

COPY

SUBSURFACE INVESTIGATION SECOND INTERIM DATA REPORT

APRIL 1995

SEABREEZE YACHT CENTER Oakland, California

For:

Port of Oakland Oakland, California

S9171-C0

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TO:

Barney Chan

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ENCLOSURES:

April 5, 1995, Baseline Subsurface Investigation

Second Interim Data Report - Seabreeze Yacht Center

REQUESTED ACTION:

Enclosed please find a copy of the April 5, 1995, Baseline Subsurface Investigation Second Interim Data Report - Seabreeze Yacht Center. Please call me if you have any questions or comments.

Very truly yours,

FITZGERALD, ABBOTT & BEARDSLEY

Jonathan W. Redding

cc:

Regional Water Quality Control Board

Deborah Ballati, Esq. Michele Heffes, Esq. Stephen M. Judson, Esq. 95 APR 20 PM 2: 40

Baselin E

ENVIRONMENTAL CONSULTING

5 April 1995 S9171-C0

Ms. Michele Heffes Port of Oakland Legal Department 530 Water Street Oakland, CA 94607

Subject: Subsurface Investigation, Seabreeze Yacht Center, March 1995

Dear Michele:

Enclosed please find this Second Interim Data Report for subsurface investigations at and adjacent to the Seabreeze Yacht Center site conducted in January through March 1995. Should you have any questions or comments, please do not hesitate to contact us at your convenience.

Julie Pettijohn, M.P.H.

Staff Scientist

Sincerely,

Yane Nordhav

Principal

Reg. Geologist No. 4009

YN:JP:tt Enclosures

S9171-C0.rp3-4/4/95

SUBSURFACE INVESTIGATION SECOND INTERIM DATA REPORT

APRIL 1995

SEABREEZE YACHT CENTER Oakland, California

For:

Port of Oakland Oakland, California

S9171-C0

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SUBSURFACE INVESTIGATION

Seabreeze Yacht Center April 1995

INTRODUCTION

Surface and subsurface investigations at and adjacent to the Seabreeze Yacht Center (the Site) (Figure 1) were conducted in January through March 1995. The additional investigations were conducted to further characterize the nature and extent of previously identified contaminants. The work was conducted at the request of the Port of Oakland Legal Department.

This Second Interim Data Report documents the field activities performed during January through March 1995, the field methods, and the analytical results obtained from soil and groundwater samples. The first Interim Data Report documented field activities from November to December 1994.

Soil samples were collected from seven shoreline locations, eight soil boring locations, and nine monitoring well locations. A total of 15 shoreline soil samples and 27 subsurface soil samples were collected and submitted for laboratory analysis. Four additional monitoring wells were installed on the Site in January 1995. A total of thirteen groundwater samples were collected from the five wells previously installed on the Site (MW-SB1 through MW-SB5) and the four newly installed wells (PW-1 through PW-4).

SHORELINE SOIL SAMPLING

BASELINE performed soil sampling along the shoreline around Clinton Basin on 18 and 19 January 1995 and on 6 March 1995. A total of 14 samples were collected from six locations around Clinton Basin (Figure 2). Soil samples were collected above the mean tide mark in Clinton Basin from the finest grained materials found at the surface and approximately three horizontal feet into the bank at each of the six locations. Mean tide at Clinton Basin was estimated to be approximately 3.4 feet above the mean low-low tide based on the mean tide level at the Golden Gate (3.13 feet above mean low-low tide) and adjusted for the Oakland Harbor.

Metal stakes were used to mark the time when the water at Clinton Basin would be approximately 3.4 feet above mean low-low tide. The stakes were likely to have been placed at a slightly higher water mark than the mean tide since there was a storm in the area on the day the stakes were placed. A pick ax was used to excavate a trench at each location to expose the materials to be sampled. The samples labeled as "surface" (Tables 1 through 4) were collected immediately behind surficial gravel or riprap/brick/concretepieces which were removed. "Surface" samples were collected between sixinches to one and one-half feet behind the undisturbed shoreline surface. The depth indicated in the sample names for the deeper samples was the distance into the bank behind the corresponding shallow samples (Tables 1 through 4). In some cases, the deeper sample had to be collected approximately one foot to either side of the shallower sample because of the presence of riprap/brick/concretepieces. A tape measure was used to measure the distance between the shallow and deep samples; however, the measurements should be considered only approximate because the continued excavation of the

observations made during sample collection in January 1995 are presented in Table 4, and the tide levels are shown in Table 5.

One end of the pre-cleaned stainless steel liners used to collect the samples was sealed with teflon tape and capped; the open end was then inserted into the exposed materials to collect the samples. The liners had to be maneuvered around gravel and riprap/brick/concrete pieces to collect the finer grained materials. Once the sampling tubes were filled, the open end was also sealed with teflon tape and plastic cap and both end caps were sealed with silicon tape. The tubes were labeled, placed in ziplock bags, and stored in a cooled container ice. A shallow soil sample, Shore 2x, was collected on 6 March 1995 about 20 feet landward of Shore-2 (Figure 2). That sample was collected by hand-digging to a depth of 1.5 to 2.0 feet bgs and driving a six-inch brass liner capped at one end into the undisturbed soil.

Shoreline soil samples collected on 18 and 19 January 1995 were shipped under chain-of-custody to Friedman and Bruya, Inc., in Seattle by overnight delivery. Soil sample Shore 2x was submitted to Curtis & Tompkins, Ltd., of Berkeley, under chain-of-custody on 6 March 1995. Analyses performed on the shoreline soil samples are provided in Table 1. Analytical results for shoreline sediment samples are summarized in Tables 2 and 3. Laboratory reports for the shoreline samples are included in Appendix A.

MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING

Four monitoring wells, PW-1 through PW-4, were installed under the direction of a SOMA senior hydrogeologist by Environmental Resource Group of Corte Madera and Bayland Drilling of Palo Alto, California on 30 and 31 January 1995 (Figure 3) (Appendix B contains the report on well installation).

Groundwater samples were collected from PW-1 through PW-4 on 2 February 1995 by SOMA. The sampling methodology for the February event is included in Appendix B. Groundwater samples were also collected by BASELINE from PW-1 through PW-4 and MW-SB1 through MW-SB5 on 3 and 6 March 1995. Groundwater samples were collected by BASELINE after the water level in each well was measured and the wells were checked for floating product using a dual-interface probe, calibrated to the nearest 0.01 foot. The wells were then purged of three to five well volumes using a double diaphragm pump with polyethylene tubing. New tubing was used for each well.

The wells were sampled after the pH, electrical conductivity, and temperature of the purged water had stabilized, and with the exception of MW-SB2, the water level in each well had reached at least 75 percent of the original level. The water level in MW-SB2, at the time of sampling, was approximately 55 percent of the water level before purging; the well was allowed to recharge for three days prior to sampling. Groundwater samples were collected using disposable, bottom-valve, plastic bailers, and transferred into glass containers; a new bailer was used for each well. The containers were labeled, placed in a cooled container, and submitted under chain-of-custody to a certified laboratory for analysis. Three laboratory-supplied sample bottles were filled for each sample; two 1-liter (unpreserved) and one 40 ml VOA bottle (unpreserved).

Samples collected by SOMA on 2 February 1995 were submitted to Curtis & Tompkins Ltd., and Friedman and Bruya of Seattle, Washington via overnight delivery. Samples collected by BASELINE on 3 and 6 March 1995 were submitted to Curtis & Tompkins, Ltd. All samples were submitted under chain-of-custody to the laboratory. Purged and decontamination water from all groundwater sampling activities were placed in labeled 55-gallon drums, and stored at the Site pending laboratory results. A complete drum inventory is provided in Appendix C.

Analyses performed on groundwater samples are presented in Table 6. A summary of analytical results for groundwater samples is provided in Table 7. Groundwater elevation for each well is presented in Table 8. Observations made during the March 1995 sampling event are presented in Table 9. Groundwater sampling forms for the February and March 1995 sampling events are the presented in Appendices D and E; laboratory reports for the two sampling events are included in Appendices F and G, respectively.

Tidal Study and Groundwater Flow

Following installation of the four groundwater monitoring wells, a tidal study was conducted to determine the extent of tidal influence at the Site. The results indicated limited tidally-influenced water level fluctuations at the Site. Appendix B includes data obtained during the water level measurements in wells PW-2, PW-3, and PW-4. The shallow groundwater flow directions at the Site were determined for 3 March 1995 based on water levels measured in each well. Figure 4 shows groundwater contours at the Site and groundwater flow directions. The groundwater moves eastward toward Clinton Basin.

SOIL SAMPLING

Nineteen soil samples were collected during the installation of four monitoring wells (PW-1 though PW-4) on 30 and 31 January 1995 by SOMA (Figure 3 and Appendix B). The soil samples were submitted under chain-of-custody to Curtis & Tompkins, Ltd., and Friedman and Bruya. Boring logs from the installation of monitoring wells PW1-PW4 are included in Appendix B.

Ten soil samples were also collected by BASELINE from eight soil borings (TP-1 to TP-4 and T-1 to T-4) on 6 March 1995 (Figure 4). The soil borings were completed by Clear Heart Drilling of Guerneville, California, under the supervision of a BASELINE geologist. The borings were completed using a four-inch hollow stem auger drill rig. All drilling and sampling equipment were decontaminated prior to mobilization to the Site and between each boring location. Each boring was backfilled to grade using a cement/bentonite grout. Drill cuttings were stored on-site in a sealed and labeled 55-gallon drum. Decontamination rinsate was also stored on-site in a labeled 55-gallon drum.

Soil samples were collected from each boring using a sampler (1.5-inch diameter) fitted with six-inch brass liners. The sampler was driven into the ground with a 140-pound hammer. The filled brass liners were removed from the sampler, capped with teflon and plastic caps, sealed with silicone tape, labeled, placed in a ziplock bag, and stored in a cooled container. Soil samples were collected from 3.0 to 3.5 feet below ground surface (bgs) in all borings; samples were also collected from 5.5 to 6.0 feet bgs at TP-2 and T-1. The sampling equipment was decontaminated using trisodium phosphate, water, and deionized water prior to each sampling event.

Samples collected by BASELINE on 6 March 1995 were submitted to Curtis & Tompkins. The boring logs from the March 1995 sampling are included in Appendix H.

Analyses performed on all soil samples collected in February and March 1995 are presented in Table 10. The analytical results for the soil samples are presented in Table 11 through 14 and the laboratory reports are included in Appendix I.

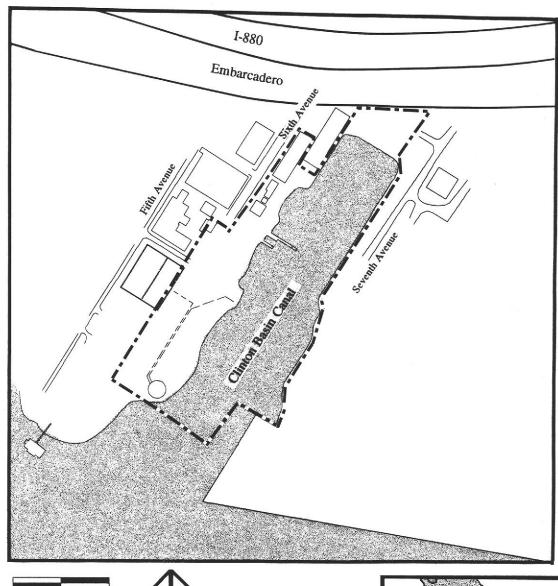
WELL SURVEY

The elevation of the ground surface and the top of casing for monitoring wells PW-1 through PW-4 were surveyed by Bates and Bailey, a licensed surveyor on 8 February 1995. Wells MW-SB1 through MW-SB5 were previously surveyed by Bates & Bailey. Table 8 contains groundwater elevation for each of the nine monitoring wells. The surveyor's report is included in Appendix B.

DISCUSSION

The results of soil and groundwater sampling activities in February and March 1995 confirm that releases from past land uses have affected the soil and groundwater at the Site. Petroleum hydrocarbons as Bunker C have been identified pervasively throughout the area previously occupied by PG&E. Bunker C has been identified throughout the unsaturated soil column at the locations where soil samples have been collected.

Each groundwater sample collected from the nine wells on the Site contained significant concentrations of petroleum hydrocarbons, including Bunker C. The groundwater flow direction is from the Site to Clinton Basin; therefore, contaminants from the Site migrate unimpeded into the Basin.





