PORT OF OAKLAND

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April 26, 2004

Mr. Barney Chan
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: **Annual Groundwater Monitoring Report**
Former Seabreeze Yacht Center, Oakland

Dear Mr. Chan:

Please find enclosed for your review the Annual Groundwater Monitoring Report, dated April 5, 2004 for the former Seabreeze Yacht Center, 280 Sixth Avenue, Oakland.

If you have any questions concerning the enclosed document, please contact me at 510-627-1184.

Sincerely,

Douglas P. Herman
Associate Port Environmental Scientist

Cc w/encl: Betty Graham, RWQCB
Michele Heffes, Port (2 copies)
Diane Heinze, Port

Cc w/o encl. Barbara Szudy, CRE
Mary Esper, URS

C:\win\mydocs\projects\seabreeze\annual GW monitoring report April 2004

530 Water Street ■ Jack London Square ■ P.O. Box 2064 ■ Oakland, California 94604–2064
Telephone: (510) 627-1100 ■ Facsimile: (510) 627-1826 ■ Web Page: *www.portofoakland.com*

URS

April 5, 2004

Mr. Douglas Herman
Port of Oakland
Environmental Health and Safety Compliance Department
530 Water Street
Oakland, CA 94607

Re: Annual Groundwater Monitoring Report
March 2004
Former Seabreeze Yacht Center, Inc. Site
280 6th Avenue, Oakland, CA

Dear Mr. Herman:

This report documents the groundwater sampling activities performed in March 2004 at the former Seabreeze Yacht Center, Inc. (site) located at 280 6th Avenue in Oakland, California (see Figure 1). Annual groundwater monitoring has been conducted during the first quarter of each year since 1998. Groundwater samples were collected quarterly prior to 1998. Monitoring well MW-SB2 was abandoned in December, 2002.

Groundwater samples are analyzed for total petroleum hydrocarbons as diesel (TPH-d) with silica gel cleanup. From 2000 to 2002, the groundwater samples were also analyzed for Methyl Tert-Butyl Ether (MTBE). MTBE was not detected in any well, so in January 2003, the Port requested approval from the Alameda County Health Care Service Agency, Department of Environmental Health (County) to cease testing for MTBE. The County verbally approved deleting MTBE from the analytical parameters for all monitoring wells at the Site.

FIELD ACTIVITIES

On March 5, 2004, water levels were measured to the nearest 0.01 foot in each well using a Solinst electrical well sounder. The well sounder was decontaminated between each measurement by cleaning with an Alconox® solution and rinsing with deionized water. Wells MW-SB3 and MW-SB4 were purged and sampled on March 5, 2004. Well MW-SB5 was not accessible with a vehicle containing groundwater purge and sampling equipment on March 5, so with the Port's permission, URS sampled this well on March 23, 2004.

Water quality parameters (pH, conductivity, temperature, oxidation reduction potential, and dissolved oxygen) were measured and recorded on standard forms while each well was being purged. Low-flow (minimal drawdown) techniques (EPA, 1995) were used for purging and sampling the wells. Purging continued until the physical parameters of pH, specific conductivity, temperature, and turbidity stabilized. A copy of the field data sheets are included in Attachment A. Sampling was performed from the middle of the screened interval for each well. Purging and sampling equipment were thoroughly cleaned between sampling each well. Purge water was stored in buckets and discharged into the sump at the TOFC site at the Port. For quality assurance and quality control (QA/QC) purposes, one set of duplicate samples was collected from well MW-SB4 and submitted for chemical analyses.

URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612-1924
Tel: 510.893.3600
Fax: 510.874.3268

URS coordinated the transfer of water samples and the required analyses with Curtis and Tompkins, Ltd., located in Berkeley, CA. The laboratory is contracted directly to the Port. The Chain of Custody document is provided in Attachment A.

QUALITY ASSURANCE

Analytical results were subjected to a quality assurance evaluation that included review of holding times, method blanks, laboratory control spikes and duplicates, surrogates, and field duplicates. Field duplicate results were in agreement and suggest that the matrix is homogeneous. All quality control elements were within control limits and the analytical results are acceptable for project use.

ANALYTICAL RESULTS

The current and historical analytical results are summarized in Table 1 and the laboratory report is included in Attachment B. TPH-d was detected in groundwater sample collected from monitoring well MW-SB5 at a concentration of 0.13 mg/L. The hydrocarbon detected in MW-SB5 did not match the diesel standard and was therefore flagged with a "Y".

GROUNDWATER FLOW DIRECTION

Recently collected and historical groundwater data are summarized in Table 2. The groundwater elevation data collected in March 5, 2004 were used to develop a groundwater elevation contours (Figure 2). Groundwater flow direction is approximately toward the southeast at a gradient of 0.007 ft/ft.

