



Subsurface Consultants, Inc. ENVIRONMENTAL PROTECTION

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#266

R. William Rudolph, P.E.
President

March 5, 1997
SCI 946.002

Ms. Shirley Howkins
c/o Mr. Carlo Mormorunni
Fitzgerald, Abbott & Beardsley
1221 Broadway, 21st Floor
Oakland, California 94612-1837

**Quarterly Groundwater Monitoring
January 1997 Event
2528 Adeline Street
Oakland, California**

Dear Ms. Howkins:

This letter presents the results of the January 1997 groundwater monitoring event for the referenced site. Groundwater monitoring has been performed at the request of the Alameda County Health Care Services Agency (ACHCSA) due to the presence of petroleum hydrocarbons, heavy metals, and volatile organic compounds detected in groundwater beneath the site. The location of the site is shown on the attached Plate 1.

Groundwater Sampling

On January 9, 1997, monitoring wells MW-1, MW-2 and MW-3 were gauged and sampled. In general, the event consisted of (1) measuring groundwater levels using an electric well sounder, (2) checking for free product, (3) purging water from each well until pH, conductivity, and temperature had stabilized (approximately three well volumes), and (4) after the wells had recovered to at least 80 percent of their initial level, sampling the wells with new disposable bailers. Purge water generated during sampling activities was stored onsite in 55-gallon drums for later disposal by others. The samples were retained in glass containers pre-cleaned by the supplier in accordance with EPA protocol. The containers were placed in an ice-filled cooler and remained iced until delivery to the analytical laboratory.

Analytical Testing

Analytical testing was performed by Curtis & Tompkins, Ltd., a laboratory certified by the State of California Department of Health Services for hazardous waste and water testing. Samples were analyzed for the following:

3736 Mt. Diablo Boulevard • Suite 200 • Lafayette, California 94549 • (510) 299-7960 • FAX (510) 299-7970

171 12th Street • Suite 205 • Oakland, California 94607 • (510) 268-0461 • FAX (510) 268-0137

Ms. Shirley Howkins
c/o Mr. Carlo Mormorunni
Fitzgerald, Abbott & Beardsley
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1. Total volatile hydrocarbons as gasoline and stoddard solvent (TVH, EPA 5030/8015),
2. Benzene, toluene, ethylbenzene, and total xylenes (BTEX, EPA 8020),
3. Total extractable hydrocarbons as diesel, kerosene and stoddard solvent (TEH, EPA 8015),
4. Volatile organic compounds (VOC, EPA 5030/8240),
5. Dissolved barium (EPA 6010A), and
6. Dissolved selenium (EPA 6010A).

Verbal authorization was obtained from ACHCSA on January 8, 1997, to discontinue water sampling for oil and grease as test results have been non-detect for the previous three consecutive quarterly events. Samples submitted for metals analysis were filtered by the laboratory prior to analysis. A summary of the current and previous analytical test results are presented in the attached Tables 1 through 3. Analytical test reports, chain-of-custody documents, and well sampling forms for this event are also attached.

Conclusions

The groundwater level data indicates the local groundwater flow direction is toward the west to northwest at a gradient of approximately 1 percent. Previous groundwater monitoring events have indicated groundwater flow directions are highly variable; however, the gradient remains relatively flat. A summary of groundwater level data is presented in the attached Table 4.

TVH, TEH, ethylbenzene and total xylenes were detected in monitoring well MW-1 during this event at concentrations similar to previous events which exhibited a similar groundwater flow direction. TVH, TEH, and BTEX were not detected above laboratory reporting limits in monitoring well MW-2 for the second consecutive quarter. TVH, TEH and BTEX have not been detected above laboratory reporting limits in monitoring well MW-3 during the five sampling events conducted.

Barium and selenium concentrations were consistent with previous events. These concentrations are likely regional in nature as similar values appear in all three wells and no historic onsite source has been identified.

Concentrations of 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE) and trichloroethane (1,1,1-TCA) were detected in monitoring well MW-2 and 1,1,1-TCA was detected in monitoring well MW-3 at values similar to previous events. Neither 1,1-DCA, 1,1-DCE nor 1,1,1-TCA were detected in monitoring well MW-1 during this event.

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In a letter dated January 14, 1997, the ACHCSA revised the monitoring schedule from quarterly to semi-annual. In accordance with this revised plan, the next sampling event is scheduled for July 1997.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.



Meg Mendoza
Project Engineer



Jeriann N. Alexander, P.E., REA
Civil Engineer 40469 (expires 3/31/99)
Registered Environmental Assessor 03130 (exp. 6/30/97)

MM:JNA:RWR:ly qrtmnt.197

Attachments: Plate 1 - Site Plan
Table 1 - Petroleum Hydrocarbon Concentrations in Groundwater
Table 2 - Volatile Organic Compound Concentrations in Groundwater
Table 3 - Barium and Selenium Concentrations in Groundwater
Table 4 - Groundwater Elevation Data
Analytical Test Reports
Chain-of-Custody Documents
Well Sampling Forms

4 copies submitted

TABLE 1
 PETROLEUM HYDROCARBON CONCENTRATIONS
 IN GROUNDWATER
 2528 ADELIN STREET
 OAKLAND, CALIFORNIA

Sample ID	Date	TVH ¹		TEH ²		O&G (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
		as Gasoline (µg/L)	as Stoddard Solvent (µg/L)	as Diesel C12-C22 (µg/L)	as Kerosene C10-C16 (µg/L)					
Former Well (abandoned)	3/31/95	2800	**	1600*	**	37	--	--	--	--
MW-1	4/3/95	730	**	**	310*	5.8	--	--	--	--
	4/29/96	2000*	2000*	240*	220*	<5	<0.5	<0.5	65	16
	7/25/96	730*	750*	190*	180*	<5	<0.5	<0.5	26	<0.5
	10/31/96	<50	<50	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	1/9/97	1800	**	470*	550*	--	<0.5	<0.5	57	26
MW-2	8/15/95	83*	**	<50	<50	<5	--	--	--	--
	4/29/96	75*	74*	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	7/25/96	110*	92*	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	10/31/96	<50	<50	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	1/9/97	<50	<50	<50	<50	--	<0.5	<0.5	<0.5	<0.5
MW-3	8/15/95	<50	<50	<50	<50	<5	--	--	--	--
	4/29/96	<50	<50	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	7/25/96	<50	<50	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	10/31/96	<50	<50	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	1/9/97	<50	<50	<50	<50	--	<0.5	<0.5	<0.5	<0.5

¹Gasoline and stoddard solvent hydrocarbon ranges overlap

²Diesel and kerosene hydrocarbon ranges overlap

* = Sample chromatogram does not resemble standard pattern

** = Range not reported due to overlap of hydrocarbons

µg/L = micrograms per liter or parts per billion

mg/L = milligrams per liter or parts pr million

TVH = Total volatile hydrocarbons

TEH = Total extractable hydrocarbons

O&G = Oil and grease

-- = Test not requested

<50 = None detected above the laboratory reporting limit stated.

