Subsurface Consultants, Inc.

R. William Rudolph, P.E.
President

August 3, 1998
SCI 447.055

Ms. Susan L. Hugo
Senior Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Report of Groundwater Monitoring Activities
and Additional Subsurface Investigation
Connell Automobile Dealership Site
3093 Broadway (STID# 469)
Oakland, California

Dear Ms. Hugo:

On behalf of the property owners, Subsurface Consultants, Inc. (SCI) is pleased to submit the subject report that records the results of groundwater monitoring activities and additional subsurface investigation performed in April and May 1998 at the Connell automobile dealership in Oakland, California. This report is being submitted pursuant to Alameda County Health Care Services Agency (ACHCSA) requirements specified in written correspondence dated May 30, 1997 and January 26, 1998. Based on the additional information collected during the subsurface investigation activities described in the enclosed report, it is SCI's opinion that the site has been adequately characterized, and a corrective action plan may now be prepared.

We are prepared to discuss with you the status of investigation activities to date and our preliminary conceptual approach for corrective action. We look forward to meeting with you and Chuck Headlee of the Cal/EPA San Francisco Regional Water Quality Control Board (RWQCB) at the new RWQCB offices on August 18.

We anticipate that our proposed remedial alternatives will be discussed and considered, so that the information can be reflected in our corrective action plan. We discussed several of these during our previous meeting at the ACHCSA offices on July 13. The remedial options we are considering include:

- Natural attenuation / passive product removal;
- Enhanced bioremediation with oxygen-containing material (and/or other enhancing nutrients) / passive product removal;
- Groundwater extraction and treatment (total fluids removal); and

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- Co-extraction (vapor and groundwater extraction and treatment).

We hope to discuss these and other options during our meeting, in light of our overall understanding of the site and desired closure objectives. In addition, we would also like to discuss re-evaluation and reduction in the current groundwater monitoring program.

If you have any questions, please call either Jeff Rubin or Terry McManus at (925) 299-7960.

Yours very truly,

Subsurface Consultants, Inc.

Jeffrey L. Rubin, REA, CPSS
Senior Environmental Scientist

Terence J. McManus, REA
Principal Environmental Scientist

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Enclosure: noted

cc: Mr. Charles Headlee
Cal/EPA San Francisco Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California 94612

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

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

Mr. Gordon Linden
150 LaSalle Avenue
Piedmont, California 94611

Report of Groundwater Monitoring Activities
and Additional Subsurface Investigation
Connell Automobile Dealership
3093 Broadway
Oakland, California

Dear Messrs. Hill & Linden:

This letter records the results of groundwater monitoring activities and additional subsurface investigation 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.

The annual groundwater monitoring event was conducted over a two day period commencing April 29, 1998 and concluding May 1, 1998. The additional subsurface field investigation was conducted on May 16 and 17, 1998.

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. Groundwater monitoring is performed in accordance

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with the program outlined in the Alameda County Health Care Services Agency 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.

A subsurface investigation was performed to:

- Further delineate the extent of free product within permeable sand and gravel layers beneath the site building and near the UST/product line source area, and
- Assist in the preparation of a Corrective Action Plan.

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 March, April, and May 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.

Annual Groundwater Monitoring Event

On April 29, 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 east-southeast at gradients varying from 0.01 to 0.1 ft/ft. Groundwater surface contours for this event are presented on Plate 2.

On April 29 and May 1, 1998, all 12 site wells (MW-1 through MW-11 and MW-13) 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 a depression created on top of the existing soil stockpile onsite and allowed to evaporate.

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

ADDITIONAL SUBSURFACE INVESTIGATION

Drilling and Sampling

SCI conducted an additional subsurface investigation on May 16 and 17, 1998.

Prior to drilling, SCI obtained a drilling permit from the Alameda County Public Works Agency. This approved permit is attached. SCI retained the services of California Utility Surveys, an underground utility locator to clear proposed soil boring locations. SCI also retained the services of the Penhall Company, to core the concrete flooring of the service facility to allow access for drilling equipment.

SCI retained Gregg Drilling to drill seven soil borings (A through G) to depths ranging from 27 to 40 feet below the ground surface (bgs) using a limited access drill rig equipped with hollow-stem auger equipment. The test boring locations are shown on Plate 1. Six of the soil borings were located within the existing service facility. The seventh test boring was located outside the facility, upgradient from existing monitoring well MW-6. Logs of Test Borings A through G are shown on Plates 3 through 9. Soils were classified in accordance with the Unified Soil Classification System shown on Plate 10.

Soil samples were collected from each boring at 5-foot intervals. SCI's field geologist observed drilling operations, prepared detailed logs, and screened soil samples using an organic vapor meter (OVM). Soil samples were retained in brass sample liners. Teflon sheeting was placed on the ends of the liners prior to capping and sealing with tape. Upon sealing and labeling, the samples were placed in an ice filled cooler and delivered to Curtis & Tompkins, Ltd., a state-certified chemical testing laboratory, using appropriate chain-of-custody documentation. SCI selected soil samples for chemical analyses on the basis of visual observations and/or OVM readings.

All augers, drill rods, and sampling equipment that were placed in the test borings were cleaned prior to their initial use, and prior to each subsequent use to reduce the likelihood of cross-contamination between borings and/or samples. Using a disposable bailer, SCI checked for the presence of free product and collected grab groundwater samples from test borings B, C, and G; no groundwater was encountered in test borings A and F. Test borings D and E were completed as monitoring wells designated MW-14 and MW -15, respectively. The other test borings were tremied with neat cement grout following sample collection.

Wells MW-14 and MW-15 extend to depths of 40 feet bgs. The wells are constructed of 2-inch-diameter, Schedule 40 PVC pipe having flush threaded joints. The upper 10 feet of well MW-14 and the upper 15 feet of well MW-15 consist of solid PVC well casing to allow for an adequate surface seal. The remaining length of both wells consists of machine-slotted well screen having 0.020-inch slots. The annular space around the screened section is backfilled with #3 lonestar sand. A bentonite seal, approximately 12 inches thick, is in place above the sand pack in each well. The annular space above the bentonite seal is backfilled with cement/bentonite grout. Each well was finished below grade in a traffic-rated utility box and secured by a locking cap.

Groundwater levels were measured in the wells prior to development/purging. The new wells were developed on May 26, 1998, by bailing, until the water became relatively free of turbidity, and the temperature, conductivity, and pH stabilized. A minimum of 10 well volumes were purged during development. After the wells had recharged to at least 80 percent of their original volume, groundwater samples were obtained using disposable, pre-cleaned bailers. The water samples were placed in pre-cleaned containers supplied by the analytical laboratory, and refrigerated until delivery to the laboratory. The water samples were accompanied by chain-of-custody records.

An elevation survey of the two new site wells was performed on June 9, 1998. The results of the elevation survey and water level measurements are presented on Table 2.

CHEMICAL ANALYSES

Chemical analyses of all samples 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 (TEH)	EPA 3520	EPA 8015 Mod.
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	EPA 5030	EPA 8020
Methyl Tertiary Butyl Ether (MTBE)	EPA 5030	EPA 8020
1,1- and 1,2 Dichloroethane (1,1- and 1,2-DCA)	EPA 5030	EPA 8260
Semivolatile Organic Compounds	EPA 3520	EPA 8270
Hydrocarbon Oil & Grease (Gravimetric)		SMWW 5520B

Groundwater analytical test results are summarized in Tables 3 and 4. Soil and grab groundwater analytical test results are summarized in Tables 5 and 6. Field sampling forms, analytical test reports, and chain-of-custody documents are attached.

DISCUSSION OF RESULTS

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. New wells now provide better definition of the flow pattern below the existing structure.

Free Product

Free product is intermittently present in three of the site wells (MW-1, MW-4, and MW-6). Between March and May 1998, the free product thickness in MW-6 ranged from 0.46 to 0.59 feet. In the same time period, free product was not detected in wells MW-1 and MW-4. Measurable free product has not been detected in well MW-4 during the past 6 months, nor MW-1 during the past 5 months. Lack of measurable free product in these wells is likely due to the elevated groundwater table caused by high seasonal rainfall, as well as prior removal of free product at the site by bailing and the SVE system.

A summary of free product removed from site wells by hand-bailing is presented in Table 7. A historic summary of product removed from MW-6 by the former SVE system is presented on Table 8.

Soil Test Results

Fifteen soil samples were obtained from the seven test borings and submitted for analysis of TVH, TEH, BTEX, MTBE, and 1,2-DCA (Table 5). One "shallow" soil sample (collected between depths of 5.5 to 11 feet bgs) and one "deep" soil sample (collected between depths of 15.5 to 21 feet bgs) from each test boring were submitted for analytical testing. Additionally, a sample collected from Test Boring F at 0.5 foot bgs was submitted for analytical testing.

Soil samples collected from locations A and MW-15/E did not detect the presence of any of the compounds listed above. The seven "shallow" soil samples did not detect the presence of the above listed chemicals, with the exception of TEH in sample C @ 6.0' bgs.

TVH and TEH were detected at relatively low concentrations in only one "deep" sample (C @ 15.5' bgs). BTEX compounds were detected in five of the seven "deep" samples collected (locations B, C, MW-14/D, F, and G). Benzene concentrations in these soil samples ranged from not detected (<5 micrograms per kilogram [µg/kg]) to 140 µg/kg (G @ 16.0' bgs).

The presence of MTBE was reported in one of the 15 samples collected (C @ 15.5' bgs at a concentration of 84 µg/kg).

1,2-DCA was detected in four of the seven "deep" samples (locations B, MW-14/D, F, and G), at concentrations ranging from 13 to 100 µg/kg (MW-14/D @ 21.0' bgs).

One shallow sample was submitted from Test Boring F because of vapors detected upon removal of the concrete slab and during drilling of the test boring. TVH was reported in this sample (F @ 0.5' bgs) at a concentration of 25,000 µg/kg. The laboratory indicates that the TVH chromatogram does not match the standard gasoline pattern; the sample contains lighter hydrocarbons than the standard. The presence of this impacted material appears to be very localized as the "shallow" sample from location F (F @ 60' bgs) did not contain any of the above-listed chemicals.

Grab Groundwater Test Results

Grab groundwater samples were collected from three of the seven test borings (B, C, and G) during field activities (Table 6). Two of the test borings (A and F) did not produce water, and two of the test borings (D and E) were completed as monitoring wells, hence grab samples were not obtained from these locations. Of the three grab groundwater samples collected, the highest concentrations of the chemicals of concern were detected in the sample collected from location G; this sampling location encountered extensive gravel deposits.

Monitoring Well Test Results

The concentrations of dissolved hydrocarbons in site wells during this annual event (Table 3) appear to be similar to previous monitoring events. However, hydrocarbon concentrations in well MW-8 are higher than those recorded in this well over the past two years. Dissolved hydrocarbons were not detected in wells MW-2, MW-3, MW-5, MW-7, and MW-11. Samples from well MW-13 contained 1,2-DCA at 5.7 micrograms per liter (µg/l) and benzene at 24 µg/l.

In this event, MTBE was not detected in any of the 14 site wells. Fuel fingerprint analyses conducted in March 1991 on free product obtained from two site wells (MW-1 and MW-4) indicated MTBE was not a component of the fuel. MTBE had been detected in the previous event (February 1998). The concentrations of MTBE detected in the previous event were a false positive as confirmed by the EPA 8260 analyses run concurrently during that event, and the laboratory has reissued that test report. Table 3 has been updated to reflect these revisions.

Groundwater samples from monitoring wells MW-14 and MW-15 were collected following well development. Groundwater samples collected from these wells detected the presence of TVH,

TEH, BTEX, and 1,2-DCA (Table 3), at concentrations similar to other site wells which screen extensive gravels.

CONCLUSIONS

The presence of free product and dissolved constituents in individual site monitoring wells appears to be highly dependent on the presence of permeable sand and gravel layers within the screened intervals of the wells. Evaluation of the lithology of the site sampling locations clearly indicates that a permeable channel deposit of significant thickness and comprised largely of gravel, transects the site as delineated by locations MW-14, MW-15, G, MW-6 and CPT-12. The analytical test results provide further evidence of a preferential migratory pathway for the product plume. Generally, free product and/or higher concentrations of the chemicals of concern have been detected at locations MW-1, MW-6, MW-14/D, MW-15/E, and G. Free product and higher concentrations of the chemicals of concern have also been intermittently detected in site wells MW-4 and MW-10 and are likely mobilized to these locations through interconnecting lenses of permeable material which extend as "fingers" off the main permeable channel.

The plume beneath the site appears to be well defined by the studies performed to date. Plume wells include well MW-1 (located near the former fuel dispenser location), and wells MW-6, MW-14 and MW-15 (which encounter significant thicknesses of gravel deposits). Well MW-8 appears to abut the "main" permeable channel. Wells MW-4, MW-9 and MW-10 encountered thinner permeable layers which, due to the presence of the chemicals of concern, appear to be interconnected with the "main" permeable channel. Wells which monitor the perimeter of the plume include MW-2, MW-3, MW-5, and MW-7. Well MW-11, the upgradient well, and well MW-13, the off-site well, provide background levels for the chemicals of concern.

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 be a quarterly event which will occur in August 1998.

We anticipate that preparation of the Corrective Action Plan will be completed by December 1998.

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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STATE OF CALIFORNIA

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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 - Semi-Volatile Organic Compounds and Oil & Grease in Groundwater Samples Collected From Monitoring Well MW-1
Table 5 - Summary of Chemical Concentrations in Soil Samples, May 1998 Investigation
Table 6 - Summary of Chemical Concentrations in Grab Groundwater Samples
Table 7 - Free Product Recovery by Hand Bailing
Table 8 - Free Product Recovery by SVE from MW-6
Plate 1 - Site Plan
Plate 2 - Groundwater Elevation Contours, 2/5/98
Plates 3 through 9 - Logs of Test Borings A through G
Plate 10 - Unified Soil Classification System
Field Forms- March 1998 through May 1998
Analytical Test Reports
Chain-of-Custody Documents
Alameda County Public Works Agency Drilling Permit

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

TABLE 2
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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	94.48	10/1/96	23.58	70.90	0.6	71.5
(cont.)		11/4/96	24.29	70.19	0.78	70.97
		12/2/96	24.63	69.85	0.88	70.73
		1/3/97	24.08	70.40	0.81	71.21
		2/6/97	22.46	72.02	0.3	72.32
		3/5/97	23.00	71.48	0	--
		4/1/97	22.29	72.19	0.2	72.39
		5/8/97	22.79	71.69	0.33	72.02
		6/6/97	24.33	70.15	1.69	71.84
		7/8/97	24.00	70.48	0.96	71.44
		8/7/97	24.58	69.90	1.29	71.19
		9/10/97	24.93	69.55	1.21	70.76
		10/1/97	24.89	69.59	0.86	70.45
		11/4/97	25.06	69.42	0.77	70.19
		12/4/97	24.76	69.52	0.54	70.06
		1/8/98	23.66	70.82	0	--
		2/5/98	22.64	71.84	0	--
		3/6/98	20.80	73.68	0	--
		4/2/98	20.31	74.17	0	--
		4/29/98	19.95	74.53	0	--
MW-2	94.81	3/5/91	27.86	66.95	0	--
		3/18/91	27.46	67.35	0	--
		4/12/91	26.98	67.83	0	--
		5/18/92	26.50	68.31	0	--
		6/29/92	26.80	68.01	0	--
		7/29/92	27.08	67.73	0	--
		8/28/92	27.33	67.48	0	--
		10/28/92	27.65	67.16	0	--
		11/24/92	27.91	66.90	0	--
		12/22/92	27.74	67.07	NM	--
		4/5/93	25.95	68.86	0	--

TABLE 2
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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-2	94.81	7/20/93	25.59	69.22	0	--
(cont.)		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	--
		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	--

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	94.81	3/6/98	22.23	72.58	0	--
(cont.)		4/2/98	22.35	72.46	0	--
		4/29/98	22.18	72.63	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	--
		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	--

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-3 (cont.)	90.08	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	--
MW-4	88.84	3/5/91	23.79	65.05	NM	--
		3/18/91	22.30	66.54	NM	--
		4/12/91	21.85	66.99	NM	--
		12/23/91	22.63	66.22	0.98	67.19
		12/26/91	22.52	66.32	0.96	67.28
		1/10/92	22.74	66.10	0.99	67.09
		2/28/92	22.00	66.84	0.67	67.51
		3/11/92	21.71	67.13	0.55	67.68
		3/13/92	21.56	67.28	0.49	67.77
		3/17/92	25.46	63.38	0.44	63.82
		3/18/92	21.38	67.47	0.44	67.9
		3/19/92	21.33	67.51	0.48	67.99
		3/23/92	21.29	67.55	0.42	67.97

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-4	88.84	3/24/92	21.31	67.53	0.38	67.9
(cont.)		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	67.5i	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

TABLE 2
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-4	88.84	5/2/96	17.50	71.34	0.25	71.59
(cont.)		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
		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	--
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	--

TABLE 2
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-5	84.84	10/28/92	26.39	58.45	0	--
(cont.)		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	25.70	59.14	0	--
		3/1/96	26.00	58.84	0	--
		4/4/96	26.20	58.64	0	--
		5/2/96	26.02	58.82	0	--
		6/5/96	25.91	58.93	0	--
		7/9/96	26.20	58.64	0	--
		8/8/96	26.38	58.46	0	--
		9/10/96	26.42	58.42	0	--
		10/1/96	26.52	58.32	0	--
		11/4/96	26.69	58.15	0	--
		12/2/96	26.70	58.14	0	--
		1/3/97	25.84	59.00	0	--
		2/6/97	26.26	58.58	0	--
		3/5/97	26.20	58.64	0	--
		4/1/97	26.98	57.86	0	--
		5/8/97	26.76	58.08	0	--
		6/6/97	26.33	58.51	0	--
		7/8/97	26.84	58.00	0	--
		8/7/97	26.89	57.95	0	--
		9/10/97	26.76	58.08	0	--
		10/1/97	26.97	57.87	0	--

TABLE 2
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
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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	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	--
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
		5/4/92	25.40	60.22	NM	--
		5/18/92	25.50	60.12	0.17	60.29
		5/26/92	25.46	60.16	0.13	60.29
		6/1/92	25.46	60.16	0.09	60.26
		6/29/92	25.59	60.03	0.14	60.17
		7/29/92	26.90	58.72	1.71	60.43
		8/28/92	25.09	60.53	2.62	63.15
		10/28/92	25.02	60.60	3.94	64.54
		11/24/92	28.87	56.75	NM	--

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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	4/3/93	26.96	58.66	2.86	61.52
(cont.)		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

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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	1/8/98	25.79	61.15	0.1	61.25
(cont.)		2/5/98	25.31	61.63	0.89	62.52
		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
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	--

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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-7	85.41	11/4/96	18.69	66.72	0	--
(cont.)		12/2/96	18.47	66.94	0	--
		1/3/97	17.98	67.43	0	--
		2/6/97	17.44	67.97	0	--
		3/5/97	16.73	68.68	0	--
		4/1/97	17.32	68.09	0	--
		5/8/97	17.72	67.69	0	--
		6/6/97	17.75	67.66	0	--
		7/8/97	17.94	67.47	0	--
		8/7/97	18.49	66.92	0	--
		9/10/97	18.48	66.93	0	--
		10/1/97	18.42	66.99	0	--
		11/4/97	18.86	66.55	0	--
		12/4/97	18.16	67.25	0	--
		1/8/98	17.87	67.54	0	--
		2/5/98	17.56	67.85	0	--
		3/6/98	16.84	68.57	0	--
		4/2/98	16.51	68.90	0	--
		4/29/98	16.23	69.18	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	--

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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	3/1/96	25.81	59.69	0	--
		4/4/96	25.81	59.69	0	--
		5/2/96	26.15	60.03	0	--
		6/5/96	26.17	60.01	0	--
		7/9/96	26.32	59.18	0	--
		8/8/96	26.41	59.09	0	--
		9/10/96	26.66	58.84	0	--
		10/1/96	26.65	58.85	0	--
		11/4/96	26.77	58.73	0	--
		12/2/96	26.59	58.91	0	--
		1/3/97	25.98	59.52	0	--
		2/6/97	25.84	59.66	0	--
		3/5/97	25.94	59.56	0	--
		4/1/97	26.34	59.16	0	--
		5/8/97	26.39	59.11	0	--
		6/6/97	26.45	59.05	0	--
		7/8/97	26.65	58.85	0	--
		8/7/97	26.72	58.78	0	--
		9/10/97	26.89	58.61	0	--
		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	--
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	--

TABLE 2
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
3093 BROADWAY
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Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Product Elevation (feet)
MW-9	90.37	7/20/93	21.54	68.83	0	--
(cont.)		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	--
		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	--

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-9	90.37	4/2/98	20.19	70.18	0	--
(cont.)		4/29/98	19.27	71.10	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	--
		5/8/97	18.36	70.24	0	--
		6/6/97	18.50	70.10	0	--
		7/8/97	18.98	69.62	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-10	88.60	8/7/97	19.18	69.42	0	--
(cont.)		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	--
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	--

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	1/3/97	30.73	71.33	0	--
		2/6/97	29.38	72.68	0	--
		3/5/97	29.22	72.84	0	--
		4/1/97	29.46	72.60	0	--
		5/8/97	29.93	72.13	0	--
		6/6/97	30.17	71.89	0	--
		7/8/97	30.62	71.44	0	--
		8/7/97	30.95	71.11	0	--
		9/10/97	31.38	70.68	0	--
		10/1/97	31.61	70.45	0	--
		11/4/97	31.88	70.18	0	--
		12/4/97	31.68	70.38	0	--
		1/8/98	31.05	71.01	0	--
		2/5/98	29.78	72.28	0	--
		3/6/98	27.75	74.31	0	--
		4/2/98	27.47	74.59	0	--
		4/29/98	27.22	74.84	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	--

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	6/5/96	23.07	60.99	0	--
		7/9/96	23.31	60.75	0	--
		8/8/96	23.44	60.62	0	--
		9/10/96	23.66	60.40	0	--
		10/1/96	23.80	60.26	0	--
		11/4/96	24.04	60.02	0	--
		12/2/96	24.00	60.06	0	--
		1/3/97	23.30	60.76	0	--
		2/6/97	23.24	60.82	0	--
		3/5/97	23.24	60.82	0	--
		4/1/97	23.37	60.69	0	--
		5/8/97	23.46	60.60	0	--
		6/6/97	23.57	60.49	0	--
		7/8/97	23.80	60.26	0	--
		8/7/97	23.92	60.14	0	--
		9/10/97	24.07	59.99	0	--
		10/1/97	24.18	59.88	0	--
		11/4/97	24.27	59.79	0	--
		12/4/97	24.05	60.01	0	--
		1/8/98	23.83	60.23	0	--
		2/5/98	22.89	61.17	0	--
		3/6/98	22.51	61.55	0	--
		4/2/98	22.54	61.52	0	--
		4/29/98	22.27	61.79	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	--	--

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	5/3/96	71.53	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
(cont.)	5/8/97	70.23	<50	<50	<0.5	0.7	<0.5	<0.5	<1.0	--	--
	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	--

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	11/4/96	68.71	160,000	4,700 [1,2]	16,000	38,000	2,700	14,000	380	ND	--
(cont.)	5/8/97	70.21	170,000	5,100 [1,2]	16,000	37,000	2,400	15,900	290	--	--
	11/5/97	68.65	190,000	3,700 [1,2]	15,000	31,000	2,200	14,600	290	--	<400
	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
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	--	--	--	--	--	--	--	--

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	11/9/93	58.11	FP	--	--	--	--	--	--	--	--
(cont.)	8/30/95	57.62	FP	--	--	--	--	--	--	--	--
	12/1/95	58.04	FP	--	--	--	--	--	71	--	<8,000,000
	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

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

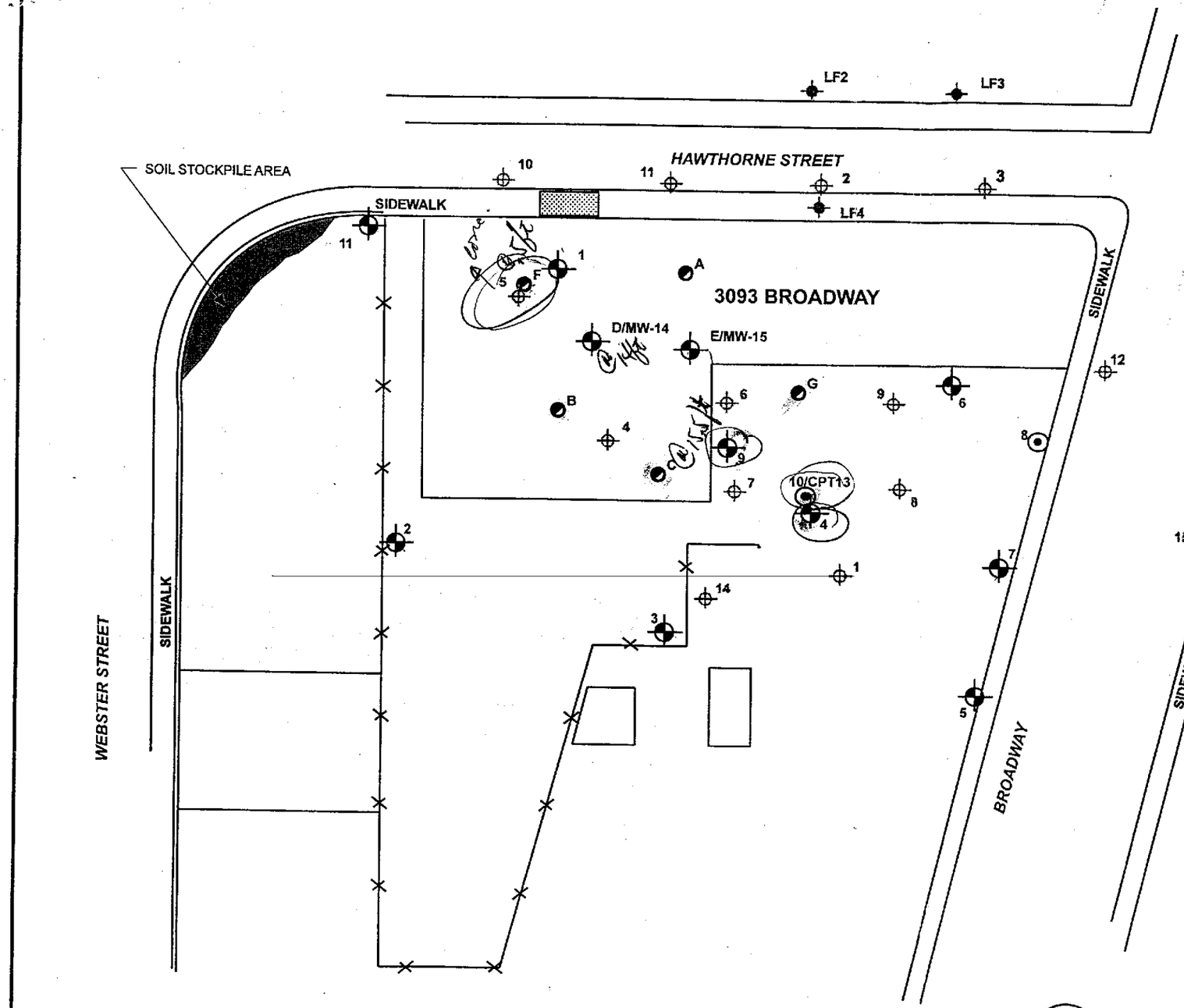
Well	Event Date	Groundwater Elevation (feet)	TVH µg/l	TEH µg/l	B µg/l	T µg/l	E µg/l	X µg/l	1,2-DCA µg/l	Other Purgeable Halocarbons µg/l	MTBE µg/l
MW-7	2/9/98	67.85	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	--	<2
(cont.)	4/29/98	69.18	<50	<47	<0.5	<0.5	<0.5	<0.5	<1.0	ND	<2
MW-8	10/12/92	57.80	70	--	20	1	1	3	210	--	--
	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
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)	--

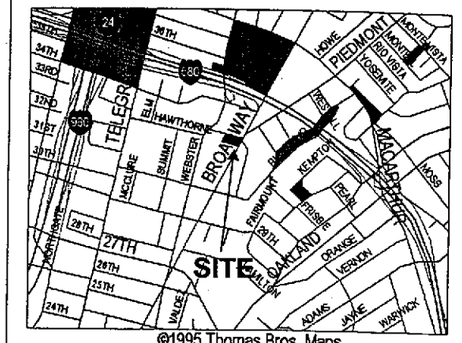
TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

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	7/21/93	68.83	2,300	450	170	8.1	15	<0.5	1100	ND	--
(cont.)	11/10/93	62.84	4,400	450	69	7.3	21	9.7	900	ND	--
	8/30/95	70.78	3,200	680	3,900	49	80	22.8	960	--	--
	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
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

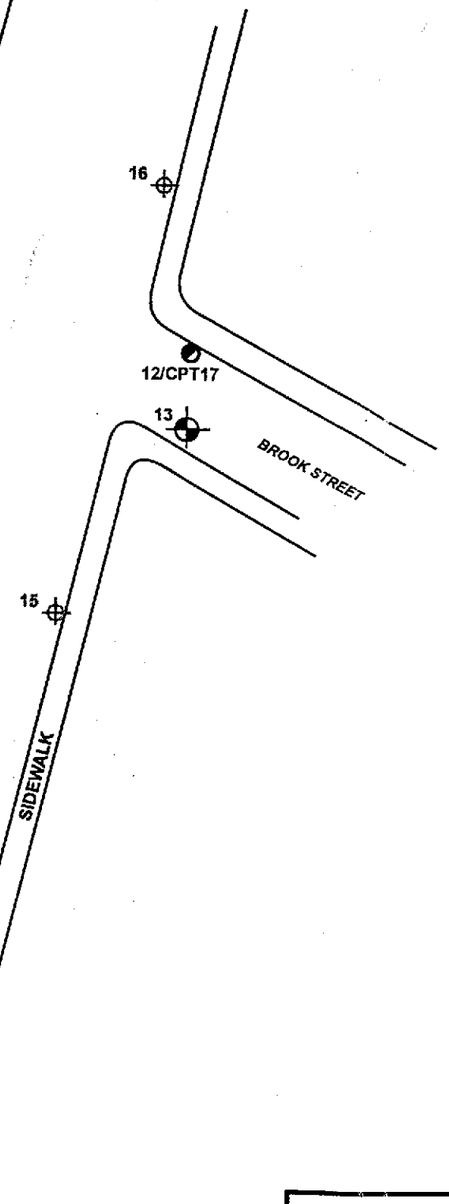
TABLE 3
SUMMARY OF CHEMICAL CONCENTRATIONS IN GROUNDWATER
FROM MONITORING WELLS
3093 BROADWAY
OAKLAND, CALIFORNIA

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	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	--	--	--
	4/5/93	71.03	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	ND	--
	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





