PORT OF OAKLAND

February 23, 1999

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

Subject: **Transmittal of Annual Groundwater Monitoring Report**
Seabreeze Yacht Center 280 Sixth Avenue Oakland

Dear Mr. Chan:

Enclosed please find Baseline Environmental Consulting's Annual Groundwater Monitoring Report for the former Seabreeze Yacht Center. This report documents the results of sampling monitoring wells MW-SB2 - MW-SB5 for total extractable petroleum hydrocarbons (TEPH) as diesel with silica gel cleanup. The results indicate that TEPH was not detected (< 50 ug/l) in the five monitoring wells; however, 0.13 mg/l TPH diesel was detected in the field duplicate for MW-SB3A.

I would like to discuss future groundwater monitoring at the meeting on February 23, 1999.

If you have any questions, please contact me at 272-1467.

Sincerely,

Diane Heinze

Diane Heinze, P.E.
Associate Environmental Scientist

encl: Baseline Annual Groundwater Monitoring Report dated January 1999

cc w/encl: Derek Lee, RWQCB

cc w/out encl: Rhodora Del Rosario, Baseline Environmental
Jonathon Redding, Fitzgerald, Abbott & Beardsley
Michele Heffes

530 Water Street ■ Jack London Square ■ P.O. Box 2064 ■ Oakland, California 94604-2064
Telephone (510) 272-1100 ■ Fax (510) 272-1172 ■ TDD (510) 763-5703 ■ Cable address, PORTOFOAK, Oakland

BASELINE

Annual Groundwater Monitoring Report

JANUARY 1999

Former Seabreeze Yacht Center
Oakland, California

For:

Port of Oakland
Oakland, California

S9171-C1

5900 Hollis Street, Suite D • Emeryville, CA 94608 • (510) 420-8686

BASELINE
ENVIRONMENTAL CONSULTING

18 February 1999
S9171-C1

Ms. Diane Heinze
Port of Oakland
Environmental Health and Safety Compliance Department
530 Water Street
Oakland, California 94607

Subject: Annual Groundwater Monitoring Report, January 1999, Former Seabreeze Yacht Center, Inc. Site, 280 6th Avenue, Oakland, California

Dear Ms. Heinze:

This report documents the groundwater sampling activities performed in January 1999 at the former Seabreeze Yacht Center, Inc. Site (Site), located at 280 6th Avenue, California (Figure 1). The groundwater monitoring was conducted in accordance with the 2 September 1997 letter from Alameda County Health Care Services Agency, Department of Environmental Health (County) to the Port. The County approved the Port's request to: 1) modify the groundwater monitoring network to include only monitoring wells MW-SB2, MW-SB3, MW-SB4, and MW-SB5 (Figure 2); 2) perform groundwater monitoring on an annual basis; and 3) analyze collected groundwater samples for total extractable petroleum hydrocarbons (TEPH) as diesel, with a silica gel cleanup. The County required the Port to conduct groundwater monitoring during the first quarter of each year, for an unspecified period.

FIELD ACTIVITIES, JANUARY 1999

The presence of free product was checked and water levels were measured in monitoring wells MW-SB2, MW-SB3, and MW-SB4 on 4 January 1999, and MW-SB5 on 5 January 1999 using a dual-interface probe[1]. 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.

No sheen or free product was observed in any of the wells. The aboveground portion of monitoring well MW-SB2 appeared to have been damaged within the last year. The

[1] MW-SB5 was not accessible on 4 January 1999; the entrance gate to the Port-leased property on which MW-SB5 is located [Orient Reefer Container Service (ORCS)] was locked; an ORCS representative provided access to the property on the following day, 5 January 1999.

aboveground well head protection steel casing and inner polyvinyl chloride inner casing of the well were in a slanted position, as if a vehicle/moving equipment accidentally ran into the well. Although BASELINE adjusted the casings back into an upright position, the water level measurements from this well may not be representative.

Following collection of water level measurements, the monitoring network wells were purged of more than three well casing volumes; wells MW-SB2, MW-SB3, and MW-SB4 were purged on 4 January 1999 and well MW-SB5 was purged on 5 January 1999. The wells were slowly purged using a peristaltic pump with new, disposable polyethylene tubing lowered inside the wells (the portion of tubing attached to the pump consisted of silicone; the remaining sections of the tubing consisted of polyethylene). Electrical conductivity, pH, and temperature parameters of the purge water were monitored during purging. Stable parameter readings were obtained from all wells, except MW-SB3. The electrical conductivity readings from the purge water from well MW-SB3 did not stabilize after the removal of more than five well volumes; the well was pumped dry. Dissolved oxygen readings of the groundwater from each well were collected after purging activities.

The water levels in all the monitoring wells did not recover to 80 percent of their original water levels on the days the wells were purged (4 January 1999 for wells MW-SB2, MW-SB3 and MW-SB4; 5 January for MW-SB5). Therefore, groundwater samples were collected on 6 January 1999, after sufficient water was available in all the wells. Groundwater samples were collected from wells MW-SB3, MW-SB4, and MW-SB5 using new disposable polyethylene bailers. A duplicate groundwater sample (MW-SB3A) was collected from well MW-SB3. A groundwater sample was collected from well MW-SB2 using a peristaltic pump with new, disposable polyethylene tubing lowered inside the well; a disposable bailer could not be inserted into this well because of the recent damage to its aboveground portion, as described above. 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 Curtis and Tompkins of Berkeley and were analyzed for TEPH as diesel (EPA Method 8015M). 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 January 1999 sampling activities. The drum was labeled and stored on-site for future off-site disposal (conducted by the Port).

ANALYTICAL RESULTS

The analytical results are summarized in Table 1 and the laboratory report is presented in Attachment B. TEPH as diesel was not identified in any of the samples collected from the monitoring network wells above the laboratory reporting limits. The duplicate water sample collected from well MW-SB3 however, contained 0.13 milligrams per liter (mg/L) of TEPH as diesel; the laboratory indicated that the sample chromatogram exhibited a fuel pattern which did not resemble the diesel standard and that the chromatogram indicated heavier hydrocarbons than the diesel standard.

