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*By dehloptoxic at 1:16 pm, Oct 16, 2006*



April 24, 2006

The Bank of New York Trust Company, N.A. as Corporate Co-Trustee for  
Carpenters Pension Trust Fund for Northern California; Northern California Carpenters PTF, LLC  
c/o Ms. Mary Schroeder, McMorgan & Company LLC  
One Bush Street, Suite 800  
San Francisco, California 94104

RE: First Quarter 2006 Groundwater Monitoring Report  
444 Hegenberger Loop, Oakland, California  
*ACC Project No. 6748-017-00*

Dear Ms. Schroeder:

Enclosed is the First Quarter Groundwater Monitoring Report describing the groundwater monitoring activities conducted for all monitoring wells at 444 Hegenberger Loop, Oakland, California. ACC recommends that you submit a copy of the report directly to the Alameda County Health Care Services Agency with your cover letter.

Mr. Barney Chan  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, 2<sup>nd</sup> Floor  
Alameda, California 94502

If you have any questions regarding the report, please contact me at (510) 638-8400, ext. 109.

Sincerely,

A handwritten signature in black ink, appearing to read 'David R. DeMent'.

David R. DeMent, PG, REA II  
Environmental Division Manager

/trb:drd

Enclosures



**FIRST QUARTER 2006 GROUNDWATER MONITORING REPORT**

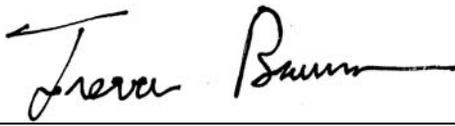
**444 Hegenberger Loop  
Oakland, California**

*ACC Project Number 6748-017-00*

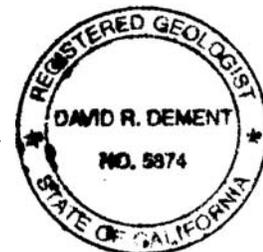
Prepared for:

The Bank of New York Trust Company, N.A. as Corporate Co-Trustee for  
Carpenters Pension Trust Fund for Northern California; Northern California Carpenters PTF, LLC  
c/o Ms. Mary Schroeder, McMorgan & Company LLC  
One Bush Street, Suite 800  
San Francisco, California 94104

April 24, 2006

Prepared By:   
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Trevor Bausman  
Project Administrator

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David DeMent, PG, REA II  
Environmental Division Manager



## TABLE OF CONTENTS

	Page
<b>1.0 INTRODUCTION</b> .....	1
<b>2.0 BACKGROUND</b> .....	1
2.1 Subsurface Conditions.....	2
<b>3.0 GROUNDWATER MONITORING AND SAMPLING</b> .....	2
3.1 Groundwater Monitoring .....	2
3.2 Groundwater Gradient.....	5
3.3 Groundwater Sampling.....	5
<b>4.0 RESULTS OF GROUNDWATER SAMPLING</b> .....	6
<b>5.0 DISCUSSION</b> .....	9
<b>6.0 CONCLUSIONS</b> .....	10
<b>7.0 RECOMMENDATIONS</b> .....	10
<b>8.0 LIMITATIONS</b> .....	12

### TABLES

1 - Groundwater Depth Information.....	3
2 - Groundwater Gradient and Flow Direction .....	5
3 - Groundwater Sample Analytical Results .....	7

### FIGURES

- 1 - Location Map
- 2 - Site Plan
- 3 - Groundwater Gradient

### APPENDICES

- 1 - Well Monitoring Worksheets
- 2 - Analytical Results and Chain of Custody Record

# **FIRST QUARTER 2006 GROUNDWATER MONITORING REPORT**

**444 Hegenberger Loop  
Oakland, California**

## **1.0 INTRODUCTION**

This First Quarter 2006 Groundwater Monitoring Report was prepared by ACC Environmental Consultants, Inc., (ACC) at the request of McMorgan & Company LLC on behalf of The Bank of New York Trust Company, N.A. as Corporate Co-Trustee for Carpenters Pension Trust Fund for Northern California; Northern California Carpenters PTF. Work was performed at the subject property located at 444 Hegenberger Loop, Oakland, California (Site). The project objectives were to: 1) measure the groundwater levels in each well and calculate the groundwater elevation, gradient, and flow direction; 2) obtain representative water samples from the seven existing groundwater monitoring wells and analyze the water samples for petroleum hydrocarbon constituents as gasoline and/or diesel; and 3) report the findings.

The general goal of this groundwater monitoring and sampling event was to determine current groundwater conditions, evaluate the changes in concentrations of constituents of concern, and obtain current groundwater quality data to further develop a Conceptual Site Model (CSM).

## **2.0 BACKGROUND**

The Site is located at 444 Hegenberger Loop in the southeast corner of the intersection of Hegenberger Road and Hegenberger Loop. The rectangular lot is approximately 250 feet long by 200 feet wide and is approximately 9 feet above mean sea level.

The available data indicate that a series of subsurface investigations have been conducted at the Site since 1997. A site assessment in April 1997 indicated the presence of petroleum hydrocarbons in soils and groundwater beneath the Site but no reportable concentrations of methyl tertiary butyl ether (MTBE). A subsequent investigation conducted in July and October 1997 confirmed previous investigation findings and that no underground storage tanks (USTs) remained at the Site.

Tetra Tech EM Inc. (Tetra Tech) installed five 2-inch-diameter groundwater monitoring wells in November 1998. The five monitoring wells were screened from 5 to 20 feet below ground surface (bgs). Well MW-1 was subsequently destroyed in December 1999 and well MW-6 was installed in the estimated downgradient direction of the former waste oil tank. Well MW-6 was screened from 10 to 20 feet bgs. In December 2000, Tetra Tech installed offsite wells MW-7 and MW-8 estimated to be in the downgradient direction of the Site. Wells MW-7 and MW-8 were screened from 5 to 20 feet bgs. Groundwater monitoring was performed periodically from December 1998 to October 2001 in the existing wells.

Tetra Tech reported the findings of a Sensitive Receptor Survey in its March 8, 2001 *Fourth Quarter Groundwater Monitoring Report, December 2000*. According to the California Department of Water resources, 40 monitoring wells and two irrigation wells were located at 11 sites within the search distance. One irrigation well is reportedly located approximately 500 feet cross gradient from the Site and a second irrigation well is located approximately 2,800 feet crossgradient of the Site.

## **2.1 Subsurface Conditions**

Soil boring logs from wells MW-7 and MW-8, included in the March 8, 2001 *Fourth Quarter Groundwater Monitoring Report, December 2000*, indicate that clay and silty clay is present from the surface to the minimum depth of 11.5 feet bgs and sandy gravels and sands are present from approximately 12 to 15 feet bgs to 20.5 feet bgs, the total depth of the soil borings. Silty clays logged at 10 to 10.5 feet bgs are described as dry to moist, medium plasticity, and medium stiff. Sandy gravels logged from 15 to 16 feet bgs are described as saturated, coarse to fine grained sand, and fine to medium grained gravel.

The data summarized in the soil boring logs directly contradicts other conclusions presented in the March 8, 2001 *Fourth Quarter Groundwater Monitoring Report, December 2000*. In the *Subsurface Soil Conditions and Hydrology* section of the report, Tetra Tech states that “Groundwater is usually encountered within five feet bgs,” and in the *Preferential Pathways* section “the utility trenches may act as preferential pathways and could allow for movement of petroleum hydrocarbons to the north and west beyond the site.” Saturated permeable soils are not logged shallower than 12 feet bgs. Utility trenches in the vicinity of the Site likely exist no deeper than seven feet bgs, therefore, interception or preferential movement of groundwater along utility trenches is highly unlikely. Groundwater elevations are typically measured approximately 5 feet bgs in the monitoring wells due to semi-confined aquifer conditions.

## **3.0 GROUNDWATER MONITORING AND SAMPLING**

ACC conducted groundwater monitoring on February 9, 2006. Work at the Site included measuring depth to water, subjectively evaluating groundwater in the wells, purging and sampling the wells, and submitting the samples to a state-certified laboratory for analysis.

### **3.1 Groundwater Monitoring**

Before groundwater sampling, the depth to the surface of the water table was measured from the top of the polyvinyl chloride well casing using a Solinst water level meter. Well elevation data reported by Tetra Tech indicate the groundwater monitoring wells were resurveyed relative to mean sea level in December 2000. ACC measured depth to water using an electronic Solinst meter and the water level measurements were recorded to the nearest 0.01 foot. Information regarding well elevations and groundwater depths is summarized in Table 1.

**TABLE 1 - GROUNDWATER DEPTH INFORMATION**

Well No.	Date Sampled	Well Elevation <sup>(1)</sup> (above MSL)	Depth to Groundwater	Groundwater Elevation	
MW-1	12/02/98	100.74	2.90	97.84	
	03/08/99		3.43	97.31	
	07/01/99		3.81	96.93	
	08/18/99		3.62	97.12	
	09/15/99		3.69	97.05	
	12/27/99		3.81	96.93	
	12/99		Well Destroyed	Well Destroyed	
	MW-2		12/02/98	102.44	4.61
03/08/99		5.16	97.28		
07/01/99		5.91	96.53		
08/18/99		5.53	96.91		
09/15/99		5.55	96.89		
12/27/99		5.55	96.89		
03/24/00		5.44	97.00		
06/09/00		---	FP		
12/14/00		9.05 <sup>(2)</sup>	5.00		4.05
05/07/01		5.69	3.36		
10/04/01		5.60	3.45		
02/09/05		5.00	4.05		
05/16/05		3.98	5.07		
11/16/05		5.23	3.82		
02/09/06	4.77	4.28			
MW-3	12/02/98	102.00	4.24	97.76	
	03/08/99		4.90	97.10	
	07/01/99		5.35	96.65	
	08/18/99		5.21	96.79	
	09/15/99		5.26	96.74	
	12/27/99		5.42	96.58	
	03/24/00		5.81	96.19	
	06/09/00		5.43	96.57	
	12/14/00		8.60 <sup>(2)</sup>	4.85	3.75
	05/07/01		5.37	3.23	
	10/04/01		5.27	3.33	
	02/09/05		4.45	4.15	
	05/16/05		3.81	4.79	
	11/16/05		4.90	3.70	
02/09/06	4.41	4.19			
MW-4	12/02/98	100.00	2.20	97.80	
	03/08/99		2.80	97.20	
	07/01/99		5.23	64.77	
	08/18/99		5.00	95.00	
	09/15/99		4.99	95.01	
	12/27/99		5.23	94.77	
	03/24/00		5.39	94.61	
	06/09/00		5.24	94.76	
	12/14/00		8.50 <sup>(2)</sup>	4.60	3.90
	05/07/01		5.20	3.30	
	10/04/01		5.08	3.42	

Well No.	Date Sampled	Well Elevation <sup>(1)</sup> (above MSL)	Depth to Groundwater	Groundwater Elevation
	02/09/05		4.45	4.05
	05/16/05		3.98	4.52
	11/16/05		4.72	3.78
	02/09/06		4.24	4.26
MW-5	12/02/98	102.22	4.59	97.63
	03/08/99		5.20	97.02
	07/01/99		5.59	96.63
	08/18/99		5.37	96.85
	09/15/99		5.55	96.67
	12/27/99		5.48	96.74
	03/24/00		6.02	96.20
	06/09/00		5.59	96.63
	12/14/00	8.84 <sup>(2)</sup>	5.10	3.74
	05/07/01		5.52	3.32
	10/04/01		5.45	3.39
	02/09/05		4.90	3.94
	05/16/05		3.92	4.92
	11/16/05		5.10	3.74
	02/09/06		4.60	4.24
MW-6	03/24/00	102.58	5.49	97.09
	06/09/00		5.87	96.71
	12/14/00	9.19 <sup>(2)</sup>	5.13	4.06
	05/07/01		5.89	3.30
	10/04/01		5.71	3.48
	02/09/05		5.20	3.99
	05/16/05		3.98	5.21
	11/16/05		5.34	3.85
	02/09/06		4.92	4.27
MW-7	12/14/00	8.10 <sup>(2)</sup>	3.48	4.62
	05/07/01		5.13	2.97
	10/04/01		4.87	3.23
	02/09/05		4.15	3.95
	05/16/05		3.79	4.31
	11/16/05		4.55	3.55
	02/09/06		4.92	3.18
MW-8	12/14/00	8.68 <sup>(2)</sup>	5.10	3.58
	05/07/01		5.74	2.94
	10/04/01		5.52	3.16
	02/09/05		4.80	3.88
	05/16/05		3.41	5.27
	11/16/05		5.28	3.40
	02/09/06		4.58	4.10

Notes: All measurements in feet

<sup>(1)</sup>Well elevation measured to top of casing

<sup>(2)</sup>Well elevation relative to established City of Oakland Benchmark (feet above sea level)

### 3.2 Groundwater Gradient

The calculated groundwater flow direction and gradient, as determined from monitoring well data obtained on February 9, 2006, is illustrated on Figure 3. Generally, revised groundwater piezometric surface contours approximate historic values and groundwater flow direction trends west-northwest. The calculated groundwater gradient averaged 0.001 foot per foot to the northwest. Historical groundwater gradients and calculated flow directions are summarized in Table 2.