VICINITY MAP



EXPLANATION

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

APPROXIMATE SCALE (feet)
0 60 120

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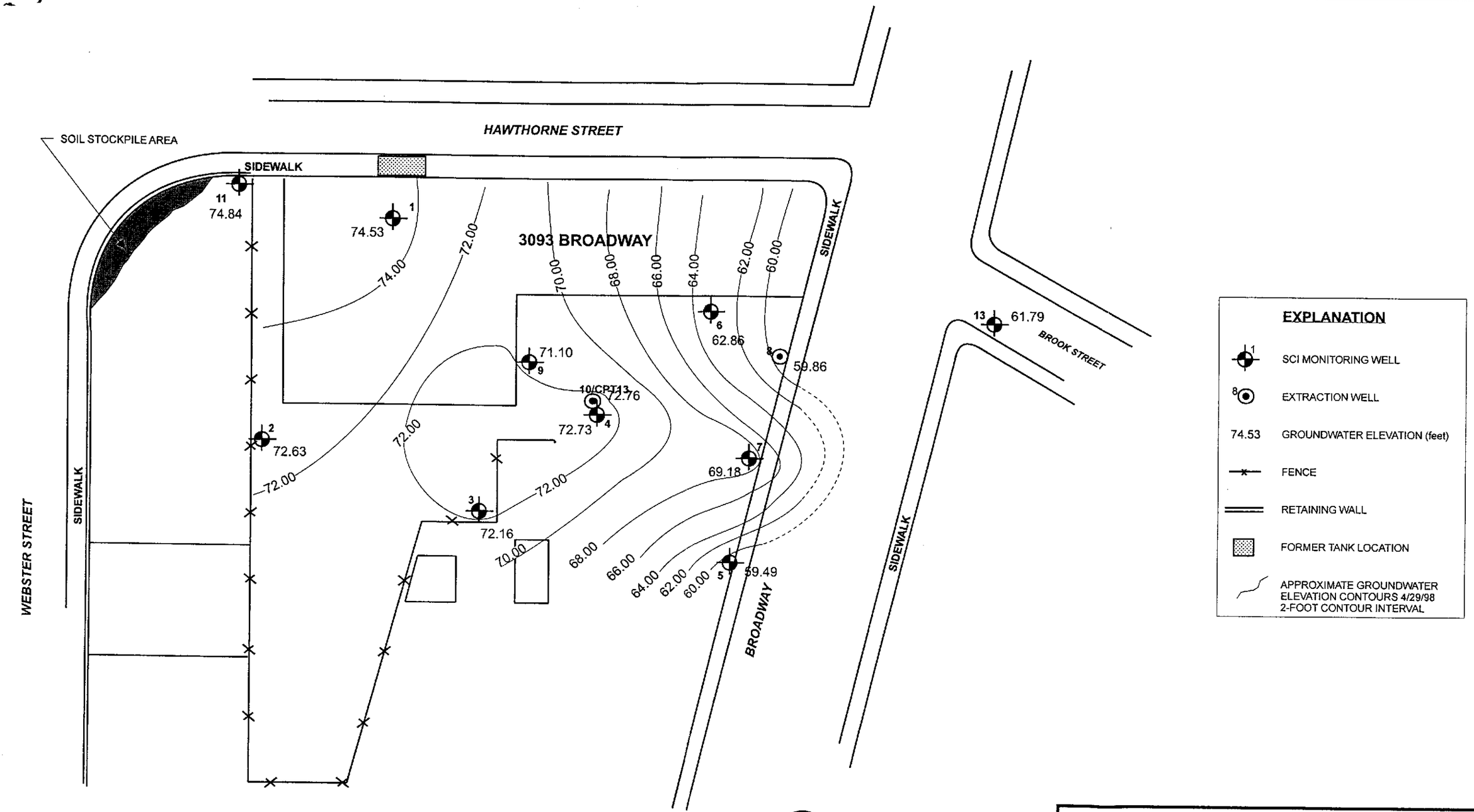
SITE PLAN

CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED	PLATE
447.055	5/26/98	TLF	1



GROUNDWATER ELEVATION CONTOURS MAY 1998 EVENT

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CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED	PLATE
447.055	5/20/98	JLP	2

LOG OF BORING NO. A

Project Name & Location: Connell Oldsmobile Oakland, California	Ground Surface Elevation: -- Elevation Datum: --
Drilling Coordinates: --	Start: Date 5/17/98 Time 1015 Finish: Date 5/17/98 Time 1230
Drilling Company & Driller: Gregg Drilling / Doug	Drilling Fluid: NA Hole Diameter: 6¼"
Rig Type & Drilling Method: Rhino Limited Access Truck	
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Cement Grout Date: 5/17/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0						Concrete Slab - 6 inches thick			
						POORLY GRADED SANDY GRAVEL (GP) dark yellowish-brown 10YR 4/4, medium dense, moist (Fill)			
			0			**LEAN CLAY (CL-ML)** very dark brown 10YR 2/2, medium stiff, moist, with brick fragments (Fill) Color changes to yellowish-brown 10YR 5/8 at 4.5 feet Becomes stiff			
5	B		10						
10	B		0			Gravel lens at 10.5 feet **LEAN CLAY (CL)** olive 10YR 4/3, stiff, moist, with hydrocarbon odor			
15	B		0			**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** light olive-brown 2.5Y 5/6, dense, moist **LEAN CLAY (CL-ML)** light olive-brown 2.5Y 5/4 and olive brown 2.5Y 4/4, medium stiff, moist			
20	B		5						
25	B		0			**SILT (ML)** yellowish-brown 10YR 5/8, medium stiff, moist, slight hydrocarbon odor			
30						**No groundwater encountered during drilling**			

LOG OF BORING NO. B

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: –
	Elevation Datum: –
Drilling Coordinates: –	Start: Date 5/16/98 Time 0800 / Finish: Date 5/16/98 Time 1030
Drilling Company & Driller: Gregg Drilling / Jason	
Rig Type & Drilling Method: Rhino Limited Access Truck	Drilling Fluid: NA / Hole Diameter: 6"
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Cement Grout / Date: 5/16/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0						Concrete Slab - 6 inches thick			
			0			**LEAN CLAY (CL-ML)** dark brown 10YR 3/3, medium stiff, moist, brick fragments (Fill)			
			0			**LEAN CLAY (CL-ML)** yellowish-brown 10YR 5/6, medium stiff, moist, (Fill)			
						Silt content varies			
5	A								
			0			Hydrocarbon odor at 7 - 9 feet Some fine sand in clay			
10	A					**POORLY GRADED SAND WITH SILT (SM-SP)** dense, moist (Fill)			
			0			**WELL GRADED SAND WITH GRAVEL (SW)** dark yellowish-brown 10YR 4/6, dense, moist			
						grades to **CLAYEY GRAVEL WITH SAND (GC)** light yellowish-brown 10YR 6/4, dense, moist, faint hydrocarbon odor Color changes to dark yellowish-brown 10YR 4/6			
15	A					**CLAYEY SAND WITH GRAVEL (SC)** brownish-yellow 10YR 6/6, dense, moist			
			3						
			3			**LEAN CLAY (CL)** yellowish-brown 10YR 5/6, medium stiff, moist			
						CLAYEY SAND WITH GRAVEL (SC) yellowish-brown 10YR 5/8, dense, moist			
20	A					**SILT (ML)** mottled very pale brown 10YR 7/4 and yellowish-brown 10YR 5/8, medium stiff, moist, strong hydrocarbon odor			
		▽	35			Groundwater level after drilling			
						LEAN CLAY (CL) light olive-brown 10YR 5/4, medium stiff, moist			
25	A								
			1			Clayey sand (SC-CL) lens at 26-27 feet			
30						**CLAYEY SAND (SC-CL)** light olive-brown 10YR 5/6, dense, moist			

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JOB NUMBER	DATE	APPROVED
447.055	5/27/98	JLC

PLATE **4a**

LOG OF BORING NO. B

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/16/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 Inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	A		0			**LEAN CLAY (CL-ML)** light olive-brown 10YR 5/4, medium stiff, moist, silt content varies			
35	A		0						
40									
45									
50									
55									
60									
65									

LOG OF BORING NO. C

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: --
	Elevation Datum: --
Drilling Coordinates: -	Start: Date 5/16/98 Time 1130 / Finish: Date 5/16/98 Time 1400
Drilling Company & Driller: Gregg Drilling / Doug	
Rig Type & Drilling Method: Rhino Limited Access Truck	Drilling Fluid: NA / Hole Diameter: 6"
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Cement Grout / Date: 5/17/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0						Concrete Slab - 6 inches thick			
			0			**LEAN CLAY (CL)** black 10Y 2.5/1, medium stiff, moist, with brick fragments (Fill)			
			0			**LEAN CLAY (CL)** very dark brown 10Y 2.5/2, medium stiff, moist (Fill)			
5	B		2			**LEAN CLAY (CL)** mottled yellowish-brown 10YR 5/8 and grayish-brown 2.5Y 5/2, medium stiff, moist, faint chemical odor (Fill?)			
						Color changes to yellowish-brown 10YR 4/4 at 9 feet, becomes stiff			
10	B		0			**CLAYEY SAND (SC)** yellowish-brown 10YR 4/6, medium dense, moist			
						Decreasing clay content			
15	B		38			**CLAYEY GRAVEL WITH SAND (GC)** yellowish-brown 10YR 4/6, dense, moist, gravel angular,			
						SILT (ML) dark yellowish-brown 10YR 5/6, medium stiff, moist, with some fine sand			
20	B	▽	0			Color changes to pale brown 10YR 6/3 Groundwater level after drilling			
			0			**LEAN CLAY (CL)** pale olive 2.5Y 6/3, stiff, moist			
25	B		0						
30									

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	JLP

PLATE **5a**

LOG OF BORING NO. C

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/16/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS **GROUP NAME (GROUP SYMBOL)** color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	B		0			**SILTY SAND (SM)** pale olive 2.5Y 6/4, medium dense, wet			
35	B		0			**LEAN CLAY (CL)** pale olive 2.5Y 6/3, medium stiff, moist			
40									
45									
50									
55									
60									
65									

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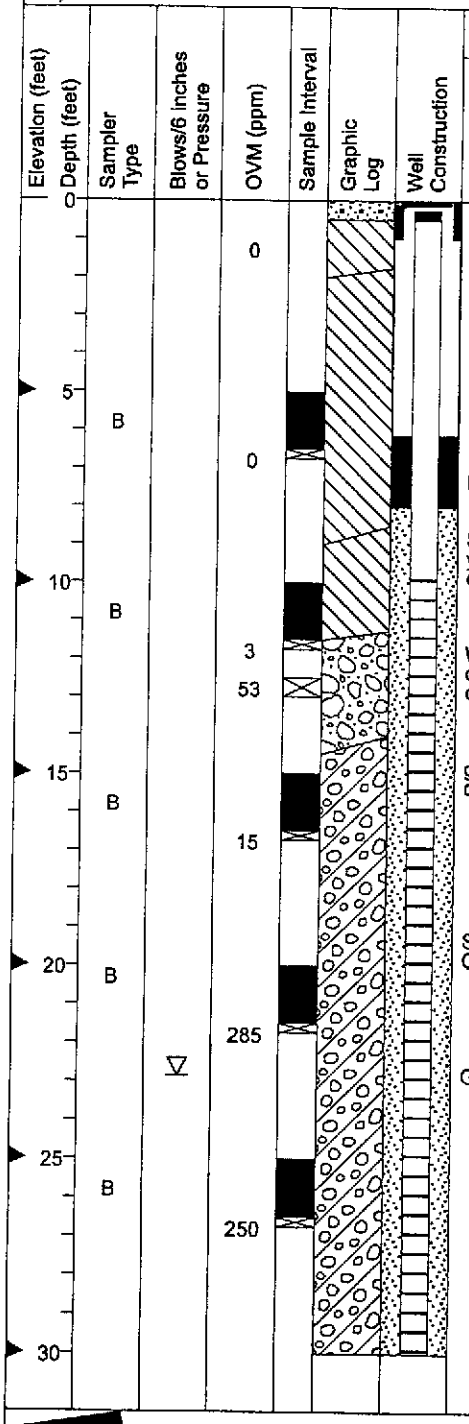
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	JLR

PLATE 5b

LOG OF BORING NO. D (MW-14)

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: –
	Elevation Datum: –
Drilling Coordinates: –	Start: Date 5/16/98 Time 1400 / Finish: Date 5/16/98 Time 1630
Drilling Company & Driller: Gregg Drilling / Jason	
Rig Type & Drilling Method: Rhino Limited Access Truck	Drilling Fluid: NA / Hole Diameter: 4¼"; reamed to 8" for well installation
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Well Installed / Date: 5/16/98



SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
Concrete Slab - 6 inches thick **SANDY LEAN CLAY (CL)** black 10Y 2.5/1, medium stiff, moist, with brick fragments (Fill)			
LEAN CLAY (CL-ML) dark yellowish-brown 10YR 4/4, medium stiff to stiff, moist (Fill?)			
Hydrocarbon odor at 7 feet			
SANDY LEAN CLAY (CL) yellowish-brown 10YR 5/4, stiff, moist, with thin lenses of clayey sand			
WELL GRADED GRAVEL WITH CLAY AND SAND (GW) dark yellowish-brown 10YR 4/6, very dense, moist, with chemical odor, gravel angular			
grades to **CLAYEY GRAVEL (GC)** dark yellowish-brown 10YR 4/6, very dense, moist			
Strong hydrocarbon odor Clay, gravel, and sand contents vary			
Groundwater level during drilling			

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CONNELL OLDSMOBILE
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	FLE

PLATE **6a**

LOG OF BORING NO. D (MW-14)

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/16/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	B	45					Heaving sands at 34 feet, unable to obtain sample below this depth **WELL GRADED SAND WITH GRAVEL (SW)**			
35							**LEAN CLAY (CL)** dark yellowish-brown 10YR 4/4, medium stiff to stiff, moist			
40										
45										
50										
55										
60										
65										

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CONNELL OLDSMOBILE
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	

PLATE 6b

LOG OF BORING NO. E (MW-15)

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: –
	Elevation Datum: –
Drilling Coordinates: –	Start: Date 5/17/98 Time 1400 / Finish: Date 5/17/98 Time 1700
Drilling Company & Driller: Gregg Drilling / Doug	
Rig Type & Drilling Method: Rhino Limited Access Truck	Drilling Fluid: NA / Hole Diameter: 6"; reamed to 8" for well installation
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Well Installed / Date: 5/17/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0							Concrete Slab - 6 inches thick **POORLY GRADED GRAVEL WITH SAND (GP)** brownish-yellow 10YR 5/8, medium dense, moist (Fill)			
			0				**LEAN CLAY (CL)** very dark grayish-brown 10YR 3/2, medium stiff, moist (Fill)			
5	B		20				**LEAN CLAY (CL)** yellowish-brown 10YR 5/4, medium stiff, moist			
10	B		27				**SILTY SAND (SM)** yellowish-brown 10YR 5/8, dense, moist			
			35				**LEAN CLAY (CL)** olive-brown 2.5Y 4/3, medium stiff, moist			
15	B		10				**CLAYEY GRAVEL (GC)** olive-gray 5Y 4/2 and yellowish-brown 10Y 5/8, dense, moist, gravel angular, well graded			
20	B		25				**Gravel, sand, and clay contents vary** **Color changes to dark brown 10YR 3/3** and dark yellowish-brown 10YR 4/6			
25	B	▽	220				Groundwater level during drilling Strong hydrocarbon odor			
30										

LOG OF BORING NO. E (MW-15)

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/17/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	B		53							
35							**LEAN CLAY (CL)** light olive-brown 2.5Y 5/4, stiff, wet			
40										
45										
50										
55										
60										
65										

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CONNELL OLDSMOBILE
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	

PLATE 7b

LOG OF BORING NO. F

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: –
	Elevation Datum: –
Drilling Coordinates: –	Start: Date 5/17/98 Time 1230 / Finish: Date 5/17/98 Time 1530
Drilling Company & Driller: Gregg Drilling / Doug	
Rig Type & Drilling Method: Rhino Limited Access Truck	Drilling Fluid: NA / Hole Diameter: 6¼"
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Cement Grout / Date: 5/17/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0	A		500			Concrete Slab - 6 inches thick **LEAN CLAY (CL)** light olive-brown 2.5Y 5/6, medium stiff, moist, with wood fragments, with chemical odor **(Fill)**			
			350						
			178			**LEAN CLAY (CL)** yellowish-brown 10YR 5/8, medium stiff, moist			
5	B					Variable sand and gravel content			
			6			**POORLY GRADED SAND WITH CLAY (SP) and CLAYEY SAND (SC)** yellowish-brown 10YR 5/6, dense, moist			
10	B								
			9			**CLAYEY GRAVEL (GC)** olive-yellow 2.5Y 6/6, dense, moist, gravel angular, well graded, hydrocarbon odor			
15	B								
			20			**LEAN CLAY (CL)** light olive-brown 2.5Y 5/4, medium stiff to stiff, moist, with hydrocarbon odor			
20	B					**POORLY GRADED SAND WITH CLAY (SP)** pale olive 5Y 6/3, dense, moist **SANDY SILT (ML-SM)** pale olive 5Y 6/3, medium stiff, moist			
			55			**LEAN CLAY (CL)** pale olive 5Y 6/3, medium stiff, moist			
25	B					**POORLY GRADED SAND WITH CLAY (SP)** medium dense, moist **CLAYEY GRAVEL (GC)** yellowish-brown 10YR 5/8, dense, moist			
			170			**SILT (ML)** pale olive 5Y 6/3, medium stiff, moist			
30						**LEAN CLAY (CL)** light olive-brown 2.5Y 5/4, stiff, moist			

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	

PLATE **8a**

LOG OF BORING NO. F

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/17/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS **GROUP NAME (GROUP SYMBOL)** color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	B					No groundwater encountered during drilling			
35	B								
40									
45									
50									
55									
60									
65									

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	JLP

PLATE 8b

LOG OF BORING NO. G

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: --
	Elevation Datum: --
Drilling Coordinates: --	Start: Date 5/17/98 Time 0900 / Finish: Date 5/17/98 Time 1100
Drilling Company & Driller: Gregg Drilling / Jason	
Rig Type & Drilling Method: Rhino Limited Access Track	Drilling Fluid: NA / Hole Diameter: 4¼"
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Cement Grout / Date: 5/17/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0						Asphaltic Concrete - 2 inches thick			
			0			**POORLY GRADED SANDY GRAVEL (GP)** dark yellowish-brown 10YR 4/6, medium dense, moist (Fill)			
						LEAN CLAY (CL) yellowish-brown 10YR 5/8, medium stiff, moist			
5	B		0			**CLAYEY SAND (SC)** dark yellowish-brown 10YR 4/6, dense, moist			
						CLAYEY GRAVEL (GC) dark yellowish-brown 10YR 4/6, dense, moist			
10	B		0			**LEAN CLAY (CL)** dark yellowish-brown 10YR 4/6, medium stiff, moist			
15	B		215			**CLAYEY GRAVEL (GC)** yellowish-brown 10YR 5/8, dense, moist			
		▽				Groundwater level during drilling			
20	B		300			**WELL GRADED GRAVEL WITH SAND AND SILT (GW)** brownish-yellow 10YR 6/8 to very pale brown 10YR 7/4, medium dense, wet, with hydrocarbon odor			
25	B		225			**WELL GRADED SAND WITH CLAY AND GRAVEL (SW)** pale olive 10YR 6/4, medium dense, wet			
30									

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487-93)

MAJOR DIVISIONS			GROUP NAMES		
COARSE-GRAINED SOILS More than 50% retained on the No. 200 sieve	GRAVELS More than 50% of coarse fraction retained on No. 4 sieve	Clean gravels less than 5% fines	GW		Well-graded gravel, Well-graded gravel with sand
			GP		Poorly graded gravel, Poorly graded gravel with sand
		Gravels with more than 12% fines	GM		Silty gravel, Silty gravel with sand
			GC		Clayey gravel, Clayey gravel with sand
	SANDS 50% or more of coarse fraction passes No. 4 sieve	Clean sand less than 5% fines	SW		Well-graded sand, Well-graded sand with gravel
			SP		Poorly graded sand, Poorly graded sand with gravel
		Sands with more than 12% fines	SM		Silty sand, Silty sand with gravel
			SC		Clayey sand, Clayey sand with gravel
FINE-GRAINED SOILS 50% or more passes the No. 200 sieve	SILTS AND CLAYS Liquid Limit Less than 50%		ML		Silt, Silt with sand or gravel, Sandy or gravelly silt, Sandy or gravelly silt with gravel or sand
			CL		Lean clay, Lean clay with sand or gravel, Sandy or gravelly lean clay, Sandy or gravelly lean clay with gravel or sand
			OL		Organic silt or clay, Organic silt or clay with sand or gravel, Sandy or gravelly organic silt or clay, Sandy or gravelly organic silt or clay with gravel or sand
	SILTS AND CLAYS Liquid Limit Greater than 50%		MH		Elastic silt, Elastic silt with sand or gravel, Sandy or gravelly elastic silt, Sandy or gravelly elastic silt with gravel or sand
			CH		Fat clay, Fat clay with sand or gravel, Sandy or gravelly fat clay, Sandy or gravelly fat clay with gravel or sand
			OH		Organic silt or clay, Organic silt or clay with sand or gravel, Sandy or gravelly organic silt or clay, Sandy or gravelly organic silt or clay with gravel or sand
HIGHLY ORGANIC SOILS			Pt		Peat

For definition of dual and borderline symbols, see ASTM D2487-93.

KEY TO TEST DATA AND SYMBOLS

Perm	-	Permeability
Consol	-	Consolidation
LL	-	Liquid Limit
PI	-	Plasticity Index
Gs	-	Specific Gravity
MA	-	Particle Size Analysis
-200	-	Percent Passing No. 200 Sieve
ND	-	Not Detected
■	-	Tube Sample
⊠	-	Bag or Bulk Sample
⊟	-	Lost Sample
▽	-	First Groundwater
▼	-	Stabilized Groundwater

	Shear Strength (psf)	Confining Pressure (psf)	
TxUU	3200	(2600)	Unconsolidated-Undrained Triaxial Shear
TxCU	3200	(2600)	Consolidated-Undrained Triaxial Shear
TxCD	3200	(2600)	Consolidated-Drained Triaxial Shear
SSCU	3200	(2600)	Consolidated-Undrained Simple Shear
SSCD	3200	(2600)	Consolidated-Drained Simple Shear
DSCD	2700	(2000)	Consolidated-Drained Direct Shear
UC	470		Unconfined Compression
LVS	700		Laboratory Vane Shear
FV	300		Field Vane Shear
RFV			
TV	800		Torvane Shear
PP	400		Pocket Penetrometer *(actual reading divided by 2)*

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JOB NUMBER	DATE	APPROVED
447.055	5/27/98	JLP

PLATE **10**

TABLE 6
SUMMARY OF CHEMICAL CONCENTRATIONS
IN GRAB GROUNDWATER SAMPLES
3093 BROADWAY
OAKLAND, CALIFORNIA

Sample ID	Event Date	TVH µg/l	TEH µg/l	MTBE µg/l	B µg/l	T µg/l	E µg/l	X µg/l	1,2-DCA µg/l
Current Investigation									
B	5/16/98	140YZ	77YL	<2	37	0.64	6.6	1.7	17
C	5/16/98	<50	48YL	<2	0.72	<0.5	<0.5	<0.5	210
G	5/17/98	590,000	35,000YL	<500	15,000	25,000	2,100	10,800	880
Former Investigation									
B-12	10/6/92	<50	<50	--	<0.5	<0.5	<0.5	<0.5	<1
CPT 1	10/6/92	490	--	--	20	60	10	60	1
CPT 3	10/6/92	50	--	--	<0.4	<0.4	3	3	<4
CPT 4	10/6/92	1,100	--	--	60	50	80	15	110
CPT 5	10/6/92	600,000	--	--	2,300	53,000	8,000	43,000	730
CPT 7	10/6/92	1,700,000	--	--	40,000	120,000	25,000	120,000	2,900
CPT 9	10/7/92	2,100,000	--	--	49,000	140,000	28,000	145,000	620
CPT 10	10/7/92	190,000	--	--	13,000	16,000	3,900	18,000	1,400
CPT 11	10/7/92	2,000	--	--	200	50	30	70	11
CPT 12	10/7/92	130,000	--	--	4,100	10,000	2,600	10,000	9

NOTES:
µg/l = micrograms per liter = parts per billion = ppb
TVH = Total Volatile Hydrocarbons
TEH = Total Extractable Hydrocarbons
MTBE = Methyl tertiary butyl ether
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
1,2-DCA = 1,2-Dichloroethane
-- = Test not requested

Y = Sample exhibits fuel pattern which does not resemble standard
L = Lighter hydrocarbons than indicated standard
H = Heavier hydrocarbons than indicated standard
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
<0.5 = Chemical not present at a concentration in excess of detection limit shown

TABLE 7
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
MW-4	12/23/91	2.50	2.50
	12/26/91	6.00	8.50
	1/10/92	5.00	13.50

TABLE 7
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

TABLE 7
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 (cont.)	10/1/96	0.05	47.85
	11/4/96	0.02	47.87
	12/2/96	0.02	47.89
	1/3/97	0.02	47.91
	2/6/97	0.01	47.92
	3/5/97	0.00	47.92
	4/1/97	0.00	47.92
	5/8/97	0.00	47.92
	6/6/97	0.00	47.92
	7/8/97	0.00	47.92
	8/7/97	0.00	47.92
	9/10/97	0.00	47.92
	10/1/97	0.00	47.92
	11/4/97	0.00	47.92
	12/4/97	0.00	47.92
	1/8/98	0.00	47.92
	2/5/98	0.00	47.92
	3/6/98	0.00	47.92
	4/2/98	0.00	47.92
	4/29/98	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

TABLE 7
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	12/2/92	(obstruction in well)	--
(cont.)	4/3/93	1.75	27.58
	11/9/93	0.83	28.41
	8/30/95	4.50	32.91
	10/2/95	4.00	36.91
	11/3/95	3.00	39.91
	11/30/95	2.50	42.41
	1/3/96	2.50	44.91
	2/2/95	5.00	49.90
	3/1/96	4.00	53.90
	4/4/96	5.00	58.90
	5/2/96	4.50	63.40
	6/5/96	4.00	67.40
	7/9/96	4.50	71.90
	8/8/96	4.00	75.90
	9/10/96	3.50	79.40
	10/1/96	4.00	83.40
	11/4/96	*NM	83.40
	12/2/96	*NM	83.40
	1/3/97	*NM	83.40
	2/6/97	*NM	83.40
	3/5/97	*NM	83.40
	4/1/97	*NM	83.40
	5/8/97	0.40	83.80
	6/6/97	0.03	83.83
	7/8/97	0.00	83.83
	8/7/97	0.00	83.83
	9/10/97	0.00	83.83
	10/1/97	0.00	83.83
	11/4/97	0.02	83.85
	12/4/97	0.05	83.90
	1/8/98	0.66	84.56
	2/5/98	*NM	84.56
	3/6/98	0.04	84.60
	4/2/98	0.10	84.70
	4/29/98	0.09	84.79
MW-9	8/8/96	0.10	0.10
	9/10/96	0.00	0.10
	10/1/96	0.00	0.10

TABLE 7
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-9	11/4/96	0.00	0.10
(cont.)	12/2/96	0.00	0.10
	1/3/97	0.00	0.10
	2/6/97	0.00	0.10
	3/5/97	0.00	0.10
	4/1/97	0.00	0.10
	5/8/97	0.00	0.10
	6/6/97	0.00	0.10
	7/8/97	0.00	0.10
	8/7/97	0.00	0.10
	9/10/97	0.00	0.10
	10/1/97	0.00	0.10
	11/4/97	0.00	0.10
	12/4/97	0.00	0.10
	1/8/98	0.00	0.10
	2/5/98	0.00	0.10
	3/6/98	0.00	0.10
	4/2/98	0.00	0.10
	4/29/98	0.00	0.10

Total Product (gallons) removed by bailing	146.28
Total Product (gallons) removed by Soil Vapor Extraction (as of 3/31/98)	223.0
Cumulative Total of Product (gallons) Removed	369.28

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

TABLE 8
FREE PRODUCT RECOVERY BY SVE FROM MW-6
3093 BROADWAY
OAKLAND, CALIFORNIA

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

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

** Operational problems and high water levels prevented sampling of the SVE system during this period.

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	5/8/97	60.60	<50	<50	81	<0.5	<0.5	<0.5	5.5	--	--
(cont.)	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
	4/29/98	61.79	<50	<47	24	<0.5	<0.5	<0.5	5.7	ND	<2
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 SEMI-VOLATILE ORGANIC COMPOUNDS AND OIL & GREASE
IN GROUNDWATER FROM MONITORING WELL MW-1
3093 BROADWAY
OAKLAND, CALIFORNIA

Sampling Date	Oil & Grease (mg/l)	2,4-Dichloro-phenol (µg/l)	2,4-Dimethyl-phenol (µg/l)	2 methyl naphthalene (µg/l)	2-methyl-phenol (µg/l)	3,4-methyl phenol (µg/l)	Benzoic Acid (µg/l)	bis (2-ethyl hexyl) phthalate (µg/l)	Naphthalene (µg/l)	Phenol (µg/l)	Other 8270 Compounds
8/30/95	10	1,700	<240	630	<240	NI	<1,200	240	1,200	<240	ND
5/2/96	<5	<47	<47	250	<47	NI	<240	<47	640	<47	ND
11/5/96	9.8	--	--	--	--	--	--	--	--	--	--
5/9/97	20	<47	<47	280	<47	NI	570	<47	650	93	ND
11/5/97	<5	<190	<190	720	<190	<190	<940	<190	1,500	<190	ND
2/9/98	<5	<47	<47	160	<47	52	700	<47	570	92	ND
5/27/98	5.7	<200	110J	120J	210	200J	<1000	<200	630	480	ND

NOTES:
<5 = Analyte not detected above laboratory reporting limit stated.
ND = Analytes not detected above their laboratory reporting limits.
NI = Not included in laboratory analyte list.
-- = Test not requested.
J = Estimated value below the laboratory reporting list

TABLE 5
SUMMARY OF CHEMICAL CONCENTRATIONS IN SOIL SAMPLES, MAY 1998 INVESTIGATION
3093 BROADWAY
OAKLAND, CALIFORNIA

Sample ID	Event Date	TVH mg/kg	TEH mg/kg	MTBE µg/kg	B µg/kg	T µg/kg	E µg/kg	X µg/kg	1,2-DCA µg/kg
Current Investigation									
A @ 11.0	5/17/98	<1	<1	<20	<5	<5	<5	<5	<5
A @ 20.5	5/17/98	<1	<1	<20	<5	<5	<5	<5	<5
B @ 6.0	5/16/98	<1	<1	<20	<5	<5	<5	<5	<5
B @ 20.5	5/16/98	<1	<1	<20	76	<5	<5	<5	77
C @ 6.0	5/16/98	<1	3100YH	<20	<5	<5	<5	<5	<5
C @ 15.5	5/16/98	4.6YL	790YH	84	<5	<5	7.9C	33C	<5
MW-14/D @ 11.0	5/16/98	<1	<1	<20	<5	<5	<5	<5	<5
MW-14/D @ 21.0	5/16/98	<1	<1	<20	95	100	19	103	100
MW-15/E @ 6.0	5/16/98	<1	<1	<20	<5	<5	<5	<5	<5
MW-15/E @ 21.0	5/16/98	<1	<1	<20	<5	<5	<5	<5	<5
F @ 0.5	5/17/98	25,000YH	41YLH	<100,000	<25,000	<25,000	<25,000	<25,000	<5
F @ 6.0	5/17/98	<1	<1	<20	<5	<5	<5	<5	<5
F @ 21.0	5/17/98	<1	<1	<20	24	<5	<5	<5	31
G @ 5.5	5/17/98	<1	<1	<20	<5	<5	<5	<5	<5
G @ 16.0	5/17/98	<1	<1	<20	140	<5	<5	48	13

