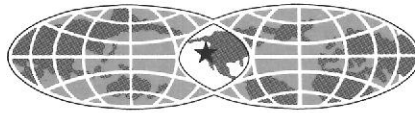


ENVIRONMENTAL  
PROTECTION

97 JUL 31 PM 3:41



# PORT OF OAKLAND

July 29, 1997

Mr. Barney M. Chan  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway  
Alameda, CA 94502

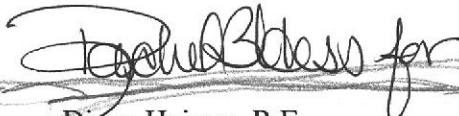
**Subject: Transmittal of Quarterly Groundwater Monitoring Report - Seabreeze Yacht Center- 280 Sixth Avenue, Oakland**

Dear Mr. Chan:

Enclosed please find Baseline Environmental Consulting's "Quarterly Groundwater Monitoring Report" dated July 29, 1997. This report documents the results of sampling monitoring wells PW-2, MW-SB2, MW-SB3, MW-SB4 and MW-SB5 in June 1997 for diesel. Previous quarterly monitoring was conducted in June, September, December 1996 and March 1997 for selected metals (copper and lead) and total extractable hydrocarbons (diesel, bunker C and motor oil).

You may be aware that the Port and City of Oakland have jointly funded preparation of an "Estuary Plan" to solicit public input on how best to redevelop certain portions of the waterfront in the Port Area. Pending a land use decision for the former Seabreeze property, we suggest postponing any recommendations for additional work at this site. Please advise whether you have any concerns regarding this position. Please contact Rachel Hess (my replacement during my maternity leave) at 272-1134.

Sincerely,

  
Diane Heinze, P.E.  
Associate Environmental Scientist

enclosure: June 1997 Quarterly Monitoring Report dated July 29, 1997

cc w/ encls: Dennis Mishek, RWQCB  
Michele Heffes

cc w/out encls: Rhodora Del Rosario, Baseline Environmental  
Jonathon Redding, Fitzgerald, Abbott & Beardsley  
Neil Werner and Mark O'Brien

ENVIRONMENTAL  
PROTECTION  
97 JUL 31 PM 3:41

**BASELINE**  
ENVIRONMENTAL CONSULTING

29 July 1997  
S9171-C1

Ms. Diane Heinze  
Port of Oakland  
Environmental Department  
530 Water Street  
Oakland, California 94607

**Subject: Quarterly Groundwater Monitoring Report, June 1997, Former Seabreeze Yacht Center, Inc. Site, 280 6th Avenue, Oakland, California**

Dear Ms. Heinze:

This report documents the groundwater sampling activities performed on 18 and 20 June 1997 at the former Seabreeze Yacht Center, Inc. Site (Site), located at 280 6<sup>th</sup> Avenue, California (Figure 1). The groundwater monitoring was conducted in accordance with the 16 May 1997 Port of Oakland (Port) letter to the Alameda County Health Care Services Agency, Department of Environmental Health (County) and the recommendation from the March 1997 Quarterly Groundwater Monitoring Report dated 14 May 1997. The Port letter and March 1997 Groundwater Monitoring Report recommended that an additional round of quarterly groundwater monitoring be conducted since previous monitoring events indicated that diesel concentrations may have represented false positive results due to laboratory contamination. The groundwater monitoring network includes monitoring wells PW-2, MW-SB2, MW-SB3, MW-SB4, and MW-SB5 (Figure 2).

#### **FIELD ACTIVITIES, JUNE 1997**

On 18 June 1997, the presence of free product was checked and water levels were measured in the monitoring network wells using a dual-interface probe. Water levels were measured and recorded to the nearest one-hundredth of a foot. The dual-interface probe was decontaminated after each use by washing in a trisodium phosphate (TSP) solution and rinsing with deionized water. A sheen or free product was not observed in any of the wells.

On 18 June 1997, each monitoring well was purged of approximately three to five well casing volumes except for monitoring well PW-2. The recharge rate in monitoring well PW-2 was too slow to allow the removal of three well volumes; therefore, the well was pumped dry to within one foot from the bottom of the casing. Less than two well volumes were purged from the well. The other wells (MW-SB2, MW-SB3, MW-SB4, and MW-SB5) were slowly purged using a peristaltic pump with new, disposable polyethylene tubing lowered inside the wells after water

Ms. Diane Heinze

29 July 1997

Page 2

level measurements were obtained (the portion of tubing attached to the pump was of silicone; the remaining sections of the tubing were of polyethylene). Electrical conductivity, pH, and temperature parameters of the purge water were monitored during purging. Stable parameter readings were obtained from wells MW-4 and MW-5; however, the electrical conductivity readings from the purge water from wells MW-2 and MW-3 did not stabilize after the removal of three well volumes. Additional well volumes could not be collected because the recharge rate was too slow to allow removal of additional well volumes. Dissolved oxygen readings of the groundwater from each well were collected prior to sample collection.

The water levels in all the monitoring wells did not recover to 80 percent of their original water levels on 18 June. Therefore, groundwater samples were collected (20 June 1997) after sufficient water was available in all the wells. Groundwater samples were collected using new disposable polyethylene bailers. The groundwater samples were placed in sample bottles; the sample bottles were labeled and stored in a cooler containing blue ice.

The groundwater samples were submitted under chain-of-custody protocol to Pace Analytical of Petaluma and were analyzed for total extractable petroleum hydrocarbons (TEPH) as diesel. Prior to the TEPH analysis, the samples were subjected to a silica gel cleanup (EPA Method 3630). The groundwater sampling forms, documenting sampling activities, are included in Attachment A and the chain-of-custody form is included in Attachment B.

One drum, containing purge and decontamination water, was generated from the June 1997 sampling activities. The drum was labeled and stored on-site for future off-site disposal.

### **ANALYTICAL RESULTS**

The TEPH analytical results are summarized in Table 1 and the laboratory report is presented in Attachment B. A quality control review of the laboratory report was conducted by BASELINE; the corresponding quality control checklist is provided in Attachment C. In summary, the samples were analyzed within an appropriate time frame, the field and laboratory quality control results were reported within laboratory specified recovery limits, and the analytical results for the duplicate groundwater sample (MW-SB3A) were consistent with the original sample results (MW-SB3).

Diesel was identified in the samples collected from all monitoring wells except PW-2; the samples contained diesel at concentrations up to 0.27 mg/L. Diesel was not reported in the samples collected from well PW-2 above the laboratory reporting limit of 0.05 mg/L.


Ms. Diane Heinze  
29 July 1997  
Page 3

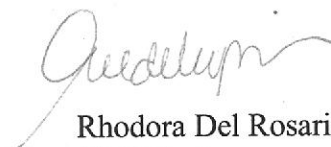
**GROUNDWATER FLOW DIRECTION**

Recently collected and historic groundwater elevation data are summarized in Table 2. The groundwater elevation data collected on 18 June 1997 were used to develop groundwater elevation contours (Figure 2). The general groundwater flow direction is toward the east to southeast.

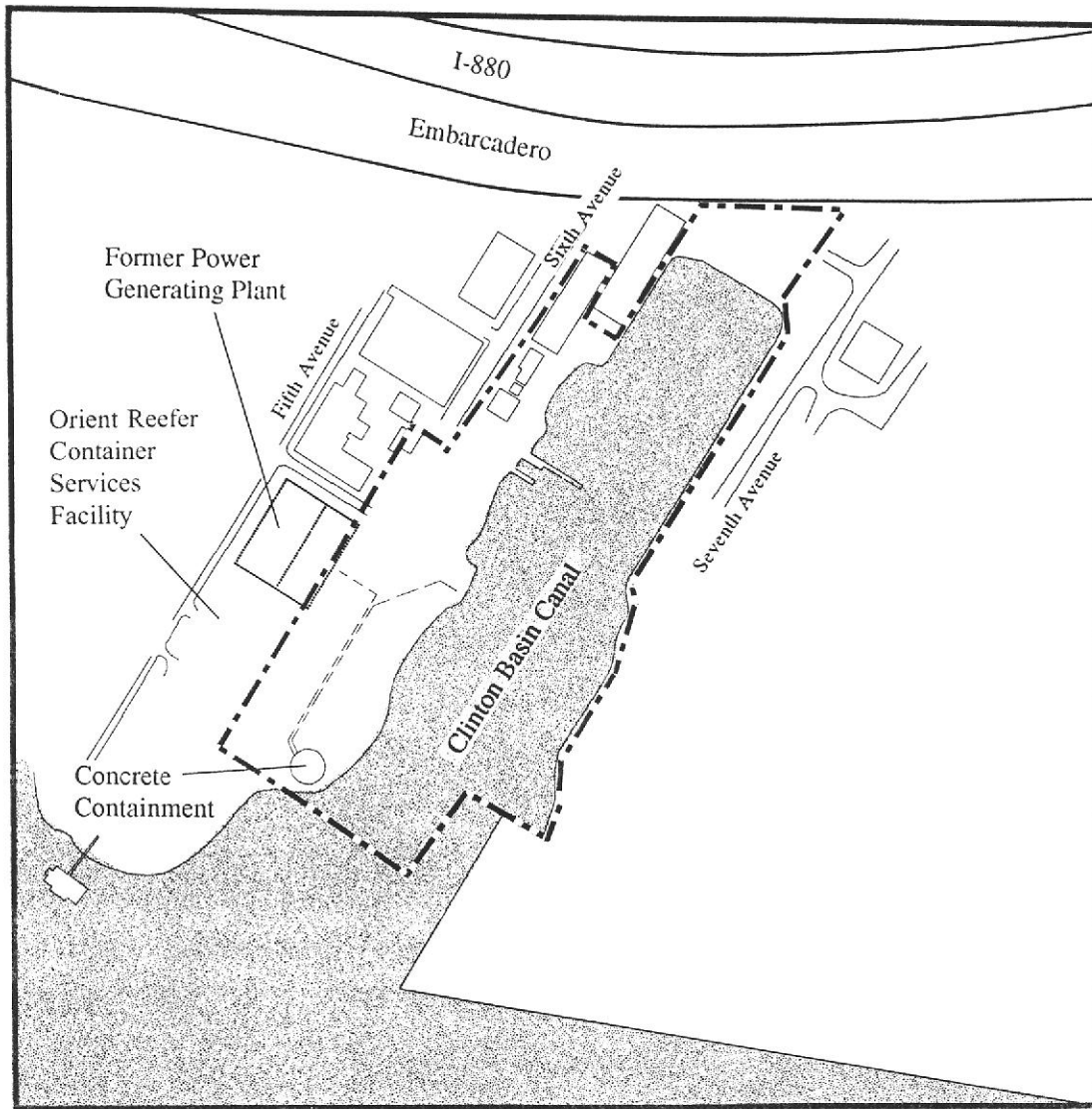
Should you have any questions, or need further information, please contact us at your convenience.

