

PORT OF OAKLAND

August 21, 1996

Mr. Barney Chan
Alameda County Health Care Agency
Environmental Protection Division
1131 Harbor Bay Pkwy., Suite #250
Alameda, CA 94502-6577

ENVIRONMENTAL
PROTECTION
96 AUG 22 PM 2:17

SUBJECT: REPLACEMENT SUBSURFACE INVESTIGATION REPORTS FOR KEEP ON TRUCKING AT 370 8TH STREET, OAKLAND, CALIFORNIA - FORMER ABOVEGROUND STORAGE TANK FACILITY (ADJACENT TO FORMER BUILDING H-213) AND FORMER UNDERGROUND STORAGE TANK FACILITY (ADJACENT TO BUILDING H-107)

Dear Mr. Chan:

Enclosed please find replacement Quarterly Groundwater Sampling Reports for the second quarter of 1996 at the former aboveground tank site adjacent to former Building H-213 and former underground storage tank adjacent to Building H-107 located at Keep on Trucking facilities.

Our original submittal dated 15 August 1996 contained reports that were inadvertently unsigned. These replacement reports are identical but include the appropriate preparer signatures. The original reports should therefore be discarded and substituted with these replacements.

If you have any questions or need additional information, please call me at (510) 272-1118.

Sincerely,

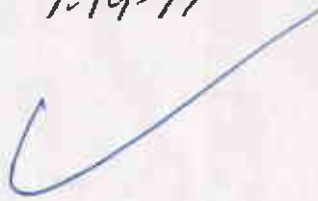
Jeffrey L. Rubin, CPSS, REA
Associate Environmental Scientist
Environmental Health and
Safety Compliance

Enclosure

cc with enclosure: Richard Padovani, Keep on Trucking
Richard Hiett, Regional Water Quality Control
Board, San Francisco Bay Region

7-14-97

SITE SEARCH/FILE REVIEW



TO: *Barney Chan*

DATE OF FILE SEARCH: *July 22, 1997 9:00 Am*

SITE

STID NO.

370 - 8th Ave Oakland 94606 3335 Cop

Keep On Trucking

901 Embarcadero Oak 94606 220 Cop

YOUR COOPERATION IS REALLY APPRECIATED, THANK YOU

Felicia Brown
FILE REVIEW CLERK

L.S. by Joseph Maralili with Penny + Otis

(818) 500-9030

⑫ Monitoring Event

LEGEND:

- SOIL BORING LOCATION (SC)
- SOIL BORING LOCATION (BY OTHERS)
- MONITORING WELL LOCATION (SC)
- MONITORING WELL LOCATION (BY OTHERS)
- TRENCH LOCATION (BY OTHERS)
- ▭ EXISTING BUILDING
- ▭ DEMOLISHED BUILDING
- ▭ EXISTING BUILDING FOUNDATION
- FUEL LINE
- WATER LINE
- SANITARY SEWER
- STORM DRAIN
- UNKNOWN DRAINAGE
- OUTFALL
- FLOW DIRECTION
- ≡ DRAIN GRATE
- ⊕ CATCH BASIN
- ⊙ MANHOLE
- ⊙ WHARF ACCESS MANHOLE
- ⊙ FIRE HYDRANT
- FENCE LINE
- RAILROAD
- OVERHEAD LIGHT STAGNARD
- APPROXIMATE LEASE BOUNDARY
- STUDY AREA BOUNDARY
- FORMER ABOVE OR UNDERGROUND STORAGE TANK
- ⊙ EXISTING ABOVE OR UNDERGROUND STORAGE TANK
- A SITE REFERENCE AREA

NOTES:

1. UTILITY SURVEY WAS PREPARED BY AN WEST 5-22-96

REFERENCE DRAWINGS

BASE MAP BY PORT OF OAKLAND DATED 2-22-96

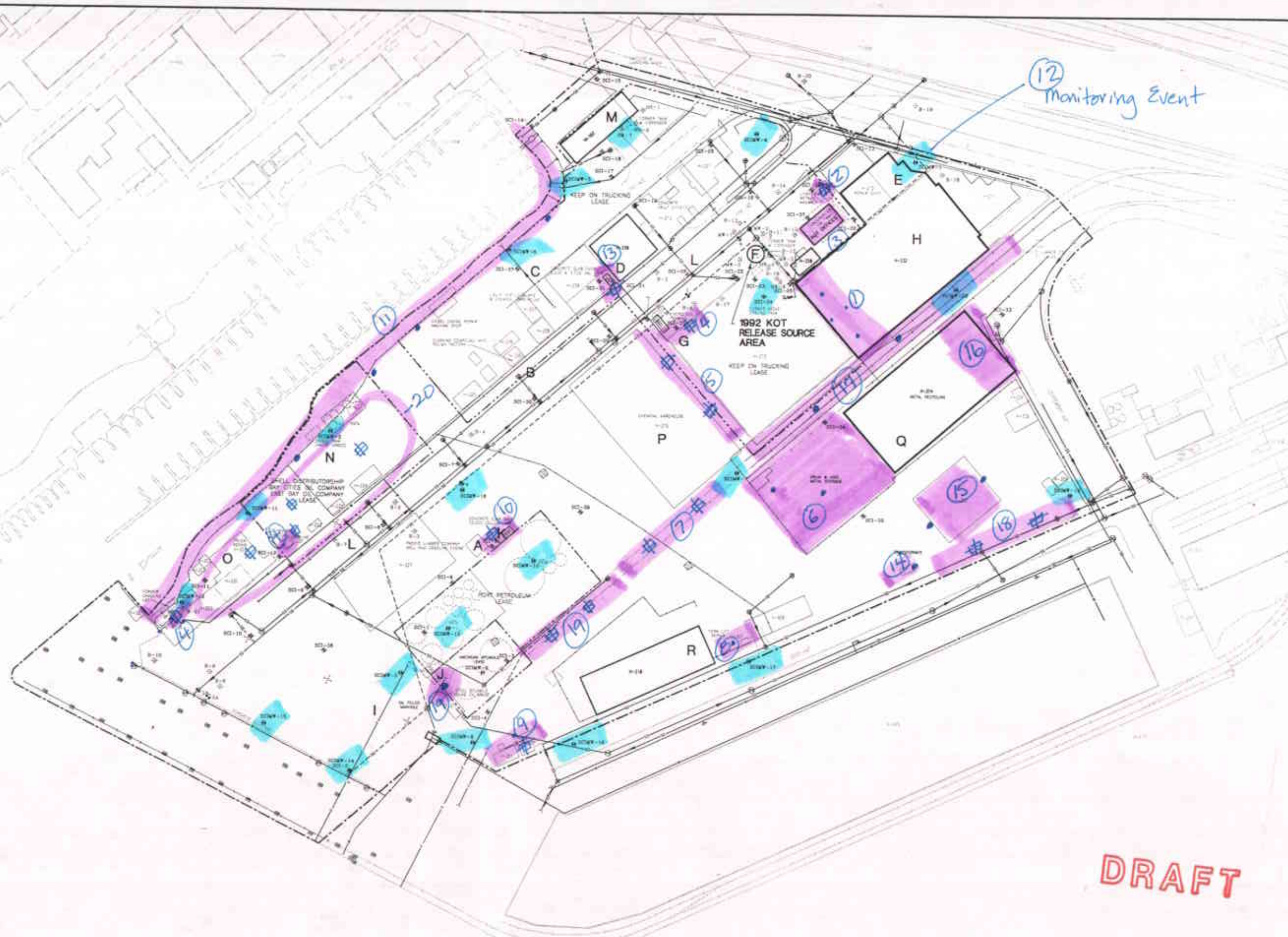


DESIGNED BY	3736 Mt. Diablo Blvd., Ste 200 Lafayette, CA 94549 (510) 299-7960 FAX (510) 299-7970
DRAWN BY	RDP/DJP
CHECKED BY	JD
APPROVED BY	JD
DATE	8-8-96
Subsurface Consultants, Inc. Geotechnical and Environmental Engineers	

PORT OF OAKLAND
530 WATER STREET OAKLAND, CALIFORNIA
**SITE AND UTILITY
LOCATION PLAN**

SCALE AS SHOWN	
PROJECT NO. 133.005	
SHEET NO. 2	OF -

DRAFT



MAY 1996
QUARTERLY GROUNDWATER SAMPLING REPORT
AT
FORMER ABOVEGROUND STORAGE TANK
KEEP ON TRUCKING FACILITY (FORMER H-213)
370 8TH AVENUE
OAKLAND, CALIFORNIA

AUGUST 15, 1996
(REVISED)
SCI 133.005

**ENVIRONMENTAL
PROTECTION
95 AUG 22 PM 2:17**

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- B Water Sampling Field Survey Forms
- C Groundwater Sampling Analytical Reports for Samples Collected in May 1996

1.0 INTRODUCTION

Subsurface Consultants, Inc. (SCI) was retained to perform quarterly groundwater sampling and analysis at the Keep on Trucking Facility located at 370-8th Avenue in Oakland, California (Figure 1). On May 24, 1996 SCI collected groundwater samples from monitoring wells MW-1 through MW-6 located near the former location of Building H-213. The monitoring well locations are shown on Figure 2.

2.0 BACKGROUND

In October 1992, the United States Coast Guard (USCG) noted diesel fuel in Clinton Basin. A subsequent investigation by the Port of Oakland (PORT) identified diesel fuel in storm drains at the Ninth Avenue Terminal. Further investigations by the PORT indicated that the source of diesel was a leaking underground pipe connected to a diesel above ground storage tank (AST) at the subject site. The diesel AST was operated by the Keep on Trucking Company.

The diesel fuel system was disconnected in December 1992, and was removed by February 1993. In September 1993, Uribe and Associates conducted a subsurface investigation at the former location of the diesel fuel AST which consisted of installing and sampling four monitoring wells (MW-1 through MW-4).

While developing the four monitoring wells in September 1993, four to twelve inches of separate phase petroleum hydrocarbons (free product) was observed floating on the groundwater surface in monitoring well MW-4. Monitoring well MW-4 was purged once a week from September to November 1993. According to the Uribe and Associates report dated December 2, 1993, bailing activities ceased on November 1, 1993, after all the diesel had apparently been removed. However, during the quarterly groundwater monitoring and sampling event in June and September 1994, six to ten inches of free product were noted again in monitoring well MW-4. No bailing of the floating product was performed; however, a passive skimmer was installed in monitoring well MW-4 on April 10, 1995.

During a subsequent subsurface investigation performed by Clayton Environmental Consultants (Clayton) in March 1995, two additional monitoring wells (MW-5 and MW-6) were installed at the site (Figure 2). In April 1995, free product was identified in monitoring well MW-6 and dissolved petroleum hydrocarbons were present in monitoring well MW-5. Free product thickness and measured groundwater levels are summarized in Table 1.

Recovered free product collected from monitoring well MW-4 was transferred to a storage drum on a bi-monthly basis from April 17, 1995 through July 19, 1995. The storage drum is located within secondary containment. The volume of free product recovered by April 18, 1995 was approximately 0.10 gallons; however, only 0.01 gallons of free product was recovered over the next four weeks on May 12, 1995. No free product was recovered in the passive skimmer in MW-4 between May 16, 1995 and July 14, 1995. The passive skimmer was removed from MW-4 on July 19, 1995. Between 0.04 to 0.23 feet of free product was detected in MW-4 using an interface probe from July 28, 1995 to December 18, 1995. Free product was removed from

MW-4 using a bailer between July 28, 1995 and December 18, 1995. A passive skimmer was reinstalled in MW-4 on December 18, 1995. Approximately 0.03 gallons of free product was removed from MW-4 using both the passive skimmer and a bailer on January 10, 1996 and February 20, 1996. Approximately 0.01 gallons of free product was removed from MW-4 by bailing on May 24, 1996.

Clayton installed a passive skimmer in monitoring well MW-6 on July 24, 1995 in response to free product encountered in MW-6 during quarterly groundwater sampling activities. The recovered free product was collected and transferred to a secondarily contained storage drum on a bi-monthly basis from July 28, 1995 through September 28, 1995, on a monthly basis from November 10, 1995 through February 20, 1996, and again on May 24, 1996. Additional free product was removed from MW-6 using a bailer after the skimmer was removed during each product recovery event. The volume of free product recovered from MW-6 has varied between 0.03 to 0.10 gallons during each product recovery event.

A summary of skimmer operations and free product removal at MW-4 and MW-6 is presented in Appendix A.

3.0 FIELD ACTIVITIES

Monitoring wells MW-1 through MW-6 were purged using a 2-inch disposable bailer on May 24, 1996. Approximately four times the volume of each well was purged to ensure that water representative of the aquifer was present in each well prior to sampling. Well volumes were calculated using depth to groundwater and total well depth measurements which were recorded to the nearest 0.01 foot upon arrival at the site. Purging of monitoring wells MW-1 through MW-6 continued until pH, temperature, and electrical conductivity stabilized.

The following parameters were noted during the sampling activities:

- Monitoring well identification
- Static water level
- Well depth
- Condition of water before purging (e.g., amount of free product)
- Dissolved oxygen
- Purge rate and volume
- pH, temperature, and conductivity during purging
- Time purged
- Time of sample collection
- Sampling method
- Name of sampler
- Climatic conditions

The groundwater samples were collected using new disposable bailers. All other sampling equipment which came into contact with groundwater was thoroughly cleaned and decontaminated before use at the site. Details of the groundwater sampling event are provided in the water sampling field survey forms (Appendix B).

Groundwater samples were obtained using new bailers and were transferred into clean laboratory-supplied containers that were closed, labeled, placed immediately into an ice chest, and transported to Curtis & Tompkins, a state-certified laboratory, for analysis.

Groundwater samples were collected in such a manner as to minimize volatilization due to agitation and/or transfer from bailer to sample container. To document and trace samples from time of collection to final analysis, signed chain-of-custody records were completed by SCI personnel. The chain-of-custody records accompanied the groundwater samples to the laboratory. The completed chain-of-custody records are included with the analytical report from the laboratory (Appendix C).

4.0 ANALYTICAL RESULTS

The groundwater samples from wells MW-1 through MW-6 were analyzed using the following Environmental Protection Agency Analytical Methods:

- Method 8015 (modified) for TPH-D and TPH-motor oil
- Method 8015 (modified) for TPH-G
- Method 8020 for BTEX

The analytical results are summarized in Table 1. The laboratory analytical report for the current groundwater sampling event is included in Appendix C.

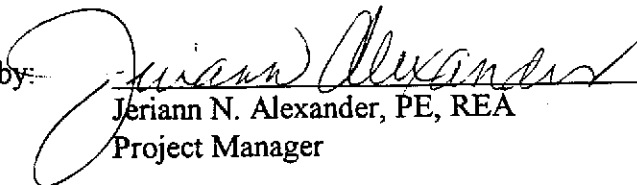
5.0 FINDINGS

Based on the laboratory analytical reports and SCI's field observations, our findings are as follows:

- Free product was observed in monitoring wells MW-4 and MW-6 after bailing.
- A sheen was observed in monitoring well MW-5 during this groundwater sampling event.
- Concentrations of TPH-D and TPH-motor oil were detected in groundwater samples collected from all monitoring wells.
- TPH-G was detected in groundwater samples collected from MW-4, MW-5 and MW-6.
- Concentrations of benzene, ethylbenzene, and total xylenes were detected in groundwater samples collected from MW-4.

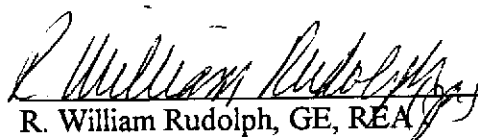
The next quarterly sampling event is scheduled for August 1996.