We appreciate the opportunity to work with you on this project. Please contact either Francesca at 510-874-3224 or Mary at 874-3119 if you have any questions or comments.

Sincerely,

URS CORPORATION

Francesca Motta
Project Geologist

Mary Esper, P.E.
Project Manager

Attachments:

Table 1	Groundwater Analytical Data
Table 2	Groundwater Elevations
Figure 1	Site Location
Figure 2	Monitoring Well Locations and Groundwater Flow Direction, March 2004
Appendix A	Well Purging Data Sheet
Appendix B	Laboratory Report

Table 1
Groundwater Analytical Results
Former Seabreeze Yacht Center, Oakland, CA

Sample ID	Sample Date	Metals (mg/L)[1]		Total Petroleum Hydrocarbons (mg/L)[2]			
		Lead	Copper	Diesel	Bunker C	Motor Oil	MTBE
MW-SB2	4/19/91	<0.07	0.0481	--	--	--	--
	7/9/91	<0.06[8]	<0.02[9]	--	--	--	--
	1/10/94	<0.10[8]	<0.02[9]	--	--	--	--
	1/26/94	0.00489	<0.014[9]	--	--	--	--
	3/6/95	--	--	16.0[4,5]	28.0[4,5]	4.9[4,5]	--
	7/1/96	<0.003	0.055	<0.05	<0.3	--	--
	9/16/10	<0.003[11]	<0.005[12]	<0.05	<0.5	<0.25	--
	12/11/96	0.00855[11]	0.00354[12]	0.16[14]	<0.5	<0.25	--
	3/14/97	0.00314[11]	<0.003[12]	0.061	<0.5	<0.25	--
	6/20/97	--	--	0.15	--	--	--
	1/28/98	--	--	<0.05[16]	--	--	--
	1/6/99	--	--	<0.048	--	--	--
	02/04/00[19]	--	--	--	--	--	--
	1/19/01	--	--	<0.05	--	--	<0.005
	1/24/02	--	--	<0.05	--	--	<0.005
	2/4/03	Well Abandoned (December 2002)					
MW-SB2A	3/6/95	--	--	18.0[4,5,6]	33.0[4,5,6]	<25.0[4,5,6]	--
(MW-SB2 duplicate)	7/1/96	<0.003	0.065	0.17[7]	<0.3[5]	--	--
	9/16/96	<0.003[11]	<0.005[12]	0.17	<0.3[5]	<0.25	--
MW-SB3	3/6/95	--	--	2.3[4,5]	5.8[4,5]	1.5[4,5]	--
	7/1/96	0.0036	<0.01	<0.049	<0.3	--	--
	9/16/96	<0.003[11]	<0.005[12]	<0.05[4]	<0.5	0.28[4]	--
	12/11/96	<0.003[11]	<0.003[12]	0.19[14]	<0.5	<0.25	--
	3/14/97	<0.003[11]	0.00529[12]	0.085[15]	<0.5	<0.25	--
	6/20/97	--	--	0.15	--	--	--
	1/28/98	--	--	<0.05[16]	--	--	--
	1/6/99	--	--	<0.049[17]	--	--	--
	2/4/00	--	--	<0.05	--	--	<0.002
	1/19/01	--	--	<0.05	--	--	<0.005
	1/24/02	--	--	<0.05	--	--	<0.005
	2/4/03	--	--	0.077[b]	--	--	--
	3/5/04	--	--	<0.05	--	--	--
MW-SB3A	6/20/97	--	--	0.11	--	--	--
(MW-SB3 duplicate)	1/28/98	--	--	<0.05[16]	--	--	--
	1/6/99	--	--	0.13[7,18]	--	--	--
	2/4/00	--	--	<0.05	--	--	<0.002

Table 1
Groundwater Analytical Results
Former Seabreeze Yacht Center, Oakland, CA

