PORT OF OAKLAND

ENVIRONMENTAL PROTECTION
98 MAR 19 PM 3:23

March 17, 1998

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

SLIC #236

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 any of the five monitoring wells. In addition, the duplicate sample taken from (downgradient) well MW-SB3 confirms that TEPH was not detected.

We plan on resampling the monitoring wells in January 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 February 25, 1998

cc w/encl: Derek Lee, RWQCB

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

C:\mydocs\seabreeze\trans.98

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BASELINE

ENVIRONMENTAL CONSULTING

25 February 1998
S9171-C1

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

Subject: Annual Groundwater Monitoring Report, January 1998, Former Seabreeze Yacht Center, Inc. Site, 280 6th Avenue, Oakland, California

Dear Ms. Heinze:

This report documents the groundwater sampling activities performed on 26 and 28 January 1998 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; 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 1998

On 26 January 1998, the presence of free product was checked and water levels were measured in the monitoring network wells (MW-SB2, MW-SB3, MW-SB4 and MW-SB5) and monitoring well PW-2 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 26 January 1988, the monitoring network wells were purged of at least three well casing volumes. The wells were slowly purged using a peristaltic pump with new, disposable polyethylene tubing lowered inside the wells after water 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 at least four and five well volumes, respectively. 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 after purging activities.

The water levels in all the monitoring wells did not recover to 80 percent of their original water levels on 26 January 1998. Therefore, groundwater samples were collected (28 January 1998) 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 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 1998 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 limit of 0.05 mg/L.

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). However, the 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.

GROUNDWATER FLOW DIRECTION

Recently collected and historic groundwater elevation data are summarized in Table 2. The groundwater elevation data collected on 26 January1998 were used to develop groundwater elevation contours (Figure 2). The general groundwater flow direction is 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