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 and the laboratory quality control results were reported within laboratory specified recovery limits. However, the TEPH as diesel results of the duplicate groundwater sample, MW-SB3A (0.13 mg/L), and original groundwater sample, MW-SB3 (<0.049 mg/L), were inconsistent; both samples were collected from well MW-SB3. The laboratory reconfirmed the analytical results for both MW-SB3 and MW-SB3A. Since the MW-SB3A result (0.13 mg/L) is consistent with previous TEPH as diesel concentrations contained in the July 1997 samples (MW-SB3 and MW-SB3A) collected from well MW-SB3, the discrepancy between the original and duplicate results should be considered insignificant.

GROUNDWATER FLOW DIRECTION

Recently collected and historic groundwater elevation data are summarized in Table 2. The groundwater elevation data collected on 4 and 5 January1999 were used to develop groundwater elevation contours (Figure 2). The groundwater flow direction is generally toward the east.

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

Sincerely,

Yane Nordhav
Principal
Reg. Geologist #4009

Rhodora Del Rosario
Civil Engineer

YN:RD:km
Attachments

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

		Metals[1]		Total Extractable Hydrocarbons[2]		
Sample ID	**Sample Date**	**Lead**	**Copper**	**Diesel**	**Bunker C**	**Motor Oil**
PW-2	02/02/95	**0.0043**	--	--	--	--
	03/06/95	--	--	**1.7**[3,4]	**4.4**[3,4]	**1.1**[3,4]
	07/01/96	<0.003	<0.01	<0.049	<0.3	--
	09/16/96	<0.003[10]	<0.005[11]	<0.05	<0.5	<0.25
	12/11/96	**0.0101**[10]	<0.003[11]	**0.11**[13]	<0.5	<0.25
	03/14/97	**0.00401**[10]	<0.003[11]	<0.05	<0.5	<0.25
	06/20/97	--	--	<0.05	--	--
	01/28/98	--	--	--	--	--
	01/06/99	--	--	--	--	--
MW-SB2	04/09/91	<0.06[7]	<0.02[8]	--	--	--
	04/19/91	<0.07	**0.0481**	--	--	--
	01/10/94	<0.10[7]	<0.02[8]	--	--	--
	12/26/94	<0.0048[8]	**0.014**[8]	--	--	--
	03/06/95	--	--	**16.0**[3,4]	**28.0**[3,4]	**4.9**[3,4]
	07/01/96	<0.003	**0.055**	<0.05	<0.3	--
	09/16/96[9]	<0.003[10]	<0.005[11]	<0.05	<0.5	<0.25
	12/11/96	**0.00855**[10]	**0.00354**[11]	**0.16**[13]	<0.5	<0.25
	03/14/97	**0.00314**[10]	<0.003[11]	**0.061**	<0.5	<0.25
	06/20/97	--	--	**0.15**	--	--
	01/28/98	--	--	<0.05[15]	--	--
	01/06/99	--	--	<0.048	--	--
MW-SB2A	03/06/95	--	--	**18.0**[3,4,5]	**33.0**[3,4,5]	<25.0[3,4,5]
	07/01/96	<0.003	**0.065**	**0.17**[6]	<0.3[4]	--
	09/16/96	<0.003[10]	<0.005[11]	**0.17**	<0.5[4]	<0.25
	12/11/96	--	--	--	--	--
	03/14/97	--	--	--	--	--
	06/20/97	--	--	--	--	--
	01/28/98	--	--	--	--	--
	01/06/99	--	--	--	--	--
MW-SB3	03/06/95	--	--	**4.5**[3,4]	**5.8**[3,4]	**1.5**[3,4]
	07/01/96	**0.0036**	<0.01	<0.049	<0.3	--
	09/16/96	<0.003[10]	<0.005[11]	<0.05[3]	<0.5	**0.28**[3]
	12/11/96	<0.003[10]	<0.003[11]	**0.19**[13]	<0.5	<0.25
	03/14/97	<0.003[10]	**0.00529**[11]	**0.085**[14]	<0.5	<0.25
	06/20/97	--	--	**0.15**	--	--
	01/28/98	--	--	<0.05[15]	--	--
	01/06/99	--	--	<0.049[16]	--	--

Table 1 *continued*

Sample ID	Sample Date	Metals[1]		Total Extractable Hydrocarbons[2]		
		Lead	Copper	Diesel	Bunker C	Motor Oil
MW-SB3A	06/20/97	--	--	**0.11**	--	--
	01/28/98	--	--	<0.05[15]	--	--
	01/06/99	--	--	**0.13**[6,17]	--	--
MW-SB4	03/03/95	--	--	**4.5**[3]	**3.0**[3]	**0.66**[3]
	07/01/96	**0.014**	**0.013**	<0.049	<0.3	--
	09/16/96	<0.003[10]	<0.005[11]	<0.05	<0.5	<0.25
	12/11/96	**0.00465**[10]	**0.00674**[11]	**0.12**[13]	<0.5	<0.25
	03/14/97	**0.00519**[10]	<0.003[11]	<0.05	<0.5	<0.25
	06/20/97	--	--	**0.11**	--	--
	01/28/98	--	--	<0.05[15]	--	--
	01/06/99	--	--	<0.049	--	--
MW-SB5	03/06/95	--	--	**15.0**[3,4]	**34.0**[3,4]	**8.1**[3,4]
	07/01/96	**0.0031**	**0.012**	<0.049	<0.3	--
	09/16/96	<0.003[10]	<0.005[11]	**0.14**[3,12]	<0.5	<0.25
	12/11/96	**0.00344**[10]	<0.003[11]	**0.16**[13]	<0.5	<0.25
	03/14/97	<0.003[10]	**0.00318**[11]	**0.29**	<0.5	<0.25
	06/20/97	--	--	**0.27**	--	--
	01/28/98	--	--	<0.05[15]	--	--
	01/06/99	--	--	<0.05	--	--
MW-SB5A	03/06/95	--	--	**15.0**[3,4,5]	**31.0**[3,4,5]	**6.9**[3,4,5]
	12/11/96	<0.003[10]	<0.003[11]	**0.081**[13]	<0.5	<0.25
	03/14/97	<0.003[10]	<0.003[11]	**0.22**	<0.5	<0.25
	06/20/97	--	--	--	--	--
	01/28/98	--	--	--	--	--
	01/06/99	--	--	--	--	--

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 collected from well MW-SB2.
MW-SB3A = duplicate sample collected from well MW-SB3.
MW-SB5A = duplicate sample collected from well MW-SB5.
Refer to Figure 2 for well locations (note that the location of well PW-2 is not shown on Figure 2 as groundwater samples were not collected from this well in 1999).
Laboratory reports for the January 1999 sampling event are included in Attachment B.

