

# **BASELINE**

## **ENVIRONMENTAL CONSULTING**

14 June 1996  
93333-B0

Mr. George Muehleck  
Woodward-Clyde Consultant  
500 12th Street, Suite 100  
Oakland, CA 94607-4014

**Subject: Groundwater Monitoring Event at the City of Oakland, Municipal Service Center, 7101 Edgewater Drive - May 1996**

Dear Mr. Muehleck:

This letter documents the groundwater monitoring activities performed by BASELINE at the Municipal Service Center (MSC) in May 1996 (Figure 1). All field work was performed by a BASELINE geologist. Sampling procedures and analytical results are summarized below.

### **GROUNDWATER SAMPLING AND ANALYSES**

#### **Groundwater Sampling**

Groundwater samples were collected from groundwater monitoring wells MW-1, MW-2, MW-5, MW-6, and MW-7 (Figure 2) on 13 May 1996. Sample bottles were provided by the analytical laboratory. Groundwater sampling forms are provided in Attachment A. Sampling procedures were performed as follows:

- Monitored vapor in well casing using an HNu instrument upon opening well cap.
- Measured product/water level and total depth of well from top of casing using dual-interface probe; decontaminated probe by washing in TSP solution and rinsing with DI water.
- Purged monitoring wells using double diaphragm pump and new disposable hose; the purge water was discharged into a 55-gallon drum.
- Measured temperature, pH, and conductivity of the purged water.
- Purged a minimum of 3.5 well volumes until parameters had stabilized.
- Collected groundwater samples using new disposable PVC bailers after the water level had recovered to at least 90 percent of original level.
- Filled sample bottles for volatile organic analyses using volatile organic compound attachments to minimize turbulence and to prevent air bubbles; filled other sample bottles directly from bottom of bailer.
- Collected duplicate sample from MW-5 (labeled sample MW-5A).
- Submitted trip blank with samples (labeled MW-500).
- Stored labeled sample bottles in plastic cooler with blue ice; samples were picked up by Chromalab laboratory using chain-of-custody procedures.

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- Labeled and secured 55-gallon drums containing purge and decontamination water.

Petroleum odor was identified during purging of monitoring wells MW-1 and MW-6.

**Analytical Results**


The analyses performed on each sample are summarized in Table 1. As we had suggested in our 21 March 1996 memo to you (Attachment B), we performed a silica-gel cleanup on samples analyzed for petroleum hydrocarbons. The samples were analyzed by Chromalab, Inc., a State-certified laboratory located in Pleasanton. Analytical results for groundwater monitoring events performed from April 1995 to May 1996 are included in Tables 2 and 3. The laboratory report for this groundwater monitoring event is provided in Attachment C.

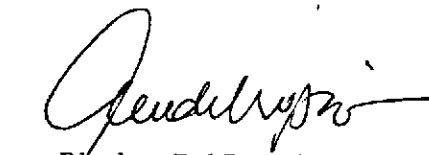
**Groundwater Level Measurements**

Groundwater level measurements were collected from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7 during groundwater sampling activities on 13 May 1996; measurements were collected within one-half hour during intermediate rising tide. The groundwater gradient was calculated to be 0.02 ft/ft at the northern portion of the site (MW-1 through MW-4), with a flow direction toward the northwest at approximately N24W. The groundwater flow gradient was calculated to be 0.003 ft/ft at the southern portion of the site (MW-5 through MW-7), with a flow direction toward the southwest at approximately S15W. The groundwater elevation data collected during the last three quarterly groundwater monitoring events (December 1995 to May 1996) are shown on Table 4. Groundwater contours for the 13 May 1996 event are shown on Figure 2.

Please contact us at your convenience if you have any questions regarding these groundwater monitoring activities or need additional information.

Sincerely,

  
Yane Nordhav  
Principal  
Reg. Geologist No. 4009

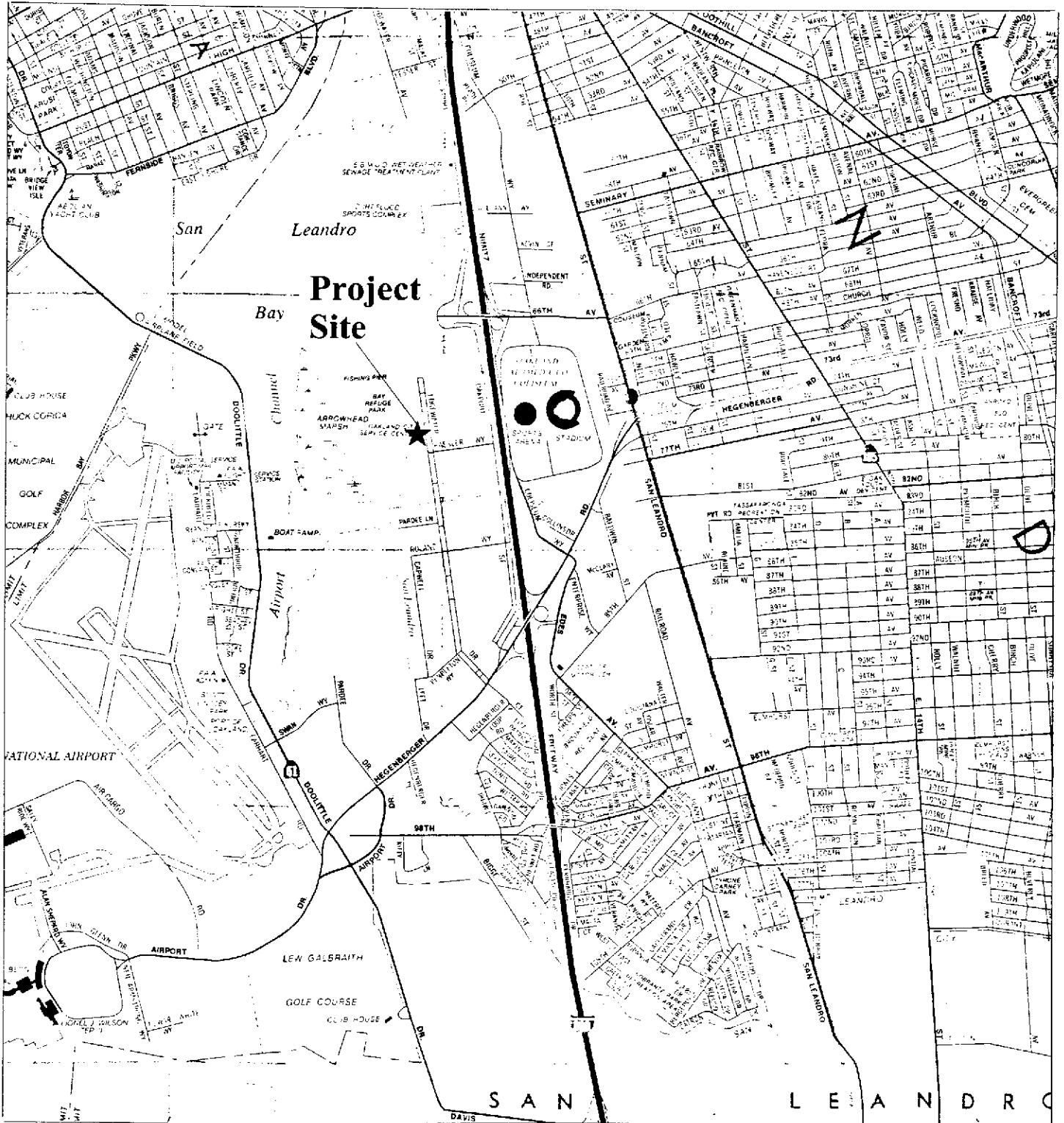
  
Rhodora Del Rosario  
Civil Engineer

RPD:YN:tl  
Attachments

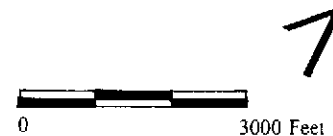
cc: Andrew Clark-Clough, City of Oakland

# REGIONAL LOCATION

## Figure 1



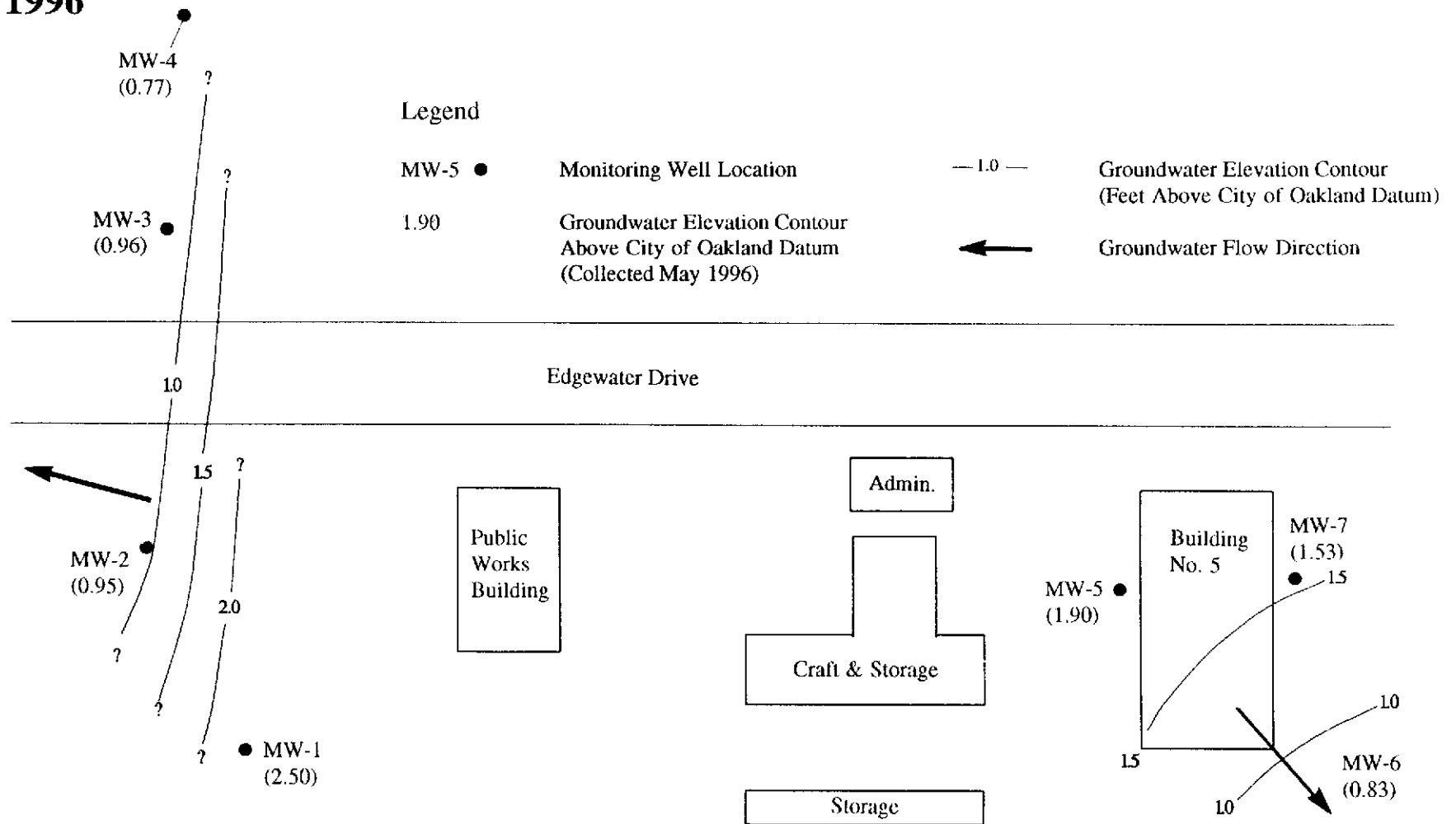
**City of Oakland  
Municipal Service Center  
Oakland, California**



**BASELINE**

# SITE LAYOUT AND GROUNDWATER ELEVATIONS MAY 1996

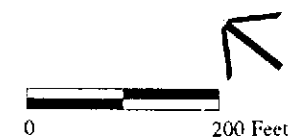
Figure 2



## City of Oakland Municipal Service Center Oakland, California

Note: Tabulated groundwater elevation data shown on Table 4.