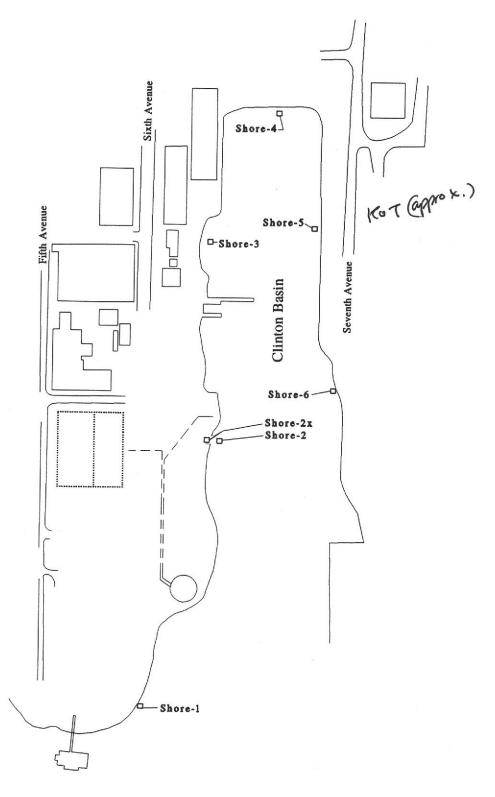
Legend

--- Project Site Boundary



Clinton Basin Oakland, California

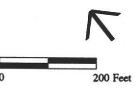
BASELINE



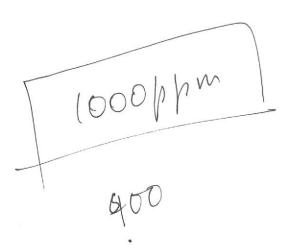
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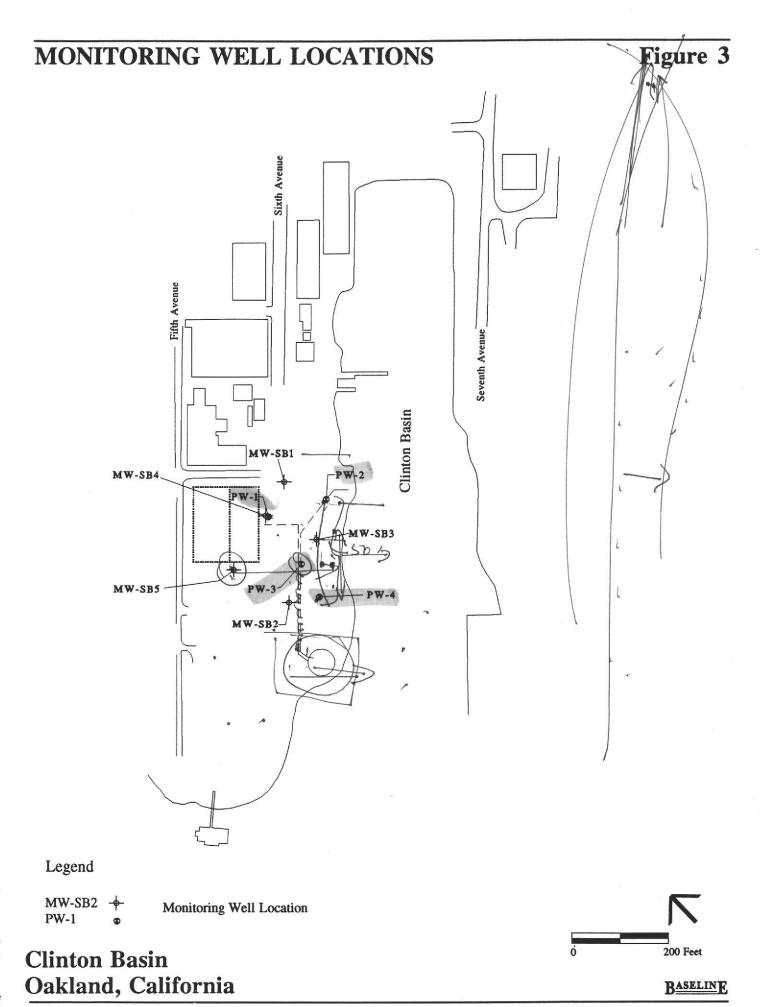
Shoreline Sampling Location

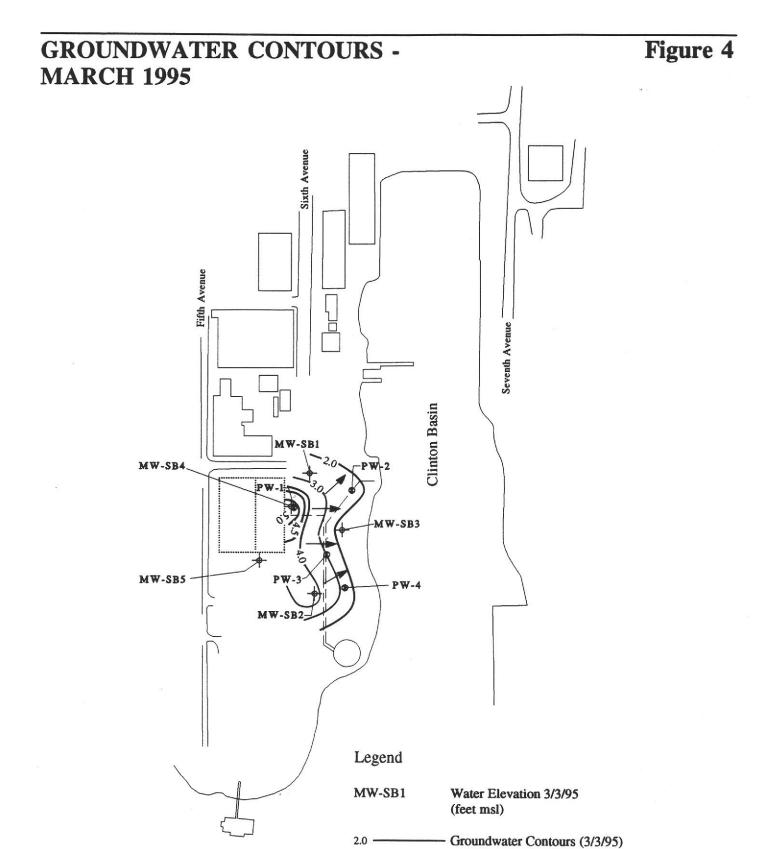
Clinton Basin Oakland, California



BASELINE







Clinton Basin Oakland, California

200 Feet

BASELINE

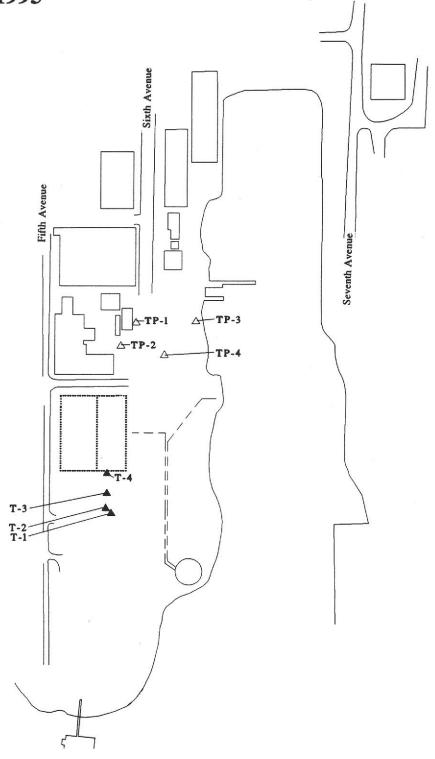
and Elevation (msl)

(3/3/95)

Groundwater Flow Directions



Figure 5



Legend

 \triangle Soil Sampling Location, Petroleum Hydrocarbons

▲ Soil Sampling Location, PCBs

Clinton Basin Oakland, California



BASELINE

SUMMARY OF ANALYSES PERFORMED, SHORELINE SOIL SAMPLING Clinton Basin Shoreline, Oakland, California, January and March 1995

TABLE 1

Sample ID	Depth (feet bgs)	Date	TPH by IR ¹	Metals ²	PCBs	SVOCs ³
Shore-1-Surface ⁴	0	1/19/95	1	1		
Shore-1-3'4	3	1/19/95	1	1		
Shore-2-Surface ⁴	0	1/19/95	1	1		
Shore-2-3'4	3	1/19/95	1	1	1	1
Shore-2d-Surface ⁴	0	1/19/95	1	1	√ ⁵	1
Shore-2d-3'4	3	1/19/95	1	1		
Shore-2x	0.5-1.0	3/6/95			1º 4.7ph	m
Shore-3-Surface ⁴	0	1/19/95	1	1		
Shore-3-2.5 ⁴	2.5	1/19/95	1	1		
Shore-4-Surface ⁴	0	1/19/95	1	1		
Shore-4-3'4	3	1/19/95	1	1		1
Shore-5-Surface ⁴	0	1/19/95	1	1		
Shore-5-3.0 ⁴	3.0	1/19/95	1	1		
Shore-6-Surface ⁴	0	1/19/95	1	1		
Shore-6-2.0 ⁴	2.0	1/19/95	1	1		

Notes:

TPH = Total petroleum hydrocarbons

IR = Infrared

PCBs = Polychlorinated biphenyls

SVOCs = Semi-volatile organic compounds

-- = Not analyzed

Sample locations indicated on Figure 2. Results summarized in Tables 2 through 4. Laboratory reports included in Appendix A.

- Method 418.1.
- EPA Method 6010.
- 3 EPA Method 8270.
- Qualitative fingerprint characterization of petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector also performed.
- Analyzed for PCBs as Arochlor 1260 by GC/ECD Modified EPA Method 8080/3550.
- Analyzed for PCBs as Arochlor 1221, 1232, 1016, 1242, 1248, 1254, and 1260 (EPA Method 8080/3550).

TABLE 2

SUMMARY OF METALS ANALYSIS, SHORELINE SOIL SAMPLING Clinton Basin Shoreline, Oakland

(µg/g) ffm

Sample ID	Depth (feet)	Sample Date	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	v	Ni
Shore-1-Surface	0	01/19/95	<2	45	<2	26	8	<2	<2	<2	39	28
Shore-1-3'	3	01/19/95	6	7	<2	22	55	<2	<2	<2	23	22
Shore-2-Surface	0	01/19/95	3	56	<2	59	230	<2	<2	<2	5	14
Shore-2-3'	3	01/19/95	5	79	<2	29	34	<2	<2	<2	33	43
Shore-2d-Surface	0	01/19/95	3	100	<2	110	600	<2	<2	<2	6	13
Shore-2d-3'	3	01/19/95	5	38	<2	33	20	<2	<2	<2	28	52
Shore-3-Surface	0	01/19/95	9	27	<2	12	240	<2	<2	<2	110	13
Shore-3-2.5	2.5	01/19/95	6/5	15/14	<2/<2	27/26	11/11	<2/<2	<2/<2	<2/<2	26/25	46/44
Shore-4-Surface	0	01/19/95	9	64	<2	15	420	<2	<2	<2	30	24
Shore-4-3'	3	01/19/95	10	34	<2	18	270	<2	3	<2	26	47
Shore-5-Surface	0	01/19/95	6	31	<2	17	300	<2	<3	<2	21	27
Shore-5-3.0	3	01/19/95	9	54	<2	18	600	<2	<2	<2	27	30
Shore-6-Surface	0	01/19/95	5	34	<2	11	100	<2	<2	<2	38	13
Shore-6-2.0	2	01/19/95	9	30	<2	15	110	<2	<2	<2	25	26

Notes:

Analyzed by EPA Method 6010

xx/xx = Duplicate sample results

<x = Metal was not identified above the reporting limit</p>

Samples locations indicated on Figure 2. Laboratory reports included in Appendix A.

TABLE 3

SUMMARY OF TOTAL PETROLEUM HYDROCARBONS BY IR ANALYSIS, SHORELINE SOIL SAMPLING

Clinton Basin Shoreline, Oakland, 19 January 1995

 $(\mu g/g)$

Sample ID	Depth (feet)	Total Petroleum Hydrocarbons by IR
Shore-1-Surface	0	<10
Shore-1-3'	3	15
Shore-2-Surface	0	44
Shore-2-3'1	3	<10
Shore-2d-Surface ²	0	. 59
Shore-2d-3'	3	360
Shore-2x ³	0.5-1.0	
Shore-3-Surface	0	160
Shore-3-2.5	2.5	18
Shore-4-Surface	0	370
Shore-4-3 ¹⁴	3	24
Shore-5-Surface	0	28
Shore-5-3.0	3	140
Shore-6-Surface	0	58
Shore-6-2.0	2	33

Notes:

Analyzed by EPA Method 418.1 <xx = Petroleum hydrocarbons were not identified above the reporting limit

-- = Not analyzed

IR = infrared

Samples were collected by BASELINE; samples were analyzed by Friedman & Bruya, Inc. Laboratory reports included in Appendix A. Sample locations indicated on Figure 2.

Sample also analyzed for semivolatile organic compounds (EPA Method 8270). All semivolatiles were reported below laboratory reporting limits except for 53 µg/kg di-n-butylphthalate, 200 µg/kg bis(2-ethylhexyl)phthalate, 37 µg/kg benzo(b)flouranthene, and 38 µg/kg benzo(k)flouranthene.

Sample also analyzed for semivolatile organic compounds (EPA Method 8270) and polychlorinated biphenyls (PCBs) as Arochlor 1260 (Modified EPA Methods 3550/8080). All semivolatiles were reported below laboratory limits except for 1,000 µg/kg dinbutylphthalate, 39 µg/kg pyrene, 67 µg/kg butylbenzylphthalate, 20,000 µg/kg bis(2-ethylhexyl)phthalate, and 160 µg/kg di-n-octylphthalate.

PCBs were quantified at 2.9 μ g/g. PCBs were quantified at 2.6 μ g/g in a duplicate sample.