1 Analytical Method EPA 6010A, unless otherwise noted.
2 Analytical Method California DOHS, LUFT Manual (EPA 8015M). Samples were subjected to silica gel cleanup (EPA Method 3630) prior to analysis, unless otherwise noted.
3 Sample chromatogram does not resemble hydrocarbon standard.
4 Samples were not subjected to silica gel cleanup prior to analysis.
5 Duplicate sample centrifuged prior to TEPH analyses.

Table 1 *continued*

[6] Sample exhibited fuel pattern which did not resemble standard.
[7] Analyzed using EPA Method 7420.
[8] Analyzed using EPA Method 7210.
[9] 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.
[10] Analyzed using EPA method 7421. Sample filtered by the laboratory prior to analysis.
[11] Analyzed using EPA Method 7211. Sample filtered by the laboratory prior to analysis.
[12] Laboratory indicated that miscellaneous peaks were present in the diesel range.
[13] 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.
[14] 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.
[15] The corresponding method blank sample (laboratory sample) contained 0.067 mg/L of a hydrocarbon reported to be heavier than diesel. The laboratory indicated that the method blank sample result should not affect the data quality since the collected samples did not contain diesel above the laboratory reporting limit.
[16] The corresponding duplicate sample, MW-SB3A, was reported to contain diesel above the laboratory reporting limit.
[17] The laboratory indicated that the sample chromatogram contained heavier hydrocarbons than the diesel standard.

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[1]	02/15/95[2]	--	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
	01/26/98	10:43			4.0	2.57
	01/04/99	--			--	--
MW-SB2[3]	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
	01/26/98	10:02			1.65	5.53
	01/04/99	8:11			3.30	3.88[5]
MW-SB3[3]	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
	01/26/98	9:20			5.12	2.98
	01/04/99	8:20			5.97	2.13

Table 2 *continued*

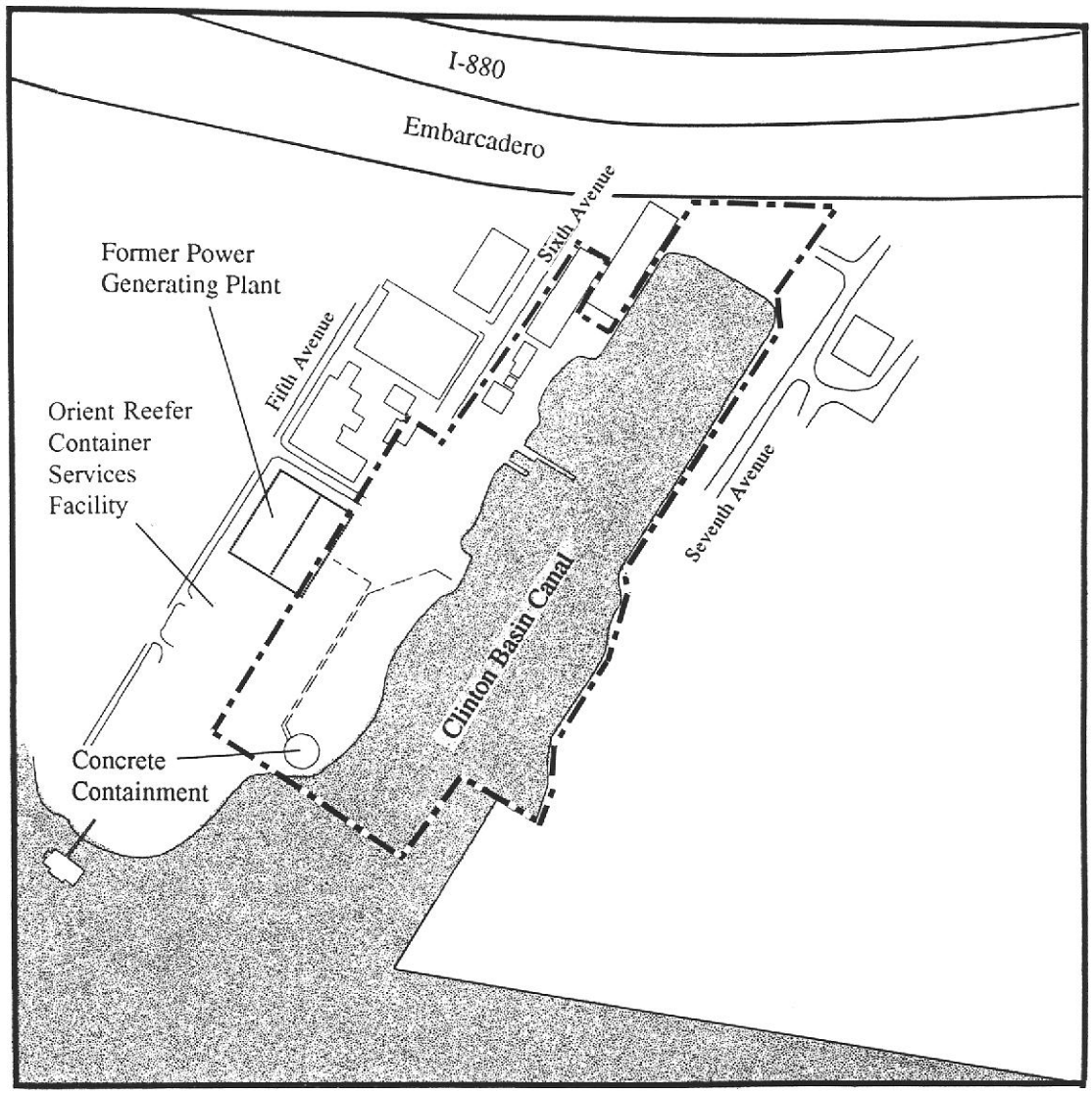
Well	Date	Time	Surface Elevation (msl)	TOC Elevation (msl)	Depth to Groundwater (feet)	Groundwater Elevation (msl)
MW-SB4[4]	11/28/94	9:02	6.6	6.39	1.05	5.34
	03/03/95	8:35			0.90	5.49
	06/28/96	8:28			3.16	3.23
	09/16/96	8:52			2.85	3.54
	12/11/96	9:28			0.65	5.74
	03/12/97	9:07			2.53	3.86
	06/18/97	9:25			3.10	3.29
	01/26/98	10:30			0.88	5.51
	01/04/99	8:26			2.55	3.84
MW-SB5[4]	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
	01/26/98	14:10			1.42	4.88
	01/05/99	12:20			3.50	2.80

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.
01/26/98: High tide 10:10; Low tide 4:00 and 16:57.
01/04/99: High tide 2:21 and 13:06; Low tide 7:13 and 19:53.
01/05/99: High tide 3:07 and 13:54; Low tide 8:09 and 20:37.
-- = No data.
msl = Feet above mean sea level.
TOC = Top of casing.
Refer to Figure 2 for well locations (note that the location of Well PW-2 is not shown on Figure 2 as groundwater levels were not collected from this well in 1999).