**TABLE 2 – GROUNDWATER GRADIENT AND FLOW DIRECTION**

Date Monitored	Gradient (foot/foot)	Direction
12/02/98	0.00091	West
03/08/99	0.00086	Southwest
07/01/99	0.0011	Southwest
08/18/99	0.0013	West
09/15/99	0.04089 <sup>(1)</sup> 0.00125 <sup>(5)</sup>	North <sup>(1)</sup> West
12/27/99	0.0010 <sup>(5)</sup> 0.0489 <sup>(1)</sup>	West <sup>(5)</sup> North <sup>(1)</sup>
03/29/00	0.0469 <sup>(1)</sup> 0.0131 <sup>(2)</sup>	Northwest West-Southwest
06/09/00	0.03 <sup>(3)</sup> 0.0011 <sup>(2)</sup>	North South-southwest
12/14/00	0.003 <sup>(1)</sup> 0.006 <sup>(4)</sup>	North North
05/07/01	0.0014 0.0025 <sup>(6)</sup>	Northwest Northwest
10/04/01	0.0013 0.001 <sup>(6)</sup>	Northwest Northwest
02/09/05	0.001	Southwest
05/16/05	0.004	West-Northwest
11/16/05	0.002	Northwest
02/09/06	0.001 <sup>(7)</sup>	Northwest

- Notes:
- (1) Flow component from MW-2 to MW-4
  - (2) Flow component from MW-6 to area of MW-5
  - (3) Flow component from MW-2, MW-3, and MW-4 and from MW-6 to MW-4
  - (4) Flow component from MW-7 to MW-8
  - (5) Flow component among wells MW-2, MW-3, and MW-5
  - (6) Flow component from MW-3 to MW-7
  - (7) Flow component from MW-2 through MW-6 and MW-8

### 3.3 Groundwater Sampling

Before groundwater sampling, each well was purged using a disposable polyethylene bailer. Groundwater samples were collected after four well casing volumes of water were measured for temperature and dissolved oxygen (DO), and removed. Following purging, each well was

allowed to recharge before sampling. When recovery to 80 percent of the static water level was observed, a sample was collected for analysis. Groundwater conditions monitored during purging and sampling were recorded on monitoring well worksheets, included as Appendix 1.

Wells were sampled using disposable polyethylene bailers attached to a new rope for each well. From each monitoring well, approved, laboratory-supplied sample vials were filled to overflowing and sealed to eliminate trapped air in the vial. Once filled, sample vials were inverted and tapped to test for air bubbles. Sample containers were labeled with self adhesive, preprinted tags. The samples were stored in a pre-chilled, insulated container pending delivery to Curtis & Tompkins, a state-certified analytical laboratory, for analysis.

Water purged during the development and sampling of the monitoring wells was temporarily stored onsite in Department of Transportation approved 55-gallon drums pending laboratory analysis and proper disposal.

#### **4.0 RESULTS OF GROUNDWATER SAMPLING**

Groundwater samples collected from each well were submitted to Curtis & Tompkins following chain of custody protocol. All groundwater samples were analyzed for total petroleum hydrocarbons as diesel (TPHd) by EPA Method 3510/8015M, TPH as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and MTBE by EPA Method 8260B. A copy of the chain of custody record and laboratory analytical reports is included as Appendix 2. A summary of the groundwater results obtained from each monitoring well is presented in Table 3.

**TABLE 3 - GROUNDWATER SAMPLE ANALYTICAL RESULTS**

Well No.	Date Sampled	TPHd (µg/L)	TPHg (µg/L)	MTBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW-1	12/02/98	< 50	< 50	---	<0.05	<0.05	<0.05	<0.05
	03/08/99	190	< 50	---	<0.3	<0.3	<0.3	<0.3
	07/01/99	< 50	< 50	---	<0.5	<0.5	<0.5	<0.5
	08/18/99	< 50	3,100	---	<0.5	9.6	12	12
	09/15/99	< 50	< 50	---	<0.5	<0.5	<0.5	<0.5
	12/27/99	---	---	---	---	---	---	---
	Destroyed	---	---	---	---	---	---	---
MW-2	12/02/98	99	< 50	---	4.6	0.85	0.57	5
	03/08/99	210	180	---	200 <sup>(9)</sup>	0.74	1.3	2.3
	07/01/99	< 50	1,100	---	190	13	33	36
	08/18/99	---	---	---	---	---	---	---
	09/15/99	100	990	---	330	9.7	11	19
	12/27/99	< 50	1,000	---	260	7.2	1.3	10
	03/24/00	31,000	1,900	---	110	4.8	9.5	12
	06/09/00	---	---	---	---	---	---	---
	12/14/00	470	1,600	< 2	450	18	61	26
	05/07/01	300	950	---	120	5.8	8.5	32
	10/04/01	170	370	---	55	2.8	17	4.2
	02/09/05	< 50	160	< 0.50	69	1.2	1.3	< 1.0
	05/16/05	140	650	< 0.50	96	4.7	15	7.5
	11/16/05	160 <sup>(1)</sup>	54 <sup>(1)</sup>	< 0.50	19	< 0.5	< 0.5	< 0.5
02/09/06	230 <sup>(1)</sup>	250	< 0.50	160	4.0	3.9	2.1	
MW-3	12/02/98	300	970	---	160	6.5	16	9
	03/08/99	1,400	2,600	---	1,800	30	67	26
	07/01/99	150	3,000	---	1	< 0.5	32	36
	08/18/99	---	---	---	---	---	---	---
	09/15/99	110	1,100	---	350	8.3	5.4	10
	12/27/99	70	560	---	170	2.1	7.6	3.1
	03/24/00	1,000	8,400	---	4100	71	190	75
	06/09/00	320	2,700	---	1,100	17	18	< 10
	12/14/00	< 100	710	< 0.5	140	2.2	3.3	1.2
	05/07/01	< 400	1,500	---	270	7.9	11	5.6
	10/04/01	< 50	140	---	45	< 0.3	1.3	< 0.6
	02/09/05	---	7,700	< 5.0	670	16	83	36
	05/16/05	---	7,100	< 5.0	1,200	20	110	49
	11/16/05	55 <sup>(1)</sup>	270 <sup>(1)</sup>	< 0.5	30	0.61	< 0.5	< 0.5
02/09/06	3,000 <sup>(1)</sup>	3,700	< 0.50	720	12	50	29.9	
MW-4	12/02/98	620	< 50	---	1.1	0.37	< 0.3	2
	03/08/99	< 50	1,300	---	1,900	9.4	1.2	11
	07/01/99	< 50	610	---	120	< 0.5	< 0.5	< 0.5
	08/18/99	---	---	---	---	---	---	---
	09/15/99	59	830	---	320	6.5	1.7	< 2.0
	12/27/99	< 50	55	---	5.8	< 0.5	< 0.5	< 0.5
	03/24/00	77	430	---	240	3.3	0.98	1.5
	06/09/00	< 50	220	---	91	0.93	< 0.5	< 0.5
	12/14/00	< 50	96	< 0.5	15	< 0.5	< 0.5	< 0.5

Well No.	Date Sampled	TPHd (µg/L)	TPHg (µg/L)	MTBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW-4 cont	05/07/01	< 100	380	---	130	2.5	1.7	2.5
	10/04/01	< 50	76	---	21	<0.3	<0.3	<0.6
	02/09/05	---	2,000	<2.5	440	12	9.3	7.6
	05/16/05	---	2,400	<2.5	610	16	11	8.0
	11/16/05	520 <sup>(1)</sup>	490 <sup>(1)</sup>	<1.0	170	4.5	3.3	2.3
	02/09/06	2,000 <sup>(1)</sup>	1,500	<1.0	630	16	10	9.3
MW-5	12/02/98	620	< 50	---	1.1	0.37	<0.3	2
	03/08/99	< 50	58	---	23	0.31	<0.3	1.8
	07/01/99	64	1,900	---	160	10	13	22
	08/18/99	---	---	---	---	---	---	---
	09/15/99	< 50	410	---	64	2.1	1.3	2.7
	12/27/99	< 50	130	---	15	0.73	<0.5	<0.5
	03/24/00	460	2,500	---	560	57	18	87
	06/09/00	140	2,600	---	770	63	15	71
	12/14/00	< 50	220	<0.5	17	0.63	1.7	1.1
	05/07/01	<200	3,200	---	450	44	54	66
	10/04/01	< 50	< 50	---	3.6	<0.3	<0.3	<0.6
	02/09/05	57	1,100	0.58	160	14	50	9.6
	05/16/05	340	4,700	< 10	730	79	340	36
	11/16/05	< 50	120 <sup>(1)</sup>	0.57	18	<0.5	<0.5	<0.5
02/09/06	100 <sup>(1)</sup>	180	<0.50	33	2.2	2.1	1.8	
MW-6	03/24/00	470	2,400	---	430	16	340	73
	06/09/00	< 50	540	---	190	1.2	3.7	4.5
	12/14/00	< 50	< 50	<0.5	0.51	<0.5	<0.5	0.94
	05/07/01	< 50	< 50	---	4.4	<0.5	<0.5	<0.5
	10/04/01	< 50	< 50	---	<0.3	<0.3	<0.3	<0.6
	02/09/05	< 50	< 50	<0.50	0.94	<0.50	<0.50	<1.0
	05/16/05	< 50	< 50	<0.50	0.55	<0.50	<0.50	<1.0
	11/16/05	270	< 50	<0.50	<0.50	<0.50	<0.50	<0.50
02/09/06	65 <sup>(1)</sup>	< 50	<0.50	0.64	<0.50	<0.50	<0.50	
MW-7	12/14/00	< 50	< 50	<0.5	<0.5	<0.5	<0.5	<0.5
	05/07/01	< 50	< 50	---	<0.5	<0.5	<0.5	<0.5
	10/04/01	< 50	< 50	---	<0.3	<0.3	<0.3	<0.6
	02/09/05	---	< 50	0.55	<0.50	<0.50	<0.50	<1.0
	05/16/05	---	< 50	<0.50	<0.50	<0.50	<0.50	<1.0
	11/16/05	< 50	< 50	<0.50	<0.50	<0.50	<0.50	<0.50
02/09/06	81 <sup>(1)</sup>	< 50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-8	12/14/00	< 50	< 50	0.52	<0.5	<0.5	<0.5	<0.5
	05/07/01	< 50	< 50	---	<0.5	<0.5	<0.5	<0.5
	10/04/01	< 50	< 50	---	<0.3	<0.3	<0.3	<0.6
	02/09/05	---	< 50	<0.50	<0.50	<0.50	<0.50	<1.0
	05/16/05	---	< 50	<0.50	<0.50	<0.50	<0.50	<1.0
	11/16/05	< 50	< 50	<0.50	<0.50	<0.50	<0.50	<0.50
02/09/06	72 <sup>(1)</sup>	< 50	<0.50	<0.50	<0.50	<0.50	<0.50	

Notes: ug/L = micrograms per liter (approximately equivalent to ppb)

--- = analysis not performed

Select data flags have been removed from the previously reported data table

<sup>(1)</sup> Chromatographic pattern does not resemble standard

## 5.0 DISCUSSION

Periodic groundwater monitoring and sampling was conducted from December 2000 to October 2001, and from February 2005 through February 2006. Measured groundwater elevations in wells MW-2 through MW-6 increased from the November 2005 event from 0.42 to 0.50 feet, while the measured groundwater elevation decreased 0.37 feet in well MW-7 and increased 0.70 feet in well MW-8. During this event, and including data from all wells except MW-7, the calculated groundwater flow direction was northwest at an average gradient of 0.001 foot per foot. These values are generally consistent with historical trends and should be expected based on local topography and surface water drainage pathways. ACC believes that tidal fluctuations, apparent in San Leandro Creek located approximately 200 feet west and northwest of the Site, are responsible for the variation in calculated groundwater flow direction and gradient based on groundwater elevations measured in the monitoring wells and their proximity to San Leandro Creek.