- Sample also analyzed for PCBs (EPA Method 3550/8080). All PCBs were reported below laboratory reporting limits except for Arochlor 1260, which was quantified at 4,700 μg/kg.
- Sample also analyzed for semivolatile organic compounds (EPA Method 8270). All semivolatiles were reported below laboratory reporting limits except for 30 µg/kg acenaphthylene, 25 µg/kg acenaphthene, 61 µg/kg fluorene, 670 µg/kg phenanthrene, 250 µg/kg anthracene, 110 µg/kg di-n-butylphthalate, 1,000 µg/kg fluoranthene, 990 µg/kg pyrene, 140 µg/kg butylbenzylphthalate, 360 µg/kg benzo(a)anthracene, 690 µg/kg chrysene, 170 µg/kg bis(2-ethylhexyl)phthalate, 470 µg/kg benzo(a)pyrene, 630 µg/kg benzo(b)flouranthene, 370 µg/kg benzo(k)flouranthene, 270 µg/kg indeno(1,2,3-cd)pyrene, 160 µg/kg dibenz(a,h)anthracene, and 310 µg/kg benzo(g,h,i)perylene.

TABLE 4

SHORELINE SOIL SAMPLING OBSERVATIONS Clinton Basin Shoreline, Oakland, California 18 and 19 January 1995

Sample Location/Number	Description of Sampled Material	Sample Specific Comments	General Comments
Shore-1-surface	Gray fine-grained sand with gravel and tan silty clay		Slope of bank was approximately 7:1.
Shore-1-3'	Gray fine-grained sand with gravel		
Shore-2-surface	Brown fine- to medium- grained sand		Slope of bank was approximately 4:1.
Shore-2-3'	Brown gravelly clay with sand	Encountered 3' by 3' piece of concrete; moved approximately 1' sideways to edge of concrete to collect sample; slight petroleum odor.	Water flowed out of bank as trench was excavated. Tide retreated to expose sample location less than 30 minutes prior to sampling.
Shore-2d-surface (approx. 3' bayward of Shore-2 location)	Brown fine- to medium- grained sand		
Shore-2d-3'	Greenish-gray silty clay (Bay mud)	Sheen developed on water that flowed over Bay mud; slight tar odor.	
Shore-3-surface	Black sandy gravel, some Bay mud seams	Sheen developed on water contacting the soil; slight sulfur odor.	Slope of bank was approximately 2:1.
Shore-3-2.5'	Greenish-gray silty clay (Bay mud)	Hand auger used to expose sample; the 2.5' sample was collected approximately 1' below the depth of the shallow sample because a large wood log prevented sample collection at the desired depth; slight sulfur odor.	

Sample Location/Number	Description of Sampled Material	Sample Specific Comments	General Comments
Shore-4-surface Shore-4-3'	Gravel with a brown sandy clay matrix, small black sandy clay seams		Slope of bank was approximately 2:1. Significant sheen/scum floating on water at end of basin.
311016-4-3	Greenish-gray silty clay (Bay mud), some voids		Sheen appeared on water as metal stake was pounded in to mark the mean tide level.
			Black material at surface approximately 2' lower than mean tide level had strong petroleum odor.
Shore-5-surface	Brown sandy clay		Slope of bank was approximately 2:1.
Shore-5-3'	Gray fine- to coarse-grained sandy clay-clayey sand		
Shore-6-surface	Brown clayey gravel with sand		Slope of bank was approximately 2:1.
Shore-6-2'	Greenish-gray sandy clay with silt (Bay mud)		

Note: Sample locations included in Figure 2.

TABLE 5

ESTIMATED HIGH AND LOW TIDES IN CLINTON BASIN

Shoreline Sampling Clinton Basin, Oakland, California 18 and 19 January 1995

	High Tide Low Tide High Tide Low Tide										
	Time	Water Level	Time	Water Level	Time	Water Level	Time	Water Level			
18 January 1995	1:32	5.5	6:26	2.6	12:24	6.4	18:58	-0.4			
19 January 1995	2:03	5.6	7:08	2.4	13:05	6.1	19:32	-0.1			

Notes:

Time is expressed using the 24-hour clock.

Water level is expressed in feet above mean low-low tide.

Tide at Clinton Basin was estimated as follows: time for high and low tides was estimated as 29 and 36 minutes later than at the Golden Gate; high tide water level was estimated to be 0.5 feet higher than at the Golden Gate; low tide water level was not adjusted from that at the Golden Gate.

TABLE 6

SUMMARY OF ANALYSES PERFORMED, GROUNDWATER Seabreeze Yacht Center, Oakland, California

Sample ID	Sample Date	Kerosene ¹	Diesel¹	Bunker C ¹	Motor Oil ¹	Turbidity ²	RCRA Metals³	SV0Cs4
PW-1	2/2/95 ⁵ 3/3/95		 ⁄		/	/	✓ 	✓
PW-2	2/2/95 ⁵ 3/3/95	 /		/	/	/	✓ 	
PW-3	2/2/95 ⁵ 3/3/95			/	/		✓ 	
PW-4	2/2/95 ⁵ 3/3/95		/	/		- /	✓ 	
MW-SB1	3/3/95		1	/	1	1		
MW-SB2	3/6/95	1	1	/	1	1		
MW-SB3	3/6/95	1	/	/	1	1		
MW-SB4	3/3/95		✓	1	1	1		
MW-SB5	3/6/95	/	/	1	1	1		

Note:

SVOCs = Semi-volatile organic compounds

-- = Not analyzed

Sample locations included in Figure 3.

Laboratory Reports are included in Appendices F and G.

Results are summarized in Table 7.

- California DOHS Method, LUFT Manual, October 1989.
- ² EPA Method 180.1.
- ³ EPA Methods 6010A and 7470.
- EPA Method 8270.
- Qualitative fingerprint characterization of petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector also performed.

TABLE 7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER

Seabreeze Yacht Center, Oakland, California

February/March 1995

(µg/L, except where noted)



Sample						Turbidity ²	1	RCRA Metals ³						
ID	Date	Kerosene	¹ Diesel ¹	Bunker C ¹	Motor Oil ¹	(NTU)	As	Ba	Cd	Cr	Pb	Hg	Se	Ag
MW-SB1	3/3/95		1,800⁴	2 (4,800⁴	1,400⁴	23				••				
MW-SB2	3/6/95	6/6 (16,0004/18,0004.5	28,0004/33,0004.5	4,9004/<25,0004,5	130/100								
MW-SB3	3/6/95	6	(4,500 ⁴)	5,8004	1,5004	76								
MW-SB4	3/3/95	/	1,4004	3,000	660 ⁴	130	(T)							
MW-SB5	3/6/95	6/6	15)000 ⁴ /15,000 ^{4,5}	34,0004/31,0004.5	8,1004/6,9004.5	180/190 /	//\				A	1 		
PW-1	2/2/95 ⁷ 3/3/95			3,900 ⁴	1,0004	60	19	18	<5.0 	<10	6.0	<0.20	<5.0	<10
PW-2	2/2/95 ⁸ 3/6/95	 6		 4,400 ⁴	1,100 ⁴	84	14	100	<5.0 	<10	4.3	<0.20	11	<10
PW-3	2/2/95 ⁸ 3/6/95	6	3,800⁴	 9,400⁴	1,200 ⁴	6.8	15	84	<5.0 	<10	<3.0	<0.20	<5.0	<10
PW-4	2/2/958					\	14	81	< 5.0	<10	<3.0	< 0.20	< 5.0	<10
	3/3/95		€ 610 ⁴	1,600	<1,300	4.4	\ /				\ /			

Notes:

-- = No analysis requested

xx/xx = Duplicate sample

<x.x = Compound not indentified above laboratory reporting limit

NTU = Nephelometric turbidity units Refer to Figure 3 for well locations.

Laboratory reports included in Appendices F and G.

² EPA Method 180.1.

California DOHS Method: LUFT Manual October 1989.

³ EPA Methods 6010A and 7470.

Sample chromatogram does not resemble hydrocarbon standard.

Duplicate sample centrifuged prior to TEH analysis.

Not reported due to an overlap of hydrocarbon ranges.

⁷ Sample also analyzed for semi-volatile organic compounds (EPA Method 8270). All semi-volatiles were reported below laboratory reporting limits except for 38 μg/L bis(2-ethylhexyl)phthalate.

Qualitative fingerprint characterization of petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector also performed.

TABLE 8

GROUNDWATER ELEVATION
Seabreeze Yacht Center, Oakland, California

Well	Date	Time	Surface Elevation (msl)	TOC Elevation (msl)	Depth to Groundwater (feet)	Groundwater Elevation (msl)
MW-SB1 ¹	4/17/91	10:36	5.9	7.25	5.93	1.32
	7/9/91	10:03			5.92	1.33
	1/10/94	11:45		2	5.0	2.25
	1/26/94	13:10			5.03	2.22
	11/14/94	7:32			4.48	2.77
		10:55			5.02	2.23
	11/20/04	14:08			5.27	1.98
	11/28/94	8:56			4.82	2.43
N GIVI GDAL	3/3/95	9:05			4.94	2.31
MW-SB2 ¹	4/19/91	11:09	6.2	7.18	5.38	1.8
2	7/9/91	11:04			3.7	3.48
	1/10/94	12:31		96	3.08	4.1
œ	1/26/94	13:40			1.63	5.5
	11/14/94	7:30			4.8	2.38
		11:05 14:14			4.76 4.73	2.42 2.45
	11/28/94	9:00			2.85	4.33
	3/3/95	8:50			2.84	4.34
MW-SB3 ¹	11/14/94	7:25	6.0	8.10	8.23	-0.13
		11:00	0.0	0.10	8.14	-0.13
		14:12			8.07	0.03
	11/28/94	8:53	· · ·		6.32	1.78
	12/06/94	8:37			6.15	1.95
	3/3/95	8:40			6.78	1.32
MW-SB4 ²	11/28/94	9:02	6.6	6.39	1.05	5.34
	3/3/95	8:35			0.90	5.49
MW-SB5 ²	11/28/94	8:40	6.9	6.30	6.32	-0.02
	3/3/95	9:00			2.54	3.76
PW-1 ³	2/15/95 ⁴ 3/3/95	8:35	6.60	6.43	1.57 1.34	4.86 5.09
PW-2 ³	2/15/95 ⁴ 3/3/95	9:10	5.56	6.57	4.60 3.90	1.97 2.67
PW-3 ³	2/15/95⁴ 3/3/95	 8:45	6.36	7.81	4.95 4.76	2.86 3.05
PW-4 ³	2/15/95 ⁴ 3/3/95	 8:57	6.22	7.32	4.90 4.71	2.42 2.61

Table 8, continued

Notes: 11/14/94: High tide 9:21 a.m.; Low tide 3:50 p.m.

11/28/94: High tide 7:46 a.m.

2/15/95: High tide 5:14 a.m and 6:03 p.m.; Low tide 11:34 p.m.

3/3/95: High tide 1:14 p.m.; Low tide 7:03 a.m.

msl = Feet above mean sea level

TOC = Top of casing

-- = Unknown

Refer to Figure 3 for well locations.

Well survey conducted by Bates & Bailey 11/18/94.

Well survey conducted by Bates & Bailey 2/8/95.

Groundwater elevation measured by SOMA; all other elevations measured by BASELINE.

Well survey conducted by Bates & Bailey 11/28/94.

TABLE 9

OBSERVATIONS DURING GROUNDWATER SAMPLING Seabreeze Yacht Center, Oakland, California March 1995

2 Sun	D	ate	Water I (feet below			Sheen on Groundwater		
Well	Purged	Sampled	Prior to Purging	Prior to Sampling	Percent Recovery	Prior to Purging	Appearance of Sample	
MW-SB1	3/3/95	3/3/95	4.94	5.45	95	No	Clear	
MW-SB21	3/3/95	3/6/95	2.84	6.48	55	No	Clear	
MW-SB3	3/3/95	3/6/95	6.78	6.98	95	No_	Clear to very slightly turbid	
MW-SB4	3/3/95	3/3/95	0.90	0.91	100	Yes	Clear to very slightly turbid	
MW-SB51	3/3/95	3/6/95	2.54	2.5	100	No	Light amber	
PW-1	3/3/95	3/3/95	1.34	1.35	100	No	Clear to very slightly turbid	
PW-2	3/3/95	3/6/95	3.90	6.36	75	No	Clear to very slightly turbid	
PW-3	3/3/95	3/6/95	4.76	4.75	100	No	Clear	
PW-4	3/3/95	3/3/95	4.71	4.67	99	No	Clear	

Note: Refer to Figure 3 for well locations.

A duplicate sample was collected; in both cases, the appearance of the duplicate was similar to the actual sample.