TABLE 2
VOLATILE ORGANIC COMPOUND
CONCENTRATIONS IN GROUNDWATER
2528 ADELINE STREET
OAKLAND, CALIFORNIA

SAMPLE ID	Date Sampled	Acetone (µg/L)	Carbon disulfide (µg/L)	1,1-DCA (µg/L)	1,1-DCE (µg/L)	2-Butanone (µg/L)	4-Methyl-2-pentanone (µg/L)	1,1,1-TCA (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl benzene (µg/L)	Total xylenes (µg/L)	cis-1,2-DCE (µg/L)	Other EPA 8240 Compounds
Former Well (Abandoned)	3/31/95	24	4.1*	<5.0	<5.0	7.7*	57	<5.0	4.5*	49	34	270	<5.0	ND
MW-1	4/3/95	<20	<5.0	<5.0	4.2	<10	<10	<5.0	3.1	39	13	75	<5.0	ND
	4/29/96	<20	<5.0	<5.0	6.2	<10	<10	<5.0	<5.0	<5.0	62	12	<5.0	ND
	7/25/96	<20	<5.0	<5.0	<5.0	<10	<10	<5.0	<5.0	<5.0	6.4	<5.0	<5.0	ND
	10/31/96	<20	<5.0	<5.0	<5.0	<10	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	ND
	1/9/97	<20	<5.0	<5.0	<5.0	<10	<10	<5.0	<5.0	<5.0	51	22	<5.0	ND
MW-2	8/15/95	<50	<13	62	260	<25	<25	170	<13	<13	<13	<13	<13	ND
	4/29/96	<20	<5.0	91	400	<10	<10	260	<5.0	<5.0	<5.0	<5.0	<5.0	ND
	7/25/96	<40	<10	70	270	<20	<20	230	<10	<10	<10	<10	<10	ND
	10/31/96	<33	<8.3	67	210	<17	<17	160	<8.3	<8.3	<8.3	<8.3	<8.3	ND
	1/9/97	<50	<13	79	340	<25	<25	230	<13	<13	<13	<13	<13	ND
MW-3	8/15/95	<20	<5.0	3.3	4.1	<10	<10	8.8	<5.0	<5.0	<5.0	<5.0	2.9	ND
	4/29/96	<20	<5.0	<5.0	14	<10	<10	12	<5.0	<5.0	<5.0	<5.0	<5.0	ND
	7/25/96	<20	<5.0	<5.0	7.2	<10	<10	8	<5.0	<5.0	<5.0	<5.0	<5.0	ND
	10/31/96	<20	<5.0	<5.0	<5.0	<10	<10	5.1	<5.0	<5.0	<5.0	<5.0	<5.0	ND
	1/9/97	<20	<5.0	<5.0	<5.0	<10	<10	5.6	<5.0	<5.0	<5.0	<5.0	<5.0	ND

1,1-DCA = 1,1-Dichloroethane

1,1-DCE = 1,1-Dichloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

cis-1,2-DCE = cis-1,2-Dichloroethene

<20 = None detected at or above the stated detection limit

ND = Not detected at or above analytical detection limits. See analytical test reports for individual detection limits.

µg/L = micrograms per liter or parts per billion

* = Estimated value detected below the laboratory reporting limit.

100 Soil ppm
 Ba 5400
 10000
 0.52
 2600
 1600 82
 DAP
 MCL
 1 mg/L

TABLE 3
BARIUM AND SELENIUM CONCENTRATIONS IN GROUNDWATER
2528 ADELINE STREET
OAKLAND, CALIFORNIA

Se 390 10000 180 0.05 mg/L

<u>Sample ID</u>	<u>Date</u>	<u>Dissolved Barium (µg/L)</u>	<u>Dissolved Selenium (µg/L)</u>
Former Well (abandoned)	3/31/95	28,000	7.4
MW-1	4/3/95	160	11
	4/29/96	130	<5.0
	7/25/96	110	11
	10/31/96	130	8.5
	1/9/97	270	19
MW-2	8/15/95	180*	--
	4/29/96	120	18
	7/25/96	130	12
	10/31/96	130	10
	1/9/97	150	19
MW-3	8/15/95	62*	--
	4/29/96	82	9.5
	7/25/96	33	5.4
	10/31/96	100	5.2
	1/9/97	130	7.3

* = Sample not filtered prior to analysis. All other samples filtered by laboratory using a 0.45 micron filter.
 -- = Test not requested
 µg/L = micrograms per liter
 <5 = None detected at or above the laboratory stated detection limit.

**TABLE 4
GROUNDWATER ELEVATION DATA
2528 ADELINE STREET
OAKLAND, CALIFORNIA**

<u>Well Number</u>	<u>Date</u>	<u>TOC1 Elevation (feet)</u>	<u>Groundwater Depths2 (feet)</u>	<u>Groundwater Elevation3 (feet)</u>
MW-1	4/3/95	10.99	5.78	5.21
	8/14/95		8.04	2.95
	4/29/96		8.16	2.83
	7/25/96		8.80	2.19
	10/31/96		8.69	2.30
	1/9/97		5.65	5.34
MW-2	8/14/95	9.12	6.42	2.70
	4/29/96		5.43	3.69
	7/25/96		6.68	2.44
	10/31/96		6.74	2.38
	1/9/97		3.99	5.13
MW-3	8/14/95	9.93	7.48	2.45
	4/29/96		7.16	2.77
	7/25/96		7.55	2.38
	10/31/96		7.17	2.76
	1/9/97		6.66	3.27

Notes:

1. TOC - Top of Casing
2. Measured below TOC
3. Reference Mean Sea Level



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. Ste. 200
Layfayette, CA 94549

Date: 14-JAN-97
Lab Job Number: 127936
Project ID: 946.002
Location: 2528 Adeline St.

Reviewed by: _____

Reviewed by: _____

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CLIENT: Subsurface Consultants
 PROJECT ID: 946.002
 LOCATION: 2528 Adeline St.
 MATRIX: Filtrate

DATE REPORTED: 01/15/97

Metals Analytical Report

Selenium

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
MW-1	127936-001	01/09/97	01/09/97	19	5.0	1	31799	EPA 6010A	01/15/97
MW-2	127936-002	01/09/97	01/09/97	19	5.0	1	31799	EPA 6010A	01/15/97
MW-3	127936-003	01/09/97	01/09/97	7.3	5.0	1	31799	EPA 6010A	01/15/97



CLIENT: Subsurface Consultants
PROJECT ID: 946.002
LOCATION: 2528 Adeline St.
MATRIX: Filtrate

DATE REPORTED: 01/15/97

Metals Analytical Report

Barium

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
MW-1	127936-001	01/09/97	01/09/97	270	10	1	31799	EPA 6010A	01/15/97
MW-2	127936-002	01/09/97	01/09/97	150	10	1	31799	EPA 6010A	01/15/97
MW-3	127936-003	01/09/97	01/09/97	130	10	1	31799	EPA 6010A	01/15/97



Curtis & Tompkins, Ltd.



Curtis & Tompkins, Ltd.

CLIENT: Subsurface Consultants
JOB NUMBER: 127936

DATE REPORTED: 01/15/97

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Barium	ND	10	ug/L	1	31799	EPA 6010A	01/15/97
Selenium	ND	5	ug/L	1	31799	EPA 6010A	01/15/97

ND = Not Detected at or above reporting limit

CLIENT: Subsurface Consultants
 JOB NUMBER: 127936

DATE REPORTED: 01/15/97

BATCH QC REPORT
 BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Barium	2000	2060	2070	ug/L	103	104	80-120	1	35	31799	EPA 6010A	01/15/97
Selenium	2000	1880	1910	ug/L	94	96	80-120	2	35	31799	EPA 6010A	01/15/97



Curtis & Tompkins, Ltd.

CLIENT: Subsurface Consultants
JOB NUMBER: 127936

DATE REPORTED: 01/15/97

**BATCH QC REPORT
SAMPLE SPIKE**

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Barium	2000	127944-001	22	2060	ug/L	102	65-135	31799	EPA 6010A	01/15/97
Selenium	2000	127944-001	23.7	2030	ug/L	100	65-135	31799	EPA 6010A	01/15/97

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)
Project#: 946.002	Prep Method: EPA 5030
Location: 2528 Adeline St.	