NOTES:
mg/kg = milligrams per kilogram = parts per million = ppm
µg/kg = micrograms per kilogram = parts per billion = ppb
TVH = Total Volatile Hydrocarbons
TEH = Total Extractable Hydrocarbons
MTBE = Methyl tertiary butyl ether
BTEX = Benzene, Toluene, Ethylbenzene, Xylene
1,2-DCA = 1,2-Dichloroethane

Y = Sample exhibits fuel pattern which does not resemble standard
L = Lighter hydrocarbons than indicated standard
H = Heavier hydrocarbons than indicated standard
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
<1 = Chemical not present at a concentration in excess of detection limit shown

GROUNDWATER DEPTHS

Project Name: Connell Olds-

Job No.: 447.055

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	3/6/98	1000	20.80	NO PRODUCT
MW-2		0835	22.23	
MW-3		0840	19.68	
MW-4		0940	16.42	NO PRODUCT
MW-5		0855	25.60	
MW-6		0915	24' 7½"	Top of Product = 24' 2" 1½" visible product. Product thickness = 5½" Bailed = 1.5 gallons (total liquid (4 VOAs product) 4 x 4 = 16
MW-7		0900	16.84	
MW-8		0910	25.29	
MW-9		0950	20.99	
MW-10		0935	16.07	
MW-11		0820	27.75	
MW-13	↓	0815	22.51	
				* system off - knockout drum emptied

GROUNDWATER DEPTHS

Project Name: Connell Olds

Job No.: 447.055

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	4/2/98	1140	20.31	no product
MW-2		1025	22.35	
MW-3		1030	18.76	
MW-4		1105	16.54	no product
MW-5		1100	25.80	
MW-6		1115	24' 5 3/8"	Top of Product = 23' 10 1/4" Product Thickness = 7/8" Bailed = 2 gals. (Total Liquid)
MW-7		1035	16.51	1/2 (Ten)
MW-8		1045	25.38	
MW-9		1055	20.19	
MW-10		1050	16.25	
MW-11		1005	27.47	
MW-13		1000	22.54	
				* MW-6 measurements taken before piping was cut/removed

GROUNDWATER DEPTHS

Project Name: Connell Olds

Job No.: 447.055

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	4/29/98	0850	19.95	no product
MW-2		0750	22.18	
MW-3		0755	17.92	
MW-4		0845	16.11	no product
MW-5		0830	25.35	
MW-6		0820	22' 11½"	Top of Product = 22' 4 7/8" Product Thickness = 6 5/8" 1/2 liter - 11½"
MW-7		0800	16.23	
MW-8		0815	25.64	
MW-9		0840	19.27	
MW-10		0835	15.84	
MW-11		0745	27.22	
MW-13		0740	22.27	

WELL SAMPLING FORM

Project Name: Connell Olds
Well Number: MW-1
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 5/1/98
TOC Elevation:
Weather: cloudy

Depth to Casing Bottom (below TOC) 35.00 feet
Depth to Groundwater Before Purging (below TOC) 19.95 feet
Feet of Water in Well 15.05 feet
Depth to Groundwater When 80% Recovered 22.96 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.5 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

moderate recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
2		6.31	19.0	1275		semi-clear/strong odor w/slight sheen
4		6.30	19.0	1300		↓
6		6.35	18.5	1250		increasing turbidity
8		6.34	19.0	1250		murky

Total Gallons Purged 8 gallons
Depth to Groundwater Before Sampling (below TOC) 22.90 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-2
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 4/29/98
TOC Elevation:
Weather: Sunny

Depth to Casing Bottom (below TOC) 39.50 feet
Depth to Groundwater Before Purging (below TOC) 22.18 feet
Feet of Water in Well 17.32 feet
Depth to Groundwater When 80% Recovered 25.64 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.9 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		6.06	23.5	625		clear/no odor
3		6.05	23.0	600		semi-clear
5		6.04	23.0	625		increasing turbidity
7		6.02	22.5	575		
9		6.07	23.0	525		murky

Total Gallons Purged 9 gallons
Depth to Groundwater Before Sampling (below TOC) 23.18 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-3
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 4/29/98
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 34.00 feet
Depth to Groundwater Before Purging (below TOC) 17.92 feet
Feet of Water in Well 16.08 feet
Depth to Groundwater When 80% Recovered 21.14 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 2.6 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

FIELD MEASUREMENTS

moderate recharge

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
2		6.00	23.5	700		murky / no odor
4		6.02	23.0	700		↓
6		6.03	23.0	700		decreasing turbidity
8		6.03	23.5	700		↓

Total Gallons Purged 8 gallons
Depth to Groundwater Before Sampling (below TOC) 18.23 feet
Sampling Method disposable bailer
Containers Used 7 (40 ml) ____ (liter) ____ (pint) ____

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

WELL SAMPLING FORM

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

Well Number: MW-4
Well Casing Diameter: 2 inches
Date: 5/1/98
Weather: cloudy

Depth to Casing Bottom (below TOC) 24.50 feet
Depth to Groundwater Before Purging (below TOC) 16.11 feet
Feet of Water in Well 8.39 feet
Depth to Groundwater When 80% Recovered 17.79 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

FIELD MEASUREMENTS

fast recharge

Gallons Removed	Time	pH	Temp (°C) °F	Conductivity (micromhos/cm)	Salinity S%	Comments
1		6.67	19.0	575		clear/strong odor w/sheen
2		6.66	19.0	525		
3		6.66	19.0	440		
4		6.67	19.0	525		
5		6.68	19.0	525		

Total Gallons Purged 5 gallons
Depth to Groundwater Before Sampling (below TOC) 16.81 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: Conwell ads
Well Number: MW-5
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 4/29/98
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 34.00 feet
Depth to Groundwater Before Purging (below TOC) 25.35 feet
Feet of Water in Well 8.15 feet
Depth to Groundwater When 80% Recovered 27.48 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 1.3 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		6.30	24.5	750		semi-clear/no odor
2		6.32	23.5	750		increasing turbidity
3		6.33	24.0	725		murky
4		6.35	23.5	750		↓

Total Gallons Purged 4 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: Conoco Olds Well Number: MW-6

Job No.: 447.055 Well Casing Diameter: 2 inches

Sampled By: DWA Date: 5/1/98

TOC Elevation: _____ Weather: Cloudy

Depth to Casing Bottom (below TOC) 34.50 feet

Depth to Groundwater Before Purging (below TOC) 22'11½" feet

Feet of Water in Well 11'6½" feet

Depth to Groundwater When 80% Recovered 25.30 feet

Casing Volume (feet of water x Casing DIA ² x 0.0408) 1.9 gallons

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

Free Product 6 5/8" thick

Purge Method disposable bailer

FIELD MEASUREMENTS

first recharge

Gallons Removed	Time	pH	Temp (°C) °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
2		6.43	19.0	1000		muddy/strong odor/heavy sheen
4		6.47	19.0	975		
6		6.47	19.0	975		
8		6.49	19.0	975		

Total Gallons Purged 8 gallons

Depth to Groundwater Before Sampling (below TOC) 23.47 feet

Sampling Method disposable bailer

Containers Used 7 (40 ml) / 1 (liter) / _____ (pint) / _____

Subsurface Consultants

JOB NUMBER DATE APPROVED PLATE

WELL SAMPLING FORM

Project Name: Connell olds
Well Number: MW-7
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 4/29/98
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 30.00 feet
Depth to Groundwater Before Purging (below TOC) 16.23 feet
Feet of Water in Well 13.77 feet
Depth to Groundwater When 80% Recovered 18.98 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 2.2 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		6.55	23.0	360		murky/no odor
3		6.49	23.5	425		
5		6.43	23.0	550		
7		6.40	23.0	725		
9		6.4	23.0	850		

Total Gallons Purged 9 gallons
Depth to Groundwater Before Sampling (below TOC) 17.14 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: 5/1/98
TOC Elevation:
Weather: cloudy

Depth to Casing Bottom (below TOC) 39.50 feet
Depth to Groundwater Before Purging (below TOC) 25.64 feet
Feet of Water in Well 13.86 feet
Depth to Groundwater When 80% Recovered 28.41 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 20.4 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

moderate recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
20		6.42	19.5	925		clear/slight odor
30		6.37	19.5	975		decreasing odor
40		6.37	19.5	975		
50		6.42	19.5	1000		
60		6.33	19.5	1090		

Total Gallons Purged 65 gallons
Depth to Groundwater Before Sampling (below TOC) 27.63 feet
Sampling Method disposable bailer
Containers Used 7 (40 ml) 1 (liter) (pint)

Subsurface Consultants

JOB NUMBER DATE APPROVED

PLATE

WELL SAMPLING FORM

Project Name: Connell Olds
Well Number: MW-9
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 5/1/98
TOC Elevation:
Weather: cloudy

Depth to Casing Bottom (below TOC) 30.50 feet
Depth to Groundwater Before Purging (below TOC) 19.27 feet
Feet of Water in Well 11.23 feet
Depth to Groundwater When 80% Recovered 21.52 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 slow recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp °C (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
1		6.04	18.5	725		murky/slight odor
3		5.97	19.0	800		
5		6.09	18.5	875		increasing turbidity
						dry @ 5½ gals.

Total Gallons Purged 5½ gallons
Depth to Groundwater Before Sampling (below TOC) 20.86 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 Oils
Well Number: MW-10
Job No.: 447.055
Well Casing Diameter: 6 inches
Sampled By: DWA
Date: 5/1/98
TOC Elevation:
Weather: cloudy

Depth to Casing Bottom (below TOC) 34.50 feet
Depth to Groundwater Before Purging (below TOC) 15.84 feet
Feet of Water in Well 18.66 feet
Depth to Groundwater When 80% Recovered 19.57 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 27.4 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
50		6.67	19.0	650		clear/slight odor
60		6.74	19.0	650		
70		6.72	19.0	675		
80		6.71	19.0	700		

Total Gallons Purged 83 gallons
Depth to Groundwater Before Sampling (below TOC) 16.10 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-11
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWB
Date: 4/29/98
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 37.00 feet
Depth to Groundwater Before Purging (below TOC) 27.22 feet
Feet of Water in Well 9.78 feet
Depth to Groundwater When 80% Recovered 29.18 feet
Casing Volume (feet of water x Casing DIA ² x 0.0408) 1.6 gallons
Depth Measurement Method Tape & Paste / Electronic Sounder / Other
Free Product none
Purge Method disposable bailer

FIELD MEASUREMENTS

immediate recharge

Gallons Removed	Time	pH	Temp (°C) °F	Conductivity (micromhos/cm)	Salinity S%	Comments
1		6.35	22.0	1225		murky/no odor
2		6.38	21.5	1100		
3		6.42	22.0	1150		
4		6.42	22.0	1200		
5		6.42	22.0	1125		

Total Gallons Purged 5 gallons
Depth to Groundwater Before Sampling (below TOC) 27.22 feet
Sampling Method disposable bailer
Containers Used 7 (40 ml) / 1 (liter) / (pint)

Subsurface Consultants

JOB NUMBER DATE APPROVED

PLATE

WELL SAMPLING FORM

Project Name: Connell olds
Well Number: MW-13
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 4/29/98
TOC Elevation:
Weather: sunny

Depth to Casing Bottom (below TOC) 40.00 feet
Depth to Groundwater Before Purging (below TOC) 22.27 feet
Feet of Water in Well 17.73 feet
Depth to Groundwater When 80% Recovered 25.82 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.9 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		6.82	20.0	600		clear/no odor
3		6.57	20.0	700		"
5		6.52	20.0	675		increasing turbidity
7		6.40	20.0	575		semi-clear
9		6.45	20.0	675		lightly murky

Total Gallons Purged 9 gallons
Depth to Groundwater Before Sampling (below TOC) 23.14 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 (Re-sample)
Job No.: 447.055
Well Casing Diameter: 2 inches
Sampled By: DWA
Date: 5/27/98
TOC Elevation:
Weather: Rainy

Depth to Casing Bottom (below TOC) 35.00 feet
Depth to Groundwater Before Purging (below TOC) 20.59 feet
Feet of Water in Well 14.41 feet
Depth to Groundwater When 80% Recovered feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.4 gallons
Depth Measurement Method (Tape & Paste) / (Electronic Sounder) / Other
Free Product Top of Product = 20' 4 5/8" Product thickness = 2 3/8" (faint thin ring visible)
Purge Method disposable bailer
moderate recharge

FIELD MEASUREMENTS

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	Salinity S%	Comments
2		5.94	18.0	1175		Semi-clear/strong odor w/heavy sheen
4		5.93	18.0	1200		
6		5.95	18.0	1225		
8		5.89	18.0	1150		

Total Gallons Purged 8 gallons
Depth to Groundwater Before Sampling (below TOC) feet
Sampling Method disposable bailer
Containers Used ____ 40 ml; 2 liter; ____ pint; ____

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

WELL DEVELOPMENT FORM

Project Name: Connell Olds
Well Number: MW-14
Job No.: 441.055
Well Casing Diameter: 2 inches
Developed By: DWA
Date: 5/26/98
TOC Elevation:
Weather: partly cloudy

Depth to Casing Bottom (below TOC) 39.50 feet
Depth to Groundwater (below TOC) 21.67 feet
Feet of Water in Well 17.83 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.9 gallons
Depth Measurement Method (Tape & Paste) / (Electronic Sounder) / Other
Development Method disposable bailer

no product
immediate recharge
sampled 1 liter/7 VOAs

FIELD MEASUREMENTS

Gallons Removed	pH	Temp (°c)	Conductivity (micromhos/cm)	Salinity S%	Comments small spots of sheen
5	6.07	18.5	1100		murky/slight odor
10	5.96	19.5	1025		↓
15	6.00	19.0	1000		↓
20	5.96	19.0	950		decreasing turbidity, consistent odor
25	6.04	19.0	950		↓
30	6.06	19.0	925		murky

Total Gallons Removed 30 gallons
Depth to Groundwater After Development (below TOC) 21.67 feet

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

WELL DEVELOPMENT FORM

Project Name: Connell Olds
Well Number: MW-15
Job No.: 447.055
Well Casing Diameter: 2 inches
Developed By: DWP
Date: 5/26/98
TOC Elevation:
Weather: partly cloudy

Depth to Casing Bottom (below TOC) 38.50 feet
Depth to Groundwater (below TOC) 21.08 feet
Feet of Water in Well 17.42 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.9 gallons
Depth Measurement Method (Tape & Paste) / (Electronic Sounder) / Other
Development Method disposable bailer

no product
fast recharge
sampled 1 liter / 7 VOA's

FIELD MEASUREMENTS

Gallons Removed	pH	Temp (°c)	Conductivity (micromhos/cm)	Salinity S%	Comments
5	6.05	19.5	1075		murky / strong odor
10	6.07	19.5	1100		↓
15	6.33	19.5	1100		↓
20	6.26	19.5	1075		decreasing turbidity
25	6.30	19.0	1025		↓
30	6.31	19.5	1050		murky

Total Gallons Removed 30 gallons
Depth to Groundwater After Development (below TOC) 21.87 feet

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

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

A N A L Y T I C A L R E P O R T

Prepared for:

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

Date: 11-MAY-98
Lab Job Number: 133400
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
133400-001	MW-2	40652	04/29/98	05/04/98	05/06/98	
133400-002	MW-3	40652	04/29/98	05/04/98	05/06/98	
133400-003	MW-5	40708	04/29/98	05/06/98	05/08/98	
133400-004	MW-7	40708	04/29/98	05/06/98	05/08/98	

Matrix: Water

Analyte Diln Fac:	Units	133400-001 1	133400-002 1	133400-003 1	133400-004 1
Diesel C12-C22	ug/L	<47	<47	<47	<47
Surrogate					
Hexacosane	%REC	89	69	75	81

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
133400-005	MW-11	40708	04/29/98	05/06/98	05/08/98	
133400-006	MW-13	40708	04/29/98	05/06/98	05/09/98	

Matrix: Water

Analyte	Units	133400-005	133400-006
Diln Fac:		1	1
Diesel C12-C22	ug/L	<47	<47
Surrogate			
Hexacosane	%REC	69	79

Lab #: 133400 BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

METHOD BLANK

Matrix:	Water	Prep Date:	05/04/98
Batch#:	40652	Analysis Date:	05/05/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC69847

Analyte	Result
Diesel C12-C22	<50

Surrogate	%Rec	Recovery Limits
Hexacosane	78	53-136

Lab #: 133400

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

METHOD BLANK

Matrix:	Water	Prep Date:	05/06/98
Batch#:	40708	Analysis Date:	05/08/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC70059

Analyte	Result
Diesel C12-C22	<50

Surrogate	%Rec	Recovery Limits
Hexacosane	88	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#: 40652
Units: ug/L
Diln Fac: 1

Prep Date: 05/04/98
Analysis Date: 05/06/98

BS Lab ID: QC69848

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	2103	85	58-110

Surrogate	%Rec	Limits
Hexacosane	86	53-136

BSD Lab ID: QC69849

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	1960	79	58-110	7	21

Surrogate	%Rec	Limits
Hexacosane	77	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

Lab #: 133400 BATCH QC REPORT

Curtis & Tompkins, Ltd.

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#: 40708
Units: ug/L
Diln Fac: 1

Prep Date: 05/06/98
Analysis Date: 05/08/98

BS Lab ID: QC70060

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	1878	76	58-110

Surrogate	%Rec	Limits
Hexacosane	80	53-136

BSD Lab ID: QC70061

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	1765	71	58-110	6	21

Surrogate	%Rec	Limits
Hexacosane	74	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

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 133400
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 04/29/98
DATE RECEIVED: 04/29/98
DATE ANALYZED: 05/01-02/98
DATE REPORTED: 05/11/98
BATCH NO: 40615

EPA 8260

LAB ID	CLIENT ID	1,1-DCA (ug/L)	1,2-DCA (ug/L)	REPORTING LIMIT (ug/L)	SURROGATE RECOVERIES 1	2	3
133400-003	MW-5	ND	ND	1.0	98%	101%	100%
133400-004	MW-7	ND	ND	1.0	100%	104%	97%
133400-005	MW-11	ND	ND	1.0	98%	102%	99%
133400-006	MW-13	ND	5.7	1.0	100%	102%	100%
METHOD BLANK	N/A	ND	ND	1.0	96%	100%	99%

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

ND = Not detected at or above reporting limit.

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 133400
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 04/29/98
DATE RECEIVED: 04/29/98
DATE ANALYZED: 04/30/98
: 05/01/98
DATE REPORTED: 05/11/98
BATCH NO: 40581

EPA 8260

LAB ID	CLIENT ID	1,1-DCA (ug/L)	1,2-DCA (ug/L)	REPORTING LIMIT (ug/L)	SURROGATE RECOVERIES 1	2	3
133400-001	MW-2	ND	ND	1.0	101%	103%	98%
133400-002	MW-3	ND	ND	1.0	102%	102%	98%
METHOD BLANK	N/A	ND	ND	1.0	98%	102%	101%

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

ND = Not detected at or above reporting limit.

Lab #: 133400 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

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 40615
Units: ug/L
Diln Fac: 1

Prep Date: 05/01/98
Analysis Date: 05/01/98

LCS Lab ID: QC69736

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	46.92	50	94	69-137
Trichloroethene	49.16	50	98	83-116
Chlorobenzene	49.81	50	100	87-117

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	97	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	98	84-115

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

Halogenated Volatile Organics

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 40581
Units: ug/L
Diln Fac: 1

Prep Date: 04/30/98
Analysis Date: 04/30/98

BS Lab ID: QC69598

Analyte	Spike Added	BS	%Rec #	Limits
1,1-Dichloroethene	50	48.49	97	69-137
Trichloroethene	50	49.57	99	83-116
Chlorobenzene	50	50.04	100	87-117

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	100	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	99	84-115

BSD Lab ID: QC69599

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	45.74	91	69-137	6	14
Trichloroethene	50	48.01	96	83-116	3	10
Chlorobenzene	50	48.58	97	87-117	3	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	99	85-121
Toluene-d8	102	92-110
Bromofluorobenzene	99	84-115

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

Halogenated Volatile Organics

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: MW-5
Lab ID: 133400-003
Matrix: Water
Batch#: 40615
Units: ug/L
Diln Fac: 1

Sample Date: 04/29/98
Received Date: 04/29/98
Prep Date: 05/01/98
Analysis Date: 05/01/98

MS Lab ID: QC69738

Analyte	Spike Added	Sample	MS	%Rec #	Limits
1,1-Dichloroethene	50	<1	46.47	93	63-126
Trichloroethene	50	<1	49.53	99	69-117
Chlorobenzene	50	<1	49.36	99	79-115

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	100	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	96	84-115

MSD Lab ID: QC69739

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	45.13	90	63-126	3	10
Trichloroethene	50	50.14	100	69-117	1	10
Chlorobenzene	50	48.92	98	79-115	1	10

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

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

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
133400-001	MW-2	40602	04/29/98	05/01/98	05/01/98	
133400-002	MW-3	40602	04/29/98	05/01/98	05/01/98	
133400-003	MW-5	40602	04/29/98	05/01/98	05/01/98	
133400-004	MW-7	40602	04/29/98	05/01/98	05/01/98	

Matrix: Water

Analyte Diln Fac:	Units	133400-001 1	133400-002 1	133400-003 1	133400-004 1
Gasoline C7-C12	ug/L	<50	<50	<50	<50
Surrogate					
Trifluorotoluene	%REC	109	115	115	117
Bromofluorobenzene	%REC	95	106	110	107

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
133400-001	MW-2	40602	04/29/98	05/01/98	05/01/98	
133400-002	MW-3	40602	04/29/98	05/01/98	05/01/98	
133400-003	MW-5	40602	04/29/98	05/01/98	05/01/98	
133400-004	MW-7	40602	04/29/98	05/01/98	05/01/98	

Matrix: Water

Analyte	Units	133400-001	133400-002	133400-003	133400-004
Diln Fac:		1	1	1	1
MTBE	ug/L	<2	<2	<2	<2
Benzene	ug/L	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	93	97	99	97
Bromofluorobenzene	%REC	85	97	98	95

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
133400-005	MW-11	40602	04/29/98	05/01/98	05/01/98	
133400-006	MW-13	40602	04/29/98	05/01/98	05/01/98	

Matrix: Water

Analyte	Units	133400-005	133400-006
Diln Fac:		1	1
Gasoline C7-C12	ug/L	<50	<50
Surrogate			
Trifluorotoluene	%REC	115	113
Bromofluorobenzene	%REC	111	104

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
133400-005	MW-11	40602	04/29/98	05/01/98	05/01/98	
133400-006	MW-13	40602	04/29/98	05/01/98	05/01/98	

Matrix: Water

Analyte	Units	133400-005	133400-006
Diln Fac:		1	1
MTBE	ug/L	<2	<2
Benzene	ug/L	<0.5	24
Toluene	ug/L	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5
Surrogate			
Trifluorotoluene	%REC	97	98
Bromofluorobenzene	%REC	98	96

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

METHOD BLANK

Matrix: Water
Batch#: 40602
Units: ug/L
Diln Fac: 1

Prep Date: 05/01/98
Analysis Date: 05/01/98

MB Lab ID: QC69676

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	105	59-162
Bromofluorobenzene	90	59-162

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 40602
Units: ug/L
Diln Fac: 1

Prep Date: 05/01/98
Analysis Date: 05/01/98

MB Lab ID: QC69676

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	90	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

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 40602
Units: ug/L
Diln Fac: 1

Prep Date: 05/01/98
Analysis Date: 05/01/98

LCS Lab ID: QC69674

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1967	2000	98	80-119

Surrogate	%Rec	Limits
Trifluorotoluene	146	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

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 40602
Units: ug/L
Diln Fac: 1

Prep Date: 05/01/98
Analysis Date: 05/01/98

LCS Lab ID: QC69675

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	18.41	20	92	65-135
Benzene	17.87	20	89	69-109
Toluene	18.32	20	92	72-116
Ethylbenzene	17.75	20	89	67-120
m,p-Xylenes	19.39	20	97	69-117
o-Xylene	18.57	20	93	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	95	53-124
Bromofluorobenzene	94	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: ZZZZZZ
Lab ID: 133385-004
Matrix: Water
Batch#: 40602
Units: ug/L
Diln Fac: 1

Sample Date: 04/28/98
Received Date: 04/28/98
Prep Date: 05/02/98
Analysis Date: 05/02/98

MS Lab ID: QC69677

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	64.43	2018	98	71-131

Surrogate	%Rec	Limits
Trifluorotoluene	149	59-162
Bromofluorobenzene	117	59-162

MSD Lab ID: QC69678

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2148	104	71-131	6	26

Surrogate	%Rec	Limits
Trifluorotoluene	158	59-162
Bromofluorobenzene	125	59-162

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

CHAIN OF CUSTODY FORM

138400

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: TVH/BTXE/MTBE	TEH	DCA
-1	MW-2	X				7	1			X			X		04	29	98	1145		X	X	X
-2	MW-3	X				7	1			X			X					1230		X	X	X
-3	MW-5	X				7	1			X			X					1315		X	X	X
-4	MW-7	X				7	1			X			X					1400		X	X	X
-5	MW-11	X				7	1			X			X					1045		X	X	X
-6	MW-13	X				7	1			X			X		04	29	98	0945		X	X	X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Dennis Alexander	4/29/98 2:45 p.m.	J. GUERRERO	4/29/98 2:45pm
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.

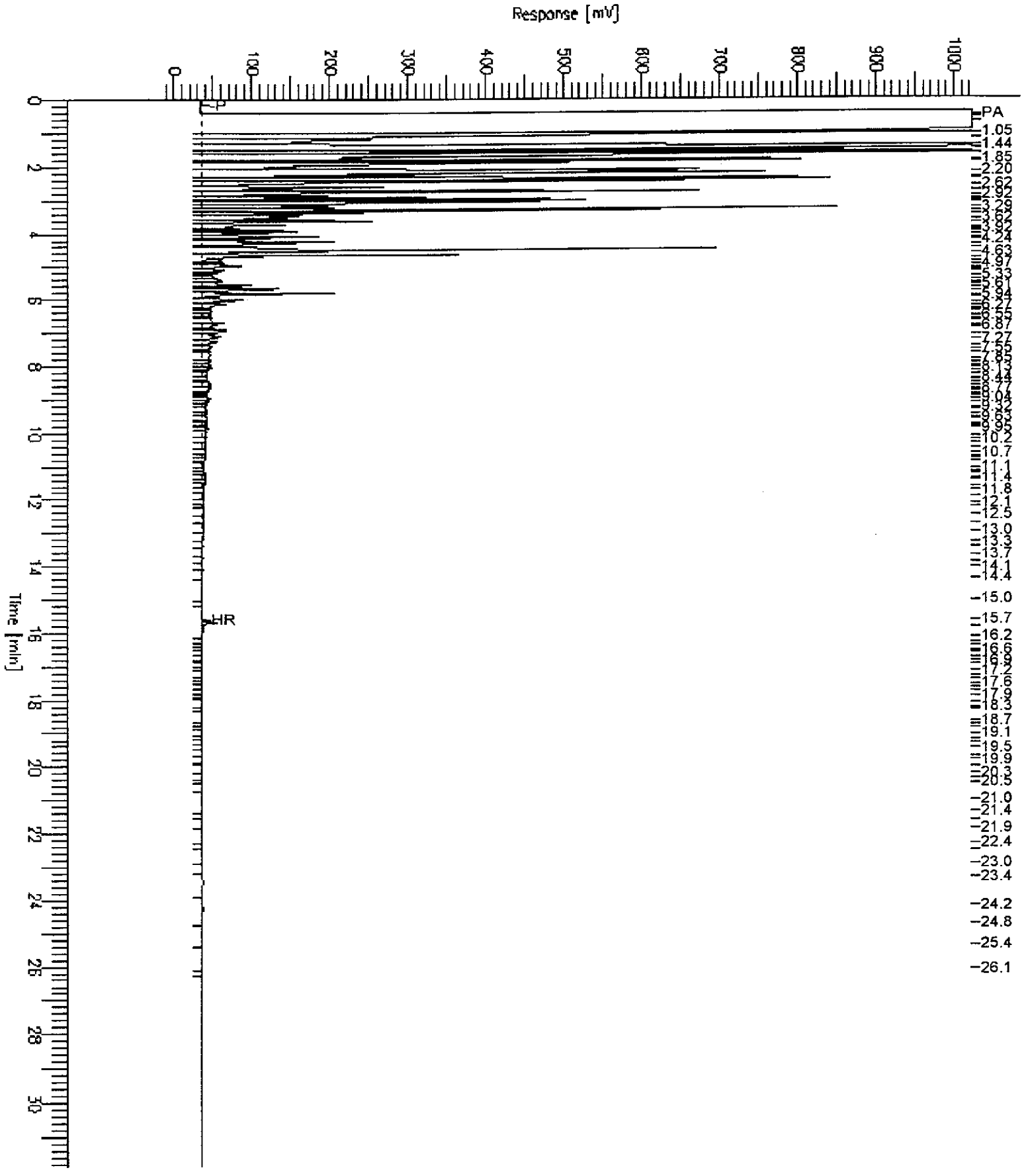
171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607

(510) 268-0461 • FAX: 510-268-0137

Chromatogram

Sample Name : 133445-003,40708
FileName : G:\GC13\CHB\128B030.RAW
Method : BTEH124.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -19 mV