[1] Well survey conducted by Bates & Bailey 2/8/95.
[2] Groundwater elevation measured by SOMA; all other elevations measured by BASELINE.
[3] Well survey conducted by Bates & Bailey 11/18/94.
[4] Well survey conducted by Bates & Bailey 11/28/94.
[5] During groundwater sampling activities on 1/4/99, the aboveground well head protection steel outer casing and inner polyvinyl chloride casing of this monitoring well appeared to have been damaged (outer and inner casings were in a slightly slanted position); therefore, groundwater elevation measurements may be skewed.

PROJECT AND REGIONAL LOCATION

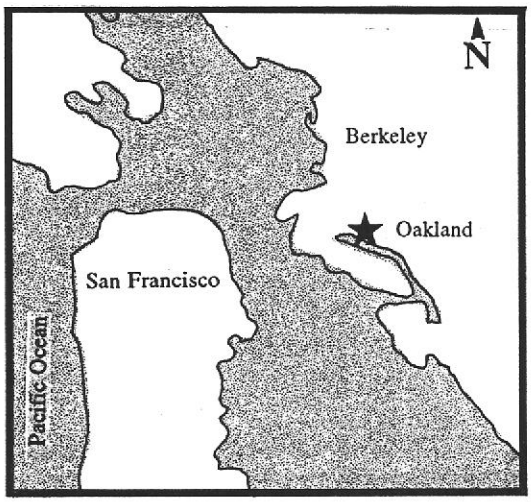
Figure 1



0 300 Feet

Legend

Seabreeze Yacht Center



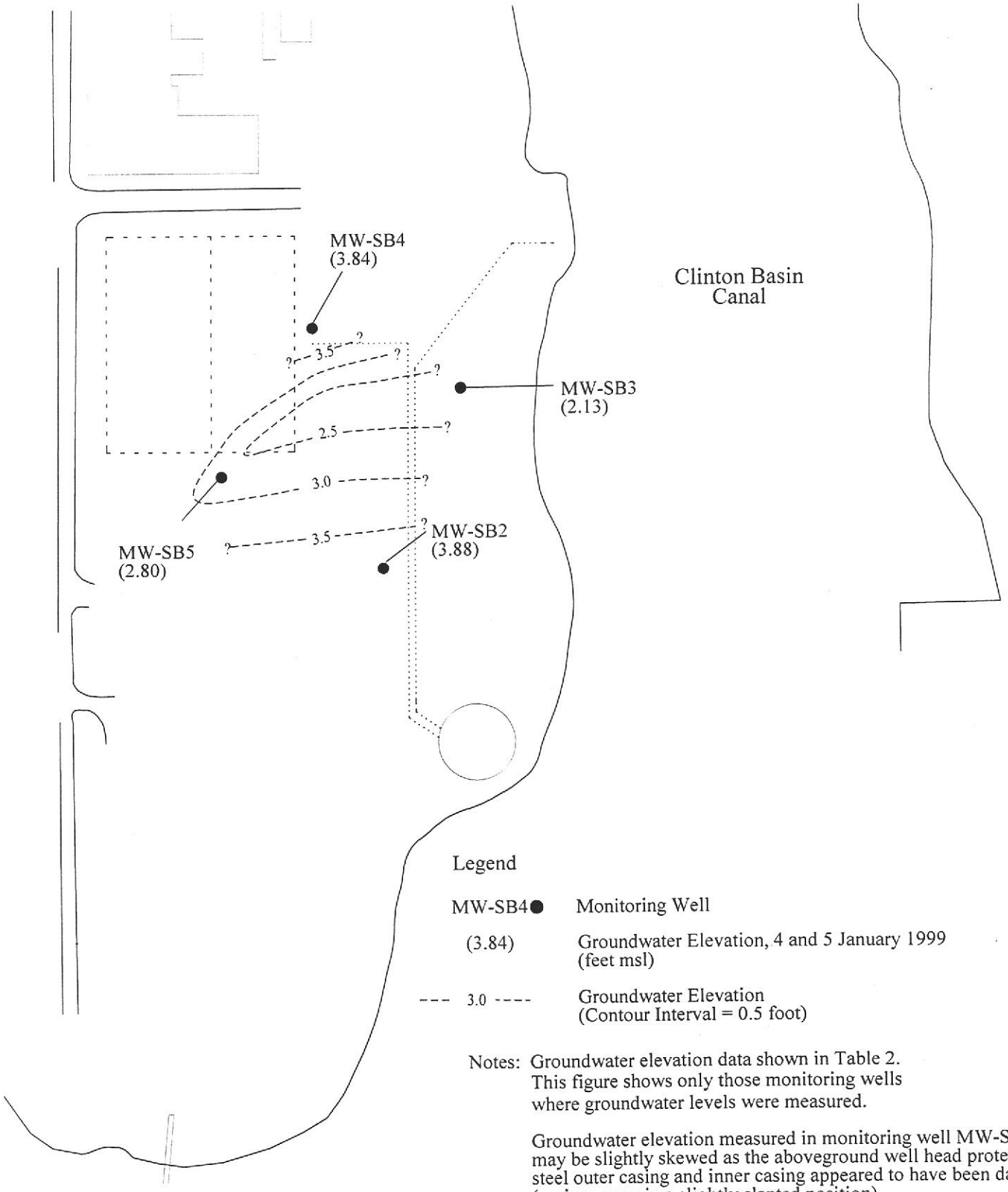
Seabreeze Yacht Center
Oakland, California

BASELINE

S9171-CO 8/18/95

MONITORING WELL LOCATIONS AND GROUNDWATER CONTOUR, JANUARY 1999

Figure 2



Legend

MW-SB4●	Monitoring Well
(3.84)	Groundwater Elevation, 4 and 5 January 1999 (feet msl)
--- 3.0 ----	Groundwater Elevation (Contour Interval = 0.5 foot)

Notes: Groundwater elevation data shown in Table 2. This figure shows only those monitoring wells where groundwater levels were measured.