Sample ID	Sample Date	Metals (mg/L)[1]		Total Petroleum Hydrocarbons (mg/L)[2]			
		Lead	Copper	Diesel	Bunker C	Motor Oil	MTBE
MW-SB4	3/3/95	--	--	1.4[4,5]	3.0[4]	0.66[4]	--
	7/1/96	0.014	0.013	<0.049	<0.3	--	--
	9/16/96	<0.003[11]	<0.005[12]	<0.05	<0.5	<0.25	--
	12/11/96	0.00465[11]	0.00674[12]	0.12[14]	<0.5	<0.25	–
	3/14/97	0.00519[11]	<0.003[12]	<0.05	<0.5	<0.25	–
	6/20/97	--	--	0.11	--	--	–
	1/28/98	--	--	<0.05[16]	--	--	–
	1/6/99	--	--	<0.049	--	--	–
	2/4/00	--	--	<0.05	--	--	<0.002
	1/19/01	--	--	<0.05	--	--	<0.005
	1/24/02	--	--	<0.05	--	--	<0.005
	2/4/03	--	--	<0.05	--	--	--
	3/5/04	--	--	<0.05	--	--	--
MW-SB4 duplicate	3/5/04	--	--	<0.05	--	--	--
MW-SB5	3/6/95	--	--	15.0[4,5]	34.0[4,5]	8.1[4,5]	--
	7/1/96	0.0031	0.012	<0.049	<0.3	--	--
	9/16/96	<0.003[11]	<0.005[12]	0.14[4,13]	<0.5	<0.25	--
	12/11/96	<0.00344[11]	<0.003[12]	0.16[14]	<0.5	<0.25	--
	3/14/97	<0.003[11]	0.00318[12]	0.29	<0.5	<0.25	--
	6/20/97	--	--	0.27	--	--	--
	1/28/98	--	--	<0.05[16]	--	--	--
	1/6/99	--	--	<0.05	--	--	--
	2/4/00	--	--	<0.05	--	--	<0.002
	1/19/01	--	--	<0.05	--	--	<0.005
	1/24/02	--	--	<0.05	--	--	<0.005
	2/4/03	--	--	<0.05	--	--	--
	3/23/04	--	--	0.13	--	--	--
MW-SB5A	3/6/95	--	--	15.0[4,5,6]	31.0[4,5,6]	6.9[4,5,6]	--
(MW-SB5 duplicate)	12/11/96	<0.003[11]	<0.003[12]	0.081[14]	<0.5	<0.25	–
	3/14/97	<0.003[11]	<0.003[12]	0.22	<0.5	<0.25	–
	1/24/02	--	--	<0.05	--	--	<0.005

Table 1
Groundwater Analytical Results
Former Seabreeze Yacht Center, Oakland, CA

Notes:

<0.05 = analyte not identified above the given laboratory reporting limit

-- = not analyzed

b. Diesel range compounds are significant, no recognizable pattern

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. Analytical Method EPA 8020 or 8021B.
4. Sample chromatogram does not resemble hydrocarbon standard.
5. Samples were not subjected to silica gel cleanup prior to analysis.
6. Duplicate sample centrifuged prior to TEPH analyses.
7. Sample exhibited fuel pattern which did not resemble standard.
8. Analyzed using EPA Method 7420.
9. Analyzed using EPA Method 7210.
10. 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.
11. Analyzed using EPA method 7421. Sample filtered by the laboratory prior to analysis.
12. Analyzed using EPA Method 7211. Sample filtered by the laboratory prior to analysis.
13. Laboratory indicated that miscellaneous peaks were present in the diesel range.
14. 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.
15. 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.
16. 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.
17. The corresponding duplicate sample, MW-SB3A, was reported to contain diesel above the laboratory reporting limit.
18. The laboratory indicated that the sample chromatogram contained heavier hydrocarbons than the diesel standard.

Table 2
Groundwater Elevations
Former Seabreeze Yacht Center, Oakland, CA

Well	Date	Time	Surface Elevation (msl)	TOC Elevation (msl)	Depth to Groundwater (feet)	Groundwater Elevation (msl)
MW-SB2[3]	4/19/91	11:09	6.2	7.18	5.38	1.8
	7/9/91	11:04			3.7	3.48
	1/10/94	12:31			3.08	4.1
	1/26/94	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
	3/3/95	8:50			2.84	4.34
	6/28/96	7:40			3.76	3.42
	9/16/96	9:01			4.3	2.88
	12/11/96	11:15			2	5.18
	3/12/97	9:02			3.48	3.7
	6/18/97	9:10			3.94	3.24
	1/26/98	10:02			1.65	5.53
	1/4/99	8:11			3.3	3.88[5]
	2/1/00	10:20			--[6]	--[6]
	1/17/01	9:20		8.93[7]	3.91	5.02
	1/22/02	9:30			4.67	4.26
	Well Abandoned in January 2003					
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
	12/6/94	8:37			6.15	1.95
	3/3/95	8:40			6.78	1.32
	6/28/96	7:35			5.46	2.64
	9/16/96	8:55			5.78	2.32
	12/11/96	10:32			5.31	2.79
	3/12/97	9:05			6.03	2.07
	6/18/97	9:12			5.5	2.6
	1/26/98	9:20			5.12	2.98
	1/4/99	8:20			5.97	2.13
	2/1/00	9:50			5.81	2.29
	1/17/01	9:15			6.04	2.06
	1/22/02	9:00			5.33	2.77
	2/3/03	13:12			5.3	2.80
	3/5/04	9:57			4.64	3.46