This report prepared by:



Jeriann N. Alexander, PE, REA
Project Manager

This report reviewed by:



R. William Rudolph, GE, REA
President

August 15, 1996

**TABLE 1
SUMMARY OF GROUNDWATER AND FREE PRODUCT MEASUREMENTS
AND GROUNDWATER ANALYTICAL RESULTS**

Keep on Trucking Facility (H-213)
Oakland, California
(SCI 133.005)

<u>Monitorin Well</u>	<u>Sample Date</u>	<u>Depth to Water (feet)</u>	<u>Top of Casing Elevation (a)</u>	<u>Ground- water Elevation (a)</u>	<u>Depth to FP (feet)</u>	<u>FP Thickness (feet)</u>	<u>TPH as Diesel (ug/L)</u>	<u>TPH as Motor Oil (ug/L)</u>	<u>TPH as Gasoline (b) (ug/L)</u>	<u>Benzene (b) (ug/L)</u>	<u>Toluene (b) (ug/L)</u>	<u>Ethyl- benzene (b) (ug/L)</u>	<u>Total Xylenes (b) (ug/L)</u>
MW-1	9/21/93	5.20	10.28	5.08	NA	0.00	1,600	--	ND	<0.4	<0.3	<0.3	<0.4
	1/12/94	5.15	10.28	5.13	NA	0.00	610	--	ND	<0.4	<0.3	<0.3	<0.4
	4/4/94	4.09	10.28	6.19	NA	0.00	510	--	<50	<0.5	<0.5	<0.5	<0.5
	6/2/94	4.82	10.28	5.46	NA	0.00	540	--	ND	<0.5	<0.5	<0.5	<0.5
	10/3/94	5.63	10.28	4.65	NA	0.00	390	--	ND	<0.4	<0.3	<0.3	<0.4
	12/22/94	5.00	10.28	5.28	NA	0.00	210	--	ND	ND	ND	ND	ND
	4/10/95	4.94	10.28	5.34	NA	0.00	330	--	<50	<0.4	<0.3	<0.3	<0.4
	7/24/95	5.02	10.28	4.97	NA	0.00	230	--	<50	<0.4	<0.3	<0.3	<0.4
	11/10/95	5.52	10.28	4.47	NA	0.00	430	--	<50	<0.4	<0.3	<0.3	<0.4
	2/20/96	4.49	9.99	5.50	NA	0.00	590	--	<50	<0.5	<0.5	<0.5	<1.0
5/24/96	5.04	9.99	4.95	NA	0.00	870	630	<50	<0.5	<0.5	<0.5	<0.5	
MW-2	9/21/93	4.40	10.69	6.29	NA	0.00	1,900	--	ND	0.5	<0.3	<0.3	<0.4
	1/12/94	4.75	10.69	5.94	NA	0.00	1,800	--	ND	<0.4	<0.3	<0.3	<0.4
	4/4/94	5.01	10.69	5.68	NA	0.00	1,800	--	<50	<0.5	<0.5	<0.5	<0.5
	6/2/94	4.61	10.69	6.08	NA	0.00	870	--	ND	<0.5	<0.5	<0.5	<0.5
	10/5/94	4.93	10.69	5.76	NA	0.00	1,200	--	ND	<0.4	<0.3	<0.3	<0.4
	12/22/94	4.43	10.69	6.26	NA	0.00	610	--	ND	ND	ND	ND	ND
	4/10/95	4.03	10.69	6.66	NA	0.00	550	--	<50	<0.4	<0.3	<0.3	<0.4
	7/24/95	4.41	10.69	5.91	NA	0.00	960	--	70	<0.4	<0.3	<0.3	<0.4
	11/10/95	4.59	10.69	5.73	NA	0.00	920	--	<50	<0.4	<0.3	<0.3	<0.4
	2/20/96	3.81	10.32	6.51	NA	0.00	1,700	--	<50	<0.5	<0.5	<0.5	<1.0
5/24/96	4.41	10.32	5.91	NA	0.00	2,800	1,200	<50	<0.5	<0.5	<0.5	<0.5	

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Keep on Trucking Facility (H-213)
Oakland, California
(SCI 133.005)

<u>Monitorin Well</u>	<u>Sample Date</u>	<u>Depth to Water (feet)</u>	<u>Top of Casing Elevation (a)</u>	<u>Ground- water Elevation (a)</u>	<u>Depth to FP (feet)</u>	<u>FP Thickness (feet)</u>	<u>TPH as Diesel (ug/L)</u>	<u>TPH as Motor Oil (ug/L)</u>	<u>TPH as Gasoline (b) (ug/L)</u>	<u>Benzene (b) (ug/L)</u>	<u>Toluene (b) (ug/L)</u>	<u>Ethyl- benzene (b) (ug/L)</u>	<u>Total Xylenes (b) (ug/L)</u>
MW-3	9/21/93	15.20	10.54	-4.66	NA	0.00	680	--	ND	<0.4	0.3	<0.3	<0.4
	1/12/94	5.70	10.54	4.84	NA	0.00	430	--	ND	<0.4	<0.3	<0.3	<0.4
	4/4/94	4.23	10.54	6.31	NA	0.00	690	--	<50	<0.5	<0.5	<0.5	<0.5
	6/2/94	3.86	10.54	6.68	NA	0.00	280	--	ND	<0.5	<0.5	<0.5	<0.5
	10/4/94	5.44	10.54	5.10	NA	0.00	480	--	ND	<0.4	<0.3	<0.3	<0.4
	12/22/94	4.87	10.54	5.67	NA	0.00	630	--	ND	ND	ND	ND	ND
	4/10/95	7.64	10.54	2.90	NA	0.00	830	--	<50	<0.4	<0.3	<0.3	<0.4
	7/24/95	3.62	10.54	6.56	NA	0.00	460	--	<50	<0.4	<0.3	<0.3	<0.4
	11/10/95	5.11	10.54	5.07	NA	0.00	2,100	--	<50	<0.4	0.7	<0.3	<0.4
	2/20/96	4.14	10.12	5.98	NA	0.00	620	--	<50	<0.5	<0.5	<0.5	<1.0
5/24/96	4.49	10.12	5.63	NA	0.00	1,100	550	<50	<0.5	<0.5	<0.5	<0.5	
MW-4	9/21/93	5.80	12.33	6.53	5.13	0.67	1,300	--	ND	140	110	40	235
	1/12/94	4.10	12.33	8.23	sheen	sheen	32,000	--	ND	71	41	20	150
	4/4/94	4.20	12.33	8.13	3.62	0.58	410,000	--	6,200	140	20	47	310
	6/2/94	3.88	12.33	8.45	3.38	0.50	NS	NS	NS	NS	NS	NS	NS
	10/3/94	4.80	12.33	7.53	4.80	1.00	NS	NS	NS	NS	NS	NS	NS
	12/22/94	3.47	12.33	8.86	2.63	0.84	NS	NS	NS	NS	NS	NS	NS
	4/10/95	3.80	12.33	8.53	NA	0.00	NS	NS	NS	NS	NS	NS	NS
	5/16/95	3.07	12.33	9.26	NA	NA	NS	NS	NS	NS	NS	NS	NS
	7/24/95	3.65	12.33	8.33	NA	0.00	21,000	--	2,400	140	74	34	40
	11/10/95	NM	12.33	NA	NA	0.00	NS	NS	NS	NS	NS	NS	NS
2/20/96	NM	11.98	NA	NA	0.40	NS	NS	NS	NS	NS	NS	NS	
5/24/96	2.96	11.98	9.02	NA	0.02	37,000	2,800	690	44	<2.5	18	7.7	

TABLE 1
SUMMARY OF GROUNDWATER AND FREE PRODUCT MEASUREMENTS
AND GROUNDWATER ANALYTICAL RESULTS

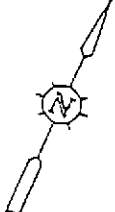
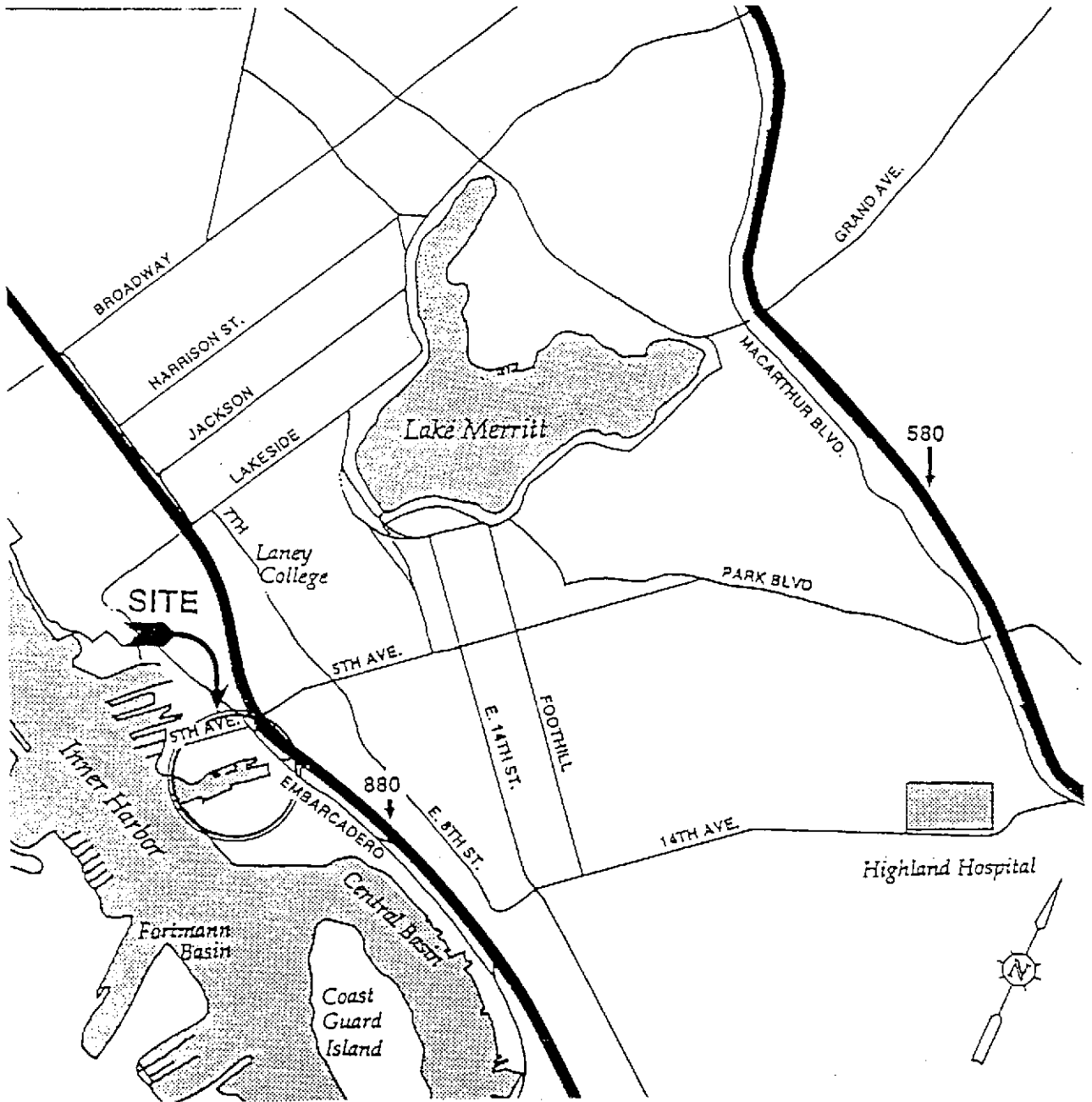
Keep on Trucking Facility (H-213)
 Oakland, California
 (SCI 133.005)

Monitorin Well	Sample Date	Depth to Water (feet)	Top of Casing Elevation (a)	Ground- water Elevation (a)	Depth to FP (feet)	FP Thickness (feet)	TPH as Diesel (ug/L)	TPH as Motor Oil (ug/L)	TPH as Gasoline (b) (ug/L)	Benzene (b) (ug/L)	Toluene (b) (ug/L)	Ethyl- benzene (b) (ug/L)	Total Xylenes (b) (ug/L)
MW-5	4/10/95	4.64	11.84	7.20	NA	0.00	6,200	--	1,100	3.1	<0.3	2.9	11.3
	7/24/95	5.24	11.84	6.60	NA	0.00	4,800	--	720	3.1	0.7	0.6	0.7
	11/10/95	5.38	11.84	6.46	NA	0.00	3,700	--	260	0.8	0.5	0.6	1.9
	2/20/96	2.69	11.84	9.15	NA	0.00	440	--	150	<0.5	<0.5	<0.5	<1.0
	5/24/96	2.67	11.84	9.17	NA	0.00	4,600	1,900	82	<0.5	<0.5	<0.5	<0.5
MW-6	4/10/95	4.12	11.86	7.74	4.12	0.00	10,000	--	1,300	4.4	<0.3	0.7	0.8
	7/24/95	5.19	11.86	6.67	4.09	1.10	NS	NS	NS	NS	NS	NS	NS
	11/10/95	NM	11.86	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
	2/20/96	NM	11.86	NA	NA	0.50	NS	NS	NS	NS	NS	NS	NS
	5/24/96	4.15	11.86	7.71	4.15	0.42	240,000	5,500	280,000	<250	<250	<250	<250

FP = Free product
 TPH = Total petroleum hydrocarbons
 NA = Not applicable
 NM = Not measured
 NS = Not sampled
 ug/L = Micrograms per liter

Notes:

- a. Elevations are based on the Port of Oakland Datum. Elevations based on this special datum may be converted to the mean sea level datum by subtracting 3.20 feet. The top of casing elevation was resurveyed in May 1996. Groundwater elevations recorded during 1996 are calculated using the new top of casing elevation.
- b. Laboratory analysis reporting limits are listed above if the reporting limits were previously reported in data provided to Subsurface Consultants, Inc.



SITE VICINITY MAP

Subsurface Consultants

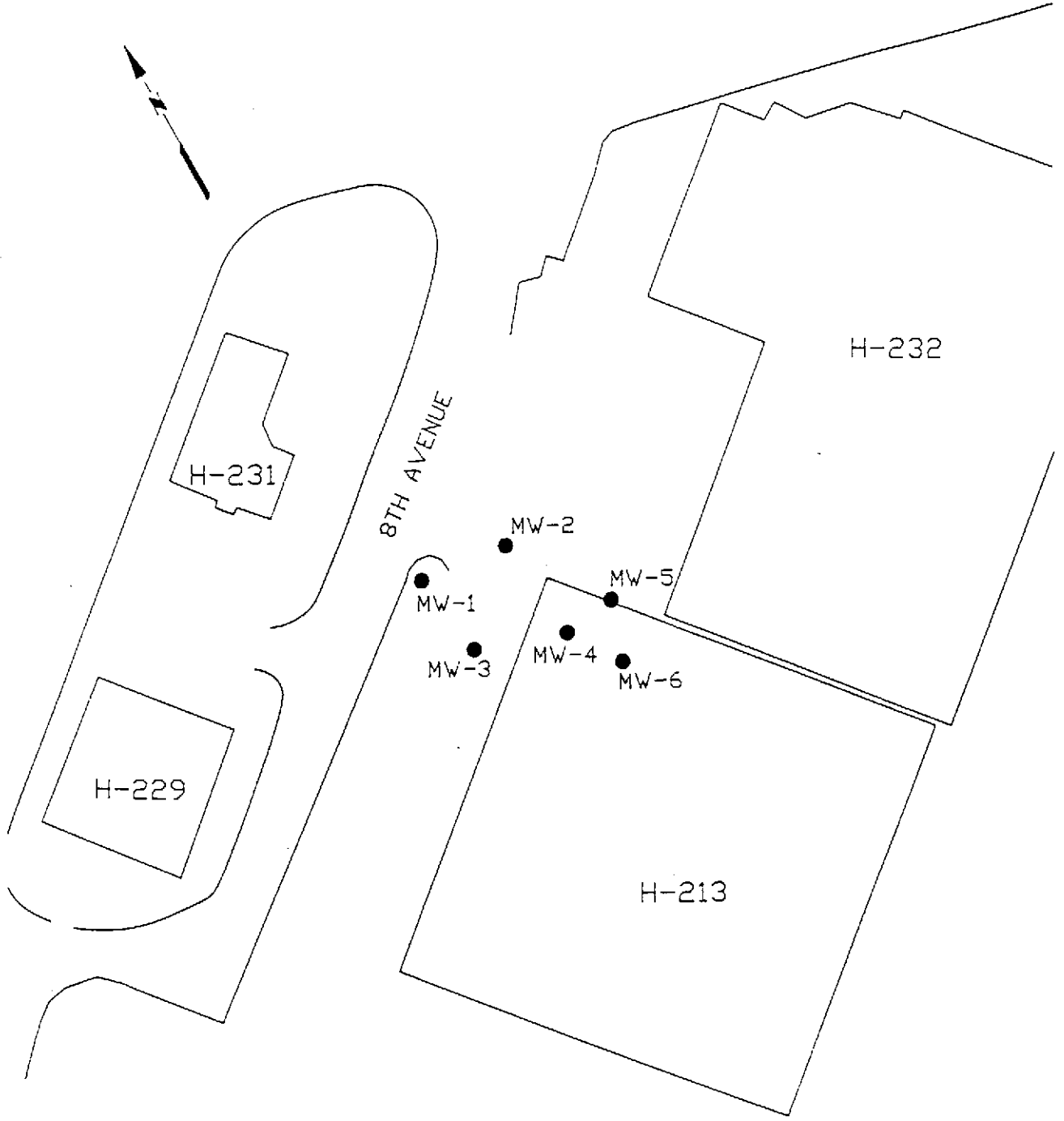
8TH AVENUE STUDY AREA—OAKLAND, CA

JOB NUMBER
133.005

DATE
6/21/96

APPROVED
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PLATE
1



MAP BASED ON FIGURE PREPARED BY
CLAYTON ENVIRONMENTAL CONSULTANTS

MONITORING WELL LOCATION

Subsurface Consultants

KEEP ON TRUCKING - OAKLAND, CA

JOB NUMBER
133.005

DATE
7/25/96

APPROVED
[Signature]