Source: City of Oakland, MSC Parking, 6/27/74; Bates & Bailey Survey Maps, 7/14/95 and 11/21/95.



**BASELINE**

TABLE I  
**LABORATORY ANALYSES PERFORMED ON GROUNDWATER SAMPLES**  
**Oakland Municipal Service Center**  
**May 1996**

Location	TOTAL PETROLEUM HYDROCARBONS				BTEX <sup>2</sup> (8020)	METALS <sup>3</sup>				
	Gasoline (5030/8015)	Diesel <sup>1</sup> (3510/8015)	Kerosene <sup>1</sup> (3510/8015)	Motor Oil <sup>1</sup> (3510/8015)		Cadmium (6010)	Chromium (6010)	Lead (6010)	Nickel (6010)	Zinc (6010)
MW-1	✓	--	--	--	✓	--	--	--	--	--
MW-2	--	--	--	--	✓	--	--	✓	--	--
MW-5	✓	✓	✓	✓	✓	--	--	--	--	✓
MW-5A <sup>4</sup>	✓	✓	✓	✓	✓	--	--	--	--	✓
MW-6	✓	✓	✓ <sup>5</sup>	✓ <sup>5</sup>	✓	✓	✓	✓	✓	✓
MW-7	--	--	--	--	✓	✓	✓	--	✓	✓
Trip Blank <sup>6</sup>	✓	--	--	--	✓	--	--	--	--	--

Notes: -- = Not analyzed.

Number shown in parenthesis indicates the EPA method used for analysis.

<sup>1</sup> A silica gel cleanup (EPA Method 3630) was conducted prior to analysis.

<sup>2</sup> BTEX = Benzene, toluene, ethylbenzene, and xylenes.

<sup>3</sup> All samples for metals analyses were filtered in the laboratory.

<sup>4</sup> Duplicate sample of MW-5.

<sup>5</sup> Although not specified on the chain of custody, the laboratory analyzed this sample for kerosene and motor oil.

<sup>6</sup> Labeled MW-500 on chain-of-custody form.

TABLE 2  
**METAL CONCENTRATIONS, GROUNDWATER**  
**Oakland Municipal Service Center**  
(mg/L)

Sample	Date	Cadmium	Chromium	Lead	Nickel	Zinc
MW-1	4/19/95	--	--	<0.01	--	--
	7/27/95	--	--	<0.01	--	--
	11/20/95	--	--	<0.01	--	--
	2/21/96	--	--	<0.01	--	--
MW-2	4/19/95	--	--	<b>0.10</b>	--	--
	7/27/95	--	--	<b>0.07</b>	--	--
	11/20/95	--	--	<0.01	--	--
	2/21/96	--	--	<0.01	--	--
	5/13/96	--	--	<0.005	--	--
MW-5	4/19/95	<0.005	<0.01	<0.01	<0.01	<b>0.02</b>
	7/27/95	<0.005	<0.01	<0.01	<0.01	<0.01
	11/20/95	<0.005	<0.01	<0.01	<0.01	<0.01
	2/21/96	<0.005	<0.01	<0.01	<0.01	<0.01
	5/13/96	--	--	--	--	<0.01
MW-5A	5/13/96	--	--	--	--	<0.01
MW-6	4/19/95	--	--	<b>0.41</b>	--	--
	7/27/95	--	--	<0.01	--	--
	11/20/95	<0.005	<0.01	<0.01	<b>0.01</b>	<b>0.01</b>
	2/21/96	<0.005	<0.01	<0.01	<b>0.02</b>	<0.01
	5/13/96	<0.002	<0.005	<0.005	<b>0.016</b>	<0.01
MW-6A	4/19/95	--	--	<b>0.39</b>	--	--
	7/27/95	--	--	<0.01	--	--
	11/20/95	<0.005	<0.01	<0.01	<b>0.02</b>	<0.01
	2/21/96	<0.005	<0.01	<0.01	<b>0.02</b>	<0.01
MW-7	4/19/95	<b>0.069</b>	<b>0.071</b>	<0.01	<b>0.08</b>	<b>0.04</b>
	7/27/95	<0.005	<0.01	<0.01	<b>0.08</b>	<b>0.11</b>
	11/20/95	<0.005	<0.01	<0.01	<b>0.14</b>	<b>0.02</b>
	2/21/96	<0.005	<0.01	<0.01	<b>0.24</b>	<b>0.06</b>
	5/13/96	<0.002	<0.005	--	<b>0.12</b>	<b>0.015</b>

**Notes:** Groundwater samples were filtered by the laboratory prior to analysis.  
Analyzed by EPA method 6010.  
<x.x = Metal not identified at or above the laboratory reporting limit of x.x.  
x.x = Concentrations detected above laboratory reporting limit.  
Laboratory report is provided in Attachment B for the most recent sampling event.  
Sampling locations are shown on Figure 2.  
-- = No analyses performed.  
MW-5A = Duplicate sample of MW-5.  
MW-6A = Duplicate sample of MW-6.

TABLE 3  
**PETROLEUM AND VOLATILE ORGANIC COMPOUND CONCENTRATIONS, GROUNDWATER**  
**Oakland Municipal Service Center**  
(mg/L)

Sample	Date	TPH as Gasoline <sup>1</sup>	TPH as Kerosene <sup>2</sup>	TPH as Diesel <sup>2</sup>	TPH as Motor Oil <sup>2</sup>	TRPH <sup>3</sup>	Benzene <sup>4</sup>	Toluene <sup>4</sup>	Ethylbenzene <sup>4</sup>	Xylenes <sup>4</sup>
MW-1	04/19/95	3.2	--	--	--	--	0.88	0.015	0.023	0.021
	07/27/95	0.98	--	--	--	--	0.13	0.0036	0.0014	0.0056
	11/20/95	0.40	--	--	--	--	0.099	0.0028	0.0011	0.0046
	02/21/96	1.7	--	--	--	--	0.34	0.0084	0.0053	0.016
	05/13/96 <sup>5</sup>	7.3	--	--	--	--	2.0	0.03	0.042	0.038
MW-2	04/19/95	<0.05	--	--	--	--	0.0018	<0.0005	<0.0005	<0.0005
	07/27/95	<0.05	--	--	--	--	0.0023	<0.0005	<0.0005	<0.0005
	11/20/95	<0.05	--	--	--	--	0.0022	<0.0005	<0.0005	<0.0005
	02/21/96	<0.05	--	--	--	--	0.0017	<0.0005	<0.0005	<0.0005
	05/13/96	--	--	--	--	--	0.002	<0.0005	<0.0005	<0.0005
MW-5	04/19/95	14	--	0.88 <sup>6</sup>	--	4.7	0.49	0.051	0.61	1.2
	07/27/95	22	--	0.59 <sup>7</sup>	--	5.0	1.3 <sup>8</sup>	0.054 <sup>8</sup>	1.5 <sup>8</sup>	2.4 <sup>8</sup>
	11/20/95	8.9	1.9 <sup>9</sup>	<0.05	<0.5	--	0.43	0.031	0.61	0.88
	02/21/96	10	<0.05	0.48 <sup>10</sup>	<0.5	--	0.54	0.065	0.7	0.97
	05/13/96 <sup>5,11</sup>	5.9	<0.05	<0.05	<0.5	--	0.43	0.026	0.58	0.76
MW-5A	05/13/96 <sup>5,11</sup>	7.3	<0.05	<0.05	<0.5	--	0.36	0.022	0.49	0.64
MW-6	04/19/95	5.7	--	6.7 <sup>6</sup>	--	--	0.04	<0.0008	0.0039	0.029
	07/27/95	6.1	--	3.9	--	--	0.43	0.015	0.2	0.6
	11/20/95	6.8	--	0.85 <sup>12</sup>	--	--	0.16	0.0046	0.008	0.24
	02/21/96	2.8	--	1.7 <sup>10</sup>	--	--	0.23	0.0028	0.0038	0.044
	05/13/96 <sup>5,11</sup>	3.1	<0.05	0.4 <sup>13</sup>	<0.5	--	0.43	0.012	0.0052	0.067
MW-6A	04/19/95	3.0	--	3.7 <sup>6</sup>	--	--	0.31	0.0031	0.0027	0.1
	07/27/95	6.3	--	2.6	--	--	0.42	0.015	0.2	0.6
	11/20/95	3.6	--	0.83 <sup>12</sup>	--	--	0.13	0.011	0.0044	0.2
	02/21/96	2.2	--	2.5 <sup>10</sup>	--	--	0.28	0.003	0.004	0.046
MW-7	04/19/95	<0.05	--	<0.05	--	<1.0	<0.002	<0.002	<0.002	<0.002
	07/27/95	<0.05	--	<0.05	--	<1.0	<0.002 <sup>14</sup>	<0.002 <sup>14</sup>	<0.002 <sup>14</sup>	<0.002 <sup>11</sup>
	11/20/95	<0.05	--	<0.05	--	--	<0.0005	<0.0005	<0.0005	0.0015
	02/21/96	<0.05	--	<0.05	--	--	<0.0005	<0.0005	<0.0005	<0.0005
	05/13/96	--	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005
MW-500	04/19/95	<0.05	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005
	07/27/95	<0.05	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005
	11/20/95	<0.05	--	--	--	--	<0.0005	<0.0005	0.0005	<0.0005
	02/21/96	<0.05	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005
	05/13/96 <sup>5</sup>	<0.05	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005

Notes: TPH = Total Petroleum Hydrocarbons.  
TRPH = Total Recoverable Petroleum Hydrocarbons.  
-- = Compound not analyzed.  
<x.x = Compound not identified at or above the laboratory reporting limit of x.x  
x.x = Concentrations detected at or above laboratory reporting limit.  
Laboratory report is provided in Attachment B for the most recent sampling event.  
Sampling locations are shown on Figure 2.  
MW-5A = Duplicate sample of MW-5.  
MW-6A = Duplicate sample of MW-6.  
MW-500 = Trip blank sample.

Table 3, *continued*

- <sup>1</sup> Analyzed by EPA Method 5030/8015M.
- <sup>2</sup> Analyzed by EPA Method 3510/8015M.
- <sup>3</sup> Analyzed by EPA Method 418.1.
- <sup>4</sup> Analyzed by EPA Method 8020.
- <sup>5</sup> Head space was found in the VOA samples. Head space may be due to a chemical reaction between the HCl preservative and dissolved solids in water samples. However, the samples were analyzed within three days of sample collection.
- <sup>6</sup> Laboratory report indicated sample chromatogram did not resemble chromatogram of any of the petroleum standards. Quantification listed in the table was based on the laboratory's diesel standard.
- <sup>7</sup> Quantification listed in the table represents unknown hydrocarbon identified in the diesel range.
- <sup>8</sup> This sample was also analyzed for volatile organic compounds using EPA Method 8240. Only BTEX was identified above the reporting limits.
- <sup>9</sup> Quantification listed in the table represents unknown hydrocarbon identified in the kerosene range.
- <sup>10</sup> Unknown hydrocarbons in the diesel range did not match any of the laboratory petroleum hydrocarbon standard profiles. Quantification in the table represents unknown hydrocarbons compared with the laboratory diesel standard. The unknown hydrocarbons may represent a combination of gasoline and weathered diesel or biogenic material.
- <sup>11</sup> Samples were subjected to a silica gel cleanup prior to kerosene, diesel, and motor oil analyses by EPA Method 8015M.
- <sup>12</sup> Unknown hydrocarbon in the kerosene range was identified by the laboratory. According to the laboratory, the quantified diesel value includes the unknown hydrocarbon identified in the kerosene range.
- <sup>13</sup> Laboratory reported indicated sample chromatogram did not resemble chromatogram of diesel standard. Quantification listed in table was based on laboratory's diesel standard.
- <sup>14</sup> This sample was analyzed for volatile organic compounds using EPA Method 8240. No compounds were identified above the laboratory reporting limits.



