Subsurface Consultants, Inc.

December 23, 1998
SCI 1039.007

Strough Family Trust of 1983
c/o Mr. Don Strough
Concord Honda/Pontiac
1300 Concord Avenue
Concord, California 94520

Groundwater Monitoring
October 1998 Quarterly Event and
Monthly Free Product Removal
327 34th Street
Oakland, California

Dear Mr. Strough:

This letter records the results of the October 1998 groundwater monitoring and monthly free product removal events performed by Subsurface Consultants, Inc. (SCI) at 327 34th Street in Oakland, California. The location of the property is shown on the Vicinity Map, Plate 1. The site configuration is shown on the Site Plan, Plate 2.

BACKGROUND

On March 4 and 5, 1993, one 1,000-gallon underground storage tank (UST) containing unleaded gasoline and one 1,000-gallon UST containing waste oil were removed by KTW & Associates/ Subsurface Environmental Corporation under the direction of Alameda County Health Care Services Agency (ACHCSA). Results of chemical analyses on soil samples collected beneath the ends of the gasoline UST indicated impacts by total petroleum hydrocarbons (TPH) as gasoline, and toluene, ethylbenzene, and xylenes. Soil samples from the waste oil UST excavation showed only relatively low concentrations of TPH as diesel, ethylbenzene, and xylenes.

A soil and groundwater investigation was conducted by GeoPlexus, Inc. in 1993 to assess petroleum hydrocarbon impacts to groundwater. GeoPlexus, Inc. installed three groundwater monitoring wells (MW-1 through MW-3; see Plate 2). Analytical testing of soil and groundwater samples from the wells identified impacts from gasoline-range hydrocarbons at two of the wells (MW-2 and MW-3) located downgradient of the former gasoline UST. Approximately 1/4 inch of free floating product was observed in well MW-3. The product was reportedly gasoline.

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171 – 12th Street ▪ Suite 202 ▪ Oakland, California 94607-4911 ▪ 510.268.0461 ▪ FAX 510.268.0137

SCI was retained in September 1997 to evaluate the presence of free floating and dissolved phase petroleum hydrocarbons in existing wells MW-1 through MW-3. Based on results of this study, SCI prepared a Work Plan to perform additional subsurface investigation which was conducted in June 1998. Results of the subsurface investigation were presented in the Report of Groundwater Monitoring Activities and Additional Subsurface Investigation, dated November 17, 1998.

MONITORING ACTIVITIES

Monthly Free Product Removal

In accordance with the approved Work Plan, SCI began measuring separate-phase product thickness and depth-to-water in all the site wells on a monthly basis. Field forms for the September, October, and November 1998 monthly events are attached. Future reporting of the monthly measurements will continue on a quarterly basis.

Groundwater Monitoring Event

On October 1, 1998, depth-to-water and free product thickness were measured in site wells MW-1 through MW-5. Groundwater and free product elevation data are summarized in Table 1. Subsequently, all site wells 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 labeled 55-gallon steel drums and left on-site for later disposal.

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. Copies of the records are presented with the analytical test report.

CHEMICAL ANALYSES

Chemical analyses of 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.
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) and Methyl Tertiary Butyl Ether (MTBE)	EPA 5030	EPA 8260

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

DISCUSSION OF RESULTS

Groundwater Gradient

The gradient near wells MW-1, MW-2, MW-3, and MW-4 is relatively flat with a 0.32-foot difference in elevation between the four points. Well MW-5 located approximately 100 feet southwest of these wells has a groundwater surface elevation approximately 2 feet lower than those of wells MW-1 through MW-4. The groundwater flow direction is not definitive for this site. Topographic relief at the site and the presence of Glen Echo Creek approximately 700' east of the site suggest the groundwater flow direction should be toward the east-southeast. The current groundwater elevation data shows higher elevations in the northern portion of the site and a lower elevation in the southern portion of the site indicating a southerly gradient at odds with what is known of the areal geology.

Free Product

Historically, free product has been detected in two of the site wells (MW-2 and MW-3). Free product was measured only in well MW-2 during this quarter at thickness' decreasing from 0.42 to 0.04 feet. Free product was removed by bailing. Measurable free product was not detected in the four other site wells.

Groundwater Test Results

Elevated levels of gasoline-range petroleum hydrocarbons (or TVH), BTEX, and MTBE were detected in groundwater samples from wells MW-2, MW-3, and MW-4 during this event. Concentrations of TVH and benzene detected in well MW-4 during this event decreased by almost an order of magnitude from results obtained during the previous event. Groundwater samples collected from wells MW-1 and MW-5 did not detect the presence of TVH, BTEX nor MTBE.

CONCLUSIONS

Concentrations of petroleum hydrocarbon compounds are detected in wells with extensive sand and gravel layers (wells MW-2, MW-3, and MW-4). Free product appears to be currently localized in the area of well MW-2. Based on the absence of measurable free product in monitoring well MW-3 and results of analytical testing, subsurface conditions at the site appear to be supporting biodegradation.

ONGOING ACTIVITIES

SCI will continue to remove observed free product in the wells by hand bailing and will continue to 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 December 1998.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

Meg Mendoza
Engineer in Training XE100785

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

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Attachments: Table 1 - Groundwater and Free Product Elevation Data
Table 2 - Summary of Petroleum Hydrocarbon Concentrations in Groundwater
Plate 1 - Vicinity Map
Plate 2 - Site Plan
Field Forms- September 1998 through November 1998
Analytical Test Reports
Chain-of-Custody Documents

cc: Ms. Madhulla Logan
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Mr. Jonathan Redding, Esq.
Fitzgerald, Abbott & Beardsley, LLP
1221 Broadway, 12th Floor
Oakland, California 94612

TABLE 1
GROUNDWATER AND FREE PRODUCT ELEVATION DATA
327 34TH STREET
OAKLAND, CALIFORNIA

Monitoring Well	Date	Elevation[1]	Depth to Groundwater (feet)	Product Thickness (feet)	Groundwater Elevation (feet)	Product Elevation (feet)
MW-1	7/27/93	100.00	20.79[2]	NA	79.21	NA
	10/2/97		21.22	--	78.78	--
	6/30/98		18.21	--	81.79	--
	7/29/98		18.74	--	81.26	--
	8/26/98		19.28	--	80.72	--
	10/1/98		19.93	--	80.07	--
	10/30/98		20.22	--	79.78	--
	11/30/98		19.99	--	80.01	--
MW-2	7/27/93	101.27	22.10[2]	NA	79.17	NA
	10/2/97		22.91	0.43	78.36	78.79
	6/30/98		19.69	0.45	81.58	82.03
	7/29/98		20.11	0.29	81.16	81.45
	8/26/98		20.54	0.08	80.73	80.81
	10/1/98		21.52	0.42	79.75	80.17
	10/30/98		21.54	0.10	79.73	79.83
	11/30/98		21.21	0.04	80.06	80.10
MW-3	7/27/93	101.29	22.28[2]	0.02	79.01	79.03
	10/2/97		22.71	0.03	78.58	78.61
	6/30/98		19.47	--	81.82	--
	7/29/98		20.01	--	81.28	--
	8/26/98		20.62	--	80.67	--
	10/1/98		21.33	--	79.96	--
	10/30/98		21.62	--	79.67	--
	11/30/98		21.31	--	79.98	--
MW-4	6/30/98	98.65	16.93	--	81.72	--
	7/29/98		17.48	--	81.17	--
	8/26/98		18.65	--	80.00	--
	10/1/98		18.74	--	79.91	--
	10/30/98		19.02	--	79.63	--
	11/30/98		18.74	--	79.91	--
MW-5	6/30/98	100.9	20.60	--	80.30	--
	7/29/98		21.52	--	79.38	--
	8/26/98		22.21	--	78.69	--
	10/1/98		22.95	--	77.95	--
	10/30/98		23.23	--	77.67	--
	11/30/98		23.13	--	77.77	--

[1] Elevations are referenced to monitoring well MW-1, with an assumed datum of 100.00 feet.