PLATE

2

APPENDIX A

FREE PRODUCT REMOVAL AND SKIMMER OPERATIONS

**APPENDIX A
FREE PRODUCT REMOVAL AND SKIMMER OPERATIONS**

Keep on Trucking Facility (H-213)
Oakland, California
(SCI 133.005)

<u>Date</u>	<u>Product Thickness (inches)</u>	<u>Product Volume Removed (gal)</u>	<u>Comments</u>
Well MW-4			
4/17/95	—	0.20	Skimmer in place
4/18/95	—	0.10	Skimmer in place
4/26/95	—	0.30	Skimmer in place
5/12/95	—	0.01	Skimmer in place
5/16/95	None	None	Skimmer in place
6/12/95	None	None	Skimmer in place
6/22/95	None	None	Skimmer in place
7/14/95	None	None	Skimmer in place
7/19/95	None	None	Passive skimmer removed
7/28/95	0.5	0.01	Measured with Interface Probe
8/17/95	1.0	None	Measured with Interface Probe
8/23/95	0.8	None	Measured with Interface Probe
9/6/95	1.0	None	Measured with Interface Probe
9/28/95	0.8	0.004	Measured with Interface Probe
11/10/95	2.8	0.03	Measured with Interface Probe
12/18/95	1.8	0.02	Passive skimmer installed
1/10/96	—	0.03	Skimmer in place
2/20/96	3.3	0.03	Skimmer in place
5/24/96	None	0.01	(S) in place; Up to 1/4" of FP measured after bailing
Well MW-6			
7/24/95	—	—	
7/28/95	—	0.10	Passive skimmer installed
8/17/95	7.2	0.10	(S) in place
8/23/95	10.0	0.10	(S) in place
9/6/95	4.8	0.05	(S) in place
9/28/95	4.8	0.07	Removed skimmer vol. only
11/10/95	0.7	0.02	(S) in place
12/18/95	4.0	0.10	(S) in place
1/10/96	2.5	0.03	(S) in place
2/20/96	4.0	0.04	(S) in place
5/24/96	5.0	0.08	(S) in place

APPENDIX B
WATER SAMPLING FIELD SURVEY FORMS

WELL SAMPLING FORM

Project Name: KOT Well Number: MW-1
 Job No.: 133.005 Well Casing Diameter: 2 inch
 Sampled By: DWA Date: 5/24/96
 TOC Elevation: _____ Weather: Sunny

Depth to Casing Bottom (below TOC) 15.50 feet
 Depth to Groundwater (below TOC) 5.04 feet
 Feet of Water in Well 10.46 feet
 Depth to Groundwater When 80% Recovered 7.13 feet
 Casing Volume (feet of water x Casing DIA² x 0.0408) 1.7 gallons
 Depth Measurement Method Tape & Paste / Electronic Sounder / Other
 Free Product none
 Purge Method disposable bailer

FIELD MEASUREMENTS

slow recharge

D.O. = 0 ppm

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity ‰	Comments
1	7.98	64.0	2510		<i>clear / no odor</i> ↓
2	7.39	65.0	3020		
3	7.42	63.9	3000		
4	7.20	64.8	3350		
5	7.34	64.8	3350		

Total Gallons Purged 5 gallons
 Depth to Groundwater Before Sampling (below TOC) 7.52 feet
 Sampling Method disposable bailer
 Containers Used 3 40 ml 1 liter _____ pint

<h2 style="margin: 0;">Subsurface Consultants</h2>	JOB NUMBER	DATE	APPROVED	PLATE

WELL SAMPLING FORM

Project Name: KOT Well Number: MW-2
 Job No.: 133.005 Well Casing Diameter: 2 inch
 Sampled By: DWA Date: 5/24/96
 TOC Elevation: _____ Weather: Sunny

Depth to Casing Bottom (below TOC) 15.50 feet
 Depth to Groundwater (below TOC) 4.41 feet
 Feet of Water in Well 11.09 feet
 Depth to Groundwater When 80% Recovered 6.63 feet
 Casing Volume (feet of water x Casing DIA² x 0.0408) 1.8 gallons
 Depth Measurement Method Tape & Paste / Electronic Sounder / Other
 Free Product none
 Purge Method disposable bailer

FIELD MEASUREMENTS

slow recharge

D.O. = 0 ppm

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity ‰	Comments
<u>1</u>	<u>8.24</u>	<u>67.8</u>	<u>2800</u>		<u>clean / no odor</u>
<u>2</u>	<u>7.56</u>	<u>66.6</u>	<u>2610</u>		
<u>3</u>	<u>7.34</u>	<u>65.8</u>	<u>2850</u>		
<u>4</u>	<u>7.29</u>	<u>65.3</u>	<u>2760</u>		
<u>5</u>	<u>7.90</u>	<u>64.7</u>	<u>2190</u>		<u>dry @ 5 gals.</u>

Total Gallons Purged 5 gallons
 Depth to Groundwater Before Sampling (below TOC) -6.70' feet
 Sampling Method disposable bailer
 Containers Used 3 40 ml 1 liter pint

Subsurface Consultants

JOB NUMBER

DATE

APPROVED

PLATE

WELL SAMPLING FORM

Project Name: KOT Well Number: MW-3
 Job No.: 133.005 Well Casing Diameter: 2 inch
 Sampled By: DWA Date: 5/24/96
 TOC Elevation: _____ Weather: Sunny

Depth to Casing Bottom (below TOC) 20.00 feet
 Depth to Groundwater (below TOC) 4.49 feet
 Feet of Water in Well 15.51 feet
 Depth to Groundwater When 80% Recovered 7.59 feet
 Casing Volume (feet of water x Casing DIA² x 0.0408) 2.5 gallons
 Depth Measurement Method Tape & Paste / Electronic Sounder / Other
 Free Product none
 Purge Method disposable bailer

FIELD MEASUREMENTS

Very slow recharge

Gallons Removed	pH	Temp (°C)	Conductivity (micromhos/cm)	D.O. = 2.6 ppm Salinity ‰	Comments
<u>2</u>	<u>8.07</u>	<u>63.4</u>	<u>3420</u>		<i>Clean / slight odor w/ suspension of particulates increasing particulate mucky / dry @ 6 gals. Dry @ 8 gals.</i>
<u>4</u>	<u>7.48</u>	<u>64.6</u>	<u>3470</u>		
<u>6</u>	<u>7.77</u>	<u>65.3</u>	<u>3250</u>		
<u>8</u>	<u>7.70</u>	<u>64.2</u>	<u>2850</u>		

Total Gallons Purged 8 gallons
 Depth to Groundwater Before Sampling (below TOC) 13.15 on 5/28/96 feet
 Sampling Method disposable bailer
 Containers Used 3 40 ml 1 liter _____ pint

Subsurface Consultants

JOB NUMBER

DATE

APPROVED

PLATE

WELL SAMPLING FORM

Project Name: KOT Well Number: MW-4
 Job No.: 133.005 Well Casing Diameter: 2 inch
 Sampled By: DWA Date: 5/24/96
 TOC Elevation: _____ Weather: Sunny

Depth to Casing Bottom (below TOC) 15.50 feet
 Depth to Groundwater (below TOC) 2.96 feet
 Feet of Water in Well 12.54 feet
 Depth to Groundwater When 80% Recovered 4.47 feet
 Casing Volume (feet of water x Casing DIA² x 0.0408) 2.1 gallons
 Depth Measurement Method Tape & Paste / Electronic Sounder / Other _____
 Free Product none until after bailing
 Purge Method disposable bailer

FIELD MEASUREMENTS

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	D.O. = 1 ppm Salinity ‰	Comments
<u>1</u>	<u>8.30</u>	<u>79.1</u>	<u>2030</u>	_____	<u>Clear / strong odor</u>
<u>2</u>	<u>7.78</u>	<u>75.1</u>	<u>1410</u>	_____	<u>suspended particulate</u>
<u>4</u>	<u>7.23</u>	<u>73.3</u>	<u>1710</u>	_____	<u>Globs of oily product</u>
<u>7</u>	<u>7.00</u>	<u>72.3</u>	<u>1310</u>	_____	<u>a thin film on bailer</u>
_____	_____	_____	_____	_____	<u>up to 1/4" ring inside</u>

Total Gallons Purged 7 gallons
 Depth to Groundwater Before Sampling (below TOC) 4.40 feet
 Sampling Method disposable bailer
 Containers Used 3 40 ml / 1 liter / _____ pint

Subsurface Consultants

JOB NUMBER

DATE

APPROVED

PLATE

WELL SAMPLING FORM

Project Name: KOT Well Number: MW-5
 Job No.: 133.005 Well Casing Diameter: 2 inch
 Sampled By: DWA Date: 5/24/96
 TOC Elevation: _____ Weather: Sunny

Depth to Casing Bottom (below TOC) 19.50 feet
 Depth to Groundwater (below TOC) 2.67 feet
 Feet of Water in Well 16.83 feet
 Depth to Groundwater When 80% Recovered 7.04 feet
 Casing Volume (feet of water x Casing DIA² x 0.0408) 2.7 gallons
 Depth Measurement Method Tape & Paste Electronic Sounder Other _____
 Free Product none
 Purge Method disposable bailer

FIELD MEASUREMENTS

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	D.O. = 2.7 ppm Salinity ‰	Comments
1	9.06	67.3	1300		fast recharge clear w/ slight odor + sheen
3	8.50	65.8	950		
5	8.34	66.8	916		
7	7.96	64.7	1050		
9	7.51	62.2	1300		

Total Gallons Purged 9 gallons
 Depth to Groundwater Before Sampling (below TOC) 4.88' feet
 Sampling Method disposable bailer
 Containers Used 3 40 ml 1 liter 0 pint

Subsurface Consultants	JOB NUMBER	DATE	APPROVED	PLATE

WELL SAMPLING FORM

Project Name: KOT Well Number: MW-6
Job No.: 133.005 Well Casing Diameter: 2 inch
Sampled By: DJA Date: 5/24/96
TOC Elevation: _____ Weather: Sunny

Depth to Casing Bottom (below TOC) 20.50 feet
Depth to Groundwater (below TOC) 4.15 ← product level feet
Feet of Water in Well 16.35 feet
Depth to Groundwater When 80% Recovered 7.42 feet
Casing Volume (feet of water x Casing DIA² x 0.0408) 2.7 gallons
Depth Measurement Method Tape & Paste / Electronic Sounder / Other
Free Product Yes 4"-5" inside bailer @ start - bailed until not visible
Purge Method disposable bailer

FIELD MEASUREMENTS

fact recharge

Gallons Removed	pH	Temp (°C)	Conductivity (micromhos/cm)	Salinity S%	Comments
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Total Gallons Purged 4 gallons
Depth to Groundwater Before Sampling (below TOC) 7.49' feet
Sampling Method disposable bailer
Containers Used 6 2 _____
40 ml liter pint

Subsurface Consultants	JOB NUMBER	DATE	APPROVED	PLATE

APPENDIX C

**GROUNDWATER SAMPLING ANALYTICAL REPORTS FOR
SAMPLES COLLECTED IN MAY 1996**



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
171 12th Street
Suite 201
Oakland, CA 94608

Date: 05-JUN-96
Lab Job Number: 125717
Project ID: 133.005
Location: KOT

Reviewed by: _____

Reviewed by: _____

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TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 133.005
Location: KOT

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125717-001	MW-3	27926	05/24/96	05/31/96	05/31/96	

Matrix: Water

Analyte	Units	125717-001
Diln Fac:		1
Gasoline	ug/L	<50
Surrogate		
Trifluorotoluene	%REC	91
Bromobenzene	%REC	85



BATCH QC REPORT

Lab #: 125717

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 133.005
Location: KOT

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 27926
Units: ug/L
Diln Fac: 1

Prep Date: 05/31/96
Analysis Date: 05/31/96

MB Lab ID: QC23084

Analyte	Result	
Gasoline	<50	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	90	69-120
Bromobenzene	76	70-122

Lab #: 125717

BATCH QC REPORT

Page 1 of 1

TVH-Total Volatile Hydrocarbons			
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)		
Project#: 133.005	Prep Method: EPA 5030		
Location: KOT			
LABORATORY CONTROL SAMPLE			
Matrix: Water	Prep Date:	05/31/96	
Batch#: 27926	Analysis Date:	05/31/96	
Units: ug/L			
Diln Fac: 1			

LCS Lab ID: QC23085

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	2010	2006	101	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	95	69-120		
Bromobenzene	92	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 #: 125717

BATCH QC REPORT

Page 1 of 1

TVH-Total Volatile Hydrocarbons	
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)
Project#: 133.005	Prep Method: EPA 5030
Location: KOT	
MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
Field ID: ZZZZZZ	Sample Date: 05/22/96
Lab ID: 125692-001	Received Date: 05/23/96
Matrix: Water	Prep Date: 05/31/96
Batch#: 27926	Analysis Date: 05/31/96
Units: ug/L	
Diln Fac: 1	

MS Lab ID: QC23087

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline	2000	<50.00	1850	93	75-125
Surrogate	%Rec	Limits			
Trifluorotoluene	95	69-120			
Bromobenzene	86	70-122			

MSD Lab ID: QC23088

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline	2000	1979	90	75-125	7	<20
Surrogate	%Rec	Limits				
Trifluorotoluene	95	69-120				
Bromobenzene	98	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#: 133.005
Location: KOT

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

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125717-001	MW-3	27890	05/24/96	05/29/96	05/31/96	

Matrix: Water

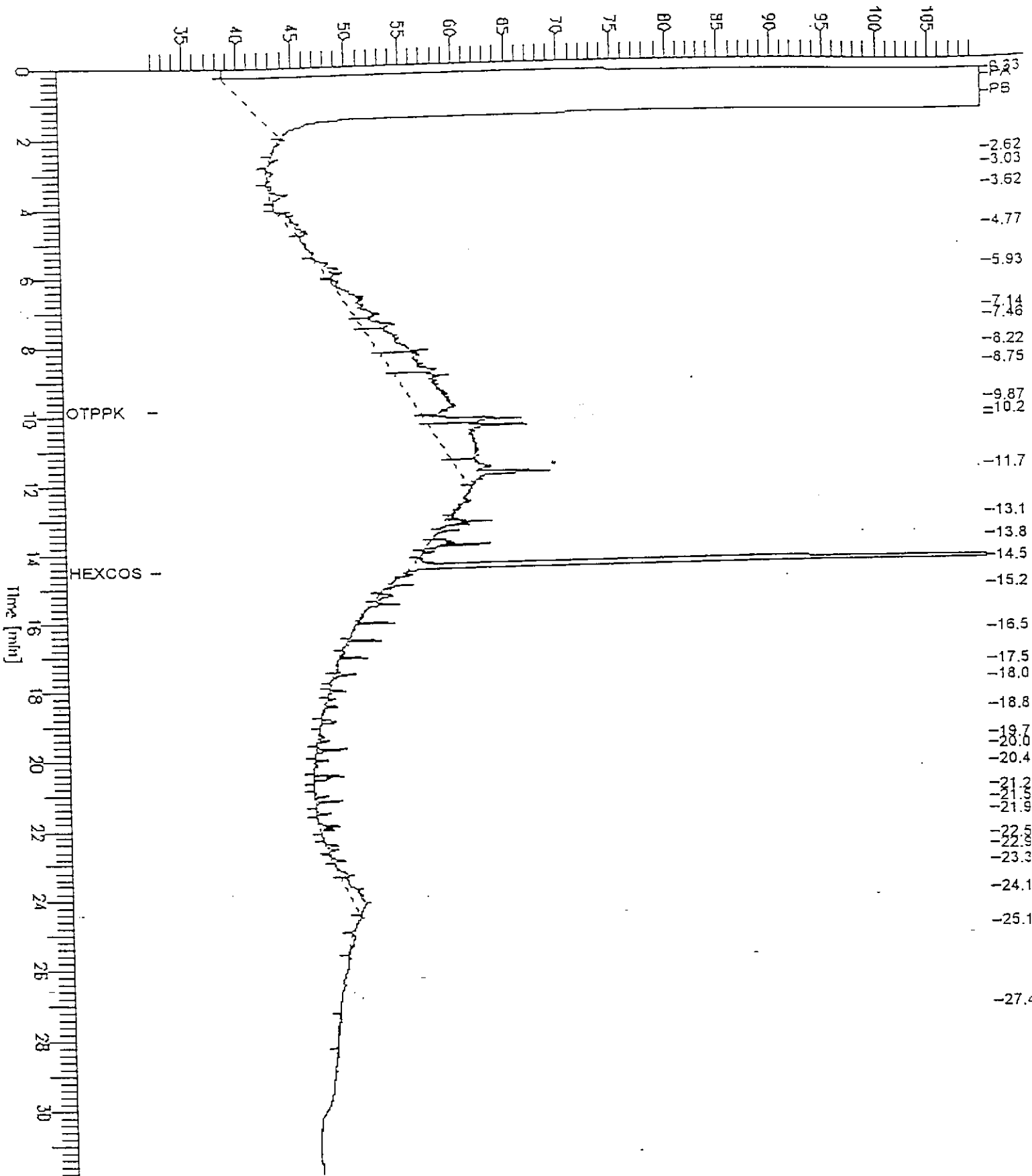
Analyte	Units	125717-001
DiIn Fac:		1
Diesel C12-C22	ug/L	1100 YH
Motor Oil C22-C50	ug/L	550 Y
Surrogate		
Hexacosane	%REC	99