Table 2
Groundwater Elevations
Former Seabreeze Yacht Center, Oakland, CA

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
	3/3/95	8:35			0.9	5.49
	6/28/96	8:28			3.16	3.23
	9/16/96	8:52			2.85	3.54
	12/11/96	9:28			0.65	5.74
	3/12/97	9:07			2.53	3.86
	6/18/97	9:25			3.1	3.29
	1/26/98	10:30			0.88	5.51
	1/4/99	8:26			2.55	3.84
	2/1/00	10:43			0.61	5.78
	1/17/01	9:01			1.7	4.69
	1/22/02	10:00			3.17	3.22
	2/3/03	11:30			3.4	2.99
	3/5/04	9:55			3.9	2.49
MW-SB5[4]	11/28/94	8:40	6.9	6.30	6.32	-0.02
	3/3/95	9:00			2.54	3.76
	6/28/96	8:45			2.43	3.87
	9/16/96	10:15			2.52	3.78
	12/11/96	14:12			3.09	3.21
	3/12/97	9:11			2.42	3.88
	6/18/97	8:56			2.32	3.98
	1/26/98	14:10			1.42	4.88
	1/5/99	12:20			3.5	2.8
	2/1/00	12:27			3.91	2.39
	1/17/01	7:54			4.21	2.09
	1/22/02	11:05			4.1	2.2
	2/3/03	15:40			4.95	1.35
	3/5/04	15:40			3.68	2.62

Table 2
Groundwater Elevations
Former Seabreeze Yacht Center, Oakland, CA

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 & 09/16/96: High tide 2:57 & 14:57; Low tide 8:23 & 21:07.
12/11/96: High tide 1:02 & 11:47; Low tide 5:35 & 18:30.
03/12/97: High tide 2:17 & 15:02; Low tide 8:23 & 20 06/18/97: High tide 12:18 & 23:07; Low tide 5:15 & 16:49.
01/26/98: High tide 10:10; Low tide 4:00 & 16:57.
01/04/99: High tide 2:21 & 13:06; Low tide 7:13 & 19 01/05/99: High tide 3:07 & 13:54; Low tide 8:09 & 20:37.
02/01/00: High tide 9:01 & 23:19; Low tide 3:03 & 16:08.
01/17/01: High tide 6:38 & 19:47; Low tide 13:25.
01/22/02: High tide 6:16 & 19:58; Low tide 13:25.
02/3/03: High tide 2:05 & 12:59; Low tide 7:07 & 19:35.

-- = No data
msl = feet above mean sea level
TOC = top of casing
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.
6. During groundwater sampling activities on 1 February 2000, monitoring well MW-SB2 was not found.
7. New top of casing elevation establishing in April 2000 after the well was repaired; the well survey is included in Attachment A of the January 2001 annual groundwater monitoring report.

