Subsurface Consultants, Inc.

November 17, 1998
SCI 447.055

STID 469

Mr. George Hill
305 Sheridan Avenue
Piedmont, California 94611

Mr. Gordon Linden
101 Gleneden Avenue
Oakland, California 94611

Groundwater Monitoring
August 1998 Quarterly Event
Connell Automobile Dealership
3093 Broadway
Oakland, California

Dear Messrs. Hill & Linden:

This letter records the results of the August 1998 groundwater monitoring event, as well as the June, July, and August 1998 free product recovery events performed by Subsurface Consultants, Inc. (SCI) at the Connell Automobile Dealership 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 from a sidewalk area located adjacent to the existing Connell 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. Two additional wells were installed inside the facility at the site during field activities performed by SCI in May 1998. These wells were installed to

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assist in preparation of the Corrective Action Plan and are not included in the groundwater monitoring program. Groundwater monitoring is performed in accordance with the program outlined in the Alameda County Health Care Services Agency (ACHCSA) letter dated January 26, 1998. Table 1 outlines the current groundwater monitoring plan for the site. The plan includes periodic sampling of the wells and monthly product level measurements and removal.

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). Due to elevated groundwater levels at the site caused by high seasonal rains, the SVE system was taken off-line and removed from the site in March 1998.

MONITORING ACTIVITIES

Monthly Free Product Removal

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

Groundwater Monitoring

On August 4, 1998, depth-to-water and free product thickness were measured in the site wells. Groundwater and free product elevation data are summarized in Table 2. The groundwater flow direction is generally towards the southeast at gradients varying from 0.01 to 0.1 ft/ft. Groundwater surface contours for this event are presented on Plate 2.

On August 4 and 5, 1998, wells MW-4, MW-7, MW-8, MW-9, MW-11, MW-13, and MW-15 were purged by removing water with new disposable bailers. 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 55-gallon drums and remain on-site pending later disposal.

Groundwater samples collected from the wells were submitted for chemical analyses, and/or biological analyses. The samples were retained in pre-cleaned containers supplied by the analytical laboratories and were placed in ice-filled coolers and remained iced until delivery to the laboratories. Chain-of-custody records accompanied the samples.

ANALYTICAL TESTING

Chemical analyses of samples of samples obtained from wells MW-4, MW-7, MW-8, MW-9 and MW-13 were performed by Curtis & Tompkins, Ltd., a state-certified chemical testing laboratory. A summary of sample preparation and test methods is presented below.

Analysis	Sample Preparation Method	Analysis Method
Total Volatile Hydrocarbons (TVH)	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
1,2 Dichloroethane (1,2-DCA)	EPA 5030	EPA 8260

CytoCulture International, an environmental microbiology testing laboratory, performed biological and bacterial enumeration tests on groundwater samples obtained from wells MW-8, MW-11, and MW-15. Specifically, these groundwater samples were analyzed for:

- Dissolved oxygen and pH,
- Bacterial enumeration by plate count (colony forming units),
- Nitrogen as ammonia (NH_3), Standard Methods for Water and Wastes (SMWW) 4500-NH_3 C,
- Nitrogen as nitrate (NO^{3-}), SMWW Method 4500-NO_3 B, and
- Ortho-phosphate (PO_4), SMWW Method 4500-P E.

Groundwater analytical test results are summarized in Table 3. Biological parameters and bacterial enumeration results are summarized in Table 4. Field sampling forms, analytical test reports, and chain-of-custody documents are attached.

DISCUSSION AND CONCLUSIONS

Groundwater Gradient

The groundwater gradient is relatively steep from northwest to southeast, with elevations varying approximately 12 to 14 feet across the site. However, a relatively flat area exists in the western portion of the site. This pattern is generally typical of what has been shown throughout the study.

Free Product

Free product is intermittently present in three of the site wells (MW-1, MW-4, and MW-6). Between June and August 1998, the free product thickness in MW-6 ranged from 0.35 to 0.41 feet. Free product was not detected in well MW-1 during June; however, a trace amount of free product was detected in the July and August events. Free product was not detected in well MW-4 during this quarter, nor has it been detected in well MW-4 during the past 9 months. A summary of free product removed from site wells by hand-bailing is presented in Table 5.

Monitoring Well Test Results

The concentrations of dissolved hydrocarbons in site wells MW-4 and MW-9 during this quarterly event (Table 3) appear to be similar to previous monitoring events. Dissolved hydrocarbons were not detected in MW-7 with the exception of 1,2-DCA at 1.1 µg/l. Concentrations of dissolved hydrocarbons in well MW-8 decreased slightly from the previous event and those in well MW-13 increased slightly. Groundwater samples from well MW-13 contained 1,2-DCA at 6.2 micrograms per liter (µg/l) and benzene at 200 µg/l.

MTBE has not been detected in any of the wells sampled to date.

Biological Parameter and Bacterial Plate Enumeration Test Results

Aerobic biodegradation tends to occur at the fringe of a dissolved plume. Soils with higher permeabilities, such as exist beneath this site, are favorable to biodegradation. A primary line of evidence for the occurrence of natural attenuation is the stability of the plume over time and slower migration than expected. The dissolved plume at the site does appear stable as evidenced by the monitoring data.

Secondary evidence of aerobic biodegradation can be determined by biological parameters and bacterial plate enumerations. Biological parameter and bacterial plate enumeration tests were performed on samples from wells MW-8, MW-11, and MW-15. Results of biological parameters testing indicate that there is sufficient dissolved oxygen for bacterial growth; however, the nitrate concentrations are relatively low. Additionally, the bacterial plate enumeration results are relatively low for samples collected from these wells. A discussion with Dr. Sean Bushart of CytoCulture indicated that the elevated concentrations of petroleum hydrocarbons in well MW-15 (located within the center of the plume) are likely inhibiting microbial growth. He further indicated that the relatively low concentrations of TVH in wells MW-11 and MW-8 are unlikely to provide sufficient nutrients for bacterial growth. This would account for the low bacterial plate enumeration results in these wells, although the biological testing conducted

during this quarter is inconclusive with regard to confirming the occurrence of natural attenuation at the site.

DISCUSSION OF SITE CLOSURE REQUIREMENTS

The Site has a relatively long investigation and remediation history, with primary regulatory oversight by the ACHCSA as the lead agency. Recently, the Regional Water Quality Control Board (RWQCB) and the City of Oakland have been requested to participate in several meetings[1] to assure that there was a consensus for decisions made regarding proposed Site corrective actions. At the request of the Site owners, these meetings were arranged to focus and resolve outstanding investigation and remediation activities at the Site, in an effort to move toward Site closure. Through a cooperative effort by all of the participants, the outcome has been to obtain preliminary acceptance and approval for a risk-based corrective action alternative. This preferred alternative is passive product removal and natural attenuation.

Selection of this alternative is contingent upon the following criteria expressed during the meetings with ACHCSA and RWQCB on July 13 and August 18, 1998:

- Source has been removed;
- Extent of plume in groundwater is defined and stable;
- Water wells and/or sensitive receptors are not likely to be impacted;
- Free product on groundwater is removed; and
- Residual contamination in soil and groundwater do not pose a significant risk to human health or environment.

The City of Oakland was requested to participate in two subsequent meetings on October 1 and 8, 1998 regarding the risk to human health criterion outlined by ACHCSA and RWQCB. Given the geologic complexity of the Site, subsurface conditions are not similar to default parameters for using an ASTM Tier 1. Therefore, a site-specific ASTM Tier 2 risk analysis is necessary. However, as discussed during the October meetings, the Site is an ideal candidate to utilize the City of Oakland's Urban Land Redevelopment (Oakland ULR) Program Risk Based Screening Level (RBSL) criteria. The Oakland ULR Program is a collaborative effort by the City and the principal local, state, and federal agencies responsible for enforcing environmental regulations in Oakland to facilitate the cleanup and redevelopment of properties with real or perceived contamination. The centerpiece of the Oakland ULR program is the establishment of risk-based

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[1] Four meetings have been held on July 13, August 18, October 1, and October 8, 1998. The decisions made and information shared during each of the meetings was an interactive process.

cleanup standards customized for Oakland by utilizing Oakland-specific geological, hydrogeological, and climatological information. Details of the program and criteria will be discussed in the forthcoming Corrective Action Plan.

During the two meetings, several decisions were made by ACHCSA, RWQCB, and the City of Oakland, regarding the preferred corrective action alternative for the Site. The following agreements were reached:

- The Oakland ULR Program RBSLs may be used in place of a Tier 2 ASTM risk analysis;
- Research must be undertaken to determine whether or not there are any utility lines or trenches under Broadway that may serve as preferential pathways for the contaminant plume;
- Prior to site closure, monitoring wells inside the building must be properly abandoned, including grouting to prevent a preferential pathway for volatilization to indoor air; this action should not take place until such time as the regulatory agencies direct it to allow for additional sampling, if necessary;
- The City of Oakland's Permit Tracking System, designed to flag properties issued conditional closures, appears to be an effective institutional control for ensuring the proper management of residual contamination at the Site, and will obviate the need for a deed restriction; and
- Upon approval of a corrective action plan, ACHCSA will issue a letter to the property owners stating that they may apply for closure once free product has been removed.

ONGOING ACTIVITIES

SCI will continue to remove product by hand bailing and record water level measurements on a monthly basis in accordance with the approved monitoring plan. The next sampling event will occur in November 1998.

Upon written documentation from the ACHCSA, SCI will increase the scope of the existing Corrective Action Plan to implement the risk-based alternative, and will plan and implement necessary activities to meet requirements for the Oakland ULR program.

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

Yours very truly,

Subsurface Consultants, Inc.

Margaret Mendoza
Project Geologist

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

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Attachments: Table 1 - Groundwater Monitoring Plan
Table 2 - Groundwater and Free Product Elevation Data
Table 3 - Summary of Chemical Concentrations in Groundwater
Table 4 - Summary of Biological Nutrient Parameters in Groundwater
Table 5 - Free Product Recovery by Hand Bailing
Plate 1 - Site Plan
Plate 2 - Groundwater Elevation Contours
Field Forms- June 1998 through August 1998
Analytical Test Reports
Chain-of-Custody Documents

cc: ✓Ms. Susan Hugo
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TABLE 1
GROUNDWATER MONITORING PROGRAM
CONNELL OLDSMOBILE
3093 BROADWAY
OAKLAND, CALIFORNIA

Well ID	TVH/BTEX/ MTBE	TEH	1,2-DCA	O&G	SVOCs
MW-1	Q*	Q*	Q*	Q*	Q*
MW-2	A	A	A	--	--
MW-3	A	A	A	--	--
MW-4	Q*	Q*	Q*	--	--
MW-5	A	A	A	--	--
MW-6	SA	SA	SA	--	--
MW-7	Q	Q	Q	--	--
MW-8	Q	Q	Q	--	--
MW-9	Q*	Q*	Q*	--	--
MW-10	A	A	A	--	--
MW-11	A	A	A	--	--
MW-13	Q	Q	Q	--	--

Notes:
TVH = Total volatile hydrocarbons
BTEX = Benzene, toluene, ethylbenzene and total xylenes
MTBE = Methyl tertiary butyl ether
TEH = Total extractable hydrocarbons
1,2-DCA = 1,2-Dichloroethane
O&G = Oil & grease
SVOCs = Semi-volatile organic compounds
Q* = These wells are sampled quarterly (February, May, August, and November events) if no free product is present, or semi-annually (May and November) if free product is present
Q = Quarterly; these wells are sampled in February, May, August, and November
SA = Semi-annually, these wells are sampled in May and November
A = Annually, these wells are sampled in May
Groundwater monitoring is performed in accordance with the program outlined in the Alameda County Health Care Services Agency (ACHCSA) letter dated January 26, 1998.
Water and free product levels in all wells are checked monthly and free product, if encountered, is removed by bailing as required by the ACHCSA

TABLE 2
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
		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

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OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-1 (cont.)	94.48	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	--
		3/6/98	20.80	73.68	0	--
		4/2/98	20.31	74.17	0	--
		4/29/98	19.95	74.53	0	--
		6/3/98	20.41	74.07	0	--
		7/9/98	20.97	73.51	0.07	73.58
		8/4/98	21.40	73.08	trace	--
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	NM	--
		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	--
		10/2/95	25.10	69.71	0	--
		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	--

TABLE 2
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-2 (cont.)	94.81	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	--
		3/6/98	22.23	72.58	0	--
		4/2/98	22.35	72.46	0	--
		4/29/98	22.18	72.63	0	--
		6/3/98	22.69	72.12	0	--
		7/9/98	22.98	71.83	0	--
		8/4/98	23.32	71.49	0	--
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	NM	--
		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	--

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3093 BROADWAY
OAKLAND, CALIFORNIA

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-3 (cont.)	90.08	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	--
		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	--
		3/6/98	19.68	70.40	0	--
		4/2/98	18.76	71.32	0	--
		4/29/98	17.92	72.16	0	--
		6/3/98	17.78	72.30	0	--
		7/9/98	18.31	71.77	0	--
		8/4/98	18.67	71.41	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

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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-4 (cont.)	88.84	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
		4/10/92	20.91	67.93	0.33	68.26
		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
		12/2/96	20.23	68.61	0.33	68.94
		1/3/97	19.33	69.51	0.1	69.61

TABLE 2
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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-4 (cont.)	88.84	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	--
		3/6/98	16.42	72.42	0	--
		4/2/98	16.54	72.30	0	--
		4/29/98	16.11	72.73	0	--
		6/3/98	16.55	72.29	0	--
		7/9/98	17.13	71.71	0	--
		8/4/98	17.54	71.30	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	NM	--
		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	--
		1/3/96	26.60	59.04	0	--
		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	--

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-5 (cont.)	84.84	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	--
		3/6/98	25.60	59.24	0	--
		4/2/98	25.80	59.04	0	--
		4/29/98	25.35	59.49	0	--
		6/3/98	25.28	59.56	0	--
		7/9/98	25.49	59.35	0	--
		8/4/98	25.77	59.07	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
		2/4/92	27.71	57.91	2.04	59.95
		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

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-6	85.62	5/4/92	25.40	60.22	NM	--
(cont.)		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
		6/5/96	27.15	58.47	5.17	63.64
		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