TABLE 10

SUMMARY OF ANALYSES PERFORMED, SOIL Seabreeze Yacht Center, Oakland, California

	Depth	oth	Tota	l Extract	able Hydroc	arbons¹						Total
Sample ID	(feet bgs)	Sample Date	Diesel	Motor Oil	Bunker C	Kerosene	PCBs ²	RCRA Metals ³	SVOCs4	Moisture (%) ⁵	Bulk Density ⁶	Organic Carbon ⁷
TP-1A	3.0-3.5	3/6/95	1	1	1	1						
TP-2	3.0-3.5 5.5-6.0	3/6/95	1	1	1	1						
TP-3	3.0-3.5	3/6/95	1	1	1	1						
TP-4	3.0-3.5	3/6/95	1	1	1	1						
T-1	3.0-3.5 5.5-6.0	3/6/95					1					
T-2	3.0-3.5	3/6/95					1					
T-3	3.0-3.5	3/6/95					1					
T-4	3.0-3.5	3/6/95					1					
PW-1	1.5 ⁸ 2 3 5	1/31/95	\$° 		 	 	 	 -/ /	 	 		
PW-2	0.5 ⁸ 1.0 4.5-6 ⁸ 10.0	1/30/95	\$ \$ 		 	 	 	/		 -	 \$	 •
PW-3	0.5 ⁸ 1.0 5.0 ⁸ 5.6 10	1/30/95	♪ ♪ 		 		 	 / /	 	 		

Table 10, continued

Sample ID	Depth (feet bgs)	Sample Date	Total Extractable Hydrocarbons ¹							Total	
			Diesel	Motor Oil	Bunker C	Kerosene	PCBs ²	RCRA Metals ³	SVOCs4	Moisture (%) ⁵	Organic Carbon ⁷
PW-4	0.5 ⁸ 1.0 3.0 ⁸	1/30/95	♪ ♪	 	 			 / 	 	 	
	3.5							1			

Notes: PCBs = Polychlorinated biphenyls

SVOCs = Semi-volatile organic compounds

-- = Not analyzed

Sample locations included in Figure 5.

Results summarized in Tables 11 through 14.

Laboratory Reports included in Appendix I.

- California DOHS Method, LUFT Manual, October 1989, except where noted.
- ² EPA Method 8080.
- ³ EPA Methods 7060, 6010A, 7421, 7471, and 7740.
- EPA Method 8270.
- 5 EPA Method CLP.
- 6 Method ASTM D854.
- ⁷ EPA Method 9060.
- Sample also qualitatively analyzed for petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector also performed.
- ⁹ EPA Method 8015M, extended to include motor oil range compounds.

TABLE 11

SUMMARY OF ANALYSES FOR TOTAL EXTRACTABLE HYDROCARBONS, SOIL Seabreeze Yacht Center, Oakland, California 6 March 1995

(mg/kg)

Sample ID	Depth (feet bgs)	Kerosene ¹	Diesel ¹	Motor Oil ¹	Bunker C ¹
TP-1A TP-2 TP-2 TP-3 TP-4	3.0-3.5 3.0-3.5 5.5-6.0 3.0-3.5 3.0-3.5	NR ² <1.0 <1.0 NR ² <1.0	28 ³ <1.0 14 ³ 92 ³ <1.0	200 ³ <25 120 ³ 190 ³ <25	340 ³ <25 190 ³ 400 ³ <25

<u>Notes</u>: <x.x = Compound not reported above laboratory reporting limits.

NR = Not reported

Sample locations provided in Figure 5.

Laboratory reports included in Appendix I.

- California DOHS Method, LUFT Manual, October 1989.
- Kerosene range not reported due to overlap of hydrocarbon ranges.
- Sample chromatogram does not resemble laboratory hydrocarbon standard.

TABLE 12

SUMMARY OF ANALYSES FOR PCBs, SOIL Seabreeze Yacht Center, Oakland, California 6 March 1995

(µg/kg)

ppl

	News 1	Depth Arochlor ¹									
Sample ID	(feet bgs)	1221	1232	1016	1242	1248	1254	1260			
T-1	3.0-3.5	<20	<20	<20	<20	<20	<20	<20			
T-1	5.5-6.0	<20	<20	<20	<20	<20	<20	<20			
T-2	3.0-3.5	<20	<20	<20	<20	<20	150	65			
T-3	3.0-3.5	<20	<20	<20	<20	<20	<20	<20			
T-4	3.0-3.5	<20	<20	<20	<20	<20	<20	<20			

Notes: PCB = Polychlorinated biphenyl

<x.x = compound not reported above laboratory reporting limits

Sample locations provided in Figure 5.

Laboratory Reports included in Appendix I.

¹ EPA Method 8080.

TABLE 13

SUMMARY OF ANALYTICAL RESULTS, SOIL

Seabreeze Yacht Center, Oakland, California

(mg/kg, except where noted)

Sample	Sample Date	Donath				RCRA	Metals ¹				TPH as	
Location		Depth (feet)	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	Diesel extracted ²	Semi-volatiles ³
PW-1	1/31/95	1.54									30	
		2.0									410	
		3.0	2.6	54	< 0.25	48	9.3	< 0.095	< 2.5	< 0.50		<1.7-<8.
		5.0	5.0	120	0.49	22	38	< 0.091	<2.5	< 0.50		
PW-2	1/30/95	0.54									1,000 _	
		4.5-6.0 ⁴	<2.5	28	< 0.25	55	6.4	< 0.10	< 2.5	< 0.50	620	-
		1.0	4.9	190	0.53	140	210	0.22	< 2.5	< 0.50		
PW-3	1/30/95	0.54		,							< 50	
3.52		5.0 ⁴									< 50	
		1.0	5.7	140	0.58	35	81	< 0.091	< 2.5	< 0.5		
		5.6	4.4	61	< 0.25	51	28	0.18	< 2.5	< 0.5		
PW-4	1/30/95	0.54									<50	
		3.04									<50/<50	
		3.5	6.7	180	0.25	33	63	0.13	< 2.5	< 0.50		
		1.0	5.5	86	0.40	31	43	< 0.10	< 2.5	< 0.50		

Notes: -- = Not analyzed

<xx=compound not detected above laboratory reporting limits</pre>

Sample locations included in Figure 3.

Laboratory results included in Appendix I.

- EPA Methods 7060, 6010A, 7421, 7471, and 7740.
- ² EPA Method 8015M, extended to include motor oil range compounds.
- 3 EPA Method 8270.
- Sample also qualitatively analyzed for petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector.

TABLE 14

SUMMARY OF MISCELLANEOUS ANALYTICAL RESULTS, SOIL Seabreeze Yacht Center, Oakland, California 6 March 1995

Sample Location	Sample Date	Depth (feet)	Percent Moisture ¹ (percent)	Bulk Density ² (g/ml)	Total Organic Carbon ³ (mg/kg)
PW-2	1/30/95	10	52	2.0	3,900
PW-3	1/30/95	10	13	2.1	1,200

Notes: Sample locations included in Figure 3.

Laboratory results included in Appendix I.

¹ EPA Method CLP.

² Method ASTM D854.

³ EPA Method 9060.

APPENDIX A

LABORATORY REPORTS, SHORELINE SOIL SAMPLES
January/March 1995

FRIEDMAN & BRUYA

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.5104442093-99 P.03

DRAFT

February 1, 1995

Michele Heffee, Esquire Port of Oakland 530 Water Street P.O. Box 2064 Oakland, CA 94604

Dear Ms. Heffes:

Enclosed are the results from the testing of material submitted on January 20, 1995 from your Seabreeze project. Low levels of mercury were initially reported to be present in several of the soil samples using Method 6010. The sample extracts from these samples were analyzed for mercury using a cold vapor mercury analyzer. No mercury was found to be present in the sample extracts.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

James E. Bruys, Ph.D. Chemist

jdp Enclosures

FAX: (510) 444-2093

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DRAFT

Date of Report: February 1, 1995 Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP)

TO

70

(METHOD 6010)
Results Reported as µg/g (ppm)

					LA D AS	
Sample ID	E8	Shor	e-2-Surface	Shor	-2d-Surface	Shore-2d-8
Analyte:	e * 1			*		; }
Areenic	60	- n	3	: 3	3	5
Barium		# # #	56	1	100	38
Cadmium			<2 :		<2	⋖
Chromium	12		59		110	83
Lead		: 1	230		600	20
Mercury			<2		<2	
Selenium			<2		<2	. ⋖
Silver			<2	** ! !! !	<2	•
Vanadium			5	***	6	28
Nickel			14	; ;	13	52
					1	, s + T, T

DRAFT

Date of Report: February 1, 1995 Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: January 20, 1995 Date Extracts Analyzed: January 28, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010) Results Reported as µg/g (ppm)

70

				223		
Sample ID	R		Shore-2-3	Shor	-1-Surface	Shore-1-3
Analyte:			•	11	i	
Arsenic	*.		5		<2	6
Barium			79		45	7
Cadmium			4		<2	•
Chromium			29	şî.	26	22
Load	55 46	• •	34	:5	8	85
Mercury			<₹.		<2	<3
Selenium			2		<2	⋖
Silver	T.		<₹	::-	<2	43
Vanadium			33		39	28
Nickel	**	Ŧ	43		28	22
					i	; — -

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DRAFT

Date of Report: February 1, 1995 Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: January 20, 1995 Date Extracts Analyzed: January 28, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010) Results Reported as ug/g (ppm)

			i i
Sample ID	Shore-4-Surface	Shore-4-3	Shore-5-Surface
Analyte:		: :	ί.
Areenic	9	10	6
Barium	64	34	81
Cadmium	<2	<2	<3.
Chromium	15	18	17
Lead	420	270	300
Mercury	<2	<2	~
Selenium	<2	3	<
Silver	•	<2	•
Vanadium	30	26	21
Nickel	24	47	. 27
000gar 1200 - 1200	· .	35°	že i

DRAFT

Date of Report: February 1, 1995 Date Received: January 20, 1995

Project: Seabreeze
Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010) Results Reported as µg/g (ppm)

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		3		100
Sample ID	e V _{ii}	Shore-5-3.0	Share-6-Surface	Share-6-2.0
Analyte:	.E u		1	t.
Areenic		9	5	9
Barium		54	84	80
Cadmium		<2	<2	<2
Chromium		18	11	15
Lead		600	100	110
Mercury	9	<2		
Selepium	• •	<2	<2	: <2
Silver		<2	<2	. 🗷
Vanadium	8	27	38	25
Nickel		30	. 13	26

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DRAFT

Date of Report: February 1, 1995 Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010) Results Reported as µg/g (ppm)

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Sample ID	:	Shore-3-Surface	Shore-3-2.5
Analyte:			
Arsenic	1	9	6
Berium		27	15
Cadmium		<	<2
Chromium	¥.	12	27
Lead		240	11
Mercury		<2	<2
Selenium		<2	<2
Silver		<2.	<2
Vanadium.		110	26
Nickel		13	46

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DRAFT

Date of Report: February 1, 1995
Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: January 20, 1995 Date Extracts Analyzed: January 28, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP)

TO

(METHOD 6010)
Results Reported is µg/g (ppm)
Quality Assurance

					7. *
Sample ID Analyte:			Blank		Shore-\$2.5 (Duplicate)
Areenic	. :	* *	.<2		5
Barium	a.		<2	, .	14
Cadmium	*	793 9	<2	0 4 1 2	<₹'
Chromium	i		<2		26
Lead			<2	1 - 1 1 - 2 1 - 3	11
Mezcury	**,		< <2		<3 €
Selenium		*	<2		4
Silver		N	~ ≪2		4
Vanadium "		1.1	<2		25.
Nickel		5 4	<2	* :	44

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DRAFT

Date of Report: February 1, 1995 Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP)

(METHOD 6010)
Results Reported as % Recovery
Quality Assurance

Sample ID Analyte:	Shore-3-2.5 Matrix Spike % Recovery	Shore-3-2.5 Matrix Spike Duplicate % Recovery	Spike Level
Arsenic	81%	75%	100
Barium	57%	68%	50
Cadmium	71%	65%	50
Chromium	76%	66%	50
Lead	73%	68%	100
Mercury	79%	77%	100
Selenium	83%	80%	100
Silver	94%	50%	20
Vanadium	79%	88%	100
Nickel	76%	68%	100

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DRAFT

Date of Report: February 1, 1995 Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: January 20, 1995 Date Extracts Analyzed: January 28, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP)

(METHOD 8010)
Results Reported as % Recovery
Quality Assurance

1.7		- n	
Sample ID		Spike Blank	Spik Leve
Analyte:		% Recovery	
Arsenic	., Ì	96%	100
Barium	- 1	196%	50
Cadmium		85%	50
Chromium	- 10	95%	50
Lead		90%	100
Mercury	Ţ	.92%	100
Selenium	,	91%	100
Silver	-	56%	20
Vanadium	er ^e	99%	100
Nickel	1	92%	100
81		-	: "

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FRIEDMAN & BRUYA, INC.

