Subsurface Consultants, Inc.

MTBE confirmed in well MW-2 only.
Next QMR only need to look for
MTBE w/ Method 8020B or
equivalent.

ENVIRONMENTAL PROTECTION
99 JUL 26 PM 3:41

July 23, 1999
SCI 838.006

Ms. Eva Chu
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway #250
Alameda, California 94502-6577

Groundwater Monitoring Event
June 1999
2801 MacArthur Boulevard
Oakland, California

Dear Ms. Chu:

This letter records the results of the June 1999 semi-annual groundwater monitoring performed by Subsurface Consultants, Inc. (SCI) at the above referenced property (herein referenced as the Site). The Site is situated at the west corner of the intersection of MacArthur Boulevard and Coolidge Avenue in Oakland, California (Plate 1).

Groundwater monitoring had been periodically conducted at the Site from October 1990 to November 1996. Groundwater monitoring has been resumed on a semi-annual basis for one year, as requested by Alameda County Health Care Services Agency (ACHCSA), in their letter dated March 8, 1999. The current program includes: 1) measuring groundwater levels and checking for the presence of free-product in all accessible wells and piezometers, and 2) obtaining groundwater samples from selected sampling points. The samples are to be analyzed for total volatile hydrocarbons as gasoline (TVHg), benzene, toluene, ethylbenzene and total xylenes (BTEX), and methyl tertiary butyl ether (MTBE).

BACKGROUND

The Site has been commercially developed since the early 1930s, and records indicate that the Site has a long history of use as a gasoline service station. In May 1989, three underground storage

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171 - 12th Street • Suite 202 • Oakland, California 94607-4911 • 510 268 0461 • FAX 510.268 0137

tanks (USTs) and associated fuel dispensing underground lines were removed from the Site. Approximately 435 cubic yards of gasoline impacted soil were subsequently excavated to a depth of 15 feet below ground surface (bgs), removed from the Site, and clean fill was placed into the resulting excavation. A 1,000 gallon waste oil tank was also removed from the Site in July 1989. Remnants of old underground fuel lines encountered during excavation activities were also removed at this time. Groundwater monitoring performed at the Site between 1990 and 1996 showed that gasoline constituents had migrated about 150 feet down gradient (to the southwest) from the apparent source area near the pump islands and former tank excavations.

The former service station building is currently being used by an auto repair business. No USTs are in use at the Site.

GROUNDWATER MONITORING ACTIVITIES

Sampling

On June 23 and 24, 1999, depth-to-water and free product thicknesses were measured in all accessible Site wells and piezometers. Wells M-2, M-4 M-5 and M-6, and piezometers P-2 and P-3 were purged and sampled during this semi-annual event. Wells and piezometers were purged by removing water with new disposable bailers until measurements of pH, temperature, and conductivity had stabilized (approximately three well volumes). When water levels recharged to within 80 percent of their initial level, samples were obtained with new disposable bailers. The purge water was placed in 55-gallon drums and remains on-site, pending later disposal by a waste removal subcontractor.

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

Analytical Testing

Curtis & Tompkins, Ltd., a state-certified chemical testing laboratory performed chemical analyses of selected samples from the wells. Samples were analyzed for the constituents listed as follows:

Analysis	Sample Preparation Method	Analysis Method
Total Volatile Hydrocarbons (TVHg)	EPA 5030	EPA 8015M
Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX)	EPA 5030	EPA 8021
Methyl Tertiary Butyl Ether (MTBE)	EPA 5030	EPA 8260A

A summary of the current and previous analytical test results is presented in Table 2. Field sampling forms, analytical test reports, and chain-of-custody documents for this event are attached.

DISCUSSION & CONCLUSION

Groundwater Levels & Flow Direction

Groundwater levels measured during the June 1999 event are generally consistent with those obtained from previous events. The groundwater level data indicates that the regional groundwater flow direction is toward the south at a gradient of approximately 5 to 10 percent. The groundwater flow direction has been consistently to the south to southwest at gradients varying from approximately 2 to 10 percent throughout the monitoring program. Groundwater contours for this event is shown on Plate 2.

Free Product

No free product was encountered during this event in any of the wells or piezometers located on Site.

Sample Well Test Results

TVHg

TVHg was detected in all wells and piezometers sampled during this event, except for well M-5. No TVHg has been detected in M-5 for the last five sampling events dating back to August 1994. TVHg, which was not detected in groundwater samples from well M-6 in January 1996, was detected at 340 micrograms per liter (ug/L). Concentrations of TVHg in well M-4 and piezometer P-3 have increased since their last respective monitoring event dates (April 1996 and October 1995). The concentration of TVHg in well M-2 has decreased since its last respective monitoring event date (April 1996).

BTEX

BTEX was detected in all wells and piezometers sampled during this event, except for well M-5. No BTEX has been detected in well M-5 for the last five sampling events dating back to August

1994. BTEX concentrations have decreased in well M-2 and piezometer P-2, while toluene, ethyl benzene, and xylene concentrations have increased in well M-4 since the last sampling event (April 1996). Benzene and ethyl benzene, which were not detected in groundwater samples from well M-6 in January 1996, were detected at 14 and 19 ug/L, respectively.

MTBE

MTBE was detected only in the sample from well M-2 at 410 ug/L. This is the first time that the laboratory was requested to analyze water samples for MTBE.

Based on the analytical results of this groundwater monitoring event, it appears that gasoline constituents are still present in the soil capillary fringe near wells M-4 and M-6; hydrocarbon concentrations in groundwater samples from these wells have fluctuated inconsistently since April 1996. This phenomenon, along with the increased concentrations of hydrocarbons in groundwater samples from piezometer P-3, may be explained by capillary fringe hydrocarbons becoming mobilized by vertical water table fluctuation during the past wet winters.

A Corrective Action Plan (CAP) is being prepared to address the remediation of impacted soil and groundwater. Findings from this groundwater monitoring event will be included in the CAP. The CAP will be submitted to ACHCSA by August 13, 1999.

ONGOING MONITORING

In accordance with the monitoring program, the next semi-annual monitoring event will be conducted during the month of December 1999. During this event, wells M-2, M-4 M-5 and M-6, and piezometers P-2 and P-3 will be sampled and analyzed for TVHg, BTEX, and MTBE.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

Gene Y. Ng
Staff Engineer

Jeriann N. Alexander
Civil Engineer 40469 (expires 3/03)
Registered Environmental Assessor 03130 (expires 6/00)

GYN: JNA: nm: 838.006/GWMNTG_6_99.doc

Attachments:
Table 1 – Summary of Groundwater Elevation Data
Table 2 - Hydrocarbon Concentrations in Groundwater
Plate 1 – Site Location Map
Plate 2 - Groundwater Elevation Contours
Well Sampling Forms
Analytical Test Reports
Chain-of-Custody Records

cc: 2 copies Ms. Aniko Molnar
Environmental Consultant
7 Morning Sun Avenue
Mill Valley, California 94941

1 copy APA Fund Ltd.
c/o Mr. Nicholas Molnar
1904 Franklin Street, Suite 501
Oakland, California 94612

Table 1
Summary of Groundwater Elevation Data
2801 MacArthur Boulevard
Oakland, California

Well	TOC[1] Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)
M-1	1000	10/24/90	36.1	963.9
		10/25/90	36.1	963.9
		11/2/90	36.4	963.6
		11/6/90	36.8	963.2
		11/16/90	36.8	963.2
		11/23/90	36.9	963.1
		11/28/90	37.0	963.0
		12/5/90	37.2	962.8
		3/18/91	35.8	964.2
		3/29/91	32.4	967.6
		4/3/91	31.9	968.1
		4/9/91	31.6	968.4
		4/16/91	31.2	968.8
		1/23/92	35.5	964.5
		3/9/93	29.1	970.9
		6/1/93	27.5	972.5
		12/13/93	33.9	966.1
		3/7/94	32.3	967.7
		8/23/94	32.3	967.7
		10/11/94	34.1	965.9
		4/26/95	24.4	975.6
		10/27/95	31.3	968.7
		1/22/96	31.1	968.9
		4/15/96	25.6	974.4
		7/10/96	27.7	972.3
		12/1/98	--	paved over
M-2	999.6	4/30/91	31.1	968.5
		5/7/91	31.3	968.3
		1/16/92	35.1	964.5
		3/9/93	33.6	966.0
		5/17/93	27.2	972.4
		6/1/93	27.6	972.0
		8/17/93	30.4	969.2
		12/13/93	34.0	965.6
		3/7/94	30.1	969.5
		8/23/94	32.3	967.3
		10/11/94	34.2	965.4
		4/26/95	24.4	975.2
		10/27/95	31.4	968.2
		1/22/96	31.2	968.4
		4/15/96	25.6	974.0
		7/10/96	27.8	971.8
		12/1/98	30.9	968.7
		6/23/99	27.3	972.4

Table 1
Summary of Groundwater Elevation Data
2801 MacArthur Boulevard
Oakland, California

Well	TOC[1] Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)
M-3	992.8	5/17/93	22.2	970.6
		6/1/93	23.3	969.5
		8/17/93	25.0	967.8
		12/13/93	25.8	967.0
		3/7/94	23.1	969.7
		8/23/94	25.8	967.0
		10/11/94	27.4	965.4
		4/26/95	19.6	973.2
		10/27/95	25.4	967.4
		1/22/96	24.2	968.6
		4/15/96	20.9	971.9
		7/10/96	22.9	969.9
		12/1/98	23.5	969.3
M-4	999.6	5/17/93	33.8	965.8
		6/1/93	32.5	967.1
		12/13/93	36.8	962.8
		3/7/94	33.0	966.6
		8/23/94	35.4	964.2
		10/11/94	37.1	962.5
		4/26/95	29.8	969.8
		10/27/95	34.2	965.4
		1/22/96	30.1	969.5
		4/15/96	30.1	969.5
		7/10/96	32.0	967.6
		12/1/98	34.5	965.1
		6/23/99	31.8	967.8
M-5	992.9	8/23/94	31.8	961.1
		10/11/94	33.6	959.3
		4/26/95	20.5	972.4
		10/27/95	31.5	961.4
		1/22/96	25.6	967.3
		4/15/96	21.7	971.2
		7/10/96	26.8	966.1
		12/1/98	28.8	964.1
		6/23/99	26.5	966.4
M-6	997.7	8/23/94	41.2	956.5
		10/11/94	38.2	959.5
		4/26/95	27.8	969.9
		10/27/95	34.9	962.8
		1/22/96	22.0	975.7
		4/15/96	28.5	969.2
		7/10/96	32.6	965.1
		12/1/98	–	inaccessible
		6/23/99	31.7	966.0