Sincerely,

  
Yane Nordhav *in paper*  
Principal

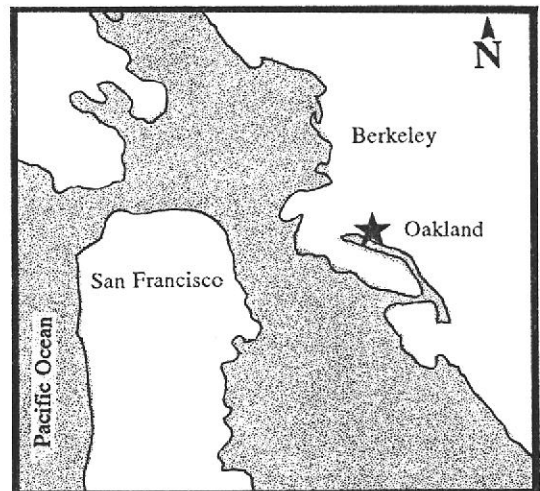
  
Rhodora Del Rosario  
Civil Engineer

YN:RD:cr  
Attachments



Legend

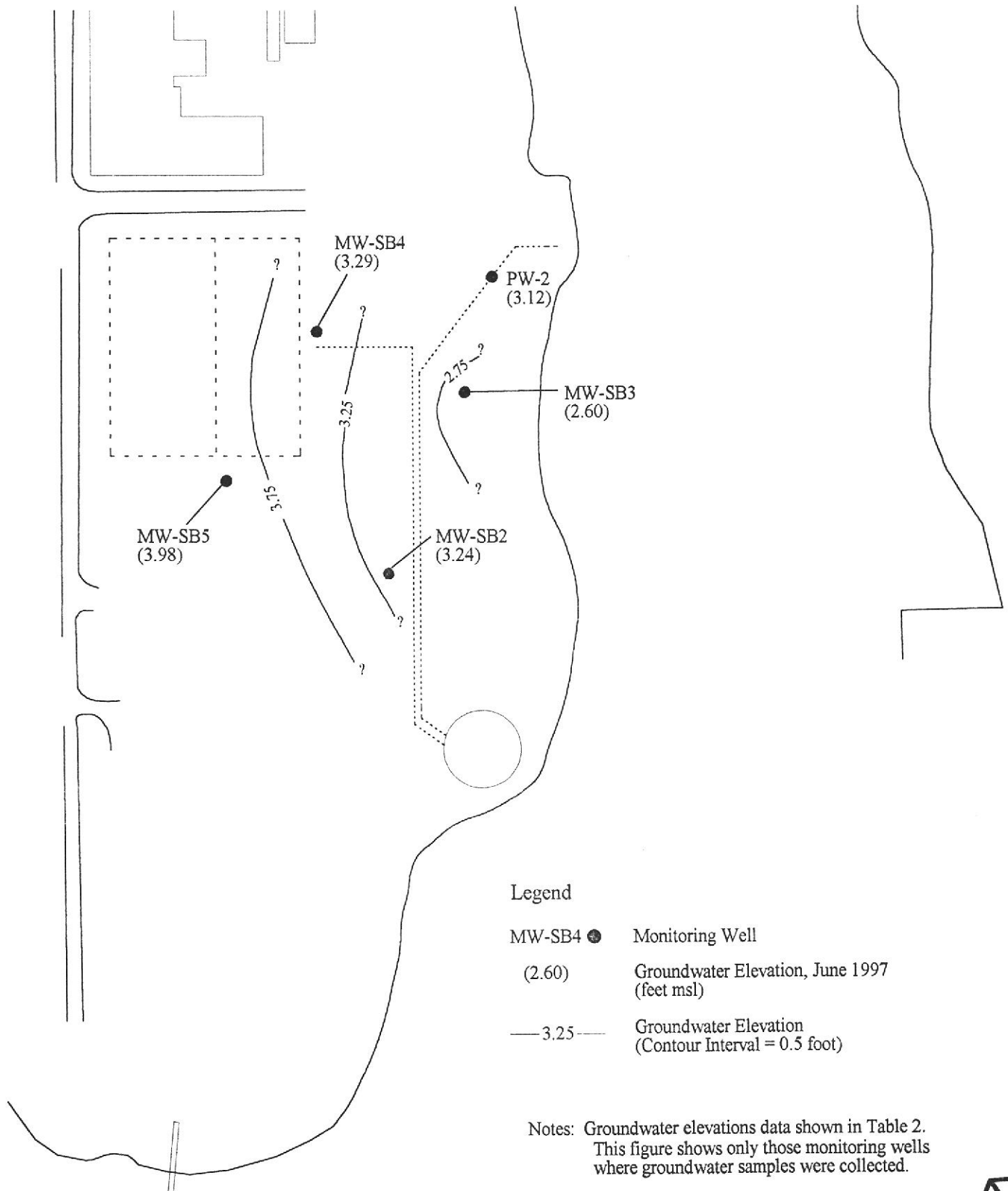
--- Seabreeze Yacht Center



Seabreeze Yacht Center  
Oakland, California

# MONITORING WELL LOCATIONS AND GROUNDWATER CONTOUR JUNE 1997

Figure 2



**Seabreeze Yacht Center  
Sixth Avenue  
Oakland, California**

S9171-CO 7/2/97, D:\GCD\S9171MW397 (visual cadd)

D:\GCD\S9171mw397.VCD 7/2/1997

TABLE 1  
ANALYTICAL RESULTS  
Seabreeze Yacht Center, Oakland, California  
(mg/L)

Sample ID	Sample Date	Metals <sup>1</sup>		Total Extractable Hydrocarbons <sup>2</sup>		
		Lead	Copper	Diesel	Bunker C	Motor Oil
PW-2	02/02/95	0.0043	--	--	--	--
	03/06/95	--	--	1.7 <sup>3,4</sup>	4.4 <sup>3,4</sup>	1.1 <sup>3,4</sup>
	07/01/96	<0.003	<0.01	<0.049	<0.3	--
	09/16/96	<0.003 <sup>10</sup>	<0.005 <sup>11</sup>	<0.05	<0.5	<0.25
	12/11/96	0.0101 <sup>10</sup>	<0.003 <sup>11</sup>	0.11 <sup>13</sup>	<0.5	<0.25
	03/14/97	0.00401 <sup>10</sup>	<0.003 <sup>11</sup>	<0.05	<0.5	<0.25
	06/20/97	--	--	<0.05	--	--
MW-SB2	04/09/91	<0.06 <sup>7</sup>	<0.02 <sup>8</sup>	--	--	--
	04/19/91	<0.07	0.0481	--	--	--
	01/10/94	<0.10 <sup>7</sup>	<0.02 <sup>8</sup>	--	--	--
	12/26/94	<0.0048 <sup>8</sup>	0.014 <sup>8</sup>	--	--	--
	03/06/95	--	--	16.0 <sup>3,4</sup>	28.0 <sup>3,4</sup>	4.9 <sup>3,4</sup>
	07/01/96	<0.003	0.055	<0.05	<0.3	--
	09/16/96 <sup>9</sup>	<0.003 <sup>10</sup>	<0.005 <sup>11</sup>	<0.05	<0.5	<0.25
	12/11/96	0.00855 <sup>10</sup>	0.00354 <sup>11</sup>	0.16 <sup>13</sup>	<0.5	<0.25
	03/14/97	0.00314 <sup>10</sup>	<0.003 <sup>11</sup>	0.061	<0.5	<0.25
06/20/97	--	--	0.15	--	--	
MW-SB2A	03/06/95	--	--	18.0 <sup>3,4,5</sup>	33.0 <sup>3,4,5</sup>	<25.0 <sup>3,4,5</sup>
	07/01/96	<0.003	0.065	0.17 <sup>6</sup>	<0.3 <sup>4</sup>	--
	9/16/96	<0.003 <sup>10</sup>	<0.005 <sup>11</sup>	0.17	<0.5 <sup>4</sup>	<0.25
MW-SB3	03/06/95	--	--	4.5 <sup>3,4</sup>	5.8 <sup>3,4</sup>	1.5 <sup>3,4</sup>
	07/01/96	0.0036	<0.01	<0.049	<0.3	--
	09/16/96	<0.003 <sup>10</sup>	<0.005 <sup>11</sup>	<0.05 <sup>3</sup>	<0.5	0.28 <sup>3</sup>
	12/11/96	<0.003 <sup>10</sup>	<0.003 <sup>11</sup>	0.19 <sup>13</sup>	<0.5	<0.25
	03/14/97	<0.003 <sup>10</sup>	0.00529 <sup>11</sup>	0.085 <sup>14</sup>	<0.5	<0.25
	06/20/97	--	--	0.15	--	--
MW-SB3A	06/20/97	--	--	0.11	--	--
MW-SB4	03/03/95	--	--	4.5 <sup>3</sup>	3.0 <sup>3</sup>	0.66 <sup>3</sup>
	07/01/96	0.014	0.013	<0.049	<0.3	--
	09/16/96	<0.003 <sup>10</sup>	<0.005 <sup>11</sup>	<0.05	<0.5	<0.25
	12/11/96	0.00465 <sup>10</sup>	0.00674 <sup>11</sup>	0.12 <sup>13</sup>	<0.5	<0.25
	03/14/97	0.00519 <sup>10</sup>	<0.003 <sup>11</sup>	<0.05	<0.5	<0.25
	06/20/97	--	--	0.11	--	--

Table 1 *continued*

Sample ID	Sample Date	Metals <sup>1</sup>		Total Extractable Hydrocarbons <sup>2</sup>		
		Lead	Copper	Diesel	Bunker C	Motor Oil
MW-SB5	03/06/95	--	--	15.0 <sup>3,4</sup>	34.0 <sup>3,4</sup>	8.1 <sup>3,4</sup>
	07/01/96	0.0031	0.012	<0.049	<0.3	--
	09/16/96	<0.003 <sup>10</sup>	<0.005 <sup>11</sup>	0.14 <sup>3,12</sup>	<0.5	<0.25
	12/11/96	0.00344 <sup>10</sup>	<0.003 <sup>11</sup>	0.16 <sup>13</sup>	<0.5	<0.25
	03/14/97	<0.003 <sup>10</sup>	0.00318 <sup>11</sup>	0.29	<0.5	<0.25
	06/20/97	--	--	0.27	--	--
MW-SB5A	03/06/95	--	--	15.0 <sup>3,4,5</sup>	31.0 <sup>3,4,5</sup>	6.9 <sup>3,4,5</sup>
	12/11/96	<0.003 <sup>10</sup>	<0.003 <sup>11</sup>	0.081 <sup>13</sup>	<0.5	<0.25
	03/14/97	<0.003 <sup>10</sup>	<0.003 <sup>11</sup>	0.22	<0.5	<0.25

Notes: <x.x = analyte not identified above laboratory reporting limit of x.x.  
x.x = concentrations reported at or above laboratory reporting limit.  
-- = no analysis performed.  
MW-SB2A = duplicate sample of MW-SB2.  
MW-SB5A = duplicate sample of MW-SB5.  
Refer to Figure 2 for well locations.  
Laboratory reports for the June 1997 sampling event are included in Attachment B.