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

Sample Name : S,125717-001,27890
 FileName : C:\GC15\CHB\1518031.raw
 Method : DUAL
 Start Time : 0.00 min End Time : 31.90 min
 Scale Factor: 0.0 Plot Offset: 32 mV

Sample #: 500:2.5 Page 1 of 1
 Date : 5/31/96 09:43 PM
 Time of Injection: 5/31/96 09:09 PM
 Low Point : 32.00 mV High Point : 110.00 mV
 Plot Scale: 78.0 mV

Response [mV]





Lab #: 125717

BATCH QC REPORT

TEH-Tot Ext Hydrocarbons	
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)
Project#: 133.005	Prep Method: EPA 3520
Location: KOT	
METHOD BLANK	
Matrix: Water	Prep Date: 05/29/96
Batch#: 27890	Analysis Date: 05/30/96
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC22929

Analyte	Result	
Diesel C12-C22	<50	
Motor Oil C22-C50	<250	
Surrogate	%Rec	Recovery Limits
Hexacosane	105	60-140

BATCH QC REPORT

Lab #: 125717

TEH-Tot Ext Hydrocarbons	
Client: Subsurface Consultants	Analysis Method: CA LUFT (EPA 8015M)
Project#: 133.005	Prep Method: EPA 3520
Location: KOT	
BLANK SPIKE/BLANK SPIKE DUPLICATE	
Matrix: Water	Prep Date: 05/29/96
Batch#: 27890	Analysis Date: 05/30/96
Units: ug/L	
Diln Fac: 1	

BS Lab ID: QC22930

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	2509	101	60-140
Surrogate	%Rec	Limits		
Hexacosane	100	60-140		

BSD Lab ID: QC22931

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	2602	105	60-140	4	<35
Surrogate	%Rec	Limits				
Hexacosane	100	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



BTXE

Client: Subsurface Consultants
Project#: 133.005
Location: KOT

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125717-001	MW-3	27926	05/24/96	05/31/96	05/31/96	

Matrix: Water

Analyte	Units	125717-001
Diln Fac:		1
Benzene	ug/L	<0.5
Toluene	ug/L	<0.5
Ethylbenzene	ug/L	<0.5
m, p-Xylenes	ug/L	<0.5
o-Xylene	ug/L	<0.5
Surrogate		
Trifluorotoluene	%REC	96
Bromobenzene	%REC	92



Lab #: 125717

BATCH QC REPORT

Page 1 of 1

BTXE	
Client: Subsurface Consultants	Analysis Method: EPA 8020
Project#: 133.005	Prep Method: EPA 5030
Location: KOT	
METHOD BLANK	
Matrix: Water	Prep Date: 05/31/96
Batch#: 27926	Analysis Date: 05/31/96
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC23084

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	97	58-130
Bromobenzene	85	62-131



Lab #: 125717

BATCH QC REPORT

Page 1 of 1

BTXE	
Client: Subsurface Consultants	Analysis Method: EPA 8020
Project#: 133.005	Prep Method: EPA 5030
Location: KOT	
LABORATORY CONTROL SAMPLE	
Matrix: Water	Prep Date: 05/31/96
Batch#: 27926	Analysis Date: 05/31/96
Units: ug/L	
Diln Fac: 1	

LCS Lab ID: QC23086

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	20.7	20	104	80-120
Toluene	20.7	20	104	80-120
Ethylbenzene	20.3	20	102	80-120
m,p-Xylenes	42.8	40	107	80-120
o-Xylene	21.6	20	108	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	99	58-130		
Bromobenzene	87	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

CHAIN OF CUSTODY FORM

125717

PAGE OF
ANALYSIS REQUESTED

PROJECT NAME: KOT
 JOB NUMBER: 133.005 LAB: Curtis + Tompkins
 PROJECT CONTACT: Jeri Alexander / Jerome DeVerkin TURNAROUND: Normal
 SAMPLED BY: Dennis Alexander REQUESTED BY: Jeri Alexander

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES TEH (C-5 TO C-50) TVH/BTXE	
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H ₂ SO ₄	HNO ₃	ICE	NONE	MONTH	DAY	YEAR	TIME		
	MW-3	X				3	1			X			X		05	24	96	12:30	X	X

CHAIN OF CUSTODY RECORD				COMMENTS & NOTES:	
RELEASED BY: (Signature) <u>Dennis Alexander</u>	DATE / TIME <u>5/25/96</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	DATE / TIME <u>5-28-96</u>	<u>3:15</u>	
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		

Subsurface Consultants, Inc.

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

Prepared for:

Subsurface Consultants
171 12th Street
Suite 201
Oakland, CA 94608

Date: 04-JUN-96
Lab Job Number: 125711
Project ID: 133.005
Location: KOT

Reviewed by:

Teresa K Morris

Reviewed by:

Tacy BBA

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TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
 Project#: 133.005
 Location: KOT

Analysis Method: CA LUFT (EPA 8015M)
 Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125711-001	MW-1	27882	05/24/96	05/30/96	05/30/96	
125711-002	MW-2	27882	05/24/96	05/30/96	05/30/96	
125711-003	MW-4	27882	05/24/96	05/30/96	05/30/96	
125711-004	MW-5	27882	05/24/96	05/30/96	05/30/96	

Matrix: Water

Analyte	Units	125711-001	125711-002	125711-003	125711-004
Diln Fac:		1	1	5	1
Gasoline	ug/L	<50	<50	690 Y	82 Y
Surrogate					
Trifluorotoluene	%REC	89	89	92	91
Bromobenzene	%REC	79	79	81	81

Y: Sample exhibits fuel pattern which does not resemble standard

Filename : G:\GC05\150H037.raw
Start Time : 0.00 min
Scale Factor: -1

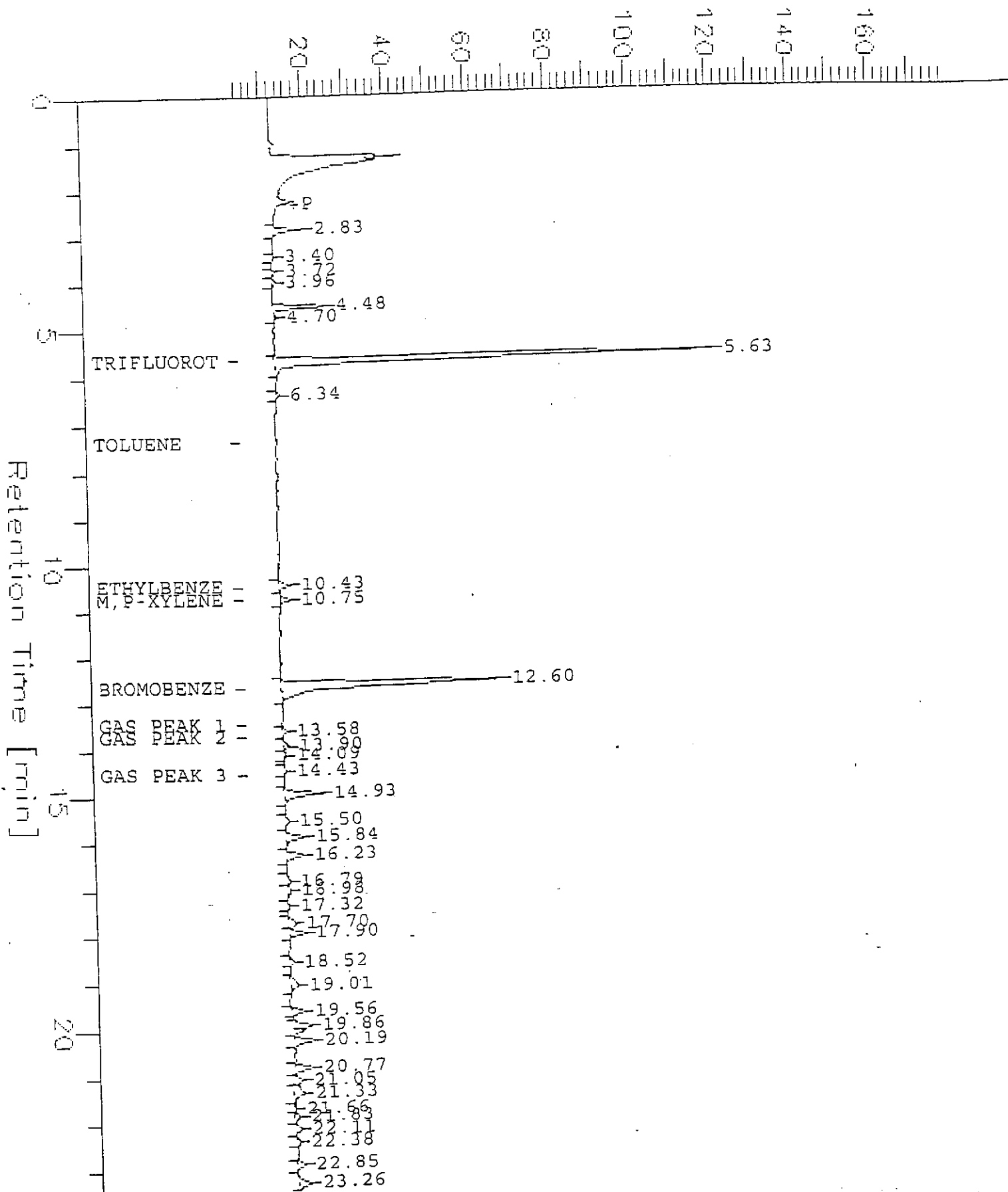
End Time : 23.42 min
Plot Offset: 4 mV

Date : 5/30/96 3:33 PM
Low Point : 3.71 mV
Plot Scale: 175 mV

Page 1 of 1
High Point : 178.71 mV

125711-003

Response [mV]



FileName : G:\GC05\150H021.raw
 Start Time : 0.00 min
 Scale Factor: -1

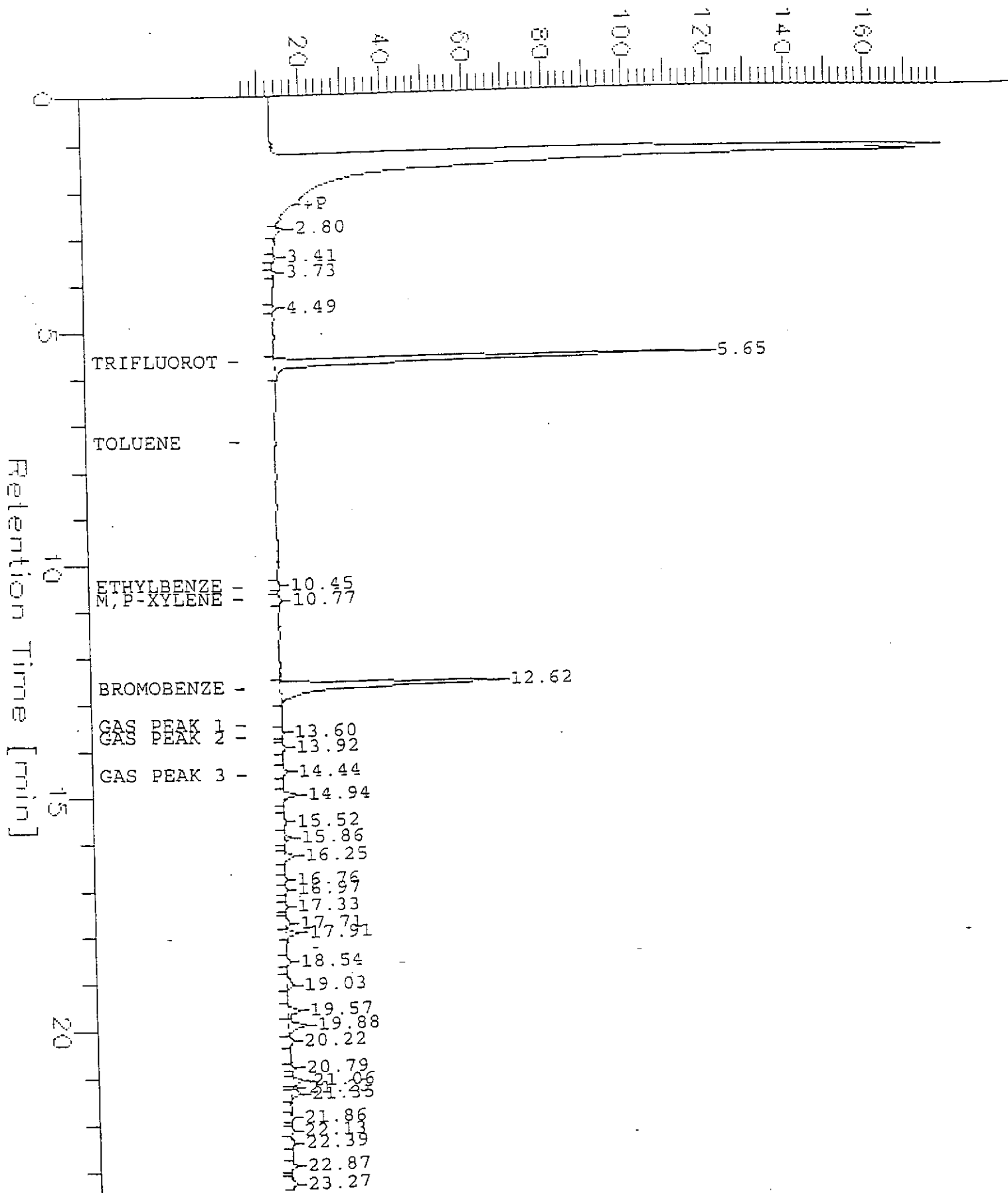
End Time : 23.42 min
 Plot Offset: 4 mV

Date : 5/30/96 5:13 AM
 Low Point : 4.07 mV
 Plot Scale: 175 mV

Page 1 of 1
 High Point : 179.07 mV

125711-004

Response [mV]





TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
 Project#: 133.005
 Location: KOT

Analysis Method: CA LUFT (EPA 8015M)
 Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125711-005	MW-6 AFTER PURGE	27882	05/24/96	05/30/96	05/30/96	
125711-006	MW-6 BEFORE PURGE	27882	05/24/96	05/30/96	05/30/96	

Matrix: Water

Analyte	Units	125711-005	125711-006
Diln Fac:		500	500
Gasoline	ug/L	280000 YH	900000 YH
Surrogate			
Trifluorotoluene	%REC	90	90
Bromobenzene	%REC	85	85