Reported TPHd concentrations increased slightly in wells MW-2 and MW-5 and increased in wells MW-3 and MW-4. Reported TPHd concentrations ranged from 100 micrograms per Liter ( $\mu\text{g/L}$ ) in onsite well MW-5 to 3,000  $\mu\text{g/L}$  in onsite well MW-3. TPHd-range petroleum hydrocarbons were reported for the first time just above the laboratory reporting limit in wells MW-7 and MW-8. Well MW-7 reported 81  $\mu\text{g/L}$  and well MW-8 reported 72  $\mu\text{g/L}$ . Chromatogram patterns indicate the TPHd concentrations reported in wells MW-6 through MW-8 do not resemble a diesel standard and appear to be one isolated peak.

Reported TPHg and BTEX concentrations also increased slightly in wells MW-2 and MW-5 and increased in wells MW-3 and MW-4. TPHg concentrations ranged from 1,500  $\mu\text{g/L}$  in well MW-4 to 3,700  $\mu\text{g/L}$  in well MW-3. Reported benzene concentrations ranged from 0.64  $\mu\text{g/L}$  in well MW-6 to 720  $\mu\text{g/L}$  in well MW-3. With the exception of 0.64  $\mu\text{g/L}$  benzene in well MW-6, TPHg, BTEX, and MTBE were not detected above their respective laboratory reporting limits in wells MW-6, MW-7, and MW-8. MTBE was not detected above its laboratory reporting limit in any of the groundwater monitoring wells and does not appear to be a constituent of concern.

In comparison to the November 2005 sampling event, TPHd, TPHg, and BTEX concentrations generally increased. As in previous groundwater sampling events, these changes in dissolved petroleum hydrocarbon concentrations appear to be due to changes in seasonal contact between groundwater and residual TPH sources in soil existing immediately above the water table. As anticipated and discussed in the November 2005 groundwater monitoring report, slight increases in measured groundwater elevation resulted in increased concentrations of dissolved constituents in groundwater in February 2006. Based on near record precipitation in the area, and the soil type reported in the saturated, first-encountered water-bearing zone, the increases in dissolved-phase petroleum hydrocarbons reported during this sampling event were expected and should be representative of the "worst-case" scenario. Periodic groundwater monitoring results obtained since December 1998 have demonstrated that a residual source of petroleum hydrocarbon impact to groundwater primarily exists in soil in the vicinity of monitoring wells MW-3, MW-4, and

MW-5. This soil residual impact to groundwater continues to fluctuate on a seasonal basis but is generally decreasing with time.

## **6.0 CONCLUSIONS**

Based on findings of this well monitoring and sampling event, and comparison to historical well monitoring and sampling data, ACC concludes the following:

- The calculated groundwater flow direction and gradient is generally consistent with historical trends and reflects the flat local topography and local surface drainage to San Francisco Bay;
- TPHd, TPHg, and BTEX concentrations generally increased but were consistent with the analytical results of previous sampling events conducted during this season of the calendar year, and reported concentrations do not indicate a significant soil source of petroleum hydrocarbon impact to groundwater;
- Consistent with previous sampling events, TPHg, BTEX, and MTBE were not reported in downgradient monitoring wells MW-7 and MW-8;
- Minor TPHd concentrations were reported in downgradient monitoring wells MW-7 and MW-8 but these diesel-range petroleum hydrocarbon concentrations are suspect and were flagged by the laboratory as not resembling the laboratory diesel standard;
- Natural attenuation processes are preferentially degrading BTEX and reported petroleum hydrocarbon concentrations indicate that no significant source of gasoline or diesel impact to groundwater is present; and
- TPHd, TPHg, and BTEX are the primary constituents of concern and any additional investigation or groundwater monitoring should target these analytes.

## **7.0 RECOMMENDATIONS**

Based on our review of historical site investigation findings and the results of recently completed groundwater monitoring, ACC recommends the following:

- Implement a Work Plan to conduct additional focused subsurface investigation to revise the Conceptual Site Model, fill apparent data gaps, and obtain current data about residual TPH concentrations in soil and groundwater to assess potential human health risk based on proposed Site use;
- Analyze groundwater samples from onsite well MW-6 and offsite well MW-8 for total dissolved solids and prepare all groundwater samples by silica gel cleanup prior to TPHd and TPHg analysis;

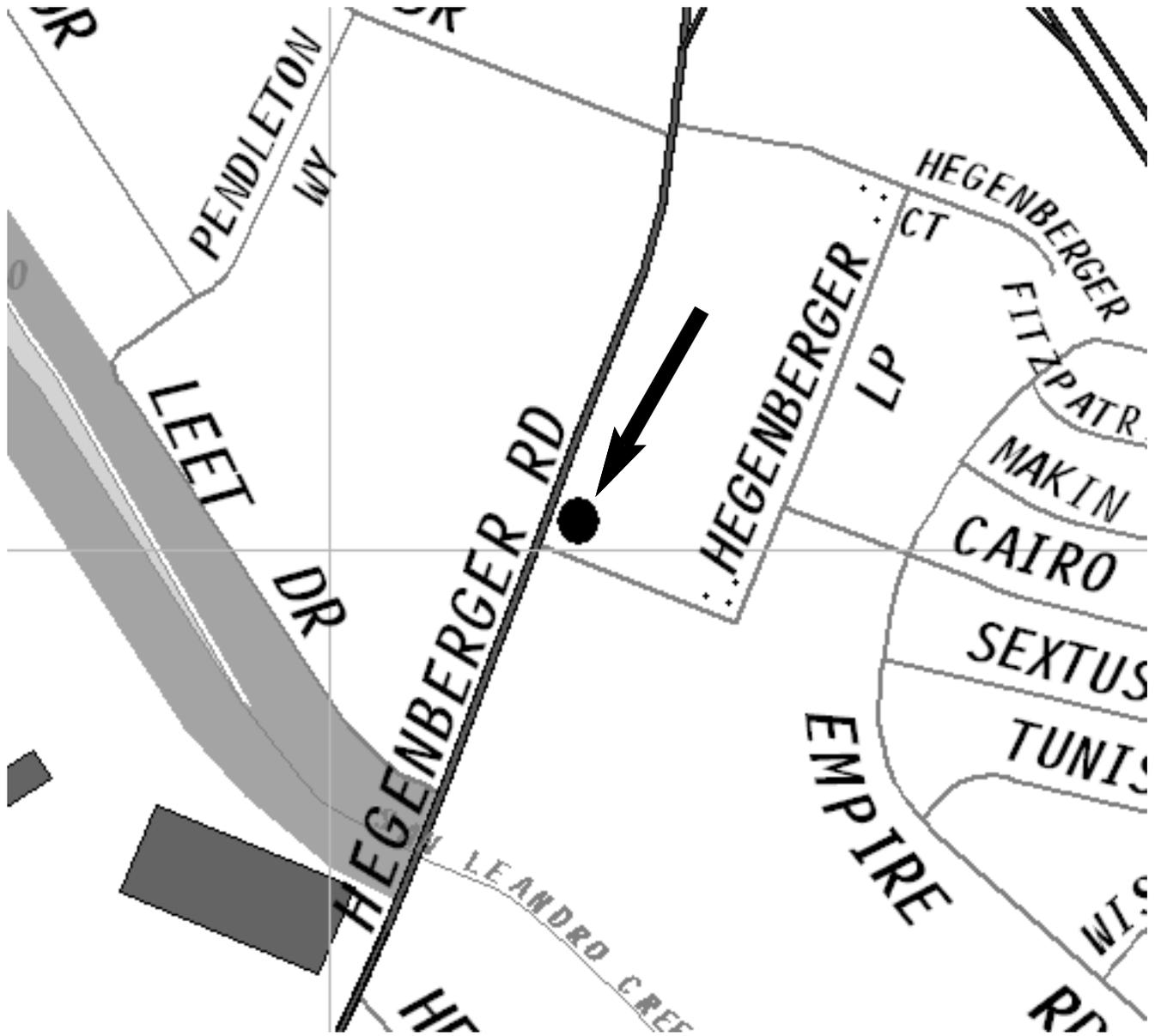
- As required by the lead regulatory agency, continue to perform periodic groundwater monitoring and sampling and ensure the Site is Geotracker compliant in anticipation of obtaining eventual regulatory Site closure.

## **8.0 LIMITATIONS**

The service performed by ACC has been conducted in a manner consistent with the levels of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area. No other warranty, expressed or implied, is made.

The conclusions presented in this report are professional opinions based on the indicated data described in this report and applicable regulations and guidelines currently in place. They are intended only for the purpose, site, and project indicated. Opinions and recommendations presented herein apply to site conditions existing at the time of our study.

ACC has included analytical results from a state-certified laboratory, which performs analyses according to procedures suggested by the U.S. Environmental Protection Agency and the State of California. ACC is not responsible for laboratory errors in procedure or result reporting.



Source: The Thomas Guide, Bay Area, 2004

Title: **Location Map**  
**444 Hegenberger Loop**  
**Oakland, California**

Figure Number: 1

Scale: None

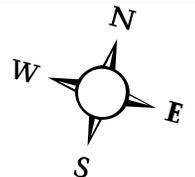
Project Number: 6748-017.00

Drawn By: ANW

Date: 01/09/06



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 Oakland, California 94621  
 (510) 638-8400 Fax: (510) 638-8404



MW-8

HEGENBERGER ROAD

MW-7

HEGENBERGER LOOP

MW-3

MW-4

former dispenser islands

MW-2

MW-6

MW-5

former UST areas

MW-1

(DESTROYED)

### Legend



Groundwater Monitoring Well Location

Title: **Site Plan**  
**444 Hegenberger Loop**  
**Oakland, California**

Figure Number: 2

Scale: 1" = 60'

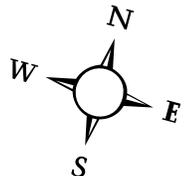
Project Number: 6748-017.00

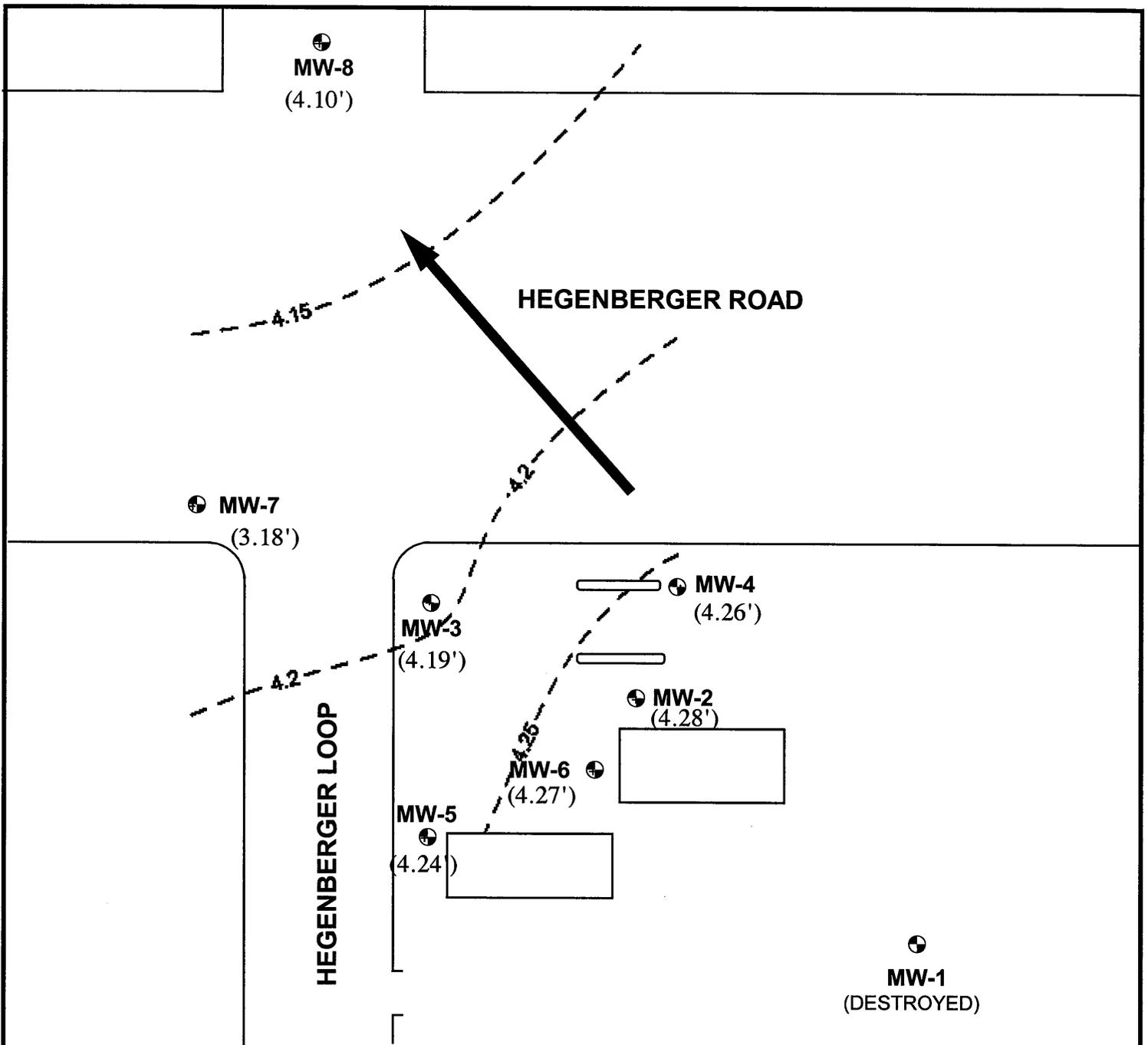
Drawn By: ANW

Date: 02/09/06



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Oakland, California 94621  
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**Groundwater gradient based upon monitoring data collected on February 9, 2006 (excluding monitoring well MW-7 data)**

### Legend

- MW-8** (4.24') Groundwater Monitoring Well Location/ Groundwater Elevation Recorded in ft.
- Calculated Groundwater Elevation Contour
- Groundwater Flow Direction

Title: **Gradient Map**  
**444 Hegenberger Loop**  
**Oakland, California**

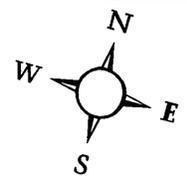
Figure Number: 3      Scale: 1" = 60'

Project Number: 6748-017.00      Drawn By: DRD

Date: 03/23/06



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### CASE NARRATIVE

Laboratory number: 184869  
Client: ACC Environmental Consultants  
Project: 6748-017.00  
Location: 444 Hegenberger Loop  
Request Date: 02/10/06  
Samples Received: 02/10/06

This hardcopy data package contains sample and QC results for seven water samples, requested for the above referenced project on 02/10/06. The samples were received cold and intact.