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-6*	86.94	2/5/98	25.31	61.63	0.89	62.52
(cont.)		3/6/98	24.63	62.31	0.46	62.77
MW-6†	85.82	4/2/98	24.45	62.49	0.59	63.08
		4/29/98	22.96	62.86	0.55	63.41
		6/3/98	22.81	63.01	0.41	63.42
		7/9/98	23.04	62.78	0.35	63.13
		8/4/98	23.29	62.53	0.35	62.88
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	--	NM	--
		4/3/93	20.08	65.33	0	--
		7/20/93	19.59	65.82	0	--
		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	--

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-7 (cont.)	85.41	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	--
		3/6/98	16.84	68.57	0	--
		4/2/98	16.51	68.90	0	--
		4/29/98	16.23	69.18	0	--
		6/3/98	16.48	68.93	0	--
		7/9/98	16.90	68.51	0	--
		8/4/98	17.24	68.17	0	--
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	NM	--
		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	--

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-8 (cont.)	85.50	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	--
		10/1/97	26.91	58.59	0	--
		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	--
		3/6/98	25.29	60.21	0	--
		4/2/98	25.38	60.12	0	--
		4/29/98	25.64	59.86	0	--
		6/3/98	25.38	60.12	0	--
		7/9/98	25.82	59.68	0	--
		8/4/98	25.96	59.54	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	NM	--
		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	--

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-9 (cont.)	90.37	6/6/97	20.13	70.24	0	--
		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	--
		3/6/98	20.99	69.38	0	--
		4/2/98	20.19	70.18	0	--
		4/29/98	19.27	71.10	0	--
		6/3/98	19.86	70.51	0	--
		7/9/98	19.61	70.76	0	--
		8/4/98	19.35	71.02	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	NM	--
		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	--
		1/3/97	18.86	69.74	0	--
		2/6/97	17.76	70.84	0	--
		3/5/97	17.84	70.76	0	--
		4/1/97	18.00	70.60	0	--

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-10 (cont.)	88.60	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	--
		3/6/98	16.07	72.53	0	--
		4/2/98	16.25	72.35	0	--
		4/29/98	15.84	72.76	0	--
		6/3/98	16.27	72.33	0	--
		7/9/98	16.79	71.81	0	--
		8/4/98	17.25	71.35	0	--
MW-11	102.06	11/24/92	33.65	68.41	0	--
		12/22/92	33.37	68.69	NM	--
		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	--
		9/10/96	30.66	71.40	0	--
		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	--

TABLE 2
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 (cont.)	102.06	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	--
		3/6/98	27.75	74.31	0	--
		4/2/98	27.47	74.59	0	--
		4/29/98	27.22	74.84	0	--
		6/3/98	27.74	74.32	0	--
		7/9/98	28.30	73.76	0	--
		8/4/98	28.72	73.34	0	--
MW-13	84.06	11/24/92	26.05	58.01	0	--
		12/22/92	25.08	58.98	NM	--
		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	--
		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	--

TABLE 2
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	5/8/97	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	--
		3/6/98	22.51	61.55	0	--
		4/2/98	22.54	61.52	0	--
		4/29/98	22.27	61.79	0	--
		6/3/98	22.34	61.72	0	--
		7/9/98	22.55	61.51	0	--
		8/4/98	22.75	61.31	0	--
MW-14	94.66	6/3/98	20.73	73.93	0	--
		7/9/98	21.23	73.43	0	--
		8/4/98	21.63	73.03	0	--
MW-15	94.76	6/3/98	21.13	73.63	0	--
		7/9/98	21.64	73.12	0	--
		8/4/98	22.03	72.73	0	--

Reference datum: arbitrary benchmark established by Levine Fricke.
TOC = Top of casing
Groundwater depths are measured below TOC.
NM = Not measured
* New TOC elevation due to connection to remediation system.
† New TOC elevation following disconnection of piping associated with the remediation system.

TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	Groundwater Elevation (feet)	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	MTBE µg/l
MW-1	10/5/90	68.08	620,000	<500	33,000	50,000	7,900	41,000	2,900	ND	--
	3/1/91	67.02	FP	--	--	--	--	--	--	--	**
	10/12/92	68.04	490,000	--	51,000	59,000	5,000	27,000	1,300	--	--
	11/24/92	67.85	320,000	4,600	35,000	43,000	4,200	22,000	1,600	ND	--
	4/5/93	70.71	270,000	25,000	50,000	58,000	4,600	25,000	1,800	ND	--
	7/21/93	69.97	FP	--	--	--	--	--	--	--	--
	11/9/93	68.42	FP	--	--	--	--	--	--	--	--
	8/30/95	72.75	FP	--	--	--	--	--	--	--	--
	12/4/95	72.54	FP	--	--	--	--	--	--	--	<200
	5/2/96	73.83	340,000	32,000	57,000	73,000	7,200	38,000	1,200	--	--
	11/5/96	70.19	270,000	--	43,000	56,000	4,500	34,000	--	--	--
	5/9/97	71.69	240,000	28,000[1,2]	36,000	45,000	3,300	17,900	930	--	--
	11/5/97	69.42	240,000	28,000 [1,2]	42,000	48,000	3,600	18,800	1,200	--	<1,000
	2/9/98	71.84	220,000	27,000 [1,2]	47,000	60,000	5,200	29,800	1,500	ND	<1,000
	5/1/98	74.53	160,000	29,000 [1,2]	35,000	42,000	2,800	16,000	1,100	ND	<1,000
MW-2	3/1/91	66.95	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	11/24/92	66.90	<50	<50	<0.5	1.1	<0.5	1.5	<1.0	ND	--
	4/5/93	68.86	<50	870	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	7/21/93	69.22	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	11/10/93	68.09	<50	240	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	8/30/95	69.06	<50	150*	<0.5	<0.5	<0.5	<0.5	<1.0	--	--
	5/3/96	71.53	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--

TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	Groundwater Elevation (feet)	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	MTBE µg/l
MW-2	5/8/97	70.23	<50	<50	<0.5	0.7	<0.5	<0.5	<1.0	--	--
(cont.)	4/29/98	72.63	<50	<47	<0.5	<0.5	<0.5	<0.5	<1.0	ND	<2
MW-3	3/1/91	66.91	<50	<50	<50	0.6	<0.5	<0.5	<1.0	ND	--
	11/25/92	67.07	50	160	<0.5	0.9	<0.5	2	<1.0	ND	--
	4/5/93	67.97	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	7/21/93	66.15	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	11/10/93	66.94	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	8/30/95	69.47	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	--	--
	5/3/96	71.65	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	5/8/97	70.31	<50	<50	<0.5	0.7	<0.5	<0.5	<1.0	--	--
	4/29/98	72.16	<50	<47	<0.5	<0.5	<0.5	<0.5	<1.0	ND	<2
MW-4	3/1/91	65.05	150,000	<500	20,000	38,000	2,800	14,000	610	ND	**
	10/12/92	66.36	230,000	--	15,000	32,000	2,500	14,000	430	--	--
	11/24/92	66.24	210,000	1,600	14,000	31,000	2,500	14,000	500	ND	--
	4/2/93	68.73	FP	--	--	--	--	--	--	--	--
	7/21/93	68.36	FP	--	--	--	--	--	--	--	--
	11/9/93	67.13	FP	--	--	--	--	--	--	--	--
	8/30/95	68.94	FP	--	--	--	--	--	--	--	--
	12/1/95	69.44	FP	--	--	--	--	--	--	--	--
	5/2/96	71.34	140,000	9,200	24,000	50,000	3,000	15,100	420	ND	--
	11/4/96	68.71	160,000	4,700 [1,2]	16,000	38,000	2,700	14,000	380	ND	--
	5/8/97	70.21	170,000	5,100 [1,2]	16,000	37,000	2,400	15,900	290	--	--

TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	Groundwater Elevation (feet)	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	MTBE µg/l
MW-4	11/5/97	68.65	190,000	3,700 [1,2]	15,000	31,000	2,200	14,600	290	--	<400
(cont.)	2/9/98	70.56	110,000	4,800 [1,2]	19,000	42,000	2,500	18,300	300	--	<500
	5/1/98	72.73	130,000	5,000 [1,2]	15,000	31,000	2,000	13,400	260	ND	<1,000
	8/4/98	71.30	130,000	3,500 [1,2]	16,000	34,000	2,400	15,700	240	ND	<400
MW-5	3/15/91	58.53	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	11/10/92	58.01	<50	50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	4/2/93	58.22	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	7/21/93	58.24	<50	190	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	11/9/93	57.60	<50	170	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	8/30/95	57.38	<50	180*	<0.5	<0.5	<0.5	<0.5	<1.0	--	--
	5/3/96	58.82	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	5/8/97	58.08	<50	<50	<0.5	0.5	<0.5	<0.5	<1.0	--	--
	4/29/98	59.49	<50	<47	<0.5	0.5	<0.5	<0.5	<1.0	ND	<2
MW-6	3/15/91	59.80	80,000	<50	12,000	13,000	1,100	5,400	1,400	Dibromochloromethane (160)	--
	10/12/92	60.60	19,000	--	3,200	1,400	200	560	840	--	--
	12/1/92	56.75	FP	--	--	--	--	--	--	--	--
	4/2/93	58.66	FP	--	--	--	--	--	--	--	--
	7/21/93	59.45	FP	--	--	--	--	--	--	--	--
	11/9/93	58.11	FP	--	--	--	--	--	--	--	--
	8/30/95	57.62	FP	--	--	--	--	--	--	--	--

TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	Groundwater Elevation (feet)	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	MTBE µg/l
MW-6	12/1/95	58.04	FP	--	--	--	--	--	71	--	<8,000,000
(cont.)	5/3/96	58.79	130,000	9,000	37,000	50,000	3,200	14,200	2,400	ND	--
	5/9/97	60.40	1,700,000	53,000[1,2]	14,000	27,000	4,000	28,200	1,200	--	--
	11/5/97	60.78	160,000	65,000 [1,2]	13,000	19,000	1,900	14,300	790	--	<200
	5/1/98	62.86	130,000	25,000 [1,2]	15,000	23,000	1,700	13,200	1100	ND	<500
MW-7	3/15/91	63.78	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	11/24/92	63.89	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	4/2/93	65.33	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	7/21/93	65.82	<50	150	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	11/9/93	64.76	<50	200	<0.5	1	<0.5	1.7	<1.0	ND	--
	8/30/95	66.63	<50	170*	<0.5	<0.5	<0.5	<0.5	<1.0	--	--
	12/1/95	65.94	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	5/2/96	68.26	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	8/8/96	66.93	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	<2
	11/4/96	66.72	<50	<50	<1	<1	<1	<1	<1.0	ND	--
	2/6/97	67.97	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	<2
	5/8/97	67.69	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	--	--
	8/7/97	66.92	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	<2
	11/5/97	66.55	<50	<50	<0.5	<0.5	<0.5	<0.5	1	--	<2
	2/9/98	67.85	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	--	<2
	4/29/98	69.18	<50	<47	<0.5	<0.5	<0.5	<0.5	<1.0	ND	<2
	8/4/98	68.17	<50	<50	<0.5	<0.5	<0.5	<0.5	1.1	ND	<2

TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	Groundwater Elevation (feet)	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	MTBE µg/l
MW-8	10/12/92	57.80	70	--	20	1	1	3	210	--	--
	11/25/92	57.88	<50	170	<0.5	<0.5	<0.5	<0.5	200	ND	--
	4/8/93	58.86	490	100	15	45	5.1	73	210	ND	--
	7/21/93	58.90	180	90	2.5	3	<0.5	1.9	350	ND	--
	11/11/93	58.32	310	170	23	<0.5	<0.5	<0.5	240	ND	--
	8/30/95	59.15	660	240*	360	6.8	13	2.8	130	--	--
	12/4/95	58.78	250	<50	46	0.9	4.9	<0.5	94	ND	--
	5/3/96	60.03	69	94	110	<0.5	<0.5	1.5	100	ND	--
	8/8/96	59.09	120	250 [1,2]	11	<0.5	<0.5	<0.5	93	ND	<2
	11/5/96	58.73	110	<50	20	<1	1	<1	98	ND	--
	2/6/97	59.66	67 [1,2]	130	51	<0.5	0.56	<0.5	81	ND	<2
	5/9/97	59.11	110 [1,2]	120 [1,2]	59	<0.5	<0.5	<0.5	76	--	--
	8/7/97	58.78	<50	150 [2]	12 [3]	<0.5	<0.5	<0.5	79	ND	<2
	11/5/97	58.68	<50	110 [1,2]	9.4	<0.5	<0.5	<0.5	84	--	<2
	2/9/98	59.93	<50	75 [1,2]	6	<0.5	<0.5	<0.5	85	--	<2
	5/1/98	59.86	430	210 [1,2]	490	7.1	27	26	85	ND	<10
	8/5/98	59.54	140	260 [1,2]	19	<0.5	5.2	5.3	69	ND	<2
MW-9	11/24/92	66.86	19,000	320	180	590	23	2000	340	Chloroform (15)	--
	4/5/93	69.23	2,300	920	48	4	0.6	13	600	Chloroform (2)	--
	7/21/93	68.83	2,300	450	170	8.1	15	<0.5	1100	ND	--
	11/10/93	62.84	4,400	450	69	7.3	21	9.7	900	ND	--

TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	Groundwater Elevation (feet)	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	MTBE µg/l
MW-9	8/30/95	70.78	3,200	680	3,900	49	80	22.8	960	--	--
(cont.)	12/4/95	69.72	--	--	--	--	--	--	--	--	<2
	5/2/96	71.74	<1300	710	2,600	<13	200	<13	550	ND	--
	11/5/96	69.68	1,800	420	280	<5	65	<5	770	ND	--
	5/9/97	70.41	1,100	490 [1,2]	160	<0.5	42	<0.5	690	--	--
	8/8/97	69.53	570 [1,2]	480 [2]	<0.5	<0.5	<0.5	0.78 [3]	680	ND	<2
	11/5/97	68.82	490 [1]	370 [1,2]	<0.5	<0.5	6	<0.5	500	--	<2
	2/9/98	70.16	270 [1]	410 [1,2]	48	17	5.8	<0.5	520	--	<2
	5/1/98	71.10	550	450 [1,2]	70	<0.5	22	2.2	390	ND	<2
	8/5/98	71.02	550 [1]	630 [1,2]	88	<0.5	13	1.9 [3]	420	ND	<2
MW-10	10/12/92	67.05	28,000	--	2,700	3,800	210	1,300	150	--	--
	11/24/92	66.74	130,000	1,300	9,700	19,000	1,400	8,400	370	ND	--
	4/5/93	69.46	63,000	5,000	6,300	14,000	1,100	7,500	70	ND	--
	7/21/93	68.81	140,000	20,000	16,000	31,000	2,200	13,000	700	ND	--
	8/30/95	70.61	92,000	5,900	13,000	24,000	1,800	9,100	300	--	--
	5/3/96	71.56	81,000	5,600	17,000	29,000	2,100	8,500	320	ND	--
	5/9/97	70.24	63,000	2,500 [1,2]	7,400	13,000	940	4,100	150	--	--
	5/1/98	72.76	60,000	2,000 [1,2]	7,100	14,000	1100	5,300	120	ND	<250
MW-11	11/24/92	68.41	<50	220	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	12/8/92***	68.69	<50	140	<0.1	<0.1	<0.1	<0.1	--	--	--
	12/8/92	68.69	<50	120	<0.5	<0.5	<0.5	<0.5	--	--	--

TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	Groundwater Elevation (feet)	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	MTBE µg/l
MW-11	4/5/93	71.03	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
(cont.)	7/21/93	70.16	160	150	<0.5	1.8	<0.5	<0.5	<1.0	ND	--
	11/9/93	69.46	80	60	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	8/30/95	73.14	<50	240*	<0.5	<0.5	<0.5	<0.5	<1.0	--	--
	5/3/96	74.06	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	5/8/97	72.13	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	--	--
	4/29/98	74.84	<50	<47	<0.5	<0.5	<0.5	<0.5	<1.0	ND	<2
MW-13	11/24/92	58.01	<50	3,600	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	12/8/92***	58.98	<50	210	<0.1	<0.1	<0.1	<0.1	--	--	--
	12/8/92	58.98	<50	100	<0.5	<0.5	<0.5	<0.5	--	--	--
	4/5/93	59.42	<50	<50	<0.5	0.9	<0.5	<0.5	<1.0	ND	--
	7/21/93	59.77	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	11/9/93	59.83	<50	160	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	8/30/95	60.76	<50	<50	49	<0.5	<0.5	<0.5	3.6	--	--
	12/1/95	60.26	<50	<50	<0.5	<0.5	<0.5	<0.5	4.1	ND	--
	5/3/96	60.87	<50	<50	<0.5	<0.5	<0.5	<0.5	4	ND	--
	8/8/96	60.62	<50	<50	32	<0.5	<0.5	<0.5	6.4	ND	<2
	11/5/96	60.02	<50	<50	<1	<1	<1	<1	5.7	ND	--
	2/6/97	60.82	<50	<50	<0.5	<0.5	<0.5	<0.5	3.5	ND	<2
	5/8/97	60.60	<50	<50	81	<0.5	<0.5	<0.5	5.5	--	--
	8/8/97	60.14	<50	<50	<0.5	<0.5	<0.5	<0.5	6.8	ND	<2
	11/5/97	59.79	<50	<50	<0.5	<0.5	<0.5	<0.5	5.5	--	<2
	2/9/98	61.17	<50	<50	<0.5	<0.5	<0.5	<0.5	2.9	--	<2

TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Event Date	Groundwater Elevation (feet)	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	MTBE µg/l
MW-13	4/29/98	61.79	<50	<47	24	<0.5	<0.5	<0.5	5.7	ND	<2
(cont.)	8/4/98	61.31	120	78 [1,2]	200	<1	<1	<1	6.2	ND	<4
MW-14	5/26/98	72.99	41,000	7,700 [1,2]	7,100	11,000	720	3,900	440	ND	<1000
MW-15	5/26/98	72.89	130,000	1,700 [1,2]	30,000	38,000	2,500	12,600	1,200	ND	<1000

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.
** = Fuel fingerprint analysis indicates MTBE is not present in the free product sample collected from this well.
*** = Duplicate sample sent to a different chemical laboratory.
Elevation dates taken near the time of sampling; see Table 2

<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
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 4
SUMMARY OF BIOLOGICAL NUTRIENT PARAMETERS IN GROUNDWATER
3093 BROADWAY
OAKLAND, CALIFORNIA

Location	Date	Ammonia-N (mg/l)	o-Phosphate (mg/l)	Nitrate-N (mg/l)	Sulfate (mg/l)	pH Field	pH Lab	Dissolved Oxygen Field (mg/l)	Hydrocarbon Degraders (cfu/ml)
MW-8	8/5/98	0.7	1.0	0.3	51	6.1	5.9	3.7	33
MW-11	8/5/98	0.4	2.1	0.9	22	6.5	6.1	2	92
MW-15	8/5/98	3.0	1.4	<0.1	27	6.5	6.0	1.4	30

NOTES:
mg/l = milligrams per liter
cfu/ml = colony forming units per milliliter
<0.1 = Compound not detected above laboratory reporting limit

TABLE 5
FREE PRODUCT RECOVERY BY HAND BAILING
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	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
	3/6/98	0.00	13.47
	4/2/98	0.00	13.47
	4/29/98	0.00	13.47
	6/3/98	0.00	13.47
	7/9/98	0.00	13.47
	8/4/98	trace	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 5
FREE PRODUCT RECOVERY BY HAND BAILING
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Date	Product Removed by Hand Bailing (gallons)	Cumulative Product Removed by Hand Bailing (gallons)
MW-4	2/28/92	4.00	17.50
(cont.)	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
	7/9/96	0.16	47.75
	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

TABLE 5
FREE PRODUCT RECOVERY BY HAND BAILING
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Date	Product Removed by Hand Bailing (gallons)	Cumulative Product Removed by Hand Bailing (gallons)
MW-4	12/2/96	0.02	47.89
(cont.)	1/3/97	0.02	47.91
	2/6/97	0.01	47.92
	none detected since 2/97; checked on a monthly basis		
	8/4/98	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
	6/29/92	0.19	22.83
	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

TABLE 5
FREE PRODUCT RECOVERY BY HAND BAILING
3093 BROADWAY
OAKLAND, CALIFORNIA

Well	Date	Product Removed by Hand Bailing (gallons)	Cumulative Product Removed by Hand Bailing (gallons)
MW-6	11/4/96	*NM	83.40
(cont.)	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	*NM	84.56
	3/6/98	0.04	84.60
	4/2/98	0.10	84.70
	4/29/98	0.09	84.79
	6/3/98	0.03	84.82
	7/9/98	0.05	84.87
	8/4/98	0.04	84.91
MW-9	8/8/96	0.10	0.10
	none detected since 8/96; checked on a monthly basis		
	8/4/98	0.00	0.10

Total Product (gallons) removed by bailing	146.40
Total Product (gallons) removed by Soil Vapor Extraction (as of 3/31/98)	223.0
Cumulative Total of Product (gallons) Removed	369.40

*NM, product was being removed by vapor extraction at time of measurement.

HAWTHORNE STREET

SIDEWALK

11

1

3093 BROADWAY

D/MW-14

E/MW-15

6

8

9

10/CPT13

4

2

7

3

SIDEWALK

WEBSTER STREET

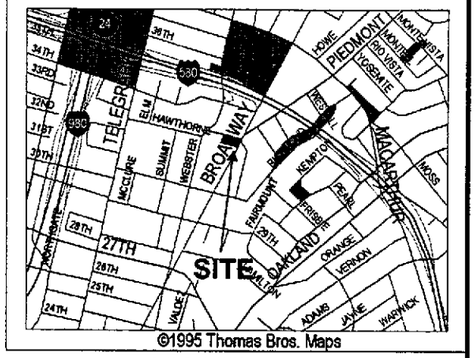
13

BROOK STREET

5

BROADWAY

SIDEWALK



VICINITY MAP

EXPLANATION

- SCI MONITORING WELL
- EXTRACTION WELL
- FENCE
- RETAINING WALL
- FORMER TANK LOCATION

APPROXIMATE SCALE (feet)

0 60 120

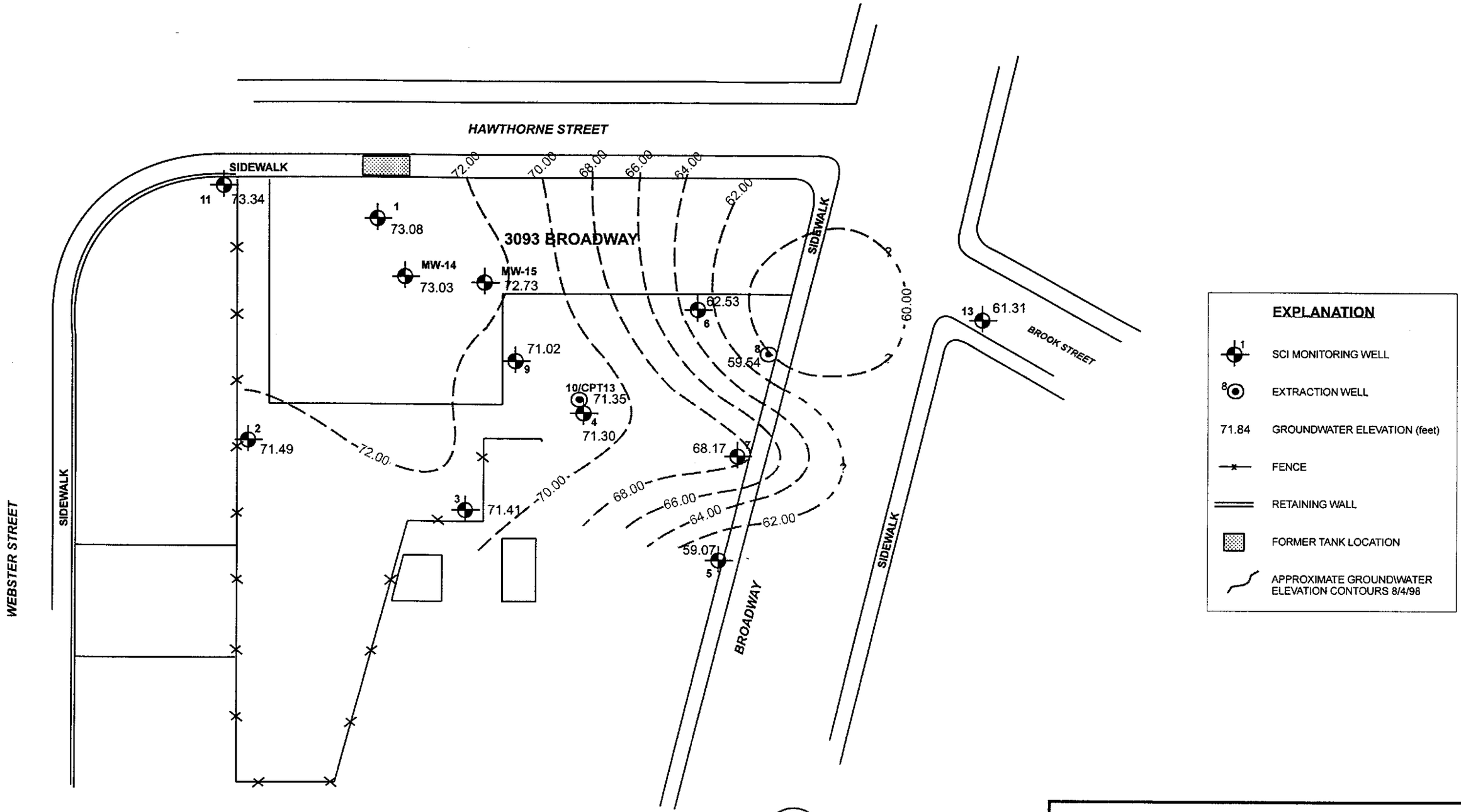
SITE PLAN

SCI Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.055	5/26/98	

PLATE 1



GROUNDWATER ELEVATION CONTOURS AUGUST 1998

SCI Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.055	8/17/98	

PLATE 2

GROUNDWATER DEPTHS

Project Name: Connell Olds

Job No.: 447.055

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	6/3/98	20' 4 7/8"	1040	no product
MW-2		0845	22.69	well under pressure - ▼ may not be static
MW-3		0855	17.78	well under pressure - ▼ may not be static
MW-4		0950	16.55	no product
MW-5		0915	25.28	well under pressure - ▼ may not be static.
MW-6		1000	22' 9 3/4"	Top of Product = 22' 4 7/8" Product thickness = 4 7/8" 1 1/8" visible in bailer " Bailed = 100ml
MW-7		0925	16.48	
MW-8		0945	25.38	
MW-9		0935	19.86	well under pressure - ▼ may not be static.
MW-10		0930	16.27	
MW-13		0815	22.34	
MW-14		1020	20.73	no product
MW-15		1025	21.13	no product
MW-11		0825	27.74	

GROUNDWATER DEPTHS

Project Name: Connell Olds

Job No.: 947.055

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	7/9/98	0915	20.97	Top of Product = 20'10 3/4" no visible product in bailer
MW-2		0750	22.98	
MW-3		0755	18.31	
MW-4		0845	17.13	no product
MW-5		0820	25.49	
MW-6		0835	23' 1/2"	Top of Product = 22'8 1/4" Product thickness = 4 1/4" " Bailed = 1 gal. total liquid 200 ml product
MW-7		0800	16.90	
MW-8		0829	25.82	
MW-9		0855	19.61	
MW-10		0850	16.79	
MW-11		0745	28.30	
MW-13		0740	22.55	
MW-14		0905	21.23	
MW-15		0900	21.64	

GROUNDWATER DEPTHS

Project Name: Connell ORs

Job No.: 497.055

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	8/4/98	0850	21.40	Top of Product = 21' 3¾" Product Bailed = 10ml 1/16" visible ring in Bailer
MW-2		0755	23.32	
MW-3		0800	18.67	
MW-4		0830	17.54	no product
MW-5		0825	25.77	
MW-6		0920	23' 3½"	Top of Product = 22' 11¼" Product thickness = 4¼" 1½" visible in bailer " Bailed = 2 VOAs
MW-7		0805	17.24	
MW-8		0810	25.96	
MW-9		0910	19.35	
MW-10		0935	17.25	
MW-11		0750	28.72	
MW-13		0745	23.75	
MW-14		0835	21.63	no product
MW-15	↓	0845	22.03	no product