TABLE 4  
GROUNDWATER ELEVATIONS  
Oakland Municipal Service Center

Location	Date	Time	Tide	Depth to Water (feet bgs)	Top of Casing Elevation (feet above COD)	Water Surface Elevation (feet above COD)
MW-1	12/21/95	10:25	High	6.29	6.83	0.54
	12/21/95	17:21	Low	6.30		0.53
	2/21/96	8:45	IRT	4.62		2.21
	5/13/96	8:15	IRT	4.33		2.50
MW-2	12/21/95	10:50	High	7.51	7.27	-0.24
	12/21/95	17:20	Low	7.48		-0.21
	2/21/96	8:10	IRT	6.68		0.59
	5/13/96	7:57	IRT	6.32		0.95
MW-3	12/21/95	10:40	High	4.48	3.94	-0.54
	12/21/95	17:38	Low	4.62		-0.68
	2/21/96 <sup>1</sup>	--	--	--		--
	5/13/96	8:05	IRT	2.98		0.96
MW-4	12/21/95	10:32	High	4.26	4.64	0.38
	12/21/95	17:32	Low	4.21		0.43
	2/21/96	8:08	IRT	0.31 <sup>2</sup>		4.33
	5/13/96	8:07	IRT	3.87		0.77
MW-5	12/21/95	10:35	High	6.53	8.15	1.62
	12/21/95	17:26	Low	6.53		1.62
	2/21/96	8:31	IRT	5.97		2.18
	5/13/96	8:24	IRT	6.25		1.90
MW-6	12/21/95	10:40	High	7.88	7.93	0.05
	12/21/95	17:36	Low	7.84		0.09
	2/21/96	13:30	IRT	7.40 <sup>3</sup>		0.53
	5/13/96	8:27	IRT	7.10		0.83
MW-7	12/21/95	10:50	High	6.94	8.48	1.54
	12/21/95	17:33	Low	6.90		1.58
	2/21/96	8:29	IRT	6.29		2.19
	5/13/96	8:20	IRT	6.95		1.53

**Notes:** bgs = below ground surface  
 COD = City of Oakland Datum.  
 IRT = Intermediate Rising Tide.  
 Water levels were surveyed on 21 December 1995.  
 Monitoring wells were surveyed by Bates & Bailey.

<sup>1</sup> Unable to collect water level reading because well box cover and vicinity were inundated with approximately four inches of surface water.

<sup>2</sup> Monitoring well cap was loose.

<sup>3</sup> Water level reflects second water level reading. The water level was steadily rising during the collection of the initial water level reading at 8:50 a.m. A water level depth of 7.62 feet bgs was measured at 8:50.

**ATTACHMENT A**

**GROUNDWATER SAMPLING FORMS**

# GROUNDWATER SAMPLING

Project no.: 93333-80 Well no.: MW-1 Date: 5-13-96  
 Project name: WWC-Oakland MSC Depth of well from TOC (feet): 15.8  
 Location: 7101 Edgewater Well diameter (inch): 2  
Oakland, CA Screened interval from TOC (feet): 6-15.8  
 Recorded by: LES TOC elevation (feet): 6.83 (city of Oakland Datum)  
 Weather: Sunny Water level from TOC (feet): 4.303 Time: 8:15  
 Precip in past Product level from TOC (feet): none Time: 8:15  
 5 days (inch): 0 Water level measurement device: dual interface probe

## VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(15.8 \text{ ft}) - (4.33 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 =$$
 Well depth    Water level    Well radius

1.9 gallons in one well volume  
9.3 gallons in 5 well volumes  
8.0 total gallons removed

## CALIBRATION:

	Time	Temp (°C)	pH	EC (µmho/cm)
Calibration Standard:	—	—	7.00	1,000
Before Purging:	7:51	22.3	7.00	900
After Purging:	11:10	24.0	7.02	900

## FIELD MEASUREMENTS:

Time	Temp (°C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
8:58	20.8	6.49	11,000	1	clear slight turbidity in color
9:04	20.5	6.84	8,000	2.5	" "
9:10	20.4	6.68	7,500	4.5	" "
9:23	21.7	6.77	12,000	8.0	" "

Well ~~not~~ Ran Dry

Before/After

Water level after purging prior to sampling (feet): 4.80/5.12 Time: 12:58  
 Appearance of sample: clear Time: 13:00  
 Duplicate/blank number: none Time: --  
 Purge method: Double Diaphragm pump  
 Sampling equipment: Disposable PVC bailer VOC attachment: used for Vol Sample  
 Sample containers: 2 - 40ml VOA's  
 Sample analyses: BETX, Gasoline Laboratory: chromlab  
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: Drum on site

(3/31/93)

# GROUNDWATER SAMPLING

Project no.: 93333-80 Well no.: MW-2 Date: 5-13-96  
 Project name: WWC Oakland MSC Depth of well from TOC (feet): 17.7  
 Location: 7101 Edgewater Well diameter (inch): 2  
Oakland, CA Screened interval from TOC (feet): 6-15.7  
 Recorded by: WES TOC elevation (feet): 7.27 city of Oakland Decl.  
 Weather: Sunny Water level from TOC (feet): 6.32 Time: 7:57  
 Precip in past Product level from TOC (feet): none Time: 7:57  
 5 days (inch): 0 Water level measurement device: Dual interface Probe

## VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(15.7 \text{ ft}) - (6.00 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 =$$
 Well depth    Water level    Well radius

1.5 gallons in one well volume  
7.5 gallons in 5 well volumes  
7.5 total gallons removed

## CALIBRATION:

	Time	Temp (°C)	pH	EC (µmho/cm)
Calibration Standard:	—	—	7.00	1,000
Before Purging:	7:31	22.3	7.00	700
After Purging:	17:10	24.0	7.02	700

## FIELD MEASUREMENTS:

Time	Temp (°C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
8:07	20.1	6.02	16,000	1.5	Slightly Turbid
8:14	18.5	6.22	16,000	3.0	Very Slightly Turbid
8:18	19.1	6.29	16,500	4.5	"
8:28	19.5	6.45	18,000	7.5	"
8:31	19.5	6.45	18,000	8.0	"

~~Before purging~~  
 Water level after purging prior to sampling (feet): 6.38/6.59 Time: 13:20  
 Appearance of sample: Very slightly turbid Time: 13:25  
 Duplicate/blank number: none Time: --  
 Purge method: Double displacement pump  
 Sampling equipment: Disposable PVC bailer VOC attachment: used for VOC  
 Sample containers: 2-40 ml VOA's, one 2-oz one liter amber glass  
 Sample analyses: Stox, lead Laboratory: chroma labs  
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: Drain on site

(3/31/93)

# GROUNDWATER SAMPLING

Project no.: 93333-80 Well no.: MW-5 Date: 5-13-96  
 Project name: WWC-Oakland MSC Depth of well from TOC (feet): 14.30  
 Location: 7101 Edgewater Well diameter (inch): 2  
Oakland, CA Screened interval from TOC (feet): 4-14.30  
 Recorded by: WES TOC elevation (feet): 8.15 (City of Oakland Data)  
 Weather: Sunny Water level from TOC (feet): 6.25 Time: 8:24  
 Precip in past Product level from TOC (feet): None Time: 8:24  
 5 days (inch): 0 Water level measurement device: Dual interface probe

## VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(\overset{14.30}{\cancel{00.0}} \text{ ft}) - (\overset{6.25}{\cancel{0.00}} \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 =$$

<u>1.3</u>	gallons in one well volume
<u>6.5</u>	gallons in 5 well volumes
<u>7.5</u>	total gallons removed

## CALIBRATION:

	Time	Temp (°C)	pH	EC (µmho/cm)
Calibration Standard:	—	—	7.00	1,000
Before Purging:	7:31	22.3	7.00	900
After Purging:	11:10	24.0	7.02	900

## FIELD MEASUREMENTS:

Time	Temp (°C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
9:46	19.9	6.60	7,000	1.5	Very slightly Turbid
9:51	19.2	6.54	7,000	3.0	"
9:56	19.3	6.45	7,000	4.5	"
10:03	19.2	6.54	7,000	7.5	clean

Water level after purging <sup>before/after</sup> prior to sampling (feet): 6.26/6.28 Time: 12:10  
 Appearance of sample: clean Time: 12:15  
 Duplicate/blank number: MW-5A Time: 12:20  
 Purge method: Double diaphragm pump  
 Sampling equipment: Disposable PVC bailer VOC attachment: Used for VOC  
 Sample containers: 2-40 mL VOA's, 3-one liter amber glass  
 Sample analyses: Diesel, Kerosene, Motor oil, PCB's, etc. Laboratory: Chromalabs  
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: Drum on site

Gas/BTEX, Zn

(3/31/93)

# GROUNDWATER SAMPLING

Project no.: 933 33-Bo Well no.: MW-6 Date: 5-13-96  
 Project name: WWC-Oakland MSC Depth of well from TOC (feet): 14.27  
 Location: 7101 Edgewater Well diameter (inch): 2  
Oakland CA Screened interval from TOC (feet): 4-14.27  
 Recorded by: WES TOC elevation (feet): 7.93 (City of Oakland datum)  
 Weather: Sunny Water level from TOC (feet): 7.10 Time: 8:20  
 Precip in past Product level from TOC (feet): none Time: 8:20  
 5 days (inch): 0 Water level measurement device: hand interface probe

## VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(14.27 \text{ ft}) - (7.10 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 =$$
 Well depth    Water level    Well radius

1.2 gallons in one well volume  
6.1 gallons in 5 well volumes  
6.5 total gallons removed

## CALIBRATION:

	Time	Temp (°C)	pH	EC (µmho/cm)
Calibration Standard:	—	—	7.00	1,000
Before Purging:	7:31	22.3	7.00	900
After Purging:	11:10	24.0	7.02	900

## FIELD MEASUREMENTS:

Time	Temp (°C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:46	19.8	7.36	4,000	1.5	Clear Petroleum odor
10:50	19.6	7.22	3,600	2.5	" "
10:52	19.4	7.22	3,600	5.0	" "
11:02	19.4	7.21	3,600	6.5	" "

Water level <sup>before/after</sup> after purging prior to sampling (feet): 7.31/7.48 Time: 11:15  
 Appearance of sample: clear Time: 11:20  
 Duplicate/blank number: none Time: —  
 Purge method: double diaphragm pump  
 Sampling equipment: Disposable PVC bailer VOC attachment: used for VOC sample  
 Sample containers: 2-40 ml VOA, 2- one liter Amber glass  
 Sample analyses: Diesel, Gasoline, BTEX, Pb, Zn, Cd, Cr, Ni Laboratory: Chromalabs  
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: Drum on site

\* Kerosene & motor oil were analyzed by lab although we didn't request it. (3/31/93)

# GROUNDWATER SAMPLING

Project no.: 93333-80 Well no.: MW-7 Date: 5-13-95  
 Project name: WWC-Oakland MSC Depth of well from TOC (feet): 14.3  
 Location: 7101 Edgewater Well diameter (inch): 2  
Oakland CA Screened interval from TOC (feet): 4-14.3  
 Recorded by: WES TOC elevation (feet): 8.48 City of Oakland Acton  
 Weather: Sunny Water level from TOC (feet): 6.95 Time: 8:20  
 Precip in past Product level from TOC (feet): none Time: 8:20  
 5 days (inch): 0 Water level measurement device: dupl. rate face pipe

**VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:**

$$[(<sup>14.3</sup>00.0 \text{ ft}) - (<sup>6.95</sup>6.00 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 =$$
 Well depth    Water level    Well radius

1.2 gallons in one well volume  
6.0 gallons in 5 well volumes  
6.5 total gallons removed

**CALIBRATION:**

	Time	Temp (°C)	pH	EC (umho/cm)
Calibration Standard:	—	—	7.00	1,000
Before Purging:	7:31	22.3	7.00	900
After Purging:	11:10	24.0	7.02	900