Groundwater elevation measured in monitoring well MW-SB2 may be slightly skewed as the aboveground well head protection steel outer casing and inner casing appeared to have been damaged (casings were in a slightly slanted position).

Seabreeze Yacht Center
Sixth Avenue
Oakland, California

0 100 Feet

S9171-CO 2/3/99 D:\Graphics\Seabreeze\S9171MW198.VCD

ATTACHMENT A

GROUNDWATER SAMPLING FORMS

GROUNDWATER SAMPLING

Project no.:	S9171-C1	Well no.:	MW-SB2	Date:	1/4/99
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):	3.30	Time:	8:11
Precip in past		Product level from TOC (feet):	None	Time:	8:11
5 days (inch):	0	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(11.0 ft) - (3.30 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

1.2 gallons in one well volume
3.7 gallons in 3 well volumes
5.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	--	--	7.00/10.01	1,000
Before Purging:	8:30	8.2	7.00/10.01	1,000
After Purging:	12:10	11.4	6.84/9.98	1,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
11:00	13.7	6.43	11,000	0.5	Clear with black particulate matter
11:05	12.7	6.55	10,000	1.0	Clear with black particulate matter
11:10	12.3	6.53	10,000	2.5	Clear with black particulate matter
11:14	11.9	6.51	10,000	3.5	Clear with black particulate matter
11:20	13.7	6.37	11,000	5.0	Clear with black particulate matter

Note: Recharge rate too slow to allow 80% recharge in all wells on 1/4/99. Sample collected 1/6/99, after all wells had recharged to within 80%.

DO meter calibration:	11.27 mg/L @ 10°C	Time:	8:30
DO result (after purging well, mg/L):	2.5	Time:	11:20
Water level after purging prior to sampling (feet):	4.10	Time:	12:10 (1/6/99)
Appearance of sample:	Clear	Time:	12:10 (1/6/99)
Duplicate/blank number:	None	Time:	--
Purge method:	Peristaltic pump		
Sampling equipment:	Peristaltic pump and tubing*	VOC attachment:	None required
Sample containers:	One 1-liter amber glass		
Sample analyses:	TEPH as diesel	Laboratory:	Curtis & Tompkins
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	On-site drum

* A disposable bailer could not be inserted in well; well top observed to be damaged during sampling activities.

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GROUNDWATER SAMPLING

Project no.:	S9171-C1	Well no.:	MW-SB3	Date:	1/4/99
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):	5.97	Time:	8:20
Precip in past		Product level from TOC (feet):	None	Time:	8:20
5 days (inch):	0	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(11.06 ft) - (5.97 ft)] × (0.083 ft)² × 3.14 × 7.48 =

Well depth Water level Well radius

0.8 gallons in one well volume
2.5 gallons in 3 well volumes
4.2 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	--	--	7.00/10.01	1,000
Before Purging:	8:30	8.2	7.00/10.01	1,000
After Purging:	12:10	11.4	6.84/9.98	1,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:26	13.9	6.77	13,000	1.0	Clear with black particulate matter
10:30	14.0	6.69	13,000	2.0	Clear with black particulate matter
10:34	14.9	6.61	18,000	3.0	Clear with black particulate matter
10:38	14.8	6.72	22,000	4.0	Clear with black particulate matter
10:39	Well Pumped Dry		--	4.2	Clear with black particulate matter

Note: Recharge rate too slow to allow 80% recharge in all wells on 1/4/99. Sample collected 1/6/99, after all wells had recharged to within 80%.

DO meter calibration:	11.27 mg/L @ 10°C		Time: 8:30
DO result (after purging well, mg/L):	3.2		Time: 10:38
Water level after purging prior to sampling (feet):	6.88		Time: 11:58 (1/6/99)
Appearance of sample:	Clear		Time: 12:00 (1/6/99)
Duplicate/blank number:	MW-SB3A		Time: 12:09 (1/6/99)
Purge method:	Peristaltic pump		
Sampling equipment:	Disposable polyethylene bailer	VOC attachment:	None required
Sample containers:	Two 1-liter amber glass		
Sample analyses:	TEPH as diesel	Laboratory:	Curtis &Tompkins
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	On-site drum

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GROUNDWATER SAMPLING

Project no.:	S9171-C1	Well no.:	MW-SB4	Date:	1/4/99
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):	2.55	Time:	8:26
Precip in past		Product level from TOC (feet):	None	Time:	8:26
5 days (inch):	0	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(14.75 ft) - (2.55 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

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

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	--	--	7.00/10.01	1,000
Before Purging:	8:30	8.2	7.00/10.01	1,000
After Purging:	12:10	11.4	6.84/9.98	1,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
11:40	13.4	7.12	2,200	1.0	Clear
11:44	13.2	7.10	1,500	2.0	Clear
11:50	12.0	7.11	1,300	3.0	Clear
11:56	11.8	7.11	1,250	4.0	Clear
12:00	11.5	7.14	1,300	5.0	Clear
12:08	12.4	7.07	1,300	7.0	Clear

Note: Recharge rate too slow to allow 80% recharge in all wells on 1/4/99. Sample collected 1/6/99, after all wells had recharged to within 80%.

DO meter calibration:	11.27 mg/L @ 10°C	Time:	8:30
DO result (after purging well, mg/L):	2.6	Time:	12:08
Water level after purging prior to sampling (feet):	2.62	Time:	11:44 (1/6/99)
Appearance of sample:	Clear	Time:	11:44 (1/6/99)
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:	Curtis & Tompkins
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	On-site drum

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GROUNDWATER SAMPLING

Project no.:	S9171-C1	Well no.:	MW-SB5	Date:	1/5/99
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):	6.30		
Weather:	Sunny	Water level from TOC (feet):	3.50	Time:	12:20
Precip in past		Product level from TOC (feet):	None	Time:	12:20
5 days (inch):	0	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(14.75 ft) - (3.50 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

1.8 gallons in one well volume
5.5 gallons in 3 well volumes
6.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	--	--	7.00/10.01	1,000
Before Purging:	12:30	13.0	7.00/10.01	1,000
After Purging:	13:00	8.3	7.06/10.16	1,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
12:31	13.4	6.83	25,000	1.0	Light amber color
12:35	14.2	6.76	22,500	2.0	Light amber color
12:40	14.1	6.77	20,000	3.0	Light amber color
12:44	15.1	6.84	20,000	4.0	Light amber color
12:50	14.4	6.88	23,000	5.0	Clear
12:55	15.7	6.84	24,000	6.0	Clear

Note: Recharge rate too slow to allow 80% recharge in all wells on 1/4/99. Sample collected 1/6/99, after all wells had recharged to within 80%.