Table 1
Summary of Groundwater Elevation Data
2801 MacArthur Boulevard
Oakland, California

Well	TOC[1] Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)
P-1	999.6	10/24/90	37.9	961.7
		10/25/90	38.0	961.6
		11/2/90	38.4	961.2
		11/6/90	38.7	960.9
		11/16/90	38.3	961.3
		11/23/90	38.1	961.5
		11/28/90	38.3	961.3
		12/5/90	38.2	961.4
		3/18/91	37.8	961.8
		3/29/91	36.9	962.7
		4/3/91	36.8	962.8
		4/9/91	36.9	962.7
		4/16/91	36.7	962.9
		4/18/91	36.8	962.8
		4/30/91	36.3	963.3
		5/7/91	36.2	963.4
		1/16/92	36.6	963.0
		3/9/93	32.8	966.8
		6/1/93	30.0	969.6
		12/13/93	33.7	965.9
		3/7/94	32.6	967.0
		8/23/94	32.7	966.9
		10/11/94	33.5	966.1
		4/26/95	27.6	972.0
		10/27/95	31.8	967.8
		1/22/96	33.3	966.3
		4/15/96	28.2	971.4
		7/10/96	29.3	970.3
		12/1/98	31.9	967.7
P-2	997.8	10/24/90	41.1	956.7
		10/25/90	40.6	957.2
		11/2/90	38.4	959.4
		11/6/90	37.0	960.8
		11/16/90	37.4	960.4
		11/23/90	35.9	961.9
		11/28/90	35.4	962.4
		2/5/90	35.0	962.8
		3/18/91	31.4	966.4
		3/29/91	28.2	969.6
		4/3/91	26.8	971.0
		4/9/91	26.5	971.3
		4/16/91	26.5	971.3
		4/18/91	26.5	971.3
		4/30/91	26.7	971.1
		5/7/91	27.0	970.8
		1/16/92	33.7	964.1

Table 1
Summary of Groundwater Elevation Data
2801 MacArthur Boulevard
Oakland, California

Well	TOC[1] Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)
P-2 (cont'd)		3/9/93	23.6	974.2
		5/17/93	23.7	974.1
		6/1/93	24.4	973.4
		8/17/93	28.3	969.5
		12/13/93	31.0	966.8
		3/7/94	25.4	972.4
		8/23/94	30.3	967.5
		10/11/94	32.3	965.5
		4/26/95	19.9	977.9
		10/27/95	29.6	968.2
		1/22/96	27.4	970.4
		4/15/96	21.3	976.5
		7/10/96	25.0	972.8
		12/1/98	28.2	969.6
		6/23/99	24.8	973.0
P-3	999.1	3/29/91	24.7	974.4
		4/3/91	25.1	974.0
		4/9/91	25.9	973.2
		4/16/91	26.2	972.9
		4/18/91	26.2	972.9
		4/30/91	26.8	972.3
		5/7/91	27.4	971.7
		1/23/92	32.5	966.6
		3/9/93	24.8	974.3
		6/4/93	23.9	975.2
		8/17/93	28.5	970.6
		12/13/93	29.3	969.8
		3/7/94	25.0	974.1
		8/23/94	30.1	969.0
		10/11/94	32.0	967.1
		4/26/95	20.5	978.6
		10/27/95	27.8	971.3
		1/22/96	26.7	972.4
		4/15/96	21.4	977.7
		7/10/96	25.1	974.0
		12/1/98	27.2	971.9
		6/23/99	24.5	974.6

Note 1 - Elevations relative to site-specific datum. Temporary Bench Mark No. 1, top of concrete at west corner of northernmost pump island. Assumed elevation = 1,000.0 feet.

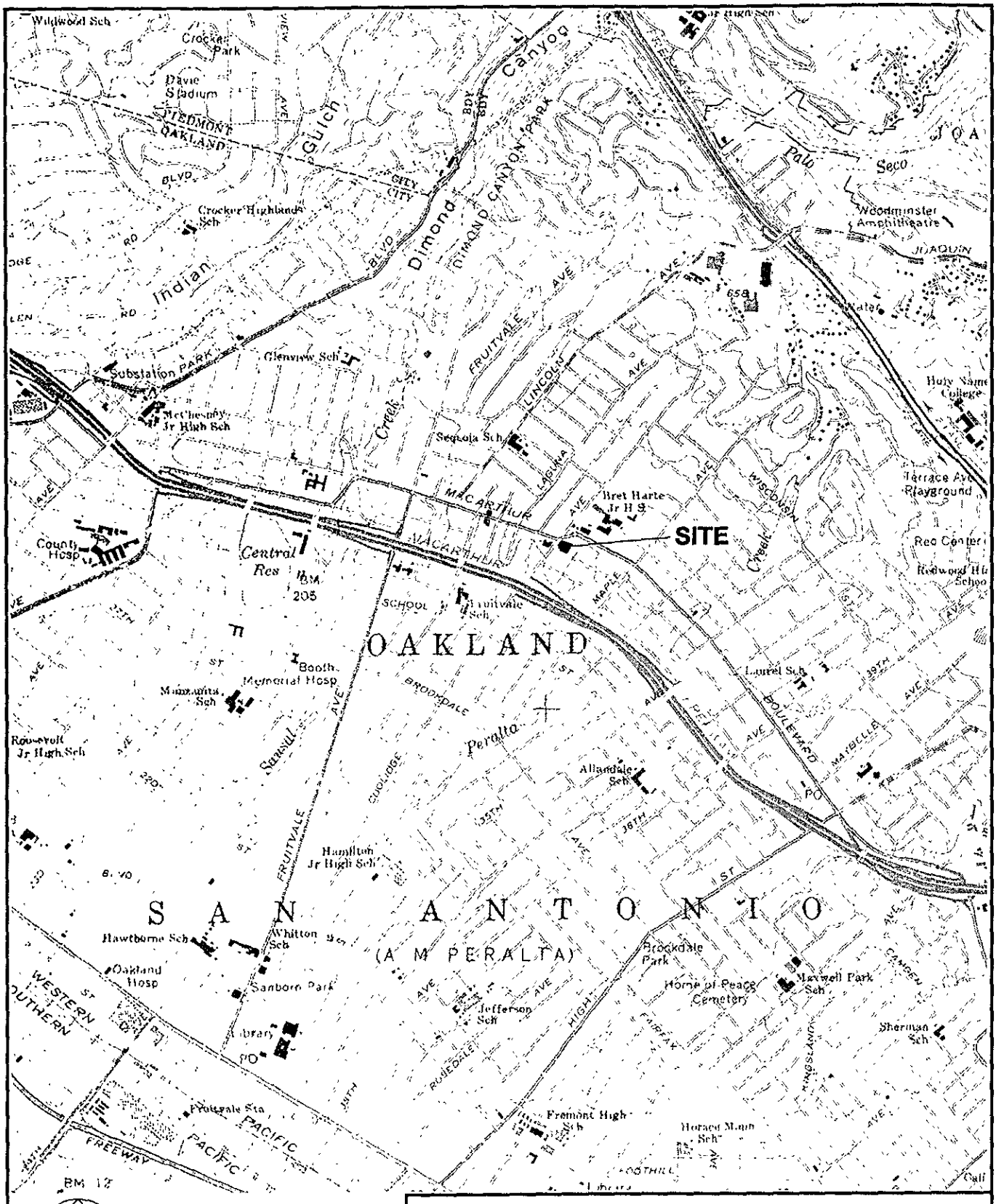
Table 2
Hydrocarbon Concentrations in Groundwater
2801 MacArthur Boulevard
Oakland, California

Sample Location	Sample Date	Groundwater Elevation (feet)	TVH (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Total Xylenes (ug/l)	MTBE (ug/l)
P-1	1/16/92	963.00	6,700	500	4.4	80	40	–
	3/9/93	966.80	5,600	1,100	29	63	120	–
P-2	11/6/90	960.40	33,000	4,700	2,100	380	630	–
	1/16/92	964.10	99,000	6,500	12,000	2,000	16,000	–
	3/9/93	974.20	70,000	5,900	11,000	2,100	12,000	–
	5/17/93	974.10	87,000	6,600	13,000	2,200	13,000	–
	8/17/93	969.50	80,000	5,800	12,000	2,000	12,000	–
	12/13/93	966.80	100,000	5,600	12,000	2,200	14,000	–
	3/7/94	972.40	77,000	5,100	11,000	2,000	12,000	–
	8/23/94	967.50	70,000	3,800	8,700	1,500	9,900	–
	4/27/95	977.50	44,000	3,600	8,500	1,500	9,300	–
	10/30/95	968.20	66,000	4,600	11,000	2,100	13,600	–
	4/17/96	976.50	58,000	4,800	9,900	1,900	12,900	–
	6/23/99	973.00	57,000	1,800	4,700	1,300	9,300	<25
P-3	8/17/93	970.60	900	180	65	10	93	–
	10/30/95	971.30	2000	650	45	31	156	–
	6/23/99	974.60	14,000	3,300	190	140	756	<10
M-2	5/7/91	968.30	16,000	1,300	950	170	890	–
	1/16/92	964.50	22,000	960	570	370	1,800	–
	3/9/93	966.00	27,000	1,100	970	490	1,400	–
	5/17/93	972.40	17,000	1,200	770	480	1,300	–
	8/17/93	969.20	20,000	1,700	910	540	1,400	–
	12/13/93	965.60	51,000	2,200	1,400	700	2,600	–
	3/7/94	969.50	28,000	1,400	900	640	1,800	–
	8/23/94	967.30	21,000	1,600	540	520	1,100	–
	4/26/95	975.20	14,000	1,200	510	490	870	–
	10/30/95	968.20	16,000	1,700	830	470	1,120	–
	4/17/96	974.00	10,000	1,300	610	380	810	–
	6/23/99	972.40	1,900	150	19	32	24.8	410
M-3	5/17/93	970.60	<50	<0.5	<0.5	<0.5	<0.5	–
	8/17/93	967.80	<50	<0.5	<0.5	<0.5	<0.5	–
	12/13/93	967.00	<50	<0.5	<0.5	<0.5	<0.5	–
	3/7/94	969.70	<50	<0.5	<0.5	<0.5	<0.5	–
	8/23/94	967.00	<50	<0.5	<0.5	<0.5	<0.5	–
	4/27/95	973.20	<50	<0.5	<0.5	<0.5	<0.5	–
M-4	5/17/93	965.80	7,500	1,200	230	11	350	–
	8/17/93	–	13,000	3,000	330	130	700	–
	12/13/93	962.80	11,000	2,700	190	90	360	–
	3/7/94	966.60	3,800	980	33	49	140	–
	8/23/94	964.20	19,000	5,800	200	460	630	–
	4/27/95	969.80	2,300	510	40	69	120	–
	11/1/95	965.40	1,100	470	14	23	26	–
M-4	4/17/96	969.50	550*	330	<2.5	5.9	16.1	–
	6/23/99	967.80	4,000	<0.5	69	190	195	<0.5