TO

TO

ENVIRONMENTAL CHEMISTS

Date of Report: February 7, 1995

Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: February 3, 1995
Date Extracts Analyzed: February 3, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS BY IR (METHOD 418.1) Results Reported as µg/g (ppm)

Sample ID	×	*\u		Total Petroleum Hydrocarbons
Shore-2-Surface		2. I	2.	44
Shore-2d-Surface	÷		¥, }	59
Shore-2d-3		. 1		360
Shore-2-8'			:	<10
Shore-1-Surface	i	1.	* ₀	<10
Shore-1-8'	9		10 15 18	15
Shore-4-Surface	*	*	n ⁻¹	370
Shore-4-8'	: 4	4		24
Shore-5-Surface			; ; =	28
Shore-5-8.0		• 1		140
Shore-8'-Surface	stree	** **		
Shore-6-2.0	6	¥i		58
Shore-3-Surface		, Tax		33
Shore-8-2,5	150			160
		3 1	y ×	18

FRIEDMAN & BRUYA

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 7, 1995 Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: February 3, 1995 Date Extracts Analyzed: February 3, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS BY IR (METHOD 418.1) Results Reported as µg/g (ppm) Quality Assurance

Sample ID			1		Total Petroleum Hydrocarbons
Blank		**. *	ţ.:		<10
Shore-2d-Surfa (Duplicate)	ice	÷		<u> </u>	120
Shore-2d-Surfa (Matrix Spike) % Recovery	ice				180%
Shore-2d-Surfa (Matrix Spike % Recovery	pe Duplie	cate)			124%
Shore-3-Surfac (Duplicate)	8		•		130
Shore-8-Surfac (Matrix Spike) % Recovery	•	e • ₹			124%
Shore-3-Surfac (Matrix Spike % Recovery	Duplic	cate)			119%
Spike Blank % Recovery		· • • • • •			128%
Spike Level			*		5,000

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 8, 1995 Date Received: January 20, 1995

Project: Seabreeze

Date Samples Extracted: February 3, 1995

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLE FOR PCB AS AROCHLOR 1260 BY GC/ECD (MODIFIED 8080) Samples Processed Using Method 3550 Results Reported as µg/g (ppm)

Sample ID		PCB	Sw	rogate Standard (% Recovery)
Shore-2d-Surface		2.9	िक (15) संक्	105%
One No. 1 or 1				
Quality Assurance	. E			
Shore-2d-Surface		<0.02		79%
(Duplicate)		2.6		97%
Shore-2d-Surface (Matrix-Spike) % Recovery	in .	· 5		
Shore-2d-Surface		34		88%
(Matrix Spike Duplicate) % Recovery				86%
Spike Blank % Recovery		90%	1.6	
Spike Level	10 10	0.67		106%
			S.F.	Ţ.

The analyse indicated was not added to the matrix spike sample

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Friedman & Bruya, Inc.

3012 16th Avenue West Seattle, WA 98119 (208) 285-8282

Semivolatile Results by Method 8270

Client: Baseline Project: Seabreeze, Port Client ID: Shore-2d-Surfac	Of Oakland e	Date	ate Received: Extracted: Analyzed:	01/20/95 01/25/95 01/26/95	Analyst: FBI ID #: Units:	BA 56375 ug/kg (ppb)
Phenol		•				<330
bis(2-Chloroethyl)ether	V		** } ***	1	*	<33
2-Chlorophenol			# #	i		<330
1,3-Dichlorobenzene	1		15			<33
1,4-Dichlorobenzene	1.0		Pri≱	İ	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	<33
1,2-Dichlorobenzene	4.			1 .		<33
Benzyl alcohol	756	:	3.0		g/s 17	<33
bis(2-chloroisopropyl)ether	į ž	- 71-			÷	<33
2-Methylphenol	* 1*	-	60 1/2	į.	3	<330
Hexachioroethene :				;	- 13	<33
N-hitroso-di-n-propylamine				i i	3	<33
4-Methylphenol	•	1 14	13年			<330
Nitrobenzene sophorone	4.3		દેવ છે,		1.3	< 33
2-Nitrophenol			1. €		: ·	<33
2,4-Dimethylphenol			<u>ેં</u> &.			<330
hie/2-Chiese chiese	• •	i v	<i>i</i> 2:	!	9	< 330
bis(2-Chloroethoxy)methane 2.4-Dichlorophenol	•			i	5	<33
1,2,4-Trichlorobenzene	- 1		77	1		< 330
Naphthalene	Ł.,		34.		200	< 33
Hexachlorobutadiene				i		< 33
4-Chloro-3-methylphenol	<u>`</u>		- 14	i		<33
2-Methylnaphthalens		·	•• ::	i		< 330
lexachlorocyclopentadiene	12.		• • • • • • • • • • • • • • • • • • • •	į	3	<33
2,4,6-Trichlorophenol		7/12	1.	_ !	,,2.	<33
2,4,5-Trichlorophenoi		• • •	45	1		<330
2-Chloronaphthalene		es f	bà	i	à	<330
Dimethylphthalate	*		-s []		. 11	< 33
Acenaphthylene	1 (1	٠: ر	<33
2,6-Dinttrotoluene			13	1		< 33
Cenaphthene	- 		-2 %	1	٠ (ريا <u></u>	< 33
2,4-Dinitrophenol			•	1		< 33
Dibenzofuran	10 14	. :		,l		< 330
,4-Dinitrotoluene		<u> </u>			No.	<33
-Nitrophenol	7	:		,	see a f	< 33
Diethylphthelate		1 :	·*·*	1	7	<330
luorene					1.	< 33
-Chlorophenyl-phenylether	*: •				- *	<33
-Nitrosodiphenviamine			· :	i	\$	<33
,6-Dinitro-2-methylphenol	<u> </u>		, ,		ja e	<33
-Bromophenyl-phenylether	:	•		1		< 330
exechlorobenzene					4	<33
		4.5.5	7. 4	*	4	<33

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Friedman & Bruya, Inc.

3012 16th Avenue West 3012 16... Seattle, WA 98119 (206) 285-8282

Semivolatile Results by Method 8270

TO

Client: Baseline Project: Seabreeze, Port Client ID: Shore-2d-Surfac	Of Oakland e	Date	te Received: Extracted: Analyzed:	01/20/95 01/25/95 01/26/95	Analyst: FBI ID #: Units:	BA 56375 ug/kg (ppb)
Pentachiorophenol Phenanthrene		<u>-</u> i	ir.			
Anthrecene			137		3	
Di-ti-butyiphthelate Fluorenthene Python					1,	39
Benzo[a]anthracene Chrysene	* 1 (*			:		67
bie 3 Servites vije behalde Financia principalities i grande Benzo (a) pyrene					Z	0,000
Benzo(b)flouranthene Benzo(k)flouranthene Indeno(1,2,3-cd)pyrene	- 10 mm	÷ ;	100 mg		3	
Dibenz(e,h)anthracene Benzo(g,h,i)perylene					Maria .	
Surrogate Recoveries:						

Surrogate Recoveries:

				2000		
	- No. 1	QC Limits	3-4	.1	32	2-Fluorophenol
49		30-115	٠.,	::		Phenol-d6
64	3	24-113	-3 %	.:		Albert .
69	;	23-120			uh.*	Nitrobenzene-d5
		30-115				2-Fluorobiphenyl
80					10 III	2,4,6-Tribromophenol
74		19-122		:		Terphenyl-d14
92	4.1	18-137				
	25	ı	. 7	200	(A)	
	1.					
	· ·		∀ર્વે	1		•
	5 %		21.5			
		868	= :	: :	2	
	A		41. A.		• • •	
	3,	1		· 17		2.8
		İ		, · · ·	,2	
	\$					
	· 1.	1			- 1 I	
	· 1	i	5.5	1, .		
		1		•	3 * S	
20		i	17			
2	i d	1 .	1.2			
	: 23	•				
	4 31.5			. 3		
	4 1 € 1	1		14.		
	* 35 ;		≥	2	33	

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Friedman & Bruya, Inc.

3012 16th Avenue West Seattle, WA 98119 (206) 285-8282

Semivolatile Results by Method 8270

Client: Baseline			Date Received:	01/20/95	Analyst:	BA
Project: Seabreeze, Port	Of Oakland		te Extractéd:	01/25/95	FBI ID #:	56377
Client ID: Shore-2-3'		- Dat	te Analyzed:	01/26/95	Units:	ug/kg (ppb)
Phenol						<330
bis(2-Chloroethyl)ether		: -	ij k	Ĩ	•	<33
2-Chlorophenol	800	•	, <u>:</u>	1	٠	<330
1,3-Dichlorobenzene					35	<33
1,4-Dichlorobenzens	, i			i	,	<33
1,2-Dichlorobenzene			94	2 4 25		<33
Benzyl sicohol					•	<33
bis(2-chloroisopropyl)ether	144	1 1	i i			<33
2-Methylphenol	:1		: F	1	\$	<330
Hexachioroethane			21.4		14.	<33
N-nitroso-di-n-propylamine			₫ \$		4	< 33
4-Methylphenol	<u>_</u>		غ ^ا ن ا	İ		<330
Nitrobenzene			: : :		g ² .	<33
Isophorone			ं इ	ļ	4	<33
2-Nitrophenol	n. rj		<u> </u>		. E	<330
2,4-Dimethylphenol			e de d	4	۲.,	<330
bis(2-Chloroethoxy)methane					¥.	<33
2,4-Dichlorophenol	<u> </u>		<u>j. 1</u>	<u>.</u>		<330
1,2,4-Trichlorobenzene	43		1, 5			<33
Naphthalene	47		1.1	}		<33
Hexachtorobutadiene		* * .		1	1.00	<33
4-Chloro-3-methylphenol			4. f	14	\$	< 330
2-Methylnaphthalene	15.6	• 33		1	<u>(1</u>)	<33
Hexachlorocyclopentádiene			• • •		- 1·	<33
2,4,6-Trichlorophenol	11:		(1.4)	1 2	₹.	< 330
2,4,5-Trichlorophenol 2-Chloronaphthalene	17	. 2.	4.	İ	,	< 330
Dimethylphthalate			1.5	1	<u>,</u>	<33
Acenaphthylene:		÷1;	· 5.	ı		<33
2,6-Dinitrotoluene			i i i	ļ	. (4)	<33
Acenaphthene			23		: .3 15	< 33
2,4-Dinitrophenol	. 3.	. <i>i</i>	* 2	,		<33
Dibenzofuran	а,	τ.:		ļ		<330
2,4-Dinitrotoluene	3/3	- 11-		i	<u> </u>	<33
4-Nitrophenol	. 1	::	₩,	į		<33
Diethylphthalate	. 3	•	. i . i	1	<u>.</u>	< 330
Fluorene				!	VR 1	<33
4-Chlorophenyl-phenylether			• • •	1	•	<38
n-Nitrosodiphenylamine			<u></u>	- 1		<33
4,6-Dinitro-2-methylphenol	••	- 1 -	• • • • • • • • • • • • • • • • • • • •	L.	The second	<33
4-Bromophenyl-phenylether	·		7 <u>\$</u>	i	1 N. 1	<330
Hexachlorobenzene	(F (C)		: 5°	I	* *	<33
TOTAL OF THE PARTY		1	<u> </u>			<33

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Friedman & Bruya, Inc.

3012 16th Avenue West Seattle, WA 98119 (206) 285-8282

Semivolatile Results by Method 8270

TO

Client: Project: Client ID:	Baseline Seabreeze Shore-2-3	, Port Of Oakland	Date	te Received: Extracted: Analyzed:	01/20/95 01/25/95 01/26/95	Analyst: FBI ID #: Units:	BA 56377 ug/kg (ppb)
Pentachiorop	henol						
Phenanthren			• •	4: Ž	:		<33 <33
Anthracene		; <i>:</i> :	; ;		I	, , , , , , , , , , , , , , , , , , ,	<3:
Di-n-butylphi		Р.			1		53
luoranthene					1		<3
Ateus		-0 ₂ ,			1	3	<33
utylbenzylp	hthalate	4.1		€. ₹			<3
Benzo(s)anth Chrysene	racene	÷		. •			<33
**** ~ *******************************	eleded		i far	18-7		ş:	<33
1	-	10	i .	A.S	i	\$ ·-	200
	See and			27	:	<u>.</u>	<33
and the same			<u> </u>			4.77	: <30
some Million		ľ		#4	-		37
ndeno(1,2,3	co pyrene	. 1.4	* :	19	!	÷.	***
lbenz(a,h)ar	thracene					<u>.</u>	<33 <33
enzo(g,h,i)p	erylene .	, i		35	i		<33
							\00

Surrogate Recoveries:

, F

i i i i i i i i i i i i i i i i i i i		100				,
2 5				QC Limits	77	
2-Fluorophenol Phenol-d6	4.			30-115	25	56%
	٠.,			24-113		64%
Nitrobenzene-d5	, 12	100		23-120		63%
2-Fluorobiphenyl			B 00 5	30-115	A	84%
2,4,6-Tribromophenol Terphenyl-d14	٠		1. \$	19-122		74%
TO PROTYLO 14				18-137	N.	76%

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Friedman & Bruya, Inc.