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

FileName : G:\GC05\150H030.raw
Start time : 0.00 min
Scale Factor: -1

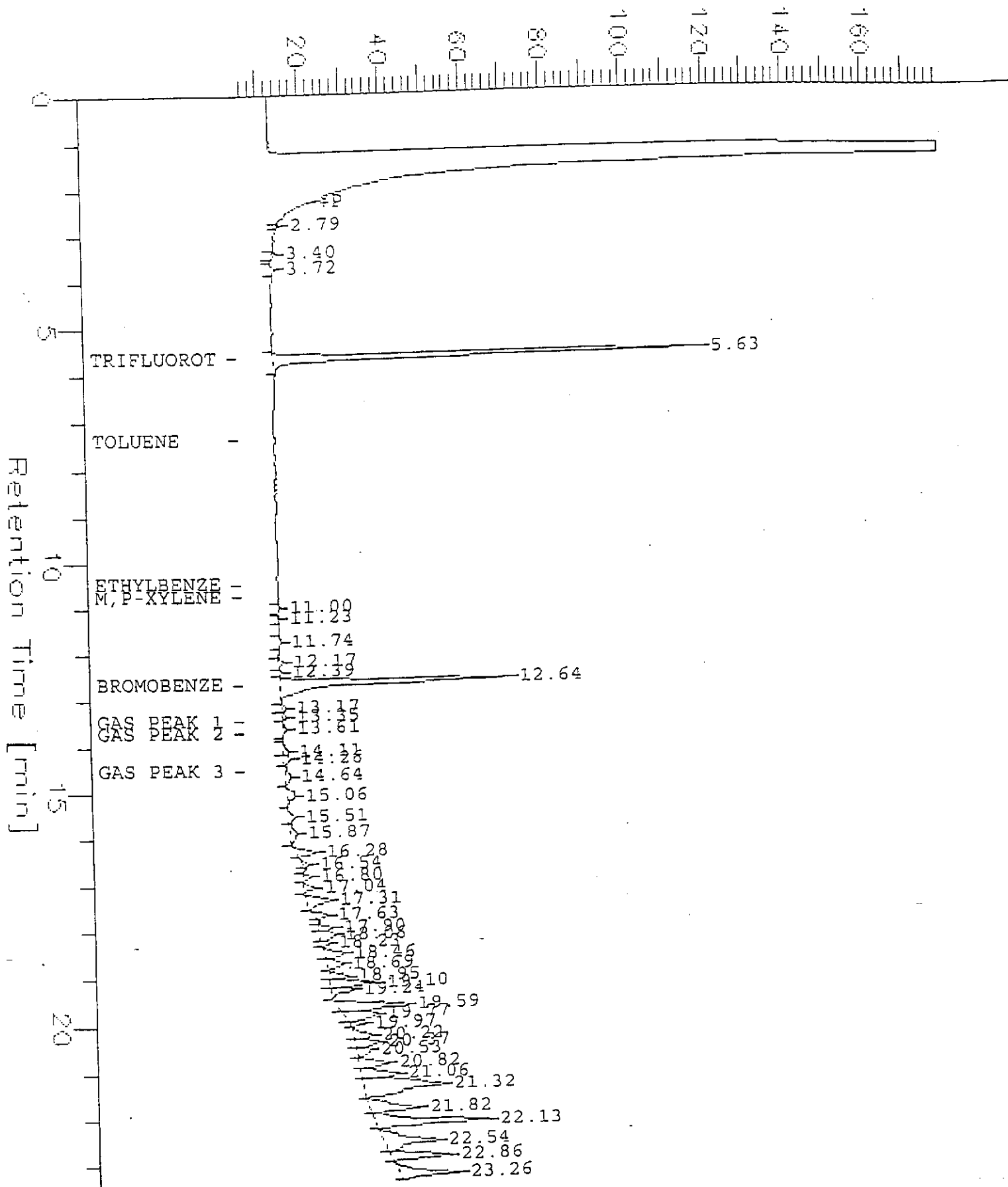
End Time : 23.42 min
Plot Offset: 4 mV

Date : 5/30/96 11:02 AM
Low Point : 4.02 mV
Plot Scale: 175 mV

Page 1 of 1
High Point : 179.02 mV

125711-005

Response [mV]



FileName : G:\GC05\150H031.raw
Start Time : 0.00 min
Scale Factor: -1

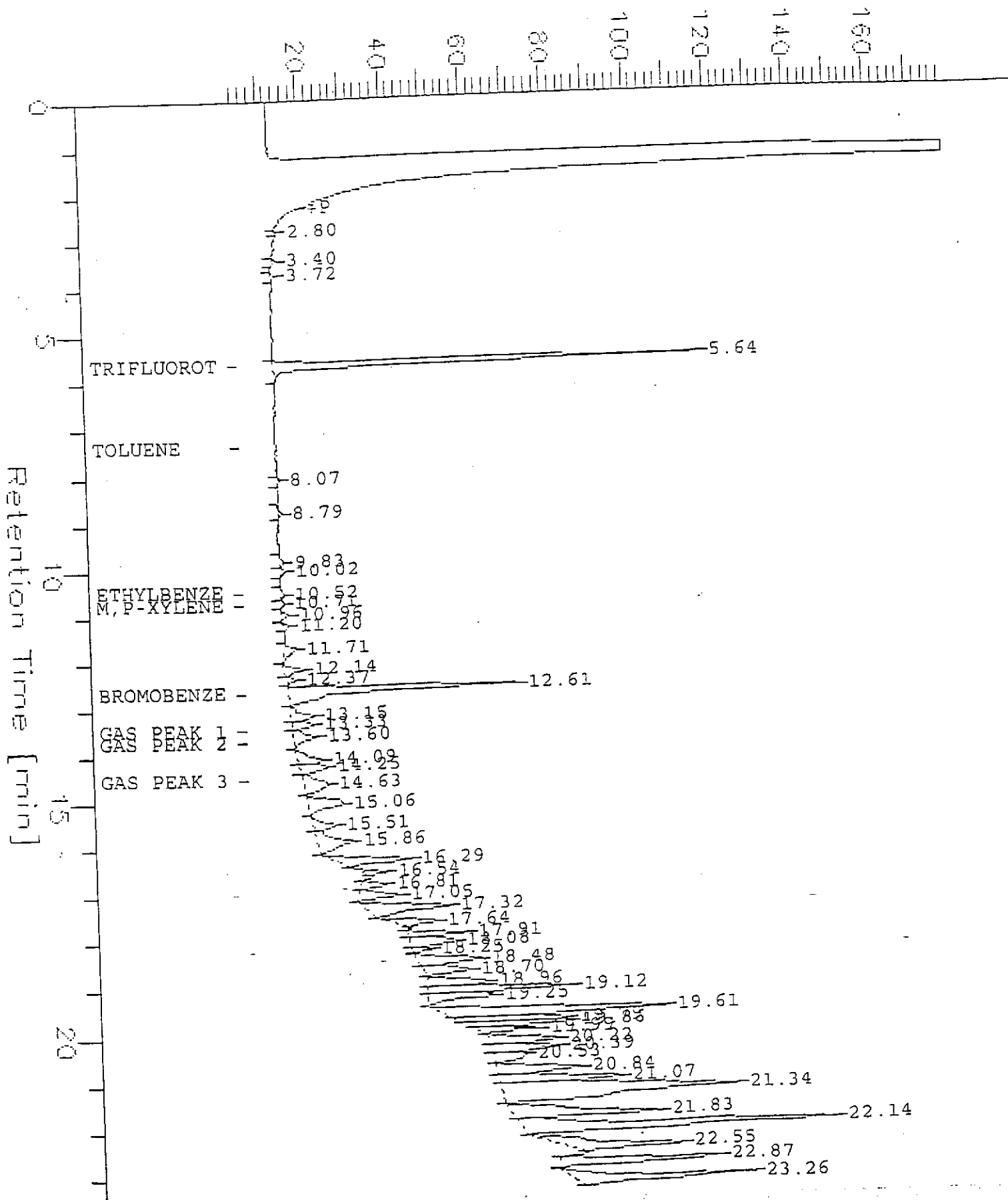
End Time : 23.42 min
Plot Offset: 4 mV

Date : 5/30/96 11:41 AM
Low Point : 3.95 mV
Plot Scale: 175 mV

Page 1 of 1
High Point : 178.95 mV

125711-004

Response [mV]





BATCH QC REPORT

Lab #: 125711

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 133.005
Location: KOT

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 27882
Units: ug/L
Diln Fac: 1

Prep Date: 05/29/96
Analysis Date: 05/29/96

MB Lab ID: QC22896

Analyte	Result	
Gasoline	<50	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	85	69-120
Bromobenzene	71	70-122

DO: Surrogate diluted out

Lab #: 125711

BATCH QC REPORT

Page 1 of 1

TVH-Total Volatile Hydrocarbons	
Client: Subsurface Consultants Project#: 133.005 Location: KOT	Analysis Method: CA LUFT (EPA 8015M) Prep Method: EPA 5030
LABORATORY CONTROL SAMPLE	
Matrix: Water Batch#: 27882 Units: ug/L Diln Fac: 1	Prep Date: 05/29/96 Analysis Date: 05/29/96

LCS Lab ID: QC22897

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	2081	2006	104	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	88	69-120		
Bromobenzene	87	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

BATCH QC REPORT

Lab #: 125711

TVH-Total Volatile Hydrocarbons

 Client: Subsurface Consultants
 Project#: 133.005
 Location: KOT

 Analysis Method: CA LUFT (EPA 8015M)
 Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

 Field ID: ZZZZZZ
 Lab ID: 125723-001
 Matrix: Water
 Batch#: 27882
 Units: ug/L
 Diln Fac: 1

 Sample Date: 05/28/96
 Received Date: 05/28/96
 Prep Date: 05/29/96
 Analysis Date: 05/29/96

MS Lab ID: QC22899

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline	2000	860	2839	99	75-125
Surrogate	%Rec	Limits			
Trifluorotoluene	93	69-120			
Bromobenzene	108	70-122			

MSD Lab ID: QC22900

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline	2000	2882	101	75-125	2	<20
Surrogate	%Rec	Limits				
Trifluorotoluene	93	69-120				
Bromobenzene	109	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#: 133.005
 Location: KOT

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

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125711-001	MW-1	27890	05/24/96	05/29/96	05/31/96	
125711-002	MW-2	27890	05/24/96	05/29/96	05/31/96	
125711-003	MW-4	27890	05/24/96	05/29/96	05/31/96	
125711-004	MW-5	27890	05/24/96	05/29/96	05/31/96	

Matrix: Water

Analyte	Units	125711-001	125711-002	125711-003	125711-004
Diln Fac:		1	1	5	1
Diesel C12-C22	ug/L	870 YH	2800 YH	37000	4600 YH
Motor Oil C22-C50	ug/L	630 Y	1200 Y	2800 YL	1900 Y
Surrogate					
Hexacosane	%REC	105	109	81	103

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

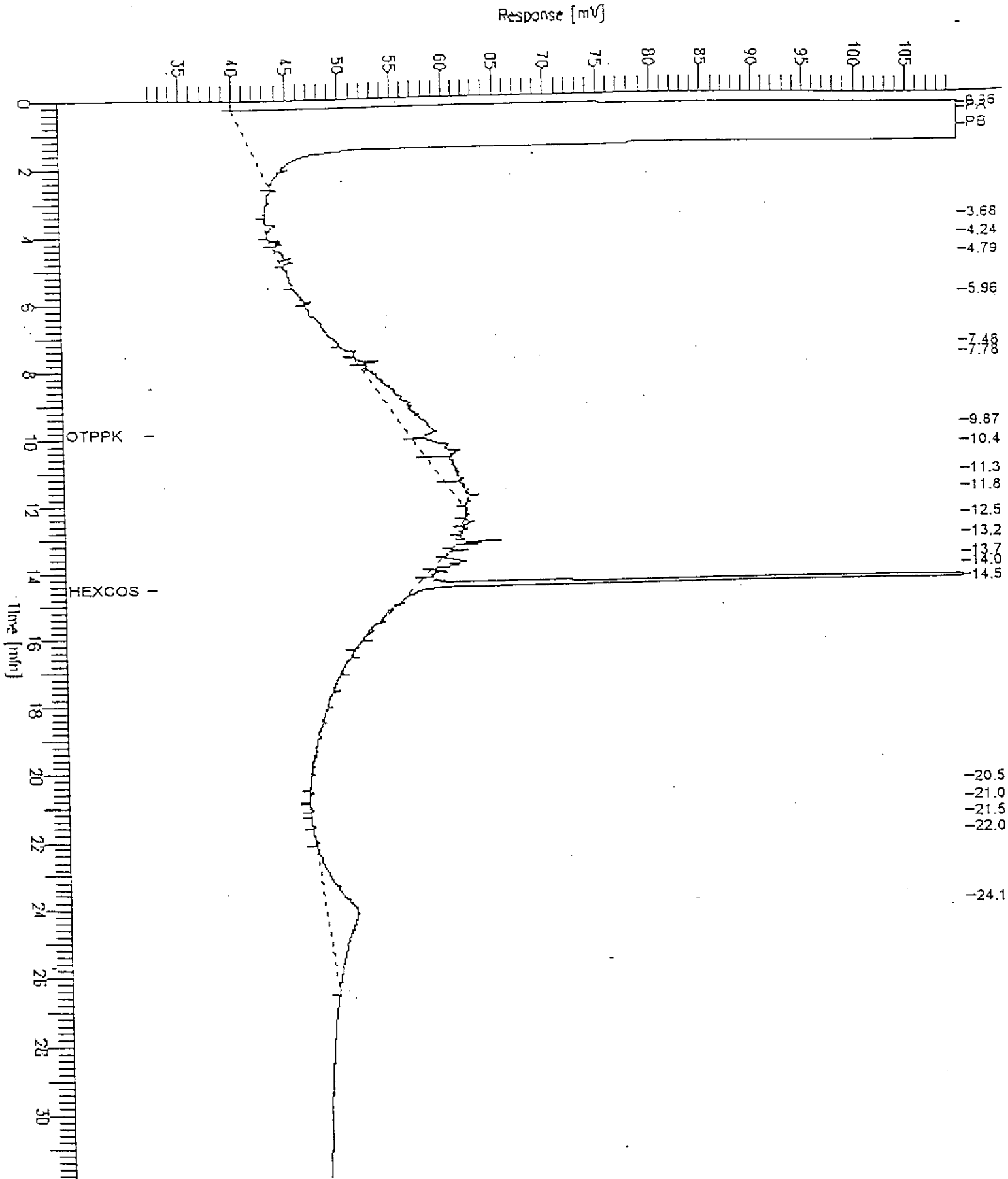
GC15 Channel B Surrogate

Sample Name : 125711-001,27890
FileName : C:\GC15\CHB\1518022.raw
Method : DUAL
Start Time : 0.00 min
Scale Factor: 0.0

End Time : 31.90 min
Plot Offset: 32 mV

Sample #: 500:2.5
Date : 5/31/96 11:30 AM
Time of Injection: 5/31/96 10:55 AM
Low Point : 32.00 mV
Plot Scale: 78.0 mV
High Point : 110.00 mV

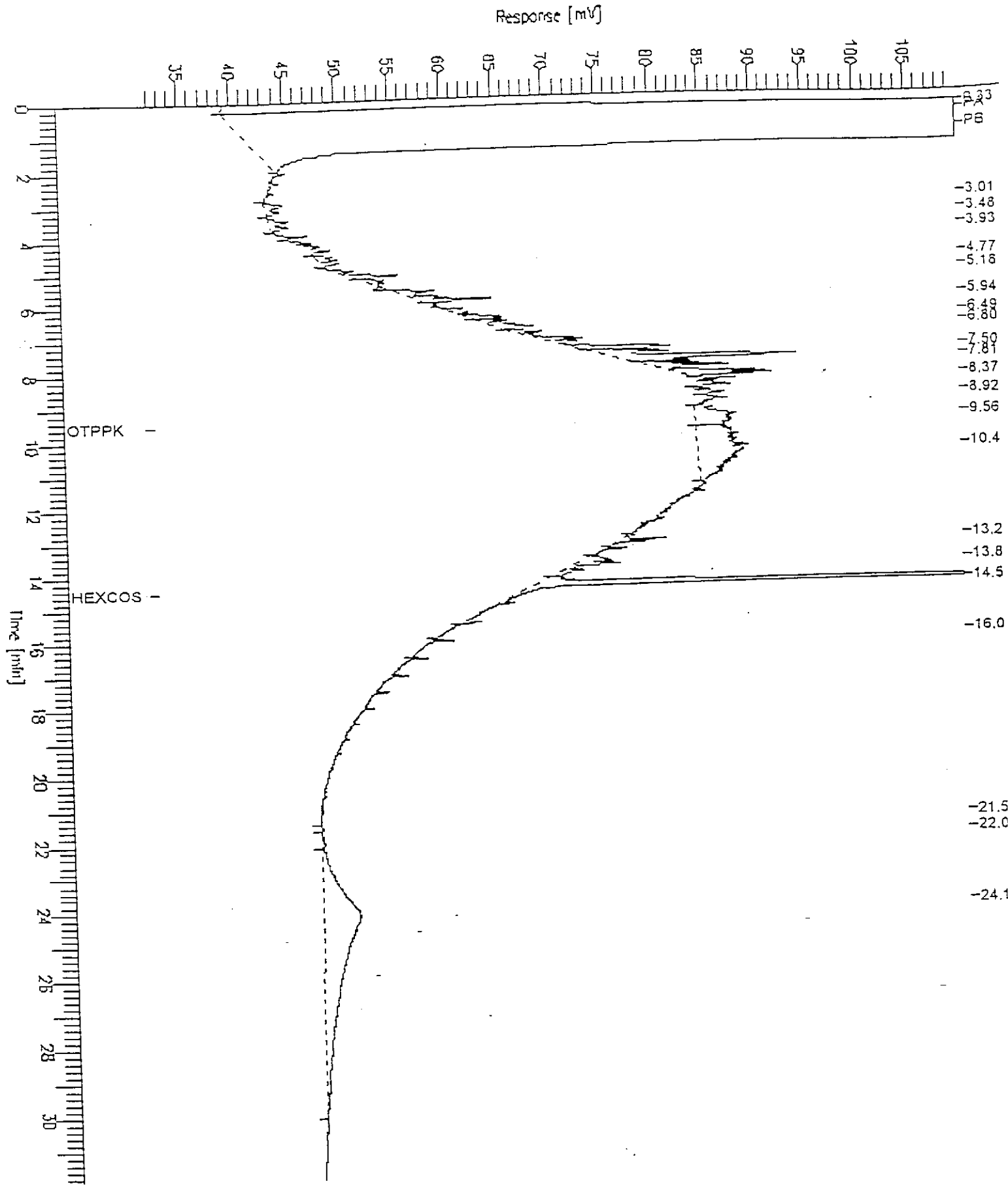
Page 1 of 1



Sample Name : 125711-002,27890
 FileName : C:\GC15\CHB\1518023.raw
 Method : DUAL
 Start Time : 0.00 min
 Scale Factor : 0.0