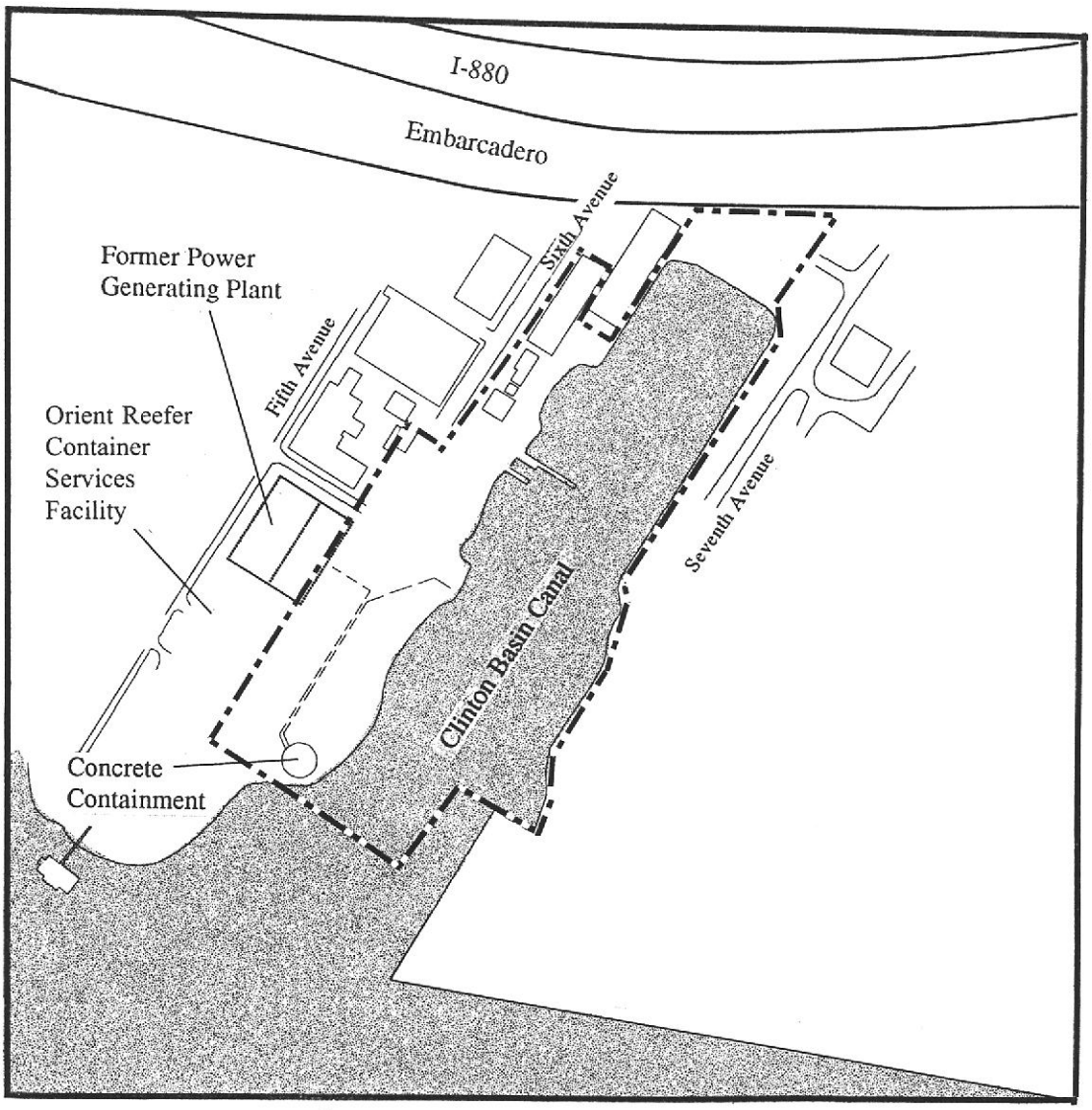
Rhodora Del Rosario
Civil Engineer

YN:RD:cr
Attachments

S9171-C1.298.wpd

PROJECT AND REGIONAL LOCATION

Figure 1



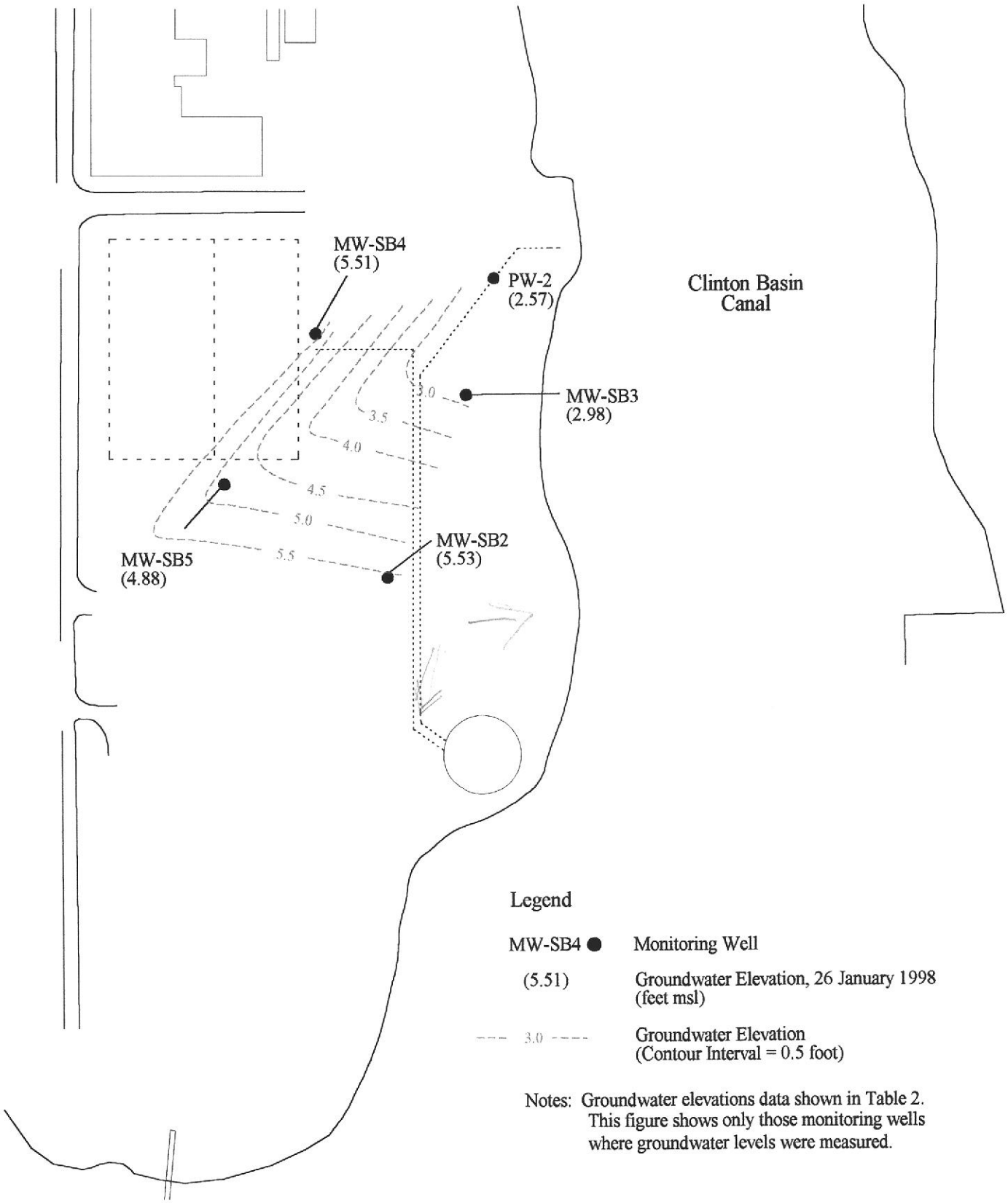
Seabreeze Yacht Center
Oakland, California