3012 16th Avenue West Seattle, WA 98119 (206) 285-8262

Semivolatile Results by Method 8270

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Phenol bis(2-Chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene Benzyl alcohol bis(2-chlorolsopropyl)ether 2-Methylphenol Hexachloroethane N-nitroso-di-n-propylamine 4-Methylphenol Nitrobenzene sophorone 2-Nitrophenol 2,4-Dimethylphenol bis(2-Chloroethoxy)methane 2,4-Dichlorophenol 1,2,4-Trichlorobenzene			e Analyzed:	01/26/95	Units:	<pre></pre>
bis(2-Chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Benzyl elcohol bis(2-chlorolsopropyl)ether 2-Methylphenol Hexachloroethane N-nitroso-di-m-propylamine 4-Methylphenol Nitrobenzene sophorone 2-Nitrophenol 2,4-Dimethylphenol bis(2-Chloroethoxy)methane 2,4-Dichlorophenol			2			<33 <33 <3
2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Benzyl elcohol bis(2-chlorolsopropyl)ether 2-Methylphenol Hexachloroethane N-nitroso-di-n-propylemine 4-Methylphenol Nitrobenzene sophorone 2-Nitrophenol 2,4-Dichloroethoxy)methane 2,4-Dichlorophenol			77 - 77 - 77 - 77 - 77 - 77 - 77 - 77			<33 <33 <3
2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Benzyl elcohol bis(2-chlorolsopropyl)ether 2-Methylphenol Hexachloroethane N-nitroso-di-n-propylemine 4-Methylphenol Nitrobenzene sophorone 2-Nitrophenol 2,4-Dichloroethoxy)methane 2,4-Dichlorophenol			**************************************			<33
1,4-Dichlorobenzene 1,2-Dichlorobenzene Benzyl elcohol bis(2-chlorolsopropyl)ether 2-Methylphenol Hexachloroethane N-nitroso-di-n-propylamine 4-Methylphenol Nitrobenzene sophorone 2-Nitrophenol 2,4-Dimethylphenol bis(2-Chloroethoxy)methane 2,4-Dichlorophenol			12 A			<3
1,2-Dichlorobenzene Benzyl elcohol bis(2-chlorolsopropyl)ether 2-Methylphenol Hexachloroethane N-nitroso-di-n-propylamine 4-Methylphenol Nitrobenzene sophorone 2-Nitrophenol 2,4-Dimethylphenol bis(2-Chloroethoxy)methane 2,4-Dichlorophenol			7. A.	į		
Benzyl alcohol pis(2-chlorolsopropyl)ether 2-Methylphenol -lexachloroethane N-nitroso-di-n-propylamine 3-Methylphenol Nitrobenzene aophorone 2-Nitrophenol 2,4-Dimethylphenol pis(2-Chloroethoxy)methane 2,4-Dichlorophenol		31	***			< 3
pis(2-chlorolsopropyl)ether 2-Methylphenol dexachloroethane N-nitroso-di-n-propylamine 3-Methylphenol Nitrobenzene sophorone 2-Nitrophenol 2,4-Dimethylphenol pis(2-Chloroethoxy)methane 2,4-Dichlorophenol			400 18	į.		<3
2-Methylphenol dexachloroethane N-nitroso-di-n-propylamine N-Methylphenol Nitrobenzene eophorone 2-Nitrophenol 2,4-Dimethylphenol 3,4-Dichloroethoxy)methane 4,4-Dichlorophenol				1		<3
lexachloroethane N-nitroso-di-n-propylamine N-methylphenol Nitrobenzene sophorone P-Nitrophenol R,4-Dimethylphenol Sis(2-Chloroethoxy)methane	41 41	20	, .	-	÷	<3
N-nitroso-di-n-propylamine N-Methylphenol Nitrobenzene sophorone N-Nitrophenol N-Dimethylphenol N-C-Chloroethoxy)methene N-A-Dichlorophenol	4.		·)	į	ý.	<33
I-Methylphenol Nitrobenzene sophorone P-Nitrophenol 2,4-Dimethylphenol sis(2-Chloroethoxy)methane 2,4-Dichlorophenol					5, 11	<3
I-Methylphenol Nitrobenzene sophorone P-Nitrophenol 2,4-Dimethylphenol sis(2-Chloroethoxy)methane 2,4-Dichlorophenol			<u>-: 2</u> ,			<3
sophorone 2-Nitrophenol 2,4-Dimethylphenol sis(2-Chloroethoxy)methane 2,4-Dichlorophenol	e.	*	₩ 3			<33
2-Nitrophenol 2,4-Dimethylphenol pis(2-Chloroethoxy)methene 2,4-Dichlorophenol		1.	". (.)	i	W.	<3
2,4-Dimethylphenol- pls(2-Chloroethöxy)methane 2,4-Dichlorophenol				1	4	<3
ds(2-Chloroethoxy)methane		1	• • •			<33
,4-Dichlorophenol			13	i		<33
,4-Dichlorophenol			*{ \$		Ù.	<3
.2.4-Trichlorobenzene	: 1					<33
	ń.,				V	<3
laphthalene					***	<3
lexachlorobutadiene			7.	!		<3
-Chloro-3-methylphenol			Ag Sa		.#1	<33
-Methylnaphthalene					• • • • • • • • • • • • • • • • • • • •	<3
lexachiorocyclopentadiene			ij	i	Ç1-i €1	<3
,4,6-Trichiorophenol	1.1					<33
,4,5-Trichlorophenol					<u>.</u>	<33
-Chloronaphthalene						<3
imethylphthalate		4.	15		1 4	<3
The second second	114	91€		1		30
, e-Dinitrotoluene				!	1 5 S	<3
densetrihens.			11.			75
,4-Dinitrophenol	1		: #	i		<33
ibenzofuran	,			-1	*	<3
,4-Dinitrotoluene			-		- 12"	The second secon
-Nitrophenot	i a		7.4	*	5.5	<3
iethylphthalate	. 7			1	7 원회: 11	<33
uorene.			* 1		4-	<3
Charapternyl sherwisther	÷.		, j	i	à.	ای
Nitrosodiphenylamine	5		1.5-	1	0	433
6-Dinitro-2-methylphenol	-			1		
-Bromophenyl-phenylether			7.	<u> </u>	is .	<3
exachiorobenzene	:		4	1	<u> </u>	<33 <33 <3

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Friedman & Bruya, Inc.

3012 16th Avenue West Seattle, WA 98119 (206) 285-8282

Semivolatile Results by Method 8270

Client: Baseline Project: Seabreeze, Por Client ID: Shore-4-3'	n Of Oakland	Date	ete Received: Extracted: Analyzed:	01/20/95 01/25/95 01/26/95	Analyst: FBI ID #: Units:	BA 56381 ug/kg (ppb)
Pentachlorophenol			1, ,	,	ý.	<330
Phenanthrene Anthrecene	2)			į	À	670
Di-n-butylphthalate	:					250
Fluoranthene	* e			İ		1000
Pyrene		5.	11.5	ļ		990
Butylbenzylphthalate		N. 11	43	i	- 33	140
Berizo(a)anthracene Chrysene	1.		2 G	İ	(360
pis(2-Ethylhexyl)phthalate	33			!		690
Di-n-octylphthalate	77		s	1	7	170
Banzo(a)pyrene) A	ì	. .	< 33 470
Benzo(b)flouranthene			No. age			630
Benzo(k)flourenthene		1 -	4.4			370
ndeno(1,2,3-cd)pyrene Dibenz(s,h)anthracene	<u>. 19</u>	i'.	<u> </u>	1	200	270
Benzo(g,h,i)perylene			3.	.	1 to 1	160
The state of the s		<u> </u>		1		310

Surrogate Recoveries:

	- 1.1		-	QC Limits	
2-Fluorophenol- Phenol-d6				30-115	61%
Nitrobenzene-d6		**		24-113	65%
2-Fluorobiphenyl			3.3	23-120	74%
2,4,6-Tribromophenol		1.5 64		30-115 19-122	88% 76%
Terphenyl-d14			i.;	18-137	105%

Friedman & Bruya, Inc.

3012 15th Avenue West Seattle, WA 98119 (206) 285-8282

Semivolatile Results by Method 8270

TO

Client: Baseline Project: Seabree Client ID: Method	ze, Port Of Oakland	Date	ate Received: Extractéd: Analyzed:	01/20/95 01/25/95 01/26/95	Analyst: FBI ID #: Units:	BA M Bik ug/kg (ppb)
Phenoi						
bis(2-Chloroethyl)eth		\$.1	35	į	. Š	<330
2-Chiorophenol	ar :			ļ	*** ***	<33
1,3-Dichlorobenzene			***			<330 <33
1,4-Dichlorobenzene		* N E	7. 5.	į,	2	<33
1,2-Dichlorobenzene	1,	9 J	. <u> </u>	1	\$ T	<3:
Benzyl alcohol	**					<33
bis(2-chloroisopropyl)	ether					<33
2-Methylphenol		• •	41	1	<u>.</u>	<330
Hexachioroethane		77.31	84		÷	<33
N-nitroso-di-n-propyla	mine 🤄	7	2.4	i !	? : •	<33
4-Methylphenol	<u> </u>		4.4	į	\$	<330
Nitrobenzene	. 14	. **:	4.5	1	3	< 33
Isophorone			્રિક	1	. ♦	<33
2-Nitrophenol	i de la companya de l):	4°.	1		<330
2,4-Dimethylphenol			14 1	N. V	(4.77	<330
bis(2-Chloroethoxy)m	ethane		(44) (7)	i		<33
2,4-Dichlorophenol	A STATE OF THE STA	a (j	: 42.	1		< 330
1,2,4-Trichlorobenzen	•		••.>		95	<33
Naphthalene Hexachlorobutadiene					.7	<33
4-Chloro-3-methylphe	<u> </u>	1 2	97.			<33
2-Methylnaphthalene	noi			1	3	<330
Hexachlorocyclopents	No. SS. Mariana					<33
2,4,8-Trichlorophenol	diene			1	少…	<33
2,4,5-Trichlorophenol	1.		i i i i i i i i i i i i i i i i i i i	;		<330
2-Chloronaphthalana		161	: 1 A		. 3	<330
Dimethylphthalate			- 1.			<33
Acenaphthylene			14.7	i	٠ .i. :	<33
2,6-Dinitrotoluene		1	į į	į		<33
Acenaphthene	-					<33
2,4-Dinitrophenol		×	(1)	i	• • • • • • • • • • • • • • • • • • • •	<33
Dibenzofuren	- 59	- N 1. S		.1	3	< 330
2,4-Dinitrotoluene						<33
L-Nitrophenol		÷			Ĭ.	<33
Diethylphthalate			1. a 1. p	-		< 330
luorene					- 14.00	< 33
-Chlorophenyl-phenyl	ether		: fx		Σ. γ.:	< 33
-Nitrosodiphenylamin			,	1		<33
,6-Dinitro-2-methyloh	enol			-		< 33
-Bromophenyl-phenyl	ether :	<i>i</i>	33. 33.		;	< 330
exechlorobenzene"		i.	9Q*			<33
				1	2.	<33

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Friedman & Bruya, Inc.

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Project: Seabreeze, Port Of Oakland Date Extracted: 01/25/95 FBI ID #: M Blk	Client:	7			ults by Me	1	3.	
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2-Fluorobiphenyl				23-120	59%
2,4,6-Tribromophenol			4.5	30-115	69%
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			-4.5	18-137	82%

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5900 Hollis Street, Suite D Emeryville, CA 94608 (415) 420-8686

Relinquished by: (Signature)

Date / Time

CHAIN OF CUSTODY RECORD

Received for Laboratory by:

Turn-Around Time Lio Filedman Bruger

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LABORATORY NUMBER: 120142-005 CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171

LOCATION: SEABREEZE YACHT, OAKLAND

SAMPLE ID: SHORE 2X

DATE SAMPLED: 03/06/95 DATE RECEIVED: 03/06/95 DATE EXTRACTED: 03/10/95 DATE ANALYZED: 03/13/95 DATE REPORTED: 03/14/95

BATCH NO:19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)

ANALYSIS METHOD: EPA 8080 EXTRACTION METHOD: EPA 3550

AROCLOR	TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR	1221	ND	100
AROCLOR	1232	ND	100
AROCLOR	1016	ND	100
AROCLOR	1242	ND	100
AROCLOR	1248	ND	100
AROCLOR	1254	ND	100
AROCLOR	1260	4,700	100

ND = Not detected at or above reporting limit.

QA/	QC	SUMMARY:	MS/MSD

RPD, %
RECOVERY, %
108

QC Sample: 120142-007

BASELINE
101 H Street, Suite L
Petaluma, CA 94952

(707) 762-5233

CHAIN OF CUSTODY RECORD

Turn-around Time Lab BASELINE Contact Person

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APPENDIX B
SOMA REPORT



LIMITED SOIL AND GROUNDWATER INVESTIGATION

AT THE

FORMER SEABREEZE YACHT CENTER OAKLAND, CALIFORNIA

March 20, 1995

Prepared by
SOMA Environmental Engineering, Inc.
2680 Bishop Drive, Suite 203
San Ramon, California 94594

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2	Groundwater Elevation Contours for February 15, 1995
3	Tidal Study Results for All Wells
4	Tidal Study Results for TMP-1
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7	Tidal Study Results for PW-4

SOIL AND GROUNDWATER INVESTIGATION REPORT FORMER SEABREEZE YACHT CENTER 280 SIXTH AVENUE, OAKLAND, CALIFORNIA

1.0 INTRODUCTION

This technical report describes the methodology, scope of work, and results of a limited soil and groundwater investigation conducted by SOMA Environmental Engineering, Inc. (SOMA) at the former Seabreeze Yacht Center located at 280 Sixth Avenue in Oakland, California ("the site"). This investigation was conducted by SOMA on behalf of the Port of Oakland, which owns the property.