WELL SAMPLING FORM

Project Name: Connell olds
Well Number: MW-4
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 8/4/98
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 24.50 feet
Depth to Groundwater Before Purging (below TOC) 17.54 feet
Feet of Water in Well 6.96 feet
Depth to Groundwater When 80% Recovered 18.93 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 1.1 gallons
Depth Measurement Method (Tape & Paste) / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

fast recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp (C) / °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
1		6.26	23.5	575		clear/strong odor
2		6.24	22.5	575		
3		6.24	22.5	575		
4		6.23	22.0	575		

Total Gallons Purged 4 gallons
Depth to Groundwater Before Sampling (below TOC) 17.61 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-1
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 8/4/98
TOC Elevation:
Weather: Sunny

Depth to Casing Bottom (below TOC) 30.00 feet
Depth to Groundwater Before Purging (below TOC) 17.24 feet
Feet of Water in Well 12.76 feet
Depth to Groundwater When 80% Recovered 19.79 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.1 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

fast recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp (°C) °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
1		6.65	23.5	435		murky/no odor
3		6.42	23.5	700		
5		6.40	23.0	725		
7		6.38	23.0	875		

Total Gallons Purged 7 gallons
Depth to Groundwater Before Sampling (below TOC) 19.21 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: 8/5/98
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 39.50 feet
Depth to Groundwater Before Purging (below TOC) 25.96 feet
Feet of Water in Well 13.54 feet
Depth to Groundwater When 80% Recovered 28.67 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 19.9 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)	D.O. = 3.7 ppm ~~ppm~~ Salinity S‰	Comments
20		6.03	20.5	950		clear | slight odor
30		6.02	21.0	975		
40		6.03	20.0	1025		
50		6.10	20.5	1025		
60		6.13	20.5	1050		

Total Gallons Purged 60 gallons
Depth to Groundwater Before Sampling (below TOC) 28.67 feet
Sampling Method disposable bailer
Containers Used 7 (40 ml) 2 (liter) (pint)
Bio-Sample

Subsurface Consultants

JOB NUMBER DATE APPROVED PLATE

WELL SAMPLING FORM

Project Name: Connell ads
Job No.: 447.055
Sampled By: DWA
TOC Elevation:

Well Number: MW-9
Well Casing Diameter: 2 inches
Date: 8/4/98
Weather: sunny

Depth to Casing Bottom (below TOC) 30.50 feet
Depth to Groundwater Before Purging (below TOC) 19.35 feet
Feet of Water in Well 11.15 feet
Depth to Groundwater When 80% Recovered 21.58 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 1.8 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

FIELD MEASUREMENTS

very slow recharge (overnight)

Gallons Removed	Time	pH	Temp (°C) / °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
0		5.71	23.5	850		clear/moderate odor
2		5.65	22.0	850		milky
4		5.74	23.0	900		dry @ 4 gals. (let recharge)
6		6.04	24.0	900		

Total Gallons Purged 6 gallons
Depth to Groundwater Before Sampling (below TOC) 19.35 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 ads
Well Number: MW-4
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 8/5/98
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 37.00 feet
Depth to Groundwater Before Purging (below TOC) 28.72 feet
Feet of Water in Well 8.28 feet
Depth to Groundwater When 80% Recovered 30.38 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 1.4 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer
fast recharge

FIELD MEASUREMENTS

D.O. = 2 ppm

Gallons Removed	Time	pH	Temp °C / °F	Conductivity (micromhos/cm)	~~Salinity~~ S%	Comments
1		6.43	22.0	1300		murky / no odor
2		6.51	22.5	1300		
3		6.54	22.0	1300		
4		6.54	22.0	1300		
5		6.46	22.0	1300		

Total Gallons Purged 5 gallons
Depth to Groundwater Before Sampling (below TOC) 28.80 feet
Sampling Method disposable bailer
Containers Used ____ 40 ml | 1 liter | ____ pint | ____
Bio-Sample

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: 8/4/9F
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 40.00 feet
Depth to Groundwater Before Purging (below TOC) 22.75 feet
Feet of Water in Well 17.25 feet
Depth to Groundwater When 80% Recovered 26.20 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

FIELD MEASUREMENTS

fast recharge

Gallons Removed	Time	pH	Temp (°C) °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
1		6.49	24.0	775		clear/no odor
3		6.45	24.0	775		↓
5		6.43	23.0	775		semi-clear
7		6.42	23.5	775		↓
9		6.43	23.0	775		↓

Total Gallons Purged 9 gallons
Depth to Groundwater Before Sampling (below TOC) 26.10 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-15
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 8/5/98
TOC Elevation:
Weather: Sunny

Depth to Casing Bottom (below TOC) 38.50 feet
Depth to Groundwater Before Purging (below TOC) 22.03 feet
Feet of Water in Well 16.47 feet
Depth to Groundwater When 80% Recovered 25.32 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 2.7 gallons
Depth Measurement Method (Tape & Paste) / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer fast recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	D.O. = 1.4 ppm Salinity S%	Comments
1		6.43	22.0	950		murky/slight odor w/ spotty sheen
3		6.47	22.0	975		
5		6.54	22.0	975		
7		6.56	22.0	975		
9		6.53	22.5	975		

Total Gallons Purged 9 gallons
Depth to Groundwater Before Sampling (below TOC) 22.30 feet
Sampling Method disposable bailer
Containers Used ____ 40 ml / 1 liter Bio-Sample / ____ pint / ____

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

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CHAIN OF CUSTODY FORM

Project Description: Connell Qds	Code/P.O.: Job #447.055
Client: Subsurface Consultants	Client Contact: Meg Mendoza
Address to send results: 3736 Mt. Diablo Blvd., Ste. 200 Lafayette, Ca. 94549	
Tel: (925) 299-7960	Fax: (925) 299-7970
Sampler: Dennis Alexander	Recorder:

Sample I.D.	Sampling Date	Time	Matrix Soil	Matrix Water	Analysis CFU Hydrocarbon	CFU Heterotrophic	pH	DO	NH_3	PO_4	SO_4	NO_3	Comments
MW-8	8/5/98	1000		X	X		X		X	X	X	X	D.O. = 3.7 ppm
MW-11	↓	1045		X	X		X		X	X	X	X	D.O. = 2.0 ppm
MW-15	↓	1145		X	X		X		X	X	X	X	D.O. = 1.4 ppm

Predominant Hydrocarbon - GAS

Chain of Custody Record			
Relinquished by: Dennis Alexander	Date/Hr: 8/6/98 0940	Received by: [signature]	Date/Hr: 8/6/98 9:45
Relinquished by:	Date/Hr:	Received by:	Date/Hr:

PAGE [redacted] OF [redacted]

CHAIN OF CUSTODY FORM

PROJECT NAME: Connell Olds
JOB NUMBER: 447.055
PROJECT CONTACT: Meg Mendoza
SAMPLED BY: Dennis Alexander

LAB: Curtis + Tompkins
TURNAROUND: Normal
REQUESTED BY: Meg Mendoza

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: TEH	TVH	BTXE	MTBE	1,2 DCA
	MW-4	X				7	1			X			X		08	04	98	1030		X	X	X	X	X
	MW-7	X				7	1			X			X		08	04	98	1130		X	X	X	X	X
	MW-8	X				7	1			X			X		08	05	98	1000		X	X	X	X	X
	MW-9	X				7	1			X			X		08	05	98	0715		X	X	X	X	X
	MW-13	X				7	1			X			X		08	04	98	1230		X	X	X	X	X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Dennis Alexander	8/5/98 1230	Anna M Tamillo	8/5/98 12:30 pm
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:

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

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Client: Subsurface Consultants
Contact: Meg Mendoza
3736 Mt Diablo Blvd. Suite 200
Lafayette, CA 94549

August 13, 1998
Fax: (925)-299-7970 **Phone:** (925) 299-7960
Project Description: Connell Olds
Project #: 447.055

SAMPLES: 3 water samples were received on 8/6/98. The samples were assayed on 8/6/98, and stored at 4°C for any follow up work.

Hydrocarbon-Degrading Bacteria Enumeration Assays

ANALYSIS REQUEST: Bacterial enumeration for aerobic petroleum hydrocarbon-degraders (broad range petroleum hydrocarbons: gasoline, diesel and jet fuel) .

CARBON SOURCES: Petroleum hydrocarbons were added as the sole carbon and energy sources for the growth of hydrocarbon-degrading aerobic bacteria on agar plates. Chevron #2 Diesel and JP-4 Jet Fuel were blended into the agar to provide dissolved phase aliphatic and aromatic hydrocarbons in the growth matrix. In addition, pasteurized gasoline was added to the lid to provide gasoline vapors as an additional carbon source.

PROTOCOLS:

Hydrocarbon Degraders: Sterile agar plates (100 x 15 mm) were prepared with minimal salts medium at pH 6.8 with 1.5% noble agar, without any other carbon sources or nutrients added. Gasoline, diesel and jet fuel were the sole sources of carbon and energy. Triplicate plates were inoculated with 1.0 ml of sample, or a log dilution of the sample, at dilutions of 10^{0}, 10^{-1}, and 10^{-2}. The hydrocarbon plates were poured on 8/6/98 and counted after 7 days on 8/13/98. The plate count data are reported as colony forming units (cfu) per milliliter (ml) of sample. Each bacteria population value represents a statistical average of the plate count data obtained with inoculations for at least two of the three log dilutions tested.

Vox 510·233·0102 Fax 510·233·3777 Email: Cyto@CytoCulture.com
249 Tewksbury Avenue Point Richmond California 94801·3829 USA

AEROBIC
Hydrocarbon-Degrading and Heterotrophic Bacteria Enumeration Results

CLIENT SAMPLE NUMBER	SAMPLE DATE	HYDROCARBON DEGRADERS (CFU/ML)	TOTAL HETEROTROPHS (CFU/ML)
MW-8	8/5/98	3.3×10^1	NT
MW-11	8/5/98	9.2×10^1	NT
MW-15	8/5/98	3.0×10^1	NT

Note: $1.0 * 10^1$ cells/ ml is the detection limit for this assay.
1.0×10^1 cfu/ml is the lowest detection level for this assay

Inorganic Chemistry and Nutrient Assays

ANALYSIS REQUEST: Nutrient assays for nitrogen as ammonia and phosphorus as ortho-phosphate, nitrogen as nitrate, and total sulfate.

PROTOCOL: Spectrophotometric assays were performed to determine the concentrations of ammonia-nitrogen, ortho-phosphate, nitrate-nitrogen, and sulfate. The assays follow EPA manual colorimetric protocols using precalibrated reagents and a Gilford 240 spectrophotometer. All assays conform to California CLP and Standard Water & Wastewater Methods.

Client Sample	Sample Date	Ammonia N (mg/L)	o-Phosphate (mg/L)	Nitrate N (mg/L)	Sulfate (mg/L)
MW-8	8/5/98	0.7	1.0	0.3	51
MW-11	8/5/98	0.4	2.1	0.9	22
MW-15	8/5/98	3.0	1.4	<0.1	27

Note: 0.1 mg/L represents the lowest detection level for ammonia, o-phosphate and nitrate assays. ND = Not Detected

pH

ANALYSIS REQUEST: Analyses for pH for water samples.

PROTOCOL: The pH levels of the water samples were measured with a HACH digital pH meter equipped with a HACH-One combination electrode, and reported as the mean of triplicate values. All assays conform to California CLP and Standard Water & Wastewater analytical method specifications. pH was measured on 8/6/98.

Client Sample	Sample Date	pH	DO (mg/L)
MW-8	8/5/98	5.9	NT
MW-11	8/5/98	6.1	NT
MW-15	8/5/98	6.0	NT

Sean P. Bushart, Ph.D.
Environmental Microbiologist
Laboratory Services

Randall von Wedel, Ph.D.
Principal Biochemist and
Director of Research

Cyto Culture
International, Inc.

249 Tewksbury Avenue
Point Richmond, CA 94801

Summary of Microbiological and Chemical Results

Project name: Connell Olds
Subsurface Project #: 447.055

Sample Date: 8/5/98
Reporting Date: 8/13/98
Matrix: groundwater

			Sample ID						
			MW-8	MW-11	MW-15				Units
Bacterial Plate Enumerations	Aerobic	*Hydrocarbon Degraders*	**3.3 x 10^1**	**9.2 x 10^1**	**3.0 x 10^1**				cfu/ml
		Total Heterotrophs	**NT**	**NT**	**NT**				cfu/ml
	Anaerobic	*Hydrocarbon Degraders*	**NT**	**NT**	**NT**				cfu/ml
		Total Heterotrophs	**NT**	**NT**	**NT**				cfu/ml
Bacterial MPN Enumerations (Anaerobic)		*Nitrate Reducers*	**NT**	**NT**	**NT**				cells/ml
		Iron Reducers	**NT**	**NT**	**NT**				cells/ml
		Sulfate Reducers	**NT**	**NT**	**NT**				cells/ml
Nutrient / Chemical Assays		*pH*	**5.9**	**6.1**	**6.0**				
		Redox	**NT**	**NT**	**NT**				mV
		DO	**NT**	**NT**	**NT**				mg/L
		NH3-N	**0.7**	**0.4**	**3.0**				mg/L
		PO4	**1.0**	**2.1**	**1.4**				mg/L
		NO3-N	**0.3**	**0.9**	**<0.1**				mg/L
		SO4-S	**51**	**22**	**27**				mg/L
		Fe(II)	**NT**	**NT**	**NT**				mg/L
		Alkalinity (as CaCO3)	**NT**	**NT**	**NT**				mg/L
		Sulfide	**NT**	**NT**	**NT**				mg/L
		Methane	**NT**	**NT**	**NT**				mg/L

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CHAIN OF CUSTODY FORM

Project Description: Connell Olds	Code/P.O.: Job # 447.055
Client: Subsurface Consultants	Client Contact: Meg Mendoza
Address to send results: 3736 Mt. Diablo Blvd., Ste. 200 Lafayette, Ca. 94549	
Tel: (925) 299-7960	Fax: (925) 299-7970
Sampler: Dennis Alexander	Recorder:

Sample I.D.	Sampling Date	Time	Matrix Soil	Matrix Water	Analysis CFU Hydrocarbon	CFU Heterotrophic	pH	DO	NH_3	PO_4	SO_4	NO_3	Comments
MW-8	8/5/98	1000		X	X		X		X	X	X	X	D.O. = 3.7 ppm
MW-11	↓	1045		X	X		X		X	X	X	X	D.O. = 2.0 ppm
MW-15	↓	1145		X	X		X		X	X	X	X	D.O. = 1.4 ppm

Predominant Hydrocarbon - GAS

Chain of Custody Record			
Relinquished by: Dennis Alexander	Date/Hr: 8/6/98 0940	Received by: Scott	Date/Hr: 8/6/98 9:45
Relinquished by:	Date/Hr:	Received by:	Date/Hr:

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

ANALYTICAL REPORT

Prepared for:

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

Date: 26-AUG-98
Lab Job Number: 134916
Project ID: 447.055
Location: Connell Olds

Reviewed by: _____

Reviewed by: _____

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
134916-001	MW-4	42743	08/04/98	08/14/98	08/20/98	
134916-002	MW-7	42743	08/04/98	08/14/98	08/20/98	
134916-003	MW-8	42743	08/05/98	08/14/98	08/20/98	
134916-004	MW-9	42743	08/05/98	08/14/98	08/20/98	

Matrix: Water

Analyte Diln Fac:	Units	134916-001 1	134916-002 1	134916-003 1	134916-004 1
Diesel C12-C22	ug/L	3500 YL	<50	260 YL	630 YL
Surrogate					
Hexacosane	%REC	104	107	102	104

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

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
134916-005	MW-13	42743	08/04/98	08/14/98	08/20/98	

Matrix: Water

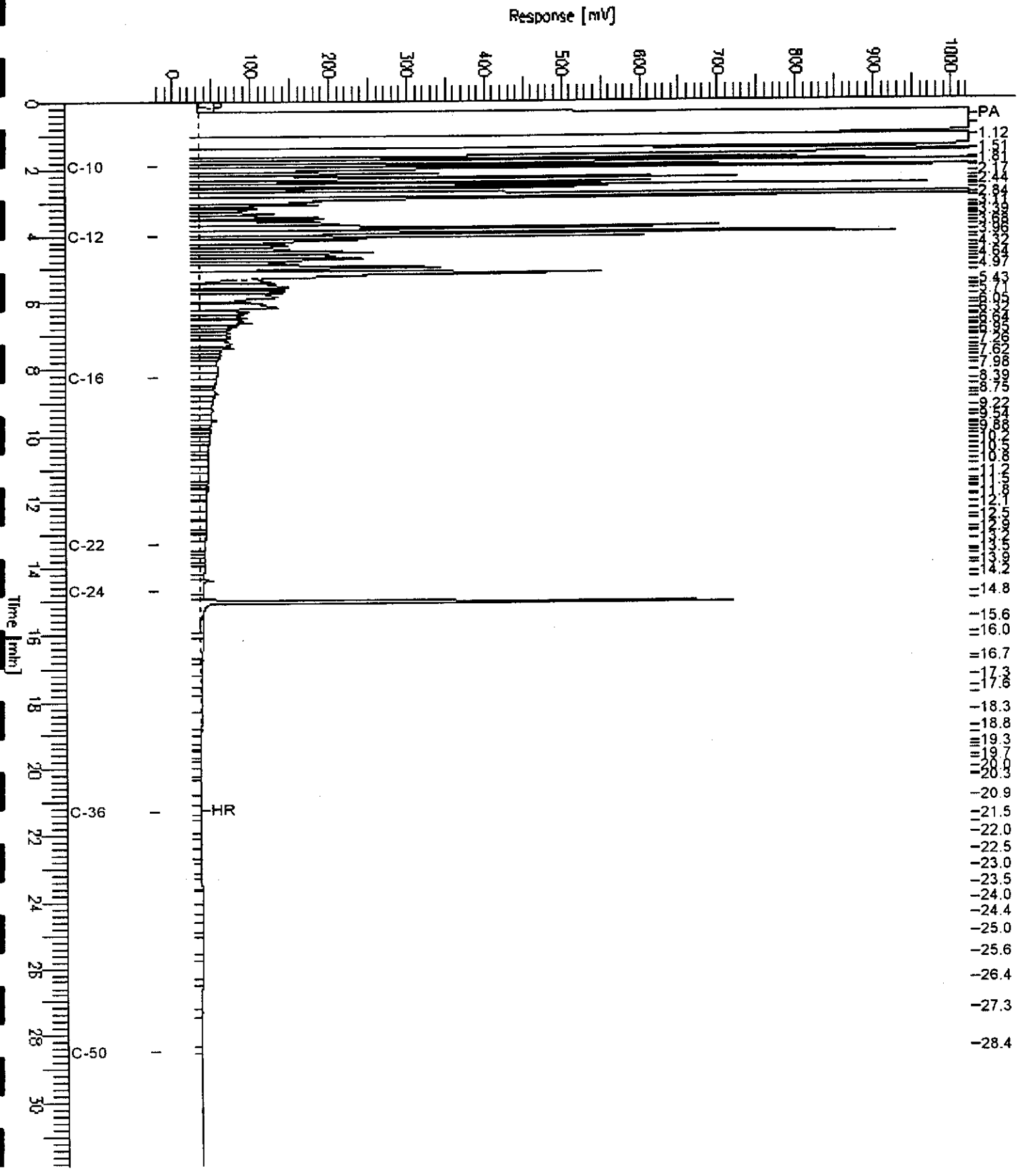
Analyte	Units	134916-005	
Diln Fac:		1	
Diesel C12-C22	ug/L	78	YL
Surrogate			
Hexacosane	%REC	97	

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

Chromatogram

Sample Name : 134916-001,42743
FileName : D:\GC13\CHB\231B021.RAW
Method : BTEH224.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -21 mV

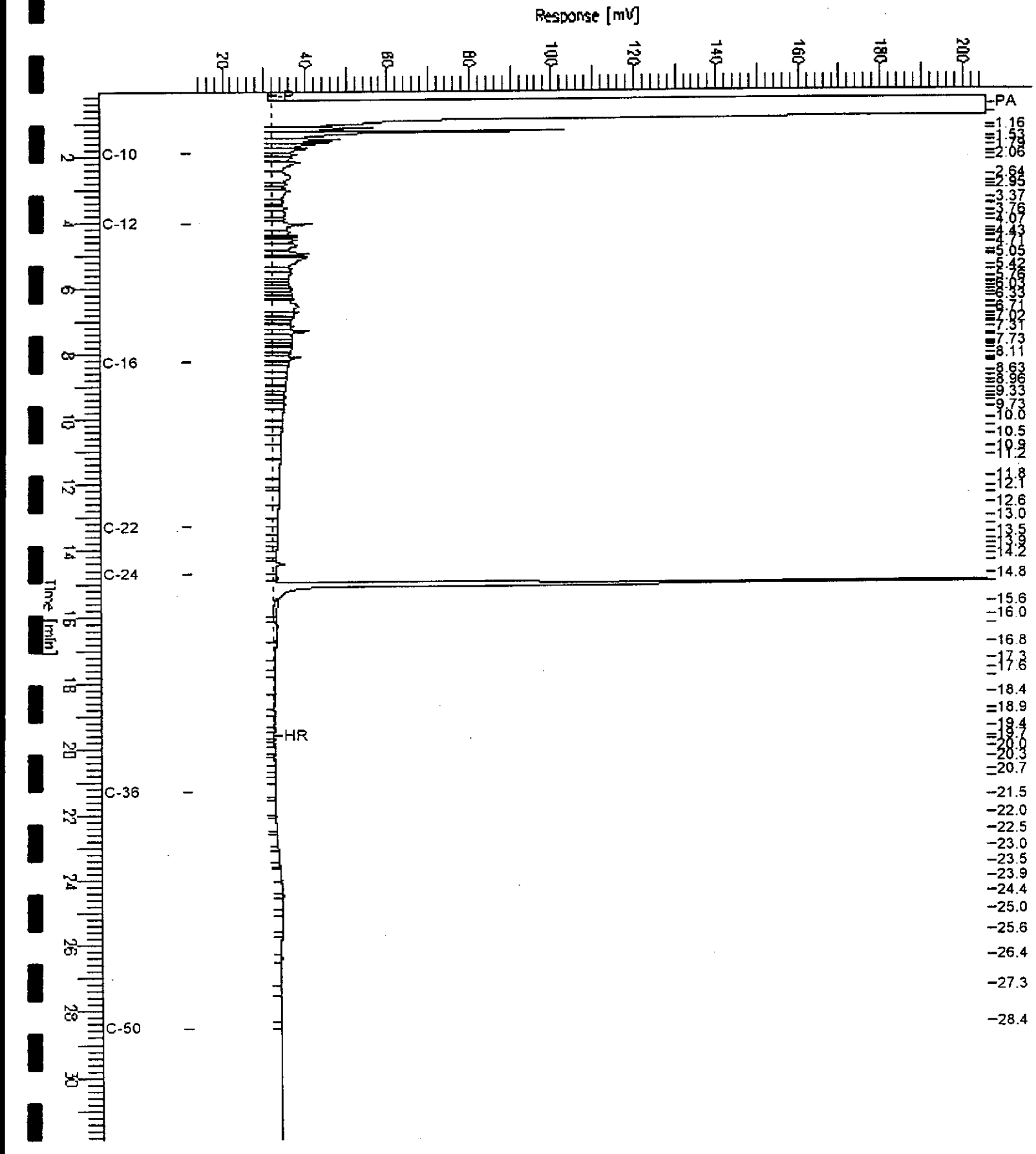
Sample #: 42743 Page 1 of 1
Date : 8/21/98 01:40 PM
Time of Injection: 8/20/98 09:17 AM
Low Point : -20.58 mV High Point : 1024.00 mV
Plot Scale: 1044.6 mV



Chromatogram

Sample Name : 134916-003,42743
FileName : D:\GC13\CHB\231B023.RAW
Method : BTEH224.MTH
Start Time : 0.07 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 12 mV

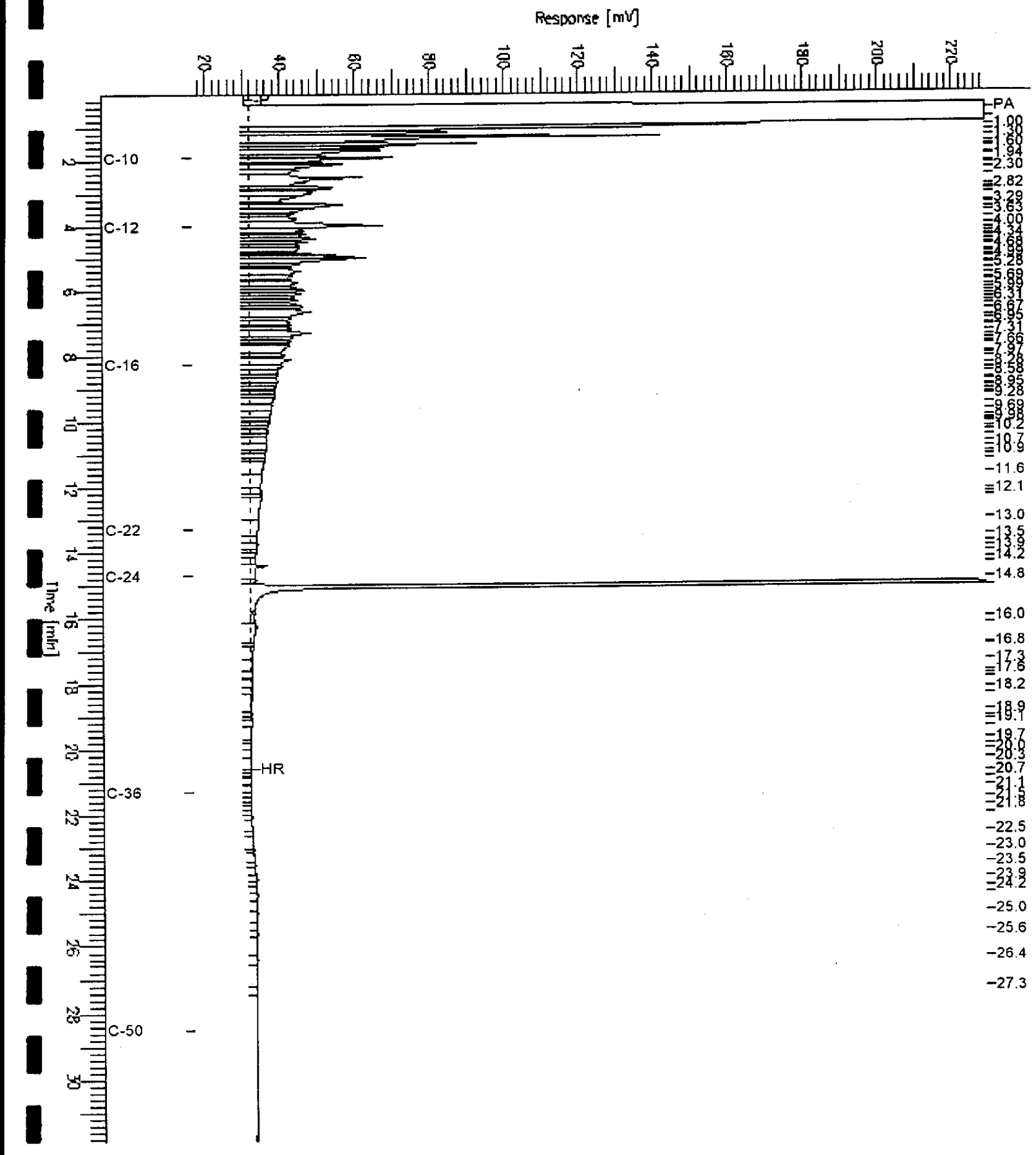
Sample #: 42743 Page 1 of 1
Date : 8/21/98 01:42 PM
Time of Injection: 8/20/98 10:41 AM
Low Point : 12.05 mV High Point : 205.82 mV
Plot Scale: 193.8 mV



Chromatogram

Sample Name : 134916-004,42743
FileName : D:\GC13\CHB\231B024.RAW
Method : BTEH224.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 16 mV