[2] Measurements by others

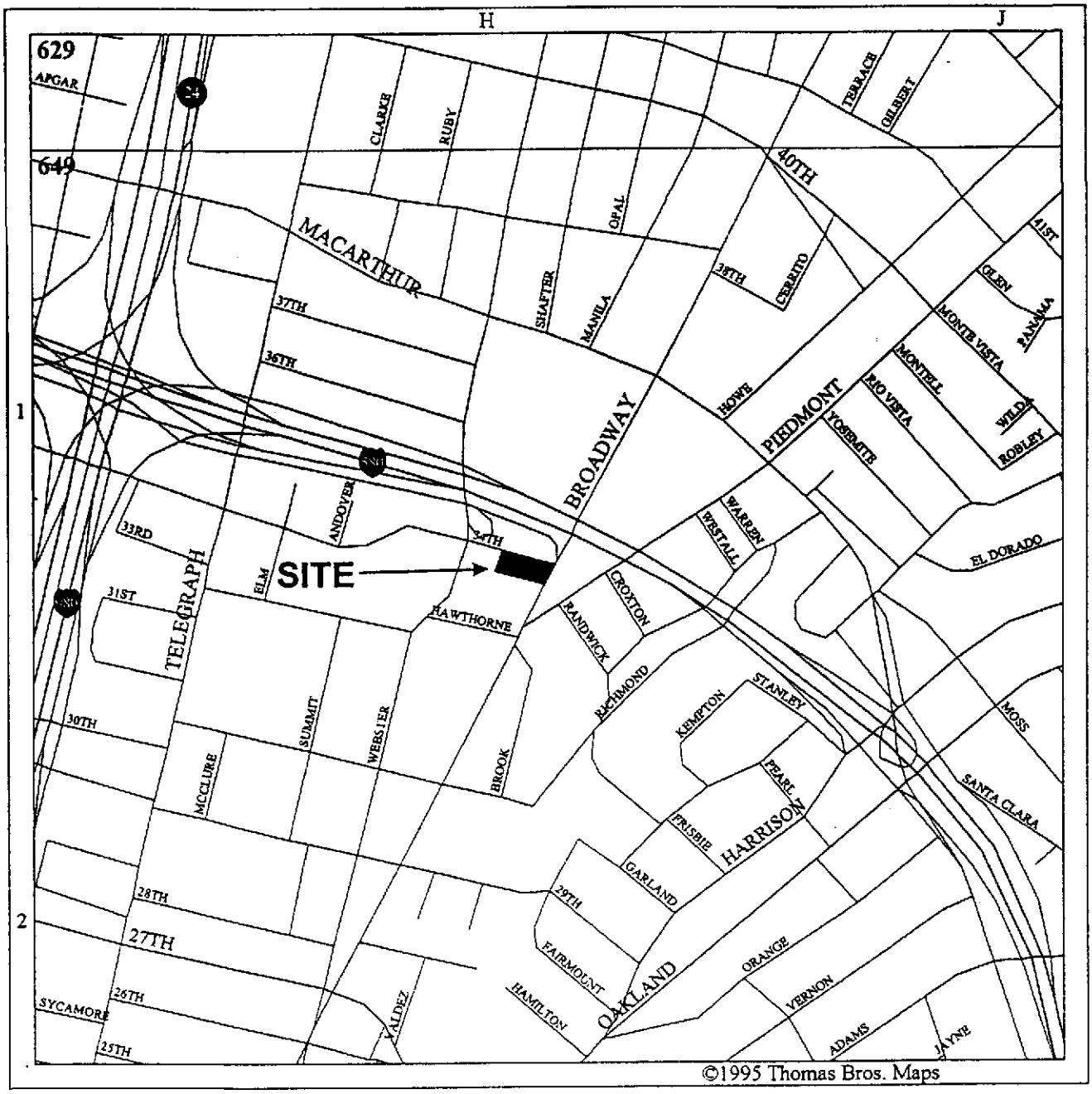
-- Product not observed

NA = Data not available

TABLE 2
SUMMARY OF PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUNDWATER
327 34TH STREET
OAKLAND, CALIFORNIA

Location	Date	Groundwater Elevation† (feet)	TVH (µg/l)	TEH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)	Oil & Grease (mg/l)
MW-1	7/27/93	79.21	<50	<50	<0.5	<0.5	<0.5	<0.5	--	<5
	10/2/97	78.78	<50	--	<0.5	<0.5	<0.5	<0.5	<2	--
	6/30/98	81.79	84	--	<0.5	<0.5	2.1	0.55	2.1	--
	10/1/98	**80.07**	**<50**	--	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**<2.0**	--
MW-2	7/27/93	79.17	120,000	--	10,000	27,000	2,900	20,000	--	--
	10/2/97	78.36	*	--	*	*	*	*	*	*
	6/30/98	81.58	72,000	--	7,300	18,000	2,500	15,600	5,500	--
	10/1/98	**79.75**	**84,000**	--	**6,400**	**17,000**	**2,600**	**17,000**	**2,000**	--
MW-3	7/27/93	79.01	330,000	--	9,100	24,000	5,300	33,000	--	--
	10/2/97	78.58	36,000	--	4,200	11,000	1,800	10,600	3,500	--
	6/30/98	81.82	51,000	--	4,800	11,000	1,200	7,100	3,900	--
	10/1/98	**79.96**	**38,000**	--	**3,900**	**8,500**	**1,200**	**6,000**	**2,300**	--
MW-4	6/30/98	81.72	10,000	--	2,200	930	850	2,100	1,800	--
	10/1/98	**79.91**	**1,100**	--	**570**	**46**	**130**	**36**	**1,300**	--
MW-5	6/30/98	78.69	<50	--	<0.5	<0.5	<0.5	<0.5	23	--
	10/1/98	**77.95**	**<50**	--	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**<2.0**	--

NOTES:
TVH = Total volatile hydrocarbons as gasoline
TEH = Total extractable hydrocarbons as diesel
MTBE= Methyl tertiary butyl ether
-- = Not analyzed
mg/l = milligrams per liter
µg/l = micrograms per liter
ND = Not detected at concentrations above reporting limits
* = This sample contained free-product and was found to resemble weathered gasoline as determined by fuel fingerprint analysis.
†= Arbitrary datum



N

APPROXIMATE SCALE (feet)