**TPH-Extractables by GC (EPA 8015B):**

No analytical problems were encountered.

**Volatile Organics by GC/MS (EPA 8260B):**

High recovery was observed for 1,2-dichloroethane in the BS for batch 110431; the associated RPD was within limits, and the high recovery was not associated with any reported results. No other analytical problems were encountered.



**Gasoline by GC/MS**

Lab #:	184869	Location:	444 Hegenberger Loop
Client:	ACC Environmental Consultants	Prep:	EPA 5030B
Project#:	6748-017.00	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	02/09/06
Units:	ug/L	Received:	02/10/06

Field ID:	MW-4	Lab ID:	184869-003
Type:	SAMPLE	Analyzed:	02/14/06

Analyte	Result	RL	Diln Fac	Batch#
Gasoline C7-C12	1,500	100	2.000	110402
MTBE	ND	1.0	2.000	110402
Benzene	630	5.0	10.00	110431
Toluene	16	1.0	2.000	110402
Ethylbenzene	10	1.0	2.000	110402
m,p-Xylenes	8.0	1.0	2.000	110402
o-Xylene	1.3	1.0	2.000	110402

Surrogate	%REC	Limits	Diln Fac	Batch#
Dibromofluoromethane	103	80-121	2.000	110402
1,2-Dichloroethane-d4	106	80-125	2.000	110402
Toluene-d8	100	80-120	2.000	110402
Bromofluorobenzene	105	80-124	2.000	110402

Field ID:	MW-5	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	110402
Lab ID:	184869-004	Analyzed:	02/13/06

Analyte	Result	RL
Gasoline C7-C12	180	50
MTBE	ND	0.50
Benzene	33	0.50
Toluene	2.2	0.50
Ethylbenzene	2.1	0.50
m,p-Xylenes	1.8	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-121
1,2-Dichloroethane-d4	103	80-125
Toluene-d8	102	80-120
Bromofluorobenzene	113	80-124

ND= Not Detected  
 RL= Reporting Limit



## Gasoline by GC/MS

Lab #:	184869	Location:	444 Hegenberger Loop
Client:	ACC Environmental Consultants	Prep:	EPA 5030B
Project#:	6748-017.00	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	02/09/06
Units:	ug/L	Received:	02/10/06

Field ID: MW-6                      Lab ID: 184869-005  
 Type: SAMPLE                      Diln Fac: 1.000

Analyte	Result	RL	Batch#	Analyzed
Gasoline C7-C12	ND	50	110402	02/13/06
MTBE	ND	0.50	110402	02/13/06
Benzene	0.64	0.50	110431	02/14/06
Toluene	ND	0.50	110402	02/13/06
Ethylbenzene	ND	0.50	110402	02/13/06
m,p-Xylenes	ND	0.50	110402	02/13/06
o-Xylene	ND	0.50	110402	02/13/06

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	100	80-121	110402	02/13/06
1,2-Dichloroethane-d4	105	80-125	110402	02/13/06
Toluene-d8	102	80-120	110402	02/13/06
Bromofluorobenzene	116	80-124	110402	02/13/06

Field ID: MW-7                      Diln Fac: 1.000  
 Type: SAMPLE                      Batch#: 110402  
 Lab ID: 184869-006                Analyzed: 02/13/06

Analyte	Result	RL
Gasoline C7-C12	ND	50
MTBE	ND	0.50
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-121
1,2-Dichloroethane-d4	103	80-125
Toluene-d8	102	80-120
Bromofluorobenzene	114	80-124

ND= Not Detected  
 RL= Reporting Limit





## Batch QC Report

Gasoline by GC/MS			
Lab #:	184869	Location:	444 Hegenberger Loop
Client:	ACC Environmental Consultants	Prep:	EPA 5030B
Project#:	6748-017.00	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	110402
Units:	ug/L	Analyzed:	02/13/06
Diln Fac:	1.000		

Type: BS Lab ID: QC327843

Analyte	Spiked	Result	%REC	Limits
MTBE	25.00	24.19	97	72-120
Benzene	25.00	22.32	89	80-120
Toluene	25.00	22.90	92	80-120
Ethylbenzene	25.00	22.21	89	80-120
m,p-Xylenes	50.00	43.27	87	80-121
o-Xylene	25.00	22.38	90	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-121
1,2-Dichloroethane-d4	104	80-125
Toluene-d8	101	80-120
Bromofluorobenzene	105	80-124

Type: BSD Lab ID: QC327844

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	25.00	24.22	97	72-120	0	20
Benzene	25.00	23.15	93	80-120	4	20
Toluene	25.00	23.19	93	80-120	1	20
Ethylbenzene	25.00	23.04	92	80-120	4	20
m,p-Xylenes	50.00	44.42	89	80-121	3	20
o-Xylene	25.00	23.20	93	80-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-121
1,2-Dichloroethane-d4	106	80-125
Toluene-d8	100	80-120
Bromofluorobenzene	106	80-124

RPD= Relative Percent Difference

## Batch QC Report

Gasoline by GC/MS			
Lab #:	184869	Location:	444 Hegenberger Loop
Client:	ACC Environmental Consultants	Prep:	EPA 5030B
Project#:	6748-017.00	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	110402
Units:	ug/L	Analyzed:	02/13/06
Diln Fac:	1.000		

Type: BS Lab ID: QC327845

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	935.6	94	70-130

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-121
1,2-Dichloroethane-d4	107	80-125
Toluene-d8	102	80-120
Bromofluorobenzene	108	80-124

Type: BSD Lab ID: QC327846

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1,000	972.5	97	70-130	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-121
1,2-Dichloroethane-d4	104	80-125
Toluene-d8	101	80-120
Bromofluorobenzene	106	80-124

RPD= Relative Percent Difference



## Batch QC Report

Gasoline by GC/MS			
Lab #:	184869	Location:	444 Hegenberger Loop
Client:	ACC Environmental Consultants	Prep:	EPA 5030B
Project#:	6748-017.00	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	110431
Units:	ug/L	Analyzed:	02/14/06
Diln Fac:	1.000		

Type: BS Lab ID: QC327945

Analyte	Spiked	Result	%REC	Limits
MTBE	25.00	25.33	101	72-120
Benzene	25.00	25.77	103	80-120
Toluene	25.00	25.48	102	80-120
Ethylbenzene	25.00	25.71	103	80-120
m,p-Xylenes	50.00	53.32	107	80-121
o-Xylene	25.00	26.95	108	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-121
1,2-Dichloroethane-d4	109	80-125
Toluene-d8	94	80-120
Bromofluorobenzene	94	80-124

Type: BSD Lab ID: QC327946

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	25.00	23.84	95	72-120	6	20
Benzene	25.00	23.68	95	80-120	8	20
Toluene	25.00	23.20	93	80-120	9	20
Ethylbenzene	25.00	24.60	98	80-120	4	20
m,p-Xylenes	50.00	51.50	103	80-121	3	20
o-Xylene	25.00	25.39	102	80-120	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-121
1,2-Dichloroethane-d4	105	80-125
Toluene-d8	90	80-120
Bromofluorobenzene	91	80-124

RPD= Relative Percent Difference

## Batch QC Report

Gasoline by GC/MS			
Lab #:	184869	Location:	444 Hegenberger Loop
Client:	ACC Environmental Consultants	Prep:	EPA 5030B
Project#:	6748-017.00	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	110431
Units:	ug/L	Analyzed:	02/14/06
Diln Fac:	1.000		

Type: BS Lab ID: QC327948

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,398	120	70-130

Surrogate	%REC	Limits
Dibromofluoromethane	87	80-121
1,2-Dichloroethane-d4	99	80-125
Toluene-d8	91	80-120
Bromofluorobenzene	90	80-124

Type: BSD Lab ID: QC327949

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,251	113	70-130	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	83	80-121
1,2-Dichloroethane-d4	95	80-125
Toluene-d8	92	80-120
Bromofluorobenzene	90	80-124

RPD= Relative Percent Difference

Date : 13-FEB-2006 19:37

Client ID: DYNA P&T

Sample Info: S,184869-001

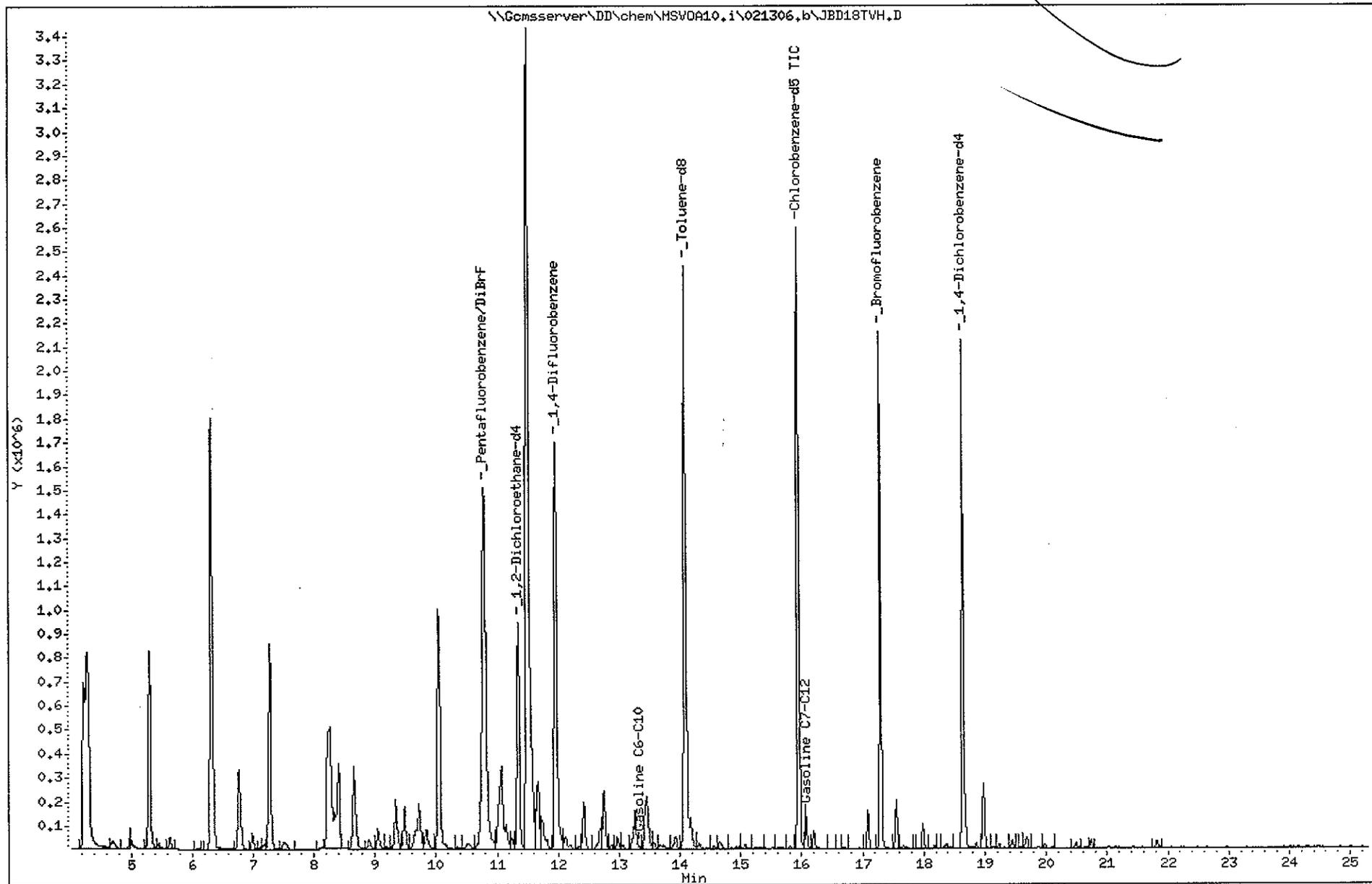
Instrument: MSV0A10.i

Operator: VOC

Column diameter: 2.00

Column phase:

MW-2



Date : 13-FEB-2006 20:12

Client ID: DYNA P&T

Sample Info: S,184869-002

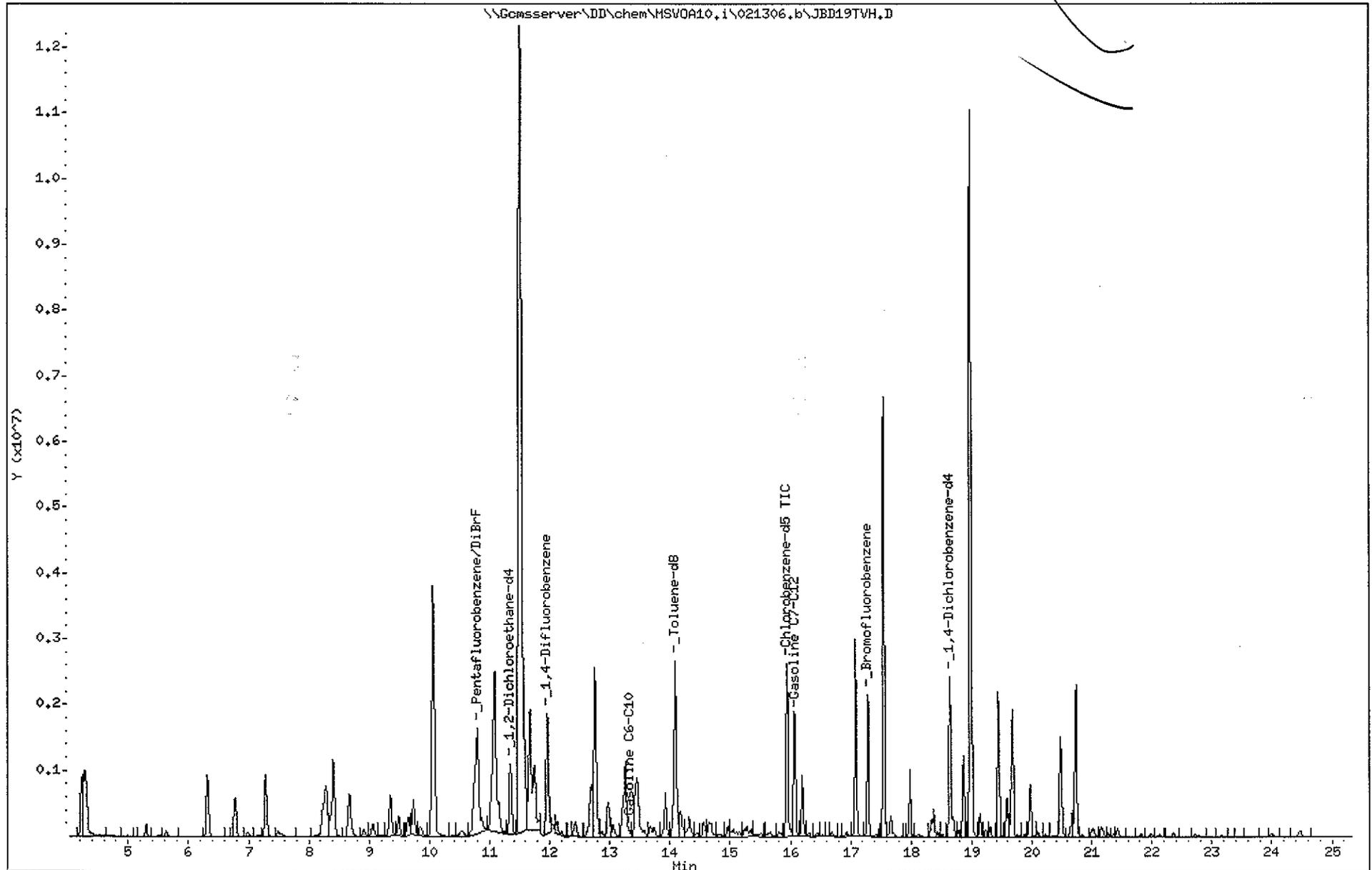
Instrument: MSV0A10.i

Operator: VOC

Column diameter: 2.00

Column phase:

MW-3



Date : 14-FEB-2006 03:11

Client ID: DYNA P&T

Sample Info: S,184869-003

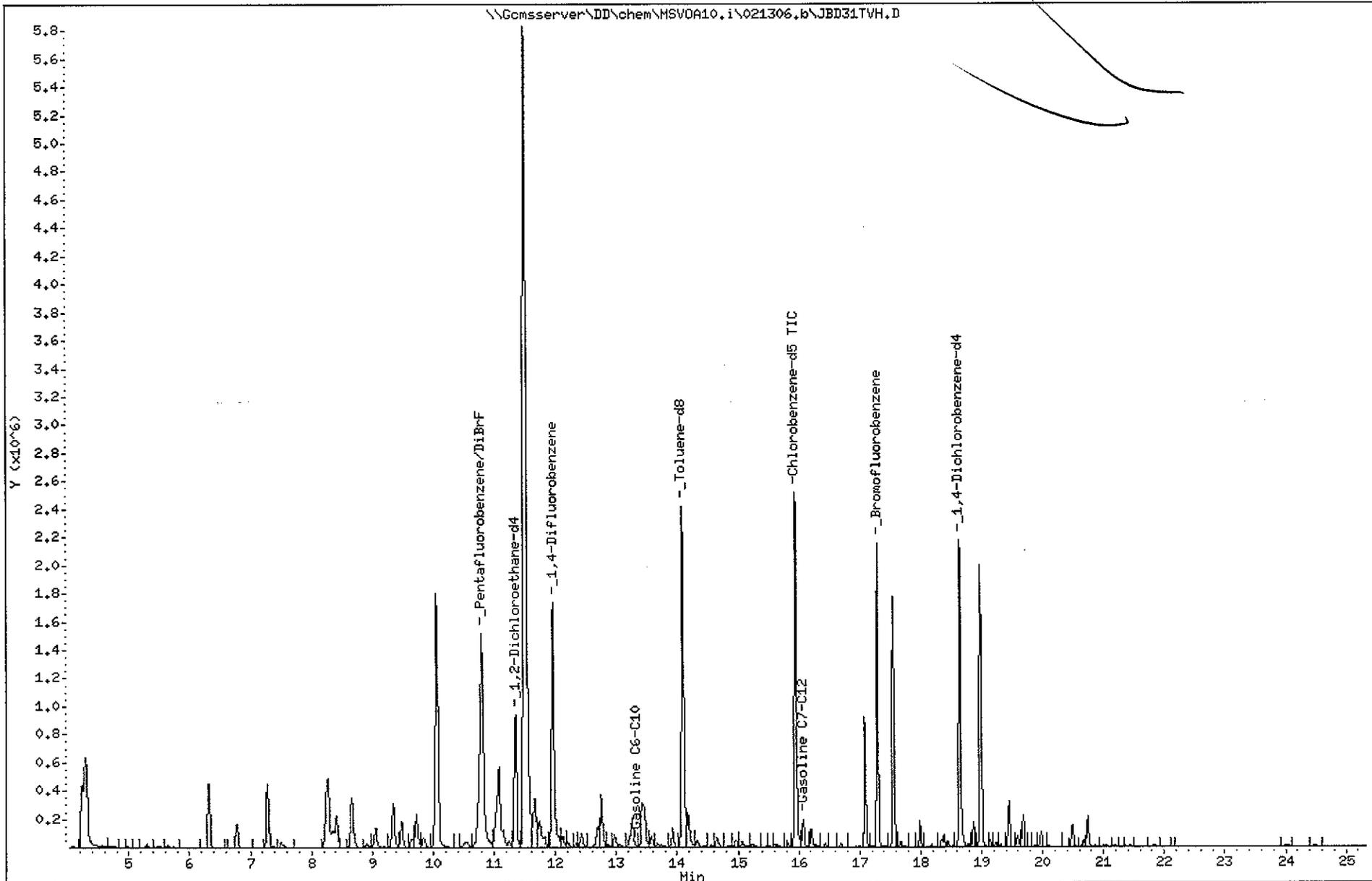
Instrument: MSV0A10.i

Operator: VOC

Column diameter: 2.00

Column phase:

MW-4

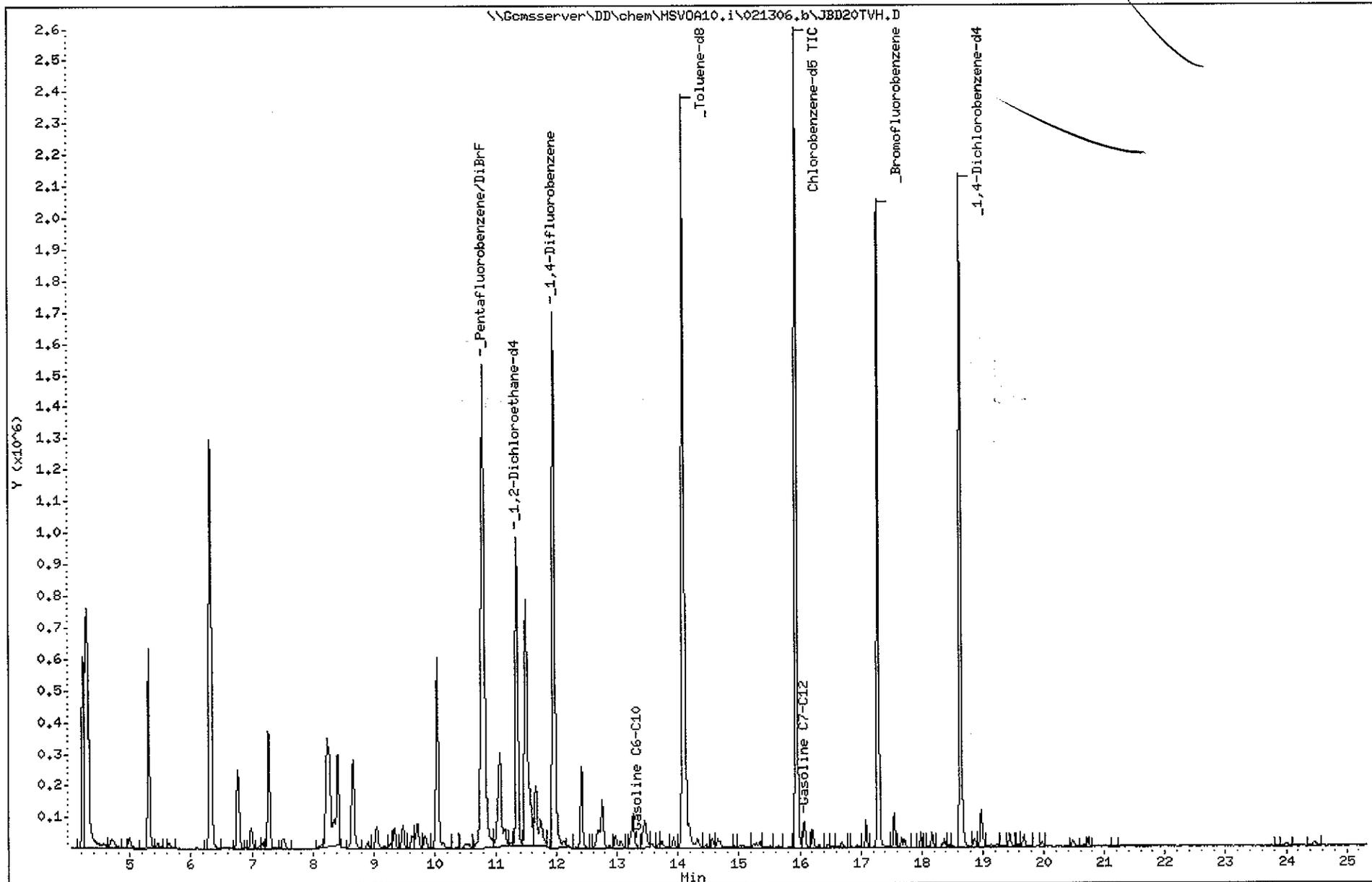


Date : 13-FEB-2006 20:47  
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Instrument: MSV0A10.i  
Operator: VOC  
Column diameter: 2.00