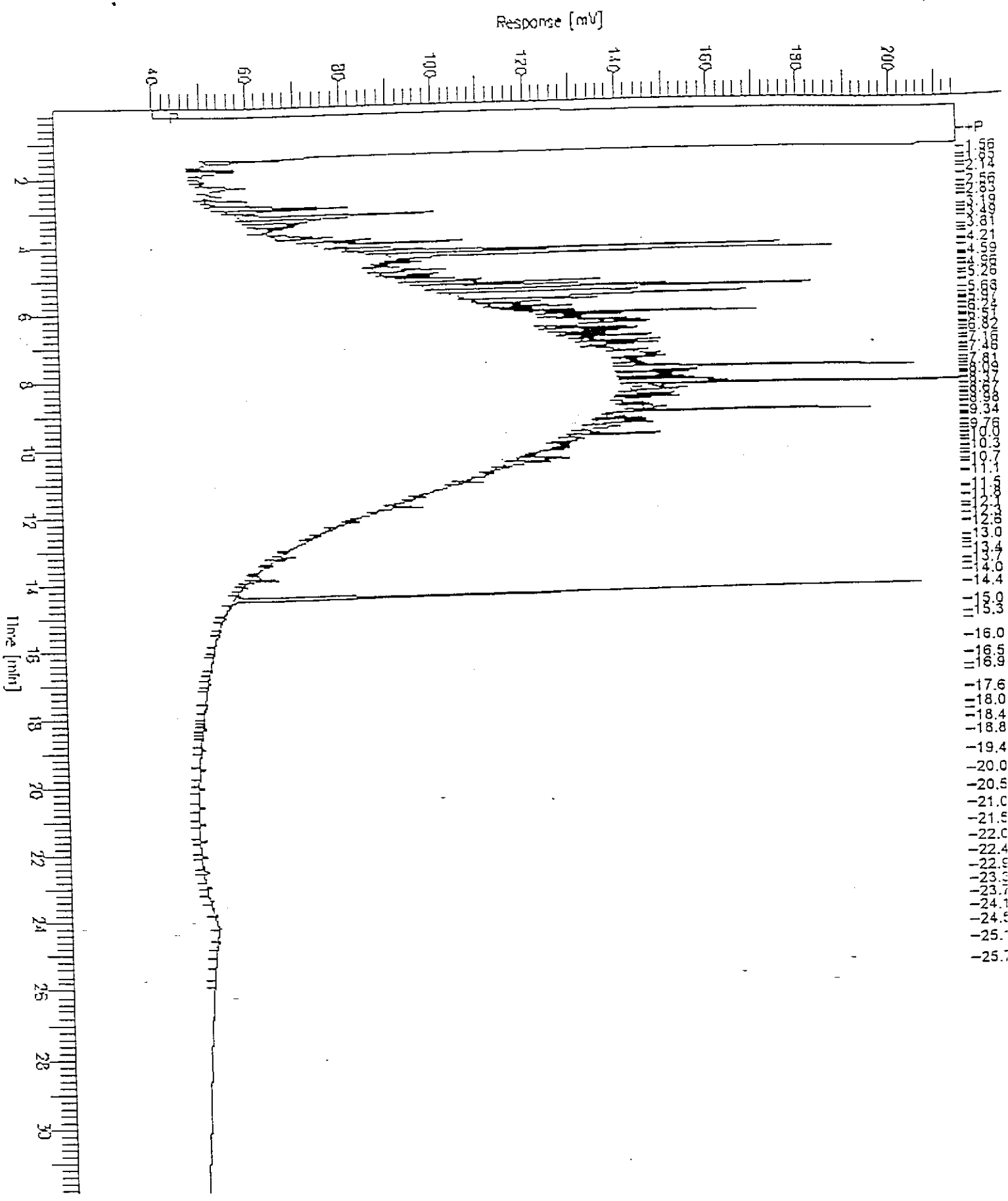
Sample #: 500:2.5
 Date : 5/31/96 12:14 PM
 Time of Injection: 5/31/96 11:40 AM
 Low Point : 32.00 mV
 High Point : 110.00 mV
 Plot Scale: 78.0 mV

End Time : 31.90 min
 Plot Offset: 32 mV



Sample Name : 125711-003,27890
FileName : C:\GC15\CHB\1518038.RAW
Method : STEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

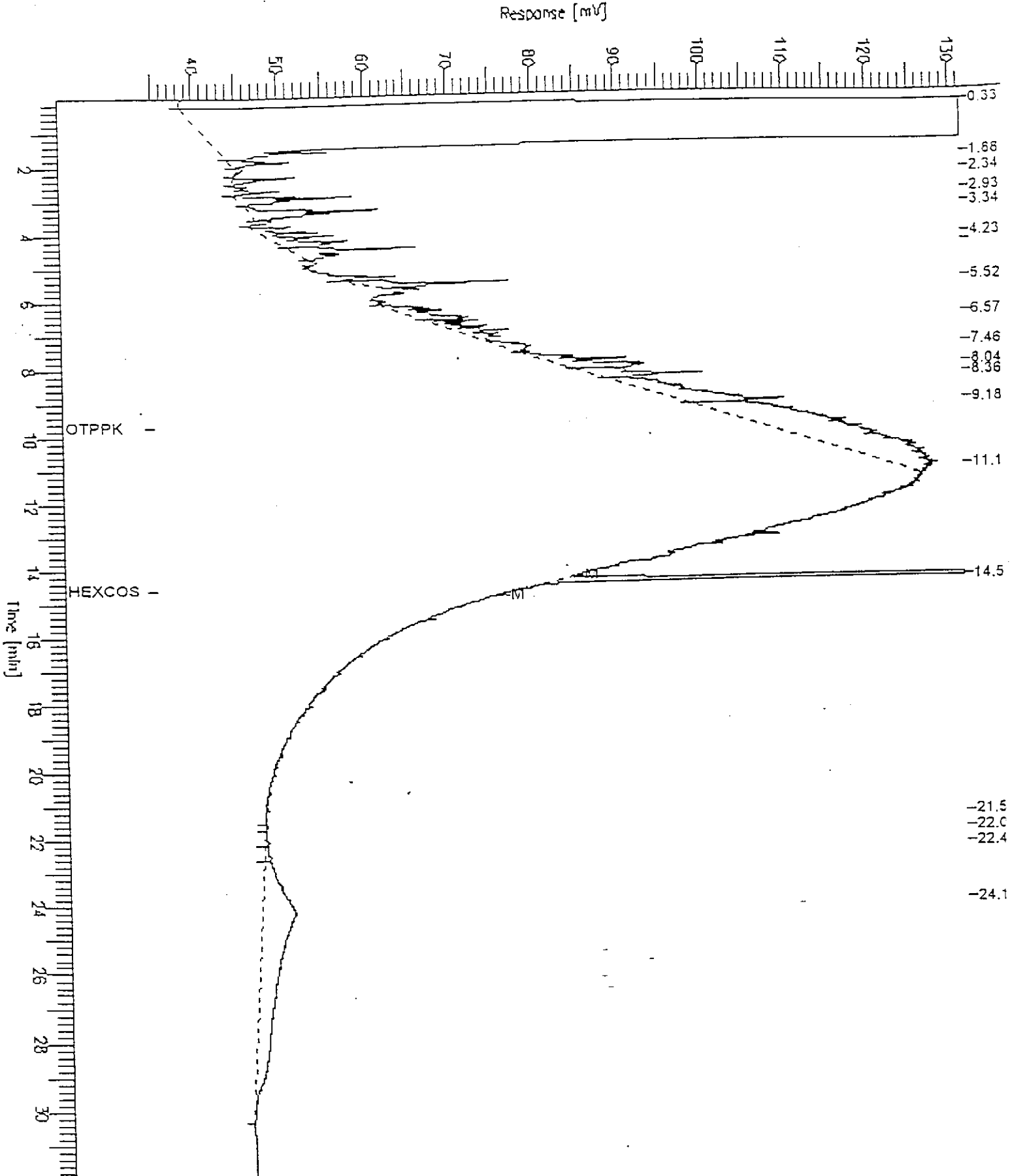
Sample #: 500:12.5
Date : 6/3/96 11:49 AM
Time of Injection: 6/1/96 02:21 AM
Low Point : 38.32 mV
Plot Scale: 176.6 mV
High Point : 214.87 mV



Sample Name : 125711-004, 27890
FileName : C:\GC15\CHB\1518025.RAW
Method : BSURR.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 31.91 min
Plot Offset: 35 mV

Page 1 of 1
Sample #: 500:2.5
Date : 5/31/96 01:51 PM
Time of Injection: 5/31/96 01:10 PM
Low Point : 34.83 mV
High Point : 131.46 mV
Plot Scale: 96.6 mV





TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
 Project#: 133.005
 Location: KOT

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

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125711-005	MW-6 AFTER PURGE	27890	05/24/96	05/29/96	05/31/96	
125711-006	MW-6 BEFORE PURGE	27890	05/24/96	05/29/96	05/31/96	

Matrix: Water

Analyte	Units	125711-005	125711-006
Diln Fac:		40	50
Diesel C12-C22	ug/L	240000	470000
Motor Oil C22-C50	ug/L	5500 YL	13000 YL
Surrogate			
Hexacosane	%REC	DO	DO

DO: Surrogate diluted out

Y: Sample exhibits fuel pattern which does not resemble standard

L: Lighter hydrocarbons than indicated standard

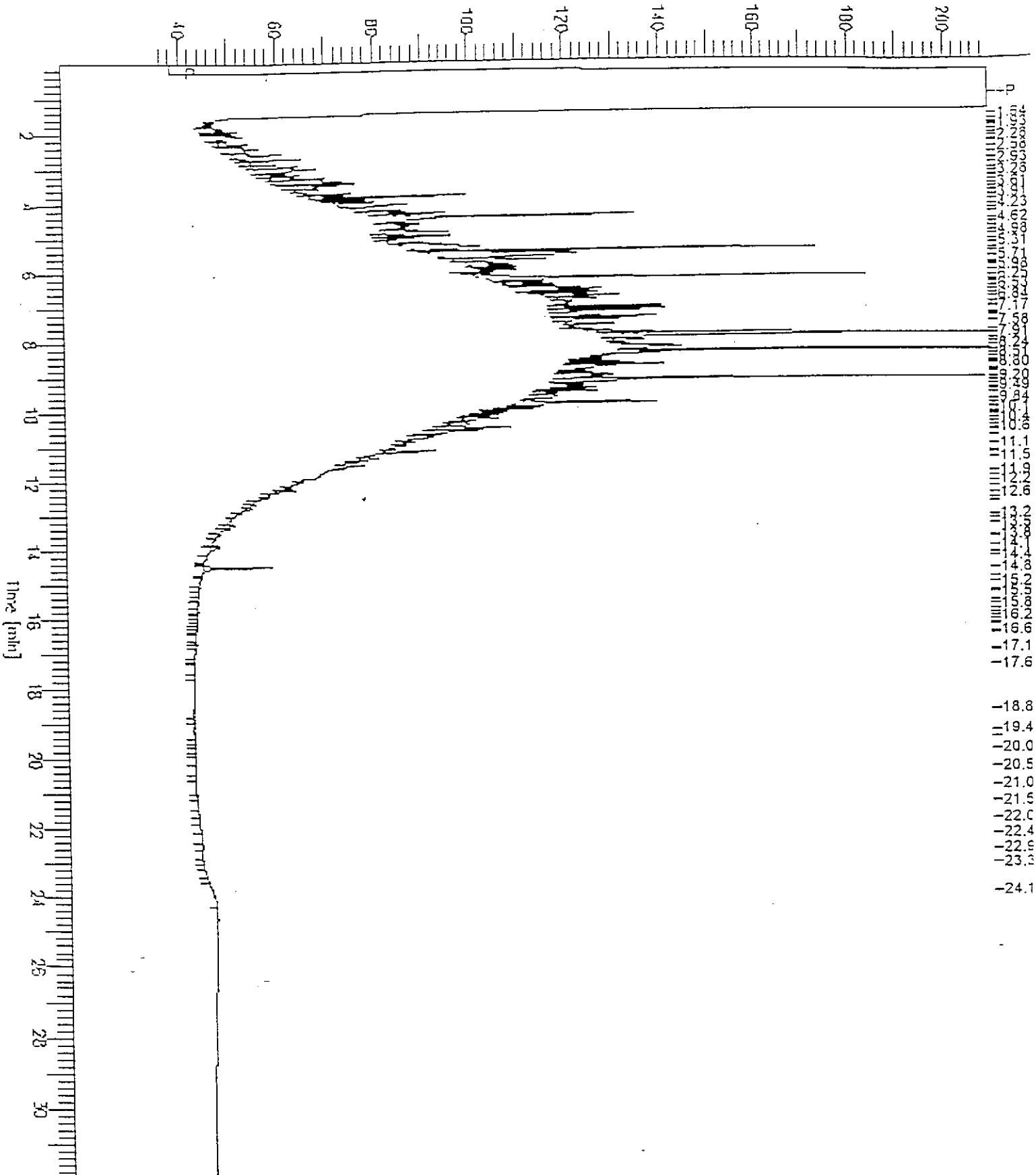
Sample Name : 125711-005,27390
FileName : C:\GC15\CHB\1518026.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 31.91 min
Plot Offset: 35 mV

Sample #: 500:100
Date : 5/31/96 04:39 PM
Time of Injection: 5/31/96 01:55 PM
Low Point : 34.87 mV
Plot Scale: 174.5 mV