DO meter calibration:	11.27 mg/L @ 10°C	Time:	12:45
DO result (after purging well, mg/L):	2.2	Time:	14:37
Water level after purging prior to sampling (feet):	3.68	Time:	12:30 (1/6/99)
Appearance of sample:	Light amber color	Time:	12:30 (1/6/99)
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:	Curtis & Tompkins
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	On-site drum

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ATTACHMENT B

LABORATORY REPORT
AND CHAIN-OF-CUSTODY FORM

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Baseline Environmental
5900 Hollis Street
Suite D
Emeryville, CA 94608

Date: 13-JAN-99
Lab Job Number: 137440
Project ID: N/A
Location: Seabreeze Yaught Center

Reviewed by: _____

Reviewed by: _____

TEH-Tot Ext Hydrocarbons

Client: Baseline Environmental
Location: Seabreeze Yaught Center

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
137440-001	MW-SB2	45649	01/06/99	01/07/99	01/09/99	
137440-002	MW-SB3	45649	01/06/99	01/07/99	01/09/99	
137440-003	MW-SB4	45649	01/06/99	01/07/99	01/09/99	
137440-004	MW-SB5	45649	01/06/99	01/07/99	01/09/99	

Matrix: Water

Analyte Diln Fac:	Units	137440-001 1	137440-002 1	137440-003 1	137440-004 1
Diesel C10-C24	ug/L	<48	<49	<49	<50
Surrogate					
Hexacosane	%REC	96	90	69	67

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client: Baseline Environmental
Location: Seabreeze Yaught Center

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
137440-005	MW-SB3A	45649	01/06/99	01/07/99	01/09/99	

Matrix: Water

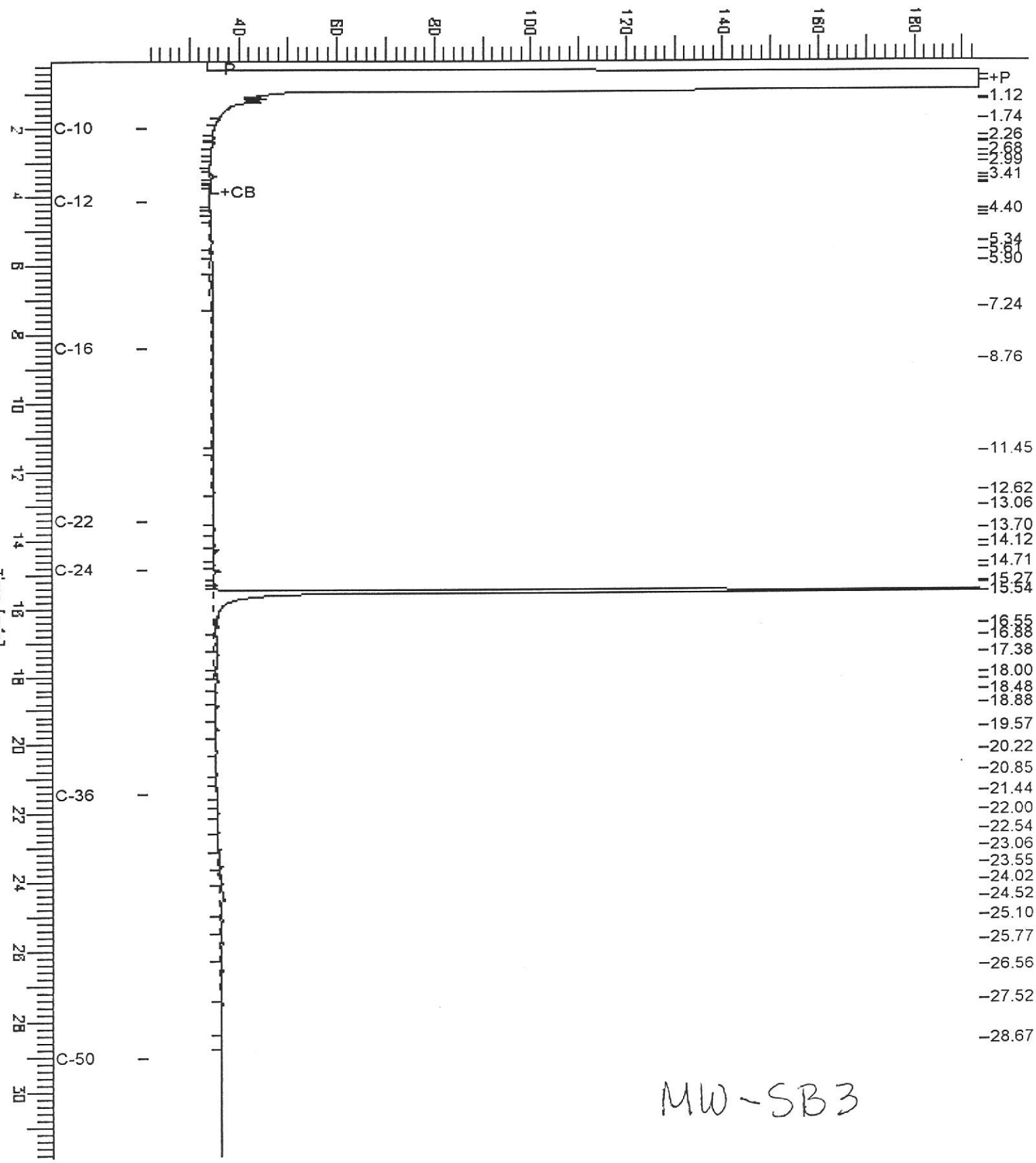
Analyte	Units	137440-005
Diln Fac:		1
Diesel C10-C24	ug/L	130 YH
Surrogate		
Hexacosane	%REC	69

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

Chromatogram

Sample Name : 137440-002,45649,sg
FileName : G:\GC11\CHA\008A018.RAW
Method : ATEH344.MTH
Start Time : 0.05 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 21 mV

Sample #: 45649 Page 1 of 1
Date : 1/11/99 12:39 PM
Time of Injection: 1/8/99 12:13 PM
Low Point : 21.02 mV High Point : 193.57 mV
Plot Scale: 172.6 mV