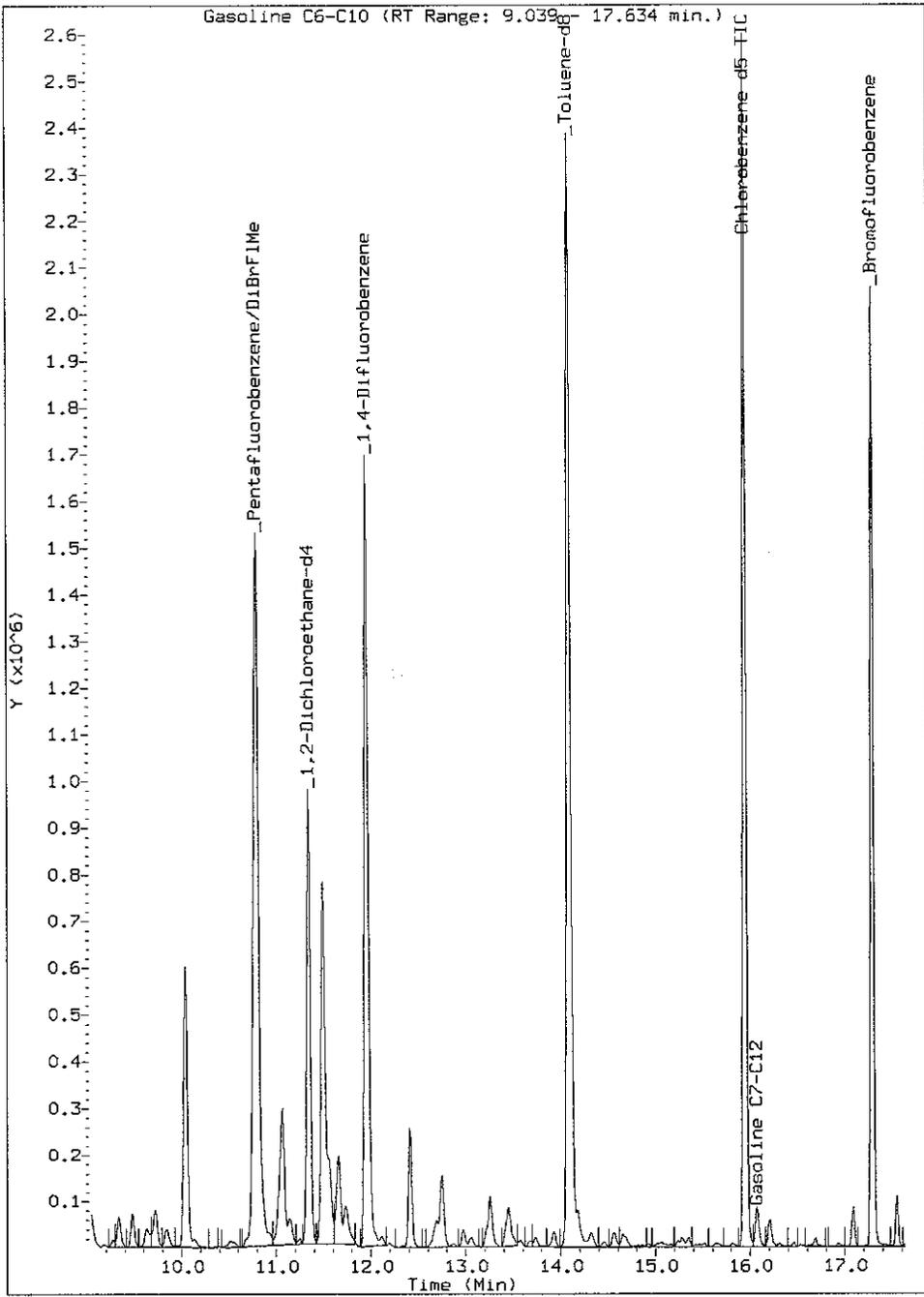
MW-5

Column phase:

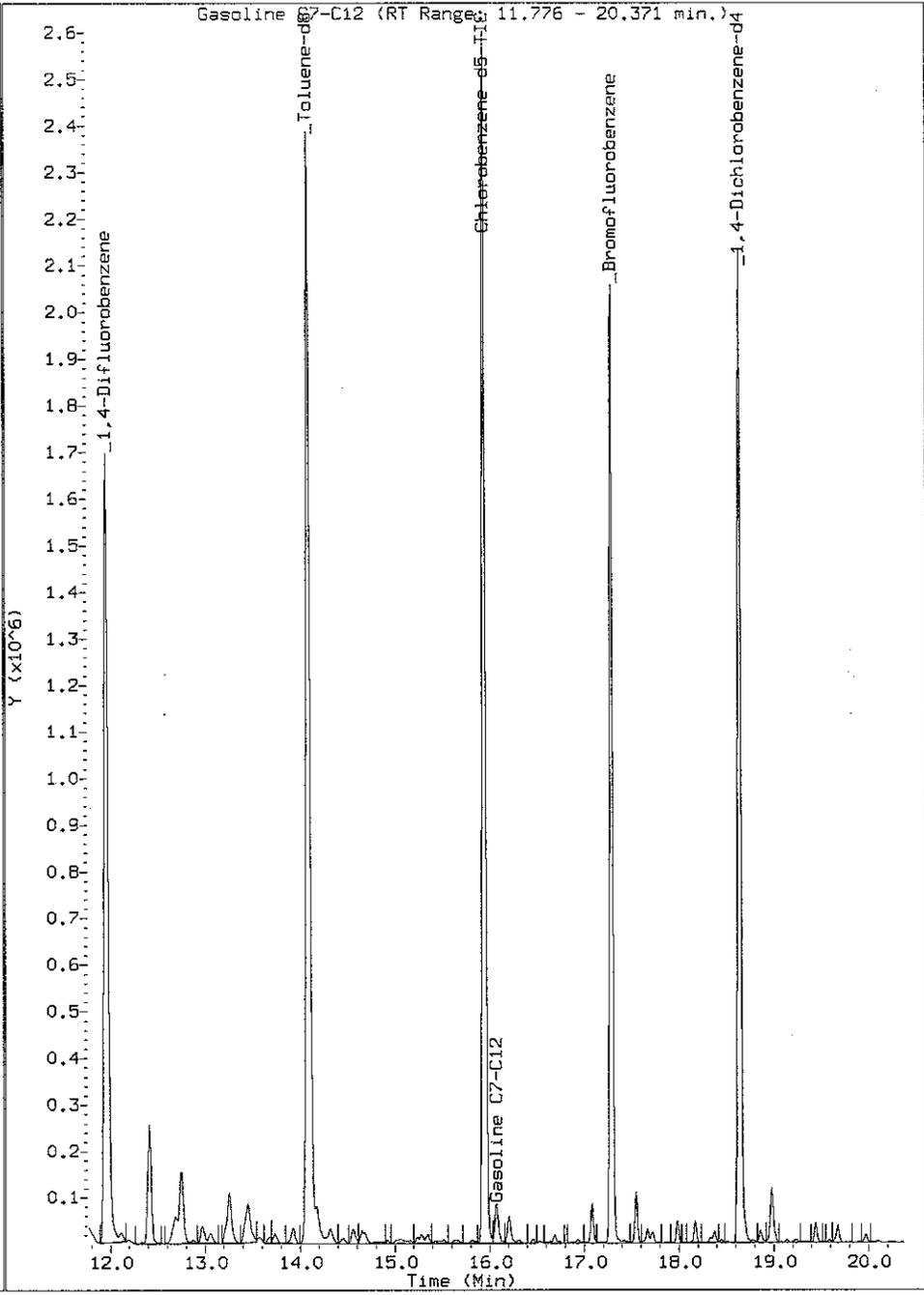


# GASOLINE

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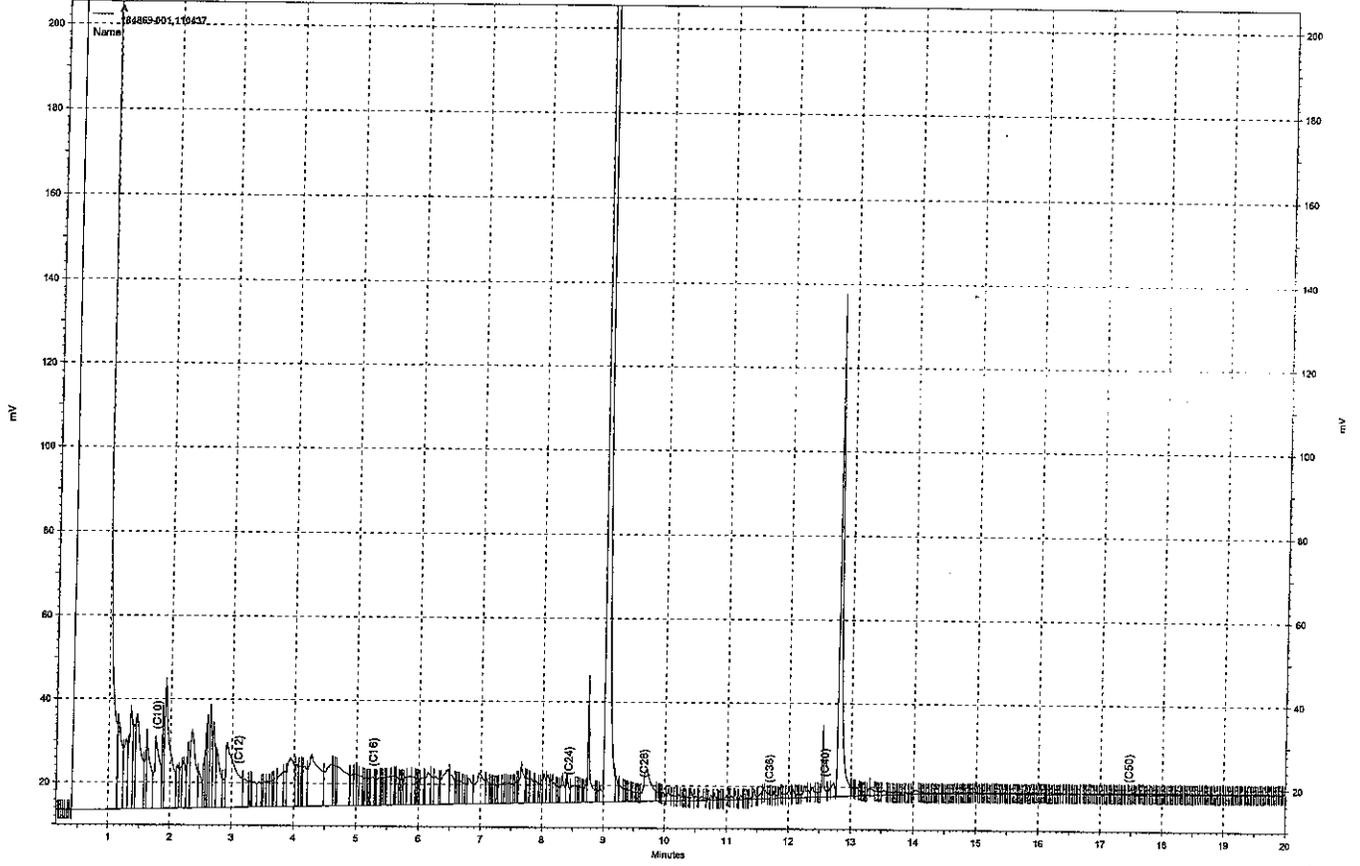


Gasoline C7-C12 (RT Range: 11.776 - 20.371 min.)