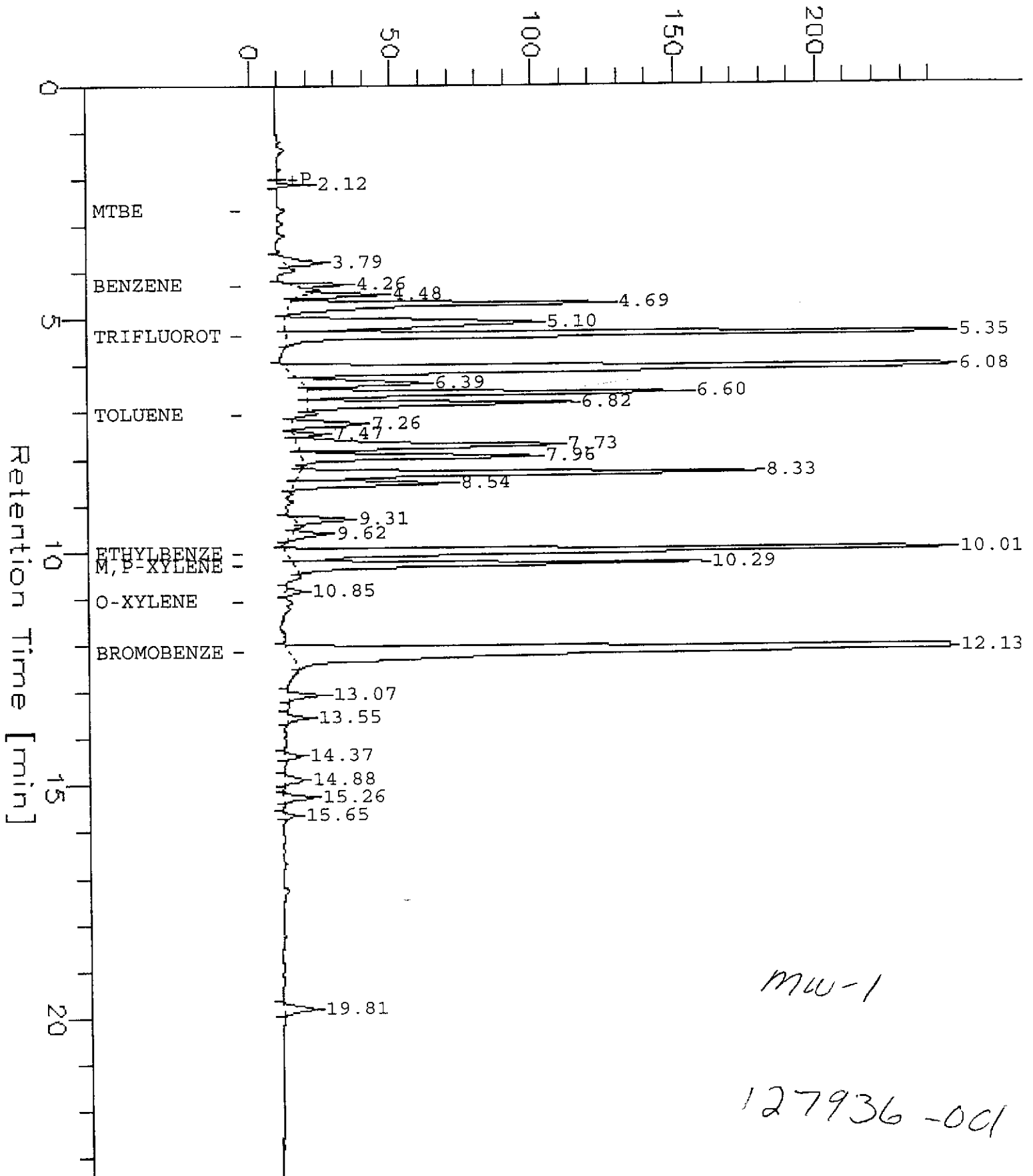
Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
127936-001	MW-1	31801	01/09/97	01/13/97	01/13/97	
127936-002	MW-2	31801	01/09/97	01/13/97	01/13/97	
127936-003	MW-3	31801	01/09/97	01/13/97	01/13/97	

Matrix: Water

Analyte	Units	127936-001	127936-002	127936-003
Diln Fac:		1	1	1
Gasoline	ug/L	1800	<50	<50
Stoddard Solvent	ug/L	** NR	<50	<50
Surrogate				
Trifluorotoluene	%REC	100	104	104
Bromobenzene	%REC	103	81	81

** : Not reported due to overlapping hydrocarbon ranges

Response [mV]

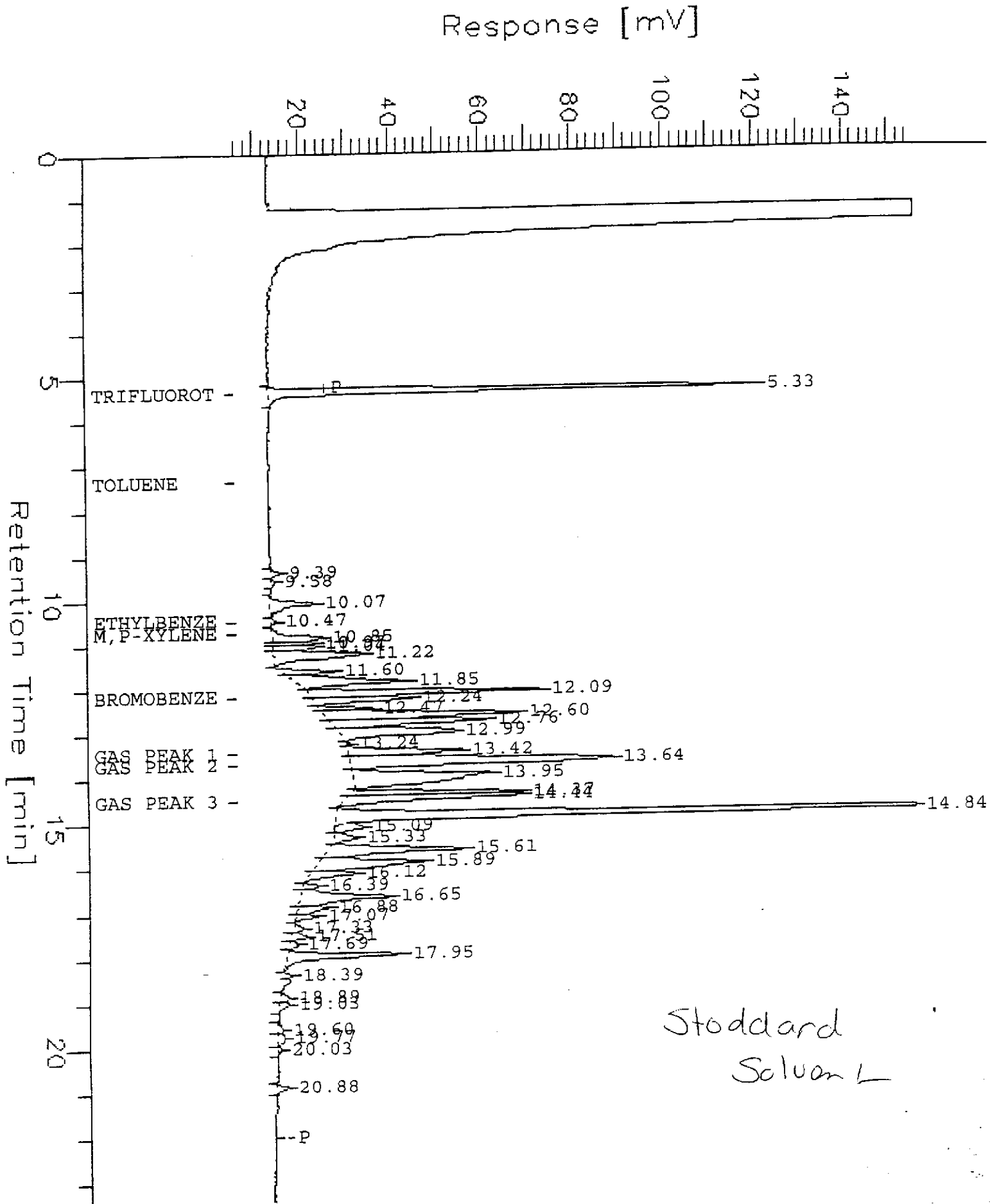


FileName : G:\GC05\013H006.raw
Start Time : 0.00 min
Scale Factor: -1

End Time : 23.42 min
Plot Offset: 6 mV

Date : 1/13/97 3:21 AM
Low Point : 5.76 mV
Plot Scale: 150 mV

Page 1 of 1
High Point : 155.76 mV





BTXE

Client: Subsurface Consultants
Project#: 946.002
Location: 2528 Adeline St.