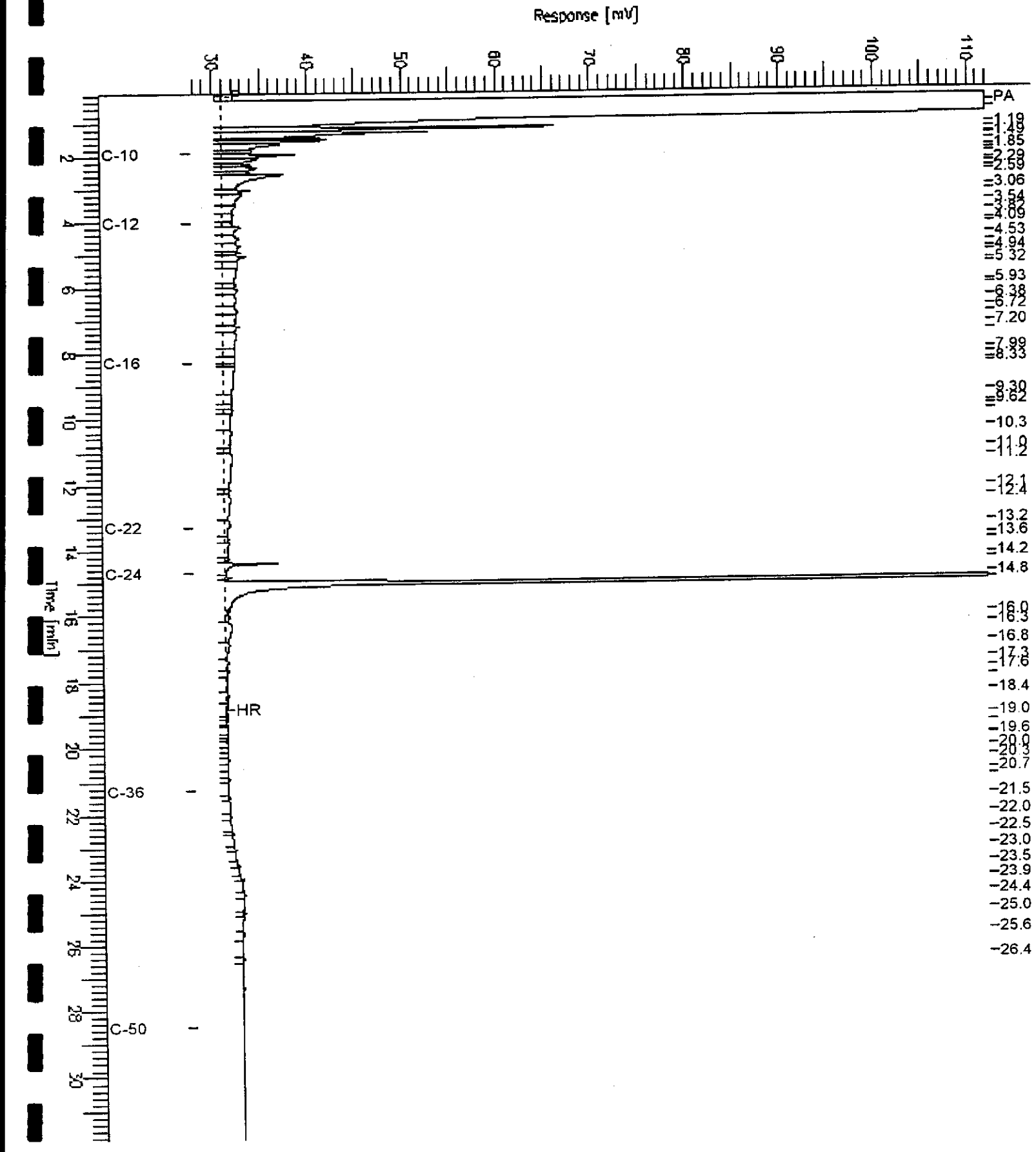
Sample #: 42743 Page 1 of 1
Date : 8/21/98 01:43 PM
Time of Injection: 8/20/98 11:23 AM
Low Point : 16.27 mV High Point : 229.15 mV
Plot Scale: 212.9 mV



Chromatogram

Sample Name : 134916-005,42743
FileName : D:\GC13\CHB\231B025.RAW
Method : BTEH224.MTH
Start Time : 0.12 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 28 mV

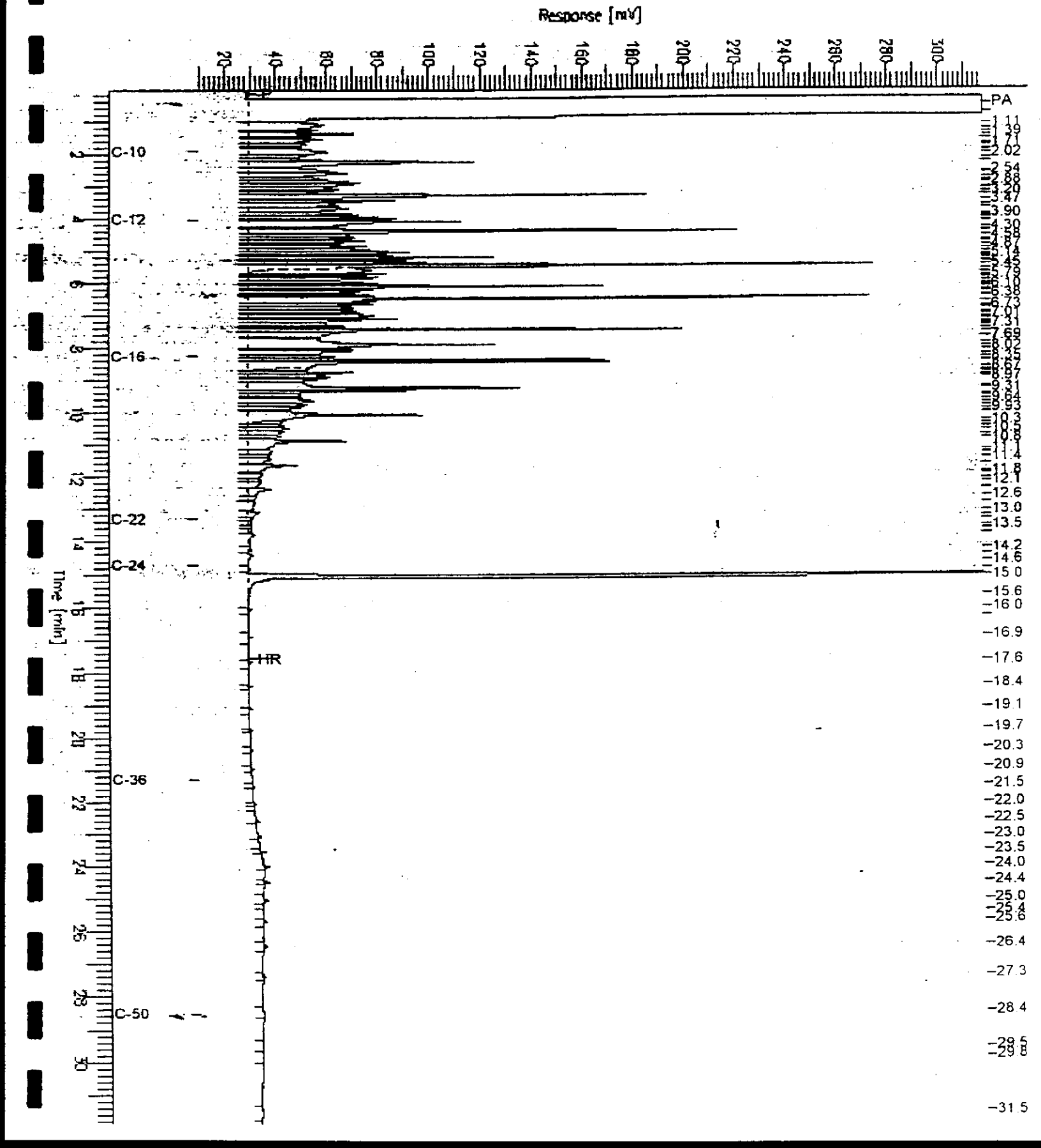
Sample #: 42743 Page 1 of 1
Date : 8/21/98 01:44 PM
Time of Injection: 8/20/98 12:05 PM
Low Point : 27.65 mV High Point : 112.01 mV
Plot Scale: 84.4 mV



Chromatogram

Sample Name : CCV,98WS6167,DS
FileName : D:\GC13\CHB\231B003.RAW
Method : BTEH224.MTH
Start Time : 0.07 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 10 mV

Sample #: 500MG/L Page 1 of 1
Date : 8/21/98 01:06 PM
Time of Injection: 8/19/98 08:38 PM
Low Point : 9.58 mV High Point : 317.79 mV
Plot Scale: 308.2 mV



TEH-Tot Ext Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
Batch#: 42743
Units: ug/L
Diln Fac: 1

Prep Date: 08/14/98
Analysis Date: 08/19/98

MB Lab ID: QC77571

Analyte	Result	
Diesel C12-C22	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	105	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#: 42743
Units: ug/L
Diln Fac: 1

Prep Date: 08/14/98
Analysis Date: 08/19/98

BS Lab ID: QC77572

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	1869	76	58-110

Surrogate	%Rec	Limits
Hexacosane	99	53-136

BSD Lab ID: QC77573

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	2009	81	58-110	7	21

Surrogate	%Rec	Limits
Hexacosane	104	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

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
134916-001	MW-4	42580	08/04/98	08/10/98	08/10/98	
134916-002	MW-7	42580	08/04/98	08/10/98	08/10/98	
134916-003	MW-8	42578	08/05/98	08/08/98	08/08/98	
134916-004	MW-9	42580	08/05/98	08/10/98	08/10/98	

Matrix: Water

Analyte	Units	134916-001	134916-002	134916-003	134916-004
Diln Fac:		100	1	1	1
Gasoline C7-C12	ug/L	130000	<50	140	550 Y
Surrogate					
Trifluorotoluene	%REC	114	115	111	115
Bromofluorobenzene	%REC	116	108	113	119

Y: Sample exhibits fuel pattern which does not resemble 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
134916-001	MW-4	42617	08/04/98	08/13/98	08/13/98	
134916-002	MW-7	42580	08/04/98	08/10/98	08/10/98	
134916-003	MW-8	42578	08/05/98	08/08/98	08/08/98	
134916-004	MW-9	42580	08/05/98	08/10/98	08/10/98	

Matrix: Water

Analyte	Units	134916-001	134916-002	134916-003	134916-004
Diln Fac:		200	1	1	1
MTBE	ug/L	<400	<2	<2	<2
Benzene	ug/L	16000	<0.5	19	88
Toluene	ug/L	34000	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	2400	<0.5	5.2	13
m,p-Xylenes	ug/L	11000	<0.5	5.3	1.9C
o-Xylene	ug/L	4700	<0.5	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	84	84	85	84
Bromofluorobenzene	%REC	90	86	93	94

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: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
134916-005	MW-13	42617	08/04/98	08/13/98	08/13/98	

Matrix: Water

Analyte	Units	134916-005
Diln Fac:		2
Gasoline C7-C12	ug/L	120
Surrogate		
Trifluorotoluene	%REC	110
Bromofluorobenzene	%REC	105

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
134916-005	MW-13	42617	08/04/98	08/13/98	08/13/98	

Matrix: Water

Analyte	Units	134916-005
Diln Fac:		2
MTBE	ug/L	<4
Benzene	ug/L	200
Toluene	ug/L	<1
Ethylbenzene	ug/L	<1
m,p-Xylenes	ug/L	<1
o-Xylene	ug/L	<1
Surrogate		
Trifluorotoluene	%REC	82
Bromofluorobenzene	%REC	84

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 42578
Units: ug/L
Diln Fac: 1

Prep Date: 08/08/98
Analysis Date: 08/08/98

MB Lab ID: QC76941

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	112	59-162
Bromofluorobenzene	104	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#: 42578
Units: ug/L
Diln Fac: 1

Prep Date: 08/08/98
Analysis Date: 08/08/98

MB Lab ID: QC76941

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	84	53-124
Bromofluorobenzene	85	41-142

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

METHOD BLANK

Matrix:	Water	Prep Date:	08/10/98
Batch#:	42580	Analysis Date:	08/10/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC76950

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	110	59-162
Bromofluorobenzene	105	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#: 42580
Units: ug/L
Diln Fac: 1

Prep Date: 08/10/98
Analysis Date: 08/10/98

MB Lab ID: QC76950

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	81	53-124
Bromofluorobenzene	81	41-142

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 42617
Units: ug/L
Diln Fac: 1

Prep Date: 08/13/98
Analysis Date: 08/13/98

MB Lab ID: QC77073

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	108	59-162
Bromofluorobenzene	108	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#: 42617
Units: ug/L
Diln Fac: 1

Prep Date: 08/13/98
Analysis Date: 08/13/98

MB Lab ID: QC77073

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	79	53-124
Bromofluorobenzene	79	41-142

Lab #: 134916

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 42578
Units: ug/L
Diln Fac: 1

Prep Date: 08/08/98
Analysis Date: 08/08/98

LCS Lab ID: QC76939

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	2221	2000	111	80-119

Surrogate	%Rec	Limits
Trifluorotoluene	147	59-162
Bromofluorobenzene	116	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

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 42578
Units: ug/L
Diln Fac: 1

Prep Date: 08/08/98
Analysis Date: 08/08/98

LCS Lab ID: QC76940

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	19.08	20	95	65-135
Benzene	17.12	20	86	69-109
Toluene	20.08	20	100	72-116
Ethylbenzene	19.49	20	97	67-120
m,p-Xylenes	41.3	40	103	69-117
o-Xylene	20.66	20	103	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	87	53-124
Bromofluorobenzene	90	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 #: 134916

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	08/10/98
Batch#:	42580	Analysis Date:	08/10/98
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC76948

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	2009	2000	100	80-119

Surrogate	%Rec	Limits
Trifluorotoluene	144	59-162
Bromofluorobenzene	113	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 #: 134916

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#: 42580
Units: ug/L
Diln Fac: 1

Prep Date: 08/10/98
Analysis Date: 08/10/98

LCS Lab ID: QC76949

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	19.42	20	97	65-135
Benzene	16.29	20	81	69-109
Toluene	18.77	20	94	72-116
Ethylbenzene	18.59	20	93	67-120
m,p-Xylenes	38.89	40	97	69-117
o-Xylene	19.42	20	97	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	84	53-124
Bromofluorobenzene	85	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 #: 134916

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 42617
Units: ug/L
Diln Fac: 1