Table 2
Hydrocarbon Concentrations in Groundwater
2801 MacArthur Boulevard
Oakland, California

Sample Location	Sample Date	Groundwater Elevation (feet)	TVH (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Total Xylenes (ug/l)	MTBE (ug/l)
M-5	8/23/94	961.10	<50	<0.5	<0.5	<0.5	<0.5	–
	4/27/95	972.40	<50	<0.5	<0.5	<0.5	<0.5	–
	11/1/95	961.40	<50	<0.5	<0.5	<0.5	<0.5	–
	4/17/96	971.20	<50	<0.5	<0.5	<0.5	<0.5	–
	6/23/99	966.40	<50	<0.5	<0.5	<0.5	<0.5	<0.5
M-6	10/11/94	959.50	3,600	340	27	65	240	–
	4/26/95	969.90	150	9.3	<0.5	5.6	1.7	–
	11/1/95	962.80	170	0.6	<0.5	<0.5	0.6	–
	1/22/96	975.70	<50	<0.5	<0.5	<0.5	<0.5	–
	4/17/96	969.20	<50	<0.5	<0.5	<0.5	1	–
	7/12/96	965.10	<50	<0.5	<0.5	<0.5	<0.5	–
	11/7/96	–	<50	<0.5	<0.5	<0.5	<0.5	–
	6/23/99	966.00	340	14	<0.5	19	<0.5	<0.5

TVH = Total volatile hydrocarbonsin the gasoline range.
ug/l = Micrograms per liter = parts per billion.
<50 = Analyte not present at a concentration above the stated detection limit.
* = Sample exhibits a fuel pattern which does not resemble the standard.
– = Sample not analyzed for analyte.



N

APPROXIMATE SCALE IN FEET

0 2,000

SITE LOCATION MAP

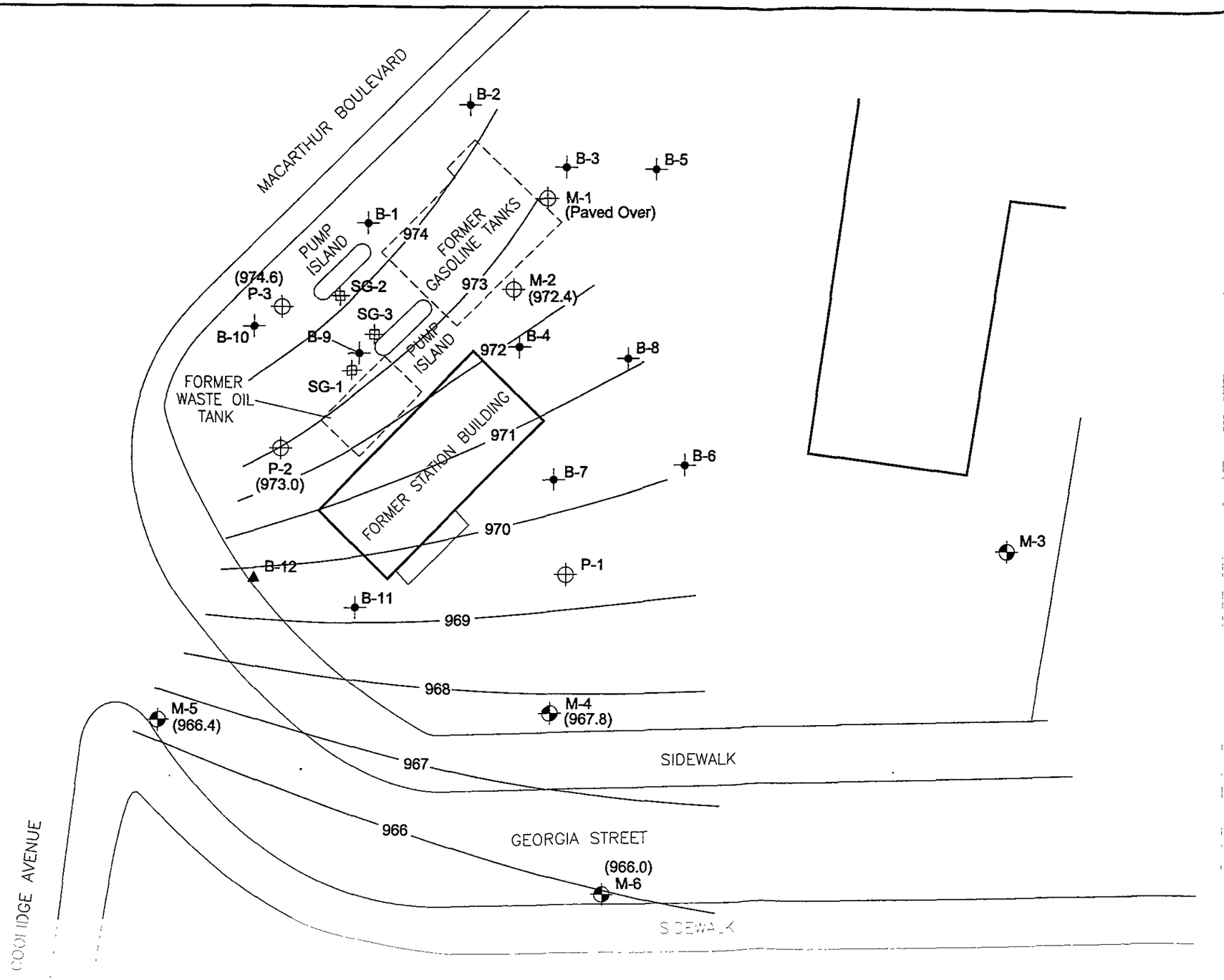
Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

2801 MACARTHUR BLVD.
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
838.006	07/99	GN

PLATE 1

LOCATION.DWG



Explanation:

- Monitoring Well by SCI
- Test Boring by SCI
- Monitoring Well by others
- Test Boring by others
- Soil Vapor and Soil Sampling Location
- Former Tank Excavation (1989)

N

APPROXIMATE SCALE IN FEET

0 30 60

GROUNDWATER ELEVATION CONTOURS, JUNE 1999

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

2801 MACARTHUR BLVD
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED	PLATE
838.006	07/99	6N	2

SITEPLAN.DWG

GROUNDWATER DEPTHS

Project Name: APA Fuel 2801 MacArthur Blvd
Job No.: 838.006
Measured by: Stewart Delie

Well	Date	Time	Groundwater Depth (feet)	Comments
M-4	6/23	8:00	31.84ft	behind garage on property
M-6	6/23	8:05	31.70ft	Corner of College/garage
M-5	6/23	8:10	26.49ft	in Street/Parking issues
P-2	6/23	8:20	24.79ft	in front of garage/pump islands
P-3	6/23	8:30	24.50ft	" " " " "
M-2	6/23	9:00	27.25ft	in parkway area along garage

Subsurface Consultants, Inc.

WELL SAMPLING FORM

PROJECT NAME: APA Fund
JOB NO. 838.006 TASK 1
SAMPLED BY: STEWART DALZE
DATE: 6/23/99
WEATHER: Cool, windy

WELL NO.: MZ
CASING DIAMETER: 2 IN
WELL MATERIAL: —
TOC ELEVATION: —

TOTAL DEPTH OF CASING (BTOC) 45.00 FEET

DEPTH TO GROUNDWATER (BTOC) 27.25 FEET

FEET OF WATER IN WELL 17.75 FEET

CALCULATED PURGE VOLUME 8.69 gallons
(feet of water * casing dia^2 * .0408 * # of Volumes)

FREE PRODUCT N/A

PURGE METHOD disposable bailer

MEASUREMENT METHOD (TAPE & PASTE) (ELECTRONIC SOUNDER) OTHER

FIELD MEASUREMENTS

GALLONS REMOVED	TIME	pH	TEMP	CONDUCTIVITY (µMHOS/CM)	Salinity	ORP (mV)	DO (mg/l)	COMMENTS (odor, color, ...)
0	14.30	11.64	20.81	817.00	0.40	-61.6	9.30	clear hydrocarbon odor
1	14.40	11.65	20.88	828.00	0.44	-60.6	9.01	grey odor sheen
3	14.55	11.65	19.95	801.00	0.37	-48.9	9.00	
5	15.00	11.65	19.75	790.00	0.35	-40.4	8.95	stronger grey-turbid odor
7	15.10	11.66	19.95	798.00	0.33	-38.9	8.99	
9	15.20	11.66	19.92	768.00	0.38	-36.1	8.95	- slight sheen on H2O turbid grey

DEPTH TO GROUNDWATER WHEN 80% RECOVERED 30.8 Ft.

ACTUAL DEPTH TO GROUNDWATER BEFORE SAMPLING (BTOC) 29.2 Ft. (Overnight) 6/24

SAMPLING METHOD disposable bailer

CONTAINERS / PRESERVATIVE 4 / VOA w/ HCL.
40 ML

/ LITER

/ OTHER

/ OTHER

ANALYSES
BTEX 5030/8020
MTBE 5030/8260 - mass spec } 4 VOA's for all analysis
TVH 5030/8015 - modified -

MISC FIELD OBSERVATION on prop / odor, sheen heavy (car moved for access)

Subsurface Consultants, Inc.

WELL SAMPLING FORM

PROJECT NAME: APA Fund
JOB NO. 838.006 TASK 1
SAMPLED BY: STEWART DALZE
DATE: 6/23/99
WEATHER: clear warm

WELL NO.: M-4
CASING DIAMETER: 2 in
WELL MATERIAL: —
TOC ELEVATION: —

TOTAL DEPTH OF CASING (BTOC) 45.00 FEET

DEPTH TO GROUNDWATER (BTOC) 31.84 FEET

FEET OF WATER IN WELL 13.16 FEET

CALCULATED PURGE VOLUME 6.44 gallons
(feet of water * casing dia^2 * .0408 * # of Volumes) x 3

FREE PRODUCT N/A

PURGE METHOD disposable bailer

MEASUREMENT METHOD (TAPE & PASTE) (ELECTRONIC SOUNDER) OTHER

FIELD MEASUREMENTS

GALLONS REMOVED	TIME	pH	TEMP	CONDUCTIVITY (µMHOS/CM)	Sal ‰	ORP (mV)	DO (mg/l)	COMMENTS (odor, color, ...)
0	09:45	6.56	21.55	904.00	0.45	-0.6	4.18	Slight Hydrocarbon odor / clear
1	09:50	6.72	20.73	525.00	0.25	-8.7	5.54	Stronger odor / clear
3	09:59	6.71	20.65	1050.00	0.52	-18.3	4.91	same odor slightly grey
5	10:10	6.88	20.61	1094.00	0.54	-48.8	7.60	↓ ↓
7	10:20	6.78	20.37	1091.00	0.54	-45.7	4.57	

DEPTH TO GROUNDWATER WHEN 80% RECOVERED 34.18 Ft.