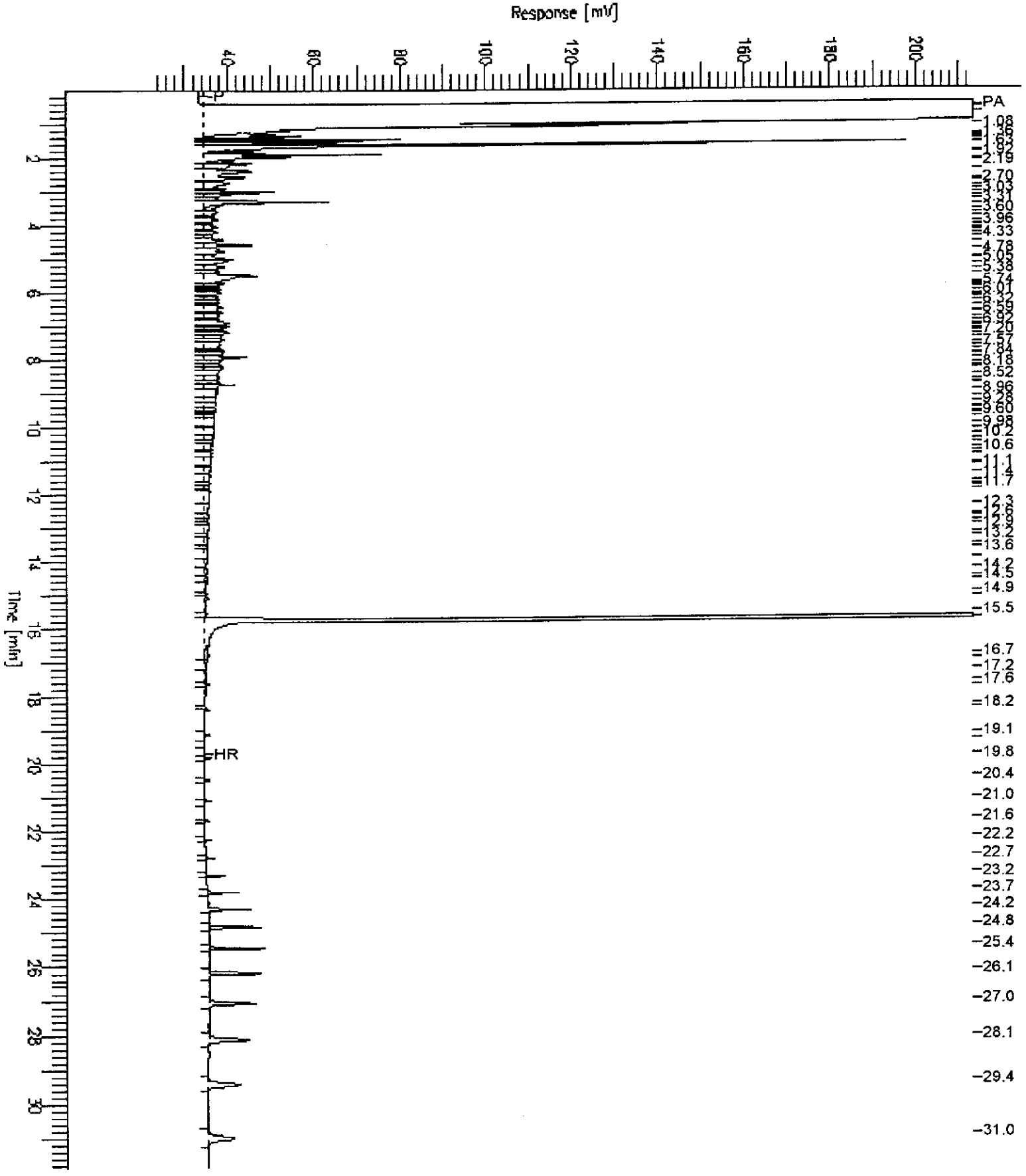
Sample #: 40708
Date : 5/11/98 05:58 PM
Time of Injection: 5/9/98 08:54 AM
Low Point : -18.83 mV High Point : 1024.00 mV
Plot Scale: 1042.8 mV



Chromatogram

Sample Name : 133445-004,40708
FileName : G:\GC13\CHB\128B033.RAW
Method : BTEH124.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 24 mV

Sample #: 40708 Page 1 of 1
Date : 5/11/98 05:59 PM
Time of Injection: 5/9/98 10:59 AM
Low Point : 23.82 mV High Point : 213.50 mV
Plot Scale: 189.7 mV



TEH-Tot Ext Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133445-005	MW-9	40708	05/01/98	05/06/98	05/09/98	
133445-006	MW-10	40708	05/01/98	05/06/98	05/09/98	

Matrix: Water

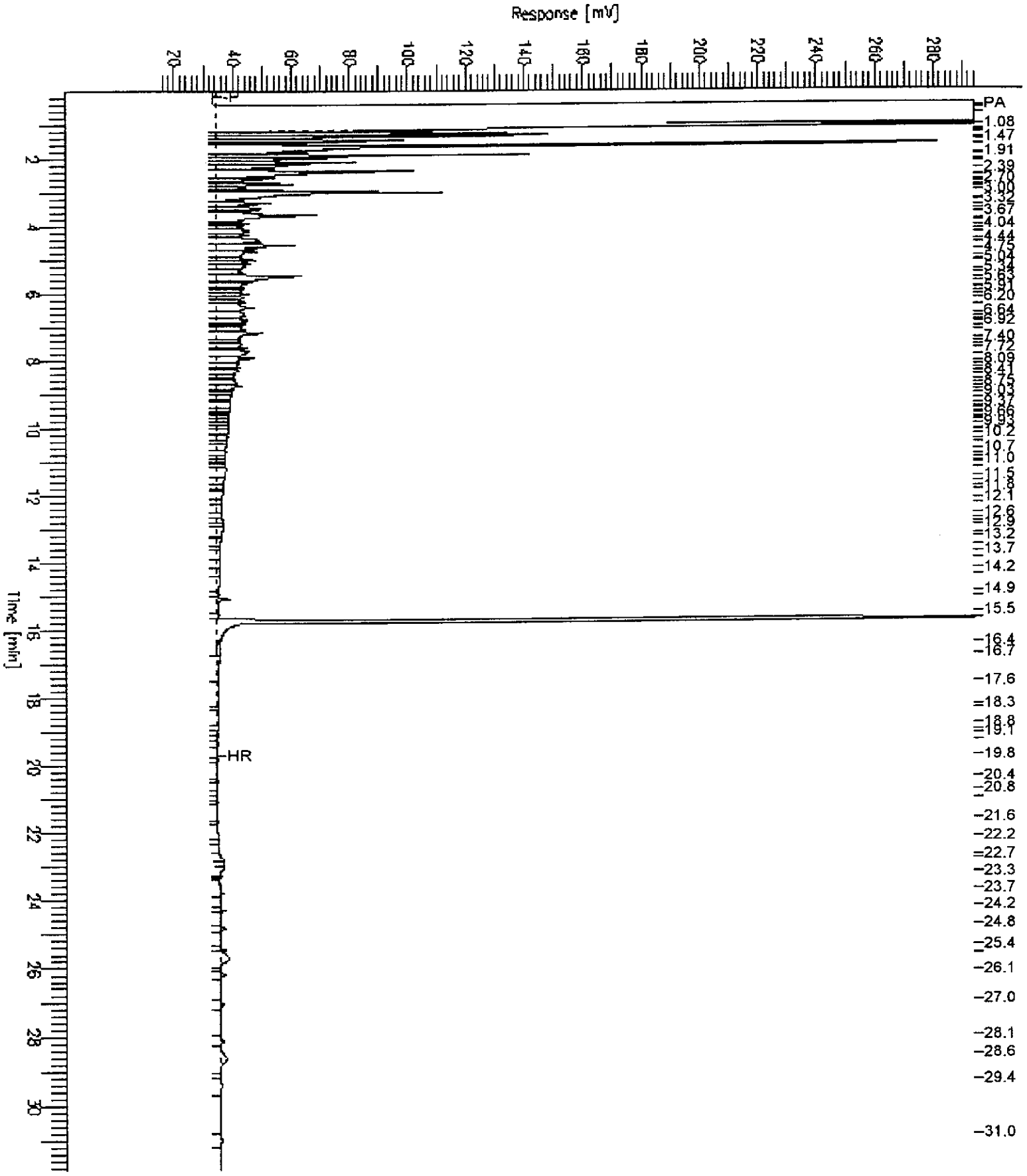
Analyte	Units	133445-005	133445-006
Diln Fac:		1	1
Diesel C12-C22	ug/L	450 YL	2000 YL
Surrogate			
Hexacosane	%REC	83	85

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

Chromatogram

Sample Name : 133445-005,40708
FileName : G:\GC13\CHB\128B034.RAW
Method : BTEH124.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 14 mV

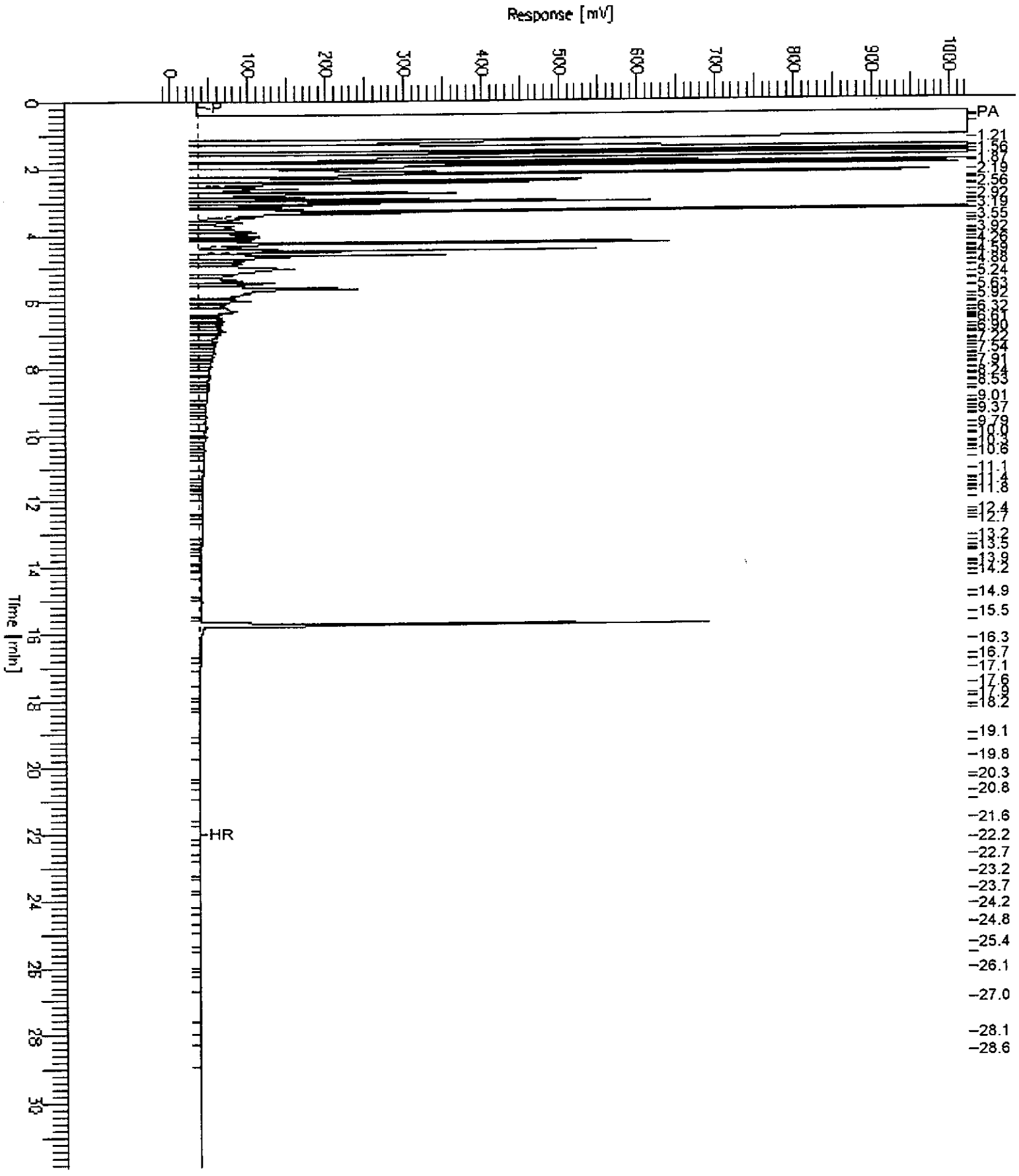
Sample #: 40708
Date : 5/11/98 06:00 PM
Time of Injection: 5/9/98 11:40 AM
Low Point : 14.43 mV High Point : 294.08 mV
Plot Scale: 279.7 mV



Chromatogram

Sample Name : 133445-006,40708
FileName : G:\GC13\CHB\128B035.RAW
Method : BTEH124.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -19 mV

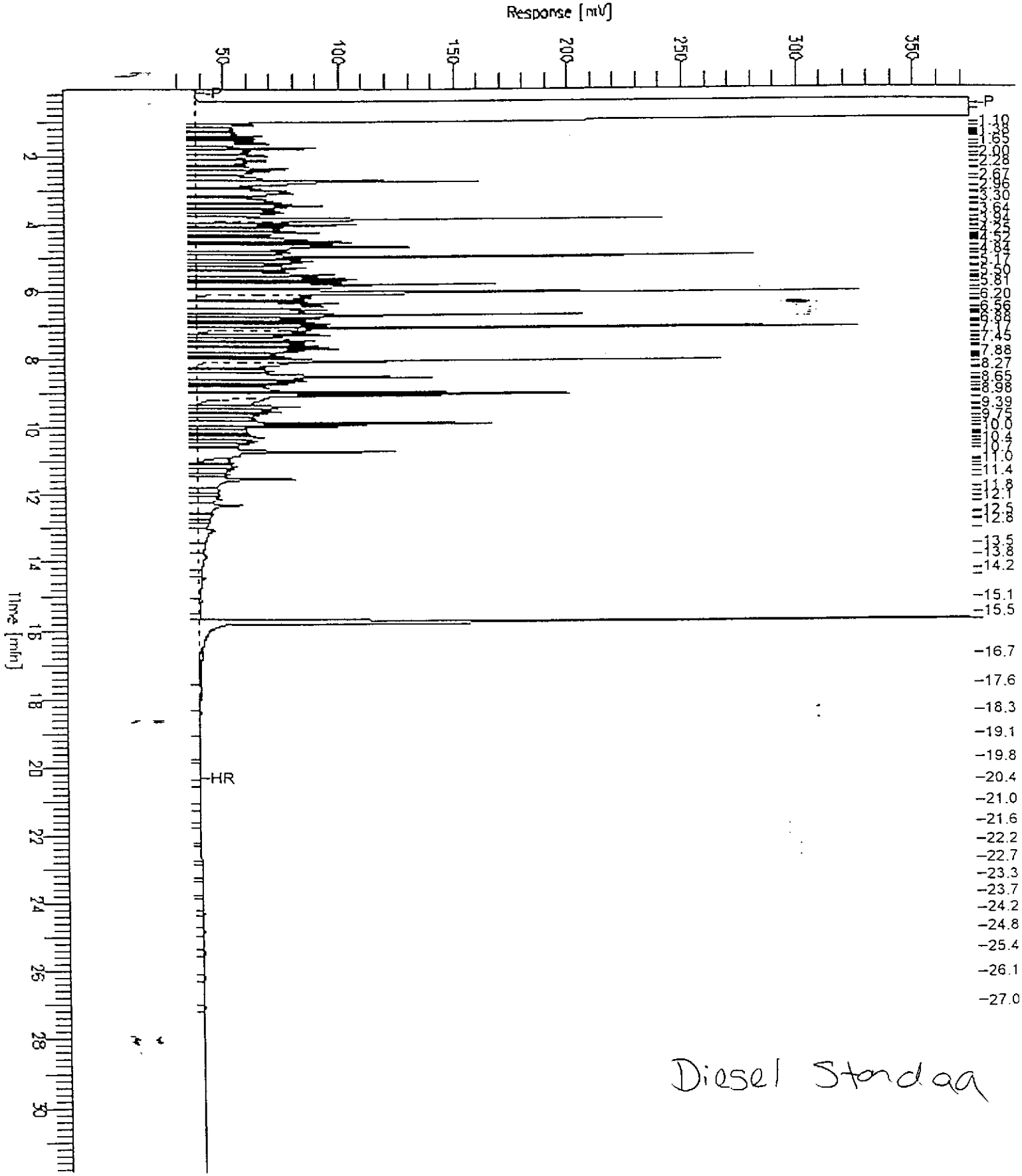
Sample #: 40708 Page 1 of 1
Date : 5/11/98 06:07 PM
Time of Injection: 5/9/98 12:22 PM
Low Point : -18.67 mV High Point : 1024.00 mV
Plot Scale: 1042.7 mV



Chromatogram

Sample Name : CCV,98WS5742,DSL
FileName : G:\GC13\CHB\128B002.RAW
Method : BTEH124.MTH
Start Time : 0.07 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 20 mV

Sample #: 500MG/L
Date : 5/11/98 03:57 PM
Time of Injection: 5/8/98 01:22 PM
Low Point : 20.21 mV High Point : 374.12 mV
Plot Scale: 353.9 mV



Diesel Standard

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#: 40708
Units: ug/L
Diln Fac: 1

Prep Date: 05/06/98
Analysis Date: 05/08/98

MB Lab ID: QC70059

Analyte	Result	
Diesel C12-C22	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	88	53-136

Lab #: 133445 BATCH QC REPORT Curtis & Tompkins, Ltd.

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#: 40708
Units: ug/L
Diln Fac: 1

Prep Date: 05/06/98
Analysis Date: 05/08/98

BS Lab ID: QC70060

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	1878	76	58-110

Surrogate	%Rec	Limits
Hexacosane	80	53-136

BSD Lab ID: QC70061

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	1765	71	58-110	6	21

Surrogate	%Rec	Limits
Hexacosane	74	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

CHAIN OF CUSTODY FORM

133445

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: TVH/BTXE/MTBE	TEH	DCA
-1	MW-1	X				7	1			X			X		05	01	98	0815		X	X	X
-2	MW-4	X				7	1			X			X					0900		X	X	X
-3	MW-6	X				7	1			X			X					1345	*	X	X	X
-4	MW-8	X				7	1			X			X					1615		X	X	X
-5	MW-9	X				7	1			X			X					1300		X	X	X
-6	MW-10	X				7	1			X			X		05	01	98	1230		X	X	X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Dennis Alexander	5/4/98 0855	[signature]	5/4/98 1025
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: * Sample from well with product possibly has very high concentrations

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

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

ANALYTICAL REPORT

Prepared for:

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

Date: 01-JUN-98
Lab Job Number: 133724
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
133724-002	B	41016	05/17/98	05/21/98	05/24/98	
133724-003	C	41016	05/17/98	05/21/98	05/24/98	

Matrix: Water

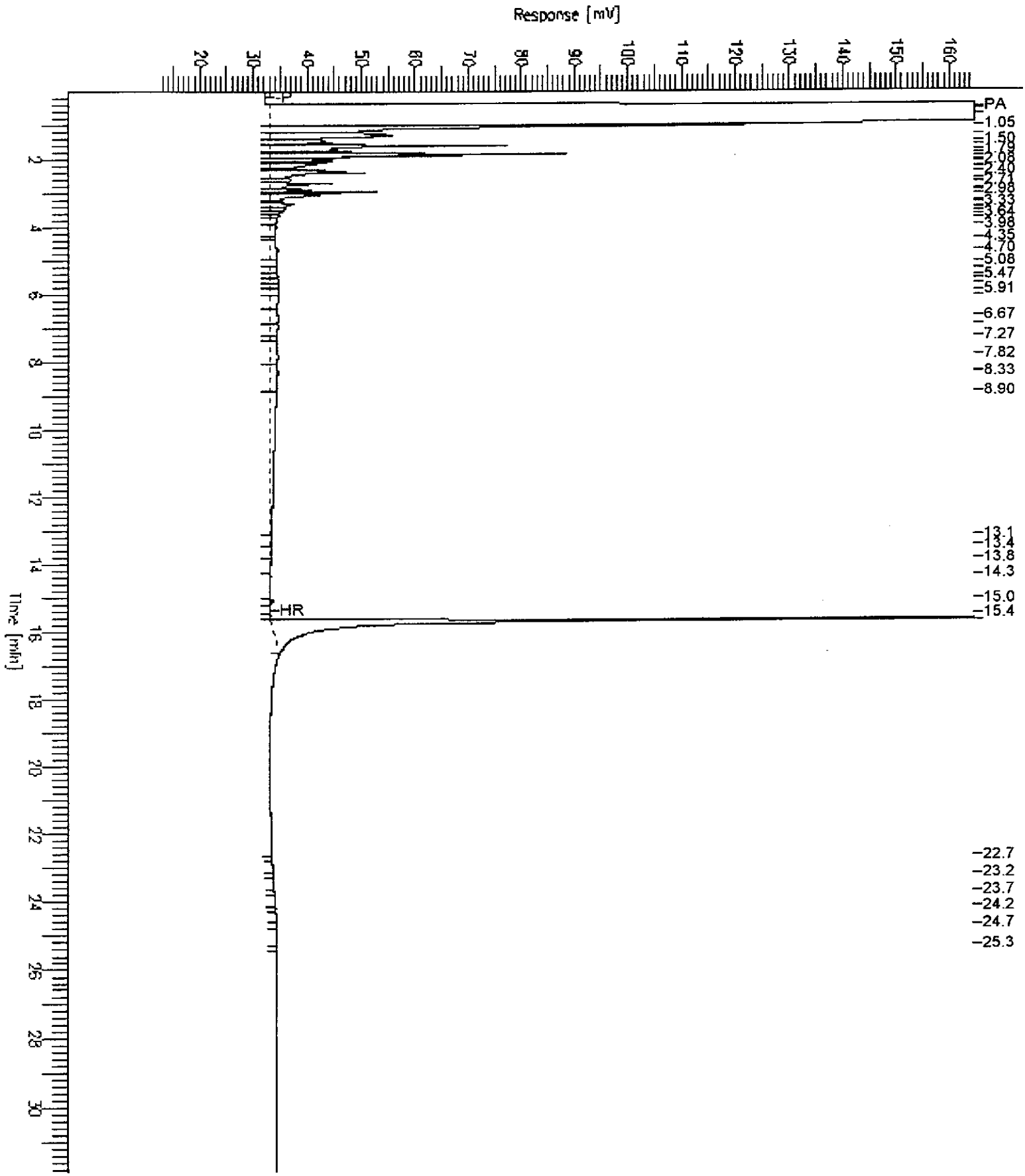
Analyte	Units	133724-002	133724-003
Diln Fac:		1	1
Diesel C12-C22	ug/L	77 YL	48 YL
Surrogate			
Hexacosane	%REC	67	65

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

Chromatogram

Sample Name : 133724-002,41016
FileName : C:\GC13\CHB\142B077.RAW
Method : BTEH134.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 12 mV

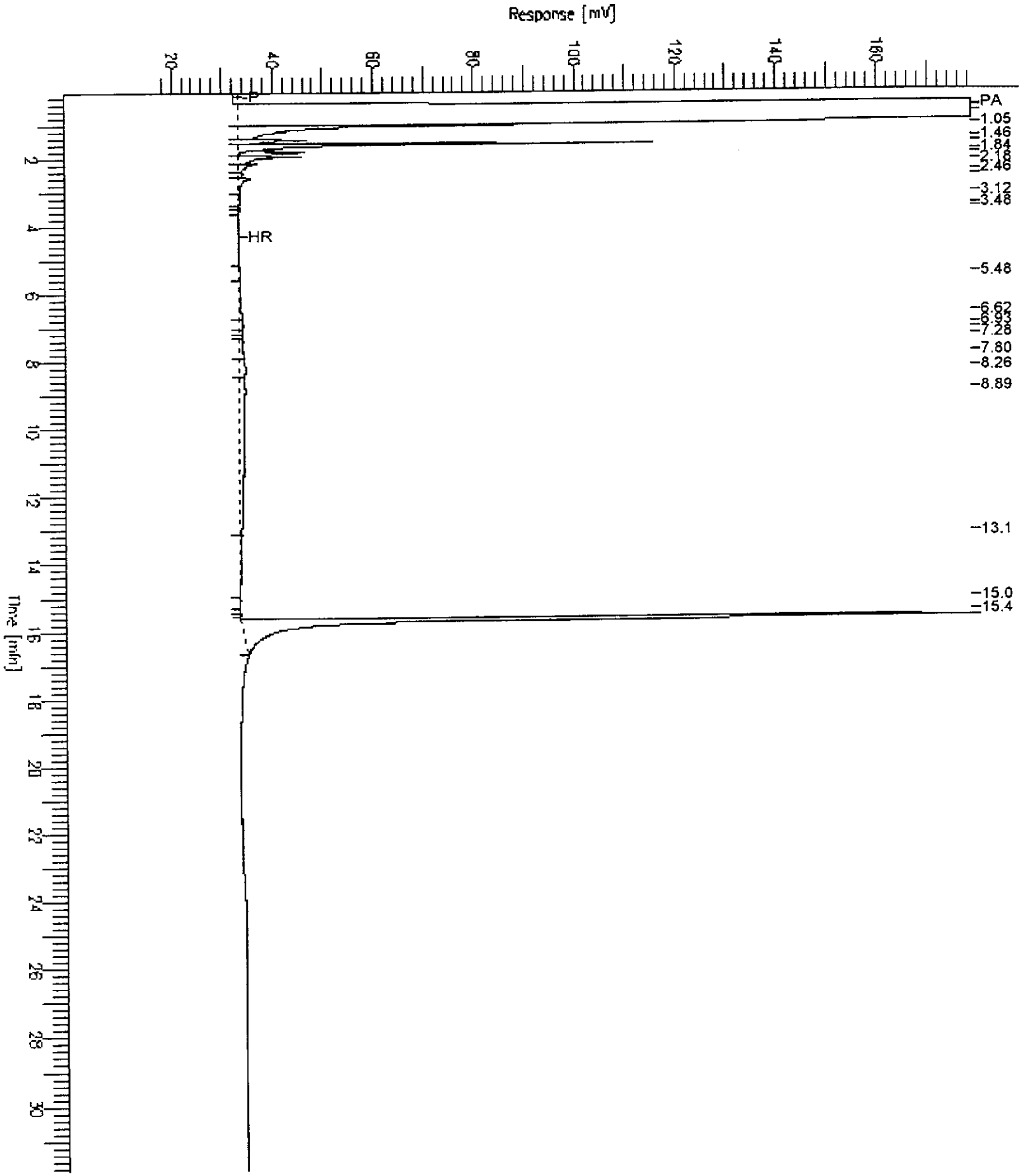
Sample #: 41016 Page 1 of 1
Date : 5/26/98 01:32 PM
Time of Injection: 5/24/98 05:09 PM
Low Point : 12.41 mV High Point : 164.90 mV
Plot Scale: 152.5 mV



Chromatogram

Sample Name : 133724-003,41016
FileName : C:\GC13\CHB\142B078.RAW
Method : BTEH134.MTH
Start Time : 0.07 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 17 mV

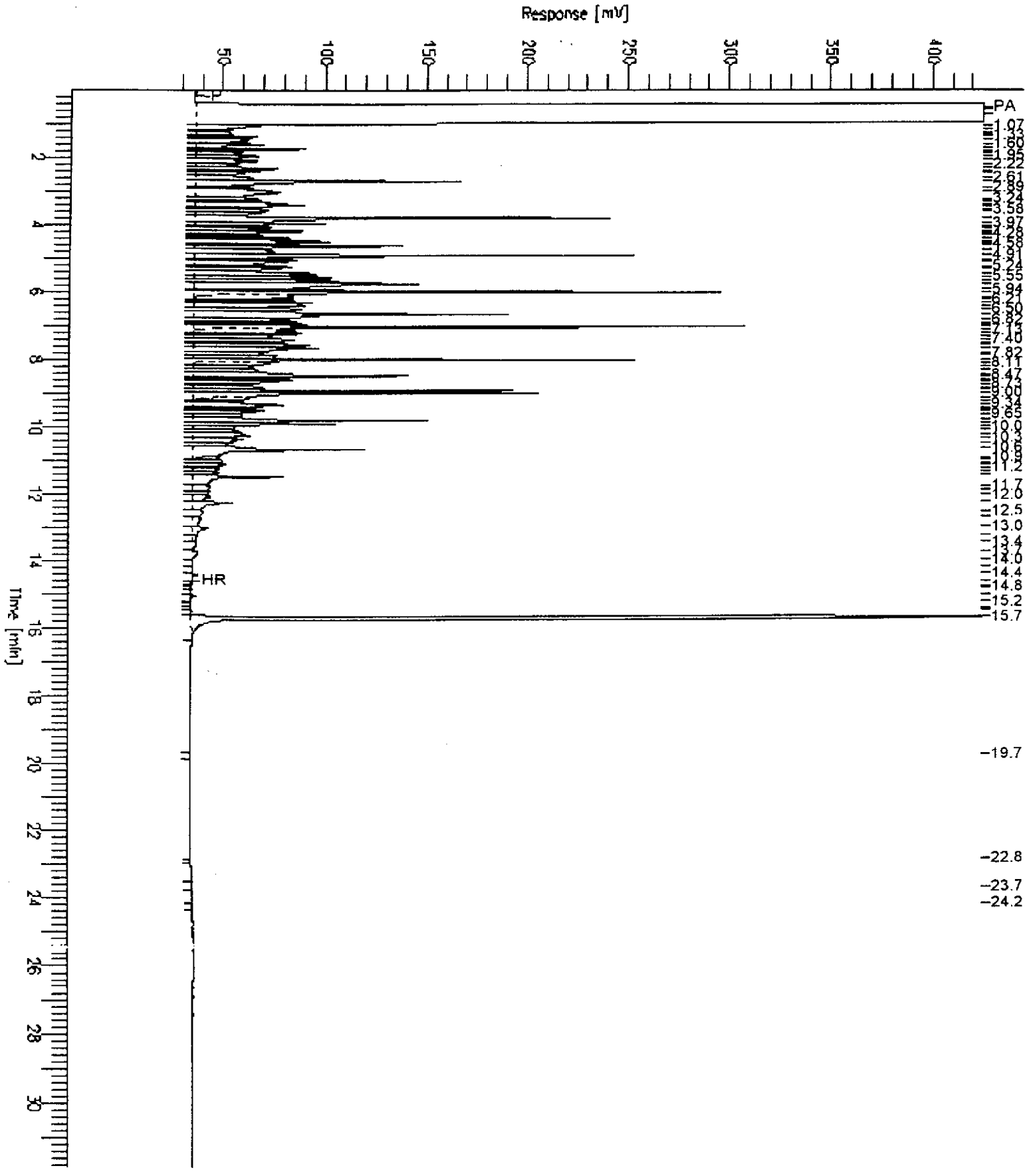
Sample #: 41016 Page 1 of 1
Date : 5/26/98 01:33 PM
Time of Injection: 5/24/98 05:51 PM
Low Point : 17.06 mV High Point : 178.84 mV
Plot Scale: 161.8 mV



Chromatogram

Sample Name : CCV,98WS5843,DS
FileName : G:\GC13\CHB\142B001.RAW
Method : BTEH134.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 21 mV

Sample #: 500MG/L Page 1 of 1
Date : 5/22/98 11:38 AM
Time of Injection: 5/22/98 11:05 AM
Low Point : 20.83 mV High Point : 425.69 mV
Plot Scale: 404.9 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#: 41016
Units: ug/L
Diln Fac: 1

Prep Date: 05/21/98
Analysis Date: 05/24/98

MB Lab ID: QC71168

Analyte	Result	
Diesel C12-C22	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	85	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#: 41016
Units: ug/L
Diln Fac: 1

Prep Date: 05/21/98
Analysis Date: 05/24/98

BS Lab ID: QC71169

Analyte	Spike Added	BS	%Rec	#	Limits
Diesel C12-C22	2475	2296	93		58-110
Surrogate	**%Rec**	**Limits**			
Hexacosane	88	53-136			

BSD Lab ID: QC71170

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Diesel C12-C22	2475	2237	90		58-110	3		21
Surrogate	**%Rec**	**Limits**						
Hexacosane	84	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

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 133724
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 05/17/98
DATE RECEIVED: 05/18/98
DATE ANALYZED: 05/21/98
DATE REPORTED: 06/01/98
BATCH NO: 41008

EPA 8010

LAB ID	CLIENT ID	1,1-DCA (ug/L)	1,2-DCA (ug/L)	REPORTING LIMIT (ug/L)	SURROGATE RECOVERIES 1	2	3
133724-002	B	ND	17	1.0	106%	100%	101%
METHOD BLANK	N/A	ND	ND	1.0	108%	100%	101%

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

ND = Not detected at or above reporting limit.