- <sup>1</sup> Analytical Method EPA 6010A, unless otherwise noted.
- <sup>2</sup> Analytical Method California DOHS, LUFT Manual (EPA 8015M). Samples were subjected to silica gel cleanup (EPA Method 3630) prior to analysis, unless otherwise noted.
- <sup>3</sup> Sample chromatogram does not resemble hydrocarbon standard.
- <sup>4</sup> Samples were not subjected to silica gel cleanup prior to analysis.
- <sup>5</sup> Duplicate sample centrifuged prior to TEPH analyses.
- <sup>6</sup> Sample exhibited fuel pattern which did not resemble standard.
- <sup>7</sup> Analyzed using EPA Method 7420.
- <sup>8</sup> Analyzed using EPA Method 7210.
- <sup>9</sup> Sample also analyzed for mercury, arsenic, cadmium, chromium, iron, nickel, silver, and zinc. All metals were reported below the corresponding laboratory reporting limits except for iron, which was identified at 0.13 mg/L.
- <sup>10</sup> Analyzed using EPA method 7421. Sample filtered by the laboratory prior to analysis.
- <sup>11</sup> Analyzed using EPA Method 7211. Sample filtered by the laboratory prior to analysis.
- <sup>12</sup> Laboratory indicated that miscellaneous peaks were present in the diesel range.
- <sup>13</sup> The laboratory indicated that the analyte was also found in the corresponding method blank at a concentration of 0.063 mg/L as well as in the sample, verifying laboratory contamination. The sample chromatographic pattern matched that of the laboratory contaminant reported in the method blank. Therefore, the reported concentration is a false positive concentration.
- <sup>14</sup> The laboratory indicated that the chromatographic pattern of the sample matches a known laboratory contaminant. Based on telephone correspondence with Mr. Ron Chu of PACE, the laboratory contaminant may be due to contamination of the silica gel used to clean up the sample prior to analysis.



TABLE 2  
GROUNDWATER ELEVATION DATA  
Seabreeze Yacht Center, Oakland, California

Well	Date	Time	Surface Elevation (msl)	TOC Elevation (msl)	Depth to Groundwater (feet)	Groundwater Elevation (msl)
PW-2 <sup>1</sup>	02/15/95 <sup>2</sup>	--	5.56	6.57	4.60	1.97
	03/03/95	9:10			3.90	2.67
	06/28/96	7:37			3.83	2.74
	09/16/96	8:54			4.19	2.38
	12/11/96	10:10			3.64	2.93
	03/12/97	9:00			4.08	2.49
	06/18/97	9:08			3.45	3.12
MW-SB2 <sup>3</sup>	04/19/91	11:09	6.2	7.18	5.38	1.8
	07/09/91	11:04			3.7	3.48
	01/10/94	12:31			3.08	4.1
	01/26/94	13:40			1.63	5.5
	11/14/94	7:30			4.8	2.38
	11/14/94	11:05			4.76	2.42
	11/14/94	14:14			4.73	2.45
	11/28/94	9:00			2.85	4.33
	03/03/95	8:50			2.84	4.34
	06/28/96	7:40			3.76	3.42
	09/16/96	9:01			4.30	2.88
	12/11/96	11:15			2.00	5.18
	03/12/97	9:02			3.48	3.70
	06/18/97	9:10			3.94	3.24
MW-SB3 <sup>3</sup>	11/14/94	7:25	6.0	8.10	8.23	-0.13
	11/14/94	11:00			8.14	-0.04
	11/14/94	14:12			8.07	0.03
	11/28/94	8:53			6.32	1.78
	12/06/94	8:37			6.15	1.95
	03/03/95	8:40			6.78	1.32
	06/28/96	7:35			5.46	2.64
	09/16/96	8:55			5.78	2.32
	12/11/96	10:32			5.31	2.79
	03/12/97	9:05			6.03	2.07
	06/18/97	9:12			5.50	2.60
MW-SB4 <sup>4</sup>	11/28/94	9:02	6.6	6.39	1.05	5.34
	03/03/95	8:35			0.90	5.49
	06/28/96	8:28			3.16	3.23
	09/16/96	8:52			2.85	3.54
	12/11/96	9:28			0.65	5.74
	03/12/97	9:07			2.53	3.86
	06/18/97	9:25			3.10	3.29

Table 2, *continued*

Well	Date	Time	Surface Elevation (msl)	TOC Elevation (msl)	Depth to Groundwater (feet)	Groundwater Elevation (msl)
MW-SB5 <sup>4</sup>	11/28/94	8:40	6.9	6.30	6.32	-0.02
	03/03/95	9:00			2.54	3.76
	06/28/96	8:45			2.43	3.87
	09/16/96	10:15			2.52	3.78
	12/11/96	14:12			3.09	3.21
	03/12/97	9:11			2.42	3.88
	06/18/97	8:56			2.32	3.98

Notes: 11/14/94: High tide 9:21; Low tide 15:50.  
 11/28/94: High tide 7:46.  
 02/15/95: High tide 5:14 and 18:03; Low tide 23:34.  
 03/03/95: High tide 13:14; Low tide 7:03.  
 06/28/96: High tide 11:41 and 22:32; Low tide 4:35 and 16:09.  
 09/16/96: High tide 2:57 and 14:57; Low tide 8:23 and 21:07.  
 12/11/96: High tide 1:02 and 11:47; Low tide 5:35 and 18:30.  
 03/12/97: High tide 2:17 and 15:02; Low tide 8:23 and 20:29.  
 06/18/97: High tide 12:18 and 23:07; Low tide 5:15 and 16:49.  
 -- = No data.  
 msl = Feet above mean sea level.  
 TOC = Top of casing.  
 Refer to Figure 2 for well locations.

- <sup>1</sup> Well survey conducted by Bates & Bailey 2/8/95.
- <sup>2</sup> Groundwater elevation measured by SOMA; all other elevations measured by BASELINE.
- <sup>3</sup> Well survey conducted by Bates & Bailey 11/18/94.
- <sup>4</sup> Well survey conducted by Bates & Bailey 11/28/94.

**ATTACHMENT A**  
**GROUNDWATER SAMPLING FORMS**

# GROUNDWATER SAMPLING

Project no.: S9171-C1 Well no.: PW-2 Date: 6/18/97  
 Project name: Seabreeze Yacht Center Depth of well from TOC (feet): 15  
 Location: 280 6th Avenue Well diameter (inch): 4  
Oakland, CA Screened interval from TOC (feet): 6.5-15.0  
 Recorded by: WKS TOC elevation (feet): 6.57  
 Weather: Sunny Water level from TOC (feet): 3.45 Time: 9:08  
 Precip in past Product level from TOC (feet): None Time: 9:08  
 5 days (inch): None Water level measurement: Dual interface probe

## VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(15 \text{ ft}) - (3.45 \text{ ft})] \times (0.166 \text{ ft})^2 \times 3.14 \times 7.48 =$$

7.5 gallons in one well volume  
22.4 gallons in 3 well volumes  
14.0 total gallons removed

Well depth    Water level    Well radius

## CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:				
Before Purging:	10:10	22.8	7.00/10.01	1,000
After Purging:	12:54	32.3	6.98/9.94	1,100

## FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:12	19.0	6.84	28,000	1.0	Clear with black particulate matter
10:20	19.2	6.74	30,000	4.0	Clear with black particulate matter
10:30	20.5	6.78	30,000	7.5	Clear with black particulate matter
10:44	19.5	6.80	32,000	12.0	Clear with black particulate matter
10:49	Well Pumped Dry			14.0	

Note: Recharge rate too slow to allow 80% recharge before sampling on 6/18/97. Sample collected 6/20/97.

DO meter calibration: 8.09 mg/L @ 26°C Time: 10:40  
 DO result (after purging well, mg/L): 3.70 Time: 10:44  
 Water level after purging prior to sampling (feet): 7.80 Time: 6/20/97 9:43  
 Appearance of sample: Clear Time: 6/20/97  
 Duplicate/blank number: None Time: --  
 Purge method: Peristaltic pump  
 Sampling equipment: Disposable polyethylene bailer VOC attachment: None required  
 Sample containers: One 1-liter amber glass  
 Sample analyses: TEPH as diesel Laboratory: Pace Analytical  
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: On-site drum (MW-SB2 to 5 & PW-2)

S9171-697.XLS (7/10/97)

# GROUNDWATER SAMPLING

Project no.: S9171-C1 Well no.: MW-SB2 Date: 6/18/97  
 Project name: Seabreeze Yacht Center Depth of well from TOC (feet): 11.0  
 Location: 280 6th Avenue Well diameter (inch): 2  
Oakland, CA Screened interval from TOC (feet): 3-11  
 Recorded by: WKS TOC elevation (feet): 7.18  
 Weather: Sunny Water level from TOC (feet): 3.94 Time: 9:10  
 Precip in past \_\_\_\_\_ Product level from TOC (feet): None Time: 9:10  
 5 days (inch): None Water level measurement: Dual interface probe

## VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(11.0 \text{ ft}) - (3.94 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 =$$

1.1 gallons in one well volume  
3.4 gallons in 3 well volumes  
4.0 total gallons removed

Well depth    Water level    Well radius

## CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:				
Before Purging:	10:10	22.8	7.00/10.01	1,000
After Purging:	12:54	32.3	6.98/9.94	1,100

## FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
11:20	19.2	6.77	10,000	0.5	Clear with black particulate matter
11:23	21.4	6.74	15,000	1.0	Clear with black particulate matter
11:26	20.7	6.70	15,000	2.5	Clear with black particulate matter
11:31	18.9	6.73	21,000	4.0	Clear with black particulate matter
10:49	Well Pumped Dry				

Note: Recharge rate too slow to allow 80% recharge before sampling on 6/18/97. Sample collected 6/20/97.