ACTUAL DEPTH TO GROUNDWATER BEFORE SAMPLING (BTOC) 33.96 Ft. (overnight) 6/24

SAMPLING METHOD disposable bailer

CONTAINERS PRESERVATIVE 4 / VOA w/ HCL. (40 ML) / LITER

/ OTHER / OTHER

ANALYSES
BTEX 5030/8020
MTBE 5030/8260 - mass spec
TVH 5030/8015 - modified
> 4 VOA's for all analysis

MISC FIELD OBSERVATION needs covering will cover/opened, no odor, no lock
- grey/Turbid to 7 gal purged

Subsurface Consultants, Inc.

WELL SAMPLING FORM

PROJECT NAME: APA Fund
JOB NO. 838.006 TASK 1
SAMPLED BY: STEWART DALZE
DATE: 6/23/99
WEATHER: Clear warm

WELL NO.: M-5
CASING DIAMETER: 2 IN
WELL MATERIAL: —
TOC ELEVATION: —

TOTAL DEPTH OF CASING (BTOC) 38.00 FEET

CALCULATED PURGE VOLUME 5.63 gallons
(feet of water * casing dia^2 * .0408 * # of Volumes)

DEPTH TO GROUNDWATER (BTOC) 26.49 FEET

FREE PRODUCT N/A

FEET OF WATER IN WELL 11.51 FEET

PURGE METHOD disposable bailer

MEASUREMENT METHOD TAPE & PASTE ELECTRONIC SOUNDER OTHER

FIELD MEASUREMENTS

GALLONS REMOVED	TIME	pH	TEMP	CONDUCTIVITY (µMHOS/CM)	Sal/Sg	ORP (mV)	DO (mg/l)	COMMENTS (odor, color, ...)
0	11:50	7.80	20.83	594.00	0.29	157.6	6.92	clear no odor
2	12:00	6.88	20.08	573.00	0.28	203.6	6.73	" "
4	12:10	7.20	19.98	586.00	0.28	205.6	7.35	" "
6	12:20	6.91	19.97	601.00	0.29	237.8	6.95	

DEPTH TO GROUNDWATER WHEN 80% RECOVERED 28.8 FT.

ACTUAL DEPTH TO GROUNDWATER BEFORE SAMPLING (BTOC) 28.0 FT. (Overnight) 6/24

SAMPLING METHOD disposable bailer

CONTAINERS / PRESERVATIVE 4 / VOA w/ HCL.
40 ML

/ LITER

/ OTHER

/ OTHER

ANALYSES
BTEX 5030/8020
MTBE 5030/8260 - mass spec } 4 VOA's for all analysis
TVH 5030/8015 - modified -

MISC FIELD OBSERVATION in Shunt open / no odor / Clear clear no odor

Subsurface Consultants, Inc.

WELL SAMPLING FORM

PROJECT NAME: APA Fund
JOB NO. 838.006 TASK 1
SAMPLED BY: STEWART DALEE
DATE. 6/23/99
WEATHER: clear - warm - windy

WELL NO.: M-6
CASING DIAMETER: 2 in
WELL MATERIAL: —
TOC ELEVATION: —

TOTAL DEPTH OF CASING (BTOC) 47.00 FEET

DEPTH TO GROUNDWATER (BTOC) 31.70 FEET

FEET OF WATER IN WELL 15.3 FEET

CALCULATED PURGE VOLUME 7.49 gallons
(feet of water * casing dia^2 * .0408 * # of Volumes)

FREE PRODUCT N/A

PURGE METHOD disposable bailer

MEASUREMENT METHOD (TAPE & PASTE) (ELECTRONIC SOUNDER) OTHER

FIELD MEASUREMENTS

GALLONS REMOVED	TIME	pH	TEMP	CONDUCTIVITY (µMHOS/CM) Sal/‰	ORP (mV)	DO (mg/l)	COMMENTS (odor, color, ...)
0	10:50	7.80	20.32	448.00 0.22	118.12	4.64	no odor Turbid greenish-brn
2	11:00	7.30	19.78	437.00 0.21	150.00	4.76	greenish brown - no odor
4	11:10	7.45	19.72	440.00 0.21	174.40	8.95	very faint hydrocarbon odor
6	11:20	7.42	19.79	473.00 0.23	191.00	5.59	
8	11:30	7.33	19.69	491.00 0.24	179.09	6.17	same as above

DEPTH TO GROUNDWATER WHEN 80% RECOVERED 34.76 Ft.

ACTUAL DEPTH TO GROUNDWATER BEFORE SAMPLING (BTOC) 34.02 Ft. (overnight) 6/24

SAMPLING METHOD disposable bailer

CONTAINERS / PRESERVATIVE 4 / VOA w/ HCL. (40 ML) / LITER

/ OTHER / OTHER

ANALYSES
BTEX 5030/8020
MTBE 5030/8260 - mass spec } 4 VOA's for all analysis
TVH 5030/8015 - modified -

MISC FIELD OBSERVATION In Street, opened, no odor / Turbid greenish brown no odor
down to 38.81 after purge

Subsurface Consultants, Inc.

WELL SAMPLING FORM

P-2

PROJECT NAME: APA Fund
JOB NO. 838.006 TASK 1
SAMPLED BY: STEWART DALIE
DATE: 6/23/99
WEATHER: Cool clear windy

WELL NO.: [redacted]
CASING DIAMETER: 2
WELL MATERIAL: —
TOC ELEVATION: —

TOTAL DEPTH OF CASING (BTOC) 42.02 FEET

CALCULATED PURGE VOLUME 8.43 gallons
(feet of water * casing dia^2 * .0408 * # of Volumes)

DEPTH TO GROUNDWATER (BTOC) 24.79 FEET

FREE PRODUCT N/A - Very Strong odor & sheen

FEET OF WATER IN WELL 17.23 FEET

PURGE METHOD disposable bailer

MEASUREMENT METHOD (TAPE & PASTE) (ELECTRONIC SOUNDER) OTHER

FIELD MEASUREMENTS

GALLONS REMOVED	TIME	pH	TEMP	CONDUCTIVITY (µMHOS/CM)	Sal/Sg	ORP (mV)	DO (mg/l)	COMMENTS (odor, color, ...) Sheen on H2O
0	12:30	10.94	20.69	570.00	0.27	90.6	5.16	Strong hydrocarbon odor
2	12:40	10.71	19.91	513.00	0.25	101.1	7.25	" " Sheen/Slight tint
4	12:50	10.41	19.60	492.00	0.24	111.6	7.10	" Very strong odor
6	13:00	10.14	19.10	473.00	0.23	84.21	8.62	grey - Turbid
8	13:10	10.14	19.71	455.00	0.22	67.01	5.30	" "
10	13:20	16.06	19.62	525.00	0.25	61.24	6.45	" "
								Still very strong odor

DEPTH TO GROUNDWATER WHEN 80% RECOVERED 28.32 Ft.

ACTUAL DEPTH TO GROUNDWATER BEFORE SAMPLING (BTOC) 27.65 Ft. (overnight) 6/24

SAMPLING METHOD disposable bailer

CONTAINERS / PRESERVATIVE 4 / VOA w/ HCL. (40 ML) / LITER

/ OTHER / OTHER

ANALYSES: BTEX 5030/8020
MTBE 5030/8260 - mass spec
TVH 5030/8015 - modified
> 4 VOA's for all analysis

MISC FIELD OBSERVATION: open lot property in front of garage / very strong odor weeds / lock / very strong odor, sheen, grey turbid

Subsurface Consultants, Inc.

WELL SAMPLING FORM

PROJECT NAME: APA Fund
JOB NO. 838.006 TASK 1
SAMPLED BY: STEWART DAIZE
DATE: 6/23/99
WEATHER: Warm clear windy

WELL NO: P-3
CASING DIAMETER: 2 in
WELL MATERIAL: —
TOC ELEVATION: —

TOTAL DEPTH OF CASING (BTOC) 45.6 FEET

DEPTH TO GROUNDWATER (BTOC) 24.5 FEET

FEET OF WATER IN WELL 21.1 FEET

CALCULATED PURGE VOLUME 10.33 gallons
(feet of water * casing dia^2 * .0408 * # of Volumes) x 3

FREE PRODUCT N/A

PURGE METHOD disposable bailer

MEASUREMENT METHOD TAPE & PASTE ELECTRONIC SOUNDER OTHER

FIELD MEASUREMENTS

GALLONS REMOVED	TIME	pH	TEMP	CONDUCTIVITY (µMHOS/CM)	Sal/Sg	ORP (mV)	DO (mg/l)	COMMENTS (odor, color, ...) ↗ hydrocarbon
0	13:30	8.58	18.02	1199.0	0.59	40.7	7.29	Very Strng odor / clear
2	13:40	7.24	19.34	1102.0	0.55	-23.7	4.80	" " slight sheen
4	13:50	7.19	19.33	1111.0	0.55	-23.9	4.99	
6	14:05	7.10	19.45	1115.0	0.51	-30.5	5.62	Sheen / Strng odor
8	14:15	7.11	19.56	1132.0	0.56	-30.2	5.55	grey-t-brown.
10	14:25	7.09	19.55	1167.00	0.57	-35.6	6.45	

DEPTH TO GROUNDWATER WHEN 80% RECOVERED 28.72 Ft.

ACTUAL DEPTH TO GROUNDWATER BEFORE SAMPLING (BTOC) 26.95 Ft. (overnight) 6/24

SAMPLING METHOD disposable bailer

CONTAINERS / PRESERVATIVE 4 / VOA w/ HCL. (40 ML) / LITER

/ OTHER / OTHER

ANALYSES
BTEX 5030/8020
MTBE 5030/8260 - mass spec } 4 VOA's for all analysis
TVH 5030/8015 - modified -

MISC FIELD OBSERVATION open, no immediate odor / Very Strng hydrocarbon odor
Over purged, next to pump island on property

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: 09-JUL-99
Lab Job Number: 140148
Project ID: 838.006
Location: APA Fund Task-1

Reviewed by:

Reviewed by:

Laboratory Number: **140148**
Client: **Subsurface Consultants, Inc.**
Project Name: **APA Fund Task-1**

Receipt Date: **06/25/99**

CASE NARRATIVE

This hardcopy data package contains sample results and batch QC results for six water and two soil samples received from the above referenced project. The samples were received cold and intact.