**FIELD MEASUREMENTS:**

Time	Temp (°C)	pH	EC (umho/cm)	Cumulative Gallons Removed	Appearance
10:18	21.0	6.27	6,000	2.0	clear
10:22	20.7	6.14	7,500	3.0	clear
10:28	20.8	6.13	7,500	5.0	clear
10:31	20.3	6.08	7,500	6.5	clear

Betw / Acton 7.12/7.52

Water level after purging prior to sampling (feet): \_\_\_\_\_ Time: 11:50  
 Appearance of sample: clear Time: 11:55  
 Duplicate/blank number: none Time: --  
 Purge method: Double diaphragm Pump  
 Sampling equipment: Disposable PVC bailer VOC attachment: Used for VOC Sample  
 Sample containers: 2-40ml VOA's, 2-one-liter Amber glass  
 Sample analyses: BTEX, Pb, Zn, Cd, Cu, Ni Laboratory: chroma labs  
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: Drum on site

(3/31/93)

**ATTACHMENT B**

**21 MARCH 1996 BASELINE MEMORANDUM**



**MEMORANDUM**

**Date:** 21 March 1996 **Job No.:** 93333-B0  
**To:** George Muchleck, Woodward-Clyde  
**From:** Rhodora Del Rosario *Ryd*  
**Subject:** Recommendations for Groundwater Monitoring Network, City of Oakland - Municipal Services Center, 7101 Edgewater Drive, Oakland

At your request, we have prepared this memorandum to document our recommendations for upcoming groundwater monitoring activities at the Municipal Services Center Site (site). The following modifications to the analytical scheme are recommended based on the analytical results of the past four sampling events (April 1995 to February 1996) performed at the site:

- Conduct a silica gel cleanup for water samples being analyzed for total extractable hydrocarbons (kerosene, diesel, motor oil);
- Discontinue the gasoline analysis from monitoring wells MW-2 and MW-7;
- Discontinue the diesel analysis from monitoring well MW-7;
- Discontinue the lead analysis from monitoring wells MW-1, MW-5, and MW-7; and
- Discontinue the cadmium, chromium, and nickel analyses from monitoring well MW-5.

During the last four sampling events, the laboratory has identified the presence of unknown hydrocarbons in either the diesel or kerosene ranges. The laboratory indicated that these unknown hydrocarbons did not match any of the laboratory petroleum hydrocarbon standard profiles. These unknown hydrocarbons could represent a combination of gasoline and weathered diesel or biogenic material. BASELINE recommends that the water samples be subjected to a silica gel cleanup (EPA method 3630M) to determine whether biogenic materials are interfering with the petroleum analyses.

The water samples collected from monitoring wells MW-2 and MW-7 have not contained gasoline above the laboratory reporting limit (0.05 mg/L) during the past four sampling events. Based on these results, we recommend to discontinue the gasoline analysis for subsequent water samples from MW-2 and MW-7.

The water samples collected from MW-7 also have not contained diesel above the laboratory reporting limit (0.05 mg/L) during the past four sampling events. Based on these results, we recommend to discontinue the diesel analysis for subsequent water samples from MW-7.

## BASELINE

Similarly, water samples collected from monitoring wells MW-1, MW-5, and MW-7 have not contained reportable total lead concentrations during the past four sampling events. In addition, water samples from MW-7 have not had cadmium, chromium, and nickel above the laboratory reporting limits. Based on these results, we recommend to discontinue the lead analysis for subsequent water samples from MW-1, MW-5, and MW-7 and analysis of cadmium, chromium, and nickel from MW-7.

Should you have any questions regarding this memorandum, or need further information, please do not hesitate to contact us at your convenience.

**ATTACHMENT C**  
**LABORATORY REPORTS**

# CHROMALAB, INC.

Environmental Services (SDB)

May 16, 1996

Submission #: 9605624

BASELINE ENVIRONMENTAL/EMRYVL

RECEIVED

MAY 28 1996

Atten: Rhodora Del Rosario

Project#: 9333 **BASELINE**

Project: MSC, 7101 EDGE WATER DR.  
Received: May 13, 1996

re: One sample for Soluble Miscellaneous Metals analysis.  
Method: EPA 3005/6010

Client Sample ID: MW-2

Spl#: 84940

Matrix: WATER


Extracted: May 15, 1996

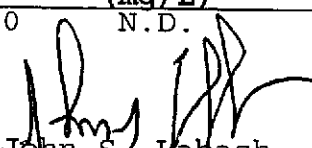
Sampled: May 13, 1996

Run#: 1375

Analyzed: May 16, 1996

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	N.D.	0.0050	N.D.	106	1

  
Charles Woolley  
Chemist

  
John S. Iabash  
Inorganic Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 16, 1996

Submission #: 9605624

BASELINE ENVIRONMENTAL/EMRYVL

Atten: Rhodora Del Rosario

Project: MSC, 7101 EDGE WATER DR.

Project#: 93333-BO

Received: May 13, 1996

re: One sample for Soluble Miscellaneous Metals analysis.

Method: EPA 3005/6010

Client Sample ID: MW-5

Spl#: 84941

Matrix: WATER

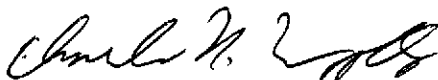
Extracted: May 15, 1996


Sampled: May 13, 1996

Run#: 1375

Analyzed: May 16, 1996

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE SPIKE (%)	DILUTION FACTOR
ZINC	N.D.	0.010	N.D.	106	1

  
Charles Woolley  
Chemist

  
John S. Labash  
Inorganic Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 16, 1996

Submission #: 9605624

BASELINE ENVIRONMENTAL/EMRYVL

Atten: Rhodora Del Rosario

Project: MSC, 7101 EDGE WATER DR.

Project#: 93333-BO

Received: May 13, 1996

re: One sample for Soluble Miscellaneous Metals analysis.

Method: EPA 3005/6010

Client Sample ID: MW-5A

Spl#: 84942

Matrix: WATER

Extracted: May 15, 1996

Sampled: May 13, 1996

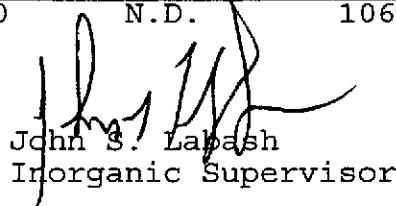
Run#: 1375

Analyzed: May 16, 1996

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
ZINC	N.D.	0.010	N.D.	106	1



Charles Woolley  
Chemist



John S. Labash  
Inorganic Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 16, 1996

Submission #: 9605624

BASELINE ENVIRONMENTAL/EMRYVL

Atten: Rhodora Del Rosario

Project: MSC, 7101 EDGE WATER DR.

Project#: 93333-BO

Received: May 13, 1996

re: One sample for Soluble Miscellaneous Metals analysis.  
Method: EPA 3005/6010

Client Sample ID: MW-6

Spl#: 84943

Matrix: WATER

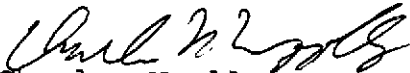
Extracted: May 15, 1996

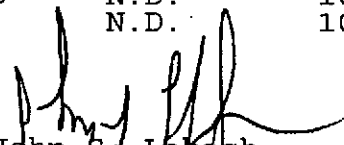
Sampled: May 13, 1996

Run#: 1375

Analyzed: May 16, 1996

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
CADMIUM	N.D.	0.0020	N.D.	107	1
CHROMIUM	N.D.	0.0050	N.D.	106	1
LEAD	N.D.	0.0050	N.D.	106	1
NICKEL	0.016	0.0050	N.D.	107	1
ZINC	N.D.	0.010	N.D.	106	1

  
Charles Woolley  
Chemist

  
John S. Labash  
Inorganic Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 16, 1996

Submission #: 9605624

BASELINE ENVIRONMENTAL/EMRYVL

Atten: Rhodora Del Rosario

Project: MSC, 7101 EDGE WATER DR.

Project#: 93333-BO

Received: May 13, 1996

re: One sample for Soluble Miscellaneous Metals analysis.  
Method: EPA 3005/6010

Client Sample ID: MW-7

Spl#: 84944

Matrix: WATER

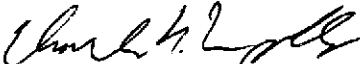
Extracted: May 15, 1996

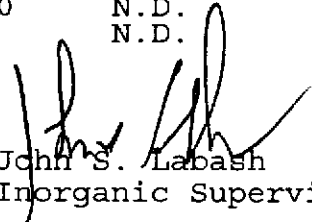
Sampled: May 13, 1996

Run#: 1375

Analyzed: May 16, 1996

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE SPIKE (%)	DILUTION FACTOR
CADMIUM	N.D.	0.0020	N.D.	107	1
CHROMIUM	N.D.	0.0050	N.D.	106	1
NICKEL	0.12	0.0050	N.D.	107	1
ZINC	0.015	0.010	N.D.	106	1

  
Charles Woolley  
Chemist

  
John S. Labash  
Inorganic Supervisor



# CHROMALAB, INC.

Environmental Services (SDB)

JUNE 13, 1996

Submission #: 9605624

REVISED FROM MAY 20, 1996

BASELINE ENVIRONMENTAL / EMERYVILLE

Atten: Rhodora Del Rosario

Project: MSC, 7101 EDGE WATER DR. Project#: 93333-B0

Received: May 13, 1996

re: Three samples for TEPH Analysis with Silica Gel Clean-up

Matrix: WATER

Sampled: May 13, 1996

Extracted: May 14, 1996

Method: 3550/8015 M

Analyzed: SEE BELOW

Smpl#	Client Sample I.D.	Kerosene ( $\mu\text{g/L}$ )	Diesel ( $\mu\text{g/L}$ )	Motor Oil ( $\mu\text{g/L}$ )	Date Analyzed
84941	MW-5	N.D.	N.D.	N.D.	05/15/96
84942	MW-5A	N.D.	N.D.	N.D.	05/20/96
84943	MW-6	N.D.	440	N.D.	05/15/96

Note: For above sample, hydrocarbon reported as Diesel does not match the pattern of ChromaLab's Diesel standard.

Blank	N.D.	N.D.	N.D.
Blank Spike Recovery	---	79%	---
Reporting Limit	50	50	500



Bruce Havlik  
Chemist



Alex Tam  
Semivolatiles Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 20, 1996

Submission # : 9605624

BASELINE ENVIRONMENTAL CONSULTING

Attn: William K. Scott

Project: MSC, 7101 Edge Water Drive

Received: May 13, 1996

re: One Sample for Gas/BTEX compounds analysis.

Method: EPA 3550 / 8015M

Client Sample I.D.: MW-1

Spl#: 84938


Matrix: Water

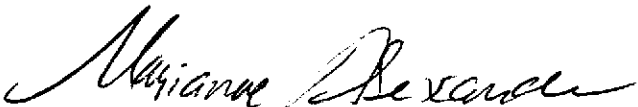
Analysis: May 17, 1996

Sampled: May 13, 1996

Run: 1402

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
GASOLINE	7300	250	N.D.	100
BENZENE	2000	10	N.D.	117
TOLUENE	30	2.5	N.D.	112
ETHYL BENZENE	42	2.5	N.D.	112
XYLENES	38	2.5	N.D.	113

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas / BTEX Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 20, 1996

Submission # : 9605624

BASELINE ENVIRONMENTAL CONSULTING


Attn: William K. Scott

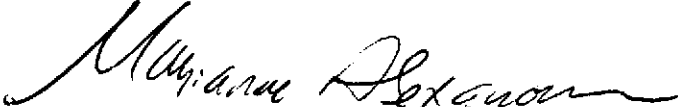
Project: MSC, 7101 Edge Water Drive  
Received: May 13, 1996  
re: One Sample for BTEX compounds analysis.  
Method: EPA 3550 / 8020

Client Sample I.D.: MW-2

Spl#: 84940 Matrix: Water Analysis: May 17, 1996  
Sampled: May 13, 1996 Run: 1402

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
BENZENE	2.0	0.5	N.D.	117
TOLUENE	ND	0.5	N.D.	112
ETHYL BENZENE	ND	0.5	N.D.	112
XYLENES	ND	0.5	N.D.	113

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas / BTEX Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 20, 1996

Submission # : 9605624

BASELINE ENVIRONMENTAL CONSULTING

Attn: William K. Scott

Project: MSC, 7101 Edge Water Drive

Received: May 13, 1996

re: One Sample for Gas/BTEX compounds analysis.