DO meter calibration: 8.09 mg/L @ 26°C Time: 10:40  
 DO result (after purging well, mg/L): 1.5 Time: 11:31  
 Water level after purging prior to sampling (feet): 8.22 Time: 6/20/97 9:51  
 Appearance of sample: Clear Time: 6/20/97 10:00  
 Duplicate/blank number: None Time: --  
 Purge method: Peristaltic pump  
 Sampling equipment: Disposable polyethylene bailer VOC attachment: None required  
 Sample containers: One 1-liter amber glass  
 Sample analyses: TEPH as diesel Laboratory: Pace Analytical  
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: On-site drum (MW-SB2 to 5 & PW-2)

S9171-697.XLS (7/10/97)

# GROUNDWATER SAMPLING

Project no.: S9171-C1 Well no.: MW-SB3 Date: 6/18/97  
 Project name: Seabreeze Yacht Center Depth of well from TOC (feet): 11.06  
 Location: 280 6th Avenue Well diameter (inch): 2  
Oakland, CA Screened interval from TOC (feet): 4.86-11.06  
 Recorded by: WKS TOC elevation (feet): 8.10  
 Weather: Sunny Water level from TOC (feet): 5.50 Time: 9:12  
 Precip in past Product level from TOC (feet): None Time: 9:12  
 5 days (inch): None Water level measurement: Dual interface probe

## VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(11.06 \text{ ft}) - (5.50 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 =$$
 Well depth    Water level    Well radius
 
$$\underline{\underline{0.90}} \text{ gallons in one well volume}$$

$$\underline{\underline{2.7}} \text{ gallons in 3 well volumes}$$

$$\underline{\underline{3.0}} \text{ total gallons removed}$$

## CALIBRATION:

	Time	Temp (° C)	pH	EC (umho/cm)
Calibration Standard:				
Before Purging:	10:10	22.8	7.00/10.01	1,000
After Purging:	12:54	32.3	6.98/9.94	1,100

## FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (umho/cm)	Cumulative Gallons Removed	Appearance
11:03	21.1	6.76	13,000	1.0	Clear with black particulate matter
11:06	21.9	6.73	19,000	2.0	Clear with black particulate matter
11:08	21.1	6.74	25,000	2.5	Clear with black particulate matter
11:10	20.5	6.76	27,000	3.0	Clear with black particulate matter
10:49	Well Pumped Dry				

Note: Recharge rate too slow to allow 80% recharge before sampling on 6/18/97. Sample collected 6/20/97.

DO meter calibration: 8.09 mg/L @ 26°C Time: 10:40  
 DO result (after purging well, mg/L): 1.5 Time: 10:10  
 Water level after purging prior to sampling (feet): 7.91 Time: 6/20/97 10:08  
 Appearance of sample: Clear Time: 6/20/97 10:20  
 Duplicate/blank number: MW-SB3A Time: 6/20/97 10:20  
 Purge method: Peristaltic pump  
 Sampling equipment: Disposable polyethylene bailer VOC attachment: None required  
 Sample containers: One 1-liter amber glass  
 Sample analyses: TEPH as diesel Laboratory: Pace Analytical  
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: On-site drum (MW-SB2 to 5 & PW-2)

S9171-697.XLS (7/10/97)

# GROUNDWATER SAMPLING

Project no.: S9171-C1 Well no.: MW-SB4 Date: 6/18/97  
 Project name: Seabreeze Yacht Center Depth of well from TOC (feet): 14.75  
 Location: 280 6th Avenue Well diameter (inch): 2  
Oakland, CA Screened interval from TOC (feet): 2.55-14.75  
 Recorded by: WKS TOC elevation (feet): 6.39  
 Weather: Sunny Water level from TOC (feet): 3.10 Time: 9:25  
 Precip in past Product level from TOC (feet): None Time: 9:25  
 5 days (inch): None Water level measurement: Dual interface probe

## VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(14.75 \text{ ft}) - (3.10 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 =$$
 Well depth    Water level    Well radius
 

1.9	gallons in one well volume
5.7	gallons in 3 well volumes
10.0	total gallons removed

## CALIBRATION:

	Time	Temp (° C)	pH	EC (umho/cm)
Calibration Standard:				
Before Purging:	10:10	22.8	7.00/10.01	1,000
After Purging:	12:54	32.3	6.98/9.94	1,100

## FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (umho/cm)	Cumulative Gallons Removed	Appearance
11:40	18.9	6.90	25,000	0.5	Clear
11:42	19.3	7.01	6,000	1.0	Clear
11:48	21.1	6.90	3,400	4.0	Clear
11:50	20.8	6.90	6,500	5.0	Slight turbidity
Decreased pump rated due to increase in turbidity					
12:12	19.9	6.92	22,000	9.0	Very slight turbidity
12:19	19.0	6.90	22,000	10.0	Very slight turbidity

Note: Recharge rate too slow to allow 80% recharge before sampling on 6/18/97. Sample collected 6/20/97.

DO meter calibration: 8.09 mg/L @ 26°C Time: 10:40  
 DO result (after purging well, mg/L): 2.80 Time: 12:19  
 Water level after purging prior to sampling (feet): 3.20 Time: 6/20/97 9:45  
 Appearance of sample: Clear Time: 6/20/97 9:45  
 Duplicate/blank number: None Time: --  
 Purge method: Peristaltic pump  
 Sampling equipment: Disposable polyethylene bailer VOC attachment: None required  
 Sample containers: One 1-liter amber glass  
 Sample analyses: TEPH as diesel Laboratory: Pace Analytical  
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: On-site drum (MW-SB2 to 5 & PW-2)

S9171-697.XLS (7/10/97)

# GROUNDWATER SAMPLING

Project no.:	<u>S9171-C1</u>	Well no.:	<u>MW-SB5</u>	Date:	<u>6/18/97</u>
Project name:	<u>Seabreeze Yacht Center</u>	Depth of well from TOC (feet):	<u>14.75</u>		
Location:	<u>280 6th Avenue</u>	Well diameter (inch):	<u>2</u>		
	<u>Oakland, CA</u>	Screened interval from TOC (feet):	<u>2.55-14.75</u>		
Recorded by:	<u>WKS</u>	TOC elevation (feet):	<u>6.30</u>		
Weather:	<u>Sunny</u>	Water level from TOC (feet):	<u>2.32</u>	Time:	<u>8:56</u>
Precip in past		Product level from TOC (feet):	<u>None</u>	Time:	<u>8:56</u>
5 days (inch):	<u>None</u>	Water level measurement:	<u>Dual interface probe</u>		

## VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(14.75 \text{ ft}) - (2.32 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 =$$

2.0 gallons in one well volume  
6.0 gallons in 3 well volumes  
6.0 total gallons removed

Well depth    Water level    Well radius

## CALIBRATION:

	<u>Time</u>	<u>Temp</u> (° C)	<u>pH</u>	<u>EC</u> (µmho/cm)
Calibration Standard:				
Before Purging:	10:10	22.8	7.00/10.01	1,000
After Purging:	12:54	32.3	6.98/9.94	1,100

## FIELD MEASUREMENTS:

<u>Time</u>	<u>Temp</u> (° C)	<u>pH</u>	<u>EC</u> (µmho/cm)	<u>Cumulative</u> <u>Gallons</u> <u>Removed</u>	<u>Appearance</u>
12:35	20.9	6.78	26,000	1.0	Light amber color
12:38	22.3	6.70	23,000	2.0	Light amber color
12:40	21.6	6.66	25,000	3.0	Light amber color
12:45	19.9	6.74	25,500	5.0	Clear
12:48	19.3	6.78	26,000	6.0	Clear

Note: Recharge rate too slow to allow 80% recharge before sampling on 6/18/97. Sample collected 6/20/97.

DO meter calibration:	<u>8.09 mg/L @ 26°C</u>	Time:	<u>10:40</u>
DO result (after purging well, mg/L):	<u>2.0</u>	Time:	<u>12:48</u>
Water level after purging prior to sampling (feet):	<u>2.35</u>	Time:	<u>6/20/97 9:12</u>
Appearance of sample:	<u>Light amber color</u>	Time:	<u>6/20/97 9:12</u>
Duplicate/blank number:	<u>None</u>	Time:	<u>--</u>
Purge method:	<u>Peristaltic pump</u>		
Sampling equipment:	<u>Disposable polyethylene bailer</u>	VOC attachment:	<u>None required</u>
Sample containers:	<u>One 1-liter amber glass</u>		
Sample analyses:	<u>TEPH as diesel</u>	Laboratory:	<u>Pace Analytical</u>
Decontamination method:	<u>TSP and water, DI water rinse</u>	Rinsate disposal:	<u>On-site drum (MW-SB2 to 5 &amp; PW-2)</u>

S9171-697.XLS (7/10/97)



**ATTACHMENT B**  
**LABORATORY REPORTS**

# Pace Analytical

June 30, 1997

RECEIVED  
JUL 1 - 1997  
BASELINE

Ms. Rhodora DelRosario  
Baseline  
5900 Hollis Street, Suite D  
Emeryville, CA 94608

RE: Pace Project Number: 708651  
Client Project ID: Port of OAK/Seabreeze/900431

Dear Ms. DelRosario:

Enclosed are the results of analyses for sample(s) received by the laboratory on June 20, 1997. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Ron Chew  
Project Manager

CA ELAP Certificate Number I2245

Enclosures

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

# Pace Analytical

Pace Analytical Services, Inc.  
1455 McDowell Blvd. North, Suite D  
Petaluma, CA 94954

Tel: 707-792-1865  
Fax: 707-792-0342  
DATE: 06/30/97  
PAGE: 1

Baseline  
5900 Hollis Street, Suite D  
Emeryville, CA 94608

Pace Project Number: 708651  
Client Project ID: Port of OAK/Seabreeze/900431

Attn: Ms. Rhodora DelRosario  
Phone: (510)420-8686

Solid results are reported on a wet weight basis

Pace Sample No: 701006942 Date Collected: 06/20/97 Matrix: Water  
Client Sample ID: PW-2 Date Received: 06/20/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Semi-VOA							
TPH by 8015M w/ silica gel							
	Method: EPA 8015M w/ SG				Prep Method: EPA 3520		
Diesel Fuel	ND	mg/L	0.05	06/26/97	JMH	11-84-7	
n-Pentacosane (S)	98	%		06/26/97	JMH	629-99-2	
Date Extracted				06/23/97			

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

# Pace Analytical

Pace Analytical Services, Inc.  
1455 McDowell Blvd. North, Suite D  
Petaluma, CA 94954

Tel: 707-792-1865  
Fax: 707-792-0342  
DATE: 06/30/97  
PAGE: 2

Pace Project Number: 708651  
Client Project ID: Port of OAK/Seabreeze/900431

Pace Sample No: 701006959 Date Collected: 06/20/97 Matrix: Water  
Client Sample ID: MW-SB2 Date Received: 06/20/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Semi-VOA							
TPH by 8015M w/ silica gel							Method: EPA 8015M w/ SG Prep Method: EPA 3520
Diesel Fuel	0.15	mg/L	0.05	06/26/97	JMH	11-84-7	
n-Pentacosane (S)	89	%		06/26/97	JMH	629-99-2	
Date Extracted				06/23/97			

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

# Pace Analytical

Pace Analytical Services, Inc.  
1455 McDowell Blvd. North, Suite D  
Petaluma, CA 94954

Tel: 707-792-1865

Fax: 707-792-0342

DATE: 06/30/97

PAGE: 3

Pace Project Number: 708651

Client Project ID: Port of OAK/Seabreeze/900431

Pace Sample No: 701006967 Date Collected: 06/20/97 Matrix: Water  
Client Sample ID: MW-SB3 Date Received: 06/20/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Semi-VOA							
TPH by 8015M w/ silica gel							Method: EPA 8015M w/ SG Prep Method: EPA 3520
Diesel Fuel	0.15	mg/L	0.05	06/26/97	JMH	11-84-7	
n-Pentacosane (S)	95	%		06/26/97	JMH	629-99-2	
Date Extracted				06/23/97			

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

# Pace Analytical

Pace Analytical Services, Inc.  
1455 McDowell Blvd. North, Suite D  
Petaluma, CA 94954