Total Volatile Hydrocarbons: The trifluorotoluene surrogate recovery for sample MW-2 (140148-001) and MW-4 (140148-002) was outside acceptance limits. The bromofluorobenzene surrogate recovery was acceptable for the samples.
No other analytical problems were encountered.

BTXE: No analytical problems were encountered.

Volatile Organic Compounds: No analytical problems were encountered.

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
140148-001	MW-2	48990	06/24/99	06/29/99	06/29/99	
140148-002	MW-4	48990	06/24/99	06/29/99	06/29/99	
140148-003	MW-5	48990	06/24/99	06/29/99	06/29/99	
140148-004	MW-6	48990	06/24/99	06/29/99	06/29/99	

Matrix: Water

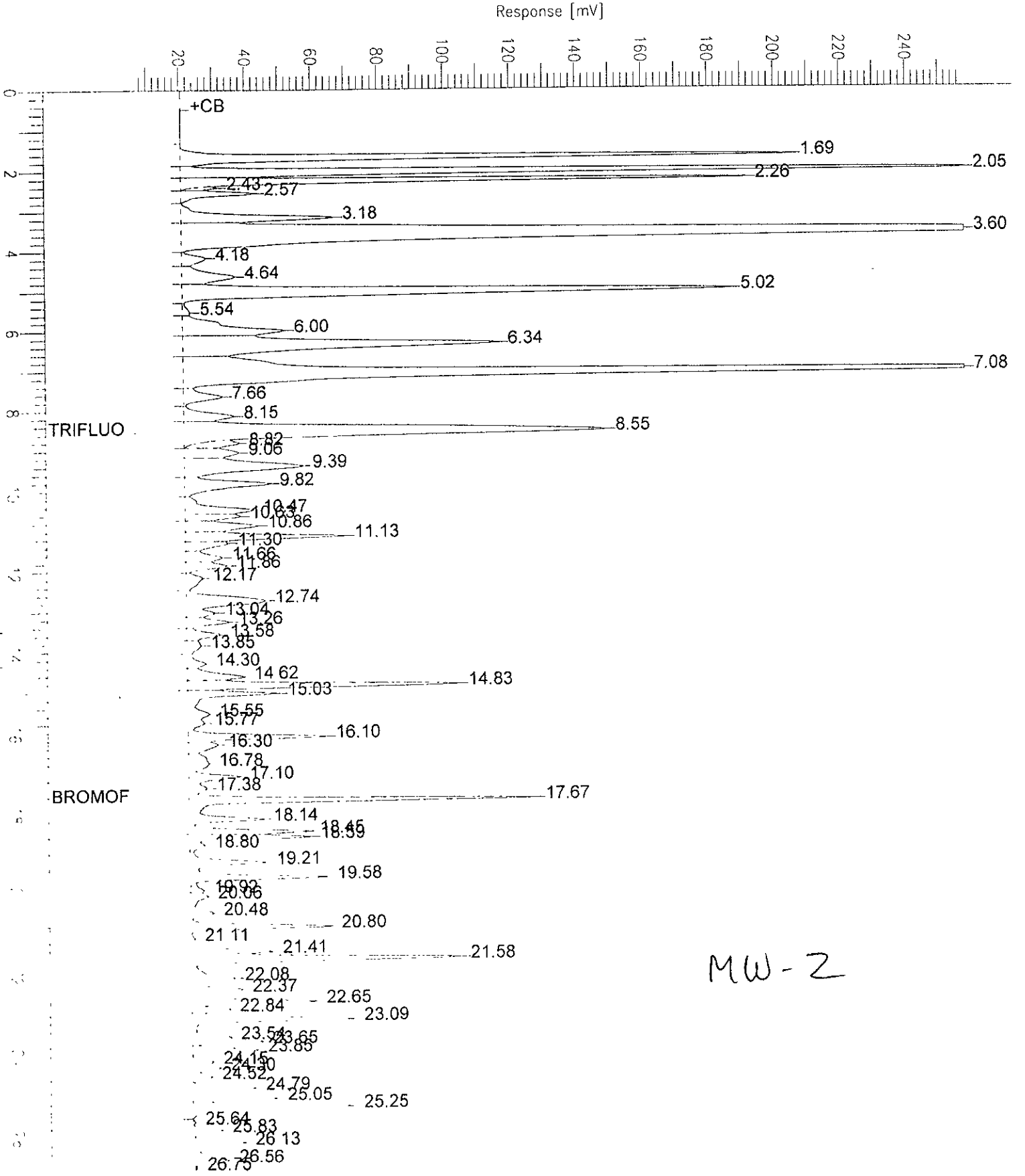
Analyte Diln Fac:	Units	140148-001 1		140148-002 1		140148-003 1	140148-004 1
Gasoline C7-C12	ug/L	1900		4000		<50	340
Surrogate							
Trifluorotoluene	%REC	229	*	278	*	111	123
Bromofluorobenzene	%REC	131		126		118	118

* Values outside of QC limits

Chromatogram

mple Name : 140148-001A,48990
leName : G:\GC05\DATA\179G024.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 8 mV

Sample #: PH<2
Date : 6/29/99 10:04 AM
Time of Injection: 6/29/99 09:38 AM
Low Point : 7.96 mV High Point : 257.96 mV
Plot Scale: 250.0 mV

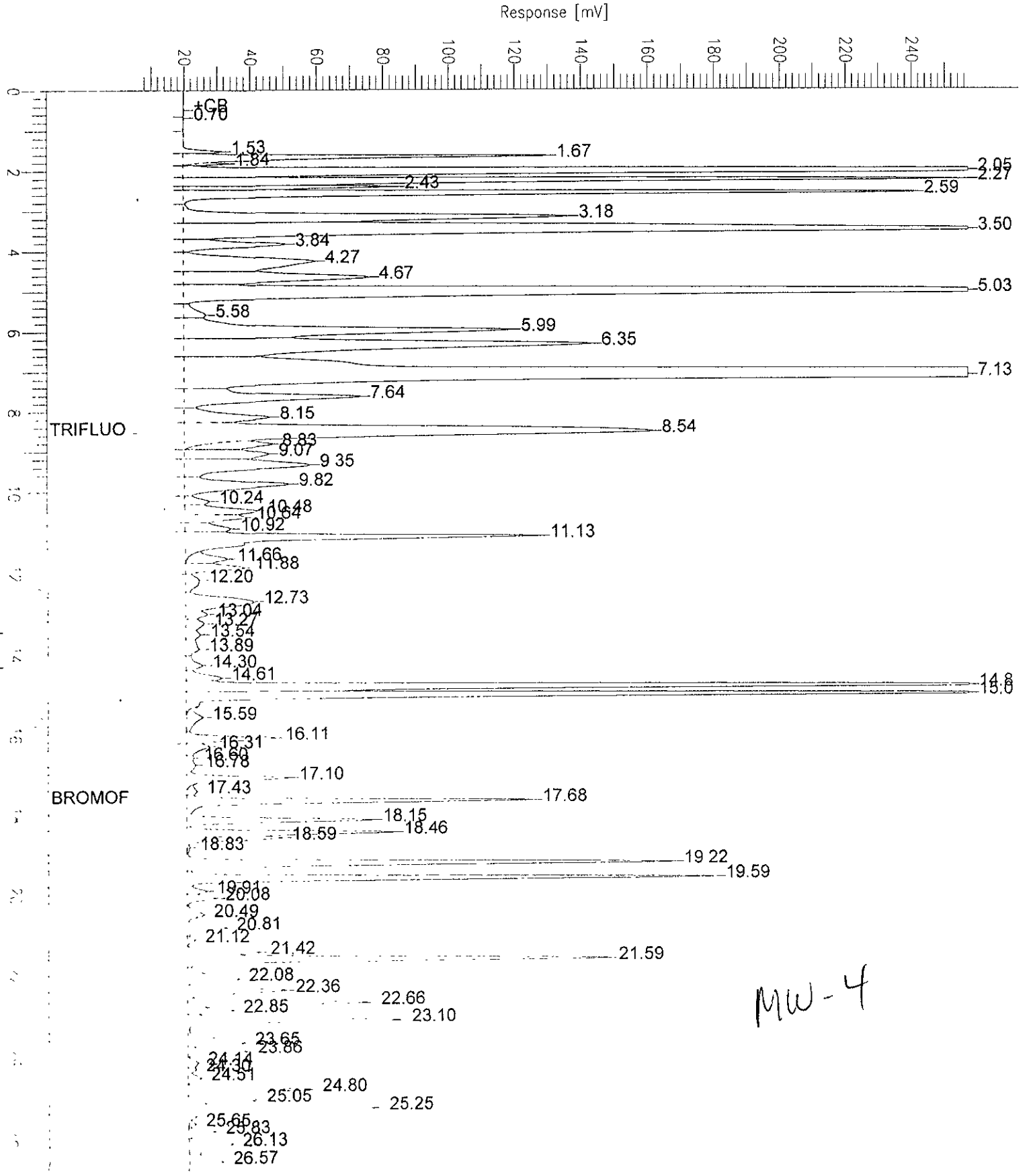


MW-2

Chromatogram

Sample Name : 140148-002A,48990
FileName : G:\GC05\DATA\179G027.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 7 mV

Sample #: PH<2 Page 1 of 1
Date : 6/29/99 12:20 PM
Time of Injection: 6/29/99 11:52 AM
Low Point : 7.20 mV High Point : 257.20 mV
Plot Scale: 250.0 mV