Method: EPA 3550 / 8020

Client Sample I.D.: MW-5

Spl#: 84941


Matrix: Water

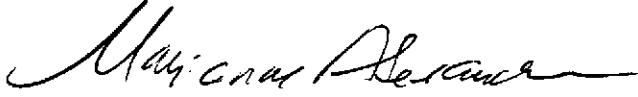
Analysis: May 16, 1996

Sampled: May 13, 1996

Run: 1402

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
GASOLINE	5900	500	N.D.	100
BENZENE	430	5.0	N.D.	117
TOLUENE	26	5.0	N.D.	112
ETHYL BENZENE	580	5.0	N.D.	112
XYLENES	760	5.0	N.D.	113

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas / BTEX Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 31, 1996

Submission # : 9605624  
Report Revised form: May 20, 1996

BASELINE ENVIRONMENTAL CONSULTING

Attn: William K. Scott

Project: MSC, 7101 Edge Water Drive

Received: May 13, 1996

re: One Sample for Gas/BTEX compounds analysis.

Method: EPA 3550 / 8020

Client Sample I.D.: MW-5A

Spl#: 84942


Matrix: Water


Analysis: May 16, 1996

Sampled: May 13, 1996

Run: 1402

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
GASOLINE	7300	500	N.D.	100
BENZENE	360	5.0	N.D.	117
TOLUENE	22	5.0	N.D.	112
ETHYL BENZENE	490	5.0	N.D.	112
XYLENES	640	5.0	N.D.	113

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas / BTEX Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 20, 1996

Submission # : 9605624

BASELINE ENVIRONMENTAL CONSULTING

Attn: William K. Scott

Project: MSC, 7101 Edge Water Drive

Received: May 13, 1996

re: One Sample for Gas/BTEX compounds analysis.

Method: EPA 3550 / 8020

Client Sample I.D.: MW-6

Spl#: 84943


Matrix: Water

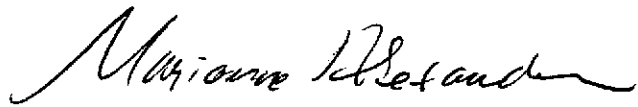
Analysis: May 16, 1996

Sampled: May 13, 1996

Run: 1402

<u>ANALYTE</u>	<u>RESULT</u> <u>(ug/L)</u>	<u>REPORTING</u> <u>LIMIT</u> <u>(ug/L)</u>	<u>BLANK</u> <u>RESULT</u> <u>(ug/L)</u>	<u>BLANK SPIKE</u> <u>RESULT</u> <u>(%)</u>
GASOLINE	3100	250	N.D.	100
BENZENE	430	2.5	N.D.	117
TOLUENE	12	2.5	N.D.	112
ETHYL BENZENE	5.2	2.5	N.D.	112
XYLENES	67	2.5	N.D.	113

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas / BTEX Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 20, 1996

Submission # : 9605624

BASELINE ENVIRONMENTAL CONSULTING

Attn: William K. Scott

Project: MSC, 7101 Edge Water Drive

Received: May 13, 1996

re: One Sample for BTEX compounds analysis.

Method: EPA 3550 / 8020

Client Sample I.D.: MW-7

Spl#: 84944

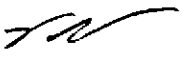
Matrix: Water


Analysis: May 16, 1996

Sampled: May 13, 1996

Run: 1402

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
BENZENE	ND	0.5	N.D.	117
TOLUENE	ND	0.5	N.D.	112
ETHYL BENZENE	ND	0.5	N.D.	112
XYLENES	ND	0.5	N.D.	113

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas / BTEX Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

May 20, 1996

Submission # : 9605624

BASELINE ENVIRONMENTAL CONSULTING

Attn: William K. Scott

Project: MSC, 7101 Edge Water Drive

Received: May 13, 1996

re: One Sample for Gas/BTEX compounds analysis.

Method: EPA 3550 / 8020

Client Sample I.D.: MW-500

Spl#: 84939


Matrix: Water


Analysis: May 16, 1996

Sampled: May 13, 1996

Run: 1402

<b>ANALYTE</b>	<b>RESULT (ug/L)</b>	<b>REPORTING LIMIT (ug/L)</b>	<b>BLANK RESULT (ug/L)</b>	<b>BLANK SPIKE RESULT (%)</b>
GASOLINE	ND	50	N.D.	100
BENZENE	ND	0.5	N.D.	117
TOLUENE	ND	0.5	N.D.	112
ETHYL BENZENE	ND	0.5	N.D.	112
XYLENES	ND	0.5	N.D.	113

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas / BTEX Supervisor

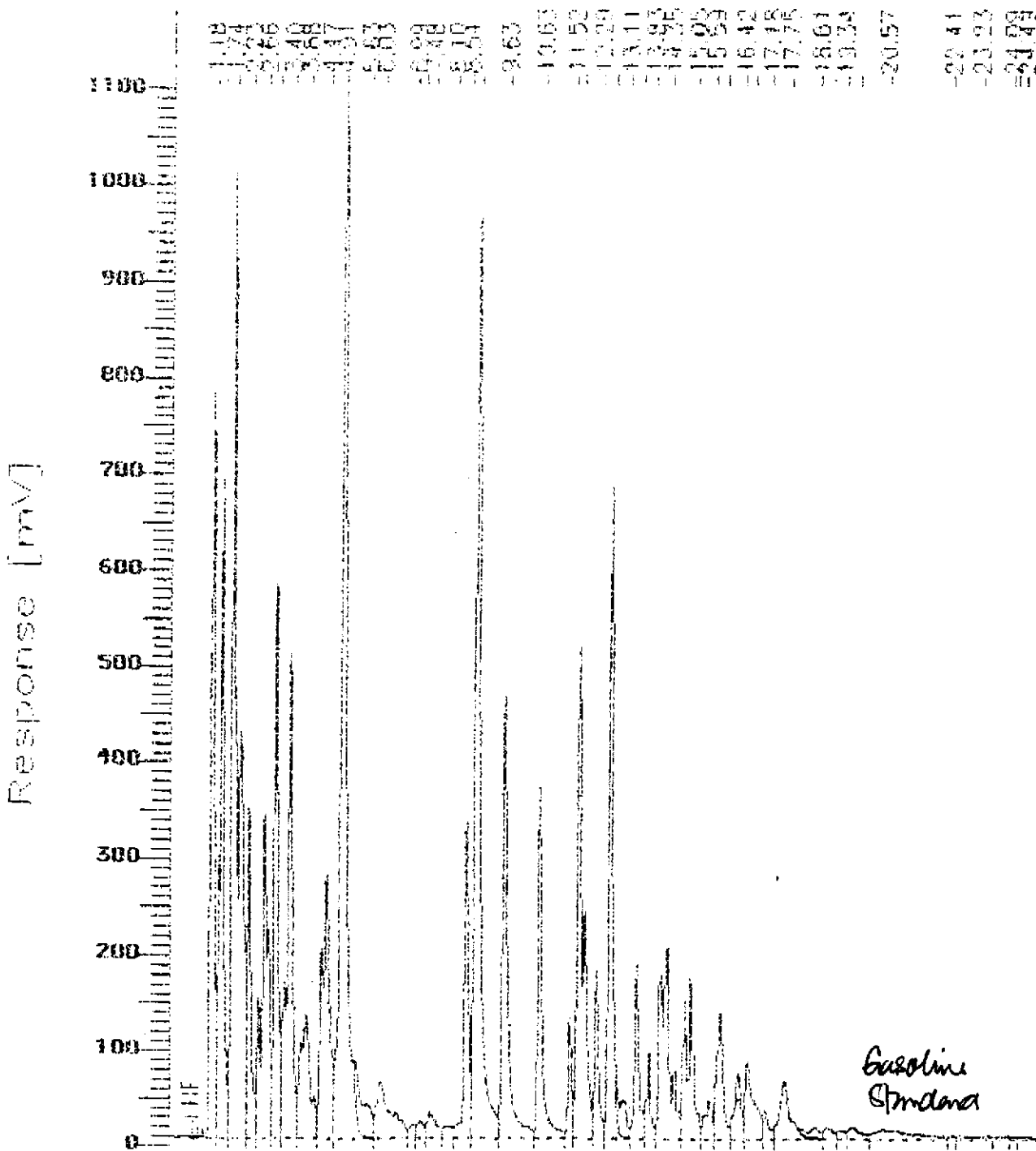


# Gasoline Chromatogram

Sample Name : GAS STD  
 Filename : n:\1651525.ruv  
 Method : RTE2000.aus  
 Start Time : 0.00 min  
 Scale Factor : 1

End time : 25.00 min  
 Plot Offset: -45 nV

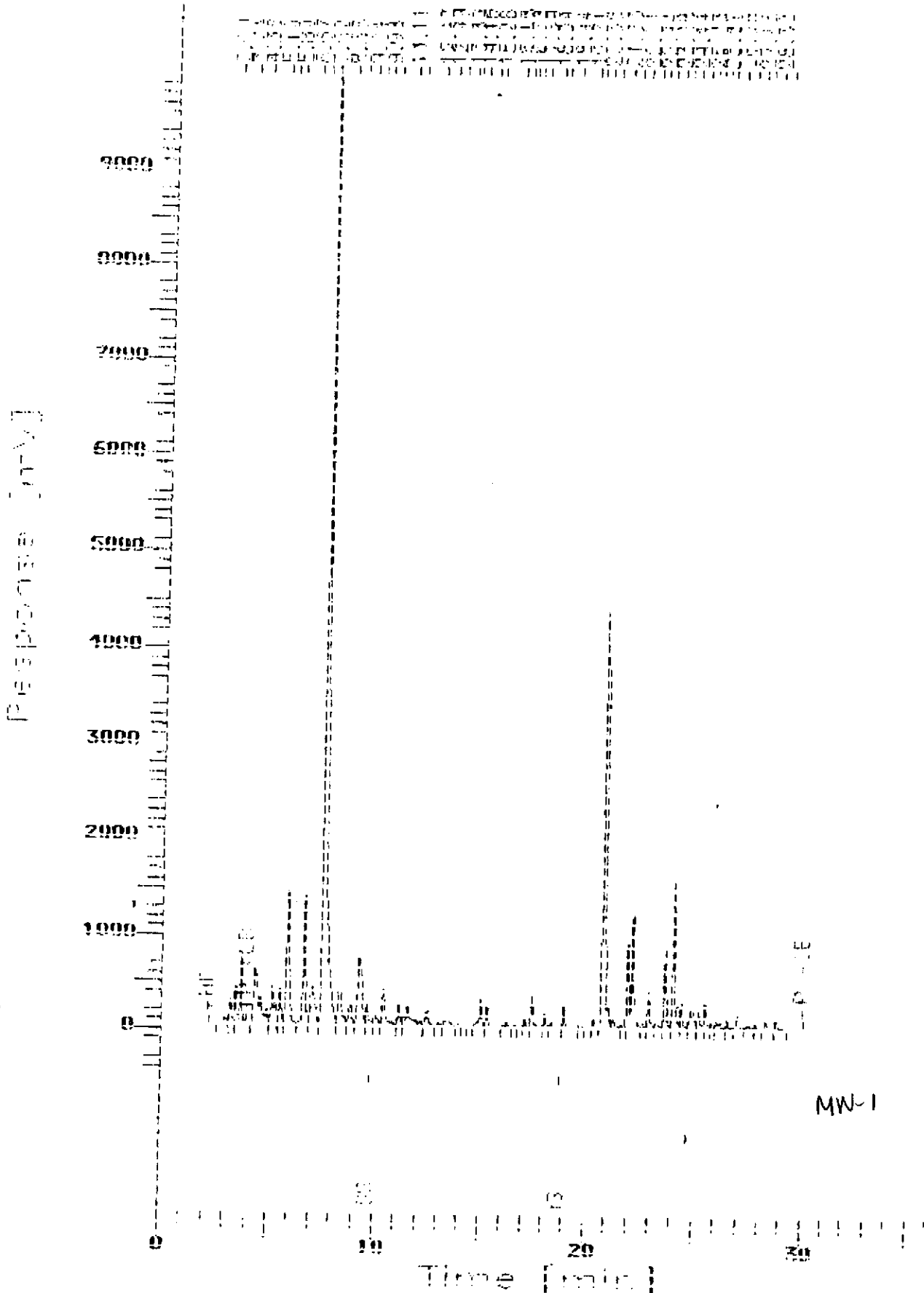
Sample #: 9  
 Date : 5/16/96 09:21  
 Page 1 of 1  
 Time of Injection: 5/16/96 03:55  
 Low Point : -45.34 nV  
 High Point : 1105.40 nV  
 Plot Scale: 1151 nV