1.1 Scope of Work

This limited soil and groundwater investigation consisted of the following scope-of-work:

- (1) Drilling and sampling of four soil borings to a depth of approximately 15 feet to characterize soil conditions, collect soil samples for chemical analysis, and install monitoring wells.
- (2) Analysis of eight soil samples for total extractable petroleum hydrocarbons (TEPH) and RCRA metals, one soil sample for semivolatile organic compounds (SVOCs) by EPA Method 8270, and two soil samples for fraction of organic carbon, moisture content, and density.
- (3) Installation of four groundwater monitoring wells constructed of 4-inch diameter PVC well casing in each boring.
- (4) Development and sampling of each of the four monitoring wells.
- (5) Analysis of groundwater samples from each of the four newly installed monitoring wells for
- (6) Surveying the locations, ground surface elevations, and top-of-casing elevations for each of the monitoring wells and measurement of groundwater elevations to determine the local groundwater flow direction and gradient.

- (7) Installation of a tidal water level monitoring point and monitoring of water levels in the Clinton Basin and three of the newly installed monitoring wells on an hourly basis for a 72-hour period to assess tidal effects on groundwater level fluctuations.
- (8) Data evaluation and preparation of this written report.

2.0 FIELD INVESTIGATION

2.1 Drilling and Soil Sampling

On January 30 and 31, 1995, four soil borings were drilled at the site in the area bounded by the former PG&E power plant, the Clinton Basin, and the containment structure for the former aboveground fuel oil storage tank (Figure 1). The borings were drilled for the combined purposes of collecting soil samples for chemical and physical analysis and installing groundwater monitoring wells to allow measurement of groundwater levels and collection of groundwater samples for chemical analysis. The borings and monitoring wells were completed under the supervision of a SOMA Senior hydrogeologist by Environmental Resource Group of Corte Madera and Bayland Drilling, Inc. of Palo Alto, California. Borings were drilled to a depth of 14 feet using a truck-mounted 10-inch O.D. hollow-stem auger.

Soil samples were collected during drilling for lithologic description and for laboratory analysis. The purpose of soil sampling was to qualitatively characterize subsurface conditions and to quantitatively assess the horizontal and vertical distribution of petroleum hydrocarbons and metals in subsurface soils.

Soil sample cores were collected continuously for the first five feet of drilling (to identify the depth at which the Bay Mud was encountered beneath the surficial fill material), and at five-foot intervals thereafter. Samples were collected using a modified California sampler lined with new, pre-cleaned brass tubes, which was driven into undisturbed soil below the lead auger using a 140-pound drop hammer mounted on the auger rig. The sampling device was scrubbed with a solution of Alconox detergent to remove visible soil particles, rinsed with clean tap water, and rinsed a second time with de-ionized water prior to each use.

The two lowermost brass tubes from each driven sample were retained for possible chemical analysis. The ends of the tube were covered promptly with aluminum foil and plastic caps, and taped shut with waterproof tape. The sealed tubes were then labeled, placed in plastic zip-lock bags and promptly stored in a chilled ice chest for transport to the analytical laboratory.

A chain-of-custody form containing information on sample identification and requested analyses was completed by the field sampler and accompanied the samples to the analytical laboratory (Appendix C). All samples were delivered to the analytical laboratory within 48 hours of collection.

A photo-ionization detector (PID) was used to screen samples in the field for the presence of petroleum hydrocarbons to aid in selecting samples for possible chemical analysis. The PID was calibrated prior to the start of field work using a 101-ppm isobutylene standard.

The procedure for screening soil samples using the PID was as follows. A sample of soil was placed into a plastic zip-lock bag, which was then sealed. The soil sample was manipulated gently by hand to break up clumps of soil and release volatile hydrocarbons. The sample was then allowed to sit for approximately ten minutes to allow for temperature equilibration to ambient temperature and chemical equilibration between the soil and air within the sealed bag. After the equilibration period, the probe of the PID was inserted through the wall of the sealed plastic bag and a measurement of volatile hydrocarbon concentration in the air inside the bag was taken and recorded on the boring log (Appendix A).

2.2 Monitoring Well Construction

Monitoring wells were constructed in each of the four boring locations (Figure 1, PW-1 through PW-4) using 4-inch diameter flush-threaded Schedule 40 PVC well casing. The lower ten feet of the well casing consisted of factory-slotted casing with 0.010-inch slots. A filter pack of #0/30 sand was emplaced in the borehole surrounding the slotted portion of the well casing (the well screen) and was extended one foot above the top of the screen. The relatively small slot width and fine grain size for the filter pack were selected in advance based on the fine-grained sediments expected to be encountered. A two-foot seal of bentonite pellets was emplaced around the casing immediately above the sand pack and was hydrated with clean tap water.

After installation, the location, ground surface elevation, and top-of-casing elevation of each monitoring well were surveyed by a licensed surveyor. Well construction logs and survey data are included in Appendix A.

2.3 Monitoring Well Development and Sampling

The monitoring wells were developed on February 1, 1995 and were sampled the following day. The wells were developed by bailing and surging using a hand surging tool to remove fine sediments from the well casing and filter pack and to improve hydraulic communication between the well and the surrounding sediments. Four to ten casing volumes of water were removed from each well during development, depending on the yield of the well. The

temperature, pH, electrical conductivity, and appearance (e.g., clarity, color, odor) of groundwater withdrawn was monitored and recorded (see field logs in Appendix B) during the well development process.

The new monitoring wells were sampled on February 2, 1995. Prior to collecting a groundwater sample, approximately 1.5 to 2 well casing volumes of water were removed from the well using a bailer. During purging, water quality parameters and appearance were monitored as during well development and recorded on field sampling logs (Appendix B). Samples to be analyzed for RCRA metals were filtered directly from the sample bailer into prepared sample bottles using an in-line 0.45-micron filter assembly. A hand pump was used to pressurize the head space in the bailer and force the water through a disposable filter capsule and into the sample bottle. Three laboratory-supplied sample bottles were filled for each sample: two 1-liter amber bottles (unpreserved) and one 500 ml plastic bottle (with nitric acid preservative).

At the end of the day, one set of samples (consisting of one 1-liter amber and one 500 ml plastic bottle from each monitoring well) was delivered to Curtis & Tompkins' laboratory in Berkeley and a second set of samples (consisting of one 1-liter amber bottle from each monitoring well) was sent via Federal Express overnight delivery to Friedman & Bruya's laboratory in Seattle.

2.4 Laboratory Analyses

Two soil samples from each boring (one from the upper 18 inches and a second from a depth of between three and six feet) were analyzed for the following parameters:

- TEPH as diesel, extended to include motor oil range compounds
- RCRA metals

In addition, a single soil sample collected from boring PW-1 at a depth of 2.5 to 3 feet was analyzed for SVOCs by EPA Method 8270. The TEPH analyses were performed by Friedman & Bruya, and the RCRA metals and EPA 8270 analyses were performed by Curtis & Tompkins.

Groundwater samples from each of the monitoring wells were analyzed for the following parameters:

- Petroleum hydrocarbon scan (GC-FID/ECD)
- RCRA metals
- SVOCs by EPA Method 8270 (PW-1 only)

The petroleum hydrocarbon scan was performed by Friedman & Bruya, and the remaining analyses were performed by Curtis & Tompkins. The sample from PW-1 was selected for an 8270 analysis due to the presence of an oily sheen noted in this well.

2.5 Tidal Study

To evaluate the effects of tidal water level fluctuations in the Clinton Basin on groundwater levels and groundwater flow in shallow saturated sediments at the site, a tidal study was performed. The tidal study consisted of continously monitoring water levels in three of the new monitoring wells (PW-2 through PW-4) and a tidal monitoring point in Clinton Basin (TMP-1, Figure 1) over a 72-hour period. Water levels were monitored using 10 PSI pressure transducers connected to electronic data loggers. Due to the high water level in well PW-1 (less than one foot below the top of casing), a data logger could not be installed at this location. (In-well data loggers were used so that monitoring equipment could be secured inside the locked well housings against theft or vandalism; a minimum clearance of approximately 2.5 feet between the top of casing and the maximum water level was required to accommodate the data loggers.)

Pressure transducers and data loggers were installed at TMP-1 and in monitoring wells PW-2 through PW-4 on the morning of February 8. The data loggers were programmed to record water level readings at 15-minute intervals. The test was begun at noon on February 8 and was terminated at noon on February 11. Water levels at each location were measured manually using an electronic water level probe at the time of installation and removal of the pressure transducers and data loggers to provide a reference level for the pressure transducer readings and as a check on the transducer measurements. Water levels were also measured manually in well PW-1 on several occasions during the test to check whether significant water level fluctuations occurred at PW-1.

3.0 RESULTS

3.1 Subsurface Soil Conditions

At all four drilling locations, soil samples were collected to a maximum depth of 15 to 15.5 feet. Soils encountered at each location consisted of clayey to sandy artificial fill overling Bay Mud (see Appendix A). Undisturbed Bay Mud, consisting of bluish gray to bluish black silty clay, typically with a hydrogen sulfide (rotten egg) odor indicative of anaerobic organic decomposition, was encountered at depths ranging from 4.5 feet at PW-2 to approximately 13 feet at PW-3. At two locations—PW-1 and PW-3—two intervals of Bay Mud were encountered, the upper interval being underlain by artificial fill material. The upper interval of Bay Mud at these locations probably represents locally derived fill material and not undisturbed natural sediments.

The artificial fill material encountered in borings PW-1 through PW-3 consisted of clayey sand to sandy clay with varying amounts of gravel and crushed miscellaneous base (including rock and brick fragments, etc.). At PW-4, the upper three feet of fill material was similar to

that encountered at the other boring locations, but fill material encountered between depths of three and approximately twelve feet was relatively free of fine grained materials, consisting of medium sand to gravelly sand with granitic rock fragments and crushed miscellaneous base.

Monitoring well PW-2 is screened entirely within Bay Mud, while the remaining newly installed monitoring wells are screened predominantly or wholly within fill material. Soils within the screened interval of monitoring well PW-4 are considerably coarser than soils penetrated by the other three newly installed monitoring wells. Well construction and lithologic logs for monitoring wells PW-1 through PW-4 are presented in Appendix A.

3.2 Groundwater Levels and Flow

3.2.1 Effects of Tidal Fluctuations

Figures 3 through 7 present the results of the tidal study. On Figure 3, the water level elevation is plotted at hourly intervals over the duration of the test at all four monitoring locations (TMP-1, PW-2, PW-3, and PW-4). Figures 4 through 7 present water level plots for each of these locations individually. Note that the scale of the y-axis (water level) is different on each figure as it is scaled for each figure according to the overall range of water level variations.

From Figure 3, it can be seen that the water level in Clinton Basin (TMP-1) fluctuated over an interval of 5 to 5.5 feet on average during the course of one complete tidal cycle (25 hours). It can also be seen from Figure 3 that water levels in monitoring wells PW-2 through PW-4 did not fluctuate significantly over the duration of the test in response to the tidal water level fluctuations in Clinton Basin. The largest tidal response was observed in well PW-4 (Figure 7), where water levels fluctuated by about 0.08 feet on average over a complete tidal cycle. Compared to the difference in water level elevations between monitoring wells (approximately 0.5 to 0.6 feet between PW-3 and PW-4), the fluctuation in well PW-4—which is located only 25 feet from the high-water shoreline—is relatively insignificant.

The water level in well PW-2 (Figures 3 and 5) increased at a more-or-less constant rate throuhgout the test duration. This suggests that the water level in PW-2 was still recovering from the drawdown caused by removal of water from the well during development and sampling activities nearly one week prior to the start of the test. The log for this well (Figure A-2) shows that it is screened entirely within the Bay Mud; the low permeability of the Bay Mud probably accounts for the very slow recovery of the water level in well PW-2 to equilibrium conditions.

3.2.2 Groundwater Flow

After allowing the groundwater level at well PW-2 to stabilize, water levels were measured in all four new monitoring wells on February 15, 1995. Groundwater elevation contours based on these data are plotted in Figure 2, which shows that the groundwater flow direction is toward Clinton Basin, more-or-less perpendicular to the shoreline. The water levels indicate a hydraulic gradient of approximately 0.02 ft/ft, equivalent to approximately 100 feet/mile. This relatively steep gradient reflects the low hydraulic conductivitity of the shallow saturated sediments at the site.

4.0 CONCLUSIONS

Based on the results of the tidal study and groundwater elevation measurements, shallow groundwater beneath the site flows toward and discharges to the Clinton Basin, which is connected to San Francisco Bay via the Oakland-Alameda estuary. The hydraulic gradient in the shallow saturated sediments is relatively steep and directed toward the shoreline. Tidal water level fluctuations in the bay have little impact in water levels in monitoring wells as close as 25 feet from the high-water shoreline. Therefore, synoptic (one-time) water level measurements in on-site monitoring wells can reliably be used to characterize the groundwater flow direction and gradient.