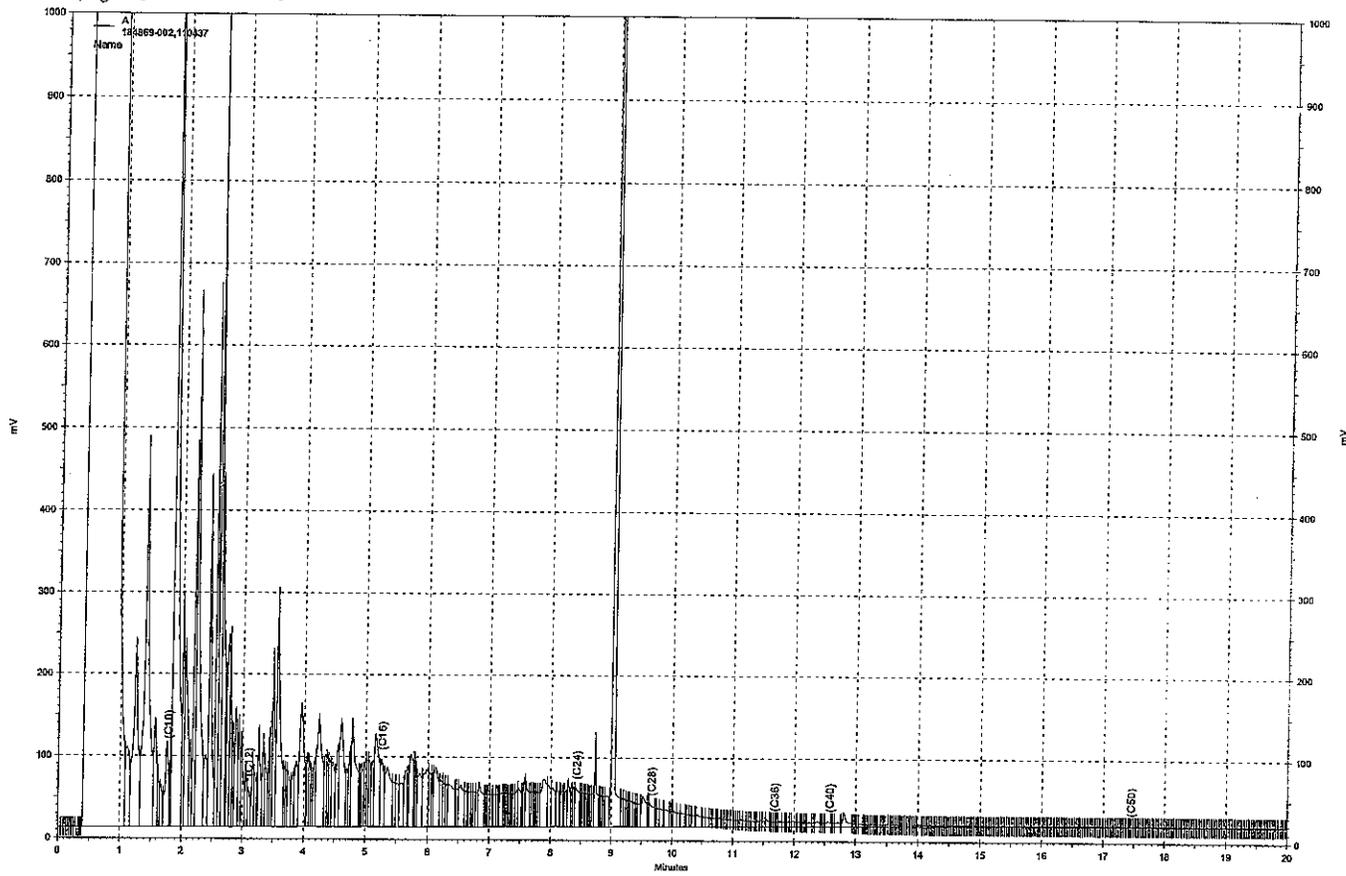
184869-001, 110457



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MW-2

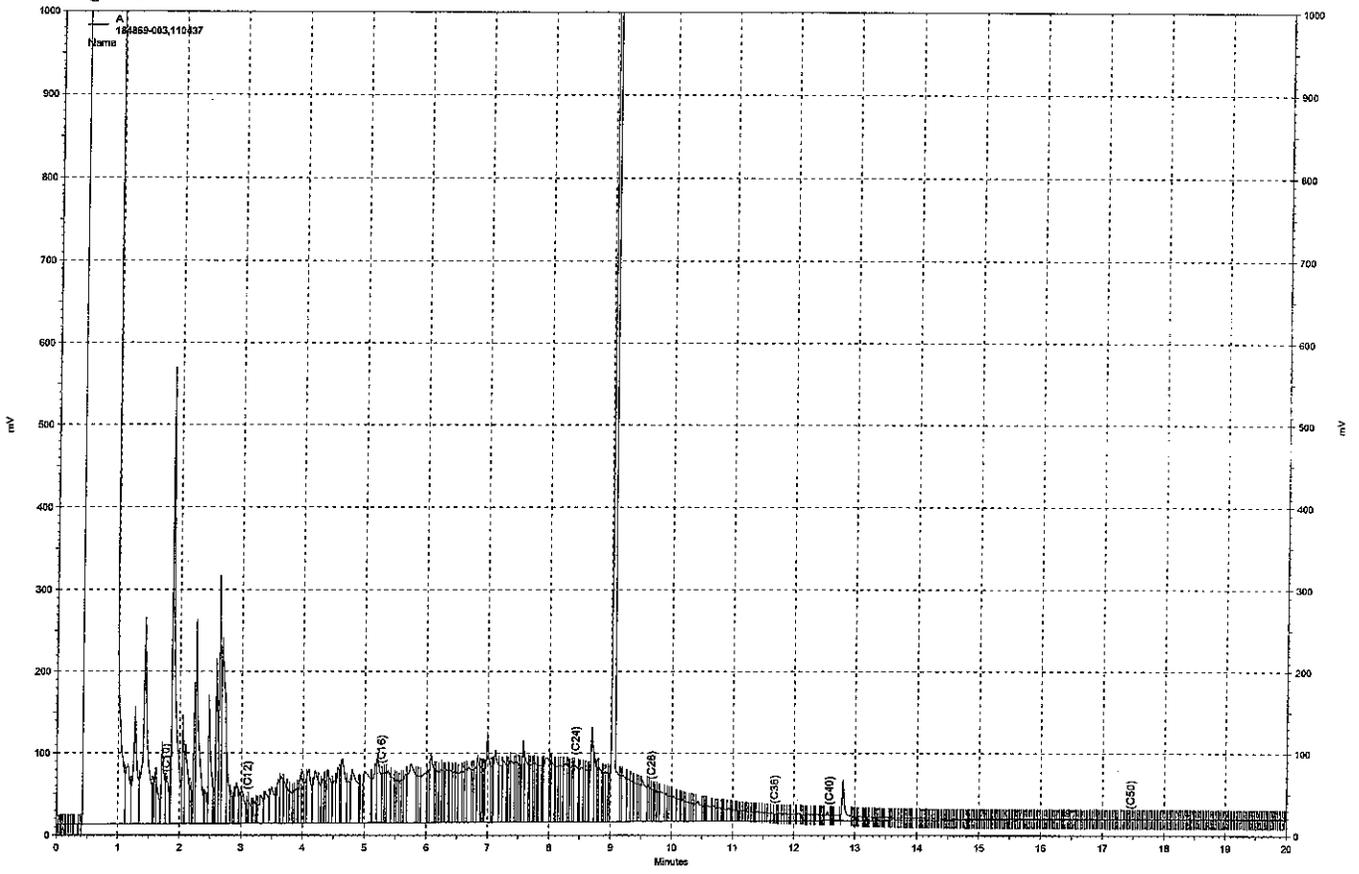
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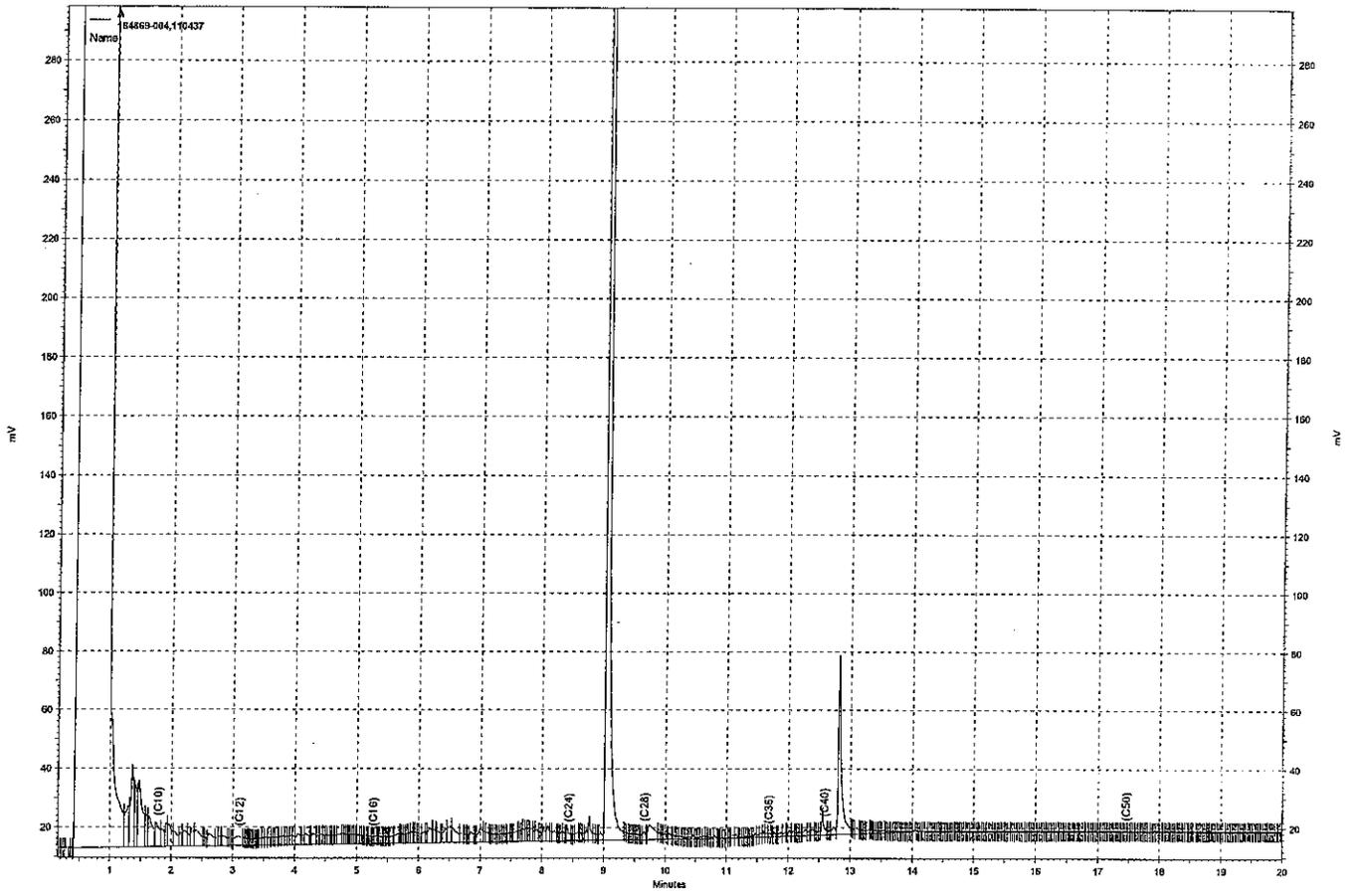
MW-3