0 800 1600

VICINITY MAP

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

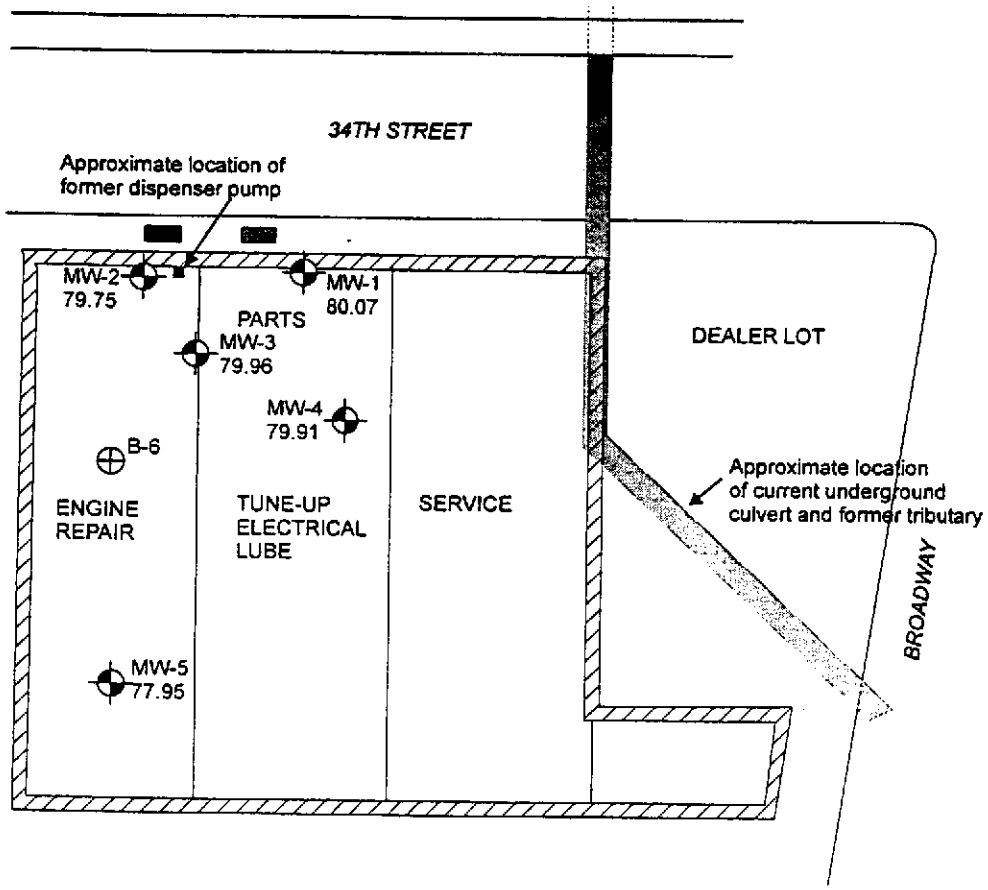
327 34TH STREET
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
1039.007	12/22/98	

PLATE 1

LEGEND

- Limits of site structures
- Monitoring well location
- 80.07 Groundwater elevation (10/1/98)
- Boring location
- Approximate location of former underground storage tank



N

APPROXIMATE SCALE (feet)

0 60 120

SITE PLAN

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

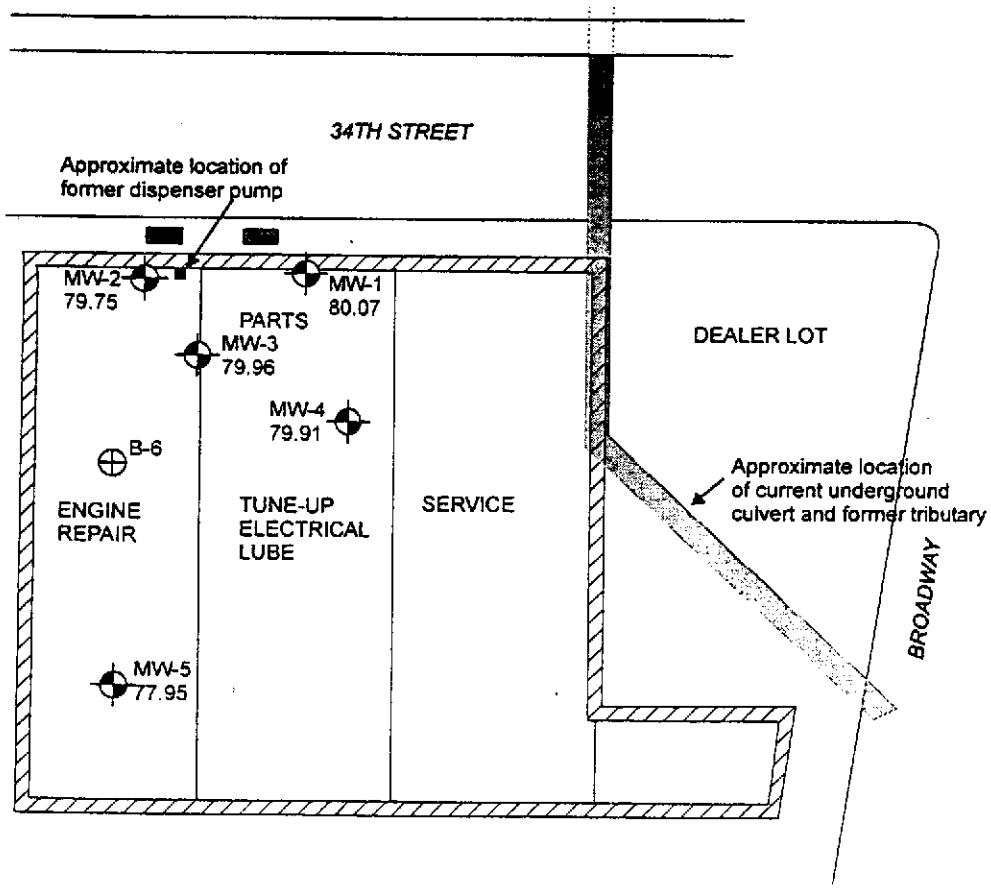
327 34TH STREET
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
1039.007	12/21/98	

PLATE 2

LEGEND

- Limits of site structures
- Monitoring well location
- 80.07 Groundwater elevation (10/1/98)
- Boring location
- Approximate location of former underground storage tank



N

APPROXIMATE SCALE (feet)

0 60 120

SITE PLAN

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

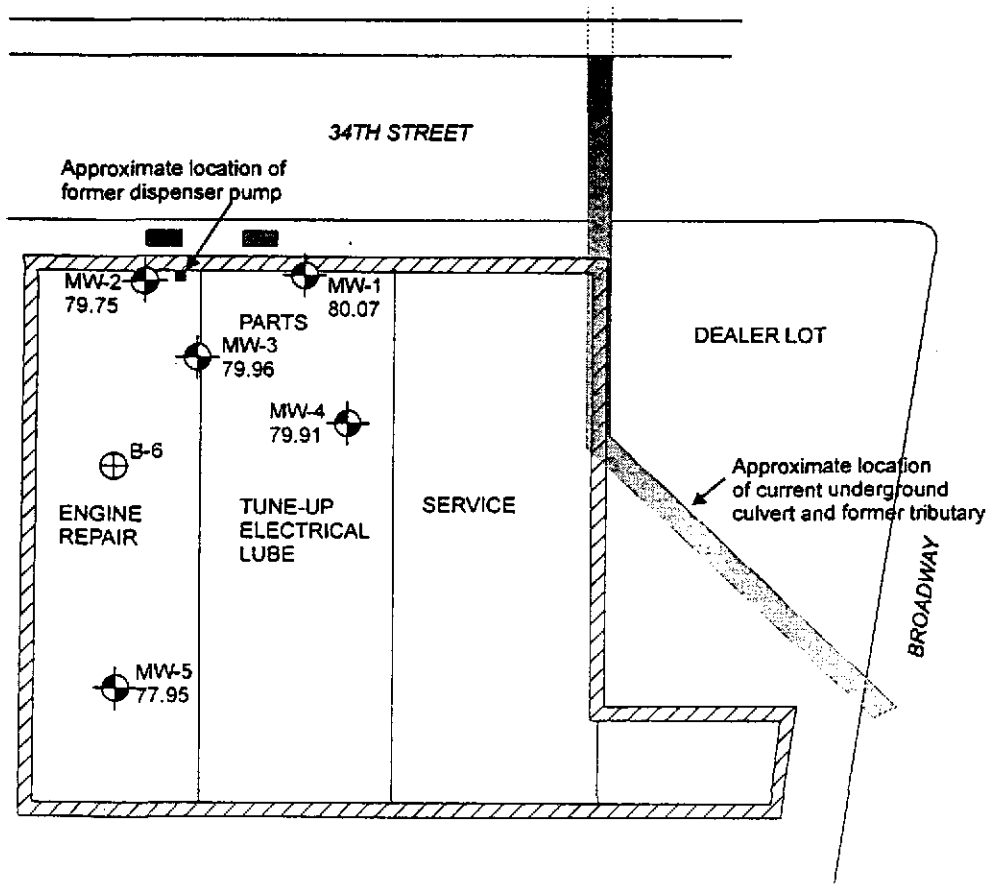
327 34TH STREET
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
1039.007	12/21/98	