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 133724
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 05/17/98
DATE RECEIVED: 05/18/98
DATE ANALYZED: 05/22/98
DATE REPORTED: 06/01/98
BATCH NO: 41034

EPA 8010

LAB ID	CLIENT ID	1,1-DCA (ug/L)	1,2-DCA (ug/L)	REPORTING LIMIT (ug/L)	SURROGATE RECOVERIES 1	2	3
133724-001	G	ND	880	8.0	103%	102%	100%
133724-003	C	ND	210	2.0	102%	99%	98%
METHOD BLANK	N/A	ND	ND	1.0	106%	99%	100%

	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

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 41034
Units: ug/L
Diln Fac: 1

Prep Date: 05/22/98
Analysis Date: 05/22/98

LCS Lab ID: QC71230

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	36.85	50	74	69-137
Trichloroethene	46.79	50	94	83-116
Chlorobenzene	48.19	50	96	87-117

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	104	85-121
Toluene-d8	98	92-110
Bromofluorobenzene	97	84-115

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

Halogenated Volatile Organics

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 133698-008
Matrix: Water
Batch#: 41034
Units: ug/L
Diln Fac: 1

Sample Date: 05/15/98
Received Date: 05/16/98
Prep Date: 05/23/98
Analysis Date: 05/23/98

MS Lab ID: QC71320

Analyte	Spike Added	Sample	MS	%Rec #	Limits
1,1-Dichloroethene	50	<1	46.19	92	63-126
Trichloroethene	50	0.526	55.03	109	69-117
Chlorobenzene	50	<1	53.9	108	79-115

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	108	85-121
Toluene-d8	95	92-110
Bromofluorobenzene	96	84-115

MSD Lab ID: QC71321

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	45.12	90	63-126	2	10
Trichloroethene	50	54.17	107	69-117	2	10
Chlorobenzene	50	52.61	105	79-115	2	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	109	85-121
Toluene-d8	96	92-110
Bromofluorobenzene	97	84-115

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

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#: 41008
Units: ug/L
Diln Fac: 1

Prep Date: 05/21/98
Analysis Date: 05/21/98

BS Lab ID: QC71139

Analyte	Spike Added	BS	%Rec #	Limits
1,1-Dichloroethene	50	40.21	80	69-137
Trichloroethene	50	47.64	95	83-116
Chlorobenzene	50	48.04	96	87-117

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	105	85-121
Toluene-d8	98	92-110
Bromofluorobenzene	99	84-115

BSD Lab ID: QC71140

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	38.81	78	69-137	4	14
Trichloroethene	50	47.12	94	83-116	1	10
Chlorobenzene	50	48.18	96	87-117	0	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	105	85-121
Toluene-d8	99	92-110
Bromofluorobenzene	99	84-115

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

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
133724-001	G	41003	05/17/98	05/21/98	05/21/98	
133724-002	B	41003	05/17/98	05/21/98	05/21/98	
133724-003	C	41003	05/17/98	05/21/98	05/21/98	

Matrix: Water

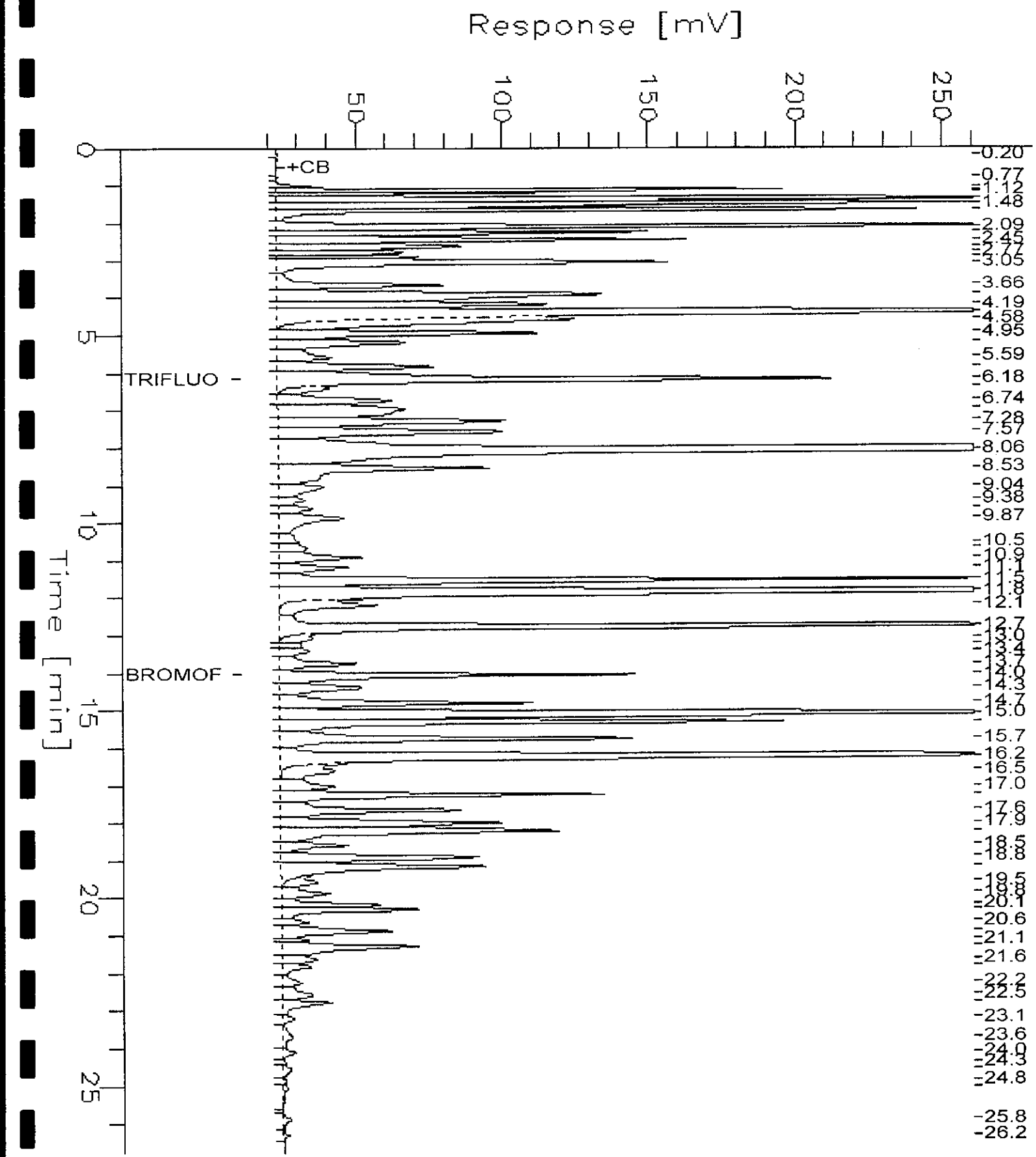
Analyte	Units	133724-001		133724-002		133724-003
Diln Fac:		100		1		1
Gasoline C7-C12	ug/L	590000		140	YZ	<50
Surrogate						
Trifluorotoluene	%REC	166	*	117		113
Bromofluorobenzene	%REC	125		112		104

* Values outside of QC limits
Y: Sample exhibits fuel pattern which does not resemble standard
Z: Sample exhibits unknown single peak or peaks

GC05 'H' File TVH

Sample Name : D,133724-001,41003,
FileName : G:\GC05\DATA\141G022.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 11 mV

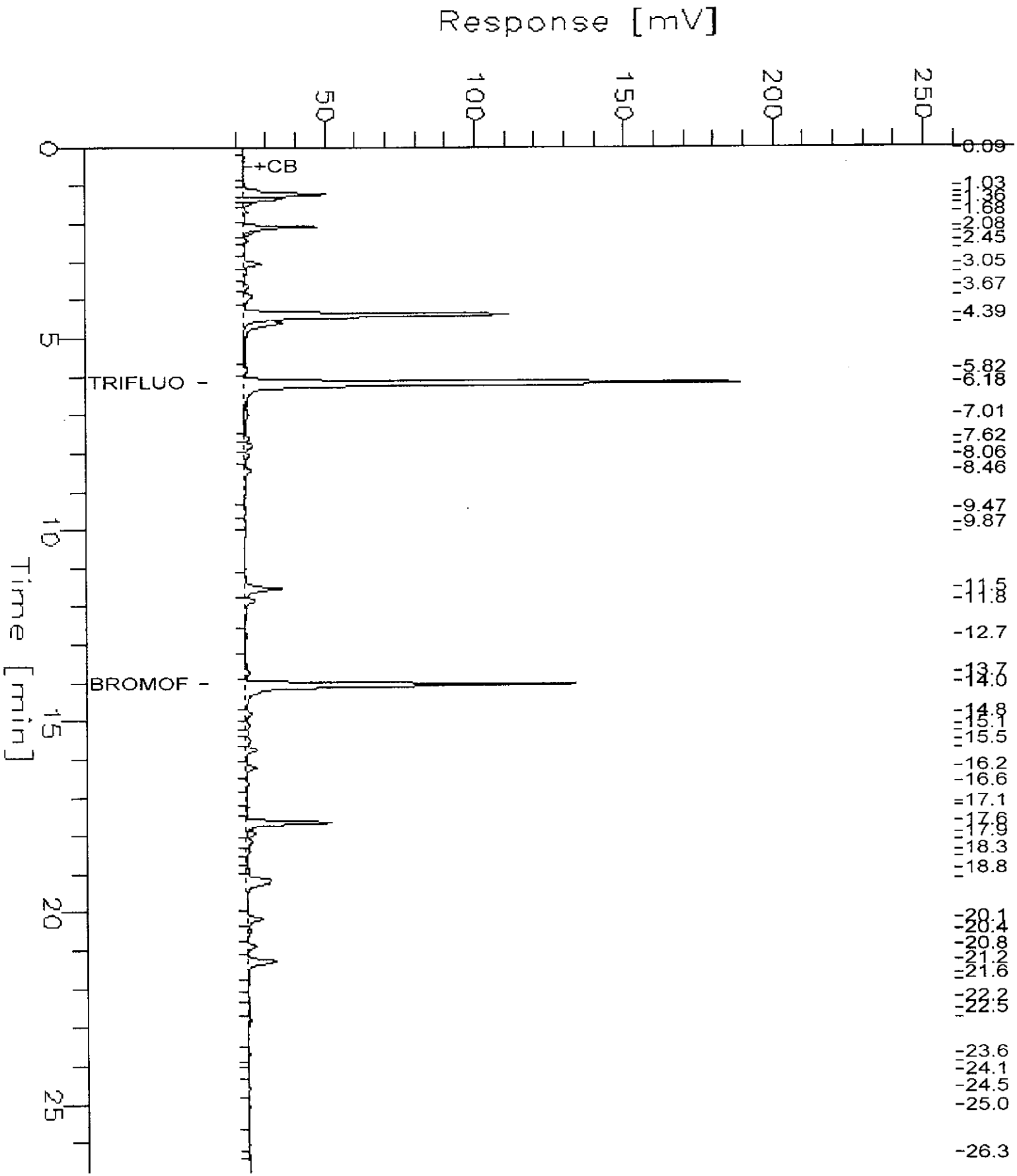
Sample #:
Date : 5/21/98 11:47 PM
Time of Injection: 5/21/98 11:19 PM
Low Point : 10.53 mV High Point : 260.53 mV
Plot Scale: 250.0 mV



GC05 'H' File TVH

Sample Name : S,133724-002,41003,
FileName : G:\GC05\DATA\141G021.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 10 mV

Sample #:
Date : 5/21/98 11:11 PM
Time of Injection: 5/21/98 10:42 PM
Low Point : 10.05 mV High Point : 260.05 mV
Plot Scale: 250.0 mV



BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133724-001	G	41132	05/17/98	05/28/98	05/28/98	
133724-002	B	41003	05/17/98	05/21/98	05/21/98	
133724-003	C	41003	05/17/98	05/21/98	05/21/98	

Matrix: Water

Analyte	Units	133724-001	133724-002	133724-003
Diln Fac:		250	1	1
MTBE	ug/L	<500	<2	<2
Benzene	ug/L	15000	37	0.72
Toluene	ug/L	25000	0.64	<0.5
Ethylbenzene	ug/L	2100	6.6	<0.5
m,p-Xylenes	ug/L	7600	1.7	<0.5
o-Xylene	ug/L	3200	<0.5	<0.5
Surrogate				
Trifluorotoluene	%REC	82	93	89
Bromofluorobenzene	%REC	78	96	87

Lab #: 133724

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		

METHOD BLANK

Matrix:	Water	Prep Date:	05/21/98
Batch#:	41003	Analysis Date:	05/21/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC71118

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	111	59-162
Bromofluorobenzene	99	59-162

Lab #: 133724 BATCH QC REPORT Curtis & Tompkins, Ltd.

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 41003
Units: ug/L
Diln Fac: 1

Prep Date: 05/21/98
Analysis Date: 05/21/98

MB Lab ID: QC71118

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	85	53-124
Bromofluorobenzene	81	41-142

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 41132
Units: ug/L
Diln Fac: 1

Prep Date: 05/28/98
Analysis Date: 05/28/98

MB Lab ID: QC71591

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	80	53-124
Bromofluorobenzene	77	41-142

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#: 41003
Units: ug/L
Diln Fac: 1

Prep Date: 05/21/98
Analysis Date: 05/21/98

LCS Lab ID: QC71116

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1982	2000	99	80-119

Surrogate	%Rec	Limits
Trifluorotoluene	144	59-162
Bromofluorobenzene	109	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#: 41003
Units: ug/L
Diln Fac: 1

Prep Date: 05/21/98
Analysis Date: 05/21/98

LCS Lab ID: QC71117

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	17.06	20	85	65-135
Benzene	17.56	20	88	69-109
Toluene	18.87	20	94	72-116
Ethylbenzene	18.08	20	90	67-120
m,p-Xylenes	20	20	100	69-117
o-Xylene	19.04	20	95	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	86	53-124
Bromofluorobenzene	83	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

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 41132
Units: ug/L
Diln Fac: 1

Prep Date: 05/28/98
Analysis Date: 05/28/98

BS Lab ID: QC71592

Analyte	Spike Added	BS	%Rec #	Limits
MTBE	20	18.16	91	65-135
Benzene	20	17.07	85	69-109
Toluene	20	18.41	92	72-116
Ethylbenzene	20	18.01	90	67-120
m,p-Xylenes	20	19.46	97	69-117
o-Xylene	20	18.76	94	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	83	53-124
Bromofluorobenzene	81	41-142

BSD Lab ID: QC71593

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
MTBE	20	18.96	95	65-135	4	20
Benzene	20	17.94	90	69-109	5	11
Toluene	20	18.84	94	72-116	2	11
Ethylbenzene	20	18.74	94	67-120	4	12
m,p-Xylenes	20	20.34	102	69-117	4	11
o-Xylene	20	19.63	98	75-122	5	12

Surrogate	%Rec	Limits
Trifluorotoluene	84	53-124
Bromofluorobenzene	83	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

Lab #: 133724 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

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 133619-001
Matrix: Water
Batch#: 41003
Units: ug/L
Diln Fac: 1

Sample Date: 05/12/98
Received Date: 05/14/98
Prep Date: 05/22/98
Analysis Date: 05/22/98

MS Lab ID: QC71119

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	2014	101	71-131

Surrogate	%Rec	Limits
Trifluorotoluene	150	59-162
Bromofluorobenzene	117	59-162

MSD Lab ID: QC71120

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2006	100	71-131	0	26

Surrogate	%Rec	Limits
Trifluorotoluene	150	59-162
Bromofluorobenzene	119	59-162

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

CHAIN OF CUSTODY FORM

133724

PAGE ___ OF ___

PROJECT NAME: CONNELL OLDSMOBILE

JOB NUMBER: 447.055

LAB: C&T

PROJECT CONTACT: Meg Mendoza

TURNAROUND: Standard

SAMPLED BY: John Wolfe

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: TVH/BTEX/MTBE	TEH	L2-DCA
-1	G	X				8				X					5	17	98			X	⊗	X
-2	B	X				8				X					5	16	98			X	X	X
-3	C	X				8				X					5	16	98			X	X	X
-4	E																					

→ No 4 liter Amber

— 1 liter Amber arrived not on C-o-C
[initials] 5/19/98

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
John Wolfe	5/18/98 1540	Troy Bulger	5/18/98 1540

COMMENTS & NOTES:

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

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

ANALYTICAL REPORT

Prepared for:

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

Date: 04-JUN-98
Lab Job Number: 133725
Project ID: 447.055
Location: Connell Olds

Reviewed by: Traci Babjack

Reviewed by:

Lab #: 133725

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: Soil
Batch#: 41052
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/22/98
Analysis Date: 05/22/98

LCS Lab ID: QC71295

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	94.76	100	95	65-135
Benzene	94.41	100	94	69-118
Toluene	100.6	100	101	73-118
Ethylbenzene	98.52	100	99	68-124
m,p-Xylenes	108.6	100	109	67-124
o-Xylene	103.8	100	104	73-127

Surrogate	%Rec	Limits
Trifluorotoluene	84	53-126
Bromofluorobenzene	83	35-144

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

TEH-Tot Ext Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: CA LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133725-001	B @ 6.0	41070	05/16/98	05/26/98	05/29/98	
133725-002	B @ 20.5	41070	05/16/98	05/26/98	05/29/98	
133725-003	C @ 6.0	41070	05/16/98	05/26/98	06/01/98	
133725-004	C @ 15.5	41070	05/16/98	05/26/98	06/01/98	

Matrix: Soil

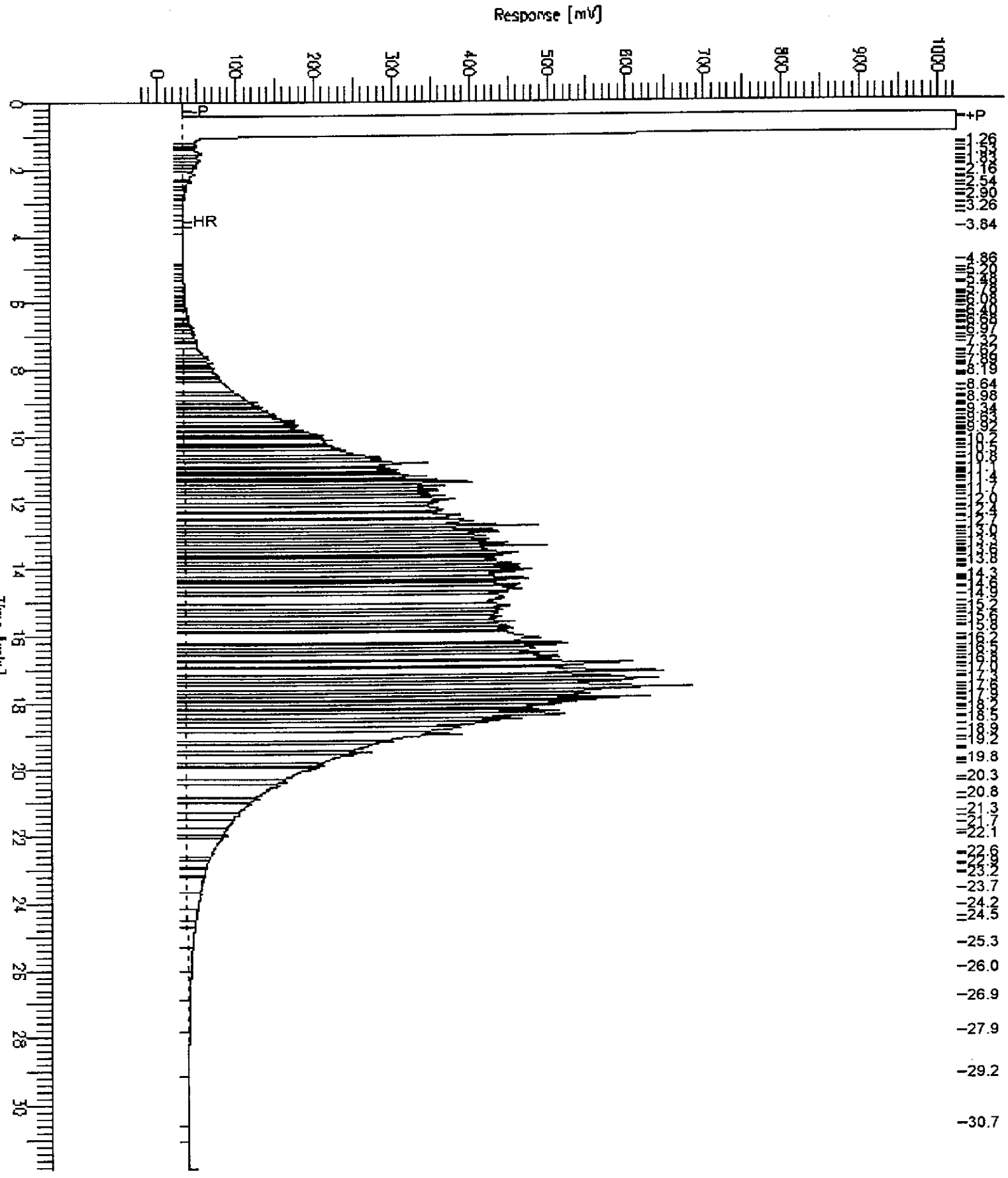
Analyte	Units	133725-001	133725-002	133725-003	133725-004
Diln Fac:		1	1	20	20
Diesel C12-C22	mg/Kg	<1	<1	3100 YH	790 YH
Surrogate					
Hexacosane	%REC	104	94	DO	DO

DO: Surrogate diluted out
Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated standard

Chromatogram

Sample Name : 133725-003,41070
FileName : C:\GC11\CHA\152A007.RAW
Method : ATEH148.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -20 mV

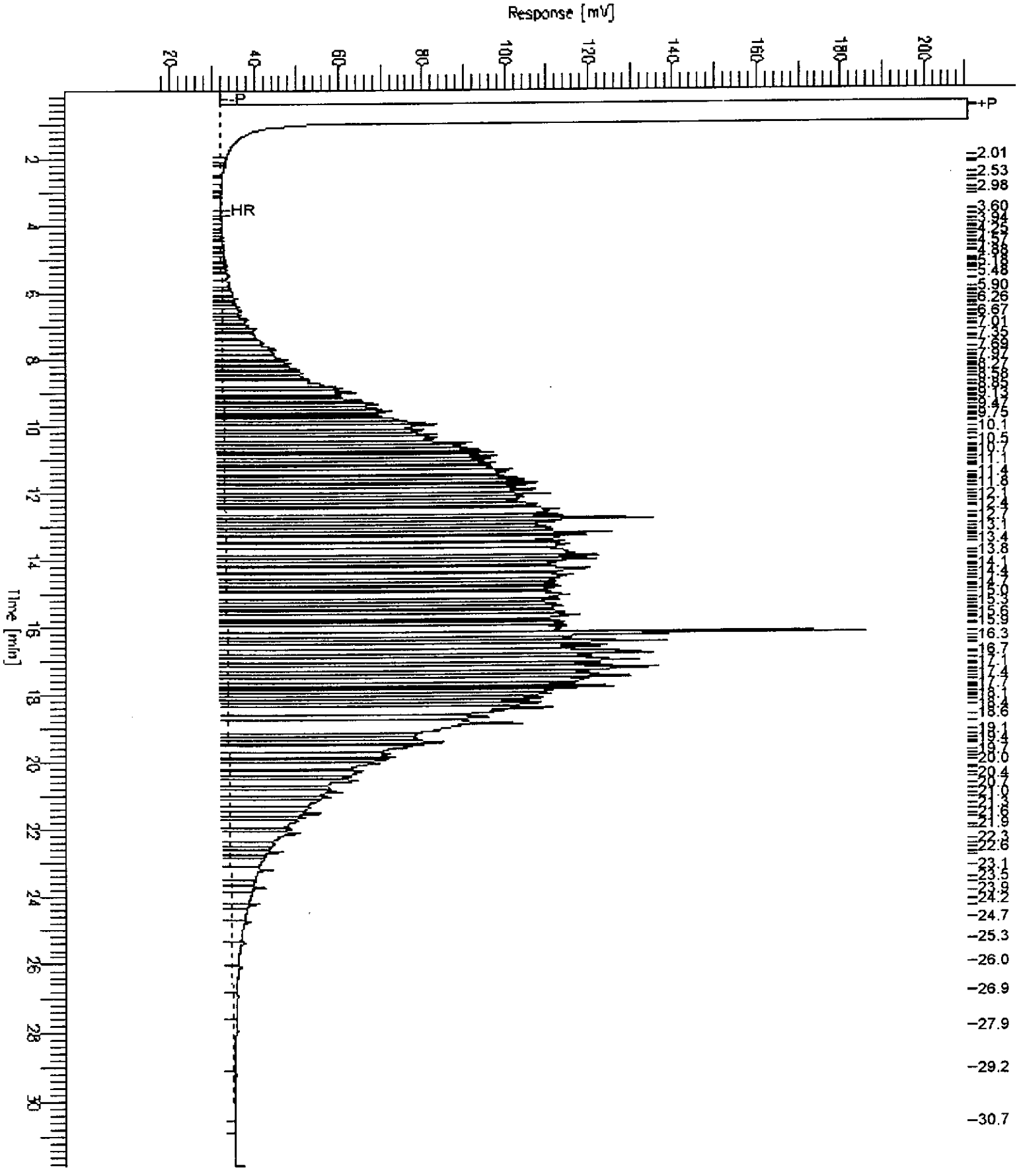
Sample #: 41070
Date : 6/1/98 04:25 PM
Time of Injection: 6/1/98 03:12 PM
Low Point : -20.09 mV High Point : 1024.00 mV
Plot Scale: 1044.1 mV



Chromatogram

Sample Name : 133725-004,41070
FileName : C:\GC11\CHA\152A008.RAW
Method : ATEH148.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 17 mV

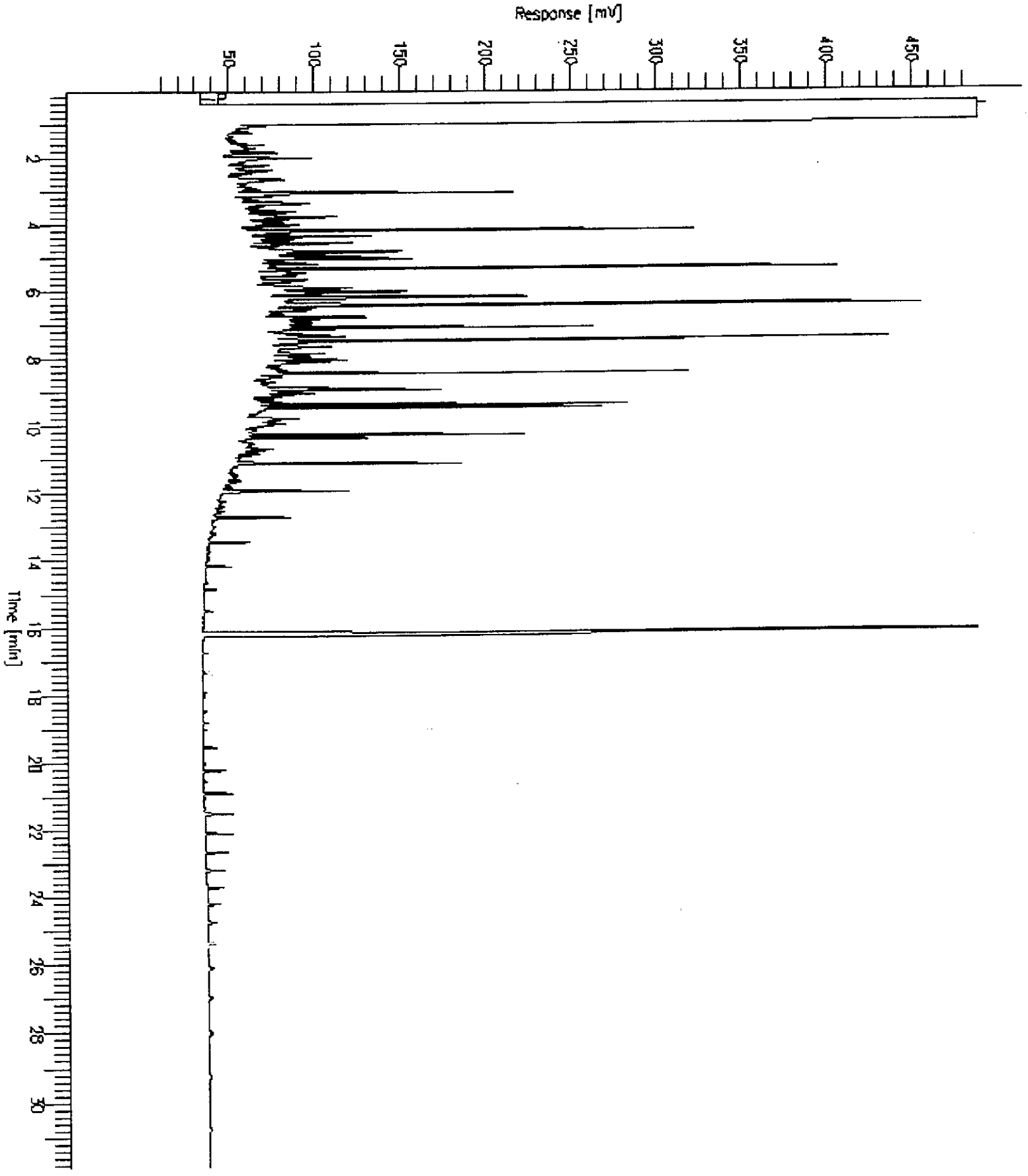
Sample #: 41070 Page 1 of 1
Date : 6/1/98 04:26 PM
Time of Injection: 6/1/98 03:52 PM
Low Point : 16.60 mV High Point : 210.70 mV
Plot Scale: 194.1 mV



Chromatogram

Sample Name : CCV,98WS5843,DS
FileName : C:\GC11\CHA\148A031.RAW
Method : ATEH148.MTH
Start Time : 0.07 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 9 mV

Sample #: 500MG/L
Date : 6/1/98 12:33 PM
Time of Injection: 5/30/98 06:09 AM
Low Point : 9.34 mV High Point : 489.00 mV
Plot Scale: 479.7 mV



TEH-Tot Ext Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: CA LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133725-005	MW-14 @ 11.0(D)	41070	05/16/98	05/26/98	05/29/98	
133725-006	MW-14 @ 21.0(D)	41070	05/16/98	05/26/98	05/29/98	
133725-007	MW-15 @ 6.0(E)	41070	05/16/98	05/26/98	05/30/98	
133725-008	MW-15 @ 21.0(E)	41070	05/16/98	05/26/98	05/30/98	

Matrix: Soil

Analyte	Units	133725-005	133725-006	133725-007	133725-008
Diln Fac:		1	1	1	1
Diesel C12-C22	mg/Kg	<1	<1	<1	<1
Surrogate					
Hexacosane	%REC	97	93	100	96

TEH-Tot Ext Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: CA LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133725-009	G @ 5.5	41070	05/16/98	05/26/98	05/30/98	
133725-010	G @ 16.0	41070	05/16/98	05/26/98	05/30/98	

Matrix: Soil

Analyte	Units	133725-009	133725-010
Diln Fac:		1	1
Diesel C12-C22	mg/Kg	<1	<1
Surrogate			
Hexacosane	%REC	92	96

Lab #: 133725

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

METHOD BLANK

Matrix:	Soil	Prep Date:	05/26/98
Batch#:	41070	Analysis Date:	05/29/98
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC71378

Analyte	Result	
Diesel C12-C22	<1.0	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	94	48-142

Lab #: 133725

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

LABORATORY CONTROL SAMPLE

Matrix:	Soil	Prep Date:	05/26/98
Batch#:	41070	Analysis Date:	05/29/98
Units:	mg/Kg		
Diln Fac:	1		

LCS Lab ID: QC71379

Analyte	Result	Spike Added	%Rec #	Limits
Diesel C12-C22	41.2	49.5	83	49-108
Surrogate	**%Rec**	**Limits**		
Hexacosane	93	48-142		

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 #: 133725 BATCH QC REPORT Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	B @ 20.5	Sample Date:	05/16/98
Lab ID:	133725-002	Received Date:	05/18/98
Matrix:	Soil	Prep Date:	05/26/98
Batch#:	41070	Analysis Date:	05/29/98
Units:	mg/Kg		
Diln Fac:	1		

MS Lab ID: QC71380

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Diesel C12-C22	49.5	<1	43.45	88	34-121
Surrogate	**%Rec**	**Limits**			
Hexacosane	99	48-142			

MSD Lab ID: QC71381

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	49.5	41.88	85	34-121	4	36
Surrogate	**%Rec**	**Limits**				
Hexacosane	96	48-142				

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

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 133725
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 05/16/98
DATE RECEIVED: 05/18/98
DATE ANALYZED: 05/25,26/98
DATE REPORTED: 05/28/98
BATCH NO: 41064

EPA 8260

LAB ID	CLIENT ID	1,1-DCA (ug/Kg)	1,2-DCA (ug/Kg)	REPORTING LIMIT (ug/Kg)	SURROGATE RECOVERIES 1	2	3
133725-002	B @ 20.5	ND	77	5.0	102%	105%	109%
133725-003	C @ 6.0	ND	ND	5.0	106%	105%	109%
133725-004	C @ 15.5	ND	ND	5.0	112%	109%	116%
133725-005	MW-14@11.0(D)	ND	ND	5.0	108%	109%	107%
133725-006	MW-14@21.0(D)	ND	100	5.0	103%	109%	106%
133725-007	MW-15@6.0(E)	ND	ND	5.0	105%	107%	108%
133725-008	MW-15@21.0(E)	ND	ND	5.0	104%	109%	110%
133725-009	G @ 5.5	ND	ND	5.0	108%	106%	108%
133725-010	G @ 16.0	ND	13	5.0	104%	109%	105%
METHOD BLANK	N/A	ND	ND	5.0	103%	102%	112%

	Limits
1= 1,2-Dichloroethane-d4	75-130
2=Toluene-d8	89-110
3=Bromofluorobenzene	83-117

ND = Not detected at or above reporting limit.