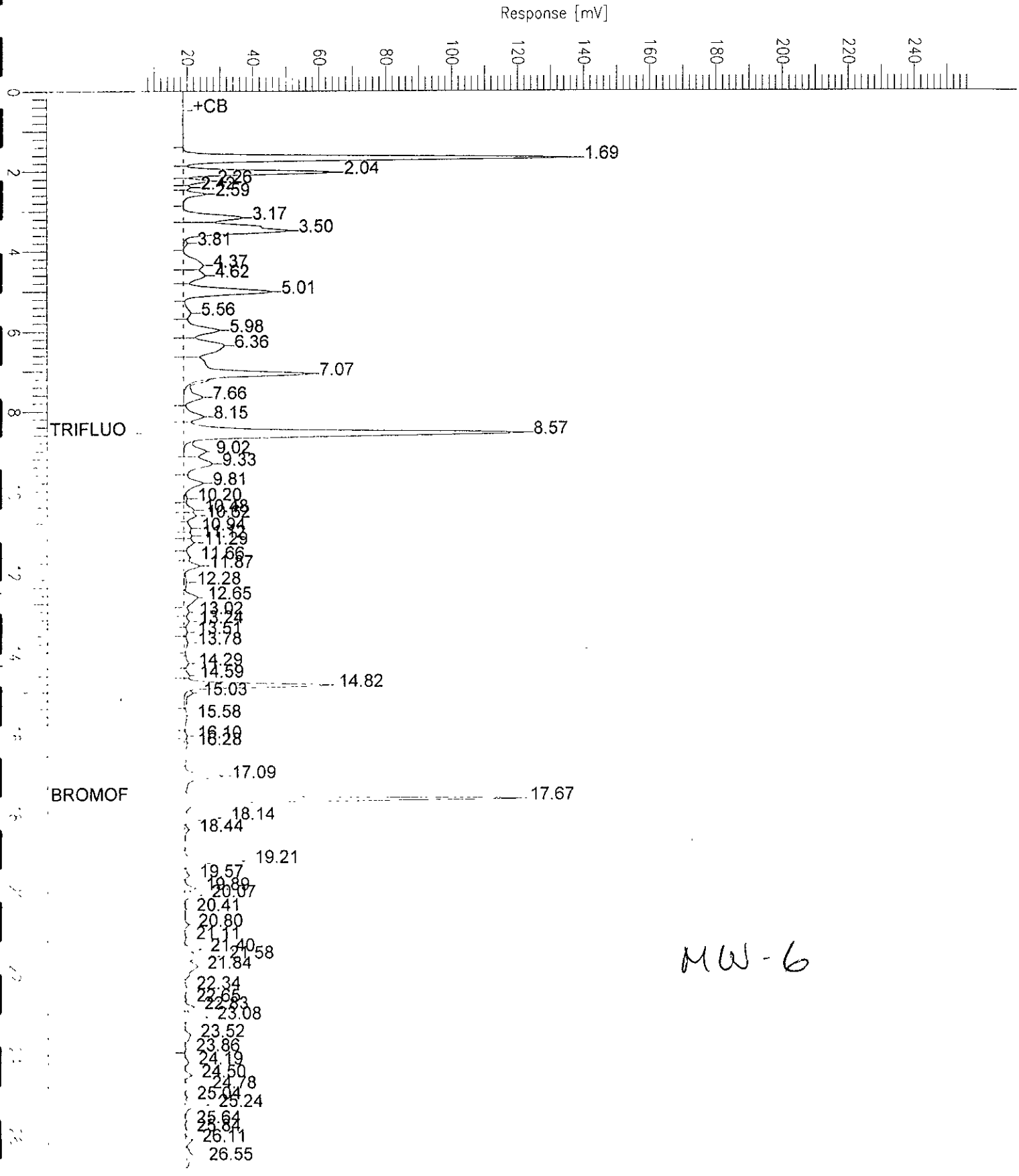


MW-4

Chromatogram

mple Name : 140148-004a,48990
leName : G:\GC05\DATA\179G037.raw
thod : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

Sample #: Page 1 of 1
Date : 6/29/99 07:21 PM
Time of Injection: 6/29/99 06:54 PM
Low Point : 6.17 mV High Point : 256.17 mV
Plot Scale: 250.0 mV



MW-6

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
140148-005	P-2	48990	06/24/99	06/29/99	06/29/99	
140148-006	P-3	48990	06/24/99	06/29/99	06/29/99	

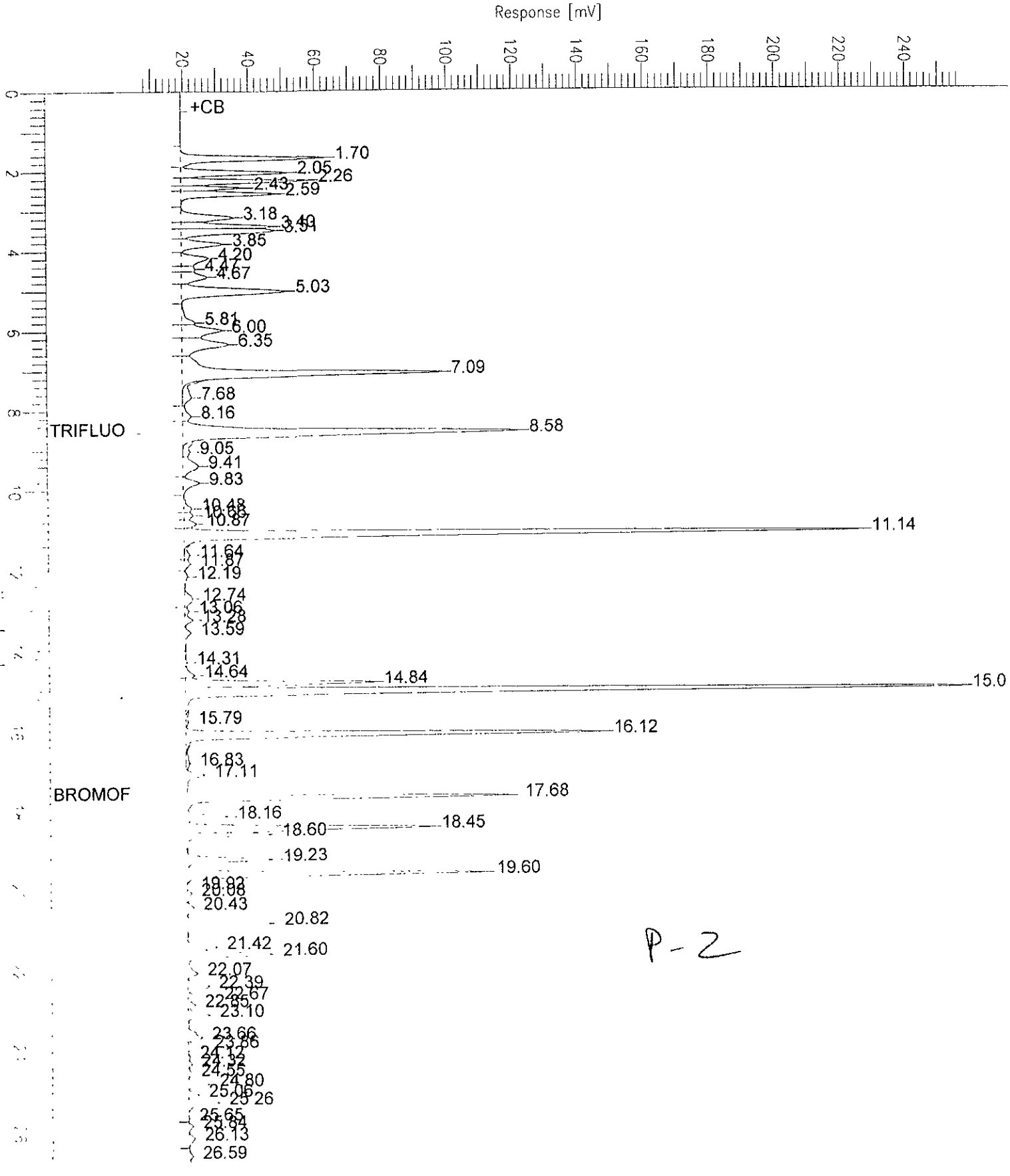
Matrix: Water

Analyte	Units	140148-005	140148-006
Diln Fac:		50	25
Gasoline C7-C12	ug/L	57000	14000
Surrogate			
Trifluorotoluene	%REC	129	114
Bromofluorobenzene	%REC	114	115

Chromatogram

mple Name : D,140148-005A,48990
leName : G:\GC05\DATA\179G029.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
ale Factor: -1.0 Plot Offset: 7 mV

Sample #: PH<2, 50X
Date : 6/29/99 01:39 PM
Time of Injection: 6/29/99 01:12 PM
Low Point : 6.80 mV High Point : 256.80 mV
Plot Scale: 250.0 mV

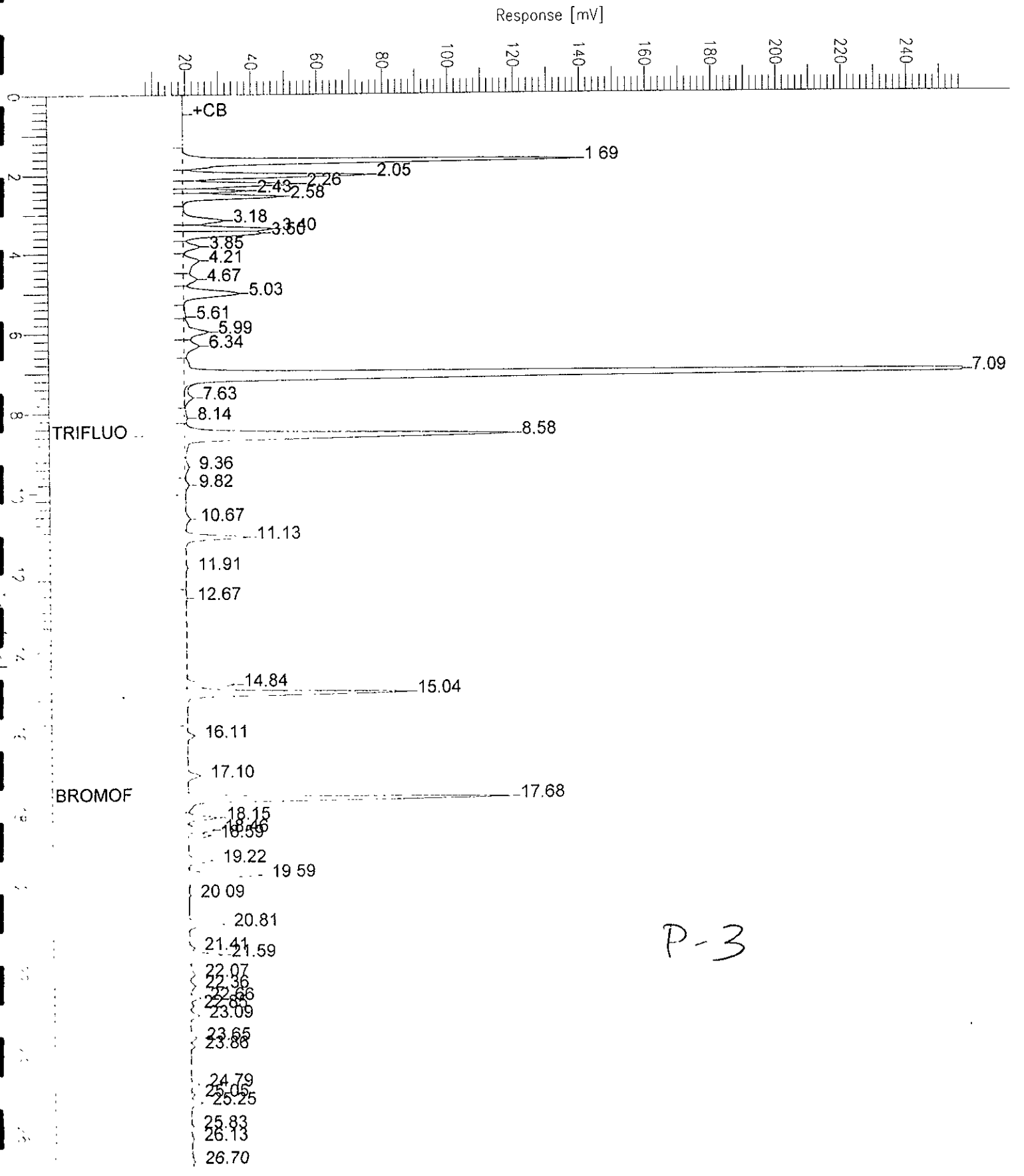


P-2

Chromatogram

Sample Name : D,140148-006A,48990
FileName : G:\GC05\DATA\179G030.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 7 mV