PLATE 2

LEGEND

- Limits of site structures
- Monitoring well location
- 80.07 — Groundwater elevation (10/1/98)
- Boring location
- Approximate location of former underground storage tank



N

APPROXIMATE SCALE (feet)

0 60 120

SITE PLAN

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

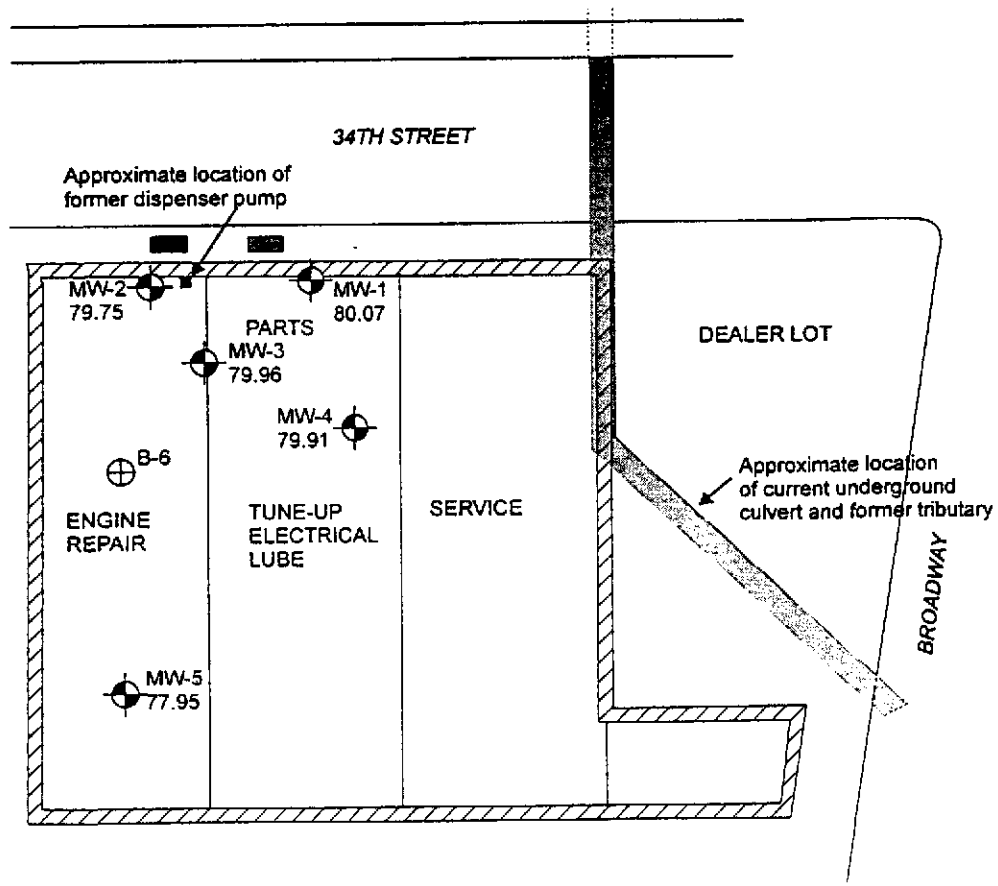
327 34TH STREET
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
1039.007	12/21/98	

PLATE 2

LEGEND

- Limits of site structures
- Monitoring well location
- 80.07 Groundwater elevation (10/1/98)
- Boring location
- Approximate location of former underground storage tank



N

APPROXIMATE SCALE (feet)

0 60 120

SITE PLAN

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

327 34TH STREET
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
1039.007	12/21/98	

PLATE 2

GROUNDWATER DEPTHS

Project Name: 327 34th St.

Job No.: 1039.007

Measured by: DWA

SEPT. EVENT

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	10/1/98	0815	19.93	no product
MW-2		0820	21'6 1/4"	Top of Product = 21'1/4" Product thickness = 5" 1/4" visible in bailer " Baled = 40ml
MW-3		0825	21.33	no product
MW-4		0805	18.74	no product
MW-5	↓	0810	22.95	no product

WELL SAMPLING FORM

Project Name: 327 34th St. Well Number: MW-1

Job No.: 1039.007 Well Casing Diameter: 2 inches

Sampled By: DWA Date: 10/1/98

TOC Elevation: _____ Weather: foggy

Depth to Casing Bottom (below TOC) 32.00 feet

Depth to Groundwater Before Purging (below TOC) 19.93 feet

Feet of Water in Well 12.07 feet

Depth to Groundwater When 80% Recovered 22.34 feet

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

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

Free Product none

Purge Method disposable bailer fast recharge

FIELD MEASUREMENTS

D.O. = 3.6 ppm
CO_2 = 192 ppm

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	~~Salinity~~ S%	Comments
0		6.67	18.5	700		clear/no odor
2		6.48	18.5	775		↓
4		6.46	18.5	800		semi-clear
6		6.49	18.5	800		↓

Total Gallons Purged 6 gallons

Depth to Groundwater Before Sampling (below TOC) 21.70 feet

Sampling Method disposable bailer

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

Subsurface Consultants

JOB NUMBER DATE APPROVED PLATE

WELL SAMPLING FORM

Project Name: 327 34th St. Well Number: MW-2

Job No.: 1039.007 Well Casing Diameter: 2 inches

Sampled By: DWT Date: 10/1/98

TOC Elevation: _____ Weather: foggy

Depth to Casing Bottom (below TOC) 33.00 feet

Depth to Groundwater Before Purging (below TOC) 21.53 feet

Feet of Water in Well 11.47 feet

Depth to Groundwater When 80% Recovered 23.82 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 5" thickness measured - 1¼" visible in bailer

Purge Method disposable bailer

immediate recharge

FIELD MEASUREMENTS

D.O. = 2.7 ppm
CO_2 = 230 ppm

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	~~Salinity~~ S%	Comments
0		6.52	18.5	275		clear / strong odor + sheen
2		6.41	18.5	405		murky
4		6.43	18.5	460		
6		6.47	18.5	460		

Total Gallons Purged 6 gallons

Depth to Groundwater Before Sampling (below TOC) 21.53 feet

Sampling Method disposable bailer

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

Subsurface Consultants	JOB NUMBER	DATE	APPROVED	PLATE

WELL SAMPLING FORM

Project Name: 327 34th St. Well Number: MW-3

Job No.: 1039.007 Well Casing Diameter: 2 inches

Sampled By: DWA Date: 10/1/98

TOC Elevation: _____ Weather: foggy

Depth to Casing Bottom (below TOC) 34.00 feet

Depth to Groundwater Before Purging (below TOC) 21.33 feet

Feet of Water in Well 12.67 feet

Depth to Groundwater When 80% Recovered 23.86 feet

Casing Volume (feet of water x Casing DIA ² x 0.0408) 2.1 gallons

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

Free Product none

Purge Method disposable bailer

FIELD MEASUREMENTS

immediate Recharge

D.O. = 2.1 ppm
CO_2 = 240 ppm

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	~~Salinity~~ S%	Comments
1		6.63	18.0	675		murky/strong odor w/sheen
3		6.65	18.5	725		
5		6.64	18.5	725		
7		6.65	18.5	725		

Total Gallons Purged 7 gallons

Depth to Groundwater Before Sampling (below TOC) 21.43 feet

Sampling Method disposable bailer

Containers Used 6/7 (40 ml) _____ (liter) _____ (pint) _____

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JOB NUMBER DATE APPROVED PLATE