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 133725
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DATE SAMPLED: 05/16/98
DATE RECEIVED: 05/18/98
DATE ANALYZED: 05/20,21/98
DATE REPORTED: 05/28/98
BATCH NO: 40968

EPA 8260

LAB ID	CLIENT ID	1,1-DCA (ug/Kg)	1,2-DCA (ug/Kg)	REPORTING LIMIT (ug/Kg)	SURROGATE RECOVERIES 1	2	3
133725-001	B @ 6.0	ND	ND	5.0	96%	99%	93%
METHOD BLANK	N/A	ND	ND	5.0	92%	97%	91%

	Limits
1= 1,2-Dichloroethane-d4	75-130
2=Toluene-d8	89-110
3=Bromofluorobenzene	83-117

ND = Not detected at or above reporting limit.

Halogenated Volatile Organics

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 40968
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/20/98
Analysis Date: 05/20/98

LCS Lab ID: QC70984

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	49.2	50	98	60-156
Trichloroethene	47.34	50	95	80-130
Chlorobenzene	49.16	50	98	88-124

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	90	75-130
Toluene-d8	99	89-110
Bromofluorobenzene	92	83-117

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

Halogenated Volatile Organics

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 41064
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/25/98
Analysis Date: 05/25/98

LCS Lab ID: QC71351

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	51.48	50	103	60-156
Trichloroethene	52.47	50	105	80-130
Chlorobenzene	49.7	50	99	88-124

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	106	75-130
Toluene-d8	110	89-110
Bromofluorobenzene	105	83-117

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

Lab #: 133725 BATCH QC REPORT

Curtis & Tompkins, Ltd.

Halogenated Volatile Organics

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 133709-021
Matrix: Soil
Batch#: 40968
Units: ug/Kg
Diln Fac: 1

Sample Date: 05/19/98
Received Date: 05/19/98
Prep Date: 05/20/98
Analysis Date: 05/20/98

MS Lab ID: QC70986

Analyte	Spike Added	Sample	MS	%Rec #	Limits
1,1-Dichloroethene	50	<5	38.92	78	33-153
Trichloroethene	50	0.807	49.15	97	38-144
Chlorobenzene	50	<5	47.06	94	39-127

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	92	75-130
Toluene-d8	98	89-110
Bromofluorobenzene	93	83-117

MSD Lab ID: QC70987

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	39.31	79	33-153	1	27
Trichloroethene	50	48.66	96	38-144	1	29
Chlorobenzene	50	46.36	93	39-127	2	27

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	90	75-130
Toluene-d8	98	89-110
Bromofluorobenzene	91	83-117

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

Halogenated Volatile Organics

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 133790-001
Matrix: Soil
Batch#: 41064
Units: ug/Kg
Diln Fac: 1

Sample Date: 05/22/98
Received Date: 05/22/98
Prep Date: 05/26/98
Analysis Date: 05/26/98

MS Lab ID: QC71353

Analyte	Spike Added	Sample	MS	%Rec #	Limits
1,1-Dichloroethene	50	<5	48.54	97	33-153
Trichloroethene	50	<5	49.8	100	38-144
Chlorobenzene	50	<5	46.28	93	39-127

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	108	75-130
Toluene-d8	104	89-110
Bromofluorobenzene	105	83-117

MSD Lab ID: QC71354

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	47.7	95	33-153	2	27
Trichloroethene	50	50.85	102	38-144	2	29
Chlorobenzene	50	46.02	92	39-127	1	27

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	107	75-130
Toluene-d8	102	89-110
Bromofluorobenzene	104	83-117

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

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
133725-001	B @ 6.0	41052	05/16/98	05/23/98	05/23/98	
133725-002	B @ 20.5	41109	05/16/98	05/27/98	05/27/98	
133725-003	C @ 6.0	41052	05/16/98	05/23/98	05/23/98	
133725-004	C @ 15.5	41052	05/16/98	05/23/98	05/23/98	

Matrix: Soil

Analyte	Units	133725-001	133725-002	133725-003	133725-004
Diln Fac:		1	1	1	1
Gasoline C7-C12	mg/Kg	<1	<1	<1	4.6YL
Surrogate					
Trifluorotoluene	%REC	110	104	109	176 *
Bromofluorobenzene	%REC	96	104	105	95

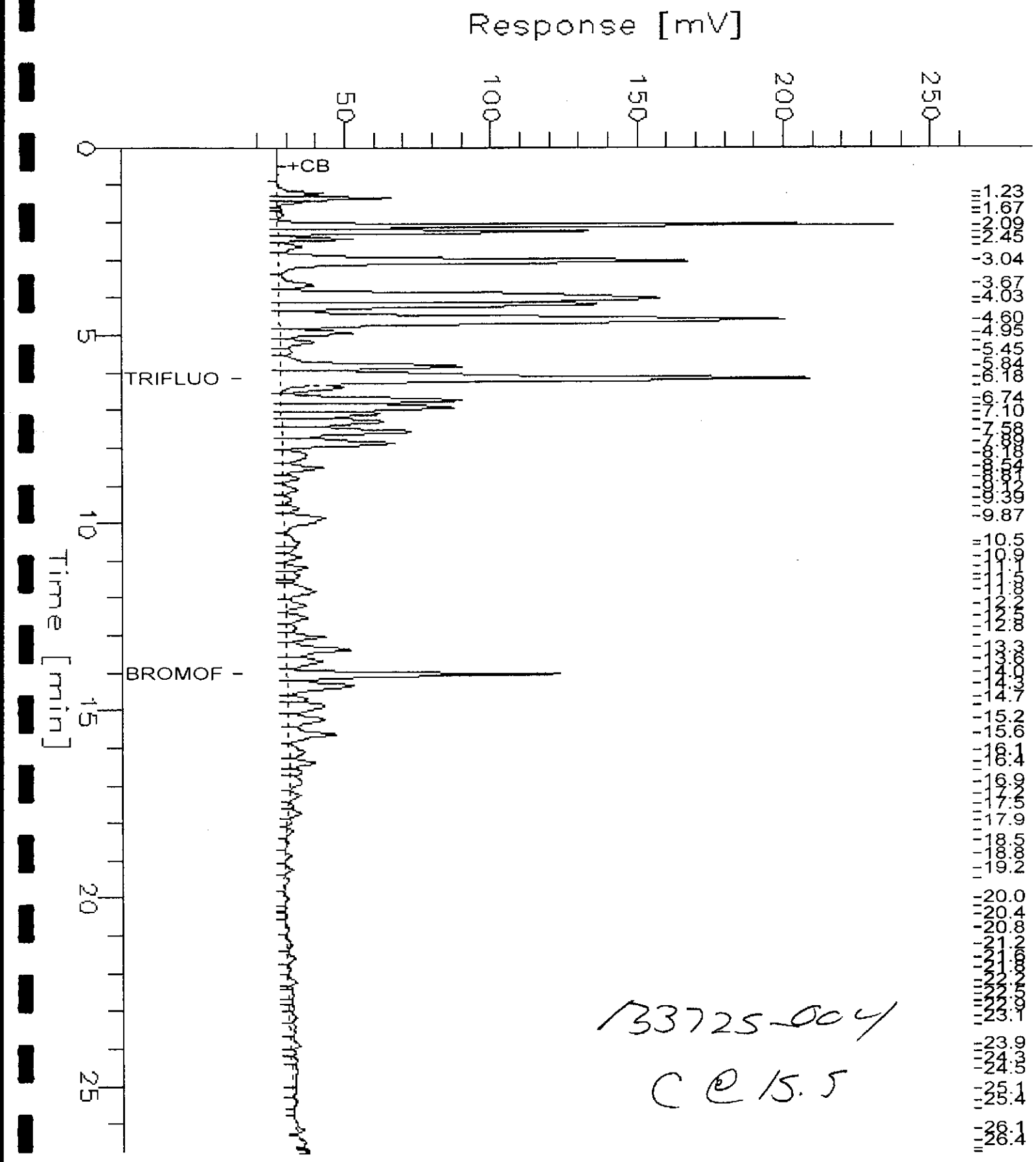
* Values outside of QC limits
Y: Sample exhibits fuel pattern which does not resemble standard
L: Lighter hydrocarbons than indicated standard

GC05 'H' File TVH

10 ZBar

Sample Name : S,133725-004,~~40152~~
FileName : G:\GC05\DATA\142G027.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 14 mV

Sample #:
Date : 5/23/98 08:08 AM
Time of Injection: 5/23/98 07:40 AM
Low Point : 14.35 mV High Point : 264.35 mV
Plot Scale: 250.0 mV



133725-004

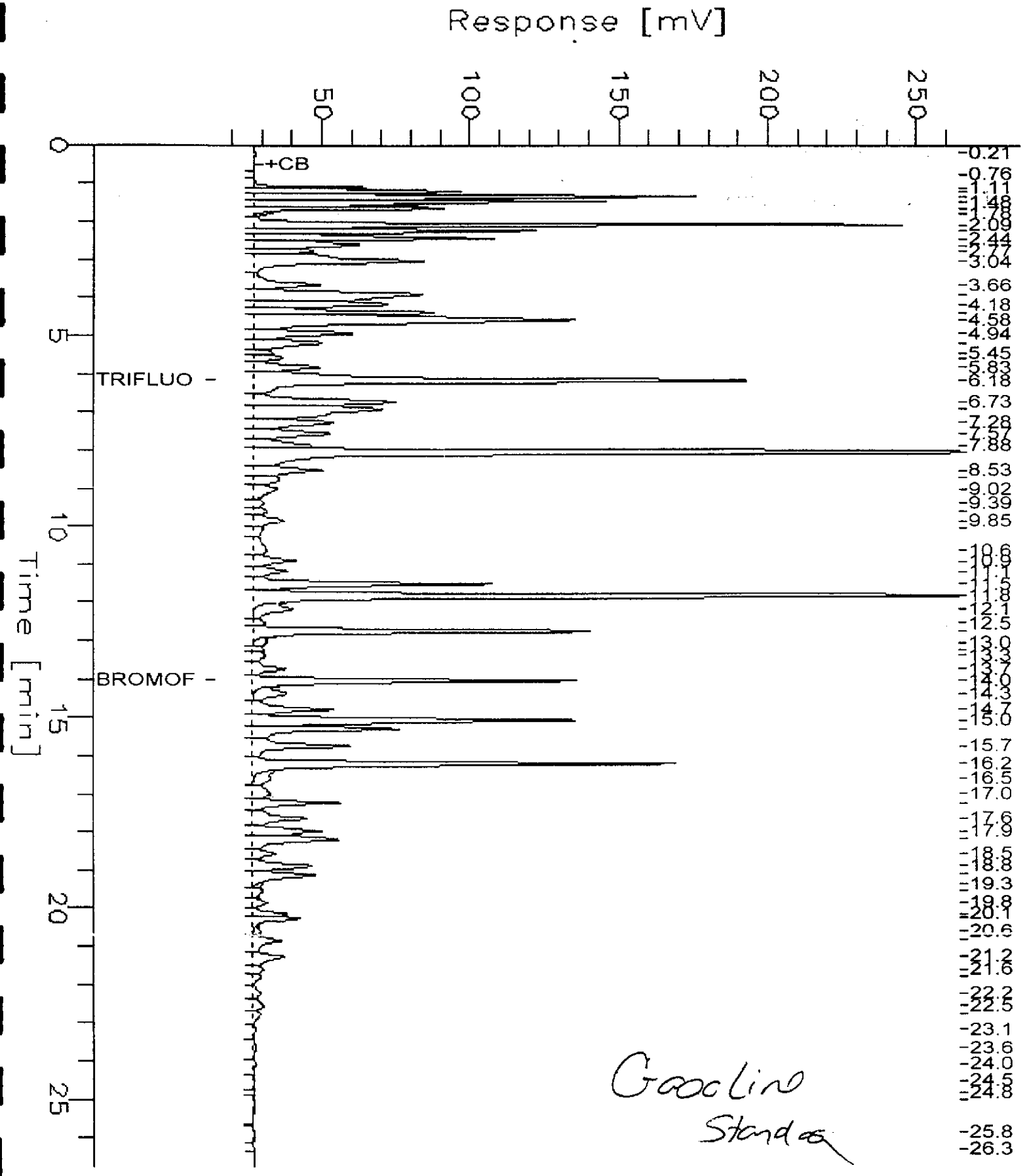
CCV 5.5

GC05 'H' File TVH

71294 41052 86 ~~40150~~ 74%w

Sample Name : CCV/LCS,QC~~Z~~,98WS~~5~~93,2,
FileName : G:\GC05\DATA\142G002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 14 mV

Sample #: GAS Page 1 of 1
Date : 5/22/98 10:55 AM
Time of Injection: 5/22/98 10:27 AM
Low Point : 14.34 mV High Point : 264.34 mV
Plot Scale: 250.0 mV



Gasoline Standard

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133725-001	B @ 6.0	41052	05/16/98	05/23/98	05/23/98	
133725-002	B @ 20.5	41109	05/16/98	05/27/98	05/27/98	
133725-003	C @ 6.0	41052	05/16/98	05/23/98	05/23/98	
133725-004	C @ 15.5	41052	05/16/98	05/23/98	05/23/98	

Matrix: Soil

Analyte	Units	133725-001	133725-002	133725-003	133725-004
Diln Fac:		1	1	1	1
MTBE	ug/Kg	<20	<20	<20	84
Benzene	ug/Kg	<5	76	<5	<5
Toluene	ug/Kg	<5	<5	<5	<5
Ethylbenzene	ug/Kg	<5	<5	<5	7.9C
m,p-Xylenes	ug/Kg	<5	<5	<5	33 C
o-Xylene	ug/Kg	<5	<5	<5	<5
Surrogate					
Trifluorotoluene	%REC	86	108	85	96
Bromofluorobenzene	%REC	83	108	83	74

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
133725-005	MW-14 @ 11.0(D)	41052	05/16/98	05/23/98	05/23/98	
133725-006	MW-14 @ 21.0(D)	41052	05/16/98	05/23/98	05/23/98	
133725-007	MW-15 @ 6.0(E)	41052	05/16/98	05/23/98	05/23/98	
133725-008	MW-15 @ 21.0(E)	41052	05/16/98	05/23/98	05/23/98	

Matrix: Soil

Analyte	Units	133725-005	133725-006	133725-007	133725-008
Diln Fac:		1	1	1	1
Gasoline C7-C12	mg/Kg	<1	<1	<1	<1
Surrogate					
Trifluorotoluene	%REC	104	110	111	109
Bromofluorobenzene	%REC	103	106	103	100

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
133725-005	MW-14 @ 11.0(D)	41052	05/16/98	05/23/98	05/23/98	
133725-006	MW-14 @ 21.0(D)	41052	05/16/98	05/23/98	05/23/98	
133725-007	MW-15 @ 6.0(E)	41052	05/16/98	05/23/98	05/23/98	
133725-008	MW-15 @ 21.0(E)	41052	05/16/98	05/23/98	05/23/98	

Matrix: Soil

Analyte Diln Fac:	Units	133725-005 1	133725-006 1	133725-007 1	133725-008 1
MTBE	ug/Kg	<20	<20	<20	<20
Benzene	ug/Kg	<5	95	<5	<5
Toluene	ug/Kg	<5	100	<5	<5
Ethylbenzene	ug/Kg	<5	19	<5	<5
m,p-Xylenes	ug/Kg	<5	68	<5	<5
o-Xylene	ug/Kg	<5	35	<5	<5
Surrogate					
Trifluorotoluene	%REC	84	89	88	86
Bromofluorobenzene	%REC	82	91	86	84

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
133725-009	G @ 5.5	41050	05/16/98	05/23/98	05/23/98	
133725-010	G @ 16.0	41050	05/16/98	05/23/98	05/23/98	

Matrix: Soil

Analyte	Units	133725-009	133725-010
Diln Fac:		1	1
Gasoline C7-C12	mg/Kg	<1	<1
Surrogate			
Trifluorotoluene	%REC	104	104
Bromofluorobenzene	%REC	108	112

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
133725-009	G @ 5.5	41050	05/16/98	05/23/98	05/23/98	
133725-010	G @ 16.0	41050	05/16/98	05/23/98	05/23/98	

Matrix: Soil

Analyte	Units	133725-009	133725-010
Diln Fac:		1	1
MTBE	ug/Kg	<20	<20
Benzene	ug/Kg	<5	140
Toluene	ug/Kg	<5	<5
Ethylbenzene	ug/Kg	<5	<5
m,p-Xylenes	ug/Kg	<5	30
o-Xylene	ug/Kg	<5	18
Surrogate			
Trifluorotoluene	%REC	104	105
Bromofluorobenzene	%REC	109	112

Lab #: 133725

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		

METHOD BLANK

Matrix:	Soil	Prep Date:	05/22/98
Batch#:	41050	Analysis Date:	05/22/98
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC71287

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	104	53-157
Bromofluorobenzene	106	53-157

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Soil
Batch#: 41050
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/22/98
Analysis Date: 05/22/98

MB Lab ID: QC71287

Analyte	Result
MTBE	<20
Benzene	<5.0
Toluene	<5.0
Ethylbenzene	<5.0
m,p-Xylenes	<5.0
o-Xylene	<5.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	104	53-126
Bromofluorobenzene	109	35-144

TVH-Total Volatile Hydrocarbons

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

METHOD BLANK

Matrix:	Soil	Prep Date:	05/22/98
Batch#:	41052	Analysis Date:	05/22/98
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC71296

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	110	53-157
Bromofluorobenzene	101	53-157

Lab #: 133725

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Soil
Batch#: 41052
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/22/98
Analysis Date: 05/22/98

MB Lab ID: QC71296

Analyte	Result
MTBE	<20
Benzene	<5.0
Toluene	<5.0
Ethylbenzene	<5.0
m,p-Xylenes	<5.0
o-Xylene	<5.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	86	53-126
Bromofluorobenzene	83	35-144

TVH-Total Volatile Hydrocarbons

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

METHOD BLANK

Matrix:	Soil	Prep Date:	05/26/98
Batch#:	41066	Analysis Date:	05/26/98
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC71363

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	97	53-157
Bromofluorobenzene	98	53-157

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Soil
Batch#: 41066
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/26/98
Analysis Date: 05/26/98

MB Lab ID: QC71363

Analyte	Result
MTBE	<20
Benzene	<5.0
Toluene	<5.0
Ethylbenzene	<5.0
m,p-Xylenes	<5.0
o-Xylene	<5.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	97	53-126
Bromofluorobenzene	99	35-144

Lab #: 133725

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		

METHOD BLANK

Matrix:	Soil	Prep Date:	05/27/98
Batch#:	41109	Analysis Date:	05/27/98
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC71517

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	102	53-157
Bromofluorobenzene	105	53-157

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Soil
Batch#: 41109
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/27/98
Analysis Date: 05/27/98

MB Lab ID: QC71517

Analyte	Result
MTBE	<20
Benzene	<5.0
Toluene	<5.0
Ethylbenzene	<5.0
m,p-Xylenes	<5.0
o-Xylene	<5.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	103	53-126
Bromofluorobenzene	104	35-144

Lab #: 133725

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: Soil
Batch#: 41050
Units: mg/Kg
Diln Fac: 1

Prep Date: 05/22/98
Analysis Date: 05/22/98

LCS Lab ID: QC71285

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	9.54	10	95	78-120

Surrogate	%Rec	Limits
Trifluorotoluene	112	53-157
Bromofluorobenzene	132	53-157

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: Soil
Batch#: 41050
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/22/98
Analysis Date: 05/22/98

LCS Lab ID: QC71286

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	100	100	100	65-135
Benzene	99.73	100	100	69-118
Toluene	102	100	102	73-118
Ethylbenzene	99.55	100	100	68-124
m,p-Xylenes	95.29	100	95	67-124
o-Xylene	97.93	100	98	73-127

Surrogate	%Rec	Limits
Trifluorotoluene	101	53-126
Bromofluorobenzene	106	35-144

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 #: 133725

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: Soil
Batch#: 41052
Units: mg/Kg
Diln Fac: 1

Prep Date: 05/22/98
Analysis Date: 05/22/98

LCS Lab ID: QC71294

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	10.39	10	104	78-120

Surrogate	%Rec	Limits
Trifluorotoluene	143	53-157
Bromofluorobenzene	106	53-157

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

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: Soil
Batch#: 41066
Units: mg/Kg
Diln Fac: 1

Prep Date: 05/26/98
Analysis Date: 05/26/98

LCS Lab ID: QC71361

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	9.71	10	97	78-120

Surrogate	%Rec	Limits
Trifluorotoluene	108	53-157
Bromofluorobenzene	131	53-157

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: Soil
Batch#: 41066
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/26/98
Analysis Date: 05/26/98

LCS Lab ID: QC71362

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	86.04	100	86	65-135
Benzene	86.16	100	86	69-118
Toluene	86.86	100	87	73-118
Ethylbenzene	85.61	100	86	68-124
m,p-Xylenes	81.24	100	81	67-124
o-Xylene	83.79	100	84	73-127

Surrogate	%Rec	Limits
Trifluorotoluene	96	53-126
Bromofluorobenzene	100	35-144

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

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 41109
Units: mg/Kg
Diln Fac: 1

Prep Date: 05/27/98
Analysis Date: 05/27/98

LCS Lab ID: QC71515

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	10.7	10	107	78-120
Surrogate	**%Rec**	**Limits**		
Trifluorotoluene	113	53-157		
Bromofluorobenzene	139	53-157		

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

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 41109
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/27/98
Analysis Date: 05/27/98

LCS Lab ID: QC71516

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	91.37	100	91	65-135
Benzene	96.74	100	97	69-118
Toluene	98.29	100	98	73-118
Ethylbenzene	96.04	100	96	68-124
m,p-Xylenes	91.87	100	92	67-124
o-Xylene	94.22	100	94	73-127

Surrogate	%Rec	Limits
Trifluorotoluene	104	53-126
Bromofluorobenzene	108	35-144

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

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

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 133618-004
Matrix: Soil
Batch#: 41050
Units: mg/Kg dry weight
Diln Fac: 1

Sample Date: 05/13/98
Received Date: 05/14/98
Prep Date: 05/23/98
Analysis Date: 05/23/98
Moisture: 8%

MS Lab ID: QC71288

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	10.87	<1.087	9.239	85	38-132

Surrogate	%Rec	Limits
Trifluorotoluene	119	53-157
Bromofluorobenzene	145	53-157

MSD Lab ID: QC71289

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	10.87	8.141	75	38-132	13	26

Surrogate	%Rec	Limits
Trifluorotoluene	116	53-157
Bromofluorobenzene	135	53-157

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: 133767-006
Matrix: Soil
Batch#: 41052
Units: mg/Kg dry weight
Diln Fac: 1

Sample Date: 05/21/98
Received Date: 05/21/98
Prep Date: 05/23/98
Analysis Date: 05/23/98
Moisture: 9%

MS Lab ID: QC71297

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	10.99	<1.099	5.242	48	38-132

Surrogate	%Rec	Limits
Trifluorotoluene	120	53-157
Bromofluorobenzene	108	53-157

MSD Lab ID: QC71298

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	10.99	5.571	51	38-132	6	26

Surrogate	%Rec	Limits
Trifluorotoluene	120	53-157
Bromofluorobenzene	108	53-157

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

Lab #: 133725

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		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	05/20/98
Lab ID:	133754-005	Received Date:	05/20/98
Matrix:	Soil	Prep Date:	05/26/98
Batch#:	41066	Analysis Date:	05/26/98
Units:	mg/Kg		
Diln Fac:	1		

MS Lab ID: QC71364

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	10	<1	9.83	98	38-132

Surrogate	%Rec	Limits
Trifluorotoluene	112	53-157
Bromofluorobenzene	138	53-157

MSD Lab ID: QC71365

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	10	10.25	103	38-132	4	26

Surrogate	%Rec	Limits
Trifluorotoluene	116	53-157
Bromofluorobenzene	144	53-157

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: 133811-001
Matrix: Soil
Batch#: 41109
Units: mg/Kg dry weight
Diln Fac: 1

Sample Date: 05/26/98
Received Date: 05/26/98
Prep Date: 05/28/98
Analysis Date: 05/28/98
Moisture: 14%

MS Lab ID: QC71518

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	11.63	<1.163	7.953	68	38-132

Surrogate	%Rec	Limits
Trifluorotoluene	116	53-157
Bromofluorobenzene	129	53-157

MSD Lab ID: QC71519

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	11.63	7.826	67	38-132	2	26

Surrogate	%Rec	Limits
Trifluorotoluene	115	53-157
Bromofluorobenzene	129	53-157

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

CHAIN OF CUSTODY FORM

133725

PAGE ____ OF ____

PROJECT NAME: CONNELL ADS
JOB NUMBER: 442.055
PROJECT CONTACT: MEG MENDOZA
SAMPLED BY: JOHN WOLFE
LAB: C&T
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
-1	B@ 6.0		X						X				X		5	7	6	9	8
-2	B@ 20.5		X						X				X						
-3	C@ 6.0		X						X				X						
-4	C@ 15.5		X						X				X						
-5	MW-14@ 11.0 (D)		X						X				X						
-6	MW-14@ 21.0 (D)		X						X				X						
-7	MW-15@ 6.0 (E)		X						X				X						
-8	MW-15@ 21.0 (E)		X						X				X						
-9	G@ 6.5		X						X				X						
-10	G@ 16.0		X						X				X						

ANALYSIS REQUESTED: TVH/BTEX/MTBE; TEH; 1,2-DCA

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
John Wolfe	5/8/98 1540	Tra Bla	5/8/98 1540
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

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

ANALYTICAL REPORT

Prepared for:

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

Date: 04-JUN-98
Lab Job Number: 133723
Project ID: 447.055
Location: Connell Olds

Reviewed by: Tracy Bobek

Reviewed by:

TEH-Tot Ext Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: CA LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133723-001	A @ 11.0	41070	05/17/98	05/26/98	05/29/98	
133723-002	A @ 20.5	41070	05/17/98	05/26/98	05/29/98	
133723-003	F @ 0.5	41070	05/17/98	05/26/98	06/01/98	
133723-004	F @ 6.0	41070	05/17/98	05/26/98	05/29/98	

Matrix: Soil

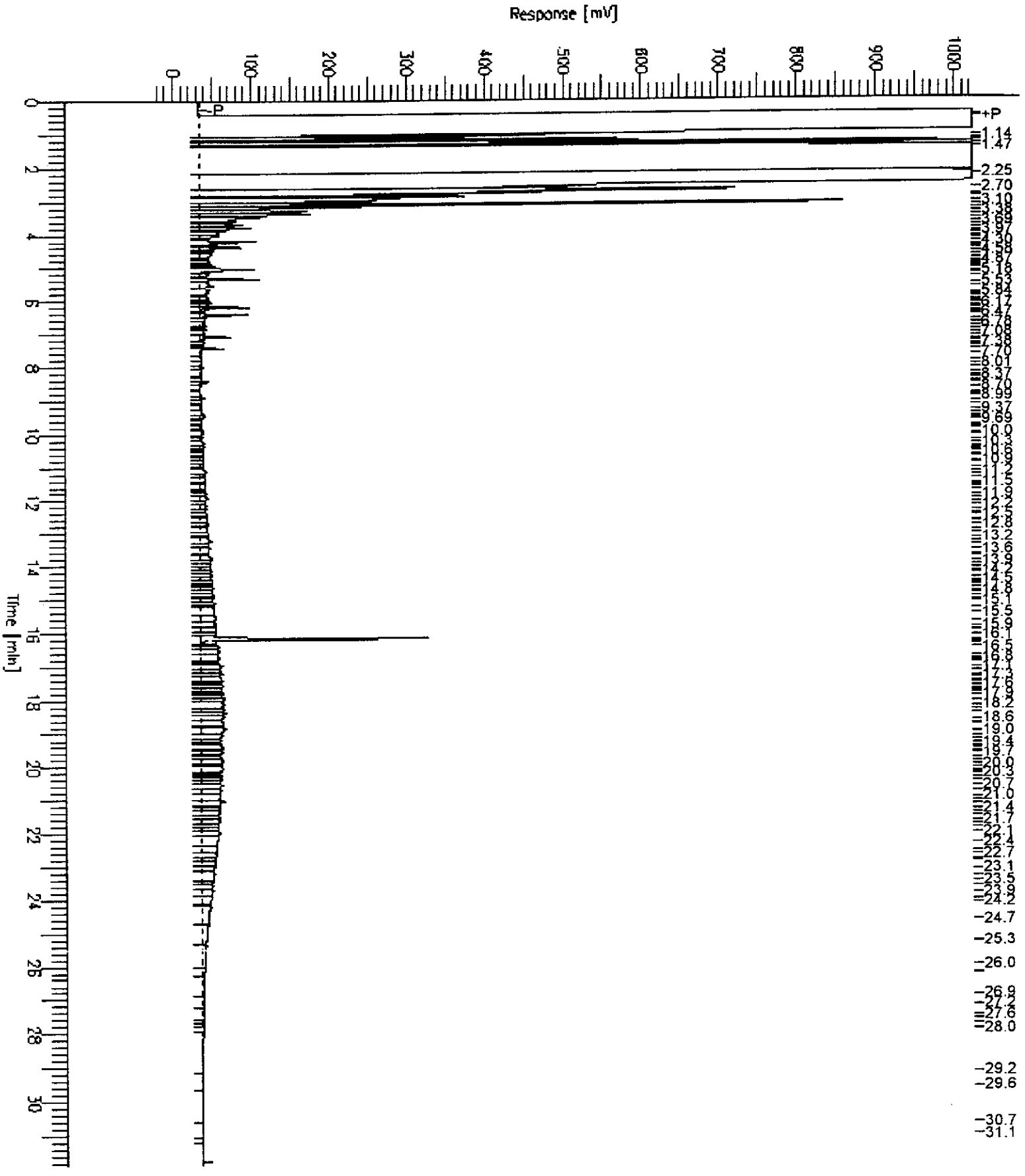
Analyte Diln Fac:	Units	133723-001 1	133723-002 1	133723-003 5	133723-004 1
Diesel C12-C22	mg/Kg	<1	<1	41 YLH	<1
Surrogate					
Hexacosane	%REC	104	84	92	98