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
127936-001	MW-1	31801	01/09/97	01/13/97	01/13/97	
127936-002	MW-2	31801	01/09/97	01/13/97	01/13/97	
127936-003	MW-3	31801	01/09/97	01/13/97	01/13/97	

Matrix: Water

Analyte	Units	127936-001	127936-002	127936-003
Diln Fac:		1	1	1
Benzene	ug/L	<0.5	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	57	<0.5	<0.5
m,p-Xylenes	ug/L	25	<0.5	<0.5
o-Xylene	ug/L	1.3	<0.5	<0.5
Surrogate				
Trifluorotoluene	%REC	99	95	95
Bromobenzene	%REC	109	94	94

127936-1

FileName : G:\GC05\013H023.raw

Date : 1/13/97 1:26 PM

Page 1 of 1

Start Time : 0.00 min

End Time : 23.42 min

Low Point : 6.16 mV

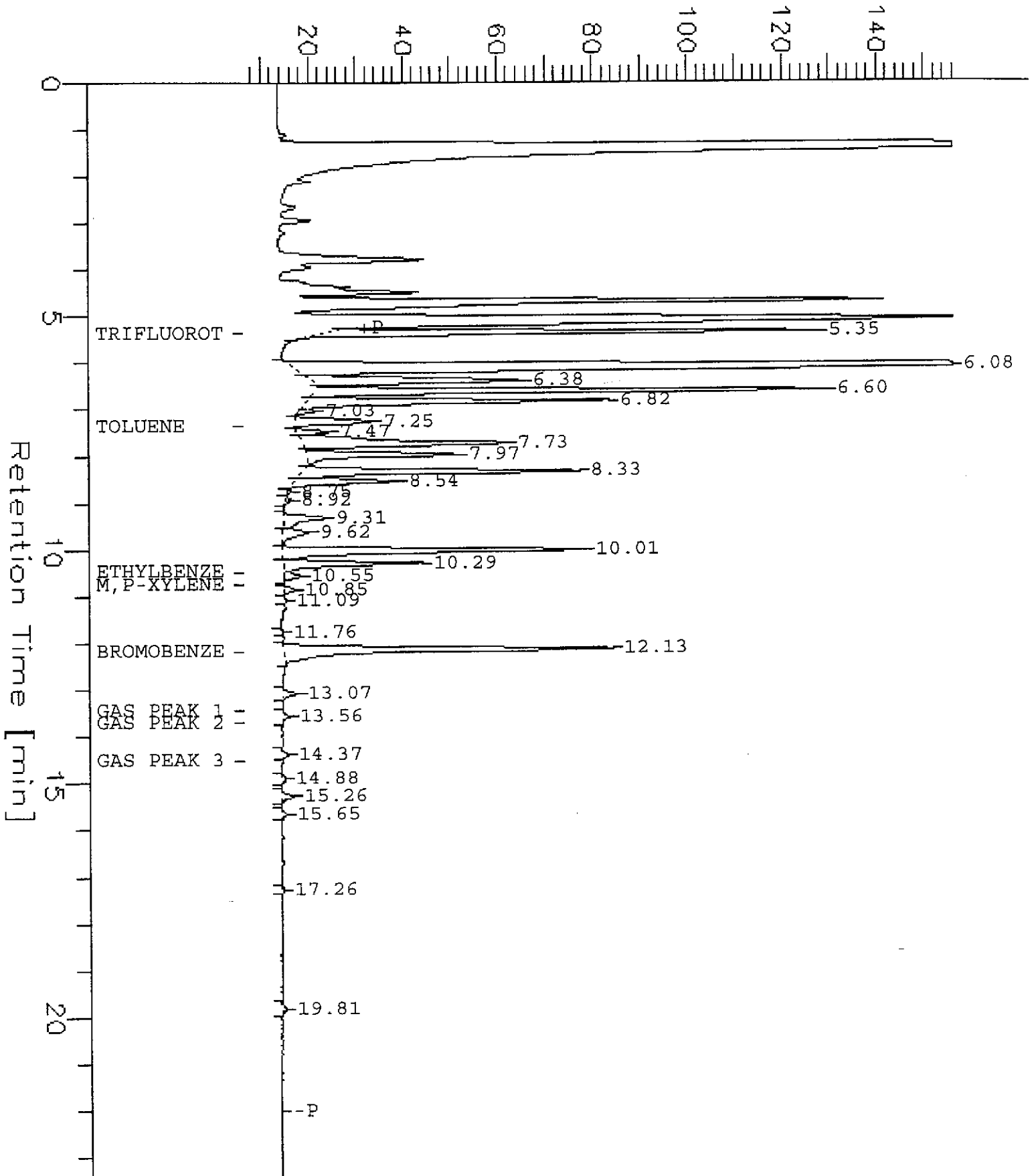
High Point : 156.16 mV

Scale Factor: -1

Plot Offset: 6 mV

Plot Scale: 150 mV

Response [mV]



GASOLINE STANDARD

TVH2 - GC-05 RTX-1

FileName : G:\GC05\013H002.raw

Date : 1/13/97 12:59 AM

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Start Time : 0.00 min

End Time : 23.42 min

Low Point : 6.73 mV

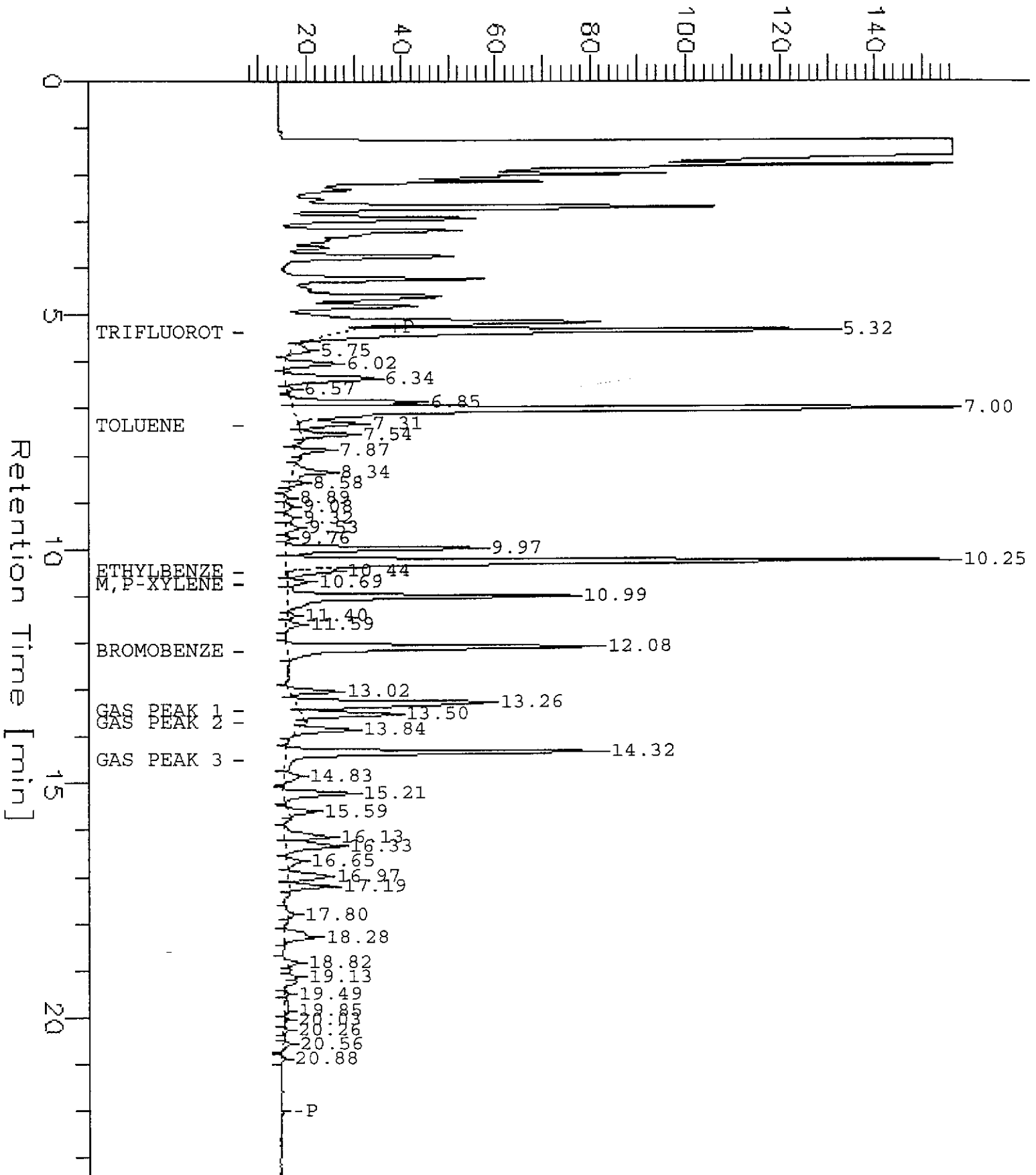
High Point : 156.73 mV

Scale Factor : -1

Plot Offset : 7 mV

Plot Scale : 150 mV

Response [mV]



Lab #: 127936

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons			
Client:	Subsurface Consultants	Analysis Method:	CA LUFT (EPA 8015M)
Project#:	946.002	Prep Method:	EPA 5030
Location:	2528 Adeline St.		
METHOD BLANK			
Matrix:	Water	Prep Date:	01/13/97
Batch#:	31801	Analysis Date:	01/13/97
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC37892

Analyte	Result		
Gasoline	<50		
Stoddard Solvent	<50		
Surrogate	%Rec	Recovery Limits	
Trifluorotoluene	103	69-120	
Bromobenzene	74	70-122	



Lab #: 127936

BATCH QC REPORT

Page 1 of 1

BTXE

Client: Subsurface Consultants
Project#: 946.002
Location: 2528 Adeline St.