Tel: 707-792-1865

Fax: 707-792-0342

DATE: 06/30/97

PAGE: 4

Pace Project Number: 708651

Client Project ID: Port of OAK/Seabreeze/900431

Pace Sample No: 701006975 Date Collected: 06/20/97 Matrix: Water  
Client Sample ID: MW-SB3A Date Received: 06/20/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
------------	---------	-------	-----	----------	---------	------	-----------

GC -- Semi-VOA							
TPH by 8015M w/ silica gel			Method: EPA 8015M w/ SG			Prep Method: EPA 3520	
Diesel Fuel	0.11	mg/L	0.05	06/26/97	WSN	11-84-7	
n-Pentacosane (S)	111	x		06/26/97	WSN	629-99-2	
Date Extracted				06/23/97			

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

# Pace Analytical

Pace Analytical Services, Inc.  
1455 McDowell Blvd. North, Suite D  
Petaluma, CA 94954

Tel: 707-792-1865  
Fax: 707-792-0342  
DATE: 06/30/97  
PAGE: 5

Pace Project Number: 708651

Client Project ID: Port of OAK/Seabreeze/900431

Pace Sample No: 701006983 Date Collected: 06/20/97 Matrix: Water  
Client Sample ID: MW-SB4 Date Received: 06/20/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
------------	---------	-------	-----	----------	---------	------	-----------

C -- Semi-VOA							
TPH by 8015M w/ silica gel							
Diesel Fuel	0.11	mg/L	0.05	06/26/97	WSN	11-84-7	
n-Pentacosane (S)	105	%		06/26/97	WSN	629-99-2	
Date Extracted				06/23/97			

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

# Pace Analytical

Pace Analytical Services, Inc.  
1455 McDowell Blvd. North, Suite D  
Petaluma, CA 94954

Tel: 707-792-1865  
Fax: 707-792-0342  
DATE: 06/30/97  
PAGE: 6

Pace Project Number: 708651  
Client Project ID: Port of OAK/Seabreeze/900431

Pace Sample No: 701006991 Date Collected: 06/20/97 Matrix: Water  
Client Sample ID: MW-SB5 Date Received: 06/20/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
C -- Semi-VOA							
TPH by 8015M w/ silica gel							Method: EPA 8015M w/ SG Prep Method: EPA 3520
Diesel Fuel	0.27	mg/L	0.05	06/26/97	WSN	11-84-7	
n-Pentacosane (S)	108	%		06/26/97	WSN	629-99-2	
Date Extracted				06/23/97			

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.



# Pace Analytical

Pace Analytical Services, Inc.  
1455 McDowell Blvd. North, Suite D  
Petaluma, CA 94954

Tel: 707-792-1865

Fax: 707-792-0342

DATE: 06/30/97

PAGE: 7

Pace Project Number: 708651

Client Project ID: Port of OAK/Seabreeze/900431

---

## PARAMETER FOOTNOTES

D Not Detected  
NC Not Calculable  
PRL Pace Reporting Limit  
(S) Surrogate

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

# Pace Analytical

Pace Analytical Services, Inc.  
1455 McDowell Blvd. North, Suite D  
Petaluma, CA 94954

Tel: 707-792-1865

Fax: 707-792-0342

## QUALITY CONTROL DATA

DATE: 06/30/97

PAGE: 8

Baseline  
5900 Hollis Street, Suite D  
Emeryville, CA 94608

Pace Project Number: 708651

Client Project ID: Port of OAK/Seabreeze/900431

Attn: Ms. Rhodora DelRosario  
Phone: (510)420-8686

QC Batch ID: 24577

QC Batch Method: EPA 3520

Analysis Method: EPA 8015M w/ SG

Analysis Description: TPH by 8015M w/ silica gel

Associated Pace Samples: 701006942  
701006991

701006959 701006967 701006975 701006983

METHOD BLANK: 701007197

Associated Pace Samples:

701006942 701006959 701006967 701006975 701006983 701006991

Parameter	Units	Method Blank Result	PRL	Footnotes
Diesel Fuel	mg/L	ND	0.05	
n-Pentacosane (S)	%	92		

LABORATORY CONTROL SAMPLE & LCSD: 701007205

701007213

Parameter	Units	Spike		LCSD		Spike		Footnotes
		Conc.	Result	% Rec	Result	% Rec	RPD	
Diesel Fuel	mg/L	1.0	0.7166	71.7	0.5915	59.2	19	
n-Pentacosane (S)				113		99		