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

Chromatogram

Sample Name : 133723-003,41070
FileName : C:\GC11\CHA\152A006.RAW
Method : ATEH148.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -20 mV

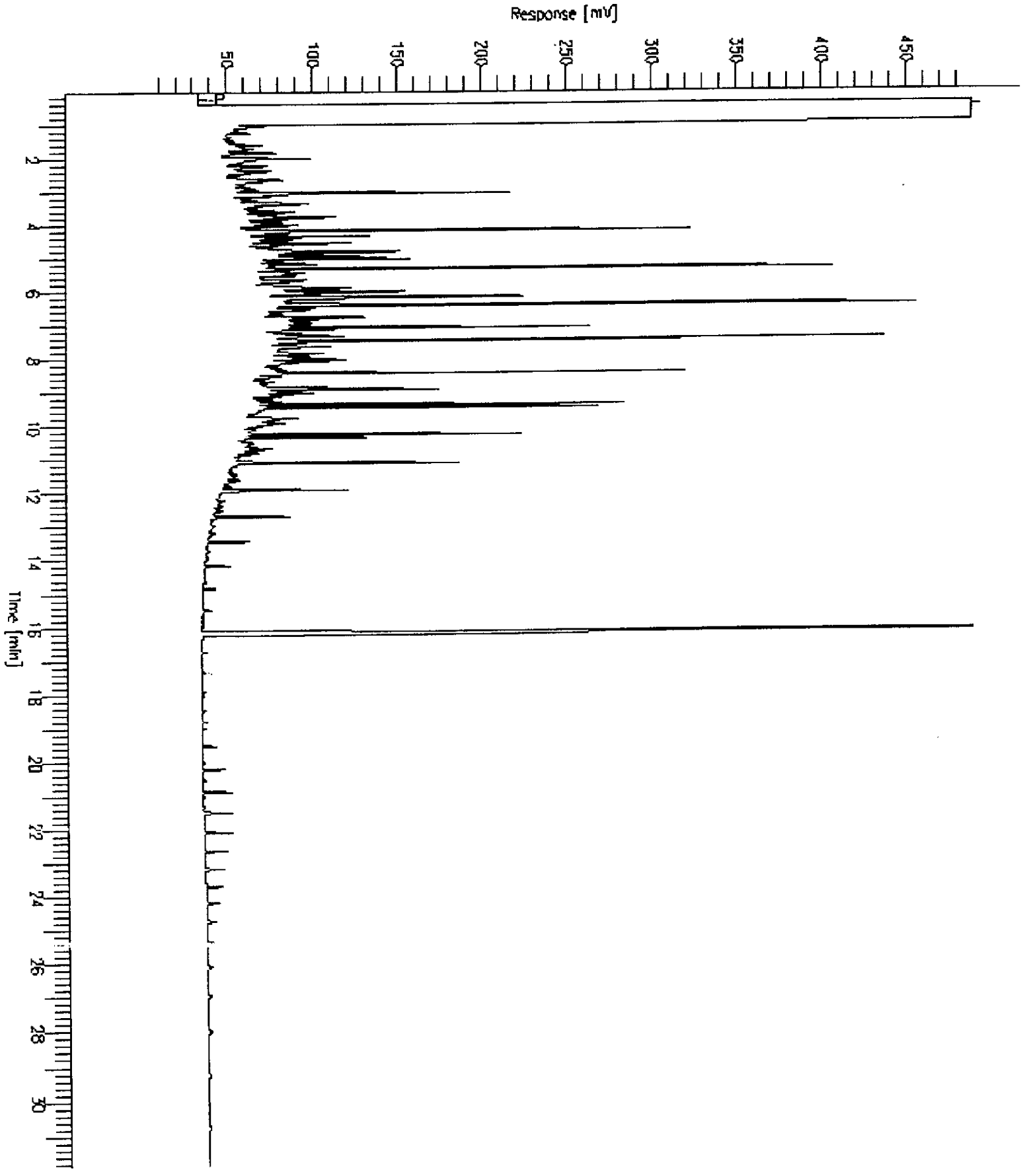
Sample #: 41070 Page 1 of 1
Date : 6/1/98 04:24 PM
Time of Injection: 6/1/98 02:31 PM
Low Point : -20.06 mV High Point : 1024.00 mV
Plot Scale: 1044.1 mV



Chromatogram

Sample Name : CCV,98WS5843,DS
FileName : C:\GC11\CHA\148A031.RAW
Method : ATEH148.MTH
Start Time : 0.07 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 9 mV

Sample #: 500MG/L
Date : 6/1/98 12:33 PM
Time of Injection: 5/30/98 06:09 AM
Low Point : 9.34 mV High Point : 489.00 mV
Plot Scale: 479.7 mV



TEH-Tot Ext Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: CA LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133723-005	F @ 21.0	41070	05/17/98	05/26/98	05/29/98	

Matrix: Soil

Analyte	Units	133723-005
Diln Fac:		1
Diesel C12-C22	mg/Kg	<1
Surrogate		
Hexacosane	%REC	91

Lab #: 133723

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

METHOD BLANK

Matrix:	Soil	Prep Date:	05/26/98
Batch#:	41070	Analysis Date:	05/29/98
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC71378

Analyte	Result	
Diesel C12-C22	<1.0	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	94	48-142

Lab #: 133723

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

LABORATORY CONTROL SAMPLE

Matrix:	Soil	Prep Date:	05/26/98
Batch#:	41070	Analysis Date:	05/29/98
Units:	mg/Kg		
Diln Fac:	1		

LCS Lab ID: QC71379

Analyte	Result	Spike Added	%Rec #	Limits
Diesel C12-C22	41.2	49.5	83	49-108
Surrogate	**%Rec**	**Limits**		
Hexacosane	93	48-142		

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 #: 133723 BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	05/16/98
Lab ID:	133725-002	Received Date:	05/18/98
Matrix:	Soil	Prep Date:	05/26/98
Batch#:	41070	Analysis Date:	05/29/98
Units:	mg/Kg		
Diln Fac:	1		

MS Lab ID: QC71380

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Diesel C12-C22	49.5	<1	43.45	88	34-121

Surrogate	%Rec	Limits
Hexacosane	99	48-142

MSD Lab ID: QC71381

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	49.5	41.88	85	34-121	4	36

Surrogate	%Rec	Limits
Hexacosane	96	48-142

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
133723-001	A @ 11.0	41066	05/17/98	05/26/98	05/26/98	
133723-002	A @ 20.5	41066	05/17/98	05/26/98	05/26/98	
133723-003	F @ 0.5	41137	05/17/98	05/28/98	05/28/98	
133723-004	F @ 6.0	41066	05/17/98	05/27/98	05/27/98	

Matrix: Soil

Analyte	Units	133723-001	133723-002	133723-003		133723-004
Diln Fac:		1	1	5000		1
Gasoline C7-C12	mg/Kg	<1	<1	25000	YH	<1
Surrogate						
Trifluorotoluene	%REC	103	99	104		104
Bromofluorobenzene	%REC	107	103	290	*	106

* Values outside of QC limits
Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated 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
133723-001	A @ 11.0	41066	05/17/98	05/26/98	05/26/98	
133723-002	A @ 20.5	41066	05/17/98	05/26/98	05/26/98	
133723-003	F @ 0.5	41137	05/17/98	05/28/98	05/28/98	
133723-004	F @ 6.0	41066	05/17/98	05/27/98	05/27/98	

Matrix: Soil

Analyte	Units	133723-001	133723-002	133723-003	133723-004
Diln Fac:		1	1	5000	1
MTBE	ug/Kg	<20	<20	<100000	<20
Benzene	ug/Kg	<5	<5	<25000	<5
Toluene	ug/Kg	<5	<5	<25000	<5
Ethylbenzene	ug/Kg	<5	<5	<25000	<5
m,p-Xylenes	ug/Kg	<5	<5	<25000	<5
o-Xylene	ug/Kg	<5	<5	<25000	<5
Surrogate					
Trifluorotoluene	%REC	102	98	106	107
Bromofluorobenzene	%REC	107	103	172 *	109

* Values outside of QC 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
133723-005	F @ 21.0	41066	05/17/98	05/27/98	05/27/98	

Matrix: Soil

Analyte	Units	133723-005
Diln Fac:		1
Gasoline C7-C12	mg/Kg	<1
Surrogate		
Trifluorotoluene	%REC	105
Bromofluorobenzene	%REC	108

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
133723-005	F @ 21.0	41066	05/17/98	05/27/98	05/27/98	

Matrix: Soil

Analyte	Units	133723-005
Diln Fac:		1
MTBE	ug/Kg	<20
Benzene	ug/Kg	24
Toluene	ug/Kg	<5
Ethylbenzene	ug/Kg	<5
m,p-Xylenes	ug/Kg	<5
o-Xylene	ug/Kg	<5
Surrogate		
Trifluorotoluene	%REC	106
Bromofluorobenzene	%REC	111

TVH-Total Volatile Hydrocarbons

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

METHOD BLANK

Matrix:	Soil	Prep Date:	05/26/98
Batch#:	41066	Analysis Date:	05/26/98
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC71363

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	97	53-157
Bromofluorobenzene	98	53-157

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Soil
Batch#: 41066
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/26/98
Analysis Date: 05/26/98

MB Lab ID: QC71363

Analyte	Result
MTBE	<20
Benzene	<5.0
Toluene	<5.0
Ethylbenzene	<5.0
m,p-Xylenes	<5.0
o-Xylene	<5.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	97	53-126
Bromofluorobenzene	99	35-144

TVH-Total Volatile Hydrocarbons

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

METHOD BLANK

Matrix:	Soil	Prep Date:	05/28/98
Batch#:	41137	Analysis Date:	05/28/98
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC71611

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	103	53-157
Bromofluorobenzene	105	53-157

Lab #: 133723

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Soil
Batch#: 41137
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/28/98
Analysis Date: 05/28/98

MB Lab ID: QC71611

Analyte	Result
MTBE	<20
Benzene	<5.0
Toluene	<5.0
Ethylbenzene	<5.0
m,p-Xylenes	<5.0
o-Xylene	<5.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	104	53-126
Bromofluorobenzene	107	35-144

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:	Soil	Prep Date:	05/26/98
Batch#:	41066	Analysis Date:	05/26/98
Units:	mg/Kg		
Diln Fac:	1		

LCS Lab ID: QC71361

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	9.71	10	97	78-120

Surrogate	%Rec	Limits
Trifluorotoluene	108	53-157
Bromofluorobenzene	131	53-157

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: Soil
Batch#: 41066
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/26/98
Analysis Date: 05/26/98

LCS Lab ID: QC71362

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	86.04	100	86	65-135
Benzene	86.16	100	86	69-118
Toluene	86.86	100	87	73-118
Ethylbenzene	85.61	100	86	68-124
m,p-Xylenes	81.24	100	81	67-124
o-Xylene	83.79	100	84	73-127

Surrogate	%Rec	Limits
Trifluorotoluene	96	53-126
Bromofluorobenzene	100	35-144

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

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 41137
Units: mg/Kg
Diln Fac: 1

Prep Date: 05/28/98
Analysis Date: 05/28/98

LCS Lab ID: QC71609

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	10.01	10	100	78-120

Surrogate	%Rec	Limits
Trifluorotoluene	115	53-157
Bromofluorobenzene	139	53-157

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: Soil
Batch#: 41137
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/28/98
Analysis Date: 05/28/98

LCS Lab ID: QC71610

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	95.77	100	96	65-135
Benzene	91.26	100	91	69-118
Toluene	93.24	100	93	73-118
Ethylbenzene	91.27	100	92	68-124
m,p-Xylenes	86.55	200	87	67-124
o-Xylene	89.79	100	90	73-127

Surrogate	%Rec	Limits
Trifluorotoluene	103	53-126
Bromofluorobenzene	105	35-144

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

BTXE

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

Analysis Method: EPA 8020A
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Soil
Batch#: 41066
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/26/98
Analysis Date: 05/26/98

BS Lab ID: QC71366

Analyte	Spike Added	BS	%Rec #	Limits
MTBE	100	94.04	94	65-135
Benzene	100	92.05	92	69-118
Toluene	100	93.24	93	73-118
Ethylbenzene	100	91.58	92	68-124
m,p-Xylenes	200	86.04	86	67-124
o-Xylene	100	92.3	92	73-127

Surrogate	%Rec	Limits
Trifluorotoluene	105	53-126
Bromofluorobenzene	112	35-144

BSD Lab ID: QC71367

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
MTBE	100	96.54	97	65-135	3	20
Benzene	100	96.15	96	69-118	4	14
Toluene	100	97.38	97	73-118	4	21
Ethylbenzene	100	96.33	96	68-124	5	22
m,p-Xylenes	200	90.25	90	67-124	5	22
o-Xylene	100	95.96	96	73-127	4	26

Surrogate	%Rec	Limits
Trifluorotoluene	104	53-126
Bromofluorobenzene	110	35-144

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

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: 133754-005
Matrix: Soil
Batch#: 41066
Units: mg/Kg
Diln Fac: 1

Sample Date: 05/20/98
Received Date: 05/20/98
Prep Date: 05/26/98
Analysis Date: 05/26/98

MS Lab ID: QC71364

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	10	<1	9.83	98	38-132

Surrogate	%Rec	Limits
Trifluorotoluene	112	53-157
Bromofluorobenzene	138	53-157

MSD Lab ID: QC71365

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	10	10.25	103	38-132	4	26

Surrogate	%Rec	Limits
Trifluorotoluene	116	53-157
Bromofluorobenzene	144	53-157

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: 133793-010
Matrix: Soil
Batch#: 41137
Units: ug/Kg
Diln Fac: 1

Sample Date: 05/17/98
Received Date: 05/22/98
Prep Date: 05/29/98
Analysis Date: 05/29/98

MS Lab ID: QC71612

Analyte	Spike Added	Sample	MS	%Rec #	Limits
MTBE	100	<20	102.5	103	65-135
Benzene	100	<5	102.9	103	46-128
Toluene	100	<5	102.1	102	43-135
Ethylbenzene	100	<5	97.87	98	27-146
m,p-Xylenes	100	5.53	93.19	88	31-136
o-Xylene	100	<5	95.93	96	36-144

Surrogate	%Rec	Limits
Trifluorotoluene	108	53-126
Bromofluorobenzene	111	35-144

MSD Lab ID: QC71613

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
MTBE	100	108.4	108	65-135	6	20
Benzene	100	99.49	99	46-128	3	14
Toluene	100	99.64	100	43-135	2	21
Ethylbenzene	100	96.9	97	27-146	1	22
m,p-Xylenes	100	91.76	86	31-136	2	22
o-Xylene	100	97.85	98	36-144	2	26

Surrogate	%Rec	Limits
Trifluorotoluene	107	53-126
Bromofluorobenzene	109	35-144

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

LABORATORY NUMBER: 133723
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 447.055
LOCATION: CONNELL OLDS

DAT[illegible]P1
DATE RECEI
DATE ANALY:
DATE REPORT
BATCH NO: 4

EPA 8260

LAB ID	CLIENT ID	1,1-DCA (ug/Kg)	1,2-DCA (ug/Kg)	REPORTING LIMIT (ug/Kg)	SURROGATE RECOVERIES 1	2	3
133723-001	A @ 11.0	ND	ND	5.0	112%	117%	106%
133723-002	A @ 20.5	ND	ND	5.0	110%	110%	103%
133723-003	F @ 0.5	ND	ND	5.0	110%	97%	144%
METHOD BLANK	N/A	ND	ND	5.0	105%	109%	103%

	Limits
1= 1,2-Dichloroethane-d4	75-130
2=Toluene-d8	89-110
3=Bromofluorobenzene	83-117

ND = Not detected at or above reporting limit.

Lab #: 133723 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

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 40968
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/20/98
Analysis Date: 05/20/98

LCS Lab ID: QC70984

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	49.2	50	98	60-156
Trichloroethene	47.34	50	95	80-130
Chlorobenzene	49.16	50	98	88-124

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	90	75-130
Toluene-d8	99	89-110
Bromofluorobenzene	92	83-117

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

Halogenated Volatile Organics

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 40993
Units: ug/Kg
Diln Fac: 1

Prep Date: 05/20/98
Analysis Date: 05/20/98

LCS Lab ID: QC71088

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	42.84	50	86	60-156
Trichloroethene	48.84	50	98	80-130
Chlorobenzene	49.96	50	100	88-124

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	102	75-130
Toluene-d8	108	89-110
Bromofluorobenzene	101	83-117

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

Halogenated Volatile Organics

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 133735-009
Matrix: Soil
Batch#: 40993
Units: ug/Kg
Diln Fac: 1

Sample Date: 05/20/98
Received Date: 05/20/98
Prep Date: 05/20/98
Analysis Date: 05/20/98

MS Lab ID: QC71090

Analyte	Spike Added	Sample	MS	%Rec #	Limits
1,1-Dichloroethene	50	<5	38.45	76	33-153
Trichloroethene	50	<5	41.18	82	38-144
Chlorobenzene	50	<5	36.84	74	39-127

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	108	75-130
Toluene-d8	108	89-110
Bromofluorobenzene	104	83-117

MSD Lab ID: QC71091

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	39.92	79	33-153	4	27
Trichloroethene	50	43.2	86	38-144	5	29
Chlorobenzene	50	40.98	82	39-127	11	27

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	102	75-130
Toluene-d8	112*	89-110
Bromofluorobenzene	101	83-117

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

CHAIN OF CUSTODY FORM

133723

PAGE ____ OF ____

PROJECT NAME: CONNELL OLDSMOBILE

JOB NUMBER: 442.055 LAB: C+T

PROJECT CONTACT: Meg Mendoza TURNAROUND: Standard

SAMPLED BY: John Wolfe 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: TVH/BTEX/MTBE	TEH	1,2-DCA
1	A @ 11.0		X						X				X		05	17	98			X	X	X
2	A @ 20.5		X						X				X							X	X	X
3	F @ 0.5		X						X				X							X	X	X
4	F @ 6.0		X						X				X							X	X	X
5	F @ 21.0		X						X				X							X	X	Y

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
John Wolfe	5/8/98 1540	[illegible]	5/18/98 1540
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

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

ANALYTICAL REPORT

Prepared for:

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

Date: 08-JUN-98
Lab Job Number: 133813
Project ID: 447.055
Location: Connell Olds

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 133813
CLIENT: SUBSURFACE CONSULTANTS
LOCATION: CONNELL OLDS
PROJECT #: 447.055

DATE SAMPLED: 05/27/98
DATE RECEIVED: 05/27/98
DATE ANALYZED: 05/29/98
BATCH#: 41185

ANALYSIS: TOTAL OIL & GREASE
ANALYSIS METHOD: SMWW 5520B

LAB ID	SAMPLE ID	RESULT	UNITS	REPORTING LIMIT
133813-001	MW-1	5.7	mg/L	5.0
METHOD BLANK	N/A	ND	mg/L	5.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: BS/BSD

RPD, %	2
RECOVERY, %	94

Semivolatile Organics by GC/MS

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

Analysis Method: EPA 8270B
Prep Method: EPA 3520

Field ID: MW-1 (RE-SAMPLE)
Lab ID: 133813-001
Matrix: Water
Batch#: 41128
Units: ug/L
Diln Fac: 20

Sampled: 05/27/98
Received: 05/27/98
Extracted: 05/27/98
Analyzed: 06/03/98

Analyte	Result	Reporting Limit
Phenol	480	200
2-Chlorophenol	ND	200
Benzyl alcohol	ND	200
2-Methylphenol	210	200
3,4-Methylphenol	200 J	200
2-Nitrophenol	ND	1000
2,4-Dimethylphenol	110 J	200
Benzoic acid	ND	1000
2,4-Dichlorophenol	ND	200
4-Chloro-3-methylphenol	ND	200
2,4,6-Trichlorophenol	ND	200
2,4,5-Trichlorophenol	ND	200
2,4-Dinitrophenol	ND	1000
4-Nitrophenol	ND	1000
4,6-Dinitro-2-methylphenol	ND	1000
Pentachlorophenol	ND	200
N-Nitrosodimethylamine	ND	200
Aniline	ND	200
bis(2-Chloroethyl)ether	ND	200
1,3-Dichlorobenzene	ND	200
1,4-Dichlorobenzene	ND	200
1,2-Dichlorobenzene	ND	200
bis(2-Chloroisopropyl) ether	ND	200
N-Nitroso-di-n-propylamine	ND	200
Hexachloroethane	ND	200
Nitrobenzene	ND	200
Isophorone	ND	200
bis(2-Chloroethoxy)methane	ND	200
1,2,4-Trichlorobenzene	ND	200
Naphthalene	630	200
4-Chloroaniline	ND	200
Hexachlorobutadiene	ND	200
2-Methylnaphthalene	120 J	200
Hexachlorocyclopentadiene	ND	1000
2-Chloronaphthalene	ND	200
2-Nitroaniline	ND	1000
Dimethylphthalate	ND	200
Acenaphthylene	ND	200

Semivolatile Organics by GC/MS

Field ID:	MW-1 (RE-SAMPLE)	Sampled:	05/27/98
Lab ID:	133813-001	Received:	05/27/98
Matrix:	Water	Extracted:	05/27/98
Batch#:	41128	Analyzed:	06/03/98
Units:	ug/L		
Diln Fac:	20		

Analyte	Result	Reporting Limit
2,6-Dinitrotoluene	ND	200
3-Nitroaniline	ND	1000
Acenaphthene	ND	200
Dibenzofuran	ND	200
2,4-Dinitrotoluene	ND	200
Diethylphthalate	ND	200
4-Chlorophenyl-phenylether	ND	200
Fluorene	ND	200
4-Nitroaniline	ND	1000
N-Nitrosodiphenylamine	ND	200
Azobenzene	ND	200
4-Bromophenyl-phenylether	ND	200
Hexachlorobenzene	ND	200
Phenanthrene	ND	200
Anthracene	ND	200
Di-n-butylphthalate	ND	200
Fluoranthene	ND	200
Pyrene	ND	200
Butylbenzylphthalate	ND	200
3,3'-Dichlorobenzidine	ND	1000
Benzo(a)anthracene	ND	200
Chrysene	ND	200
bis(2-Ethylhexyl)phthalate	ND	200
Di-n-octylphthalate	ND	200
Benzo(b,k)fluoranthene	ND	200
Benzo(a)pyrene	ND	200
Indeno(1,2,3-cd)pyrene	ND	200
Dibenz(a,h)anthracene	ND	200
Benzo(g,h,i)perylene	ND	200

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

J: Estimated Value
* Values outside of QC limits
DO: Surrogate diluted out

Lab #: 133813

BATCH QC REPORT

Curtis & Tompkins, Ltd.

EPA 8270 Semi-Volatile Organics

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

Analysis Method: EPA 8270B
Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
Batch#: 41128
Units: ug/L
Diln Fac: 1

Prep Date: 05/27/98
Analysis Date: 06/01/98

MB Lab ID: QC71585

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

EPA 8270 Semi-Volatile Organics

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

Analysis Method: EPA 8270B
Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
Batch#: 41128
Units: ug/L
Diln Fac: 1

Prep Date: 05/27/98
Analysis Date: 06/01/98

MB Lab ID: QC71585

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

Surrogate	%Rec	Recovery Limits
2-Fluorophenol	77	17-107
Phenol-d5	79	18-115
2,4,6-Tribromophenol	83	14-121
Nitrobenzene-d5	75	36-115
2-Fluorobiphenyl	78	36-113
Terphenyl-d14	78	17-115

Lab #: 133813 BATCH QC REPORT Curtis & Tompkins, Ltd. Page 1 of 1

EPA 8270 Semi-Volatile Organics

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

Analysis Method: EPA 8270B
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 41128
Units: ug/L
Diln Fac: 1

Prep Date: 05/27/98
Analysis Date: 06/01/98

BS Lab ID: QC71577

Analyte	Spike Added	BS	%Rec	#	Limits
Phenol	100	70.83	71		45-110
2-Chlorophenol	100	74.52	75		50-110
4-Chloro-3-methylphenol	100	69.8	70		48-110
4-Nitrophenol	100	62.43	62		30-110
Pentachlorophenol	100	53.95	54		10-110
1,4-Dichlorobenzene	50	31.42	63		38-110
N-Nitroso-di-n-propylamine	50	28.74	57		29-110
1,2,4-Trichlorobenzene	50	30.39	61		41-110
Acenaphthene	50	37.09	74		50-110
2,4-Dinitrotoluene	50	36.2	72		40-110
Pyrene	50	31.66	63		43-110

Surrogate	%Rec	Limits
2-Fluorophenol	78	17-107
Phenol-d5	82	18-115
2,4,6-Tribromophenol	93	14-121
Nitrobenzene-d5	75	36-115
2-Fluorobiphenyl	80	36-113
Terphenyl-d14	80	17-115

BSD Lab ID: QC71578

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Phenol	100	68.93	69		45-110	3		23
2-Chlorophenol	100	73.77	74		50-110	1		23
4-Chloro-3-methylphenol	100	72.42	72		48-110	4		20
4-Nitrophenol	100	62.16	62		30-110	0		26
Pentachlorophenol	100	53.47	53		10-110	1		44
1,4-Dichlorobenzene	50	32.37	65		38-110	3		21
N-Nitroso-di-n-propylamine	50	30.33	61		29-110	5		22
1,2,4-Trichlorobenzene	50	31.89	64		41-110	5		21
Acenaphthene	50	38.32	77		50-110	3		18
2,4-Dinitrotoluene	50	37.1	74		40-110	2		19
Pyrene	50	32.97	66		43-110	4		19

Surrogate	%Rec	Limits
2-Fluorophenol	77	17-107
Phenol-d5	81	18-115
2,4,6-Tribromophenol	94	14-121
Nitrobenzene-d5	75	36-115
2-Fluorobiphenyl	81	36-113
Terphenyl-d14	82	17-115

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

CHAIN OF CUSTODY FORM

133813

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: OGG	5YOC's
1	MW-1 (Re-sample)	X					2			X			X		05	27	98	0800		X	X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Dennis Alexander	5/27/98 0855	J. GUERRERO	5/27 8:55

COMMENTS & NOTES:

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

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

ANALYTICAL REPORT

Prepared for:

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

Date: 10-JUN-98
Lab Job Number: 133814
Project ID: 447.055
Location: Connell Olds

Reviewed by: Tracy Bob, C

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
133814-001	MW-14	41231	05/26/98	06/01/98	06/05/98	
133814-002	MW-15	41231	05/26/98	06/01/98	06/10/98	

Matrix: Water

Analyte	Units	133814-001	133814-002
Diln Fac:		1	1
Diesel C12-C22	ug/L	1700 YL	7700 YL
Surrogate			
Hexacosane	%REC	75	77

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

TEH-Tot Ext Hydrocarbons

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

METHOD BLANK

Matrix:	Water	Prep Date:	06/01/98
Batch#:	41231	Analysis Date:	06/04/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC71963

Analyte	Result
Diesel C12-C22	<50

Surrogate	%Rec	Recovery Limits
Hexacosane	80	53-136

Lab #: 133814

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 3520

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 41231
Units: ug/L
Diln Fac: 1

Prep Date: 06/01/98
Analysis Date: 06/09/98

LCS Lab ID: QC71964

Analyte	Result	Spike Added	%Rec #	Limits
Diesel C12-C22	1822	2475	74	58-110
Surrogate	**%Rec**	**Limits**		
Hexacosane	92	53-136		

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 #: 133814 BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

Analysis Method: EPA 8015M
Prep Method: EPA 3520

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 133703-002
Matrix: Water
Batch#: 41231
Units: ug/L
Diln Fac: 1

Sample Date: 05/19/98
Received Date: 05/19/98
Prep Date: 06/01/98
Analysis Date: 06/09/98

MS Lab ID: QC71965

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Diesel C12-C22	2335	<50	1897	76	58-110

Surrogate	%Rec	Limits
Hexacosane	98	53-136

MSD Lab ID: QC71966

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2357	1914	77	58-110	1	21

Surrogate	%Rec	Limits
Hexacosane	96	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

Halogenated Volatile Organics
EPA 8010 Analyte List

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

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: MW-14
Lab ID: 133814-001
Matrix: Water
Batch#: 41230
Units: ug/L
Diln Fac: 50

Sampled: 05/26/98
Received: 05/27/98
Extracted: 06/02/98
Analyzed: 06/02/98

Analyte	Result	Reporting Limit
Chloromethane	ND	100
Vinyl Chloride	ND	100
Bromomethane	ND	100
Chloroethane	ND	100
Trichlorofluoromethane	ND	50
Freon 113	ND	50
1,1-Dichloroethene	ND	50
Methylene Chloride	ND	1000
trans-1,2-Dichloroethene	ND	50
1,1-Dichloroethane	ND	50
cis-1,2-Dichloroethene	ND	50
Chloroform	ND	50
1,1,1-Trichloroethane	ND	50
Carbon Tetrachloride	ND	50
1,2-Dichloroethane	440	50
Trichloroethene	ND	50
1,2-Dichloropropane	ND	50
Bromodichloromethane	ND	50
cis-1,3-Dichloropropene	ND	50
trans-1,3-Dichloropropene	ND	50
1,1,2-Trichloroethane	ND	50
Tetrachloroethene	ND	50
Dibromochloromethane	ND	50
Chlorobenzene	ND	50
Bromoform	ND	100
1,1,2,2-Tetrachloroethane	ND	50
1,3-Dichlorobenzene	ND	50
1,4-Dichlorobenzene	ND	50
1,2-Dichlorobenzene	ND	50

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	105	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	97	84-115

Halogenated Volatile Organics
EPA 8010 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260
Project#:	447.055	Prep Method:	EPA 5030
Location:	Connell Olds		

Field ID:	MW-15	Sampled:	05/26/98
Lab ID:	133814-002	Received:	05/27/98
Matrix:	Water	Extracted:	06/02/98
Batch#:	41230	Analyzed:	06/02/98
Units:	ug/L		
Diln Fac:	250		

Analyte	Result	Reporting Limit
Chloromethane	ND	500
Vinyl Chloride	ND	500
Bromomethane	ND	500
Chloroethane	ND	500
Trichlorofluoromethane	ND	250
Freon 113	ND	250
1,1-Dichloroethene	ND	250
Methylene Chloride	ND	5000
trans-1,2-Dichloroethene	ND	250
1,1-Dichloroethane	ND	250
cis-1,2-Dichloroethene	ND	250
Chloroform	ND	250
1,1,1-Trichloroethane	ND	250
Carbon Tetrachloride	ND	250
1,2-Dichloroethane	1200	250
Trichloroethene	ND	250
1,2-Dichloropropane	ND	250
Bromodichloromethane	ND	250
cis-1,3-Dichloropropene	ND	250
trans-1,3-Dichloropropene	ND	250
1,1,2-Trichloroethane	ND	250
Tetrachloroethene	ND	250
Dibromochloromethane	ND	250
Chlorobenzene	ND	250
Bromoform	ND	500
1,1,2,2-Tetrachloroethane	ND	250
1,3-Dichlorobenzene	ND	250
1,4-Dichlorobenzene	ND	250
1,2-Dichlorobenzene	ND	250

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	105	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	99	84-115

Lab #: 133814

BATCH QC REPORT

Curtis & Tompkins, Ltd.