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 31801
Units: ug/L
Diln Fac: 1

Prep Date: 01/13/97
Analysis Date: 01/13/97

MB Lab ID: QC37892

Analyte	Result	
Benzene	<0.5	
Toluene	<0.5	
Ethylbenzene	<0.5	
m,p-Xylenes	<0.5	
o-Xylene	<0.5	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	94	58-130
Bromobenzene	85	62-131



Lab #: 127936

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons			
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)		
Project#: 946.002	Prep Method: EPA 5030		
Location: 2528 Adeline St.			
LABORATORY CONTROL SAMPLE			
Matrix: Water	Prep Date: 01/13/97		
Batch#: 31801	Analysis Date: 01/13/97		
Units: ug/L			
Diln Fac: 1			

LCS Lab ID: QC37890

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	1806	2000	90	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	100	69-120		
Bromobenzene	96	70-122		

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 #: 127936

BATCH QC REPORT

Page 1 of 1

BTXE			
Client: Subsurface Consultants	Analysis Method: EPA 8020		
Project#: 946.002	Prep Method: EPA 5030		
Location: 2528 Adeline St.			
LABORATORY CONTROL SAMPLE			
Matrix: Water	Prep Date: 01/13/97		
Batch#: 31801	Analysis Date: 01/13/97		
Units: ug/L			
Diln Fac: 1			

LCS Lab ID: QC37891

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	17.4	20	87	80-120
Toluene	18.1	20	91	80-120
Ethylbenzene	18.3	20	92	80-120
m,p-Xylenes	37	40	93	80-120
o-Xylene	18.3	20	92	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	95	58-130		
Bromobenzene	92	62-131		

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits



Lab #: 127936

BATCH QC REPORT

Page 1 of 1

TVH-Total Volatile Hydrocarbons	
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)
Project#: 946.002	Prep Method: EPA 5030
Location: 2528 Adeline St.	
MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
Field ID: ZZZZZZ	Sample Date: 01/07/97
Lab ID: 127906-008	Received Date: 01/07/97
Matrix: Water	Prep Date: 01/13/97
Batch#: 31801	Analysis Date: 01/13/97
Units: ug/L	
Diln Fac: 1	

MS Lab ID: QC37893

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline	2000	<50	1780	89	75-125
Surrogate	%Rec	Limits			
Trifluorotoluene	102	69-120			
Bromobenzene	100	70-122			

MSD Lab ID: QC37894

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline	2000	1781	89	75-125	0	35
Surrogate	%Rec	Limits				
Trifluorotoluene	102	69-120				
Bromobenzene	100	70-122				

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

TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 946.002
Location: 2528 Adeline St.

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
127936-001	MW-1	31778	01/09/97	01/09/97	01/10/97	
127936-002	MW-2	31778	01/09/97	01/09/97	01/10/97	
127936-003	MW-3	31778	01/09/97	01/09/97	01/11/97	

Matrix: Water

Analyte	Units	127936-001	127936-002	127936-003
Diln Fac:		1	1	1
Kerosene C10-C16	ug/L	550 Y	<50	<50
Diesel C12-C22	ug/L	470 YL	<50	<50
Surrogate				
Hexacosane	%REC	92	101	106