BASELINE

S9171-CO 8/18/95

MONITORING WELL LOCATIONS AND GROUNDWATER CONTOUR, 26 JANUARY 1998

Figure 2



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

Seabreeze Yacht Center
Sixth Avenue
Oakland, California

0 100 Feet

S9171-CO 2/23/98, D:\GCD\S9171MW198 (visual cadd)

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	--	--	--	--	--
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]	--	--
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
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]	--	--
MW-SB3A	06/20/97	--	--	**0.11**	--	--
	01/28/98	--	--	<0.05[15]	--	--
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]	--	--

Table 1 *continued*

Sample ID	Sample Date	Metals[1]		Total Extractable Hydrocarbons[2]		
		Lead	Copper	Diesel	Bunker C	Motor Oil
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]	--	--
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

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-SB3A = duplicate sample of MW-SB3.
MW-SB5A = duplicate sample of MW-SB5.
Refer to Figure 2 for well locations.
Laboratory reports for the January 1998 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.
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.

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
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
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
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

Table 2 *continued*

Well	Date	Time	Surface Elevation (msl)	TOC Elevation (msl)	Depth to Groundwater (feet)	Groundwater Elevation (msl)
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

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.
-- = No data.
msl = Feet above mean sea level.
TOC = Top of casing.
Refer to Figure 2 for well locations.

[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.

ATTACHMENT A

GROUNDWATER SAMPLING FORMS

GROUNDWATER SAMPLING

Project no.:	S9171-C1	Well no.:	MW-SB2	Date:	1/26/98
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:	Cloudy, showers	Water level from TOC (feet):	1.65	Time:	10:02
Precip in past		Product level from TOC (feet):	None	Time:	10:02
5 days (inch):	0.75	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(11.0 ft) - (1.65 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

1.5 gallons in one well volume
4.5 gallons in 3 well volumes
6.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	--	--	7.00/10.01	10,000
Before Purging:	9:20	13.0	7.00/10.01	8,000
After Purging:	14:45	14.8	7.20/10.15	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:06	16.0	6.89	11,000	0.25	Clear with black particulate matter
10:10	13.6	6.87	3,250	1.5	Clear with black particulate matter
10:19	15.4	6.81	10,000	4.5	Clear with black particulate matter
10:22	15.9	6.84	10,000	5.5	Clear with black particulate matter
10:24	16.3	6.76	13,000	6.0	Clear with black particulate matter
10:25	Well Pumped Dry				

Note: Recharge rate too slow to allow 80% recharge in all wells on 1/26/98. Sample collected 1/28/98, after all wells had recharged to within 80%.

DO meter calibration:	9.80 mg/L @ 16°C			Time:	9:37
DO result (after purging well, mg/L):	0.98			Time:	10:24
Water level after purging prior to sampling (feet):	1.67			Time:	13:00 (1/28/98)
Appearance of sample:	Clear			Time:	13:00 (1/28/98)
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 (MW-SB2 to 5)		

BASELINE · 5900 Hollis Street, Suite D · Emeryville, CA 94608 · (510) 420-8686 · Fax (510) 420-1707

GROUNDWATER SAMPLING

Project no.:	S9171-C1	Well no.:	MW-SB3	Date:	1/26/98
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:	Cloudy, showers	Water level from TOC (feet):	5.12	Time:	9:20
Precip in past		Product level from TOC (feet):	None	Time:	9:20
5 days (inch):	0.75	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(11.06 ft) - (5.12 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

0.96 gallons in one well volume
2.9 gallons in 3 well volumes
5.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	--	--	7.00/10.01	10,000
Before Purging:	9:20	13.0	7.00/10.01	8,000
After Purging:	14:45	14.8	7.20/10.15	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
9:29	14.8	6.94	10,000	1.5	Clear with black particulate matter
9:35	15.2	6.94	11,000	2.0	Clear with black particulate matter
9:40	15.8	6.84	13,000	3.0	Clear with black particulate matter
9:45	17.0	6.79	19,000	4.0	Clear with black particulate matter
9:51	Well Pumped Dry		--	5.0	Clear with black particulate matter

Note: Recharge rate too slow to allow 80% recharge in all wells on 1/26/98. Sample collected 1/28/98, after all wells had recharged to within 80%.