Former Seabreeze Yacht Center
Oakland, CA

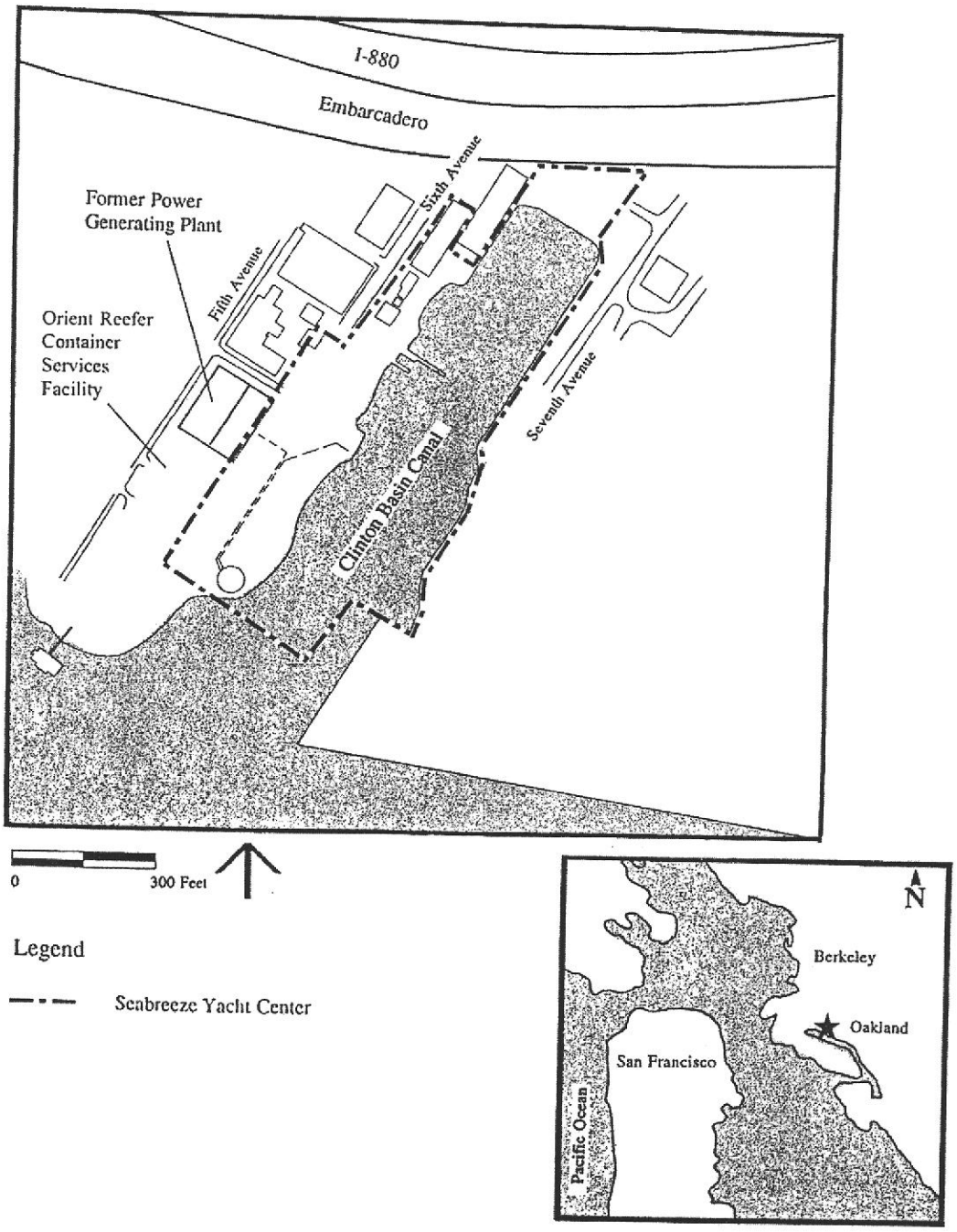
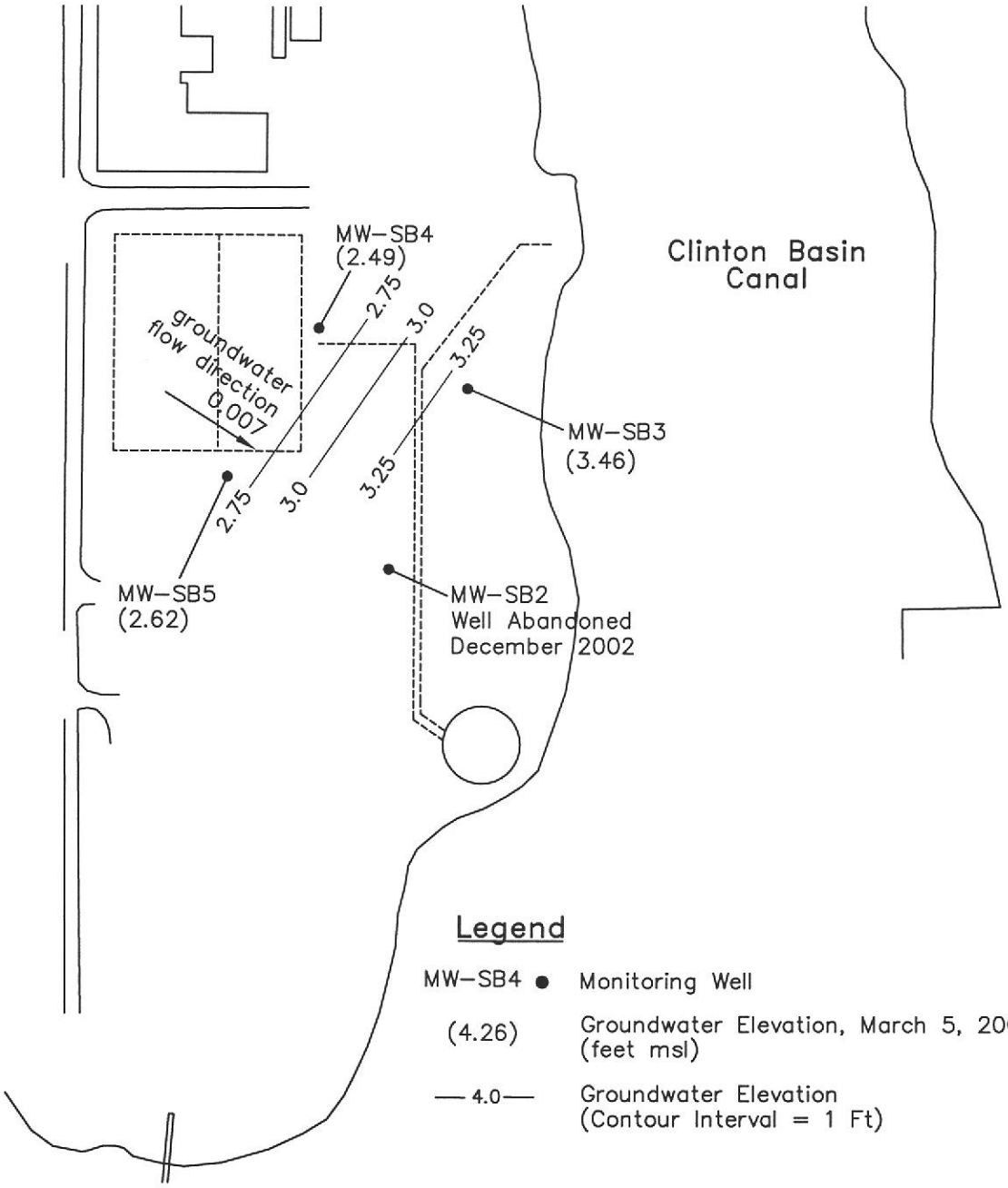


