TVH
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 132284-001
Matrix: Water
Batch#: 39071
Units: ug/L
Diln Fac: 1

Sample Date: 02/03/98
Received Date: 02/09/98
Prep Date: 02/13/98
Analysis Date: 02/13/98

MS Lab ID: QC64151

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	1994	100	71-131

Surrogate	%Rec	Limits
Bromofluorobenzene	97	59-162

MSD Lab ID: QC64152

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2018	101	71-131	1	26

Surrogate	%Rec	Limits
Bromofluorobenzene	97	59-162

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 447.055
Location: Connell Olds

Analysis Method: TVH
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 132308-003
Matrix: Water
Batch#: 39087
Units: ug/L
Diln Fac: 1

Sample Date: 02/10/98
Received Date: 02/11/98
Prep Date: 02/16/98
Analysis Date: 02/16/98

MS Lab ID: QC64215

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	1880	94	71-131

Surrogate	%Rec	Limits
Bromofluorobenzene	90	59-162

MSD Lab ID: QC64216

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	1742	87	71-131	8	26

Surrogate	%Rec	Limits
Bromofluorobenzene	89	59-162

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	TVH
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	02/13/98
Lab ID:	132365-013	Received Date:	02/13/98
Matrix:	Water	Prep Date:	02/18/98
Batch#:	39105	Analysis Date:	02/18/98
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC64266

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	1796	90	71-131

Surrogate	%Rec	Limits
Bromofluorobenzene	96	59-162

MSD Lab ID: QC64267

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	1950	98	71-131	8	26

Surrogate	%Rec	Limits
Bromofluorobenzene	99	59-162

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

CHAIN OF CUSTODY FORM

PAGE ____ OF ____

PROJECT NAME: Connell Olds
JOB NUMBER: 447.055
PROJECT CONTACT: Samuel Won
SAMPLED BY: Dennis Alexander
LAB: Curtis & Tompkins
TURNAROUND: Normal
REQUESTED BY: Samuel Won

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR			CONTAINERS: VOA	LITER	PINT	TUBE			METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES	ANALYSIS REQUESTED: TVH/BTXE	MTBE	TEH	OAG	SVOCs	DCA
	MW-1	X						7	3					X			X		02	09	98	1530	*	X	X	X	X	X	X
	MW-4	X						7	1					X			X					1415	*	X	X	X			X
	MW-7	X						7	1					X			X							X		X			X
	MW-8	X						7	1					X			X					1315		X		X			X
	MW-9	X						7	1					X			X					1545		X	X	X			X
	MW-13	X						7	1					X			X		02	09	98	0900		X		X			X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
[signature]	2/9/98 1630	[signature]	2/9/98 1630
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES: * These samples have come from wells that previously have shown product. Possible high concentrations.

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