Sample #: PH<2, 25X
Date : 6/29/99 02:19 PM
Time of Injection: 6/29/99 01:52 PM
Low Point : 6.57 mV High Point : 256.57 mV
Plot Scale: 250.0 mV



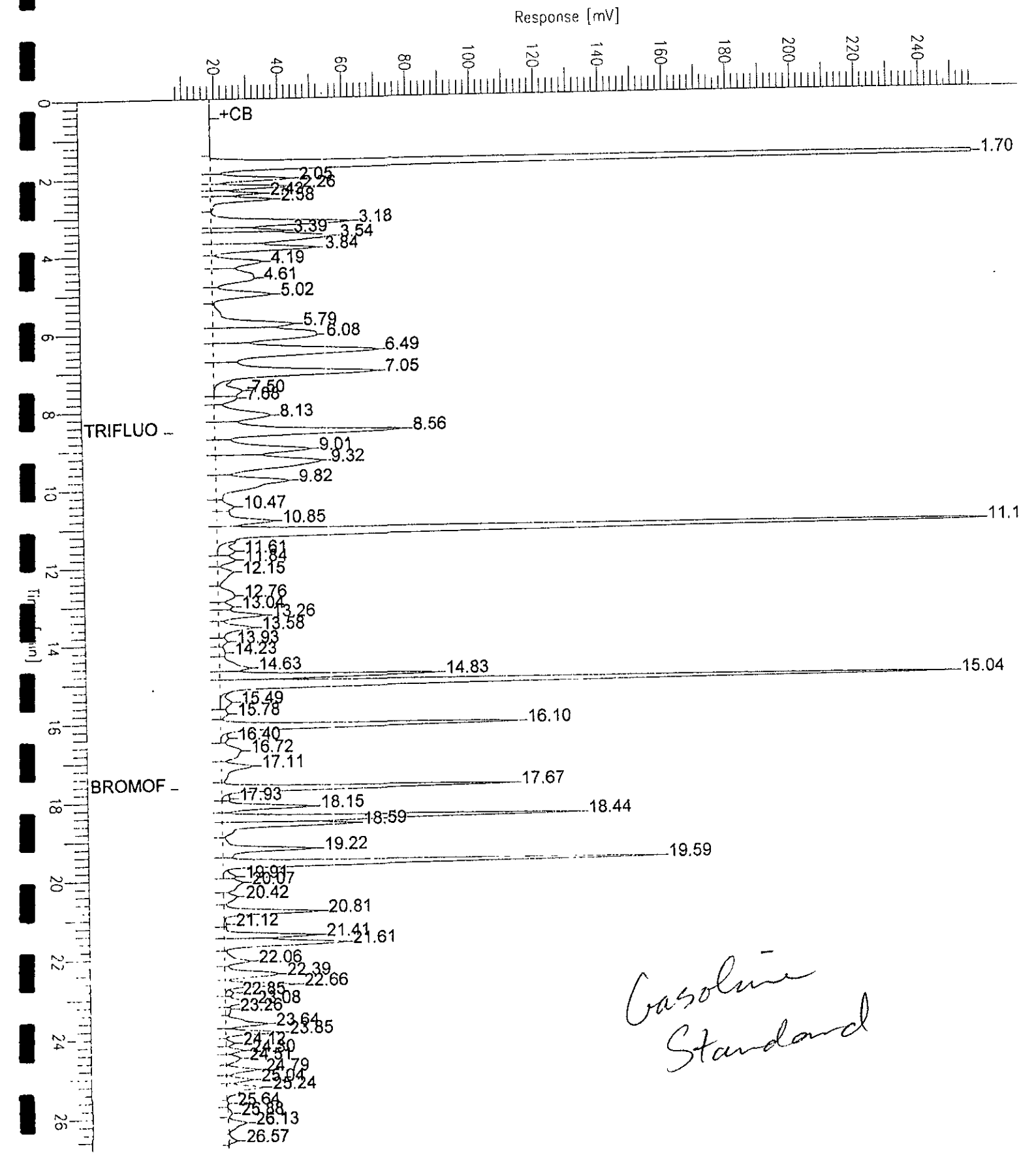
P-3

Chromatogram

Sample Name : CCV\LCS,QC01362,99WS7570,48990
File Name : G:\GC05\DATA\179G003.raw
Method : TVHBTXE
Start Time : 0.00 min
Scale Factor: -1.0

End Time : 26.80 min
Plot Offset: 6 mV

Sample #: GAS
Date : 6/28/99 08:05 PM
Time of Injection: 6/28/99 07:37 PM
Low Point : 6.22 mV
High Point : 256.22 mV
Plot Scale: 250.0 mV



Gasoline Standard

Lab #: 140148 BATCH QC REPORT Page

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8015M
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 48990
Units: ug/L
Diln Fac: 1

Prep Date: 06/28/99
Analysis Date: 06/28/99

MB Lab ID: QC01361

Analyte	Result	
Gasoline C7-C12	<50	
Surrogate	**%Rec**	**Recovery Limits**
Trifluorotoluene	104	53-150
Bromofluorobenzene	149	53-149

Lab #: 140148 BATCH QC REPORT Page

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 48990
Units: ug/L
Diln Fac: 1

Prep Date: 06/28/99
Analysis Date: 06/28/99

LCS Lab ID: QC01362

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1745	2000	87	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	82	53-150
Bromofluorobenzene	105	53-149

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 #: 140148 BATCH QC REPORT Page

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 140119-004
Matrix: Water
Batch#: 48990
Units: ug/L
Diln Fac: 1

Sample Date: 06/24/99
Received Date: 06/24/99
Prep Date: 06/29/99
Analysis Date: 06/29/99

MS Lab ID: QC01367

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	2173	109	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	136	53-150
Bromofluorobenzene	119	53-149

MSD Lab ID: QC01368

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2297	115	69-131	6	13

Surrogate	%Rec	Limits
Trifluorotoluene	138	53-150
Bromofluorobenzene	120	53-149

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#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
140148-001	MW-2	48990	06/24/99	06/29/99	06/29/99	
140148-002	MW-4	48990	06/24/99	06/29/99	06/29/99	
140148-003	MW-5	48990	06/24/99	06/29/99	06/29/99	
140148-004	MW-6	48990	06/24/99	06/29/99	06/29/99	

Matrix: Water

Analyte	Units	140148-001	140148-002	140148-003	140148-004
Diln Fac:		5	10	1	1
MTBE	ug/L	550	<20	<2	<2
Benzene	ug/L	190	1700	<0.5	22
Toluene	ug/L	26	61	<0.5	0.99
Ethylbenzene	ug/L	40	140	<0.5	20
m,p-Xylenes	ug/L	12	140	<0.5	0.67
o-Xylene	ug/L	20	12	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	114	111	97	107
Bromofluorobenzene	%REC	106	107	106	107

BTXE

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
140148-005	P-2	48990	06/24/99	06/29/99	06/29/99	
140148-006	P-3	48990	06/24/99	06/29/99	06/29/99	

Matrix: Water

Analyte	Units	140148-005	140148-006
Diln Fac:		50	25
MTBE	ug/L	<100	<50
Benzene	ug/L	2100	4400
Toluene	ug/L	4700	200
Ethylbenzene	ug/L	1300	150
m,p-Xylenes	ug/L	5600	760
o-Xylene	ug/L	2900	23
Surrogate			
Trifluorotoluene	%REC	110	103
Bromofluorobenzene	%REC	106	105

Lab #: 140148 BATCH QC REPORT Page

BTXE	
Client: Subsurface Consultants	Analysis Method: EPA 8021B
Project#: 838.006	Prep Method: EPA 5030
Location: APA Fund Task-1	

METHOD BLANK	
Matrix: Water	Prep Date: 06/28/99
Batch#: 48990	Analysis Date: 06/28/99
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC01361

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	93	51-143
Bromofluorobenzene	135	37-146

Lab #: 140148 BATCH QC REPORT Page

BTXE

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8021B
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 48990
Units: ug/L
Diln Fac: 1

Prep Date: 06/28/99
Analysis Date: 06/28/99

BS Lab ID: QC01363

Analyte	Spike Added	BS	%Rec #	Limits
MTBE	20	22.61	113	66-126
Benzene	20	19.38	97	65-111
Toluene	20	18.21	91	76-117
Ethylbenzene	20	19.63	98	71-121
m,p-Xylenes	40	38.22	96	80-123
o-Xylene	20	19.8	99	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	101	51-143
Bromofluorobenzene	136	37-146

BSD Lab ID: QC01364

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
MTBE	20	20.69	103	66-126	9	12
Benzene	20	19.16	96	65-111	1	10
Toluene	20	18.15	91	76-117	0	10
Ethylbenzene	20	19.39	97	71-121	1	11
m,p-Xylenes	40	38.45	96	80-123	1	10
o-Xylene	20	19.64	98	75-127	1	11

Surrogate	%Rec	Limits
Trifluorotoluene	99	51-143
Bromofluorobenzene	105	37-146

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

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	838.006	Prep Method:	EPA 5030
Location:	APA Fund Task-1		