Prep Date: 08/13/98
Analysis Date: 08/13/98

LCS Lab ID: QC77071

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1930	2000	96	80-119

Surrogate	%Rec	Limits
Trifluorotoluene	135	59-162
Bromofluorobenzene	112	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 #: 134916

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#: 42617
Units: ug/Kg
Diln Fac: 1

Prep Date: 08/13/98
Analysis Date: 08/13/98

LCS Lab ID: QC77072

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	18.47	20	92	65-135
Benzene	15.21	20	76	69-109
Toluene	18.3	20	92	72-116
Ethylbenzene	17.92	20	90	67-120
m,p-Xylenes	38.27	40	96	69-117
o-Xylene	19.15	20	96	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	82	53-124
Bromofluorobenzene	85	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: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: MW-8
Lab ID: 134916-003
Matrix: Water
Batch#: 42578
Units: ug/L
Diln Fac: 1

Sample Date: 08/05/98
Received Date: 08/05/98
Prep Date: 08/08/98
Analysis Date: 08/08/98

MS Lab ID: QC76942

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	136.3	2366	111	71-131

Surrogate	%Rec	Limits
Trifluorotoluene	153	59-162
Bromofluorobenzene	122	59-162

MSD Lab ID: QC76943

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2376	112	71-131	0	26

Surrogate	%Rec	Limits
Trifluorotoluene	154	59-162
Bromofluorobenzene	124	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: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 134853-004
Matrix: Water
Batch#: 42580
Units: ug/L
Diln Fac: 1

Sample Date: 07/31/98
Received Date: 07/31/98
Prep Date: 08/10/98
Analysis Date: 08/10/98

MS Lab ID: QC76951

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	2125	106	71-131

Surrogate	%Rec	Limits
Trifluorotoluene	149	59-162
Bromofluorobenzene	121	59-162

MSD Lab ID: QC76952

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2161	108	71-131	2	26

Surrogate	%Rec	Limits
Trifluorotoluene	151	59-162
Bromofluorobenzene	123	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

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 134920-004
Matrix: Water
Batch#: 42617
Units: ug/L
Diln Fac: 1

Sample Date: 08/04/98
Received Date: 08/04/98
Prep Date: 08/13/98
Analysis Date: 08/13/98

MS Lab ID: QC77074

Analyte	Spike Added	Sample	MS	%Rec #	Limits
MTBE	20	<2	17.54	88	65-135
Benzene	20	<0.5	15.4	77	55-125
Toluene	20	<0.5	18.22	91	65-126
Ethylbenzene	20	<0.5	17.93	90	60-129
m,p-Xylenes	40	<0.5	37.7	94	68-116
o-Xylene	20	<0.5	19.11	96	69-129

Surrogate	%Rec	Limits
Trifluorotoluene	80	53-124
Bromofluorobenzene	84	41-142

MSD Lab ID: QC77075

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
MTBE	20	19.59	98	65-135	11	20
Benzene	20	16.21	81	55-125	5	11
Toluene	20	19.15	96	65-126	5	11
Ethylbenzene	20	18.72	94	60-129	4	12
m,p-Xylenes	40	39.47	99	68-116	5	11
o-Xylene	20	19.92	100	69-129	4	12

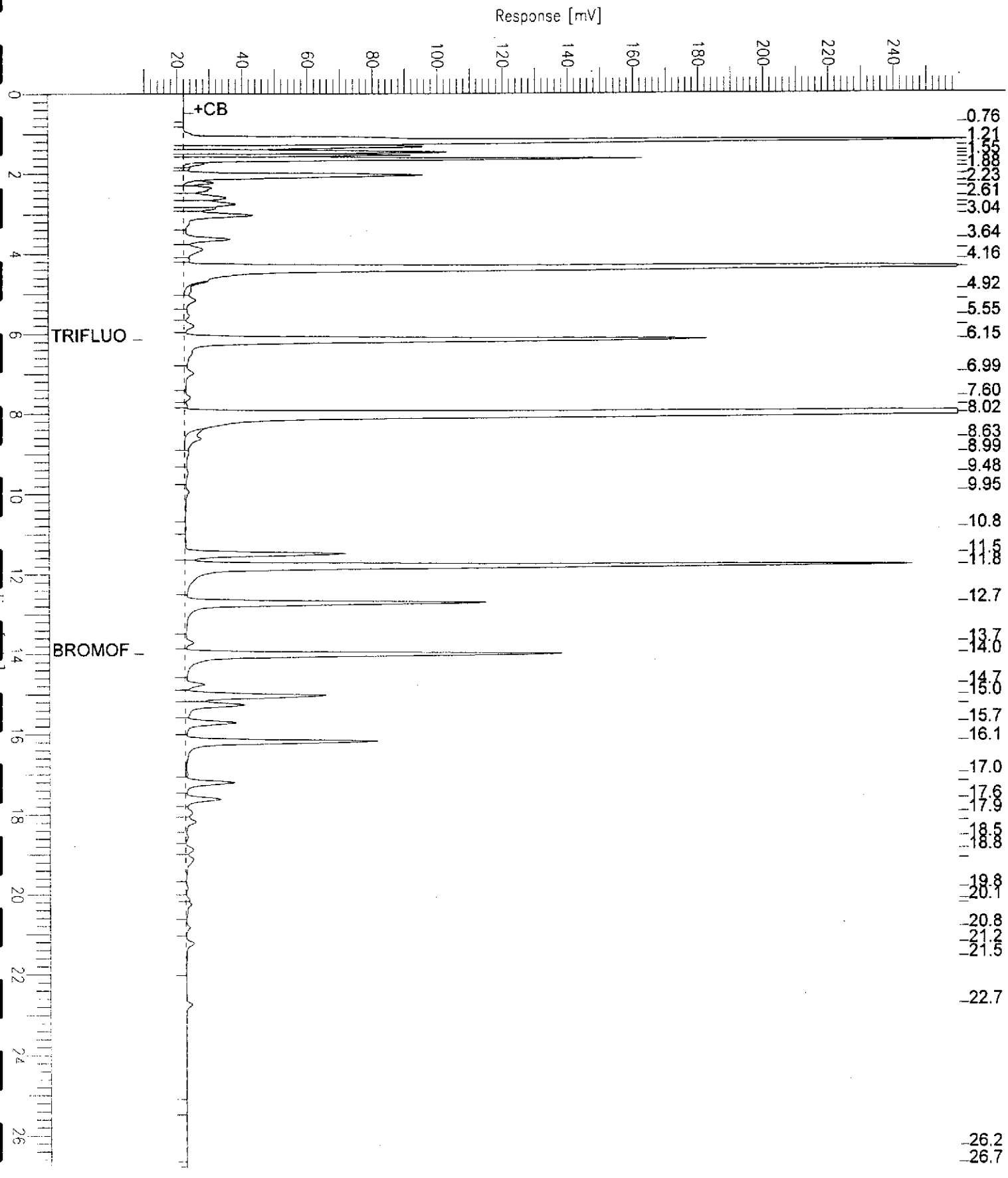
Surrogate	%Rec	Limits
Trifluorotoluene	82	53-124
Bromofluorobenzene	86	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

GC05 'G' File TVH

Sample Name : RR,D,134916-001,42580,
leName : G:\GC05\DATA\222G014.raw
thod : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 9 mV

Sample #: Page 1 of 1
Date : 8/10/98 08:38 PM
Time of Injection: 8/10/98 08:11 PM
Low Point : 9.38 mV High Point : 259.38 mV
Plot Scale: 250.0 mV

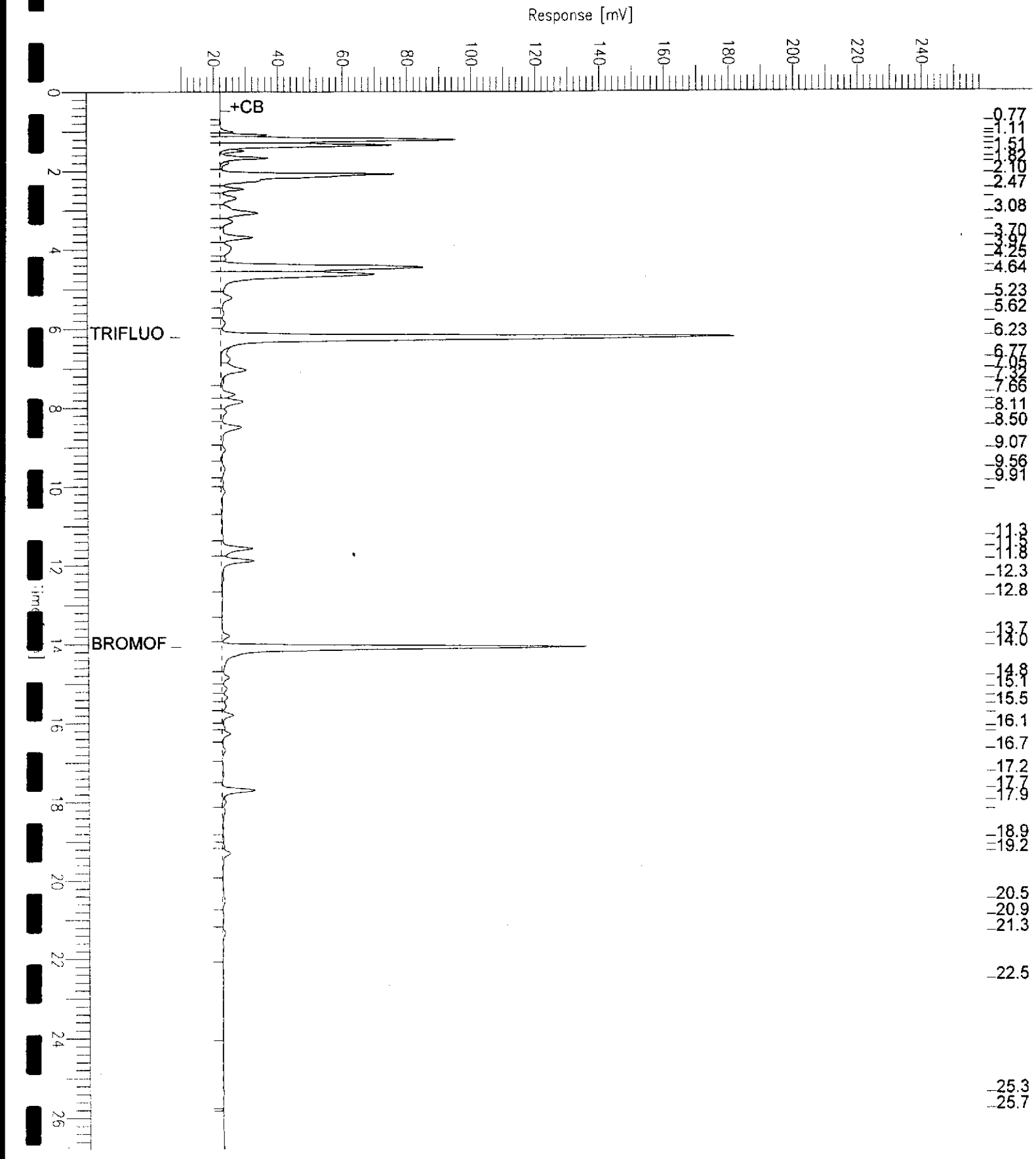


GC05 'G' File TVH

42578
2PM

Sample Name : MSS,134916-003
FileName : G:\GC05\DATA\220G007.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 9 mV

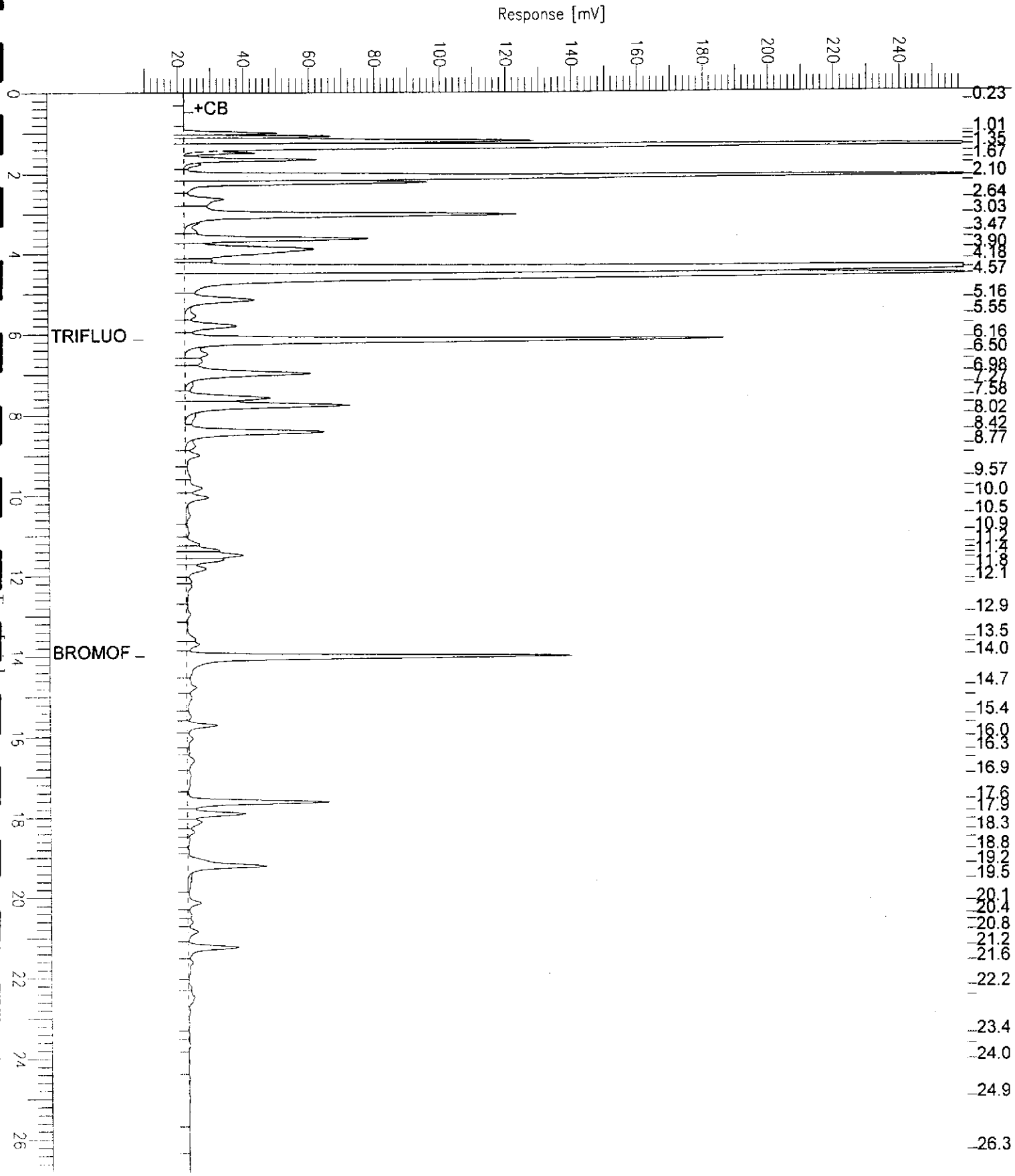
Sample #:
Date : 8/8/98 07:42 PM
Time of Injection: 8/8/98 07:15 PM
Low Point : 9.35 mV High Point : 259.35 mV
Plot Scale: 250.0 mV