184869-003, 110347



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MW-4

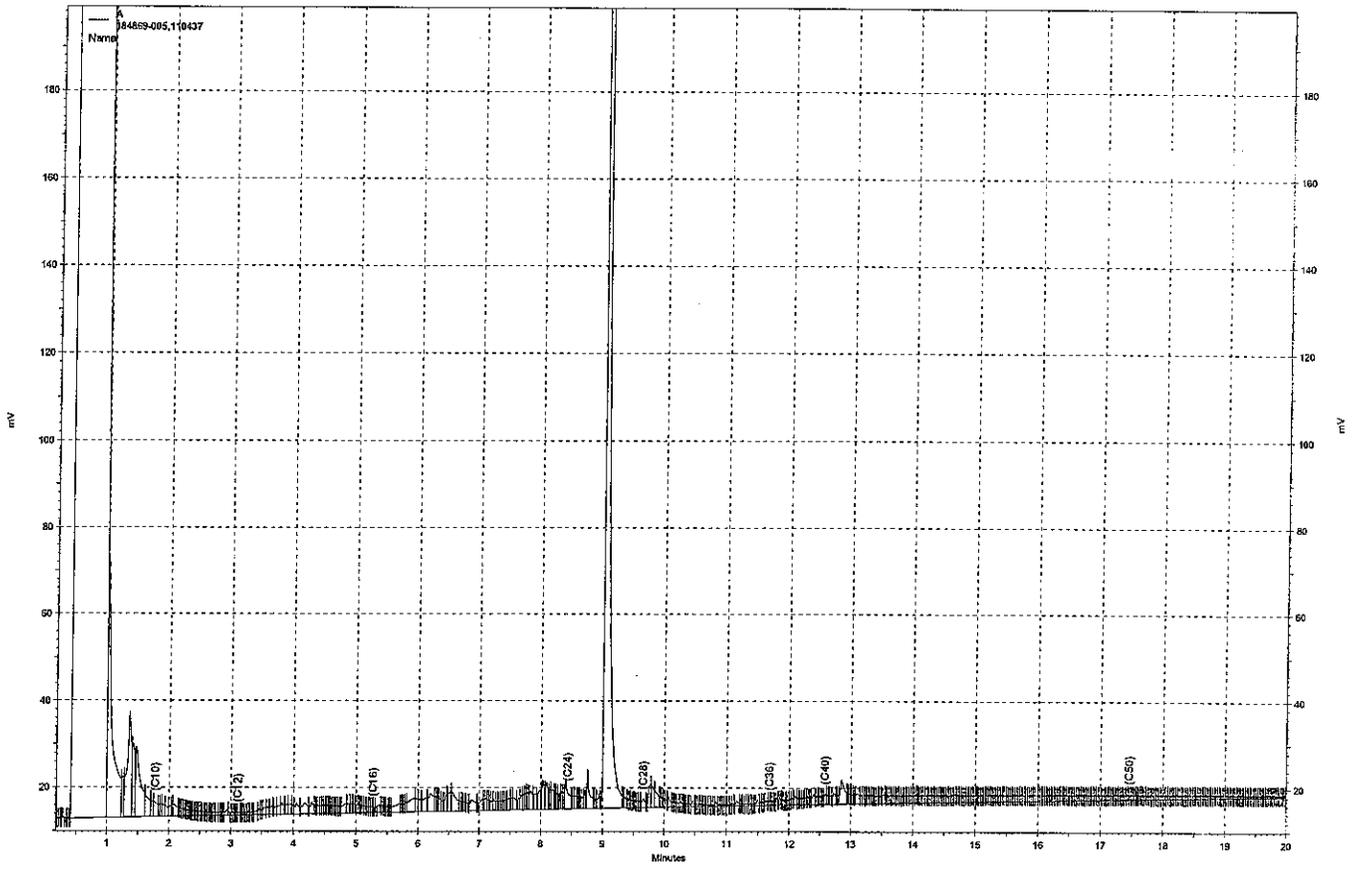


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MW-5



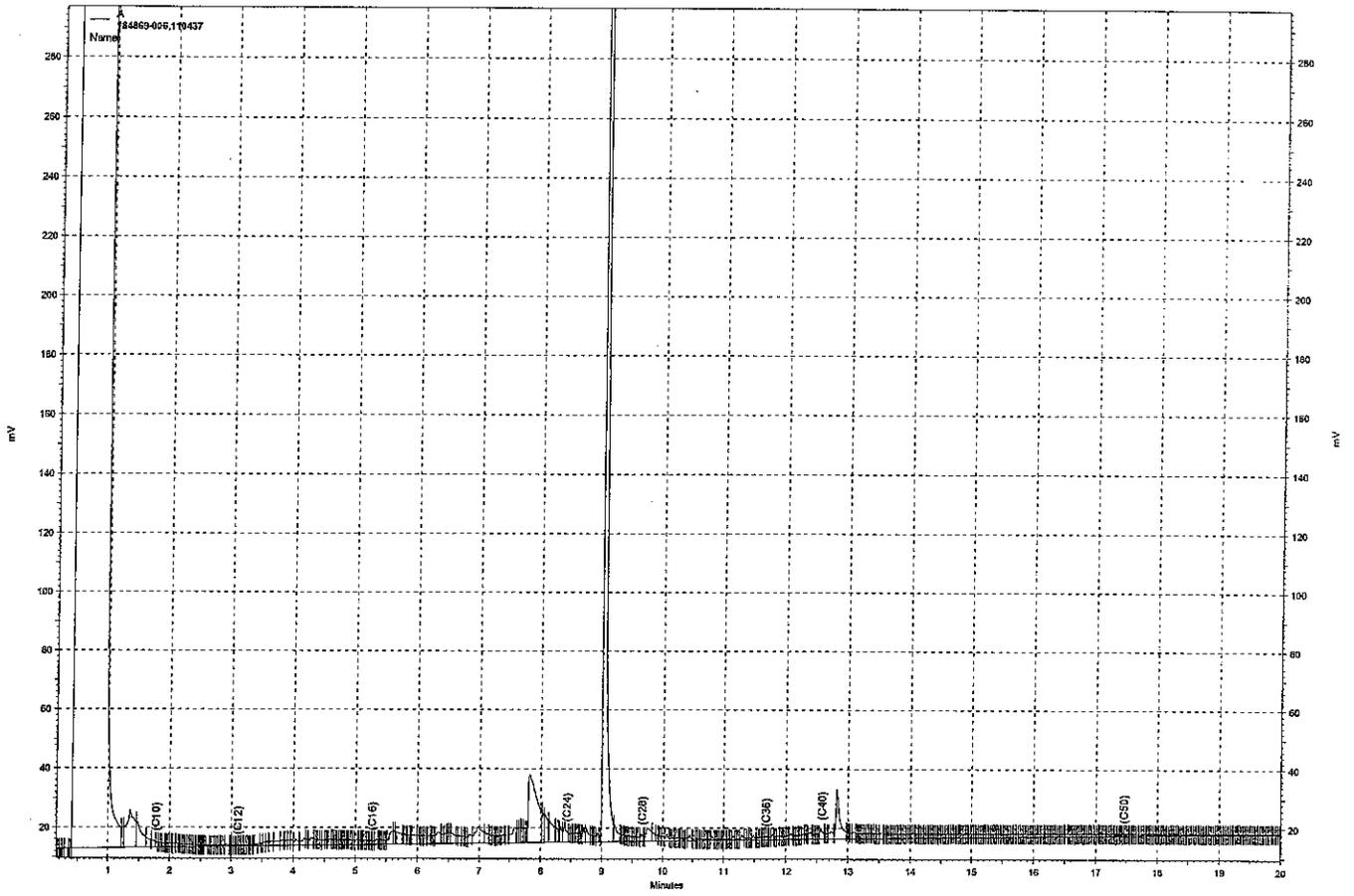
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MW-6

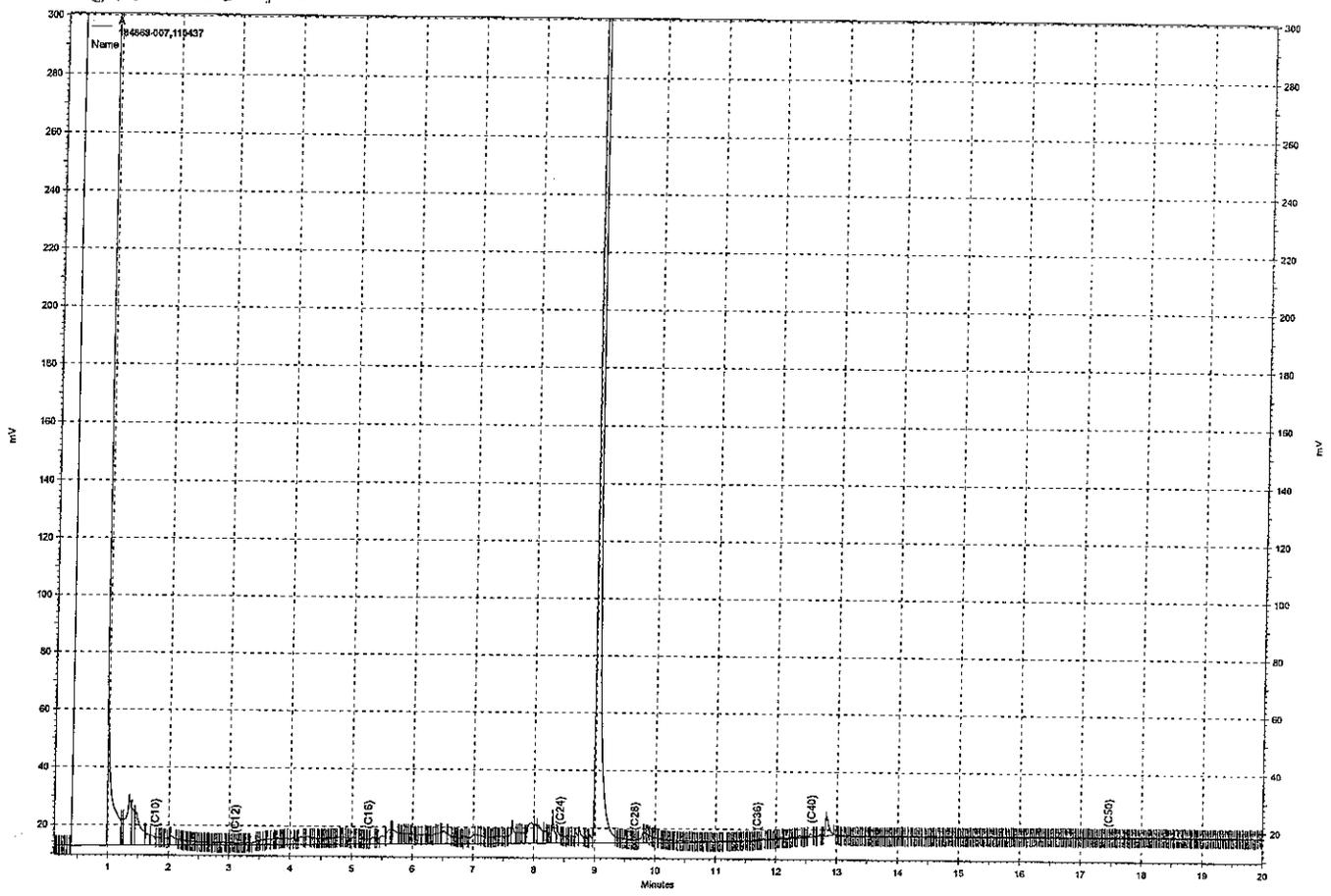
184869-006, 110437



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MW-7

84869-007, 110437



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MW-8

Batch QC Report

**Total Extractable Hydrocarbons**

Lab #:	184869	Location:	444 Hegenberger Loop
Client:	ACC Environmental Consultants	Prep:	EPA 3520C
Project#:	6748-017.00	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	110437
Units:	ug/L	Prepared:	02/14/06
Diln Fac:	1.000	Analyzed:	02/15/06

Type: BS Lab ID: QC327976

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,723	109	53-138

Surrogate	%REC	Limits
Hexacosane	116	60-135

Type: BSD Lab ID: QC327977

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,547	102	53-138	7	36

Surrogate	%REC	Limits
Hexacosane	112	60-135

RPD= Relative Percent Difference



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:

ACC Environmental Consultants  
7977 Capwell Drive  
Suite 100  
Oakland, CA 94621

Date: 17-FEB-06  
Lab Job Number: 184869  
Project ID: 6748-017.00  
Location: 444 Hegenberger Loop

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by:   
Project Manager

Reviewed by:   
Operations Manager

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# CHAIN OF CUSTODY

## Curtis & Tompkins, Ltd.

Analytical Laboratory Since 1878  
 2323 Fifth Street  
 Berkeley, CA 94710  
 (510)486-0900 Phone  
 (510)486-0532 Fax

## Analyses

C&T LOGIN # 184869

Sampler: Aaron Wolf (ANW)

Project No: 6748-017.00

Report To: Aaron Wolf <awolf@accenv.com>

Project Name: 444 Hegenberger Loop

Company : ACC Environmental Consultants

Project P.O.: 6748-017.00

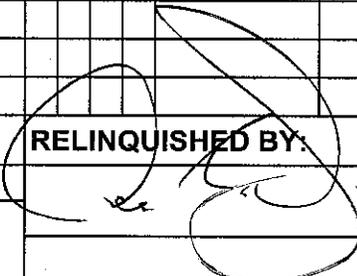
Telephone: 510.638.8400

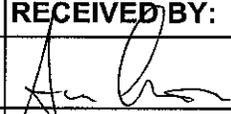
Turnaround Time: Standard

Fax: 510.638.8404

Lab No.	Sample ID.	Sampling Date & Time	Matrix			# of Containers	Preservative					TPHd by 8015M	TPHg, BTEX, MTBE by 8260B
			Soil	Water	Waste		HCL	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	ICE	None		
-1	MW-2	02/09/06 13:12	X			4	X						
-2	MW-3	02/09/06 12:54	X			4	X						
-3	MW-4	02/09/06 13:00	X			4	X						
-4	MW-5	02/09/06 13:32	X			4	X						
-5	MW-6	02/09/06 13:22	X			4	X						
-6	MW-7	02/09/06 13:55	X			4	X						
-7	MW-8	02/09/06 14:12	X			4	X						

Notes: Global ID : T0600102125

RELINQUISHED BY:  DATE/TIME: 2-9-06 15:00

RECEIVED BY:  DATE/TIME: 2/10/06 1430

DATE/TIME: \_\_\_\_\_ DATE/TIME: \_\_\_\_\_

DATE/TIME: \_\_\_\_\_ DATE/TIME: \_\_\_\_\_