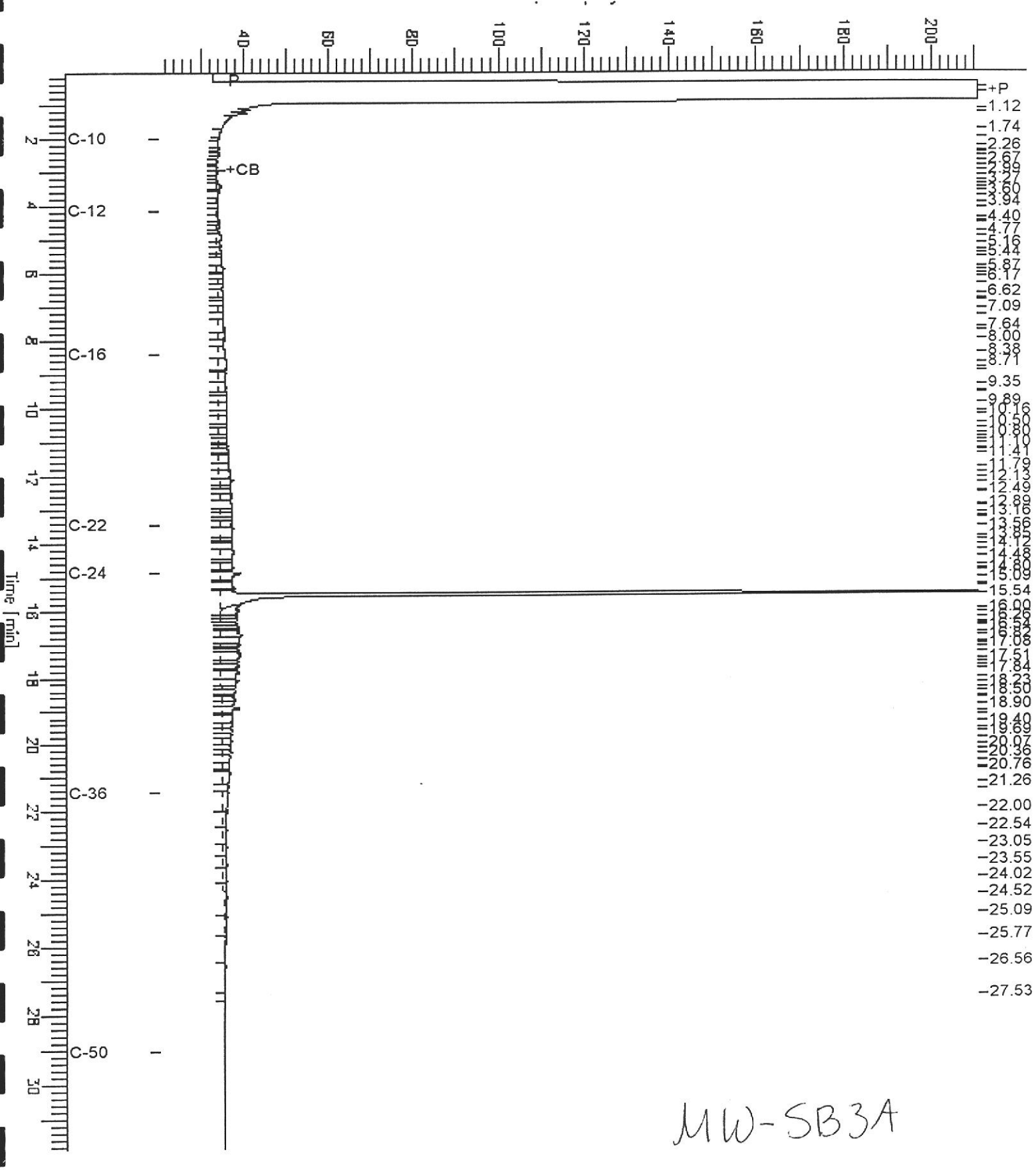


MW-SB3

Chromatogram

Sample Name : 137440-005,45649,sg
FileName : G:\GC11\CHA\008A021.RAW
Method : ATEH344.MTH
Start Time : 0.05 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 20 mV

Sample #: 45649 Page 1 of 1
Date : 1/11/99 12:42 PM
Time of Injection: 1/8/99 02:13 PM
Low Point : 20.19 mV High Point : 210.86 mV
Plot Scale: 190.7 mV