FIGURE 1
Site Location

Source: Baseline Environmental

MONITORING WELL LOCATIONS AND GROUNDWATER FLOW DIRECTION, MARCH 2004



Notes:
Groundwater elevation data are shown in Table 2.
Only three monitoring wells were measured in 2004.

Seabreeze Yacht Center
Sixth Avenue
Oakland, California

0 100 Feet

FIGURE 2

ATTACHMENT A

WELL PURGING DATA SHEET

FIELD WELL DATA SHEET
URS CORPORATION
1333 Broadway, Suite 800 Oakland, CA 94612

Project No: 26814551	**Task No:** 00001	**Project Name:** Port of Oakland
Site Location: Oakland, CA	**Samplers:**	F. Motta- J. Paik
Well ID: MW-SB3	**Date:**	3/5/4
Depth to Water (DTW)(ft): 4.64 9.57	**DTW After Purge (ft):**	~~7.69~~ 11.02
Well Diameter (inch): 2	**Measurements Referenced to:**	TOC

(X) Low-Flow/Micro Purging
( ) Purge at least 3 well volumes

Purging Equipment:
( ) _____Bailer
( ) Disposable Bailer
( ) Electric Submergible Pump
(X) Peristaltic Pump
( ) Other:_____

Sampling Equipment:
( ) _____Bailer
( ) Disposable Bailer
(X) Dedicated Tubing
( ) Other:_____

Type of Water Quality Kit Used:
( ) Orion
( ) YSI 6000
(X) YSI 556
( ) Other:_____

Time (24 hrs)	Temperature (°C)	Conductivity (uS/cm)	DO (mg/l)	pH (units)	ORP (mv)	Turbiduty (NTU's)	Color	Other
		(± 3%)	(± 10%)	(± 0.1)	(± 10mV)			
10 45	14.61	3744	0.55	7.79	-67.1	56.7		
10 48	14.25	3551	0.32	7.57	-58.7	34.5		
10 51	14.16	3466	0.24	7.50	-80.9	25.2		
10 54	14.21	3394	0.15	7.50	-80.3	11.60		
10 57	14.43	3457	0.15	7.47	-81.3	5.58		

Gallons Purged: 2 **Pump Rate in L/min** (<0.25 L/30 sec): 0.44 l/min

Sampling Time: 11:00 **Bottles:** 1 amber

Sample Analysed For:
TPH (diesel, ~~motor oil, hydraulic fluid~~) 8015 M

Duplicate Sample ID: **Sampling Time:**

Duplicate Sample Analysed For:

Notes: _____

FIELD WELL DATA SHEET
URS CORPORATION
1333 Broadway, Suite 800 Oakland, CA 94612

Project No: 26814551	**Task No:** 00001	**Project Name:** Port of Oakland
Site Location: Oakland, CA	**Samplers:** F. Motta- J. Paik	
Well ID: MW-SB4	**Date:** 3/5/4	
Depth to Water (DTW)(ft): 3.90 9:55	**DTW After Purge (ft):** 8.41 10:37	
Well Diameter (inch): 2	**Measurements Referenced to:** TOC	