WELL SAMPLING FORM

Project Name: 327 34th St. Well Number: MW-4

Job No.: 1039.007 Well Casing Diameter: 2 inches

Sampled By: DWA Date: 10/1/98

TOC Elevation: _____ Weather: foggy

Depth to Casing Bottom (below TOC) 31.00 feet

Depth to Groundwater Before Purging (below TOC) 18.74 feet

Feet of Water in Well 12.26 feet

Depth to Groundwater When 80% Recovered 21.19 feet

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

Depth Measurement Method Tape & Paste / Electronic Sounder / Other

Free Product none

Purge Method disposable bailer fast recharge

FIELD MEASUREMENTS

D.O. = 3.4 ppm
CO_2 = 320 ppm

Gallons Removed	Time	pH	Temp °C / °F	Conductivity (micromhos/cm)	~~Salinity~~ S%	Comments
0		6.69	19.0	800		clear/no odor
2		6.73	18.5	875		murky
4		6.71	18.5	850		
6		6.71	18.5	850		

Total Gallons Purged 6 gallons

Depth to Groundwater Before Sampling (below TOC) 19.05 feet

Sampling Method disposable bailer

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

Subsurface Consultants

JOB NUMBER DATE APPROVED PLATE

WELL SAMPLING FORM

Project Name: 327 34th St. Well Number: MW-5

Job No.: 1039.007 Well Casing Diameter: 2 inches

Sampled By: DWA Date: 10/1/98

TOC Elevation: _____ Weather: foggy

Depth to Casing Bottom (below TOC) 31.00 feet

Depth to Groundwater Before Purging (below TOC) 22.95 feet

Feet of Water in Well 8.05 feet

Depth to Groundwater When 80% Recovered 24.56 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

D.O. = 4.8 ppm
CO_2 = 256 ppm

Gallons Removed	Time	pH	Temp (°C / °F)	Conductivity (micromhos/cm)	~~Salinity~~ S%	Comments
1		6.41	18.0	340		murky/no odor
2		6.54	18.0	375		
3		6.64	18.0	355		
4		6.71	18.0	390		
[illegible]						

Total Gallons Purged [illegible]4 gallons

Depth to Groundwater Before Sampling (below TOC) 23.11 feet

Sampling Method disposable bailer

Containers Used 4 (40 ml) _____ (liter) _____ (pint) _____

Subsurface Consultants

JOB NUMBER DATE APPROVED PLATE

GROUNDWATER DEPTHS

Project Name: 327 34th St.

Job No.: 1039.007

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	10/30/98	0855	20.22	no product
MW-2		0910	21' 6 7/16"	Top of Product = 21' 5 3/16" Product thickness = 1 1/4" Bailed = insignificant
MW-3		0905	21.62	no product (strong odor)
MW-4		0835	19.02	no product
MW-5		0845	23.23	no product
				* extremely faint ring in bailer
				* 10 drums on site (9 full)

GROUNDWATER DEPTHS

Project Name: 327 34th St.

Job No.: 1039.007

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-1	11/30/98	0915	19.99	
MW-2		0935	21' 2½"	Top of Product = 21' 2" Product thickness = 1/2" nothing visible in bailer Bailed = none.
MW-3		0925	21.31	
MW-4		0910	18.74	
MW-5	↓	0920	23.13	
				* 9 full drums of purge water + soil cuttings as of today.

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

ANALYTICAL REPORT

Prepared for:

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

Date: 17-OCT-98
Lab Job Number: 135852
Project ID: 1039.007
Location: 327 34th St.

Reviewed by: _____

Reviewed by: _____

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260
Project#:	1039.007	Prep Method:	EPA 5030
Location:	327 34th St.		

Field ID:	MW-1	Sampled:	10/01/98
Lab ID:	135852-001	Received:	10/01/98
Matrix:	Water	Extracted:	10/15/98
Batch#:	43982	Analyzed:	10/15/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
MTBE	ND	2.0
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	89	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	100	84-115

Curtis & Tompkins, Ltd.

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260
Project#:	1039.007	Prep Method:	EPA 5030
Location:	327 34th St.		

Field ID:	MW-2	Sampled:	10/01/98
Lab ID:	135852-002	Received:	10/01/98
Matrix:	Water	Extracted:	10/15/98
Batch#:	44013	Analyzed:	10/15/98
Units:	ug/L		
Diln Fac:	125		

Analyte	Result	Reporting Limit
MTBE	2000	250
Benzene	6400	130
Toluene	17000	130
Ethylbenzene	2600	130
m,p-Xylenes	12000	130
o-Xylene	5000	130

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

Curtis & Tompkins, Ltd.

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260
Project#:	1039.007	Prep Method:	EPA 5030
Location:	327 34th St.		

Field ID:	MW-3	Sampled:	10/01/98
Lab ID:	135852-003	Received:	10/01/98
Matrix:	Water	Extracted:	10/15/98
Batch#:	44013	Analyzed:	10/15/98
Units:	ug/L		
Diln Fac:	62.5		

Analyte	Result	Reporting Limit
MTBE	2300	130
Benzene	3900	63
Toluene	8500	63
Ethylbenzene	1200	63
m,p-Xylenes	4200	63
o-Xylene	1800	63

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	94	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	101	84-115

Curtis & Tompkins, Ltd.

Aromatic Volatile Organics
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8260
Prep Method: EPA 5030

Field ID: MW-4
Lab ID: 135852-004
Matrix: Water
Batch#: 44013
Units: ug/L
Diln Fac: 7.143

Sampled: 10/01/98
Received: 10/01/98
Extracted: 10/15/98
Analyzed: 10/15/98

Analyte	Result	Reporting Limit
MTBE	1300	14
Benzene	570	7.1
Toluene	46	7.1
Ethylbenzene	130	7.1
m,p-Xylenes	15	7.1
o-Xylene	21	7.1

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	95	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	101	84-115

Curtis & Tompkins, Ltd.

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260
Project#:	1039.007	Prep Method:	EPA 5030
Location:	327 34th St.		

Field ID:	MW-5	Sampled:	10/01/98
Lab ID:	135852-005	Received:	10/01/98
Matrix:	Water	Extracted:	10/15/98
Batch#:	43982	Analyzed:	10/15/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
MTBE	ND	2.0
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	88	85-121
Toluene-d8	102	92-110
Bromofluorobenzene	102	84-115

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8260
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 43982
Units: ug/L
Diln Fac: 1

Prep Date: 10/14/98
Analysis Date: 10/14/98

MB Lab ID: QC82189

Analyte	Result	Reporting Limit
MTBE	ND	2.0
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	87	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	99	84-115

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260
Project#:	1039.007	Prep Method:	EPA 5030
Location:	327 34th St.		

METHOD BLANK

Matrix:	Water	Prep Date:	10/14/98
Batch#:	43982	Analysis Date:	10/14/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC82190

Analyte	Result	Reporting Limit
MTBE	ND	2.0
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	88	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	100	84-115

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260
Project#:	1039.007	Prep Method:	EPA 5030
Location:	327 34th St.		

METHOD BLANK

Matrix:	Water	Prep Date:	10/15/98
Batch#:	44013	Analysis Date:	10/15/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC82310

Analyte	Result	Reporting Limit
MTBE	ND	2.0
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	98	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	104	84-115

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8260
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 44013
Units: ug/L
Diln Fac: 1

Prep Date: 10/15/98
Analysis Date: 10/15/98

MB Lab ID: QC82311

Analyte	Result	Reporting Limit
MTBE	ND	2.0
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	95	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	112	84-115

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8260
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 135883-003
Matrix: Water
Batch#: 43982
Units: ug/L
Diln Fac: 1

Sample Date: 09/30/98
Received Date: 10/02/98
Prep Date: 10/14/98
Analysis Date: 10/14/98

MS Lab ID: QC82198

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	50	<1	45.26	91	80-116
Toluene	50	<1	50.62	101	82-114

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	88	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	97	84-115

MSD Lab ID: QC82199

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	50	46.27	93	80-116	2	10
Toluene	50	51.31	103	82-114	1	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	86	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	96	84-115

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260
Project#:	1039.007	Prep Method:	EPA 5030
Location:	327 34th St.		