# Gasoline Chromatogram

Sample Name : 960629400-1  
File Name : 0114151702.raw  
Method : 481E050.fnc  
Start Time : 0.00 min  
Scale Factor : 1

Sample #: 04930 Page 1 of 1  
Date : 5/17/06 16:40  
Time of Injection: 5/17/06 15:25  
Low Point : -447.37 nL High Point : 9910.00 nL  
Plot Scale: 10447 nL

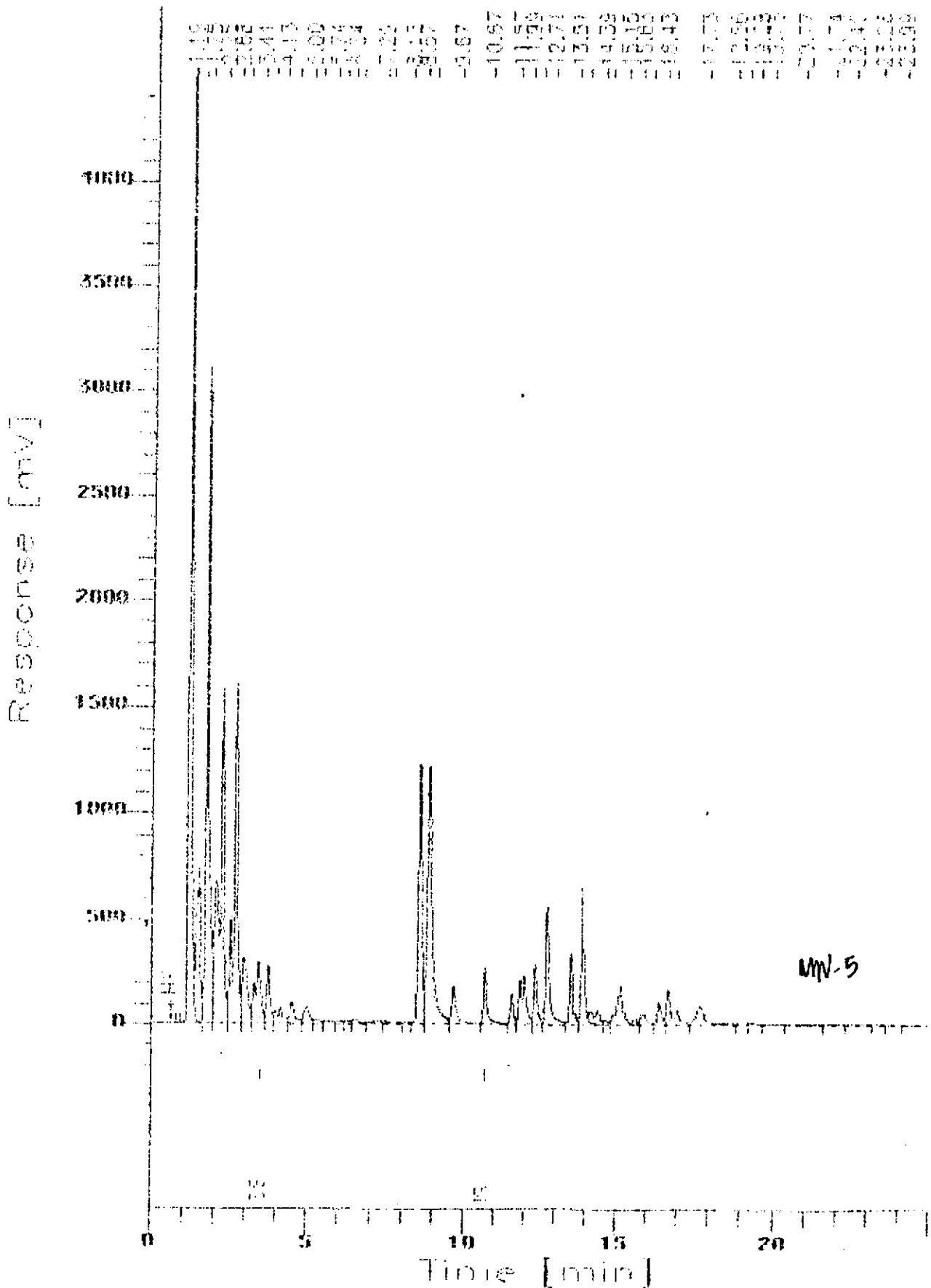


# Gasoline Chromatogram

Sample Name : 9505624/MN-5  
 File Name : n:\MS9615.ran  
 Method : 381EX9991.jvs  
 Start Time : 0.00 min  
 Scale Factor : 1

End Time : 25.00 min  
 Plot Offset: -215 nD

Sample #: 81911 Page 1 of 1  
 Date : 5/16/96 19:56  
 Time of Injection: 5/16/96 19:30  
 Low Point : -215.24 nD High Point : 4598.15 nD  
 Plot Scale: 4713 nD

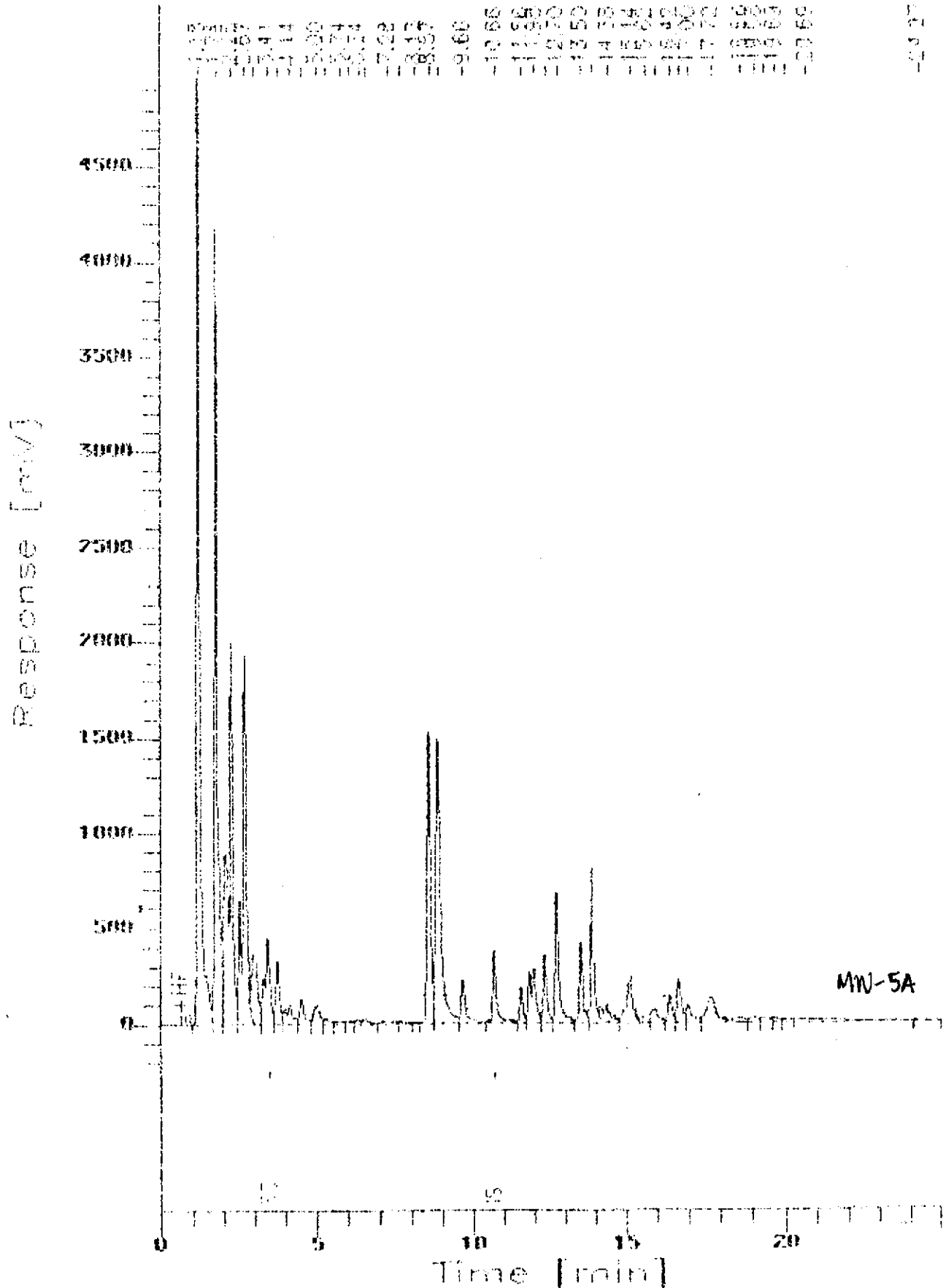


# Gasoline Chromatogram

Sample Name : 8105624/MW-5A  
 Filename : n:\MS51614.raw  
 Method : 18012001.D16  
 Start Time : 0.00 min  
 Scale Factor : 1

End Time : 25.00 min  
 Plot Offset : -239 nV

Sample #: 81112 Page 1 of 1  
 Date : 5/16/96 19:17  
 Time of Injection: 5/16/96 18:51  
 Low Point : -230.47 nV High Point : 4972.23 nV  
 Plot Scale: 5211 nV