(X) Low-Flow/Micro Purging
( ) Purge at least 3 well volumes

Purging Equipment:
( ) _____Bailer
( ) Disposable Bailer
( ) Electric Submergible Pump
(X) Peristaltic Pump
( ) Other:_____

Sampling Equipment:
( ) _____Bailer
( ) Disposable Bailer
(X) Dedicated Tubing
( ) Other:_____

Type of Water Quality Kit Used:
( ) Orion
( ) YSI 6000
(X) YSI 556
( ) Other:_____

Time (24 hrs)	Temperature (°C)	Conductivity (uS/cm)	DO (mg/l)	pH (units)	ORP (mv)	Turbiduty (NTU's)	Color	Other
		(± 3%)	(± 10%)	(± 0.1)	(± 10mV)			
10 07	15.07	10380	0.37	7.12	-166.0	14.5		
10 10	14.86	6522	0.35	7.14	-154.8	52.3		
10 13	14.51	5642	0.46	7.08	-142.4	50.1		
10 16	14.60	5795	1.07	7.07	-139.0	20.9		
10 20	15.58	9838	3.74	7.06	-151.7	14.53		
10 23	15.71	9280	2.13	7.15	-163.5	3.74		
10 26	16.04	10173	3.02	7.13	-159.2	3.25		

Gallons Purged: 2.5 **Pump Rate in L/min** (<0.25 L/30 sec): 0.48 L/min

Sampling Time: 10.30 **Bottles:** 1 amber

Sample Analysed For:
TPH (diesel, ~~motor oil, hydraulic fluid~~) 8015 M

Duplicate Sample ID: MW-SB4-DUP **Sampling Time:** 10.30

Duplicate Sample Analysed For: TPH-diesel

Notes: Sample foaming

FIELD WELL DATA SHEET
URS CORPORATION
1333 Broadway, Suite 800 Oakland, CA 94612

Project No: 26814551	**Task No:** 00001	**Project Name:** Port of Oakland
Site Location: Oakland, CA		**Samplers:** J. Park – F. Motta
Well ID: MW-SB5		**Date:** 3/5/14
Depth to Water (DTW)(ft): 3.68 11:50		**DTW After Purge (ft):**
Well Diameter (inch):		**Measurements Referenced to:** TOC

(X) Low-Flow/Micro Purging
( ) Purge at least 3 well volumes

Purging Equipment:
( ) _____Bailer
( ) Disposable Bailer
( ) Dedicated Submergible Pump
(X) Peristaltic Pump
( ) Other:_____

Sampling Equipment:
( ) _____Bailer
( ) Disposable Bailer
(X) Dedicated Tubing
( ) Other:_____

Type of Water Quality Kit Used:
( ) Orion
( ) YSI 6000
(X) YSI 556
( ) Other:_____

Time (24 hrs)	Temperature (^{0}C)	Conductivity (uS/cm)	DO (mg/l)	pH (units)	ORP (mv)	Turbidity (NTU's)	Depth to Water (ft)	Other
		(± 3%)	(± 10%)	(± 0.1)	(± 10mV)			

Gallons Purged: **Pump Rate in L/min** (<0.25 L/30 sec):

Sampling Time: **Bottles:** 1l amber

Sample Analysed For:
TPH - diesel

Duplicate Sample ID: **Sampling Time:**

Duplicate Sample Analysed For:

Notes: Well was not accessible to car. Well was not sampled.

FIELD WELL DATA SHEET
URS CORPORATION
1333 Broadway, Suite 800 Oakland, CA 94612

Project No: 26814551	**Task No:** 00001	**Project Name:** Port of Oakland
Site Location: Oakland, CA	**Samplers:** F. Motta- J. Paik	
Well ID: MW-SB5	**Date:** 3/23/4	
Depth to Water (DTW)(ft): 3.09 9:30	**DTW After Purge (ft):** 3.94	
Well Diameter (inch): 2	**Measurements Referenced to:** TOC	

(X) Low-Flow/Micro Purging
( ) Purge at least 3 well volumes

Purging Equipment:
( ) _____Bailer
( ) Disposable Bailer
( ) Electric Submergible Pump
(X) Peristaltic Pump
( ) Other:_____

Sampling Equipment:
( ) _____Bailer
( ) Disposable Bailer
(X) Dedicated Tubing
( ) Other:_____

Type of Water Quality Kit Used:
( ) Orion
( ) YSI 6000
(X) YSI 556
( ) Other:_____