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix:	Water	Prep Date:	10/15/98
Batch#:	44013	Analysis Date:	10/15/98
Units:	ug/L		
Diln Fac:	1		

BS Lab ID: QC82308

Analyte	Spike Added	BS	%Rec	#	Limits
Benzene	50	49.95	100		87-117
Toluene	50	52.94	106		88-116

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	88	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	100	84-115

BSD Lab ID: QC82309

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Benzene	50	46.69	93		87-117	7		10
Toluene	50	49.43	99		88-116	7		10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	88	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	100	84-115

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

BATCH QC REPORT

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8260
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 43982
Units: ug/L
Diln Fac: 1

Prep Date: 10/14/98
Analysis Date: 10/14/98

LCS Lab ID: QC82188

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	45.99	50	92	87-117
Toluene	50.64	50	101	88-116

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	87	85-121
Toluene-d8	101	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 2 outside limits

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
135852-001	MW-1	43779	10/01/98	10/04/98	10/04/98	
135852-002	MW-2	43779	10/01/98	10/04/98	10/04/98	
135852-003	MW-3	43868	10/01/98	10/08/98	10/08/98	
135852-004	MW-4	43779	10/01/98	10/04/98	10/04/98	

Matrix: Water

Analyte Diln Fac:	Units	135852-001 1	135852-002 10	135852-003 10	135852-004 1
Gasoline C7-C12	ug/L	<50	84000	38000	1100
Surrogate					
Trifluorotoluene	%REC	95	103	113	112
Bromofluorobenzene	%REC	106	129	139	115

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
135852-005	MW-5	43779	10/01/98	10/04/98	10/04/98	

Matrix: Water

Analyte	Units	135852-005
Diln Fac:		1
Gasoline C7-C12	ug/L	<50
Surrogate		
Trifluorotoluene	%REC	84
Bromofluorobenzene	%REC	98

Lab #: 135852

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8015M
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 43779
Units: ug/L
Diln Fac: 1

Prep Date: 10/03/98
Analysis Date: 10/03/98

MB Lab ID: QC81461

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	78	59-162
Bromofluorobenzene	86	59-162

Lab #: 135852

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	1039.007	Prep Method:	EPA 5030
Location:	327 34th St.		

METHOD BLANK

Matrix:	Water	Prep Date:	10/08/98
Batch#:	43868	Analysis Date:	10/08/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC81790

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	109	59-162
Bromofluorobenzene	116	59-162

Lab #: 135852

BATCH QC REPORT

Curtis & Tompkins Ltd.

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 43779
Units: ug/L
Diln Fac: 1

Prep Date: 10/03/98
Analysis Date: 10/03/98

LCS Lab ID: QC81459

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	2047	2000	102	80-119

Surrogate	%Rec	Limits
Trifluorotoluene	98	59-162
Bromofluorobenzene	138	59-162

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

Lab #: 135852

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 43868
Units: ug/L
Diln Fac: 1

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

LCS Lab ID: QC81788

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1837	2000	92	80-119

Surrogate	%Rec	Limits
Trifluorotoluene	130	59-162
Bromofluorobenzene	123	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
NM: Not meaningful

Lab #: 135852

BATCH QC REPORT

Curtis & Jenkins Ltd.

Page 1 of 1

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 135806-001
Matrix: Water
Batch#: 43779
Units: ug/L
Diln Fac: 1

Sample Date: 09/22/98
Received Date: 09/23/98
Prep Date: 10/04/98
Analysis Date: 10/04/98

MS Lab ID: QC81462

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	174.8	2224	102	71-131

Surrogate	%Rec	Limits
Trifluorotoluene	107	59-162
Bromofluorobenzene	154	59-162

MSD Lab ID: QC81463

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2205	102	71-131	1	26

Surrogate	%Rec	Limits
Trifluorotoluene	98	59-162
Bromofluorobenzene	143	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

Lab #: 135852

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 1039.007
Location: 327 34th St.

Analysis Method: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 135925-003
Matrix: Water
Batch#: 43868
Units: ug/L
Diln Fac: 1

Sample Date: 09/30/98
Received Date: 10/03/98
Prep Date: 10/08/98
Analysis Date: 10/08/98

MS Lab ID: QC81791

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	1917	96	71-131

Surrogate	%Rec	Limits
Trifluorotoluene	134	59-162
Bromofluorobenzene	133	59-162

MSD Lab ID: QC81792

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	1940	97	71-131	1	26

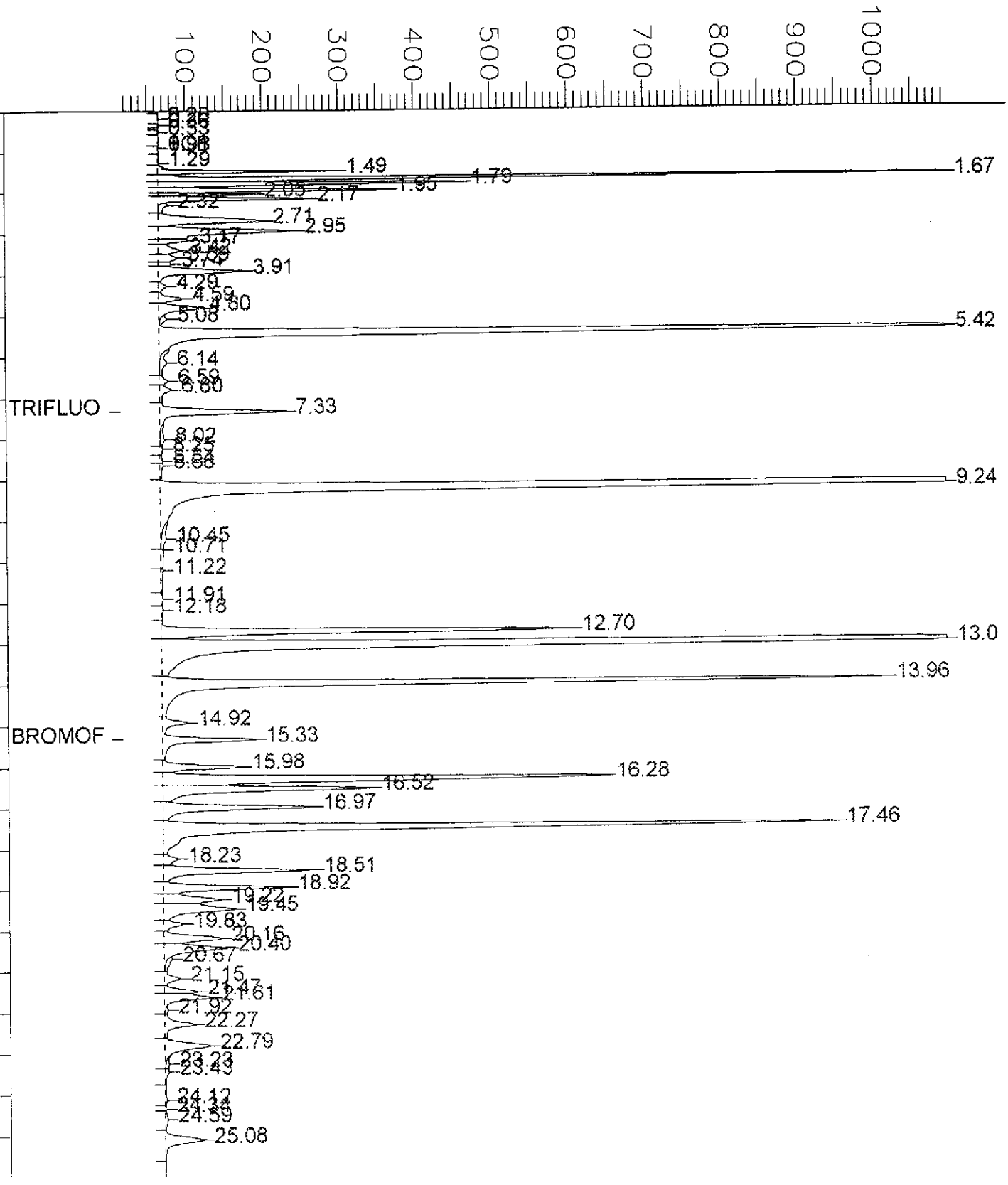
Surrogate	%Rec	Limits
Trifluorotoluene	134	59-162
Bromofluorobenzene	136	59-162