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#: 41230
Units: ug/L
Diln Fac: 1

Prep Date: 06/01/98
Analysis Date: 06/01/98

MB Lab ID: QC71959

Analyte	Result	Reporting Limit
Chloromethane	ND	2.0
Vinyl Chloride	ND	2.0
Bromomethane	ND	2.0
Chloroethane	ND	2.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	1.0
1,1-Dichloroethene	ND	1.0
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon Tetrachloride	ND	1.0
1,2-Dichloroethane	ND	1.0
Trichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
Bromodichloromethane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
Tetrachloroethene	ND	1.0
Dibromochloromethane	ND	1.0
Chlorobenzene	ND	1.0
Bromoform	ND	2.0
1,1,2,2-Tetrachloroethane	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	102	85-121
Toluene-d8	99	92-110
Bromofluorobenzene	99	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#: 41230
Units: ug/L
Diln Fac: 1

Prep Date: 06/01/98
Analysis Date: 06/01/98

BS Lab ID: QC71957

Analyte	Spike Added	BS	%Rec #	Limits
1,1-Dichloroethene	50	51.03	102	69-137
Trichloroethene	50	51.7	103	83-116
Chlorobenzene	50	50.73	101	87-117

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	101	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	99	84-115

BSD Lab ID: QC71958

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	48.56	97	69-137	5	14
Trichloroethene	50	49.18	98	83-116	5	10
Chlorobenzene	50	49.51	99	87-117	2	10

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

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

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
133814-001	MW-14	41174	05/26/98	05/30/98	05/30/98	
133814-002	MW-15	41174	05/26/98	05/30/98	05/30/98	

Matrix: Water

Analyte	Units	133814-001	133814-002
Diln Fac:		500	500
Gasoline C7-C12	ug/L	41000	130000
Surrogate			
Trifluorotoluene	%REC	111	106
Bromofluorobenzene	%REC	101	99

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
133814-001	MW-14	41174	05/26/98	05/30/98	05/30/98	
133814-002	MW-15	41174	05/26/98	05/30/98	05/30/98	

Matrix: Water

Analyte	Units	133814-001	133814-002
Diln Fac:		500	500
MTBE	ug/L	<1000	<1000
Benzene	ug/L	7100	30000
Toluene	ug/L	11000	38000
Ethylbenzene	ug/L	720	2500
m,p-Xylenes	ug/L	2700	8800
o-Xylene	ug/L	1200	3800
Surrogate			
Trifluorotoluene	%REC	85	83
Bromofluorobenzene	%REC	83	82

Lab #: 133814 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		

METHOD BLANK

Matrix:	Water	Prep Date:	05/30/98
Batch#:	41174	Analysis Date:	05/30/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC71766

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	107	59-162
Bromofluorobenzene	98	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#: 41174
Units: ug/L
Diln Fac: 1

Prep Date: 05/30/98
Analysis Date: 05/30/98

MB Lab ID: QC71766

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	82	53-124
Bromofluorobenzene	76	41-142

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#: 41174
Units: ug/L
Diln Fac: 1

Prep Date: 05/30/98
Analysis Date: 05/30/98

LCS Lab ID: QC71765

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	16.95	20	85	65-135
Benzene	16.75	20	84	69-109
Toluene	18.19	20	91	72-116
Ethylbenzene	17.18	20	86	67-120
m,p-Xylenes	19.13	20	96	69-117
o-Xylene	18.22	20	91	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	81	53-124
Bromofluorobenzene	79	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

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 41174
Units: ug/L
Diln Fac: 1

Prep Date: 05/30/98
Analysis Date: 05/30/98

BS Lab ID: QC71767

Analyte	Spike Added	BS	%Rec	#	Limits
Gasoline C7-C12	2000	1902	95		80-119

Surrogate	%Rec	Limits
Trifluorotoluene	139	59-162
Bromofluorobenzene	104	59-162

BSD Lab ID: QC71768

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Gasoline C7-C12	2000	2018	101		80-119	6		12

Surrogate	%Rec	Limits
Trifluorotoluene	142	59-162
Bromofluorobenzene	109	59-162

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

CHAIN OF CUSTODY FORM

133814

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: TVH/BTXE/MTBE	TSH	1,2-DCA
1	MW-14	X				7	1			X			X		05	26	98	1730		X	X	X
2	MW-15	X				7	1			X			X		05	26	98	1845		X	X	X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Dennis Alexander	5/27/98 0855	T. OVERREEO	5/27/98 8:55

COMMENTS & NOTES:

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

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

ANALYTICAL REPORT

Prepared for:

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

Date: 25-JUN-98
Lab Job Number: 133812
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
133812-001	G	41162	05/17/98	05/28/98	06/10/98	

Matrix: Water

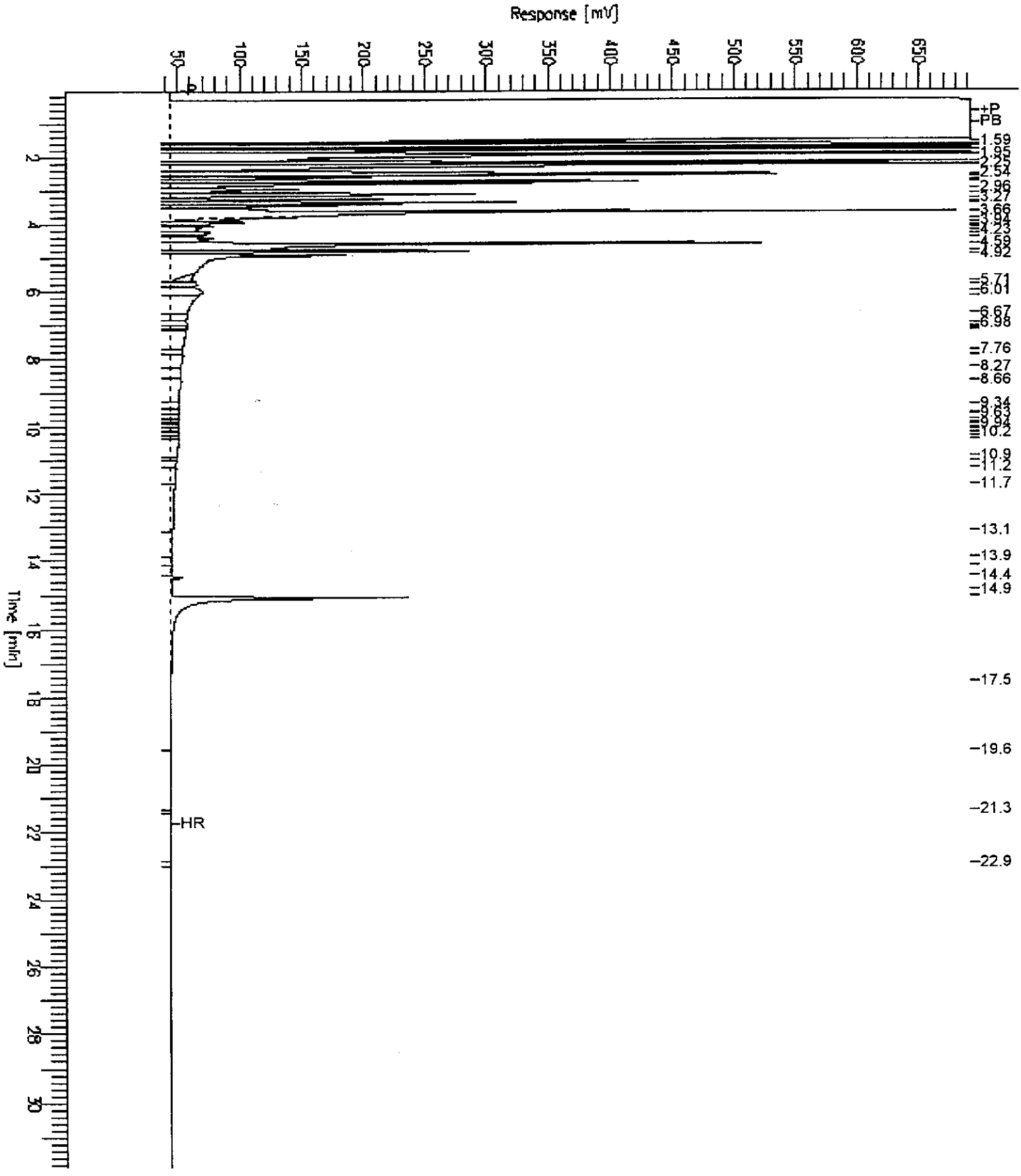
Analyte	Units	133812-001	
Diln Fac:		5	
Diesel C12-C22	ug/L	35000	YL
Surrogate			
Hexacosane	%REC	53	

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

GC15 Channel B TEH

Sample Name : 133814-001,41231
FileName : C:\GC15\CHB\154B064.RAW
Method : B155TEH.MTH
Start Time : 0.07 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 34 mV

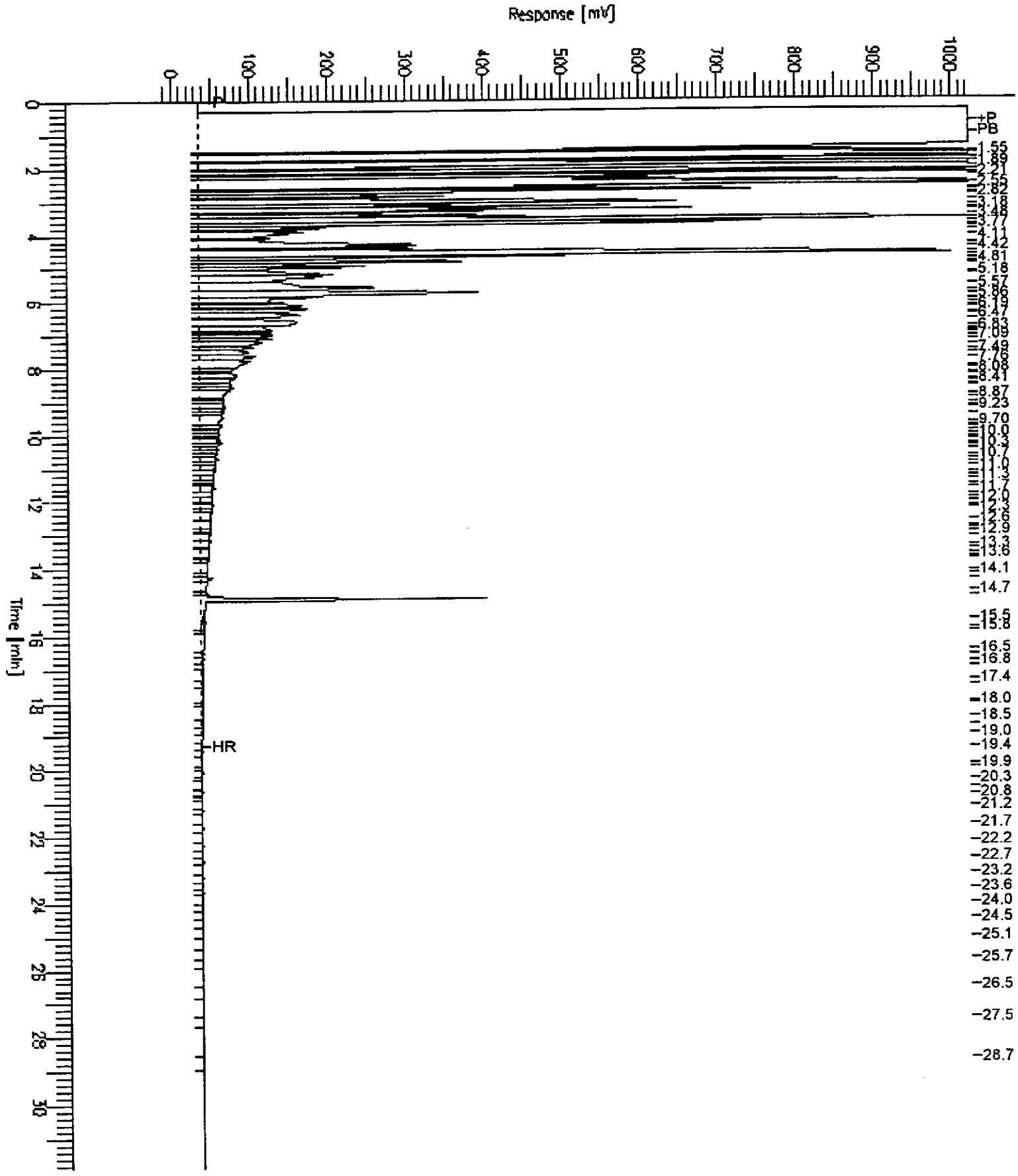
Sample #: 41231 Page 1 of 1
Date : 6/5/98 02:02 PM
Time of Injection: 6/5/98 12:52 PM
Low Point : 34.39 mV High Point : 692.60 mV
Plot Scale: 658.2 mV



GC15 Channel B TEH

Sample Name : 133814-002,41231
FileName : C:\GC15\CHB\1598060.RAW
Method : B155TEH.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -17 mV

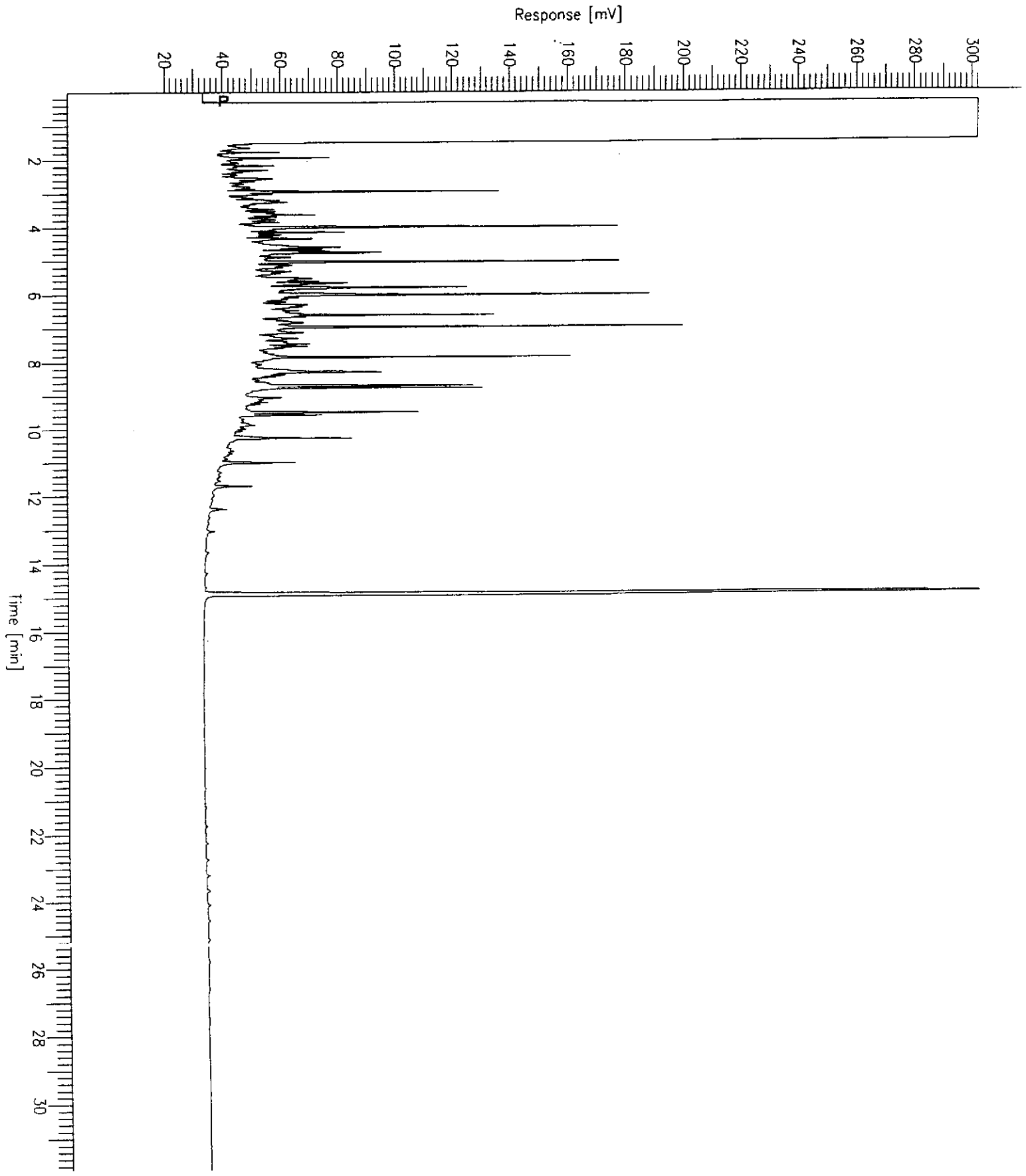
Sample #: 41231 Page 1 of 1
Date : 6/10/98 11:40 AM
Time of Injection: 6/10/98 10:43 AM
Low Point : -16.96 mV High Point : 1024.00 mV
Plot Scale: 1041.0 mV



GC15 Channel B TEH

Sample Name : CCV,98WS5843,DS
FileName : C:\GC15\CHB\159B006.RAW
Method : B155TEH.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 19 mV

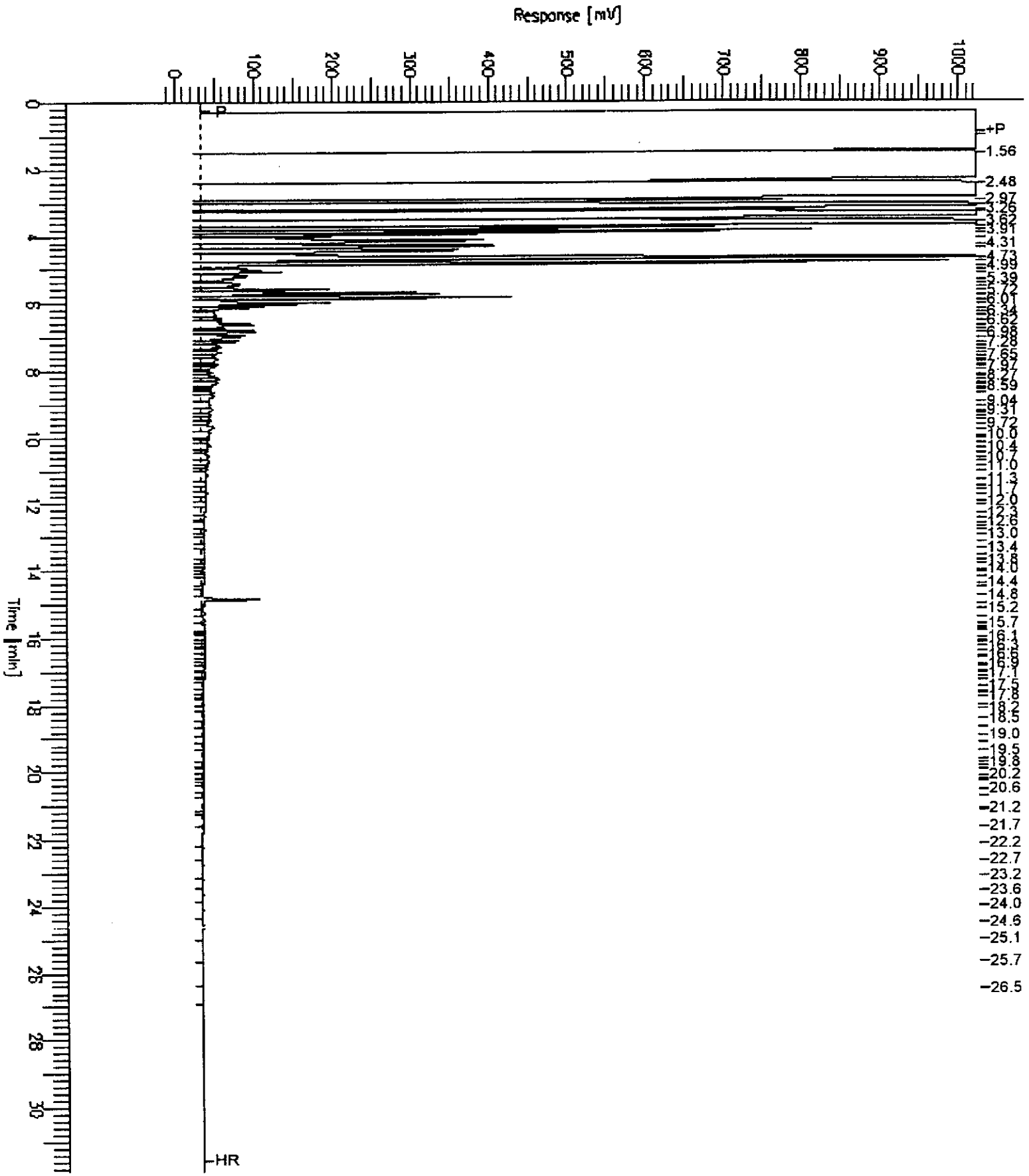
Sample #: 500MG/L
Date : 6/10/98 02:46 PM
Time of Injection: 6/8/98 08:23 PM
Low Point : 18.85 mV High Point : 302.10 mV
Plot Scale: 283.2 mV



GC15 Channel B TEH

Sample Name : 133812-001,41162
FileName : C:\GC15\CHB\159B065.RAW
Method : B155TEH.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -20 mV

Sample #: 41162 Page 1 of 1
Date : 6/10/98 04:27 PM
Time of Injection: 6/10/98 02:20 PM
Low Point : -19.64 mV High Point : 1024.00 mV
Plot Scale: 1043.6 mV

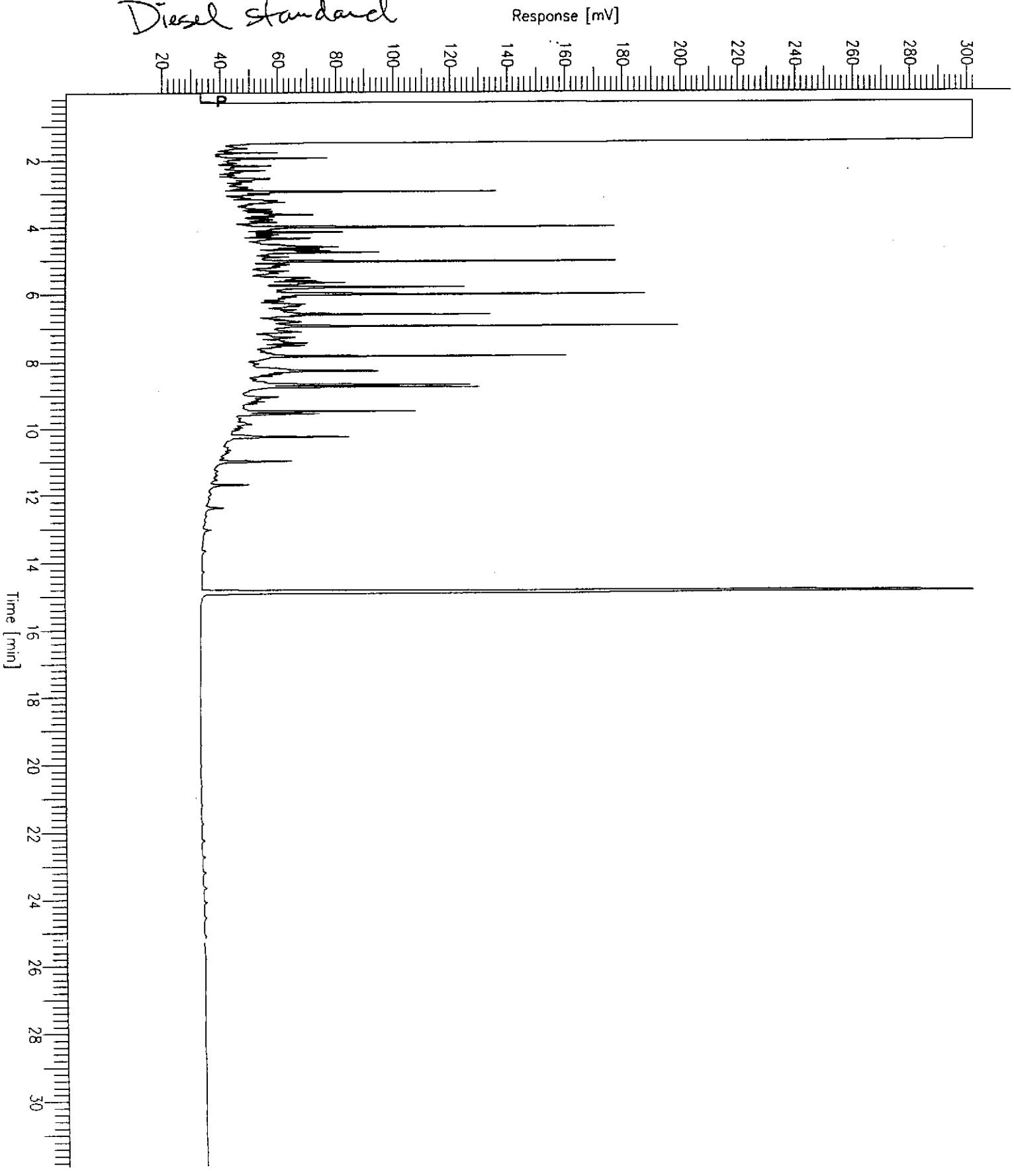


GC15 Channel B TEH

Sample Name : CCV,98WS5843,DS
FileName : C:\GC15\CHB\159B006.RAW
Method : B155TEH.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 19 mV

Sample #: 500MG/L
Date : 6/10/98 02:46 PM
Time of Injection: 6/8/98 08:23 PM
Low Point : 18.85 mV High Point : 302.10 mV
Plot Scale: 283.2 mV

Diesel standard



TEH-Tot Ext Hydrocarbons

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

METHOD BLANK

Matrix:	Water	Prep Date:	05/28/98
Batch#:	41162	Analysis Date:	06/09/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC71719

Analyte	Result
Diesel C12-C22	<50

Surrogate	%Rec	Recovery Limits
Hexacosane	103	53-136

Lab #: 133812

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

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

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	05/28/98
Batch#:	41162	Analysis Date:	06/10/98
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC71720

Analyte	Result	Spike Added	%Rec #	Limits
Diesel C12-C22	2038	2475	82	58-110

Surrogate	%Rec	Limits
Hexacosane	105	53-136

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

CHAIN OF CUSTODY FORM

PROJECT NAME: CONNELL OLDSMOBILE

JOB NUMBER: 447.055 LAB: C&T

PROJECT CONTACT: Meg Mendoza TURNAROUND: STANDARD

SAMPLED BY: John Wolfe REQUESTED BY: Meg Mendoza

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	MATRIX: SOIL	MATRIX: WASTE	MATRIX: AIR	CONTAINERS: VOA	CONTAINERS: LITER	CONTAINERS: PINT	CONTAINERS: TUBE	METHOD PRESERVED: HCL	METHOD PRESERVED: H_2SO_4	METHOD PRESERVED: HNO_3	METHOD PRESERVED: ICE	METHOD PRESERVED: NONE	SAMPLING DATE: MONTH	SAMPLING DATE: DAY	SAMPLING DATE: YEAR	SAMPLING DATE: TIME	NOTES	ANALYSIS REQUESTED: TEH
	G	X					1						X		05	17	98			X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
James Helge	5/26/98 17:30	[illegible]	5/26/98 1730
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

MAY-04-'98 MON 13:49 ID:ALAMEDA CO PUBLIC WK FAX NO:510/670-5262 #246 P01

MAY 04 '98 10:18AM 5102997970SCI P.1/1

Post-it Fax Note 7671 | Date 5/4 | # of pages 1
To ALVIN KAN
Fax# 670-5262
From Meg Mendoza
Phone# 299-7960

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION

951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 7093 BROADWAY OAKLAND CA

California Coordinates Source ________ ft. Accuracy ± ____ ft.
CCN ________ ft. CCE ________ ft.
APN ________

CLIENT W.A. Connell Trust c/o
Name Jonathan Redding
Address 1221 Broadway, 20th floor Phone 510-451-3300
City Oakland Zip 94612

APPLICANT
Name MEG MENDOZA
SUBSURFACE CONSULTANTS Fax 925-299-7970
Address 3736 Mt. Diablo Blvd #200 Phone 925-299-7960
City Lafayette Zip 94549

TYPE OF PROJECT
Well Construction
- Cathodic Protection ☐
- Water Supply ☐
- Monitoring (possible) ☒

Geotechnical Investigation
- General ☐
- Contamination ☒
- Well Destruction ☐

PROPOSED WATER SUPPLY WELL USE
- New Domestic ☐
- Municipal ☐
- Industrial ☐
- Replacement Domestic ☐
- Irrigation ☐
- Other ________ ☐

DRILLING METHOD:
- Mud Rotary ☐
- Cable ☐
- Air Rotary ☐
- Other ☐
- Auger ☒

DRILLER'S LICENSE NO. C57 485165

WELL PROJECTS (Possible)*
Drill Hole Diameter 8 in.
Casing Diameter 2 in.
Surface Seal Depth 15-20 ft.
Maximum Depth 40 ft.
Number 0-3*

GEOTECHNICAL PROJECTS
Number of Borings 7
Hole Diameter 8 in.
Maximum Depth 40 ft.

ESTIMATED STARTING DATE 5/14/98
ESTIMATED COMPLETION DATE 5/18/98

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Meg Mendoza DATE 5/4/98

FOR OFFICE USE

PERMIT NUMBER 98WR185
WELL NUMBER ________
APN ________

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. (circled) Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. (circled) Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS.
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(D) GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

~~E. CATHODIC~~
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED Alvin Kan DATE 5/4/98

*If contamination is encountered, up to 3 monitoring wells may be installed. This will be determined in the field.