High Point : 209.62 mV

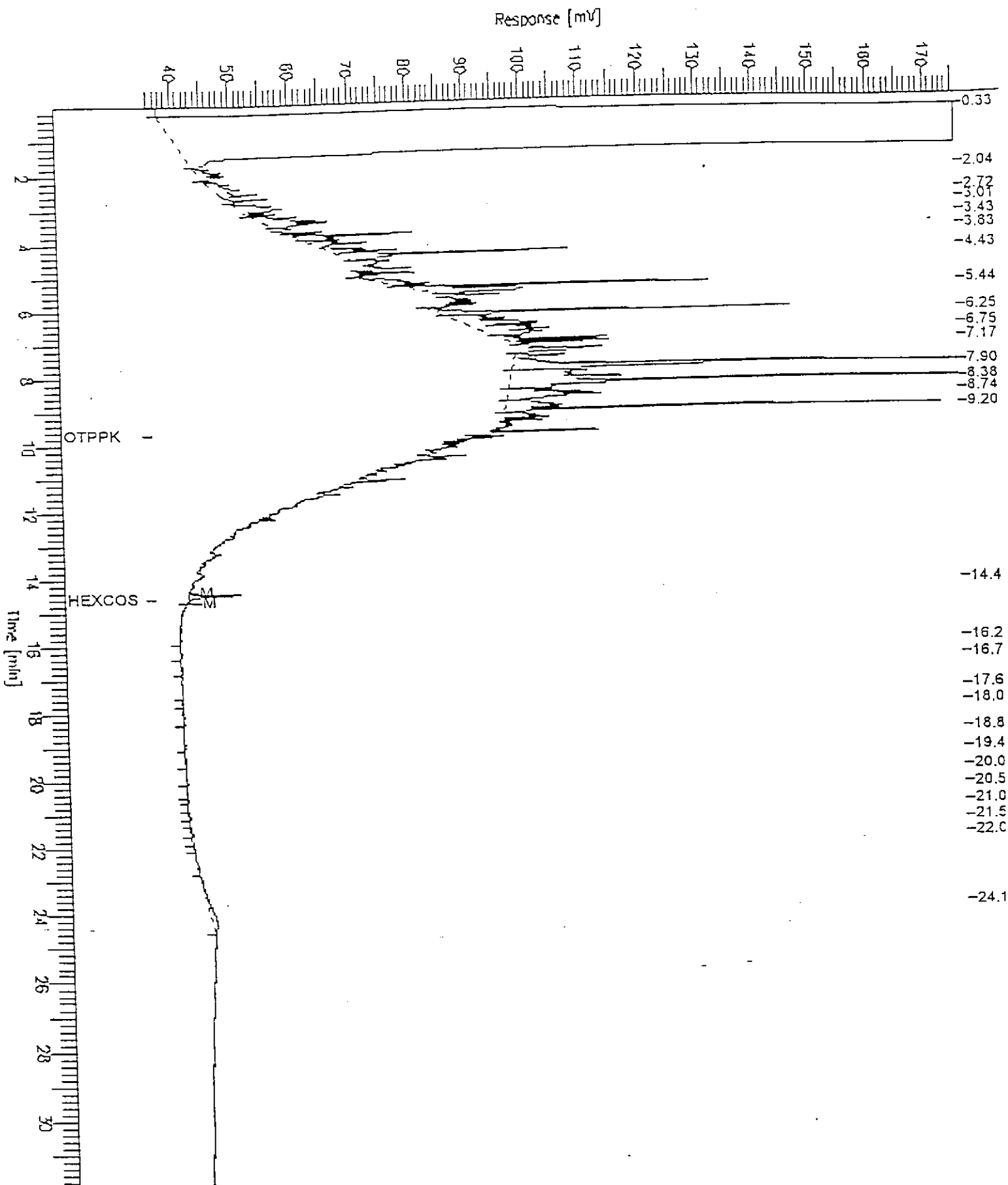
Response [mV]



Sample Name : 125711-006,27890
FileName : C:\GC15\CHB\1518027.RAW
Method : BSURR.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 31.91 min
Plot Offset: 35 mV

Sample #: 250:125
Date : 5/31/96 04:58 PM
Time of Injection: 5/31/96 02:40 PM
Low Point : 35.61 mV
Plot Scale: 140.0 mV
High Point : 175.65 mV





Lab #: 125711

BATCH QC REPORT

TEH-Tot Ext Hydrocarbons	
Client: Subsurface Consultants Project#: 133.005 Location: KOT	Analysis Method: CA LUFT (EPA 8015M) Prep Method: EPA 3520
METHOD BLANK	
Matrix: Water Batch#: 27890 Units: ug/L Diln Fac: 1	Prep Date: 05/29/96 Analysis Date: 05/30/96

MS Lab ID: QC22929

Analyte	Result	
Diesel C12-C22	<50	
Motor Oil C22-C50	<250	
Surrogate	%Rec	Recovery Limits
Hexacosane	105	60-140



BATCH QC REPORT

Lab #: 125711

TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
 Project#: 133.005
 Location: KOT

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

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
 Batch#: 27890
 Units: ug/L
 Diln Fac: 1

Prep Date: 05/29/96
 Analysis Date: 05/30/96

BS Lab ID: QC22930

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	2509	101	60-140
Surrogate	%Rec	Limits		
Hexacosane	100	60-140		

BSD Lab ID: QC22931

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	2602	105	60-140	4	<35
Surrogate	%Rec	Limits				
Hexacosane	100	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



BTXE

Client: Subsurface Consultants
 Project#: 133.005
 Location: KOT

Analysis Method: EPA 8020
 Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125711-001	MW-1	27882	05/24/96	05/30/96	05/30/96	
125711-002	MW-2	27882	05/24/96	05/30/96	05/30/96	
125711-003	MW-4	27882	05/24/96	05/30/96	05/30/96	
125711-004	MW-5	27882	05/24/96	05/30/96	05/30/96	

Matrix: Water

Analyte	Units	125711-001	125711-002	125711-003	125711-004
Diln Fac:		1	1	5	1
Benzene	ug/L	<0.5	<0.5	44	<0.5
Toluene	ug/L	<0.5	<0.5	<2.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5	18	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5	7.7	<0.5
o-Xylene	ug/L	<0.5	<0.5	<2.5	<0.5
Surrogate					
Trifluorotoluene	%REC	97	99	99	99
Bromobenzene	%REC	88	88	90	91



BTXE

Client: Subsurface Consultants
Project#: 133.005
Location: KOT

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125711-005	MW-6 AFTER PURGE	27882	05/24/96	05/30/96	05/30/96	
125711-006	MW-6 BEFORE PURGE	27882	05/24/96	05/30/96	05/30/96	

Matrix: Water

Analyte	Units	125711-005	125711-006
Diln Fac:		500	500
Benzene	ug/L	<250	<250
Toluene	ug/L	<250	<250
Ethylbenzene	ug/L	<250	<250
m,p-Xylenes	ug/L	<250	<250
o-Xylene	ug/L	<250	<250
Surrogate			
Trifluorotoluene	%REC	99	97
Bromobenzene	%REC	94	95



Lab #: 125711

BATCH QC REPORT

BTXE			
Client: Subsurface Consultants	Analysis Method: EPA 8020		
Project#: 133.005	Prep Method: EPA 5030		
Location: KOT			
METHOD BLANK			
Matrix: Water	Prep Date: 05/29/96		
Batch#: 27882	Analysis Date: 05/29/96		
Units: ug/L			
Diln Fac: 1			

MB Lab ID: QC22896

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	92	58-130	
Bromobenzene	80	62-131	

DO: Surrogate diluted out

Lab #: 125711

BATCH QC REPORT

Page 1 of 1

BTXE	
Client: Subsurface Consultants	Analysis Method: EPA 8020
Project#: 133.005	Prep Method: EPA 5030
Location: KOT	
LABORATORY CONTROL SAMPLE	
Matrix: Water	Prep Date: 05/29/96
Batch#: 27882	Analysis Date: 05/29/96
Units: ug/L	
Diln Fac: 1	

LCS Lab ID: QC22898

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	22.1	20	111	80-120
Toluene	21.9	20	110	80-120
Ethylbenzene	21.7	20	109	80-120
m,p-Xylenes	45.4	40	114	80-120
o-Xylene	23	20	115	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	93	58-130		
Bromobenzene	83	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



PCBs		
Client: Subsurface Consultants	Analysis Method: PCB	
Project#: 133.005	Prep Method: EPA 3550	
Location: KOT	Cleanup Method: EPA Acid	
Field ID: MW-6 BEFORE PURGE	Sampled: 05/24/96	
Lab ID: 125711-006	Received: 05/24/96	
Matrix: Water	Extracted: 05/28/96	
Batch#: 27850	Analyzed: 05/30/96	
Units: ug/L		
Diln Fac: 1		
Analyte	Result	Reporting Limit
Aroclor-1016	ND	2.0
Aroclor-1221	ND	2.0
Aroclor-1232	ND	2.0
Aroclor-1242	ND	2.0
Aroclor-1248	ND	2.0
Aroclor-1254	ND	2.0
Aroclor-1260	ND	2.0
Surrogate	%Recovery	Recovery Limits
TCMX	62	60-150
Decachlorobiphenyl	38	30-130



Lab #: 125711

BATCH QC REPORT

Polychlorinated Biphenyls		
Client: Subsurface Consultants	Analysis Method: PCB	
Project#: 133.005	Prep Method: EPA 3550	
Location: KOT	Cleanup Method: EPA Acid	
METHOD BLANK		
Matrix: Water	Prep Date: 05/28/96	
Batch#: 27850	Analysis Date: 05/30/96	
Units: ug/L		
Diln Fac: 1		

MB Lab ID: QC22778

Analyte	Result	Reporting Limit
Aroclor-1016	ND	1.0
Aroclor-1221	ND	1.0
Aroclor-1232	ND	1.0
Aroclor-1242	ND	1.0
Aroclor-1248	ND	1.0
Aroclor-1254	ND	1.0
Aroclor-1260	ND	1.0
Surrogate	%Rec	Recovery Limits
TCMX	99	60-150
Decachlorobiphenyl	95	30-130

BATCH QC REPORT

Lab #: 125711

Polychlorinated Biphenyls	
Client: Subsurface Consultants	Analysis Method: PCB
Project#: 133.005	Prep Method: EPA 3550
Location: KOT	Cleanup Method: EPA Acid
BLANK SPIKE/BLANK SPIKE DUPLICATE	
Matrix: Water	Prep Date: 05/28/96
Batch#: 27850	Analysis Date: 05/30/96
Units: ug/L	
Diln Fac: 1	

BS Lab ID: QC22779

Analyte	Spike Added	BS	%Rec #	Limits
Aroclor-1260	6.67	7.3	111	50-128
Surrogate	%Rec	Limits		
TCMX	93	60-150		
Decachlorobiphenyl	82	30-130		

BSD Lab ID: QC22780

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Aroclor-1260	6.67	7.5	114	50-128	3	<20
Surrogate	%Rec	Limits				
TCMX	98	60-150				
Decachlorobiphenyl	103	30-130				

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

SAMPLE ID: MW-6 BEFORE PURGE
 LAB ID: 125711-006
 CLIENT: Subsurface Consultants
 PROJECT ID: 133.005
 LOCATION: KOT
 MATRIX: Water

DATE SAMPLED: 05/24/96
 DATE RECEIVED: 05/24/96
 DATE REPORTED: 06/04/96

California TITLE 26 Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
Antimony	ND	60	1	27878	EPA 6010A	05/30/96
Arsenic	ND	5.0	1	27878	EPA 6010A	05/30/96
Barium	170	10	1	27878	EPA 6010A	05/30/96
Beryllium	ND	2.0	1	27878	EPA 6010A	05/30/96
Cadmium	ND	2.0	1	27878	EPA 6010A	05/30/96
Chromium (total)	ND	10	1	27878	EPA 6010A	05/30/96
Cobalt	ND	20	1	27878	EPA 6010A	05/30/96
Copper	ND	10	1	27878	EPA 6010A	05/30/96
Lead	3.3	3.0	1	27878	EPA 6010A	05/30/96
Mercury	0.28	0.20	1	27875	EPA 7470	05/30/96
Molybdenum	ND	20	1	27878	EPA 6010A	05/30/96
Nickel	ND	20	1	27878	EPA 6010A	05/30/96
Selenium	14	5.0	1	27878	EPA 6010A	05/30/96
Silver	ND	5.0	1	27878	EPA 6010A	05/30/96
Thallium	ND	5.0	1	27878	EPA 6010A	05/30/96
Vanadium	ND	10	1	27878	EPA 6010A	05/30/96
Zinc	34	20	1	27878	EPA 6010A	05/30/96

ND = Not detected at or above reporting limit

CLIENT: Subsurface Consultants
 JOB NUMBER: 125711

DATE REPORTED: 06/04/96

 BATCH QC REPORT
 PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Antimony	ND	60	ug/L	1	27878	EPA 6010A	05/30/96
Arsenic	ND	5	ug/L	1	27878	EPA 6010A	05/30/96
Barium	ND	10	ug/L	1	27878	EPA 6010A	05/30/96
Beryllium	ND	2	ug/L	1	27878	EPA 6010A	05/30/96
Cadmium	ND	2	ug/L	1	27878	EPA 6010A	05/30/96
Chromium (total)	ND	10	ug/L	1	27878	EPA 6010A	05/30/96
Cobalt	ND	20	ug/L	1	27878	EPA 6010A	05/30/96
Copper	ND	10	ug/L	1	27878	EPA 6010A	05/30/96
Lead	ND	3	ug/L	1	27878	EPA 6010A	05/30/96
Mercury	ND	0.2	ug/L	1	27875	EPA 7470	05/30/96
Molybdenum	ND	20	ug/L	1	27878	EPA 6010A	05/30/96
Nickel	ND	20	ug/L	1	27878	EPA 6010A	05/30/96
Selenium	ND	5	ug/L	1	27878	EPA 6010A	05/30/96
Silver	ND	5	ug/L	1	27878	EPA 6010A	05/30/96
Thallium	ND	5	ug/L	1	27878	EPA 6010A	05/30/96
Vanadium	ND	10	ug/L	1	27878	EPA 6010A	05/30/96
Zinc	ND	20	ug/L	1	27878	EPA 6010A	05/30/96

ND = Not Detected at or above reporting limit

CLIENT: Subsurface Consultants
 JOB NUMBER: 125711

DATE REPORTED: 06/04/96

 BATCH QC REPORT
 BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSO Result	Units	SS% Rec.	SSD% Rec.	Rec. Limits	RPO %	RPO Limit	QC Batch	Method	Analysis Date
Antimony	500	549	553	ug/L	110	111	80-120	1	35	27878	EPA 6010A	05/30/96
Arsenic	2000	1960	1960	ug/L	98	98	80-120	0	35	27878	EPA 6010A	05/30/96
Barium	2000	1910	1910	ug/L	96	96	80-120	0	35	27878	EPA 6010A	05/30/96
Beryllium	50	51.4	51.8	ug/L	103	104	80-120	1	35	27878	EPA 6010A	05/30/96
Cadmium	50	50.2	50.6	ug/L	100	101	80-120	1	35	27878	EPA 6010A	05/30/96
Chromium (total)	200	189	192	ug/L	95	96	80-120	2	35	27878	EPA 6010A	05/30/96
Cobalt	500	472	474	ug/L	94	95	80-120	0	35	27878	EPA 6010A	05/30/96
Copper	250	248	251	ug/L	99	100	80-120	1	35	27878	EPA 6010A	05/30/96
Lead	500	490	495	ug/L	98	99	80-120	1	35	27875	EPA 7470	05/30/96
Mercury	5	4.863	5.187	ug/L	97	104	80-120	6	35	27878	EPA 6010A	05/30/96
Molybdenum	400	377	377	ug/L	94	94	80-120	0	35	27878	EPA 6010A	05/30/96
Nickel	500	510	511	ug/L	102	102	80-120	0	35	27878	EPA 6010A	05/30/96
Selenium	2000	1950	1950	ug/L	98	98	80-120	0	35	27878	EPA 6010A	05/30/96
Silver	100	99.1	101	ug/L	99	101	80-120	2	35	27878	EPA 6010A	05/30/96
Thallium	2000	1940	1970	ug/L	97	99	80-120	2	35	27878	EPA 6010A	05/30/96
Vanadium	500	482	487	ug/L	96	97	80-120	1	35	27878	EPA 6010A	05/30/96
Zinc	500	478	480	ug/L	96	96	80-120	0	35	27878	EPA 6010A	05/30/96



Volatile Organics by GC/MS		
Client: Subsurface Consultants	Analysis Method: EPA 8240	
Project#: 133.005	Prep Method: EPA 5030	
Location: KOT		
Field ID: MW-6 BEFORE PURGE	Sampled:	05/24/96
Lab ID: 125711-006	Received:	05/24/96
Matrix: Water	Extracted:	06/01/96
Batch#: 27920	Analyzed:	06/01/96
Units: ug/L		
Diln Fac: 5000		
Analyte	Result	Reporting Limit
Chloromethane	ND	50000
Bromomethane	ND	50000
Vinyl Chloride	ND	50000
Chloroethane	ND	100000
Methylene Chloride	ND	100000
Acetone	ND	25000
Carbon Disulfide	ND	25000
Trichlorofluoromethane	ND	25000
1,1-Dichloroethene	ND	25000
1,1-Dichloroethane	ND	25000
trans-1,2-Dichloroethene	ND	25000
cis-1,2-Dichloroethene	ND	25000
Chloroform	ND	25000
Freon 113	ND	25000
1,2-Dichloroethane	ND	50000
2-Butanone	ND	25000
1,1,1-Trichloroethane	ND	25000
Carbon Tetrachloride	ND	250000
Vinyl Acetate	ND	25000
Bromodichloromethane	ND	25000
1,2-Dichloropropane	ND	25000
cis-1,3-Dichloropropene	ND	25000
Trichloroethene	ND	25000
Dibromochloromethane	ND	25000
1,1,2-Trichloroethane	ND	25000
Benzene	ND	25000
trans-1,3-Dichloropropene	ND	25000
Bromoform	ND	50000
2-Hexanone	ND	50000
4-Methyl-2-Pentanone	ND	25000
1,1,2,2-Tetrachloroethane	ND	25000
Tetrachloroethene	ND	25000
Toluene	ND	25000
Chlorobenzene	ND	25000
Ethylbenzene	ND	25000
Styrene	ND	25000
m,p-Xylenes	ND	25000
o-Xylene	ND	25000
Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	96	68-126
Toluene-d8	97	87-125
Bromofluorobenzene	100	79-122