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

GC04 TVH 'J' Data File Rtx1FID

Sample Name : d,135852-002a,43779
FileName : G:\GC04\DATA\276J034.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 13 mV

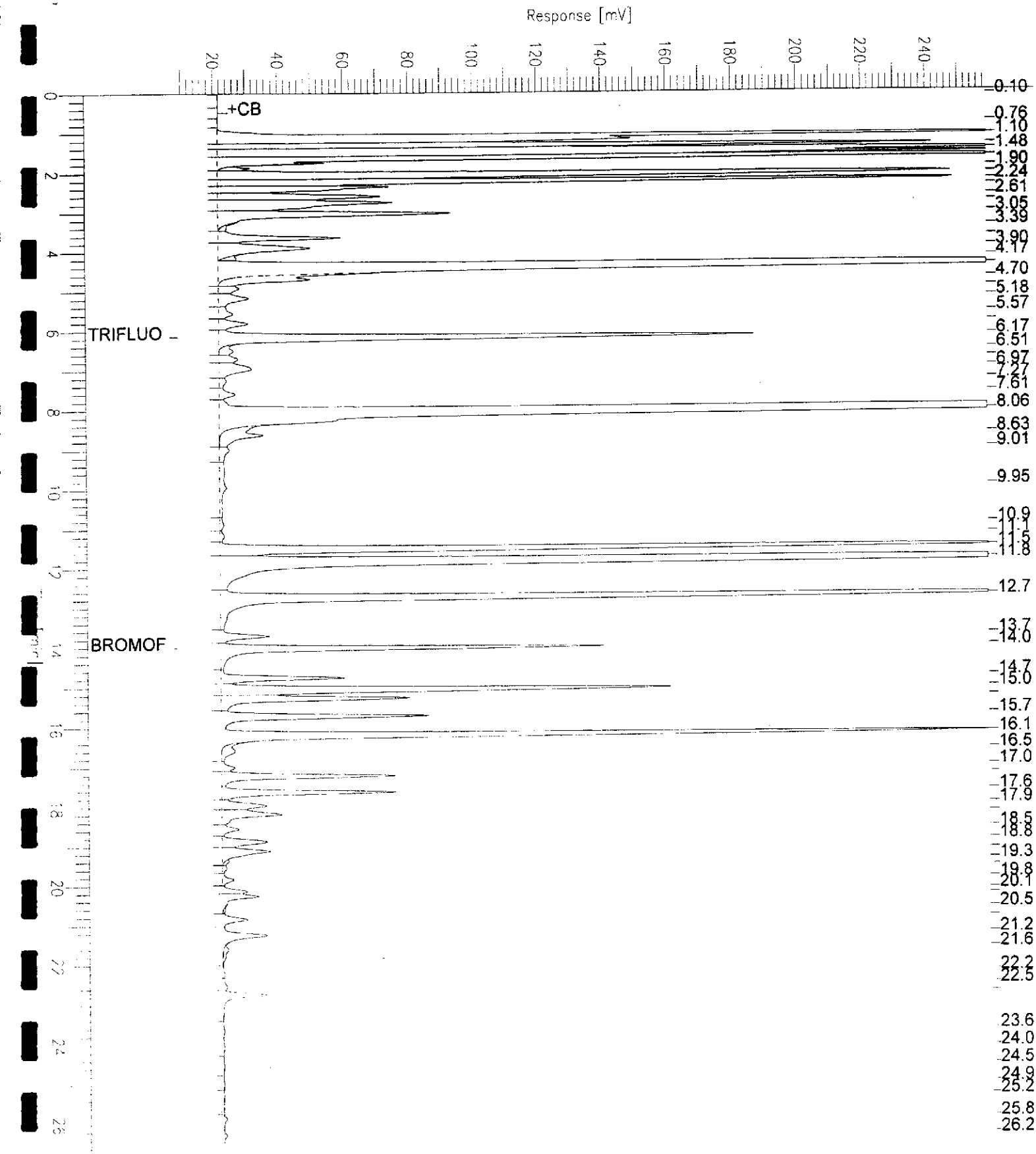
Sample #: ph<2,1:10 Page 1 of 1
Date : 10/4/98 06:15 PM
Time of Injection: 10/4/98 05:49 PM
Low Point : 13.48 mV High Point : 1094.35 mV
Plot Scale: 1080.9 mV



GC05 'G' File TVH

mple Name : RR,D,135852-003,43868,
leName : G:\GC05\DATA\281G006.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
ale Factor: -1.0 Plot Offset: 9 mV

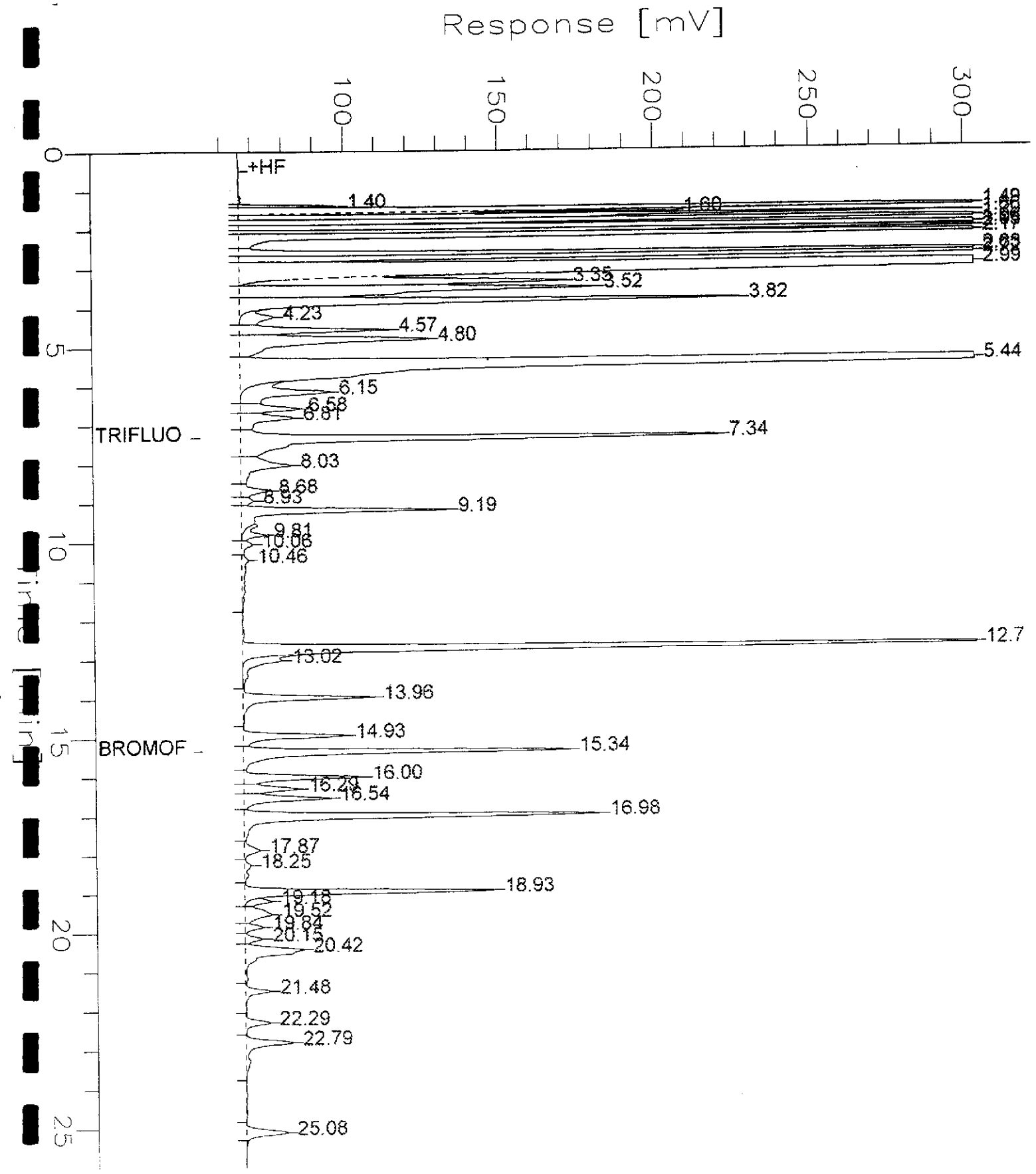
Sample #:
Date : 10/8/98 02:42 PM
Time of Injection: 10/8/98 02:15 PM
Low Point : 8.93 mV High Point : 258.93 mV
Plot Scale: 250.0 mV