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

Data File: /chem/70gce04.i/062697.b/fidr0002.d

Date : 26-JUN-1997 09:14

Client ID: SSTD2500 Diesel Standard

Lab Sample ID: SSTD2500D

Column phase: J&W DB-1

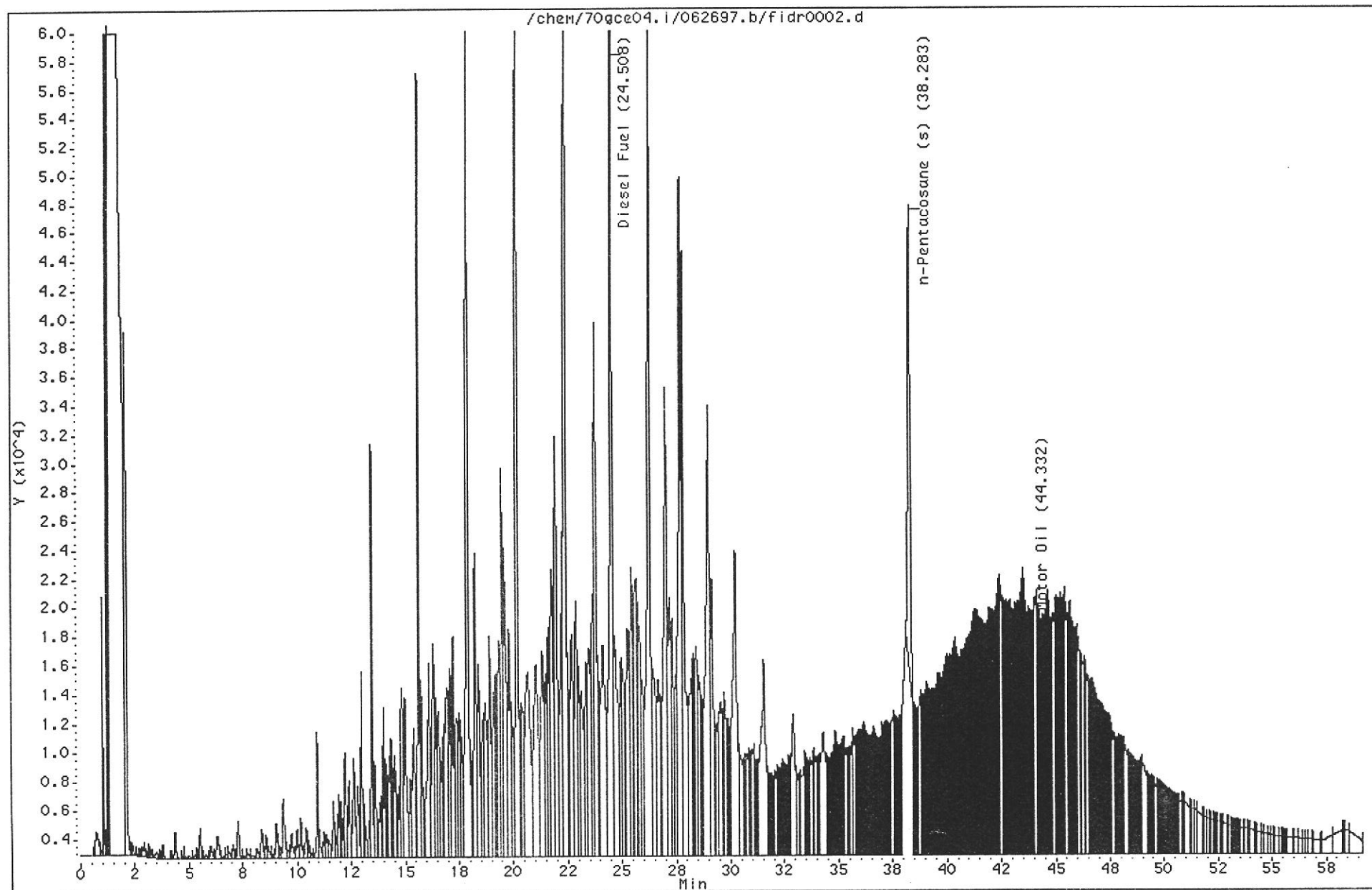
Instrument: 70gce04.i

Misc Info: SSTD2500D,,,,,Dcal-97D

Operator: PAA

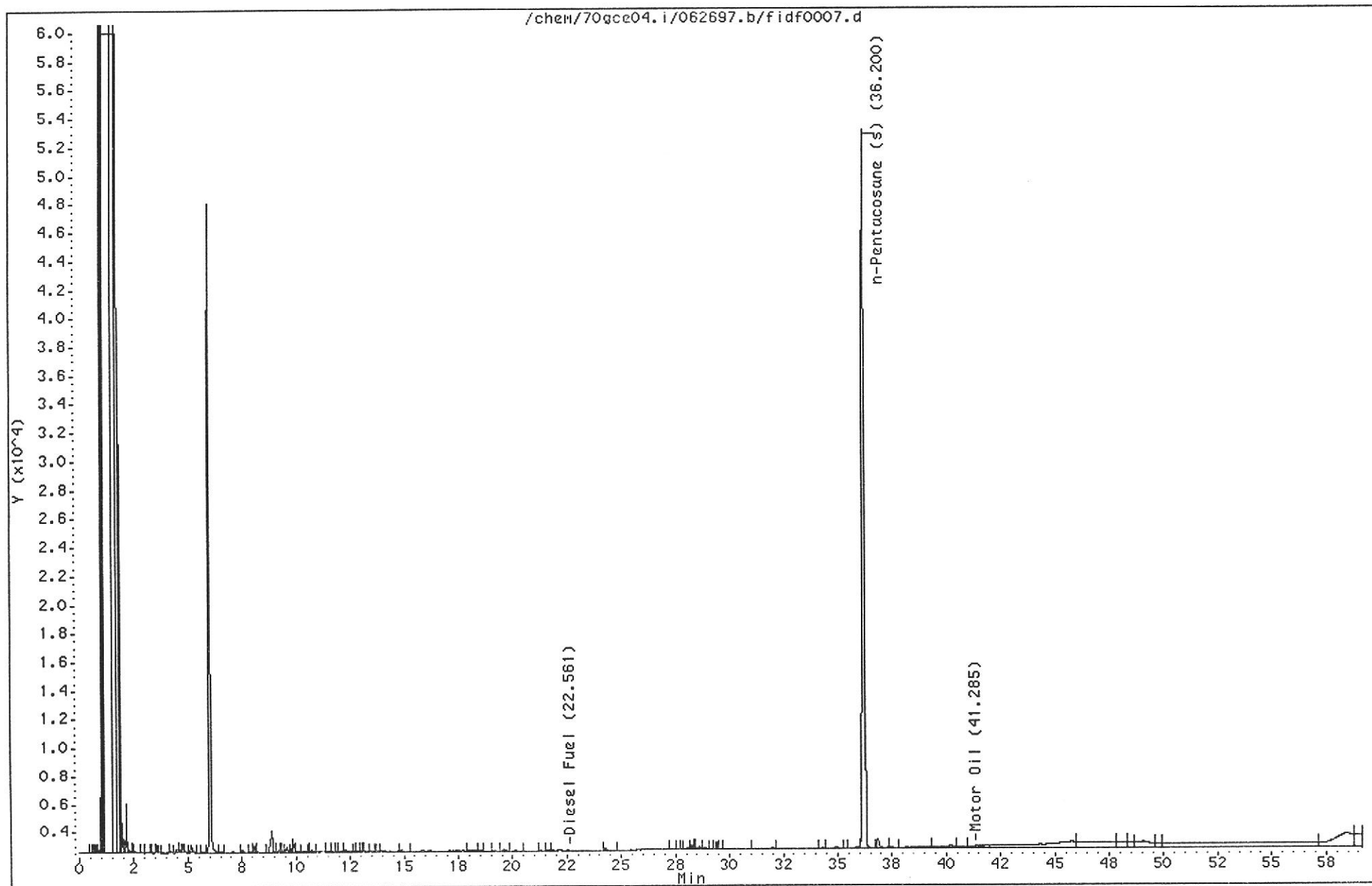
Column diameter: 0.53

Page 1



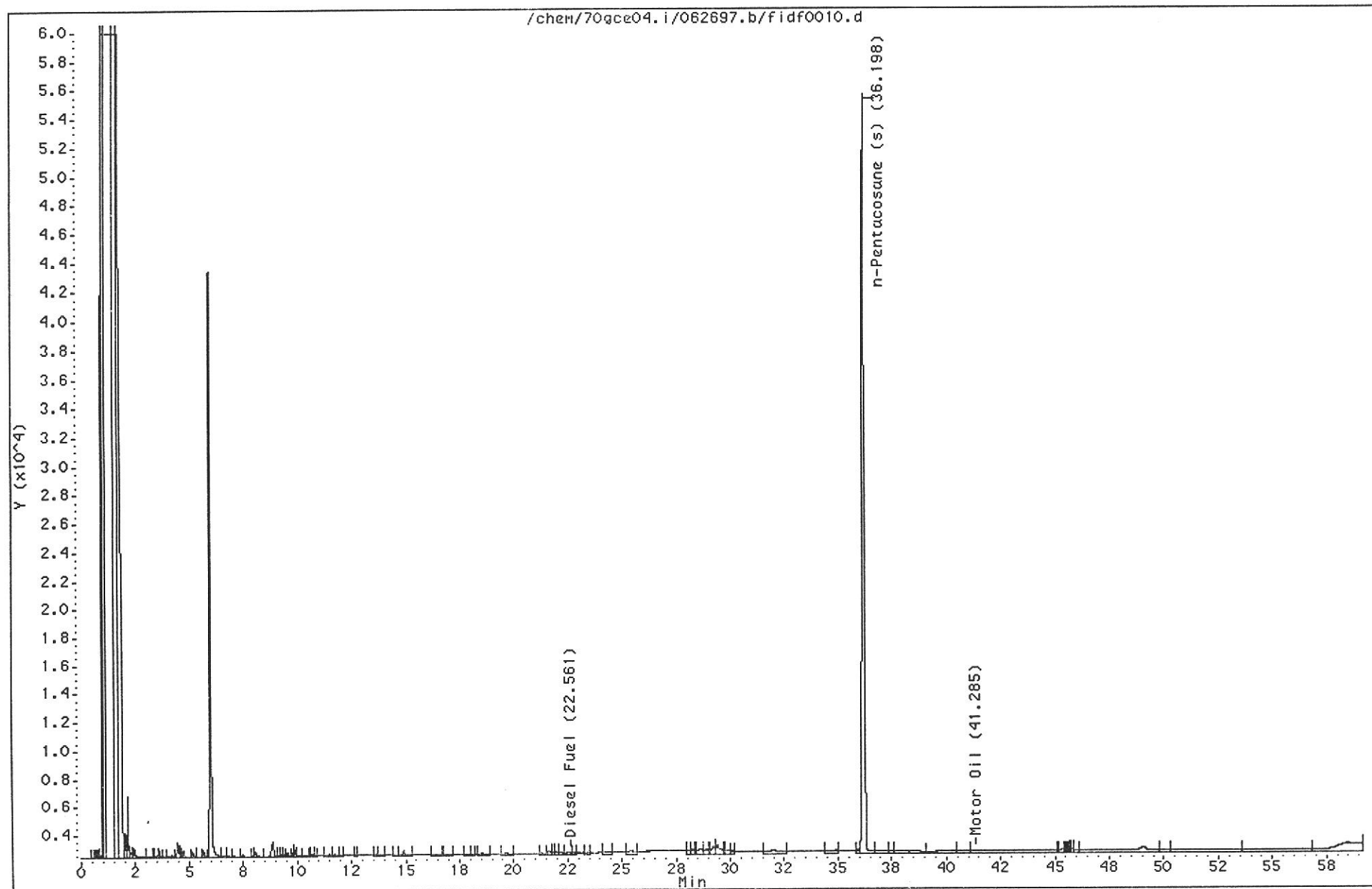
Data File: /chem/70gce04.i/062697.b/fidf0007.d  
Date : 26-JUN-1997 16:31  
Client ID: SBLKF1 *Blank standard*  
Lab Sample ID: 701007197  
Volume Injected (uL): 1.0  
Column phase: RESTEK XT1-5

Instrument: 70gce04.i  
Misc Info: 701007197,1,24577,,  
Operator: JMH  
Column diameter: 0.53



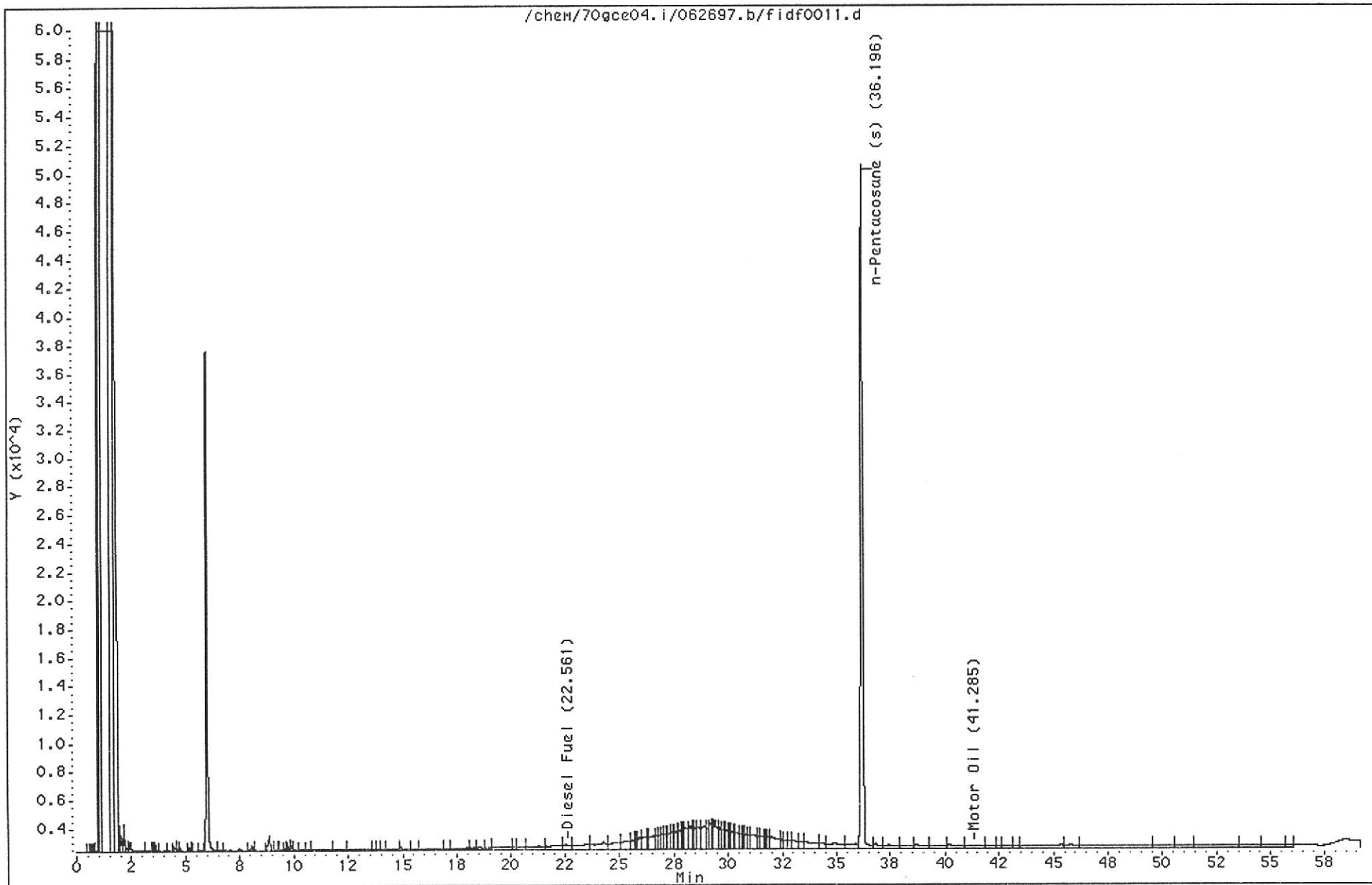
Data File: /chem/70gce04.i/062697.b/fidf0010.d  
Date : 26-JUN-1997 19:46  
Client ID: PW-2  
Lab Sample ID: 701006942  
Volume Injected (uL): 1.0  
Column phase: RESTEK XT1-5

Instrument: 70gce04.i  
Misc Info: 701006942,1,24577,,  
Operator: JMH  
Column diameter: 0.53



Data File: /chem/70gce04.i/062697.b/fidf0011.d  
Date: 26-JUN-1997 20:52  
Client ID: MW-SB2  
Lab Sample ID: 701006959  
Volume Injected (uL): 1.0  
Column phase: RESTEK XT1-5