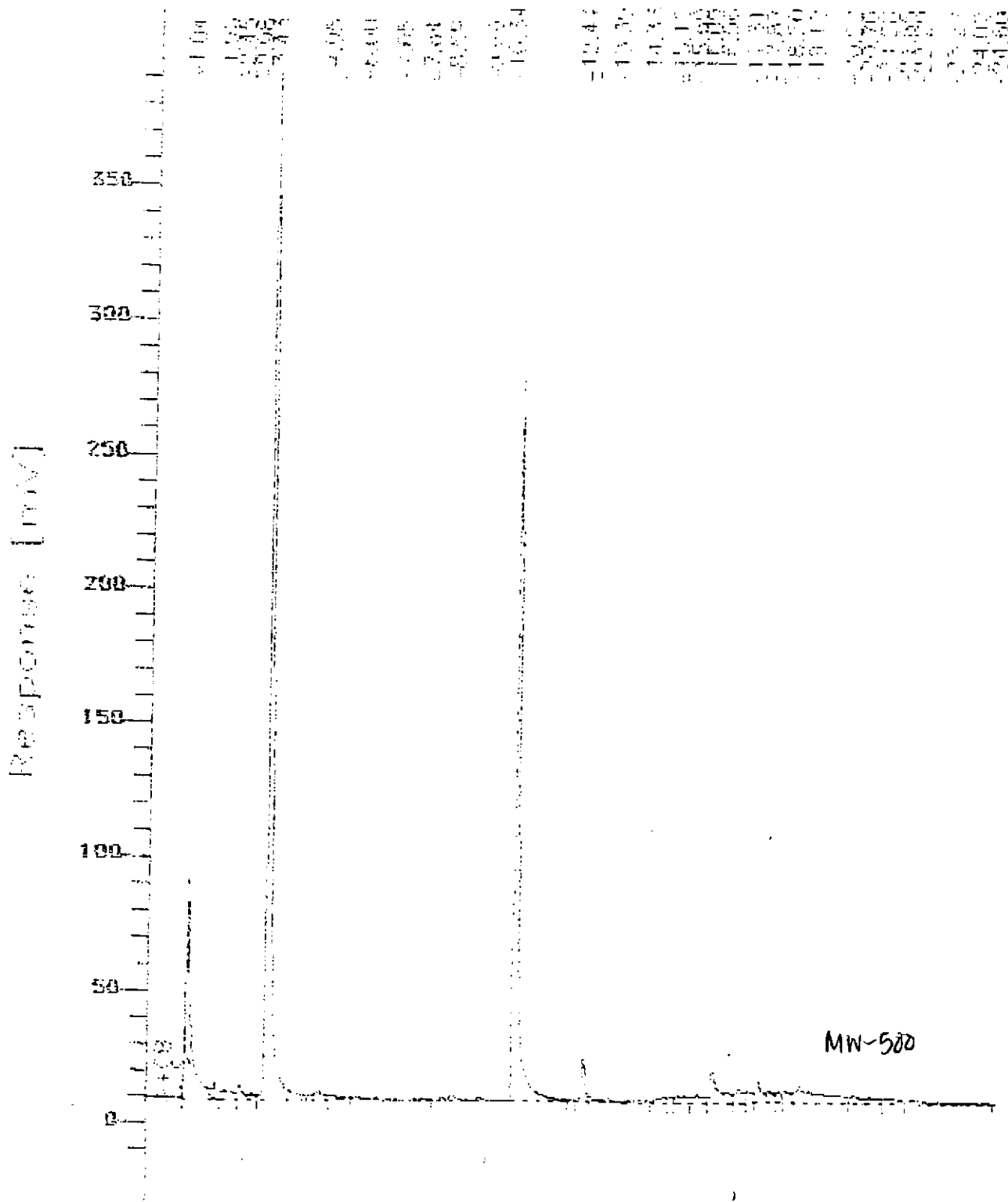


### Gasoline Chromatogram

Sample Name : 900509400-500  
 File Name : 01\151618.DRI  
 Method : SW/MS/1m  
 Start Time : 0.00 min  
 Scale Factor : 0

End Time : 25.00 min  
 Plot Offset : -15 ul

Sample #: 04939 Page 1 of 1  
 Date : 6/15/96 12:14  
 Time of Injection: 5/15/96 21:27  
 Low Point : -10.25 ul High Point : 590.23 ul  
 Plat Scale: 40% ul



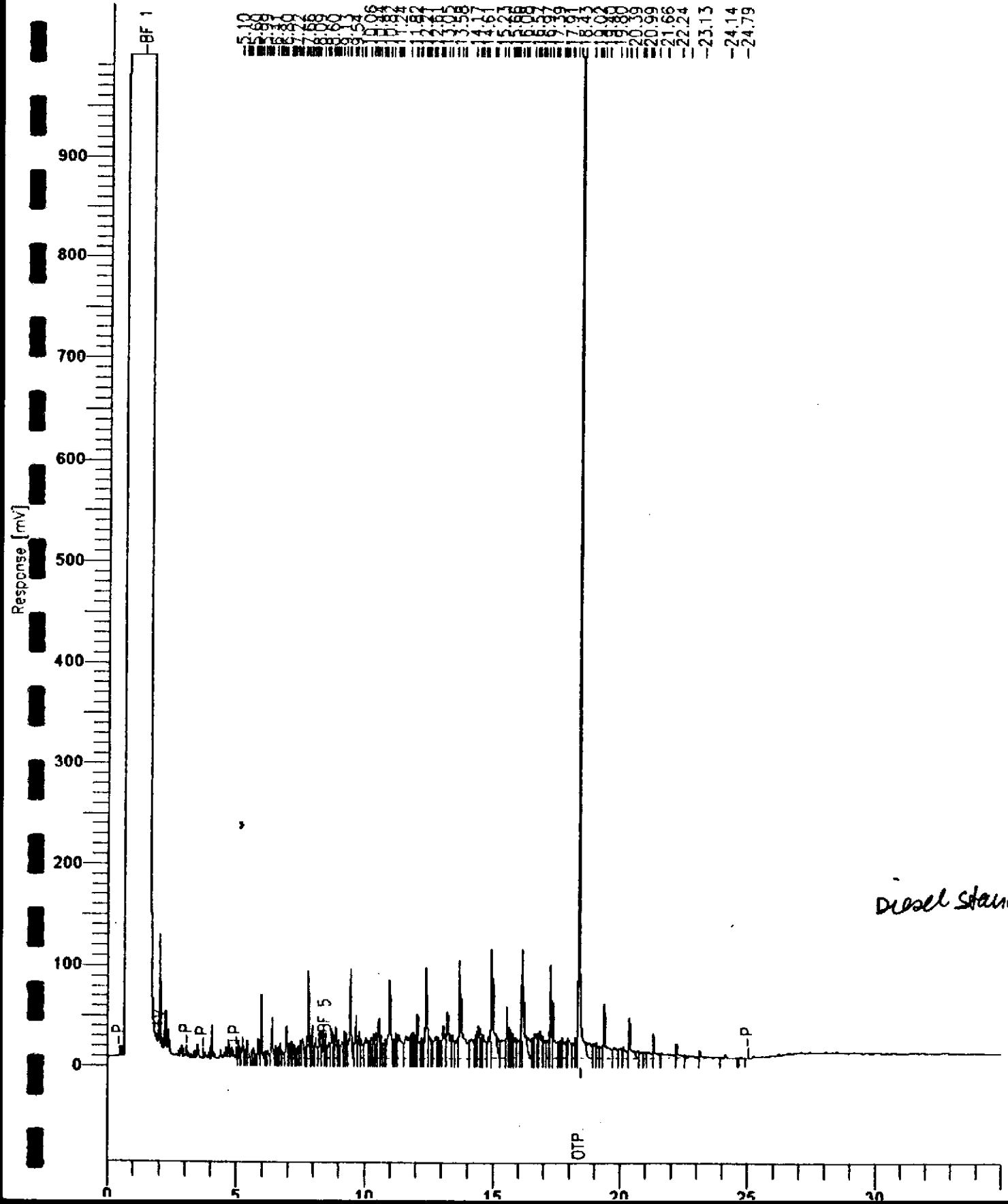
# diesel analysis

Sample Name : DIESEL 100PPM  
FileName : D:\6500DIESEL\T515011.raw  
Method : 65DIESEL  
Start Time : 0.00 min  
Scale Factor : 0.0

End Time : 35.00 min  
Plot Offset : 0 mV

Sample #: 6C1029  
Date : 5/15/96 21:50  
Time of Injection: 5/15/96 21:14  
Low Point : 0.00 mV  
High Point : 1000.00 mV  
Plot Scale: 1000.0 mV

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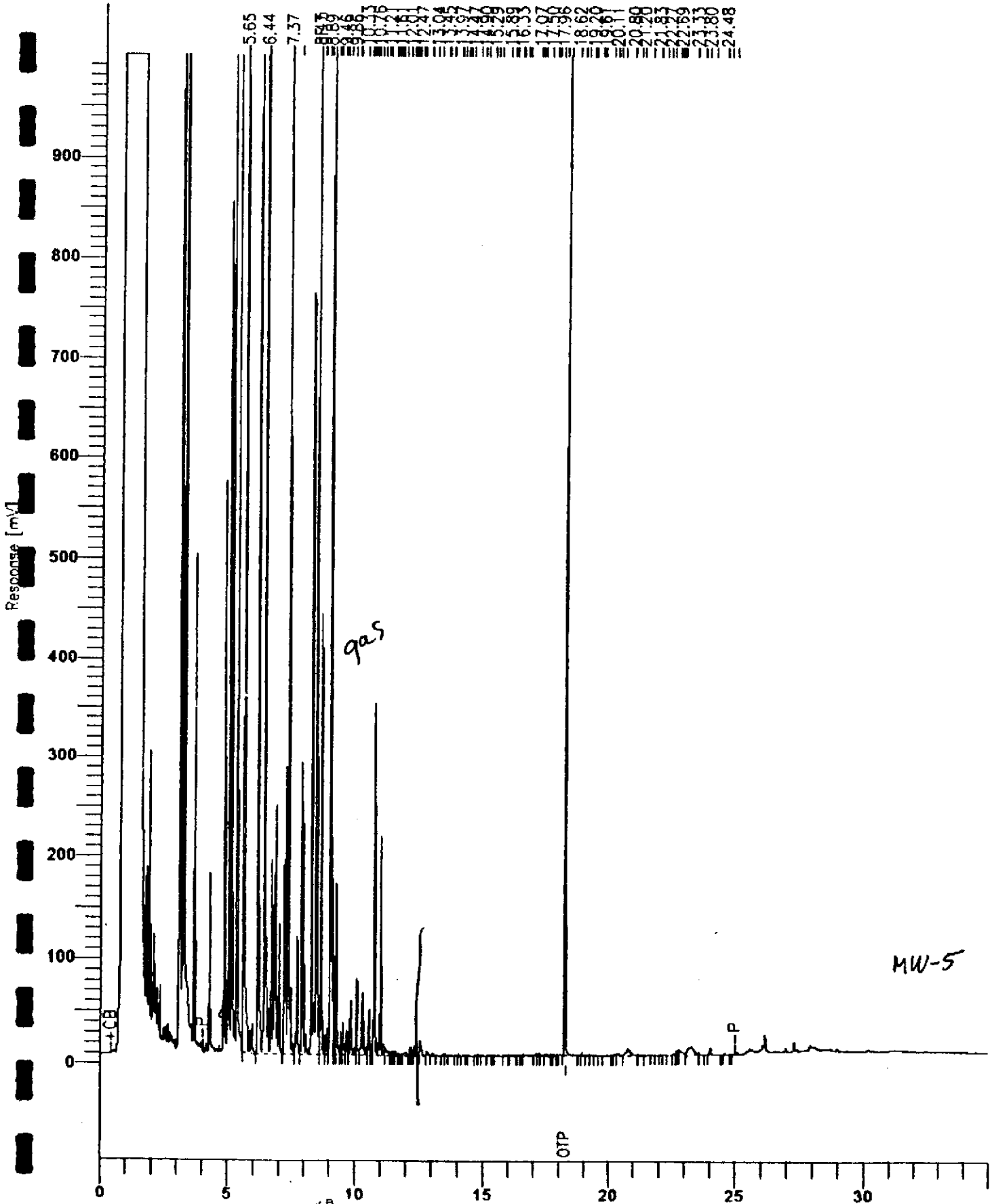
# diesel analysis

Sample Name : 5624/MW5  
File Name : D:\6000DIES\5514033.raw  
Method : DF360  
Start Time : 0.00 min  
Scale Factor : 0.0

End Time : 35.00 min  
Plot Offset: 0 mV

Sample #: 84941  
Date : 5/15/96 08:53  
Time of Injection: 5/15/96 08:18  
Low Point : 0.00 mV  
Plot Scale: 1000.0 mV

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# diesel analysis

Sample Name : 5624/MW5A

Sample #: 84942

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File Name : D:\6000DIRS\5520007.raw