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

Chromatogram

Sample Name : 127936-001

FileName : G:\GC11\CHB\010B020.RAW

Method : BTEH006.MTH

Start Time : 0.01 min

End Time : 19.96 min

Scale Factor: 0.0

Plot Offset: -7 mV

Sample #: 31778

Date : 1/13/97 10:57 AM

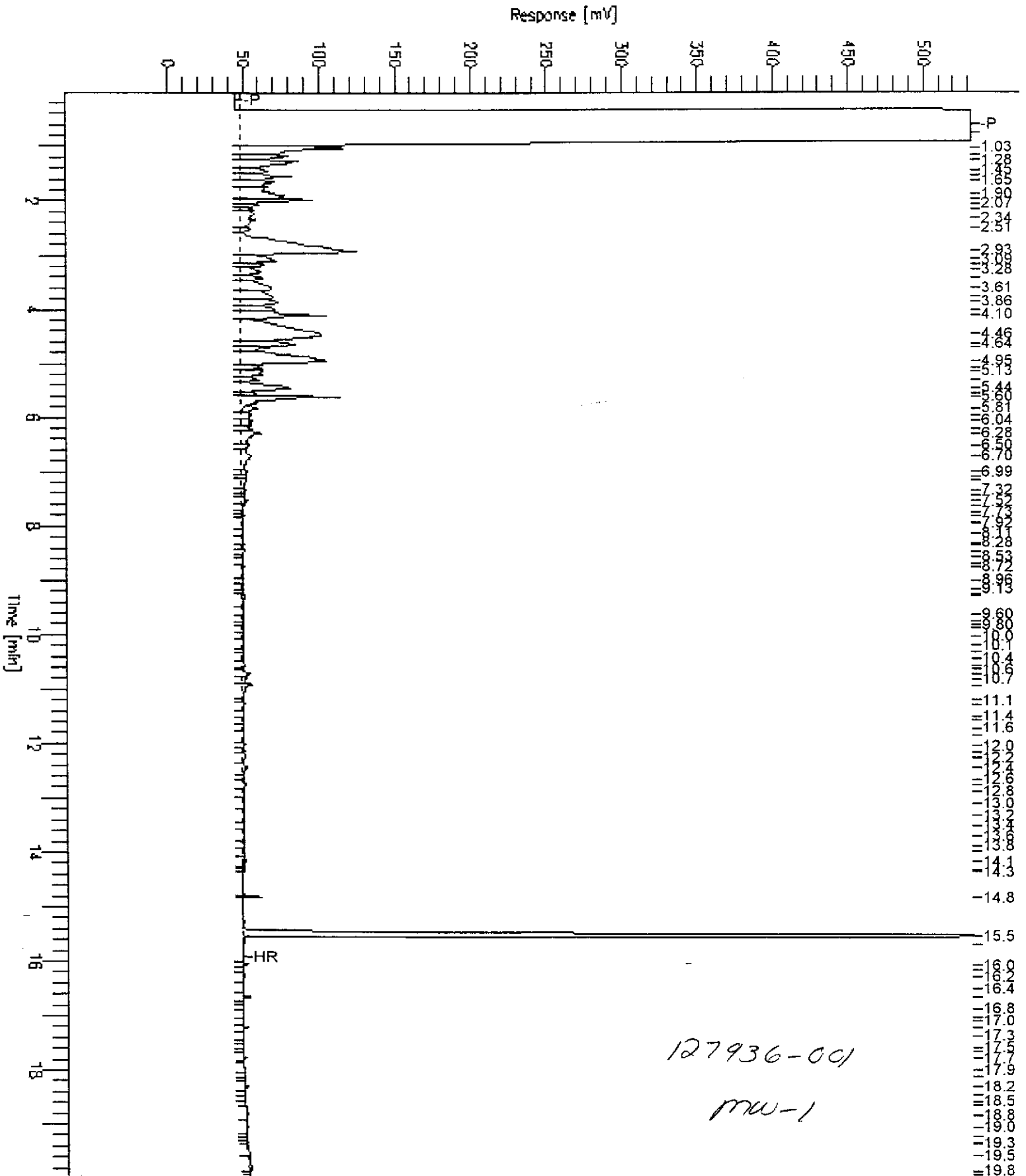
Time of Injection: 1/10/97 11:13 PM

Low Point : -7.10 mV

Plot Scale: 539.1 mV

Page 1 of 1

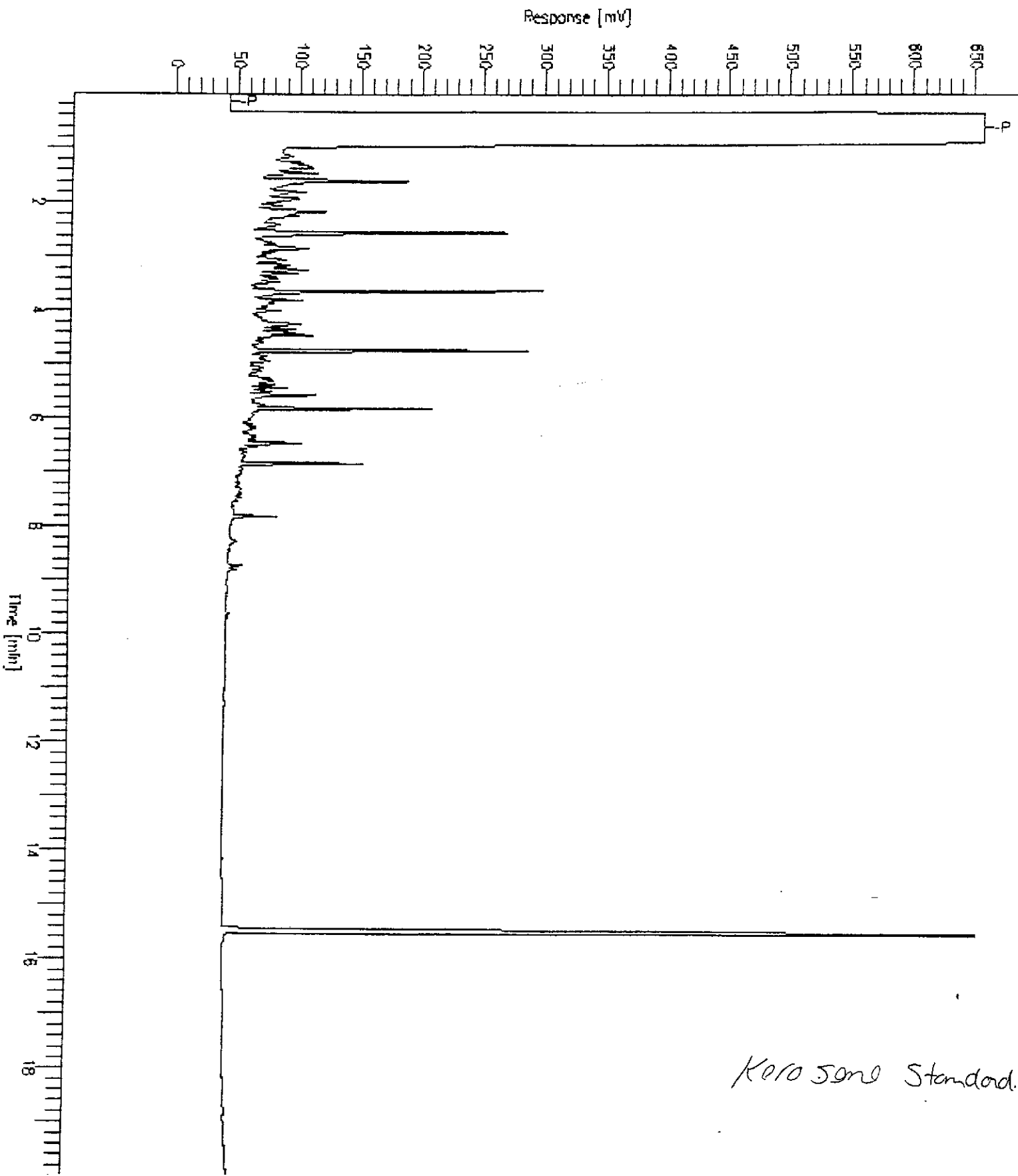
High Point : 531.96 mV



Sample Name : CCV, 96WS2922E, KERO
FileName : G:\GC11\CHB\010B018.RAW
Method : BTEH006.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.99 min
Plot Offset: -8 mV

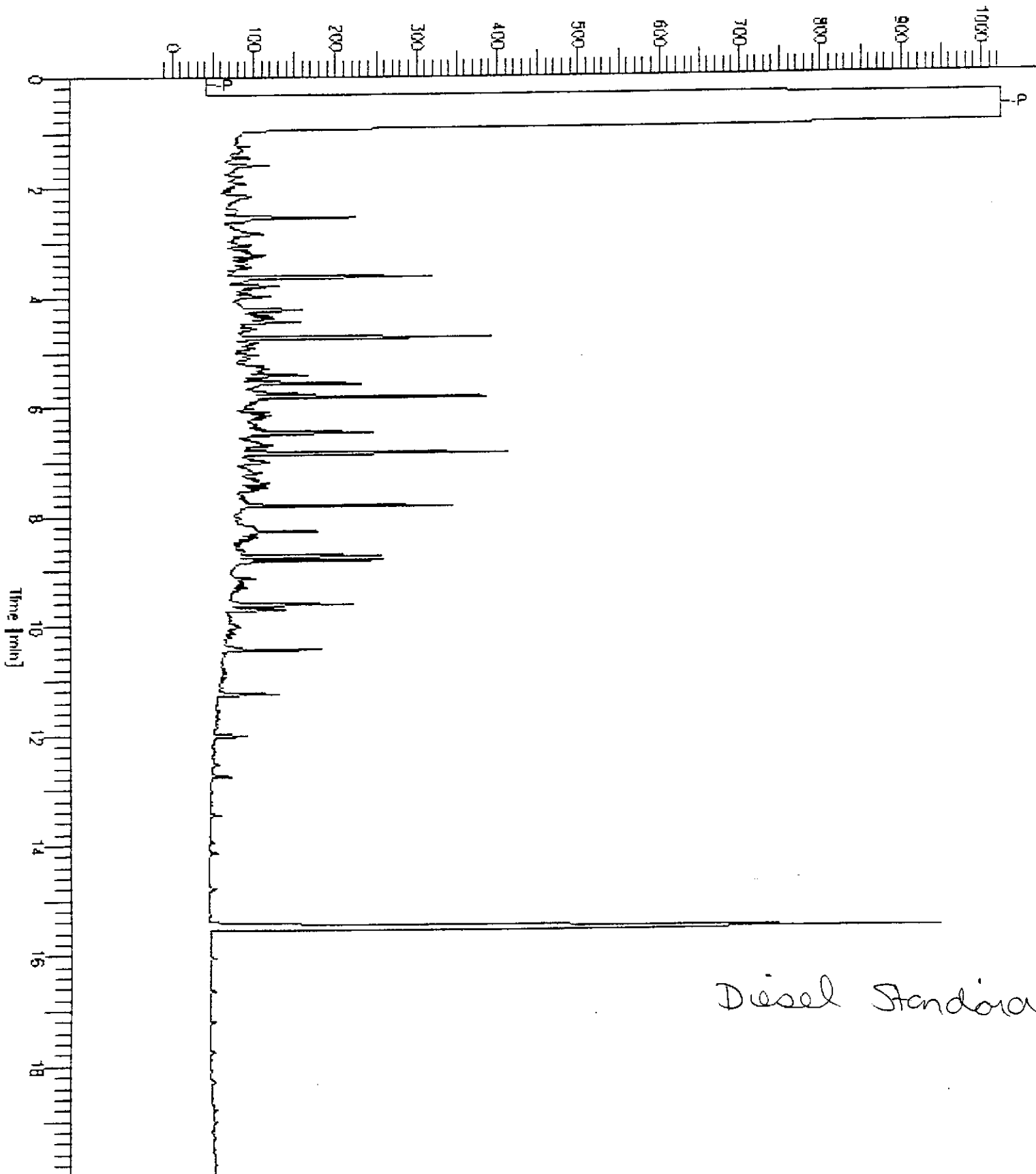
Sample #: 250MG/L
Date : 1/13/97 11:35 AM
Time of Injection: 1/10/97 12:13 PM
Low Point : -8.35 mV
High Point : 655.01 mV
Plot Scale: 666.4 mV



Sample Name : CCV, 96WS3405, DSL
FileName : G:\GC11\CHB\010B016.RAW
Method : STEH006.MTH
Start Time : 0.00 min
Scale Factor: 0.0
End Time : 19.99 min
Plot Offset: -10 mV