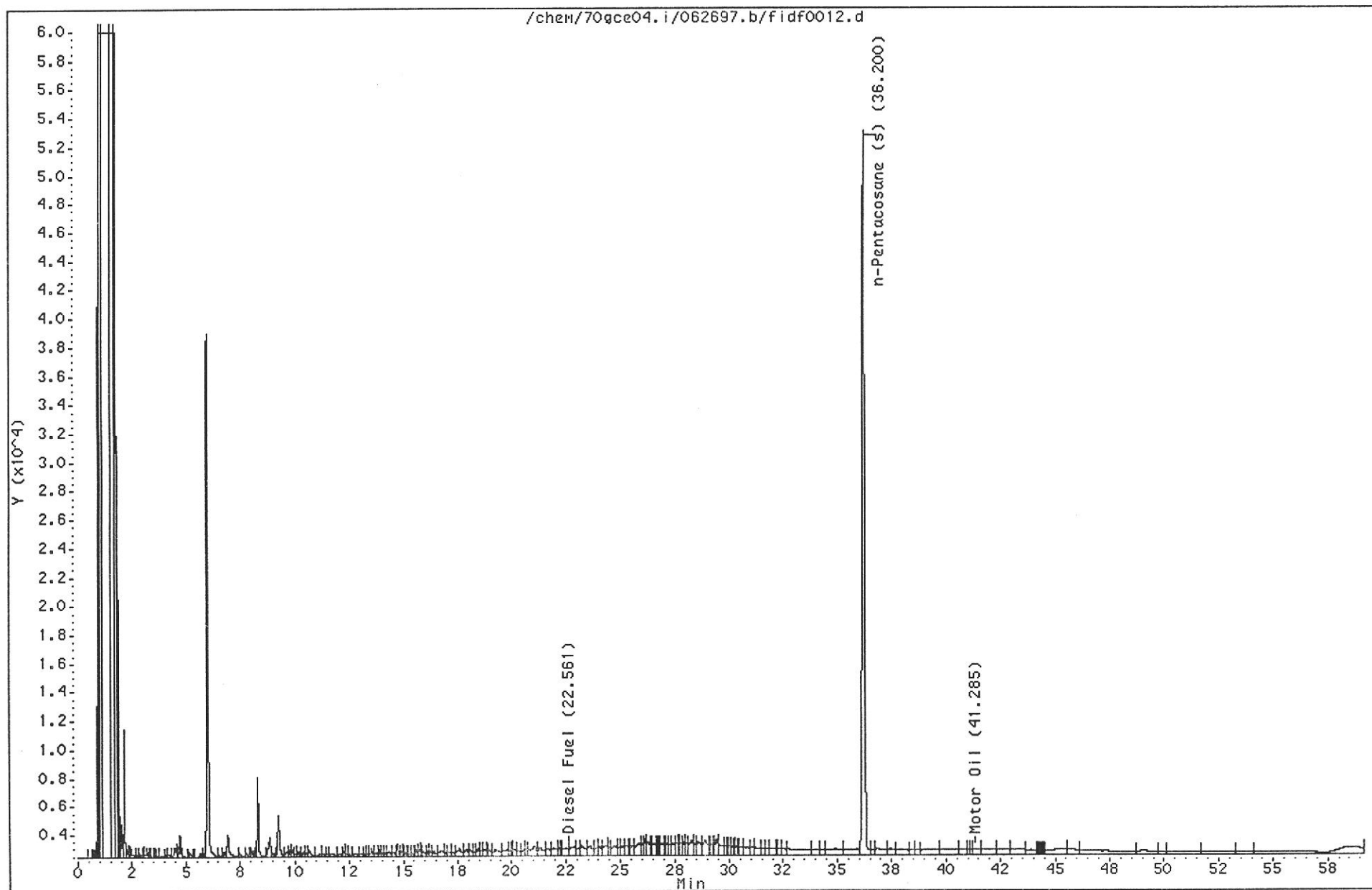
Instrument: 70gce04.i  
Misc Info: 701006959,1,24577,,,  
Operator: JMH  
Column diameter: 0.53



Data File: /chem/70gce04.i/062697.b/fidf0012.d  
Date : 26-JUN-1997 21:59  
Client ID: MW-SB3  
Lab Sample ID: 701006967  
Volume Injected (uL): 1.0  
Column phase: RESTEK XT1-5

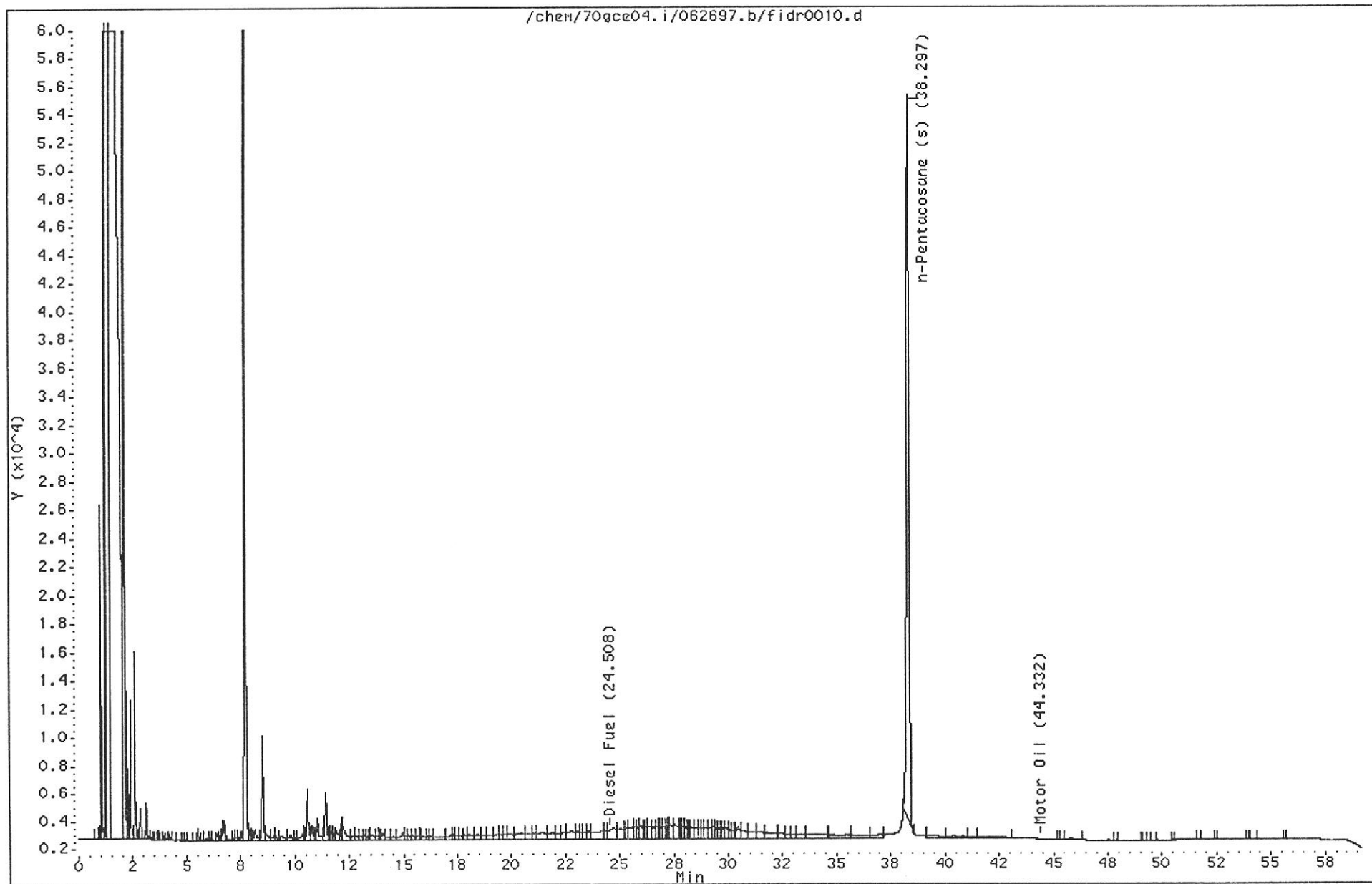
Page 1

Instrument: 70gce04.i  
Misc Info: 701006967,1,24577,,  
Operator: JMH  
Column diameter: 0.53



Data File: /chem/70gce04.i/062697.b/fidr0010.d  
Date: 26-JUN-1997 19:46  
Client ID: MW-SB3A  
Lab Sample ID: 701006975  
Volume Injected (uL): 1.0  
Column phase: J&W DB-1

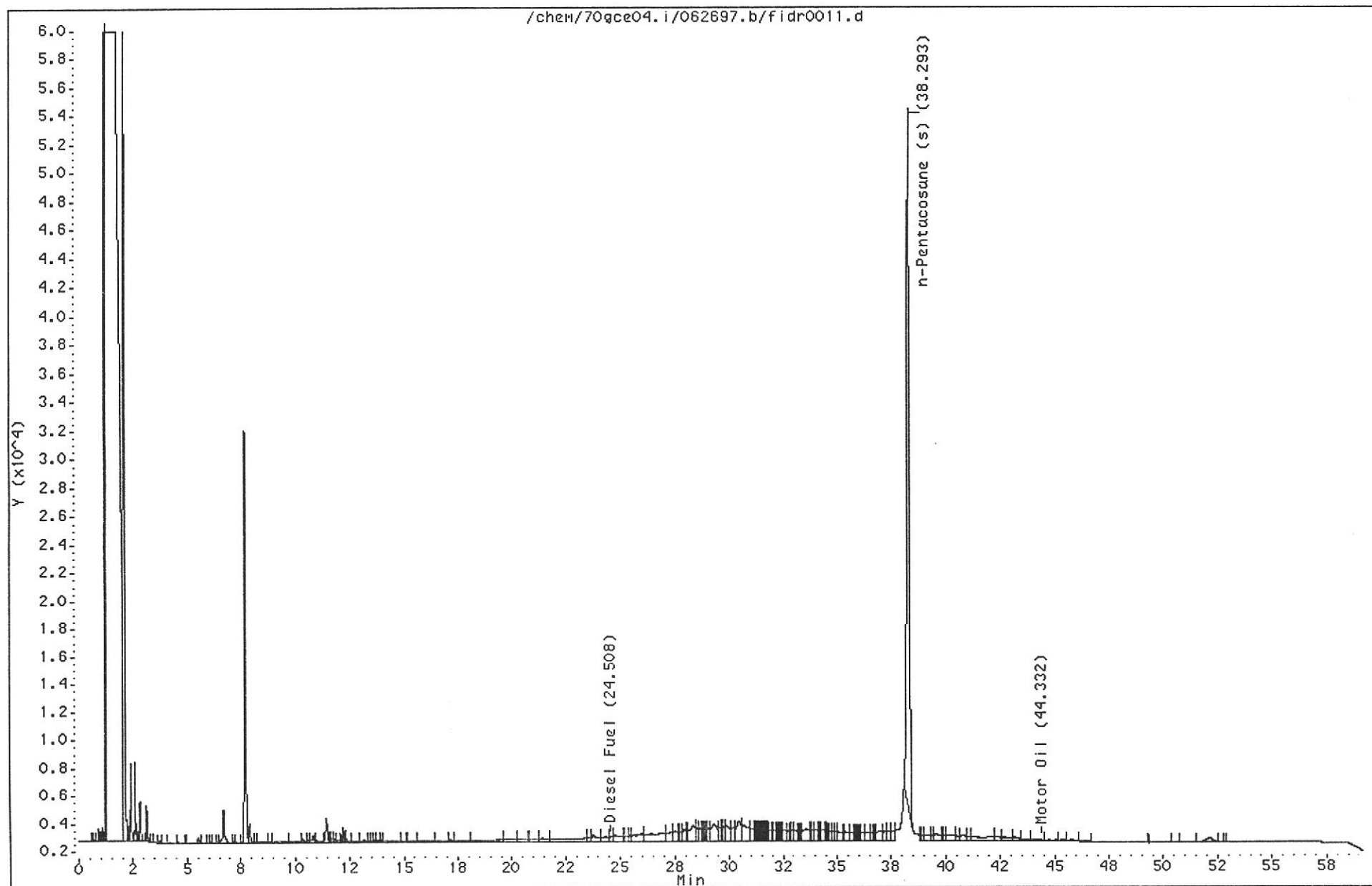
Instrument: 70gce04.i  
Misc Info: 701006975,1,24577,,,  
Operator: JMH  
Column diameter: 0.53