GC05 'G' File TVH

Sample Name : RR,134916-004,42580,
FileName : G:\GC05\DATA\222G012.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 9 mV

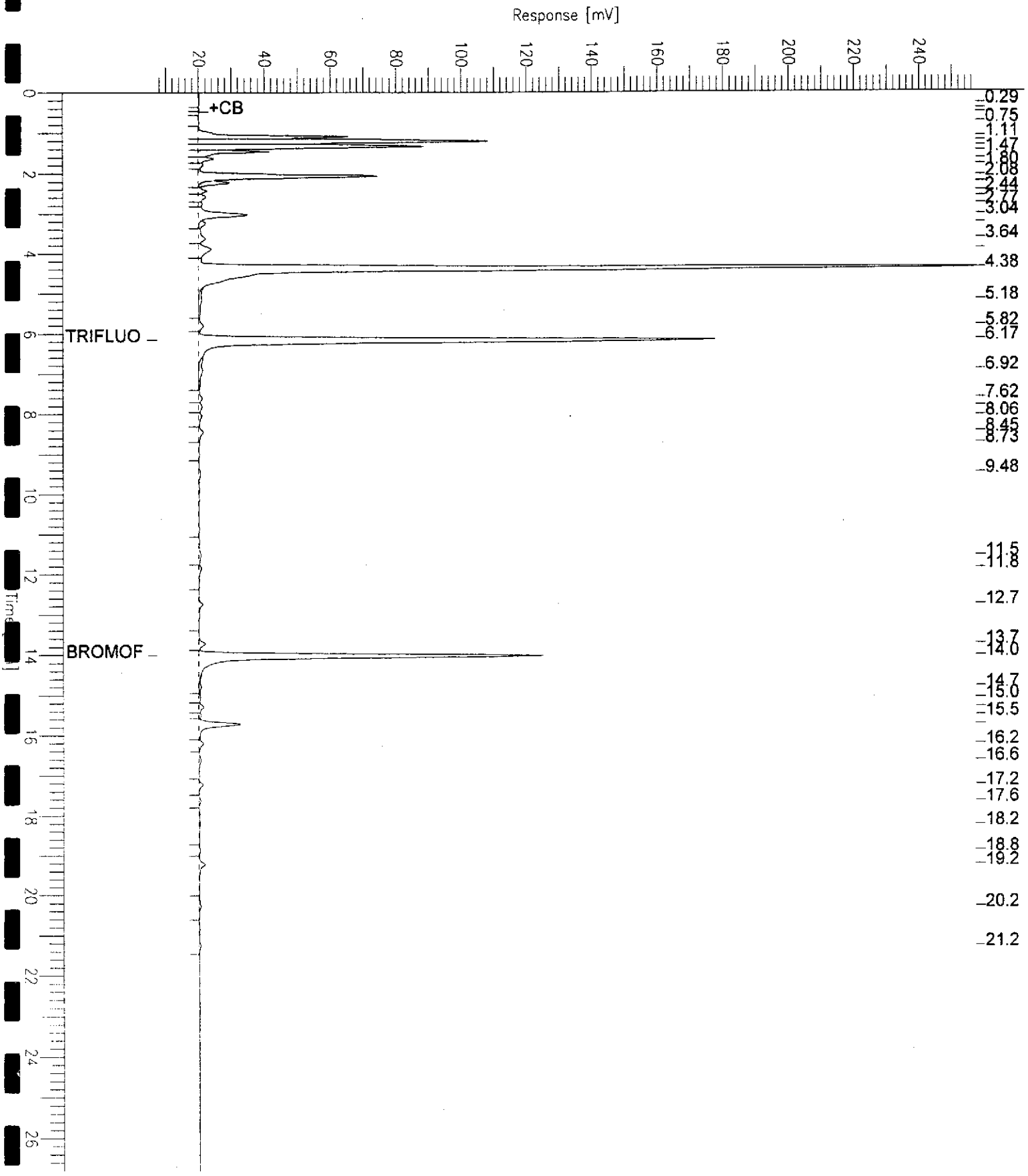
Sample #:
Date : 8/10/98 07:25 PM
Time of Injection: 8/10/98 06:58 PM
Low Point : 9.28 mV High Point : 259.28 mV
Plot Scale: 250.0 mV



GC05 'G' File TVH

Sample Name : RR,D,134916-005,42617,
FileName : G:\GC05\DATA\225G006.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 7 mV

Sample #: Page 1 of 1
Date : 8/13/98 02:33 PM
Time of Injection: 8/13/98 02:06 PM
Low Point : 7.28 mV High Point : 257.28 mV
Plot Scale: 250.0 mV

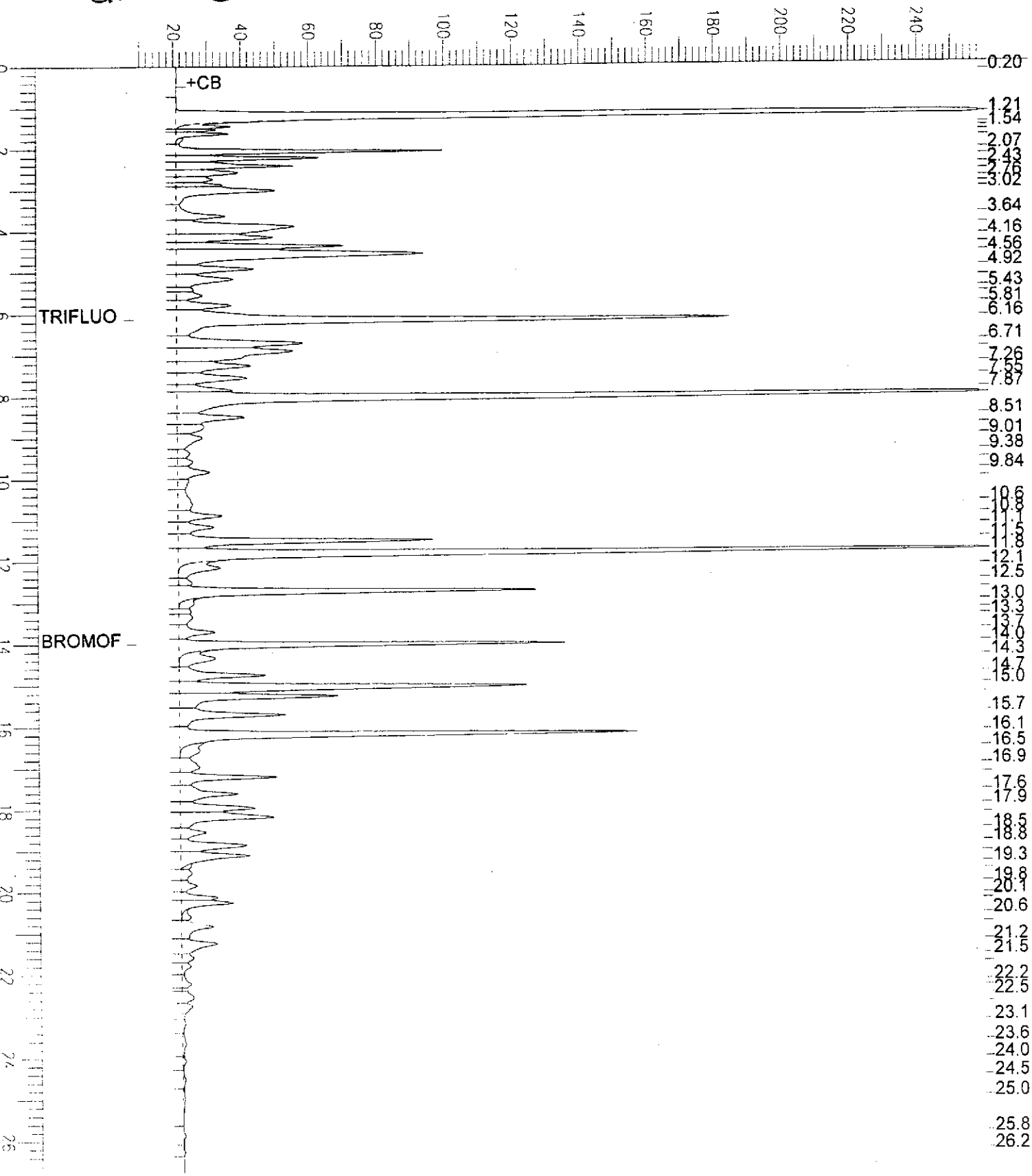


GC05 'G' File TVH

Sample Name : CCV/LCS,QC77071,98WS6184,42617,
FileName : G:\GC05\DATA\225G002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Sample Factor: -1.0 Plot Offset: 8 mV

Sample #: GAS
Date : 8/13/98 12:08 PM
Time of Injection: 8/13/98 11:41 AM
Low Point : 8.31 mV High Point : 258.31 mV
Plot Scale: 250.0 mV

Gasoline Standard



LABORATORY NUMBER: 134916
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 08/04/98
DATE RECEIVED: 08/05/98
DATE ANALYZED: 08/11/98
DATE REPORTED: 08/28/98
BATCH NO: 42585

EPA 8260

LAB ID	CLIENT ID	1,1-DCA (ug/L)	1,2-DCA (ug/L)	REPORTING LIMIT (mg/L)	SURROGATE RECOVERIES 1	2	3
134916-001	MW-4	ND	240	10	104%	100%	101%
134916-002	MW-7	ND	1.1	0.50	108%	100%	104%
134916-004	MW-9	ND	420	2.0	107%	102%	104%
134916-005	MW-13	ND	6.2	0.50	104%	102%	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.

LABORATORY NUMBER: 134916
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 08/04/98
DATE RECEIVED: 08/05/98
DATE ANALYZED: 08/08/98
DATE REPORTED: 08/28/98
BATCH NO: 42573

EPA 8260

LAB ID	CLIENT ID	1,1-DCA (ug/L)	1,2-DCA (ug/L)	REPORTING LIMIT (mg/L)	SURROGATE RECOVERIES 1	2	3
134916-003	MW-8	ND	69	0.50	103%	101%	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.

Halogenated Volatile Organics
EPA 8010 Analyte List

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 42573
Units: ug/L
Diln Fac: 1

Prep Date: 08/08/98
Analysis Date: 08/08/98

MB Lab ID: QC76919

Analyte	Result	Reporting Limit
Chloromethane	ND	1.0
Vinyl Chloride	ND	1.0
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	105	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	100	84-115

Halogenated Volatile Organics
EPA 8010 Analyte List

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 42585
Units: ug/L
Diln Fac: 1

Prep Date: 08/10/98
Analysis Date: 08/10/98

MB Lab ID: QC76972

Analyte	Result	Reporting Limit
Chloromethane	ND	1.0
Vinyl Chloride	ND	1.0
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	107	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	105	84-115

Halogenated Volatile Organics
EPA 8010 Analyte List

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 42585
Units: ug/L
Diln Fac: 1

Prep Date: 08/10/98
Analysis Date: 08/10/98

MB Lab ID: QC76973

Analyte	Result	Reporting Limit
Chloromethane	ND	1.0
Vinyl Chloride	ND	1.0
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	105	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	104	84-115

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#: 42573
Units: ug/L
Diln Fac: 1

Prep Date: 08/08/98
Analysis Date: 08/08/98

BS Lab ID: QC76917

Analyte	Spike Added	BS	%Rec #	Limits
1,1-Dichloroethene	50	44.77	90	69-137
Trichloroethene	50	46.94	94	83-116
Chlorobenzene	50	46.57	93	87-117

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	104	85-121
Toluene-d8	99	92-110
Bromofluorobenzene	100	84-115

BSD Lab ID: QC76918

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	46.32	93	69-137	3	14
Trichloroethene	50	48.32	97	83-116	3	10
Chlorobenzene	50	47.16	94	87-117	1	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	104	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	100	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 #: 134916 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

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 42585
Units: ug/L
Diln Fac: 1

Prep Date: 08/10/98
Analysis Date: 08/10/98

BS Lab ID: QC76970

Analyte	Spike Added	BS	%Rec	#	Limits
1,1-Dichloroethene	50	52.55	105		69-137
Trichloroethene	50	50.3	101		83-116
Chlorobenzene	50	49.05	98		87-117

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

BSD Lab ID: QC76971

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
1,1-Dichloroethene	50	55.13	110		69-137	5		14
Trichloroethene	50	53.73	107		83-116	7		10
Chlorobenzene	50	51.98	104		87-117	6		10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	105	85-121
Toluene-d8	99	92-110
Bromofluorobenzene	103	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

139916

CHAIN OF CUSTODY FORM

PAGE ___ OF ___

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

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: TEH	TVH	BTXE	MTBE	1,2 DCA
1	MW-4	X				7	1			X			X		08	04	98	1030		X	X	X	X	X
2	MW-7	X				7	1			X			X		08	04	98	1130		X	X	X	X	X
3	MW-8	X				7	1			X			X		08	05	98	0900		X	X	X	X	X
4	MW-9	X				7	1			X			X		08	05	98	0715		X	X	X	X	X
5	MW-13	X				7	1			X			X		08	04	98	1230		X	X	X	X	X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Dennis Alexander	8/5/98 1230	Anna M. Zamillo	8/5/98 12:30 pm
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:

Subsurface Consultants, Inc.
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