Sample #: 500MG/L
Date : 1/13/97 11:34 AM
Time of Injection: 1/15/97 09:13 PM
Low Point : -10.45 mV
High Point : 1024.00 mV
Plot Scale: 1034.5 mV

Response [mV]





Lab #: 127936

BATCH QC REPORT

TEH-Tot Ext Hydrocarbons			
Client:	Subsurface Consultants	Analysis Method:	CA LUFT (EPA 8015M)
Project#:	946.002	Prep Method:	EPA 3520
Location:	2528 Adeline St.		
METHOD BLANK			
Matrix:	Water	Prep Date:	01/09/97
Batch#:	31778	Analysis Date:	01/10/97
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC37794

Analyte	Result		
Kerosene C10-C16	<50		
Diesel C12-C22	<50		
Surrogate	%Rec		Recovery Limits
Hexacosane	106		60-140



Lab #: 127936

BATCH QC REPORT

TEH-Tot Ext Hydrocarbons	
Client: Subsurface Consultants Project#: 946.002 Location: 2528 Adeline St.	Analysis Method: CA LUFT (EPA 8015M) Prep Method: EPA 3520
BLANK SPIKE/BLANK SPIKE DUPLICATE	
Matrix: Water Batch#: 31778 Units: ug/L Diln Fac: 1	Prep Date: 01/09/97 Analysis Date: 01/10/97

BS Lab ID: QC37795

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	4950	4355	88	60-140
Surrogate	%Rec	Limits		
Hexacosane	108	60-140		

BSD Lab ID: QC37796

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	4950	4460	90	60-140	2	35
Surrogate	%Rec	Limits				
Hexacosane	109	60-140				

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



Volatile Organics by GC/MS		
Client: Subsurface Consultants	Analysis Method: EPA 8260	
Project#: 946.002	Prep Method: EPA 5030	
Location: 2528 Adeline St.		
Field ID: MW-1	Sampled:	01/09/97
Lab ID: 127936-001	Received:	01/09/97
Matrix: Water	Extracted:	01/10/97
Batch#: 31782	Analyzed:	01/10/97
Units: ug/L		
Diln Fac: 1		
Analyte	Result	Reporting Limit
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene Chloride	ND	20
Acetone	ND	20
Carbon Disulfide	ND	5.0
Trichlorofluoromethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
Freon 113	ND	5.0
1,2-Dichloroethane	ND	5.0
2-Butanone	ND	10
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
Vinyl Acetate	ND	50
Bromodichloromethane	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
Trichloroethene	ND	5.0
Dibromochloromethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Bromoform	ND	5.0
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	51	5.0
Styrene	ND	5.0
m,p-Xylenes	22	5.0
o-Xylene	ND	5.0
Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	113	68-126
Toluene-d8	100	87-125
Bromofluorobenzene	109	79-122



Volatile Organics by GC/MS		
Client: Subsurface Consultants	Analysis Method: EPA 8260	
Project#: 946.002	Prep Method: EPA 5030	
Location: 2528 Adeline St.		
Field ID: MW-2	Sampled:	01/09/97
Lab ID: 127936-002	Received:	01/09/97
Matrix: Water	Extracted:	01/10/97
Batch#: 31782	Analyzed:	01/10/97
Units: ug/L		
Diln Fac: 2.5		
Analyte	Result	Reporting Limit
Chloromethane	ND	25
Bromomethane	ND	25
Vinyl Chloride	ND	25
Chloroethane	ND	25
Methylene Chloride	ND	50
Acetone	ND	50
Carbon Disulfide	ND	13
Trichlorofluoromethane	ND	13
1,1-Dichloroethene	340	13
1,1-Dichloroethane	79	13
trans-1,2-Dichloroethene	ND	13
cis-1,2-Dichloroethene	ND	13
Chloroform	ND	13
Freon 113	ND	13
1,2-Dichloroethane	ND	13
2-Butanone	ND	25
1,1,1-Trichloroethane	230	13
Carbon Tetrachloride	ND	13
Vinyl Acetate	ND	130
Bromodichloromethane	ND	13
1,2-Dichloropropane	ND	13
cis-1,3-Dichloropropene	ND	13
Trichloroethene	ND	13
Dibromochloromethane	ND	13
1,1,2-Trichloroethane	ND	13
Benzene	ND	13
trans-1,3-Dichloropropene	ND	13
Bromoform	ND	13
2-Hexanone	ND	25
4-Methyl-2-Pentanone	ND	25
1,1,2,2-Tetrachloroethane	ND	13
Tetrachloroethene	ND	13
Toluene	ND	13
Chlorobenzene	ND	13
Ethylbenzene	ND	13
Styrene	ND	13
m,p-Xylenes	ND	13
o-Xylene	ND	13
Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	110	68-126
Toluene-d8	97	87-125
Bromofluorobenzene	112	79-122



Volatile Organics by GC/MS		
Client: Subsurface Consultants	Analysis Method: EPA 8260	
Project#: 946.002	Prep Method: EPA 5030	
Location: 2528 Adeline St.		
Field ID: MW-3	Sampled:	01/09/97
Lab ID: 127936-003	Received:	01/09/97
Matrix: Water	Extracted:	01/10/97
Batch#: 31782	Analyzed:	01/10/97
Units: ug/L		
Diln Fac: 1		
Analyte	Result	Reporting Limit
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene Chloride	ND	20
Acetone	ND	20
Carbon Disulfide	ND	5.0
Trichlorofluoromethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
Freon 113	ND	5.0
1,2-Dichloroethane	ND	5.0
2-Butanone	ND	10
1,1,1-Trichloroethane	5.6	5.0
Carbon Tetrachloride	ND	5.0
Vinyl Acetate	ND	50
Bromodichloromethane	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
Trichloroethene	ND	5.0
Dibromochloromethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Bromoform	ND	5.0
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	ND	5.0
Styrene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	112	68-126
Toluene-d8	97	87-125
Bromofluorobenzene	109	79-122



Lab #: 127936

BATCH QC REPORT

Page 1 of 1

EPA 8240 Volatile Organics		
Client: Subsurface Consultants	Analysis Method: EPA 8260	
Project#: 946.002	Prep Method: EPA 5030	
Location: 2528 Adeline St.		
METHOD BLANK		
Matrix: Water	Prep Date: 01/10/97	
Batch#: 31782	Analysis Date: 01/10/97	
Units: ug/L		
Diln Fac: 1		

MB Lab ID: QC37809

Analyte	Result	Reporting Limit
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene Chloride	ND	20
Acetone	ND	20
Carbon Disulfide	ND	5.0
Trichlorofluoromethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
Freon 113	ND	5.0
1,2-Dichloroethane	ND	5.0
2-Butanone	ND	10
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
Vinyl Acetate	ND	50
Bromodichloromethane	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
Trichloroethene	ND	5.0
Dibromochloromethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Bromoform	ND	5.0
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	ND	5.0
Styrene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	109	68-126
Toluene-d8	96	87-125
Bromofluorobenzene	110	79-122



Lab #: 127936

BATCH QC REPORT

Page 1 of 1

EPA 8240 Volatile Organics

Client: Subsurface Consultants
Project#: 946.002
Location: 2528 Adeline St.