Lab #: 125711

BATCH QC REPORT

Page 1 of 1

EPA 8240 Volatile Organics	
Client: Subsurface Consultants	Analysis Method: EPA 8240
Project#: 133.005	Prep Method: EPA 5030
Location: KOT	
METHOD BLANK	
Matrix: Water	Prep Date: 05/31/96
Batch#: 27920	Analysis Date: 05/31/96
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC23120

Analyte	Result	Reporting Limit
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	20
Methylene Chloride	ND	20
Acetone	ND	5.0
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	10
2-Butanone	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	50
Vinyl Acetate	ND	5.0
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	10
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	5.0
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	82	68-126
Toluene-d8	98	87-125
Bromofluorobenzene	93	79-122



Lab #: 125711

BATCH QC REPORT

Page 1 of 1

EPA 8240 Volatile Organics

Client: Subsurface Consultants
 Project#: 133.005
 Location: KOT

Analysis Method: EPA 8240
 Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
 Batch#: 27920
 Units: ug/L
 Diln Fac: 1

Prep Date: 05/31/96
 Analysis Date: 05/31/96

MB Lab ID: QC23060

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	10
2-Butanone	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	50
Vinyl Acetate	ND	5.0
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	10
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	5.0
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	101	68-126
Toluene-d8	-101	87-125
Bromofluorobenzene	92	79-122



Lab #: 125711

BATCH QC REPORT

EPA 8240 Volatile Organics	
Client: Subsurface Consultants	Analysis Method: EPA 8240
Project#: 133.005	Prep Method: EPA 5030
Location: KOT	
LABORATORY CONTROL SAMPLE	
Matrix: Water	Prep Date: 05/31/96
Batch#: 27920	Analysis Date: 05/31/96
Units: ug/L	
Diln Fac: 1	

LCS Lab ID: QC23059

Analyte	Result	Spike Added	%Rec #	Limits
1,1-Dichloroethene	47.06	50	94	51-180
Trichloroethene	51.61	50	103	73-141
Benzene	49.74	50	100	78-142
Toluene	51.54	50	103	76-150
Chlorobenzene	50.23	50	100	83-129
Surrogate	%Rec	Limits		
1,2-Dichloroethane-d4	92	68-126		
Toluene-d8	98	87-125		
Bromofluorobenzene	91	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



Semivolatile Organics by GC/MS

Client: Subsurface Consultants
 Project#: 133.005
 Location: KOT

Analysis Method: EPA 8270
 Prep Method: EPA 3520

Field ID: MW-6 BEFORE PURGE
 Lab ID: 125711-006
 Matrix: Water
 Batch#: 27835
 Units: ug/L
 Diln Fac: 1

Sampled: 05/24/96
 Received: 05/24/96
 Extracted: 05/28/96
 Analyzed: 06/11/96

Analyte	Result	Reporting Limit
Phenol	ND	40
2-Chlorophenol	ND	40
Benzyl alcohol	ND	40
2-Methylphenol	ND	40
4-Methylphenol	ND	200
2-Nitrophenol	ND	40
2,4-Dimethylphenol	ND	200
Benzoic acid	ND	40
2,4-Dichlorophenol	ND	40
4-Chloro-3-methylphenol	ND	40
2,4,6-Trichlorophenol	ND	200
2,4,5-Trichlorophenol	ND	200
2,4-Dinitrophenol	ND	200
4-Nitrophenol	ND	200
4,6-Dinitro-2-methylphenol	ND	200
Pentachlorophenol	ND	40
N-Nitrosodimethylamine	ND	40
Aniline	ND	40
bis(2-Chloroethyl) ether	ND	40
1,3-Dichlorobenzene	ND	40
1,4-Dichlorobenzene	ND	40
1,2-Dichlorobenzene	ND	40
bis(2-Chloroisopropyl) ether	ND	40
N-Nitroso-di-n-propylamine	ND	40
Hexachloroethane	ND	40
Nitrobenzene	ND	40
Isophorone	ND	40
bis(2-Chloroethoxy)methane	ND	40
1,2,4-Trichlorobenzene	ND	40
Naphthalene	49	40
4-Chloroaniline	ND	40
Hexachlorobutadiene	260	40
2-Methylnaphthalene	ND	40
Hexachlorocyclopentadiene	ND	40
2-Chloronaphthalene	ND	200
2-Nitroaniline	ND	40
Dimethylphthalate	ND	40
Acenaphthylene	ND	



Semivolatile Organics by GC/MS

Field ID: MW-6 BEFORE PURGE
 Lab ID: 125711-006
 Matrix: Water
 Batch#: 27835
 Units: ug/L
 Diln Fac: 1

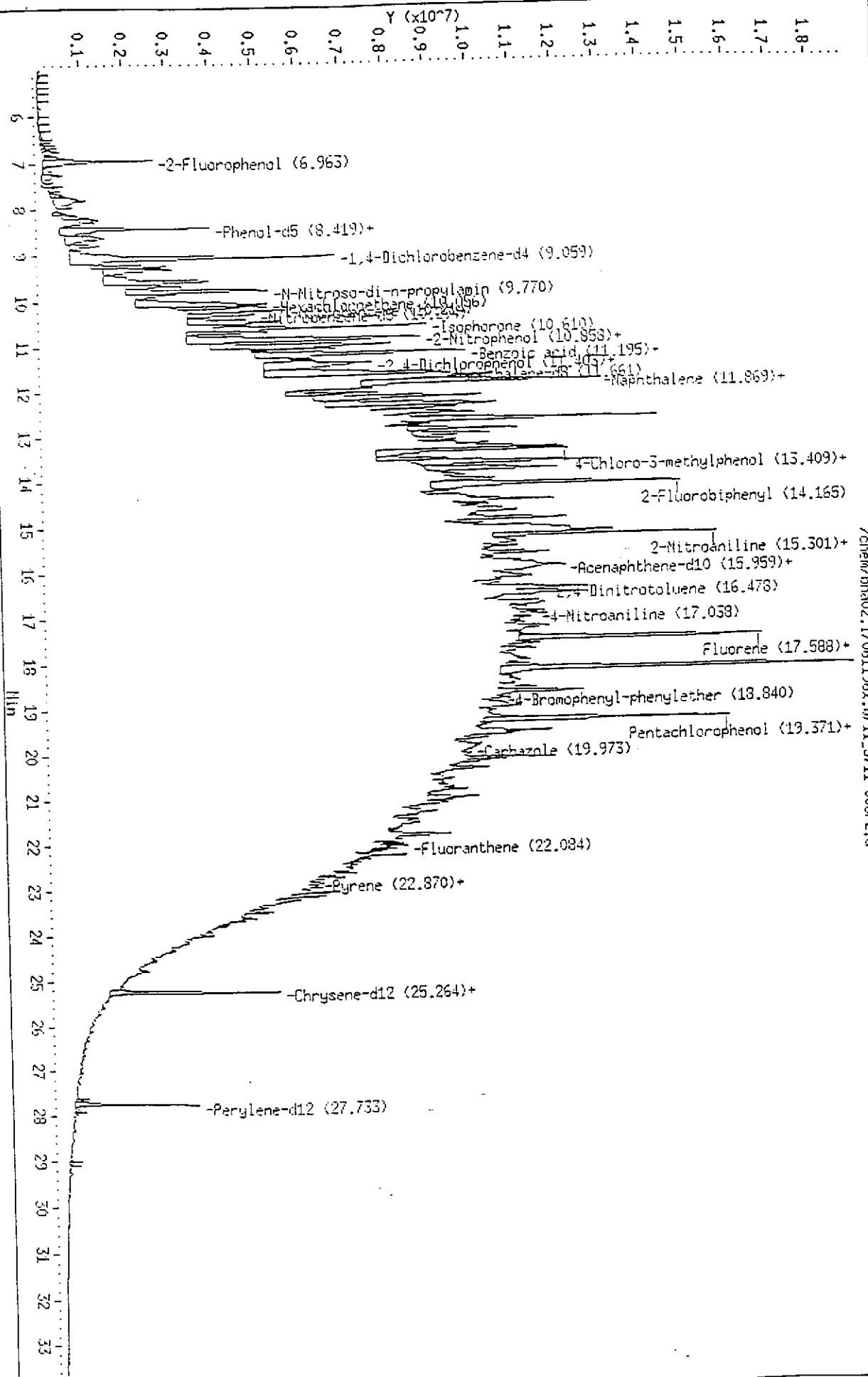
Sampled: 05/24/96
 Received: 05/24/96
 Extracted: 05/28/96
 Analyzed: 06/11/96

Analyte	Result	Reporting Limit
2,6-Dinitrotoluene	ND	40
3-Nitroaniline	ND	200
Acenaphthene	ND	40
Dibenzofuran	ND	40
2,4-Dinitrotoluene	ND	40
Diethylphthalate	ND	40
4-Chlorophenyl-phenylether	ND	40
Fluorene	ND	200
4-Nitroaniline	ND	40
N-Nitrosodiphenylamine	ND	40
Azobenzene	ND	40
4-Bromophenyl-phenylether	ND	40
Hexachlorobenzene	90	40
Phenanthrene	ND	40
Anthracene	ND	40
Di-n-butylphthalate	ND	40
Fluoranthene	ND	40
Pyrene	ND	40
Butylbenzylphthalate	ND	200
3,3'-Dichlorobenzidine	ND	40
Benzo(a)anthracene	ND	40
Chrysene	ND	40
bis(2-Ethylhexyl)phthalate	ND	40
Di-n-octylphthalate	ND	40
Benzo(b)fluoranthene	ND	40
Benzo(k)fluoranthene	ND	40
Benzo(a)pyrene	ND	40
Indeno(1,2,3-cd)pyrene	ND	40
Dibenz(a,h)anthracene	ND	40
Benzo(g,h,i)perylene	ND	40

Surrogate	%Recovery	Recovery Limits
2-Fluorophenol	29	21-110
Phenol-d5	29	10-110
2,4,6-Tribromophenol	23	10-123
Nitrobenzene-d5	38	35-114
2-Fluorobiphenyl	29*	43-116
Terphenyl-d14	15*	33-141

* Values outside of QC limits

125711-006



Data File: /chem/bna02.i/061196x.h/11.5711-006r2.d
Date: 11-JUN-96 20:28
Client ID: CURTIS+TORPKINS,LTD
Sample Info:
Volume Injected (uL): 1.0
Column phase: XLI 5 x .5 u

/chem/bna02.i/061196x.h/11.5711-006r2.d

Instrument: bna02.1
Operator: dsh
Column diameter: 0.25

Lab #: 125711

BATCH QC REPORT

Page 1 of 2

EPA 8270 Semi-Volatile Organics			
Client: Subsurface Consultants	Analysis Method: EPA 8270		
Project#: 133.005	Prep Method: EPA 3520		
Location: KOT			
METHOD BLANK			
Matrix: Water	Prep Date: 05/28/96		
Batch#: 27835	Analysis Date: 05/30/96		
Units: ug/L			
Diln Fac: 1			

MB Lab ID: QC22731

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



BATCH QC REPORT

Lab #: 125711

EPA 8270 Semi-Volatile Organics

Client: Subsurface Consultants
 Project#: 133.005
 Location: KOT

Analysis Method: EPA 8270
 Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
 Batch#: 27835
 Units: ug/L
 Diln Fac: 1

Prep Date: 05/28/96
 Analysis Date: 05/30/96

MS Lab ID: QC22731

Analyte	Result	Reporting Limit
Acenaphthene	ND	10
Dibenzofuran	ND	10
2,4-Dinitrotoluene	ND	10
Diethylphthalate	ND	10
4-Chlorophenyl-phenylether	ND	10
Fluorene	ND	50
4-Nitroaniline	ND	10
N-Nitrosodiphenylamine	ND	10
Azobenzene	ND	10
4-Bromophenyl-phenylether	ND	10
Hexachlorobenzene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Di-n-butylphthalate	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Butylbenzylphthalate	ND	50
3,3'-Dichlorobenzidine	ND	10
Benzo(a)anthracene	ND	10
Chrysene	ND	10
bis(2-Ethylhexyl)phthalate	ND	10
Di-n-octylphthalate	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10
		Recovery Limits
Surrogate	%Rec	
2-Fluorophenol	85	21-110
Phenol-d5	79	10-110
2,4,6-Tribromophenol	69	10-123
Nitrobenzene-d5	75	35-114
2-Fluorobiphenyl	71	43-116
Terphenyl-d14	83	33-141



BATCH QC REPORT

Lab #: 125711

EPA 8270 Semi-Volatile Organics

Client: Subsurface Consultants
Project#: 133.005
Location: KOT

Analysis Method: EPA 8270
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 27835
Units: ug/L
Diln Fac: 1

Prep Date: 05/28/96
Analysis Date: 05/30/96

BS Lab ID: QC22732

Analyte	Spike Added	BS	%Rec	#	Limits
Phenol	100	76.34	76		12-110
2-Chlorophenol	100	72.49	72		27-123
4-Chloro-3-methylphenol	100	71.7	72		23-97
4-Nitrophenol	100	51.27	51		10-80
Pentachlorophenol	100	42.09	42		9-103
1,4-Dichlorobenzene	50	31.35	63		36-97
N-Nitroso-di-n-propylamine	50	32.79	65		41-116
1,2,4-Trichlorobenzene	50	31.77	62		39-98
Acenaphthene	50	37.01	74		46-118
2,4-Dinitrotoluene	50	34.06	68		24-96
Pyrene	50	40.45	81		26-127
Surrogate	%Rec	Limits			
2-Fluorophenol	83	21-110			
Phenol-d5	84	10-110			
2,4,6-Tribromophenol	86	10-123			
Nitrobenzene-d5	77	35-114			
2-Fluorobiphenyl	74	43-116			
Terphenyl-d14	84	33-141			

BSD Lab ID: QC22733

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Phenol	100	73.95	74		12-110		3	<42
2-Chlorophenol	100	70.19	70		27-123		3	<40
4-Chloro-3-methylphenol	100	71.15	71		23-97		1	<42
4-Nitrophenol	100	55.03	55		10-80		8	<50
Pentachlorophenol	100	41.04	41		9-103		2	<50
1,4-Dichlorobenzene	50	28.05	56		36-97		12	<28
N-Nitroso-di-n-propylamine	50	34.4	69		41-116		4	<38
1,2,4-Trichlorobenzene	50	28.18	56		39-98		10	<28
Acenaphthene	50	35.82	72		46-118		3	<31
2,4-Dinitrotoluene	50	33.75	68		24-96		0	<38
Pyrene	50	40.17	80		26-127		1	<31
Surrogate	%Rec	Limits						
2-Fluorophenol	78	21-110						
Phenol-d5	79	10-110						
2,4,6-Tribromophenol	84	10-123						
Nitrobenzene-d5	75	35-114						
2-Fluorobiphenyl	71	43-116						
Terphenyl-d14	83	33-141						

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

CHAIN OF CUSTODY FORM

125711

PROJECT NAME: KOT

JOB NUMBER: 133.005 LAB: Curtis + Tompkins

PROJECT CONTACT: Jeri Alexander TURNAROUND: Normal

SAMPLED BY: Dennis Alexander REQUESTED BY: Jeri Alexander

ANALYSIS REQUESTED

NOTES: TEH (2.5 to C.50)
TVH/BIXE
G270 IPNK
Metals
VOCs
PCBs

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX					CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES			
		WATER	SOIL	WASTE	AIR	Product	VOA	LITER	PINT	TUBE	HCL	H ₂ SO ₄	HNO ₃	ICE	NONE	MONTH	DAY	YEAR	TIME				
-1	MW-1	X					3	1			X			X		05	24	96	12:15	X	X		
-2	MW-2	X					3	1			X			X		05	24	96	12:00	X	X		
-3	MW-4	X					3	1			X			X		05	24	96	13:30	*	X	X	
-4	MW-5	X					3	1			X			X		05	24	96	10:30		X	X	
-5	(AFTER PURGE) MW-6	X				X	1	2	1		X			X		05	24	96	11:45	*	X	X	
-6	MW-6 (FP-F) Before Purge	X				X	3	1	1		X			X		05	24	96	11:45	*	X	X	X
-7	FP								1														

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
[Signature]	5/24/96 3:00	[Signature]	5/24/96 4:50
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: * These samples comes from wells with free product in them - BEWARE!!