DO meter calibration:	9.85 mg/L @ 16°C		Time: 9:37
DO result (after purging well, mg/L):	1.0		Time: 9:45
Water level after purging prior to sampling (feet):	6.35		Time: 12:40 (1/28/98)
Appearance of sample:	Clear		Time: 12:45 (1/28/98)
Duplicate/blank number:	MW-SB3A		Time: 10:20 (1/28/98)
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 (MW-SB2 to 5)

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GROUNDWATER SAMPLING

Project no.:	S9171-C1	Well no.:	MW-SB4	Date:	1/26/98
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:	Cloudy, showers	Water level from TOC (feet):	0.88	Time:	10:30
Precip in past		Product level from TOC (feet):	None	Time:	10:30
5 days (inch):	0.75	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(14.75 ft) - (0.88 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

2.3 gallons in one well volume
6.9 gallons in 3 well volumes
7.5 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	--	--	7.00/10.01	10,000
Before Purging:	9:20	13.0	7.00/10.01	8,000
After Purging:	14:45	14.8	7.20/10.15	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:43	15.1	7.54	1,300	2.5	Clear
10:46	14.5	7.46	1,100	3.5	Clear
10:49	14.1	7.47	1,000	4.5	Clear
10:55	14.0	7.43	1,000	7.5	Clear

Note: Recharge rate too slow to allow 80% recharge in all wells on 1/26/98. Sample collected 1/28/98, after all wells had recharged to within 80%.

DO meter calibration:	9.85 mg/L @ 16°C			Time:	
DO result (after purging well, mg/L):	0.75			Time:	10:55
Water level after purging prior to sampling (feet):	0.88			Time:	9:45 (1/28/98)
Appearance of sample:	Clear			Time:	9:45 (1/28/98)
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 (MW-SB2 to 5)		

S9171C1.gw198.xls (2/20/98)

GROUNDWATER SAMPLING

Project no.:	S9171-C1	Well no.:	MW-SB5	Date:	1/26/98
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:	Cloudy, showers	Water level from TOC (feet):	1.42	Time:	14:10
Precip in past		Product level from TOC (feet):	None	Time:	14:10
5 days (inch):	0.75	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(14.75 ft) - (1.42 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

2.2 gallons in one well volume
6.6 gallons in 3 well volumes
7.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	--	--	7.00/10.01	10,000
Before Purging:	9:20	13.0	7.00/10.01	8,000
After Purging:	14:45	14.8	7.20/10.15	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
14:08	17.5	6.84	23,500	1.0	Light amber color
14:13	16.0	6.81	22,000	2.0	Light amber color
14:18	15.7	6.77	21,500	3.0	Light amber color
14:23	16.1	6.79	22,000	4.0	Light amber color
14:28	17.2	6.83	23,500	5.0	Clear
14:37	17.6	6.84	25,000	7.0	Clear

Note: Recharge rate too slow to allow 80% recharge in all wells on 1/26/98. Sample collected 1/28/98, after all wells had recharged to within 80%.

DO meter calibration:	9.8 mg/L @ 16°C	Time:	
DO result (after purging well, mg/L):	1.0	Time:	14:37
Water level after purging prior to sampling (feet):	1.44	Time:	13:35 (1/28/98)
Appearance of sample:	Light amber color	Time:	13:40 (1/28/98)
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 (MW-SB2 to 5)

S9171C1.gw198.xls (2/25/98)

ATTACHMENT B

LABORATORY REPORTS

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 St. Ste. D
Emeryville, CA 94608

Date: 12-FEB-98
Lab Job Number: 132181
Project ID: S9171-C1
Location: Seabreeze,Port of Oakland

Reviewed by: Damara Moore

Reviewed by:

Laboratory Number: **132181**
Client: **Baseline Environmental**
Location: **Seabreeze, Port of Oakland**
Project #: **S9171-C1**

Receipt Date: **98**

Curtis & Tompkins, Ltd.

Case Narrative

This hardcopy data package contains sample results and batch QC for five water samples which were received from the above referenced project on January 29th, 1998. All samples were received cold and intact. All samples were treated with silica gel prior to analysis.