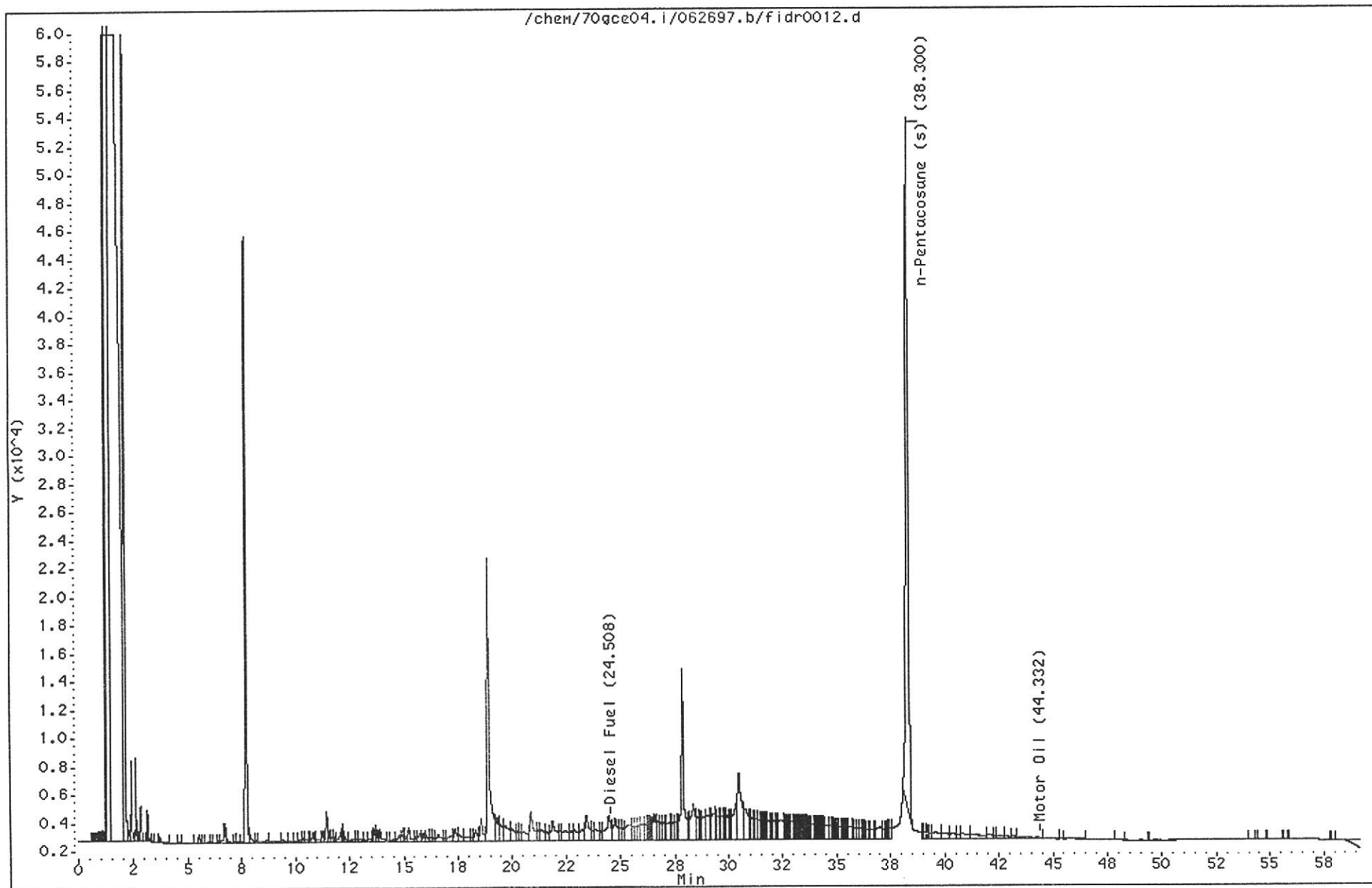
Data File: /chem/70gce04.i/062697.b/fidr0011.d  
Date : 26-JUN-1997 20:52  
Client ID: MW-SB4  
Lab Sample ID: 701006983  
Volume Injected (uL): 1.0  
Column phase: J&W DB-1

Instrument: 70gce04.i  
Misc Info: 701006983,1,24577,,,  
Operator: JMH  
Column diameter: 0.53



Data File: /chem/70gce04.i/062697.b/fidr0012.d  
Date: 26-JUN-1997 21:59  
Client ID: MW-SB5  
Lab Sample ID: 701006991  
Volume Injected (uL): 1.0  
Column phase: J&W DB-1

Instrument: 70gce04.i  
Misc Info: 701006991,1,24577,,  
Operator: JMH  
Column diameter: 0.53



**ATTACHMENT C**  
**QUALITY CONTROL CHECKLIST**

**Quality Control Checklist  
for Review of Laboratory Report**

Job No.: S9171-C1

Site: Seabreeze Site

Laboratory: PACE Analytical

Laboratory Report No: 708651

Report Date: 30 June 1997

BASELINE Review By: RPD

	Yes	No	NA
<b>GENERAL QUESTIONS</b> (Describe "no" responses below in "comments" section)			
1. Are the units in the laboratory report appropriate and consistent throughout the report? (e.g., mg/L for liquids, $\mu\text{g}/\text{kg}$ vs. mg/kg)	X		X
2. Are the detection limits appropriate based on the intended use of the data?	X		X
3a. Are detection limits appropriate based on the analysis performed? (i.e., not elevated due to dilution effects)	X		X
3b. If no, is an explanation provided? (If no, call the lab for an explanation).			X
4a. Were the samples analyzed within the appropriate holding time? (generally 2 weeks for volatiles, and up to 6 months for metals)	X		X
4b. If no, was it flagged in the report?			X
5. Was the lab report signed and dated as being reviewed by the laboratory director, QA manager, or other appropriate personnel?	X		X
6. Are the results consistent with previous analytical results from the site? (Contact the lab if results do not appear to be consistent with previous results and request review/reanalysis of data, as appropriate.)	X		
7a. Do the chromatograms confirm quantitative laboratory results? (petroleum hydrocarbons)	X		
7b. Do the chromatograms confirm laboratory notes, if present? (e.g., sample exhibits lighter hydrocarbon than standard).			X
<b>QA/QC QUESTIONS</b>			
<i>Field/Laboratory Quality Control</i>			
8. Are field blanks reported as "ND"? (groundwater samples) <i>A field blank is a sample of DI water which is prepared in the field using the same collection and handling procedures as the other samples collected, and used to demonstrate that the sampling procedure has not contaminated the sample.</i>			X
9. Are trip blanks reported as "ND"? (groundwater samples/volatiles analyses) <i>A trip blank is a sample of contaminant-free matrix placed in an appropriate container by the laboratory and transported with field samples collected. Provides information regarding positive interferences introduced during sample transport, storage, preservation, and analysis. The sample is NOT opened in the field.</i>			X
10. Are duplicate samples results consistent with the original sample? (groundwater samples) <i>Field duplicates consist of two independent samples collected at the same sampling location during a single sampling event. Used to evaluate precision of analytical data and sampling technique. (Differences between the duplicate and sample results may also be attributed to environmental variability.)</i>	X		

Laboratory Quality Control Checklist

Page 2

	Yes	No	NA
<p><b>Batch Quality Control</b>  <i>(Samples are batched together by matrix [soil or water] and analyses requested. A batch generally contains 20 or fewer samples of the same matrix type, and is prepared using the same reagents, standards, procedures, and time frame. QC samples are run with each batch to assess performance of the entire measurement process.)</i></p>			
11a. Are all sample QA/QC limits within laboratory control limits?	X		
11b. If exceedances of lab QC goals were identified, were they flagged in the report?			X
11c. If exceedances of lab QC goals were identified, were any corrective actions made by the laboratory? (Call lab to verify)			X
12. Are method blanks for the analytical method(s) below laboratory reporting limits? <i>A method blank is run for each analytical batch. Used to assess laboratory contamination and prevent false positive results. Method blanks should be "ND." However, common laboratory contaminants include acetone, methylene chloride, diethylhexyl phthalate, and di-n-octyl phthalate.</i>	X		
13. Are laboratory control samples (LCS) and LCS duplicate (LCSD) within laboratory limits? Limits should be provided on the report. <i>LCS is a reagent blank spiked with a representative selection of target analyte(s) and prepared in same manner as samples analyzed. The LCS should be spiked with the same analytes at the same concentrations as the matrix spike (below). The LCS is free of interferences from the sample matrix and demonstrates the ability of the laboratory instruments to recover the target analytes, especially if the MS/MSD fails QC goals. Accuracy (recovery information) is generally reported as % spike recovery; precision (reproducibility of results) between LCS and LCSD is generally reported as relative percent difference (RPD). LCS/LCSD can be run in addition to, or in lieu of, matrix QC data (if insufficient sample material is available).</i>	X		
14. Are the Matrix QC data (e.g., MS/MSD) within laboratory limits? Limits should be provided on laboratory report. <i>The lab selects a sample and analyzes a spike and spike duplicate of that sample. Alternatively, the lab can analyze a duplicate, and spike of a sample, if the sample is expected to contain target analytes. Matrix QC data is used to obtain precision and accuracy information; this information is reported in the same manner as LCS/LCSD.</i>	NA*		
<p><b>Sample Quality Control</b></p>			
15. Are the surrogate spikes reported within the laboratory's acceptable recovery limits? <i>A surrogate is a non-target analyte, which is similar in chemical structure as the analyte(s) being analyzed for. The surrogate is not commonly found in environmental samples. A known concentration of the surrogate is spiked into the sample or QA "sample" prior to extraction or sample preparation. Results are usually reported as % recovery of the spike. Used to evaluate the lab's accuracy of individual samples for volatiles including EPA Methods 8240, 8260, 8270, 8220, 8080, 8010, and 8015M. Failure to meet lab's acceptance limits results in rebatching and reanalysis of the sample. Repeated failure indicates that the sample result may be biased or is not amenable to analysis by the method used.</i>	X		

\* Not performed.