Analysis Method: EPA 8260
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 31782
Units: ug/L
Diln Fac: 1

Prep Date: 01/10/97
Analysis Date: 01/10/97

LCS Lab ID: QC37808

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	55.53	50	111	51-180
Trichloroethene	46.01	50	92	73-141
Benzene	46.66	50	93	78-142
Toluene	44.4	50	89	76-150
Chlorobenzene	47.28	50	95	83-129
Surrogate	%Rec	Limits		
1,2-Dichloroethane-d4	109	68-126		
Toluene-d8	96	87-125		
Bromofluorobenzene	110	79-122		

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits



Lab #: 127936

BATCH QC REPORT

Page 1 of 1

EPA 8240 Volatile Organics	
Client: Subsurface Consultants	Analysis Method: EPA 8260
Project#: 946.002	Prep Method: EPA 5030
Location: 2528 Adeline St.	
MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
Field ID: ZZZZZZ	Sample Date: 01/09/97
Lab ID: 127940-001	Received Date: 01/09/97
Matrix: Water	Prep Date: 01/10/97
Batch#: 31782	Analysis Date: 01/10/97
Units: ug/L	
Diln Fac: 1	

MS Lab ID: QC37837

Analyte	Spike Added	Sample	MS	%Rec #	Limits
1,1-Dichloroethene	50	<5	50.15	100	51-180
Trichloroethene	50	8.225	51.64	87	73-141
Benzene	50	<5	44.16	88	78-142
Toluene	50	<5	43.33	86	76-150
Chlorobenzene	50	<5	45.61	91	83-129
Surrogate	%Rec	Limits			
1,2-Dichloroethane-d4	108	68-126			
Toluene-d8	97	87-125			
Bromofluorobenzene	109	79-122			

MSD Lab ID: QC37838

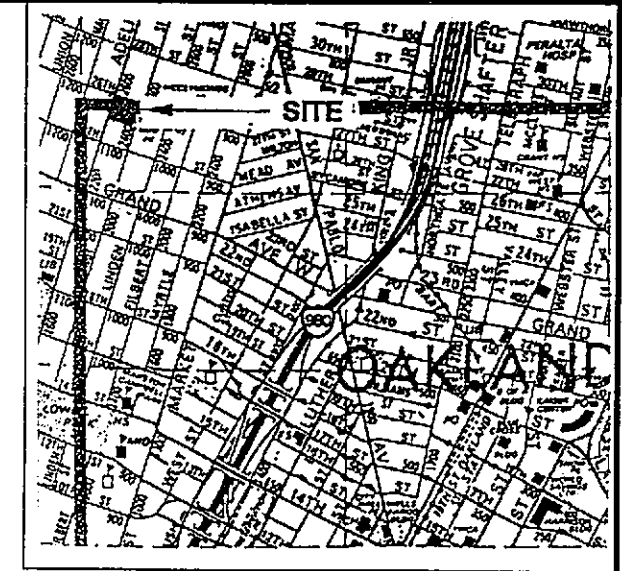
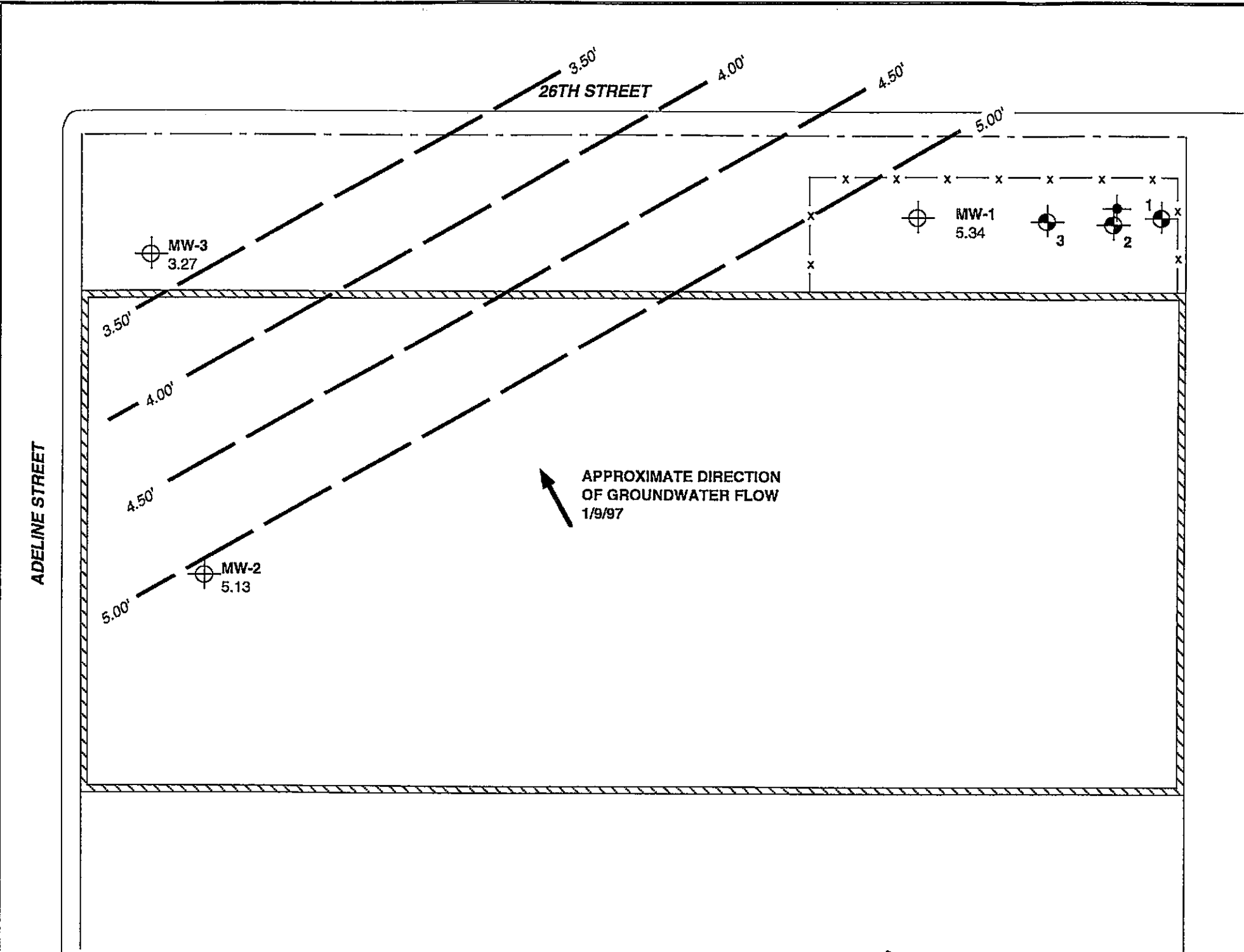
Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	50	50.61	101	51-180	1	14
Trichloroethene	50	51.88	87	73-141	0	14
Benzene	50	44.54	89	78-142	1	11
Toluene	50	43.18	86	76-150	0	13
Chlorobenzene	50	45.3	91	83-129	1	13
Surrogate	%Rec	Limits				
1,2-Dichloroethane-d4	108	68-126				
Toluene-d8	97	87-125				
Bromofluorobenzene	108	79-122				

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

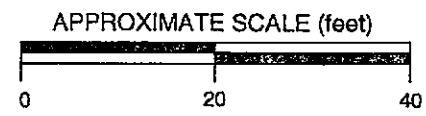
RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits



VICINITY MAP

EXPLANATION	
	PROPERTY BOUNDARY
	FENCE
	EXISTING STRUCTURE
	BORING LOCATION
	MONITORING WELL LOCATION
	FORMER WELL LOCATION
	GROUNDWATER ELEVATION CONTOUR



Subsurface Consultants

SITE PLAN		
2528 ADELINE STREET - OAKLAND, CA		
JOB NUMBER	DATE	APPROVED
946.002	1/16/97	<i>MMW</i>
PLATE		1

WELL SAMPLING FORM

Project Name: 2528 Adeline St. Well Number: MW-2
 Job No.: 946.002 Well Casing Diameter: 2 inch
 Sampled By: DWA Date: 1/9/97
 TOC Elevation: _____ Weather: Sunny

Depth to Casing Bottom (below TOC) 13.50 feet
 Depth to Groundwater (below TOC) 3.99 feet
 Feet of Water in Well 9.51 feet
 Depth to Groundwater When 80% Recovered 5.89 feet
 Casing Volume (feet of water x Casing DIA² x 0.0408) 1.6 gallons
 Depth Measurement Method Tape & Paste / **Electronic Sounder** / Other
 Free Product none
 Purge Method disposable bailer

FIELD MEASUREMENTS

fast recharge

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
<u>1</u>	<u>7.12</u>	<u>57.5</u>	<u>686</u>	_____	<u>clean/no odor</u>
<u>2</u>	<u>6.30</u>	<u>60.1</u>	<u>562</u>	_____	
<u>3</u>	<u>5.98</u>	<u>60.9</u>	<u>622532</u>	_____	
<u>4</u>	<u>5.83</u>	<u>61.4</u>	<u>511 583</u>	_____	
<u>5</u>	<u>5.82</u>	<u>61.6</u>	<u>497</u>	_____	↓

Total Gallons Purged 5 gallons
 Depth to Groundwater Before Sampling (below TOC) 4.03 feet
 Sampling Method disposable bailer
 Containers Used 6 40 ml 2 liter _____ pint

<h1 style="margin: 0;">Subsurface Consultants</h1>		PLATE
	JOB NUMBER	DATE