Field ID:	MW-2	Sampled:	06/24/99
Lab ID:	140148-001	Received:	06/25/99
Matrix:	Water	Extracted:	06/30/99
Batch#:	49030	Analyzed:	06/30/99
Units:	ug/L		
Diln Fac:	3.333		

Analyte	Result	Reporting Limit
MTBE	410	1.7
Benzene	150	1.7
Toluene	19	1.7
Chlorobenzene	ND	1.7
Ethylbenzene	32	1.7
m,p-Xylenes	9.8	1.7
o-Xylene	15	1.7
1,3-Dichlorobenzene	ND	3.3
1,4-Dichlorobenzene	ND	3.3
1,2-Dichlorobenzene	ND	3.3

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	96	76-127
Toluene-d8	100	90-109
Bromofluorobenzene	104	82-118

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	838.006	Prep Method:	EPA 5030
Location:	APA Fund Task-1		

Field ID:	MW-4	Sampled:	06/24/99
Lab ID:	140148-002	Received:	06/25/99
Matrix:	Water	Extracted:	06/30/99
Batch#:	49030	Analyzed:	06/30/99
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	69	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	190	0.5
m,p-Xylenes	180	0.5
o-Xylene	15	0.5
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	98	76-127
Toluene-d8	100	90-109
Bromofluorobenzene	98	82-118

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	838.006	Prep Method:	EPA 5030
Location:	APA Fund Task-1		

Field ID:	MW-5	Sampled:	06/24/99
Lab ID:	140148-003	Received:	06/25/99
Matrix:	Water	Extracted:	06/29/99
Batch#:	49002	Analyzed:	06/29/99
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	95	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	107	82-118

Aromatic Volatile Organics
EPA 8020 Analyte List

Client: Subsurface Consultants	Analysis Method: EPA 8260A
Project#: 838.006	Prep Method: EPA 5030
Location: APA Fund Task-1	

Field ID: MW-6	Sampled: 06/24/99
Lab ID: 140148-004	Received: 06/25/99
Matrix: Water	Extracted: 06/29/99
Batch#: 49002	Analyzed: 06/29/99
Units: ug/L	
Diln Fac: 1	

Analyte	Result	Reporting Limit
MTBE	ND	0.5
Benzene	14	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	19	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	98	76-127
Toluene-d8	100	90-109
Bromofluorobenzene	103	82-118

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	838.006	Prep Method:	EPA 5030
Location:	APA Fund Task-1		

Field ID:	P-2	Sampled:	06/24/99
Lab ID:	140148-005	Received:	06/25/99
Matrix:	Water	Extracted:	07/06/99
Batch#:	49122	Analyzed:	07/06/99
Units:	ug/L		
Diln Fac:	50		

Analyte	Result	Reporting Limit
MTBE	ND	25
Benzene	1800	25
Toluene	4700	25
Chlorobenzene	ND	25
Ethylbenzene	1300	25
m,p-Xylenes	6100	25
o-Xylene	3200	25
1,3-Dichlorobenzene	ND	50
1,4-Dichlorobenzene	ND	50
1,2-Dichlorobenzene	ND	50

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	105	76-127
Toluene-d8	97	90-109
Bromofluorobenzene	99	82-118

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	838.006	Prep Method:	EPA 5030
Location:	APA Fund Task-1		

Field ID:	P-3	Sampled:	06/24/99
Lab ID:	140148-006	Received:	06/25/99
Matrix:	Water	Extracted:	07/02/99
Batch#:	49088	Analyzed:	07/02/99
Units:	ug/L		
Diln Fac:	20		

Analyte	Result	Reporting Limit
MTBE	ND	10
Benzene	3300	10
Toluene	190	10
Chlorobenzene	ND	10
Ethylbenzene	140	10
m,p-Xylenes	740	10
o-Xylene	16	10
1,3-Dichlorobenzene	ND	20
1,4-Dichlorobenzene	ND	20
1,2-Dichlorobenzene	ND	20

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	93	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	100	82-118

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 49002
Units: ug/L
Diln Fac: 1

Prep Date: 06/29/99
Analysis Date: 06/29/99

MB Lab ID: QC01414

Analyte	Result	Reporting Limit
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
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	96	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	103	82-118

Lab #: 140148

BATCH QC REPORT

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 49030
Units: ug/L
Diln Fac: 1

Prep Date: 06/30/99
Analysis Date: 06/30/99

MB Lab ID: QC01523

Analyte	Result	Reporting Limit
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
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	98	76-127
Toluene-d8	100	90-109
Bromofluorobenzene	109	82-118

Lab #: 140148

BATCH QC REPORT

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Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 49030
Units: ug/L
Diln Fac: 1

Prep Date: 06/30/99
Analysis Date: 06/30/99

MB Lab ID: QC01524

Analyte	Result	Reporting Limit
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
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	100	76-127
Toluene-d8	100	90-109
Bromofluorobenzene	107	82-118

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 49088
Units: ug/L
Diln Fac: 1

Prep Date: 07/02/99
Analysis Date: 07/02/99

MB Lab ID: QC01759

Analyte	Result	Reporting Limit
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
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	106	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	102	82-118

Lab #: 140148 BATCH QC REPORT Page

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 49122
Units: ug/L
Diln Fac: 1

Prep Date: 07/06/99
Analysis Date: 07/06/99

MB Lab ID: QC01892

Analyte	Result	Reporting Limit
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
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	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	102	82-118

Lab #: 140148

BATCH QC REPORT

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 49002
Units: ug/L
Diln Fac: 1

Prep Date: 06/29/99
Analysis Date: 06/29/99

LCS Lab ID: QC01412

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	46.62	50	93	71-127
Toluene	48.72	50	97	73-129
Chlorobenzene	47.13	50	94	77-126

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	95	76-127
Toluene-d8	98	90-109
Bromofluorobenzene	98	82-118

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 #: 140148

BATCH QC REPORT

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 49030
Units: ug/L
Diln Fac: 1

Prep Date: 06/30/99
Analysis Date: 06/30/99

LCS Lab ID: QC01540

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	45.8	50	92	71-127
Toluene	48.41	50	97	73-129
Chlorobenzene	47.73	50	95	77-126

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	94	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	98	82-118

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 #: 140148 BATCH QC REPORT Page

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 49088
Units: ug/L
Diln Fac: 1

Prep Date: 07/02/99
Analysis Date: 07/02/99

BS Lab ID: QC01757

Analyte	Spike Added	BS	%Rec #	Limits
Benzene	50	45.84	92	71-127
Toluene	50	46.96	94	73-129
Chlorobenzene	50	47.62	95	77-126

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	96	76-127
Toluene-d8	96	90-109
Bromofluorobenzene	98	82-118

BSD Lab ID: QC01758

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Benzene	50	46.62	93	71-127	2	10
Toluene	50	48.43	97	73-129	3	10
Chlorobenzene	50	48.31	97	77-126	1	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	103	76-127
Toluene-d8	98	90-109
Bromofluorobenzene	98	82-118

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

Lab #: 140148

BATCH QC REPORT

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 49122
Units: ug/L
Diln Fac: 1

Prep Date: 07/06/99
Analysis Date: 07/06/99

BS Lab ID: QC01889

Analyte	Spike Added	BS	%Rec	#	Limits
Benzene	50	45.89	92		71-127
Toluene	50	47.36	95		73-129
Chlorobenzene	50	46.88	94		77-126

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	97	76-127
Toluene-d8	98	90-109
Bromofluorobenzene	100	82-118

BSD Lab ID: QC01890

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Benzene	50	45.61	91		71-127	1		10
Toluene	50	48.26	97		73-129	2		10
Chlorobenzene	50	46.64	93		77-126	1		10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	96	76-127
Toluene-d8	98	90-109
Bromofluorobenzene	100	82-118

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

Lab #: 140148 BATCH QC REPORT Page

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 140094-004
Matrix: Water
Batch#: 49002
Units: ug/L
Diln Fac: 1

Sample Date: 06/23/99
Received Date: 06/23/99
Prep Date: 07/01/99
Analysis Date: 07/01/99

MS Lab ID: QC01410

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	50	<0.5	47.48	95	67-128
Toluene	50	1.341	50.28	98	72-126
Chlorobenzene	50	<0.5	48.41	97	78-122

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	100	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	98	82-118

MSD Lab ID: QC01411

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	50	47.46	95	67-128	0	10
Toluene	50	50.49	98	72-126	0	10
Chlorobenzene	50	48.49	97	78-122	0	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	100	76-127
Toluene-d8	100	90-109
Bromofluorobenzene	99	82-118

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

Lab #: 140148

BATCH QC REPORT

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 838.006
Location: APA Fund Task-1

Analysis Method: EPA 8260A
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 140127-005
Matrix: Water
Batch#: 49030
Units: ug/L
Diln Fac: 1

Sample Date: 06/24/99
Received Date: 06/25/99
Prep Date: 07/01/99
Analysis Date: 07/01/99

MS Lab ID: QC01616

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	50	<0.5	46.37	93	67-128
Toluene	50	<0.5	48.34	97	72-126
Chlorobenzene	50	<0.5	47.61	95	78-122

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	100	76-127
Toluene-d8	100	90-109
Bromofluorobenzene	100	82-118

MSD Lab ID: QC01617

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	50	46.72	93	67-128	1	10
Toluene	50	48.41	97	72-126	0	10
Chlorobenzene	50	47.78	96	78-122	0	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	99	76-127
Toluene-d8	100	90-109
Bromofluorobenzene	98	82-118

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

14014%

CHAIN OF CUSTODY FORM

PAGE 1 OF 1

PROJECT NAME: APA fuel 2801 McArthur Blvd... Oakland, Ca.
JOB NUMBER: 838.006 Task 1
PROJECT CONTACT: Jeri Alexander
SAMPLED BY: Stewart
LAB: C&T
TURNAROUND: Standard
REQUESTED BY: Stewart

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR	CONTAINERS: VOA w/Hcl	LITER	PINT	TUBE	METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES	ANALYSIS REQUESTED: TVH 5030/8015 m	BTEX 5030/8020	MTBE 5030/8260	Mass Spec
1	m-2	X				4				X			X		6	24	99	1000		X	X	X	
2	m-4	X				4				X			X		6	24	99	0845		X	X	X	
3	m-5	X				4				X			X		6	24	99	0945		X	X	X	
4	m-6	X				4				X			X		6	24	99	0900		X	X	X	
5	p-2	X				4				X			X		6	24	99	1030		X	X	X	
6	p-3	X				4				X			X		6	24	99	1015		X	X	X	

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
[signature]	6/25/99 1820	[signature]	6/25/99 1820
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:

- Mass spec on the 8260 MTBE
- modified 8015 on TVH
- Please archive any extra samples

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