TEH by EPA 8015 modified: Contamination was present in the method blank extracted with batch 38903. However, as the samples analyzed with this batch had no detected diesel-range hydrocarbons present, the high bias should not affect the quality of the data. No other analytical problems were encountered.

TEH-Tot Ext Hydrocarbons

Client: Baseline Environmental
Project#: S9171-C1
Location: Seabreeze,Port of Oakland

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
132181-001	MW-SB2	38903	01/28/98	02/02/98	02/05/98	
132181-002	MW-SB3	38903	01/28/98	02/02/98	02/05/98	
132181-003	MW-SB3A	38903	01/28/98	02/02/98	02/05/98	
132181-004	MW-SB4	38903	01/28/98	02/02/98	02/05/98	

Matrix: Water

Analyte Diln Fac:	Units	132181-001 1	132181-002 1	132181-003 1	132181-004 1
Diesel C12-C22	ug/L	<50	<50	<50	<50
Surrogate					
Hexacosane	%REC	100	95	95	98

TEH-Tot Ext Hydrocarbons

Client: Baseline Environmental
Project#: S9171-C1
Location: Seabreeze,Port of Oakland

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
132181-005	MW-SB5	38903	01/28/98	02/02/98	02/05/98	

Matrix: Water

Analyte	Units	132181-005
Diln Fac:		1
Diesel C12-C22	ug/L	<50
Surrogate		
Hexacosane	%REC	95

Lab #: 132181

BATCH QC REPORT

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Baseline Environmental	Analysis Method:	EPA 8015M
Project#:	S9171-C1	Prep Method:	EPA 3520
Location:	Seabreeze,Port of Oakland		

METHOD BLANK

Matrix:	Water	Prep Date:	02/02/98
Batch#:	38903	Analysis Date:	02/06/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC63538

Analyte	Result
Diesel C12-C22	67 YH

Surrogate	%Rec	Recovery Limits
Hexacosane	95	53-136

Y = Sample chromatogram does not resemble indicated standard.
H = Sample chromatogram is heavier than indicated standard.

Lab #: 132181

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Baseline Environmental	Analysis Method:	EPA 8015M
Project#:	S9171-C1	Prep Method:	EPA 3520
Location:	Seabreeze,Port of Oakland		

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix:	Water	Prep Date:	02/02/98
Batch#:	38903	Analysis Date:	02/06/98
Units:	ug/L		
Diln Fac:	1		

BS Lab ID: QC63539

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	1833	71	58-110
Surrogate	**%Rec**	**Limits**		
Hexacosane	94	53-136		

BSD Lab ID: QC63540

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	2272	89	58-110	22	25
Surrogate	**%Rec**	**Limits**				
Hexacosane	104	53-136				

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

13210

CHAIN OF CUSTODY RECORD

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

Turn-around Time: Normal
Lab: ~~Curtis~~ Curtis & Tompkins
BASELINE Contact Person: Rhodora Del Rosario

Project No.	Project Name and Location
S9171-C1	Seabreeze Yacht center, 280 6TH Ave

Samplers: (Signature) William K Scott

	Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	Analysis: With Silica gel clean up TEH as diesel	(TPH with BTX&E)	Oil & Grease	Motor Oil	PNAs	Title 22 Metals	Total Lead							Remarks/ Composite	Detection Limits
1	MW-SB2	1-28-98	13:00	Water	–	1 liter Amb.	X														
2	MW-SB3	↓	12:45	↓	–	↓	X														
3	MW-SB3A		12:50		–		X														
4	MW-SB4		13:10		–		X														
5	MW-SB5		13:40		–		X														

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Conditions of Samples Upon Arrival at Laboratory:
William K Scott	1-29-98 / 11:00		1/29/98 11:00	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks: Please provide chromatograms. Samples stored over night in cooler ~~Packed~~ with Blue Ice. Send invoice directly to Port of Oakland; attn Diane Heinze.
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	

CCSTRCDE.FM2

ADMIN(AD4)-5/27/92

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: 12 February 1998 **BASELINE Review By:** RPD

	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		

	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 see below	
13. Are laboratory control samples (LCS) and LCS duplicate (LCSD) within laboratory limits? Limits should be provided on the report. *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) - BS/BSD samples.*	X		
14. Are the Matrix QC data (e.g., MS/MSD) within laboratory limits? Limits should be provided on laboratory report. *The lab selects a sample and analyses 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.*		NOT ANA-LYZED	
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: The method blank contained concentrations above the laboratory reporting limit. However, the laboratory indicated that the high bias due to the method blank results should not affect the data quality since the samples did NOT contain diesel-range hydrocarbons above the laboratory reporting limit.