Time (24 hrs)	Temperature (^{0}C)	Conductivity (uS/cm)	DO (mg/l)	pH (units)	ORP (mv)	Turbiduty (NTU's)	Color	Other
		(± 3%)	(± 10%)	(± 0.1)	(± 10mV)			
9 35	16.98	28114	1.48	6.87	-166.5	11.0	yellow	
9 38	16.90	27087	0.36	6.82	-170.9	260		
9 41	16.90	26355	0.34	6.79	-168.4	3.24		
9 44	17.24	25198	0.19	6.80	-161.8	3.19		
9 47	17.32	25107	0.15	6.81	-161.8	2.20		

Gallons Purged: 1.5 **Pump Rate in L/min** (<0.25 L/30 sec): 0.4 l/min

Sampling Time: 9.48 **Bottles:** 1 amber

Sample Analysed For:
TPH (diesel, ~~motor oil, hydraulic fluid~~) 8015 M

Duplicate Sample ID: **Sampling Time:**

Duplicate Sample Analysed For:

Notes: ---

URS
500 12th Street, Suite 200
Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. Port of Oakland

SAMPLERS: (Signature)

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method 8015M	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc,)
3/5/04									
↓	1030	MW-SB4	W	X				1	
	1030	MW-SB4-DUP	W	X				1	TEH diesel with silica gel cleanup
	[illegible]	MW-SB3	W	X				1	

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[illegible]	[illegible]				

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

ATTACHMENT B
LABORATORY REPORTS

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Total Extractable Hydrocarbons

Lab #:	171007	Location:	Port of Oakland
Client:	URS Corporation	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/05/04
Units:	ug/L	Received:	03/05/04
Diln Fac:	1.000	Prepared:	03/08/04
Batch#:	89123	Analyzed:	03/10/04

Field ID: MW-SB4 Lab ID: 171007-001
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	96	53-142

Field ID: MW-SB4-DUP Lab ID: 171007-002
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	103	53-142

Field ID: MW-SB3 Lab ID: 171007-003
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	128	53-142

Type: BLANK Cleanup Method: EPA 3630C
Lab ID: QC243474

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	114	53-142

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	171007	Location:	Port of Oakland
Client:	URS Corporation	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	89123
Units:	ug/L	Prepared:	03/08/04
Diln Fac:	1.000	Analyzed:	03/10/04

Type: BS
Lab ID: QC243475
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,300	92	57-128

Surrogate	%REC	Limits
Hexacosane	110	53-142

Type: BSD
Lab ID: QC243476
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,171	87	57-128	6	38

Surrogate	%REC	Limits
Hexacosane	100	53-142

RPD= Relative Percent Difference

CHAIN OF CUSTODY FORM

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

C&T LOGIN # 171284

Sampler: F. Motta - J. Park
Project No: Port of Oakland
Report To: F. Motta
Project Name:
Company: URS
Project P.O.:
Telephone: 510.874.3224
Turnaround Time: Standard
Fax: 510.874.3168

Laboratory Number	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCL	Preservative: H_2SO	Preservative: HNO_3	Preservative: ICE	Preservative:	Field Notes
-1	MW-SB5	3/23 9:48		X		1						

For Laboratory Use

Analyses: X 8015 M: TPH-diesel w/ silica gel clean up

Notes:
Received in Cooler, AF 3/23/04

RELINQUISHED BY:
3/23/4 10:22 DATE/TIME
DATE/TIME
DATE/TIME

RECEIVED BY:
3/23/04 1022 DATE/TIME
DATE/TIME
DATE/TIME

Signature

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Total Extractable Hydrocarbons

Lab #:	171284	Location:	Port Of Oakland
Client:	URS Corporation	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	MW-SB5	Sampled:	03/23/04
Matrix:	Water	Received:	03/23/04
Units:	ug/L	Prepared:	03/26/04
Diln Fac:	1.000	Analyzed:	03/29/04
Batch#:	89705		

Type: SAMPLE
Lab ID: 171284-001

Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	130 Y	50

Surrogate	%REC	Limits
Hexacosane	92	53-142

Type: BLANK
Lab ID: QC245736

Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	103	53-142

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	171284	Location:	Port Of Oakland
Client:	URS Corporation	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	89705
Units:	ug/L	Prepared:	03/26/04
Diln Fac:	1.000	Analyzed:	03/29/04

Type: BS
Lab ID: QC245737
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,961	78	57-128

Surrogate	%REC	Limits
Hexacosane	84	53-142

Type: BSD
Lab ID: QC245738
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,903	76	57-128	3	38

Surrogate	%REC	Limits
Hexacosane	79	53-142

RPD= Relative Percent Difference