GC04 TVH 'J' Data File Rtx1FID

Sample Name : s,135852-004a,43779
FileName : G:\GC04\DATA\276J030.RAW
Method :
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: -1.0 Plot Offset: 53 mV

Sample #: ph<2
Date : 10/5/98 04:07 PM
Time of Injection: 10/4/98 03:21 PM
Low Point : 53.41 mV High Point : 303.41 mV
Plot Scale: 250.0 mV

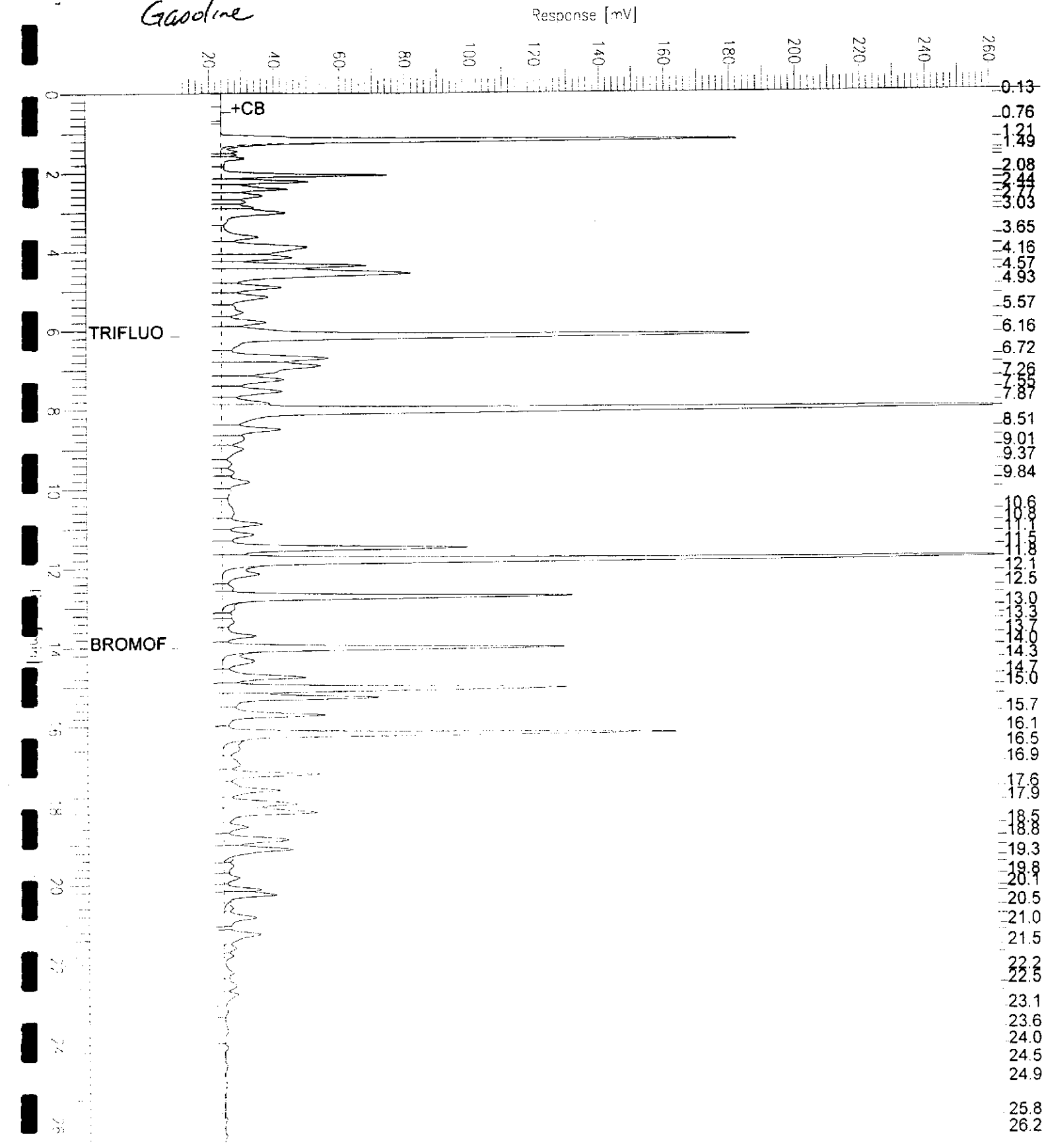


GC05 'G' File TVH

mple Name : CCV/LCS,QC81788,98WS6477,43868,
leName : G:\GC05\DATA\281G002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
ale Factor: -1.0 Plot Offset: 11 mV

Sample #: GAS Page 1 of 1
Date : 10/8/98 12:15 PM
Time of Injection: 10/8/98 11:48 AM
Low Point : 10.91 mV High Point : 260.91 mV
Plot Scale: 250.0 mV

Gasoline



CHAIN OF CUSTODY FORM

135852

PAGE ____ OF ____

PROJECT NAME: 327 34th St.

JOB NUMBER: 1039.007

PROJECT CONTACT: Meg Mendoza

SAMPLED BY: Dennis Alexander

LAB: Curtis + Tompkins

TURNAROUND: Normal

REQUESTED BY: Meg Mendoza

ANALYSIS REQUESTED: TVH, BTXE → 8260, MTBE

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	MW-1	X				7				X			X		10	01	98	0930	
-2	MW-2	X				7				X			X					1415	*
-3	MW-3	X				7				X			X					1330	
-4	MW-4	X				7				X			X					1100	
-5	MW-5	X				7				X			X		10	01	98	1200	

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RELEASED BY: (Signature)	DATE / TIME
Dennis Alexander	10/1/98 1440	[signature]	10/1/98 1440
RELEASED BY: (Signature)	DATE / TIME	RELEASED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RELEASED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RELEASED BY: (Signature)	DATE / TIME

COMMENTS & NOTES: * MW-2 has product in well. Probable high concentrations in sample.

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