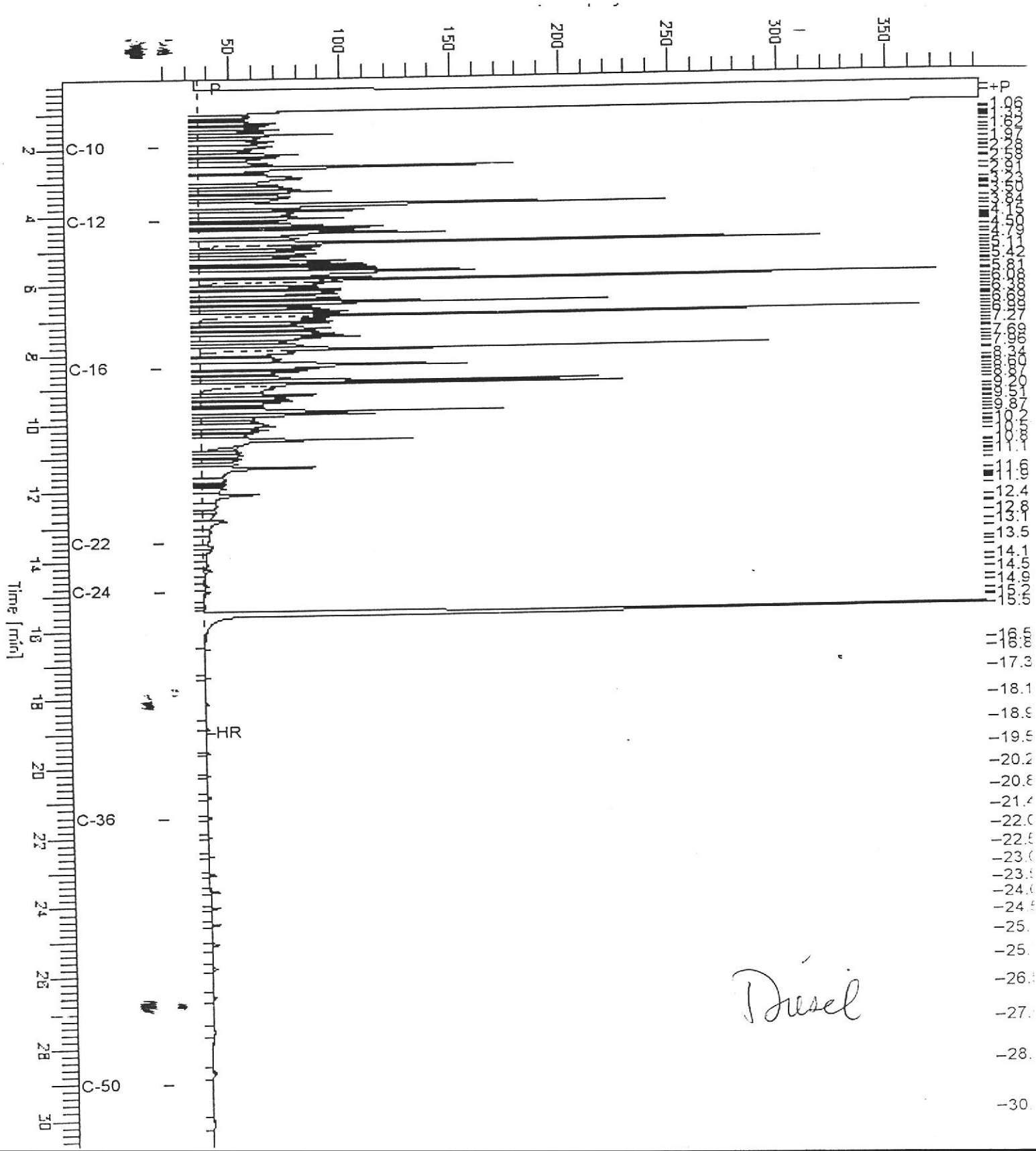


MW-5B3A

Chromatogram

Sample Name : ccv,98ws6771,ds
FileName : G:\GC11\CHA\008A001.RAW
Method : ATEH344.MTH
Start Time : 0.01 min End Time : 31.25 min
Scale Factor: 0.0 Plot Offset: 18 mV

Sample #: 500mg/l
Date : 1/8/99 03:09 AM
Time of Injection: 1/8/99 12:51 AM
Low Point : 17.72 mV High Point : 392.54 mV
Plot Scale: 374.8 mV



Lab #: 137440

BATCH QC REPORT

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Baseline Environmental	Analysis Method:	EPA 8015M
Location:	Seabreeze Yaught Center	Prep Method:	EPA 3520

METHOD BLANK

Matrix:	Water	Prep Date:	01/07/99
Batch#:	45649	Analysis Date:	01/08/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC88504

Analyte	Result
Diesel C10-C24	<50

Surrogate	%Rec	Recovery Limits
Hexacosane	70	53-136

Lab #: 137440

BATCH QC REPORT

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons	
Client: Baseline Environmental	Analysis Method: EPA 8015M
Location: Seabreeze Yaught Center	Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water	Prep Date: 01/07/99
Batch#: 45649	Analysis Date: 01/09/99
Units: ug/L	
Diln Fac: 1	

BS Lab ID: QC88505

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C10-C24	2475	1511	61	58-110

Surrogate	%Rec	Limits
Hexacosane	82	53-136

BSD Lab ID: QC88506

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C10-C24	2475	1561	63	58-110	3	21

Surrogate	%Rec	Limits
Hexacosane	80	53-136

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

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

CHAIN OF CUSTODY RECORD

137440

Turn-around Time: Standard
Lab: C&T
BASELINE Contact Person: Rhodora Del Rosario

Project No.	Project Name and Location
59171-C1	Seabreeze Yacht Center, 2806 7th Ave, Oakland

Samplers: (Signature) William K Scott

Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	Analysis: TEPH as diesel w/ silica gel cleanup	Remarks/ Composite	Detection Limits
MW-SB2	1-6-98	12:10	water	—	1-liter	X		
MW-SB3	↓	12:00	↓		↓	X		
MW-SB4		11:44				X		
MW-SB5		12:30				X		
MW-SB3A	↓	12:09	↓		↓	X		

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Conditions of Samples Upon Arrival at Laboratory:
William K Scott	1-6-98 / 1600	[signature]	1/6/99 1600	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks: Please provide chromatograms. Send invoice directly to Port of Oakland
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	

ATTACHMENT C

QUALITY CONTROL CHECKLIST

Quality Control Checklist
for Review of Laboratory Report

Job No.: S9171-C1 **Site:** Seabreeze Site

Laboratory: Curtis and Tompkins **Laboratory Report No:** 132181

Report Date: 13 January 1999 **BASELINE Review By:** Rhodora Del Rosario

	Yes	No	NA
GENERAL QUESTIONS **(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, µg/kg vs. mg/kg)	X		
2. Are the detection limits appropriate based on the intended use of the data?	X		
3a. Are detection limits appropriate based on the analysis performed? (i.e., not elevated due to dilution effects)	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		
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		
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		
QA/QC QUESTIONS			
Field/Laboratory Quality Control			
8. Are field blanks reported as "ND"? (groundwater samples) *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.*			X
9. Are trip blanks reported as "ND"? (groundwater samples/volatiles analyses) *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.*			X
10. Are duplicate samples results consistent with the original sample? (groundwater samples) *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.)*		X See comment below	

	Yes	No	NA
Batch Quality Control *(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.*			
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? *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.*	X		
13. Are Blank spike samples (BS) and BSD duplicate (BSD) within laboratory limits? Limits should be provided on the report. *BS is a reagent blank spiked with a representative selection of target analyte(s) and prepared in same manner as samples analyzed. The BS is free of interferences from the sample matrix and demonstrates the ability of the laboratory instruments to recover the target analytes. Accuracy (recovery information) is generally reported as % spike recovery; precision (reproducibility of results) between BS and BSD is generally reported as relative percent difference (RPD).*	X		
Sample Quality Control			
15. Are the surrogate spikes reported within the laboratory's acceptable recovery limits? *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.*	X		

Comments: MW-SB3A (duplicate sample) contained 0.13 mg/L of TPH Diesel but MW-SB3 did not contain TPH diesel above 0.048 mg/L. Laboratory confirmed the results. Previous analytical results have reported TPHd in MW-SB3 @ concentrations up to 0.19 mg/L. Therefore, results deemed valid.