Date : 5/20/96 13:25

Method : DEFS60

Time of Injection: 5/20/96 12:49

Start Time : 0.00 min

End Time : 35.00 min

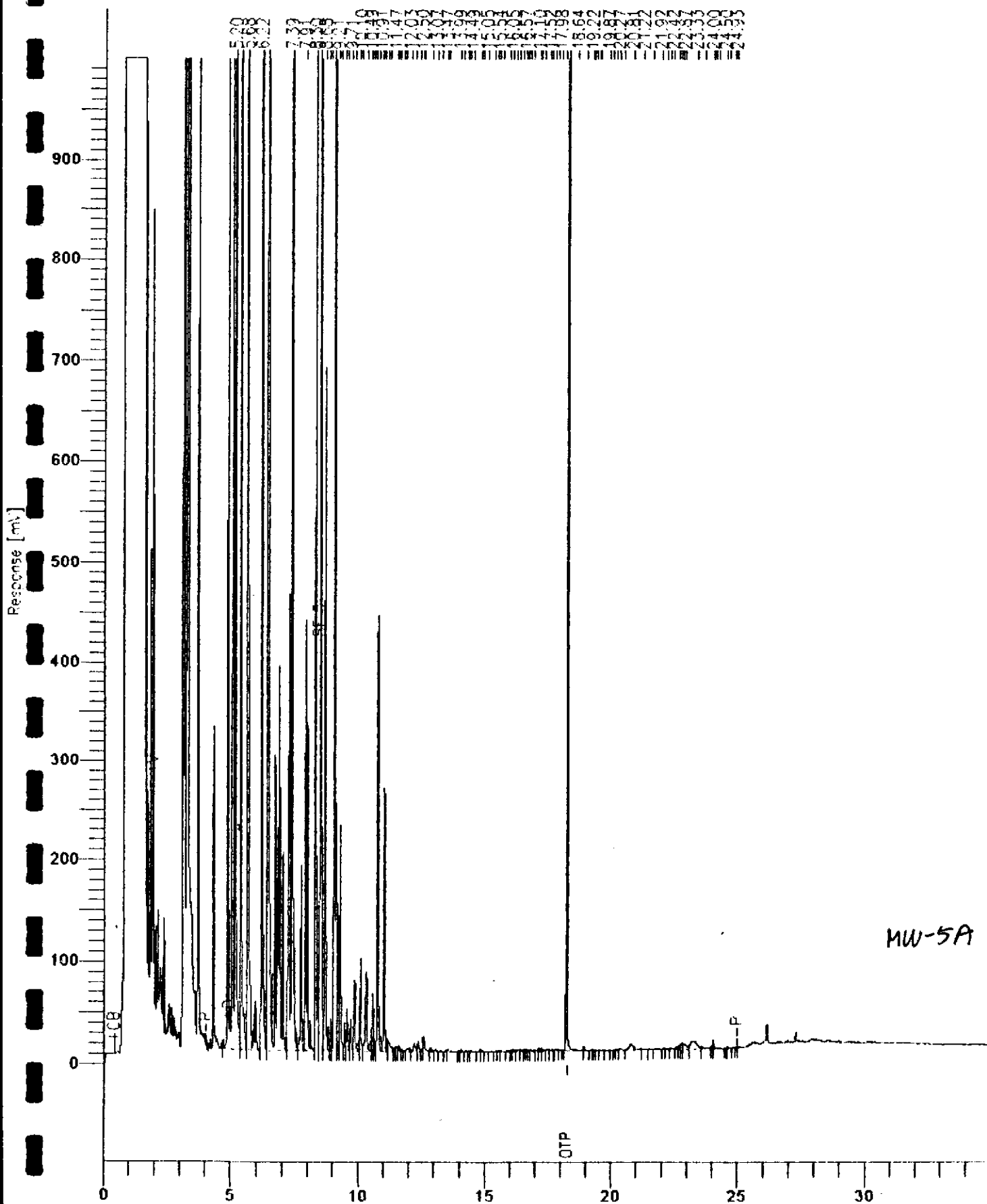
Low Point : 0.00 mV

High Point : 1000.00 mV

Scale Factor: 0.0

Plot Offset: 0 mV

Plot Scale: 1000.0 mV





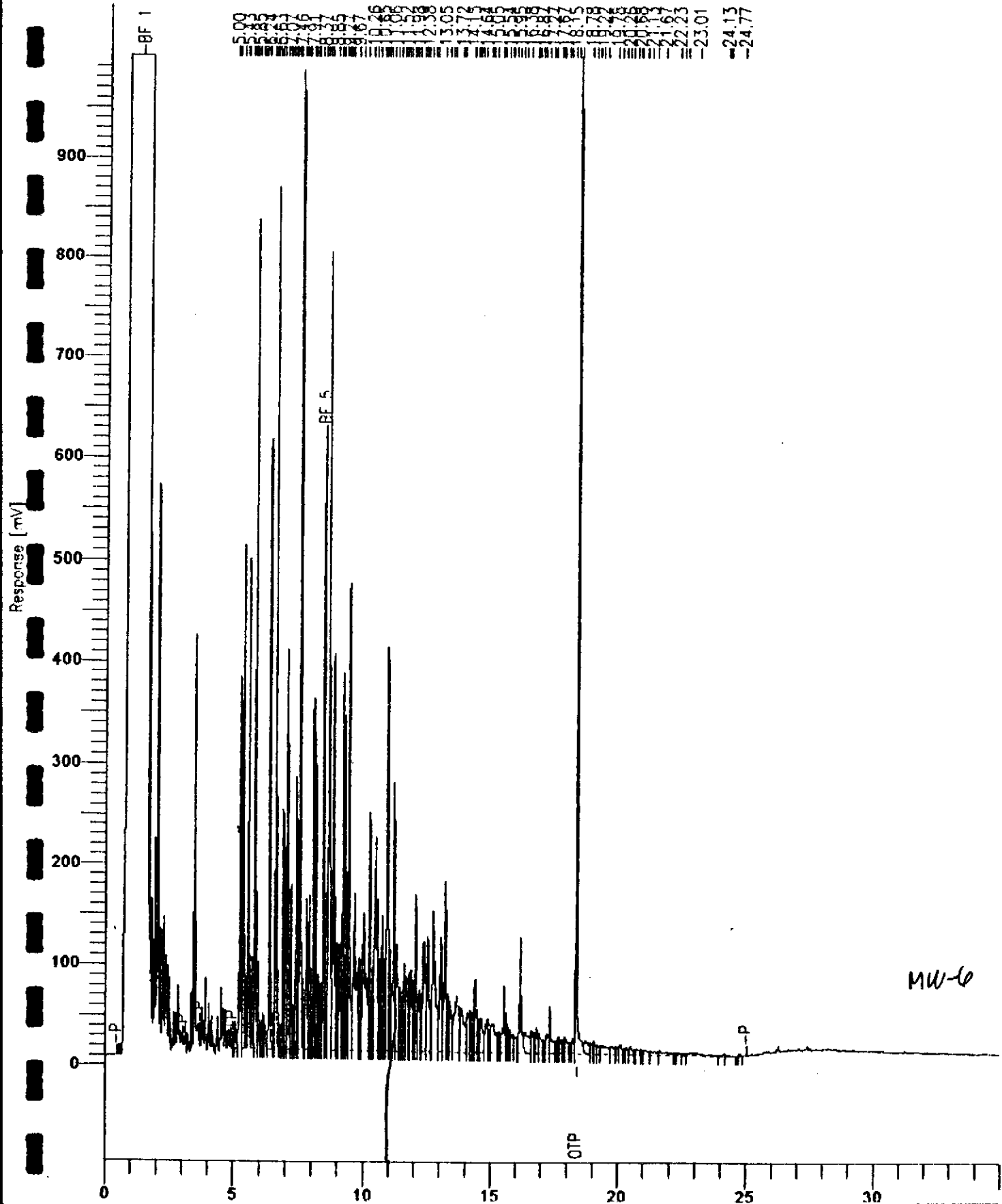
# diesel analysis

Sample Name : 5624/MW6  
FileName : D:\6500DIERS\7515014.raw  
Method : 65DIESEL  
Start Time : 0.00 min  
Scale Factor : 0.0

End Time : 35.00 min  
Plot Offset : 0 mV

Sample #: 84942  
Date : 5/15/96 23:56  
Time of Injection: 5/15/96 23:20  
Low Point : 0.00 mV  
High Point : 1000.00 mV  
Plot Scale: 1000.0 mV

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CHROMALAB, INC.  
SAMPLE RECEIPT CHECKLIST

Client Name BASELINE Date/Time Received 5/13/96 7650  
Project MSC, 7101 Edge Water Drive Received by B. Morrow  
Reference/Subm # 27773 / 9605624 Carrier name \_\_\_\_\_  
Checklist completed by: [Signature] 5/14/96 Logged in by MP 5/13/96  
Signature / Date Initials / Date  
Matrix Water

Shipping container in good condition? NA  Yes \_\_\_ No \_\_\_  
Custody seals present on shipping container? Intact \_\_\_ Broken \_\_\_ Yes \_\_\_ No \_\_\_  
Custody seals on sample bottles? Intact \_\_\_ Broken \_\_\_ Yes \_\_\_ No \_\_\_  
Chain of custody present? Yes  No \_\_\_  
Chain of custody signed when relinquished and received? Yes  No \_\_\_  
Chain of custody agrees with sample labels? Yes  No \_\_\_  
Samples in proper container/bottle? Yes  No \_\_\_  
Samples intact? Yes  No \_\_\_  
Sufficient sample volume for indicated test? Yes  No \_\_\_  
VOA vials have zero headspace? NA \_\_\_ Yes \_\_\_ No   
Trip Blank received? NA \_\_\_ Yes \_\_\_ No   
All samples received within holding time? Yes  No \_\_\_  
Container temperature? 17.2 °C  
pH upon receipt \_\_\_\_\_ pH adjusted \_\_\_\_\_ Check performed by: \_\_\_\_\_ NA

Any NO response must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted? \_\_\_\_\_ Date contacted? \_\_\_\_\_  
Person contacted? \_\_\_\_\_ Contacted by? \_\_\_\_\_  
Regarding? \_\_\_\_\_

Comments: The following VOA vials were received with headspace : sample MW-1 : 1 VOA ; MW-5 : 1 VOA ; MW-6 : 2 VOAs ; MW-500 : 2 VOAs. The pH of VOA vials will be checked by chemist, + the chemist will filter + preserve for metals analysis.

Corrective Action: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

BASELINE 6247/84938-84944  
 5900 Hollis Street, Suite D  
 Emeryville, CA 94608  
 (510) 420-8686

CHAIN OF CUSTODY RECORD

Turn-around Time  
 Lab  
 BASELINE Contact Person

Standard 5 day  
 Chromalab  
 Rhodora Del Rosario

See Note

Project No.		Project Name and Location				Analysis										Remarks/ Composite	Detection Limits		
93333-BO		MSC, 7101 Edge Water Drive, Oakland				Gasoline/BTEX	Diesel	Kerosene	Motor Oil	Lead (6010)	Zinc (6010)	Chromium, Cr, Ni (6010)	Silica Gel (EPA 3020)						
Sample ID No. Station	Date	Time	Media	Depth	No. of Contain- ers														
MN- 1	5/13/96	1300	Water		2	X													
MN- 2	5/13/96	1325	Water		4		X		X										
MN- 5	5/13/96	1215	Water		5	X		X	X		X		X						
MN- 5A	5/13/96	1220	Water		5	X		X	X		X		X						
MN- 6	5/13/96	1120	Water		5	X		X		X	X	X	X						
MN- 7	5/13/96	1155	Water		3		X			X	X								
MN- 500	5/13/96	700	Water		2	X													

SUBM #: 9605624 REF: MV  
 CLIENT: BASE  
 DUE: 05/20/96  
 REF #: 27773

Relinquished by: (Signature) <i>Gledupone</i>	Date / Time 5/13/96 16:50	Received by: (Signature) <i>[Signature]</i>	Date / Time 5-13-96 16:50	Conditions of Samples Upon Arrival at Laboratory:
Relinquished by: (Signature)	Date / Time	Received by: (Signature) <i>Mime Pak</i>	Date / Time 5/13/96 19:05	Remarks: Notes: Perform a silica gel cleanup on samples to be analyzed for diesel, motor oil, & kerosene.
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	(2) Filter samples to be analyzed for metals. (5) Provide chromatograms & standards

(4) Bill Invoice to Woodward Clyde  
 ADMIN(AD4)-5/27/92