FIGURES

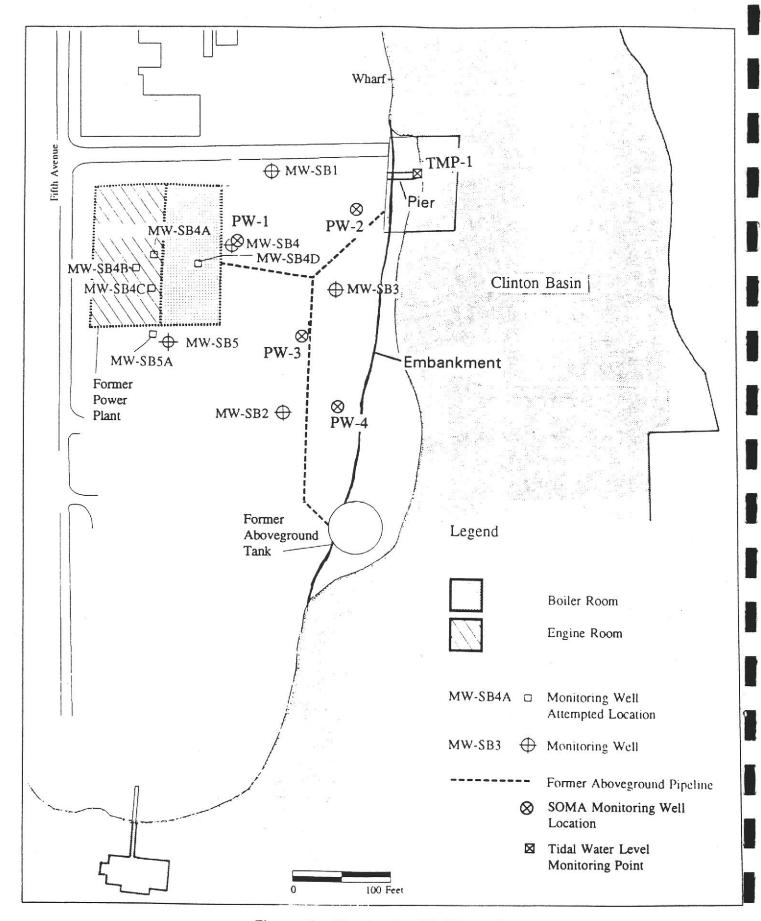


Figure 1: Monitoring Well Locations

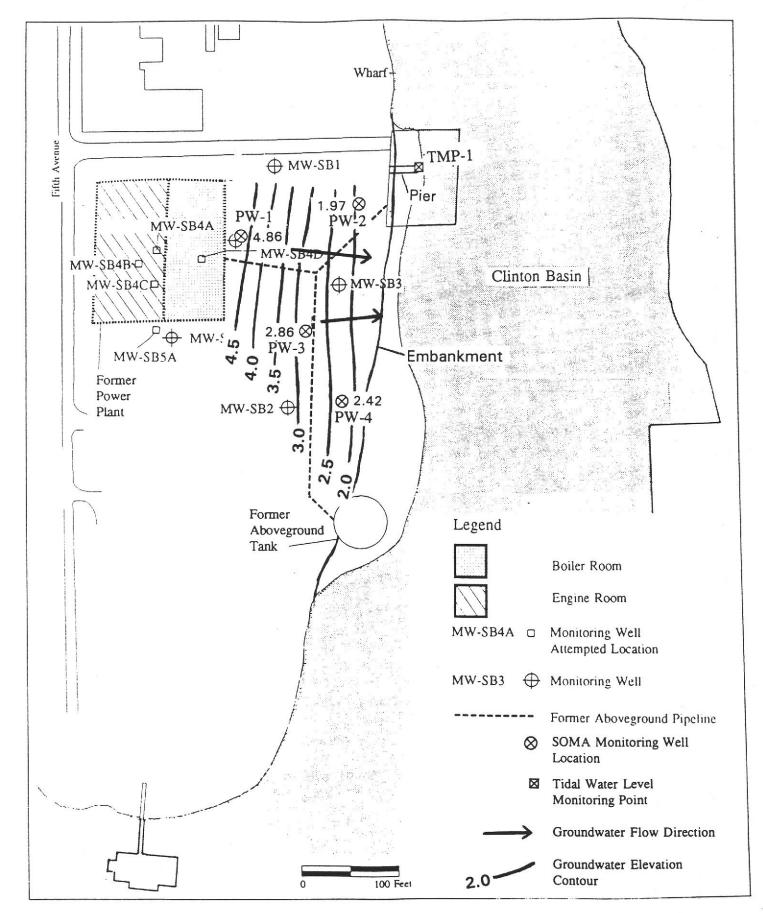


Figure 2: Groundwater Elevation Contours for February 15, 1995

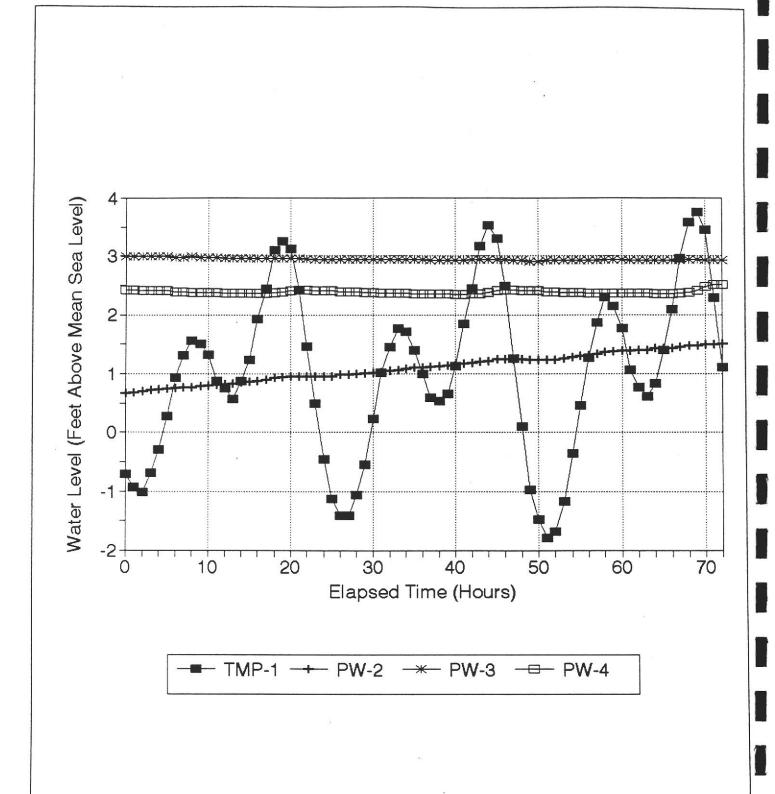


Figure 3: TIDAL STUDY RESULTS FOR ALL WELLS

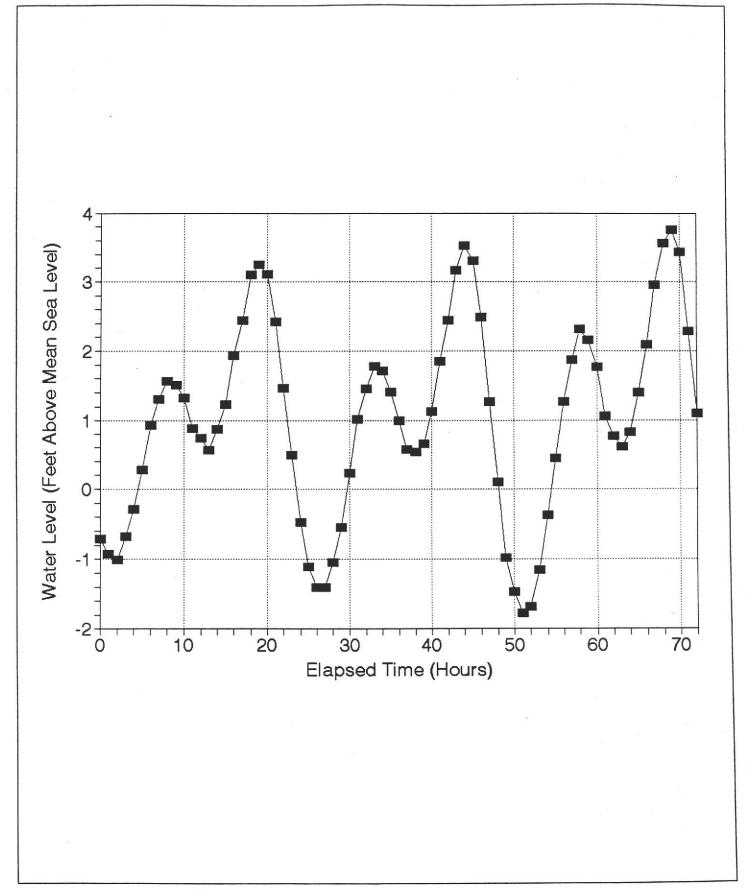


Figure 4: TIDAL STUDY RESULTS FOR TMP-1

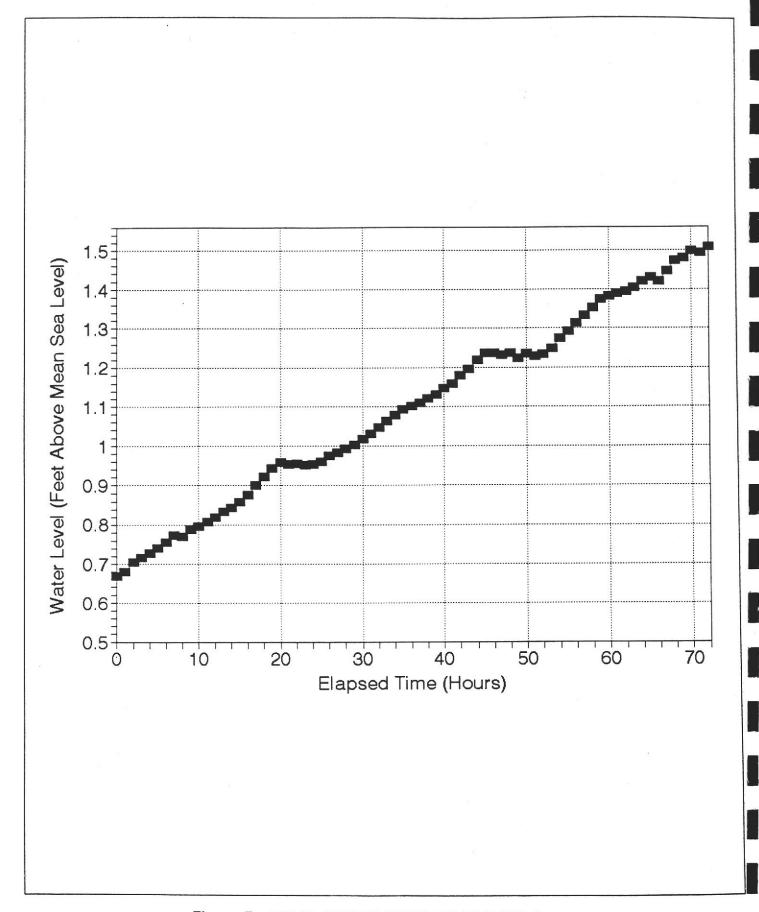


Figure 5: TIDAL STUDY RESULTS FOR PW-2

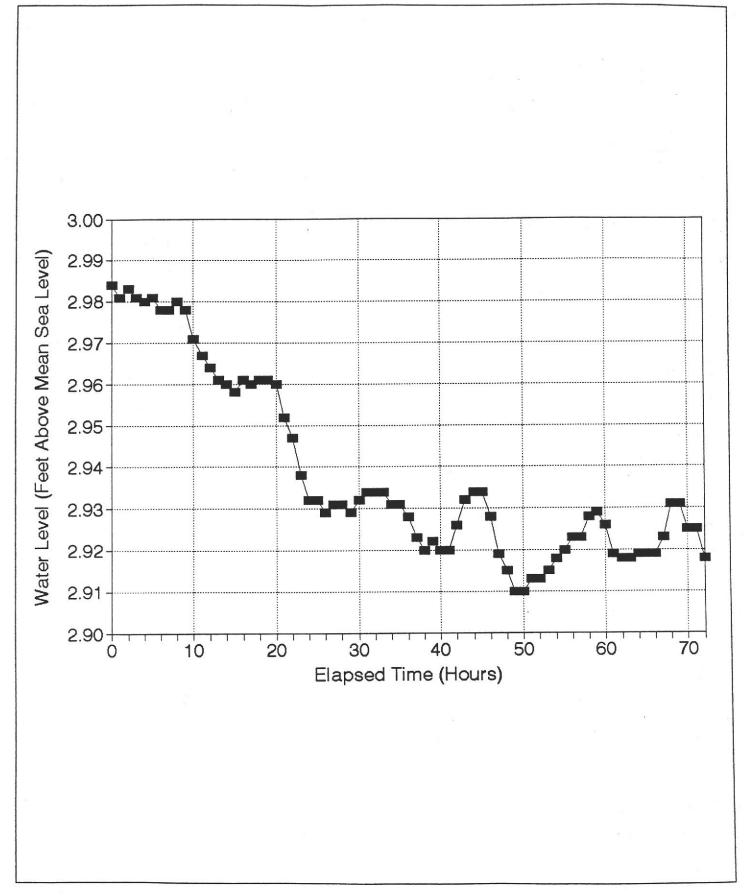


Figure 6: TIDAL STUDY RESULTS FOR PW-3

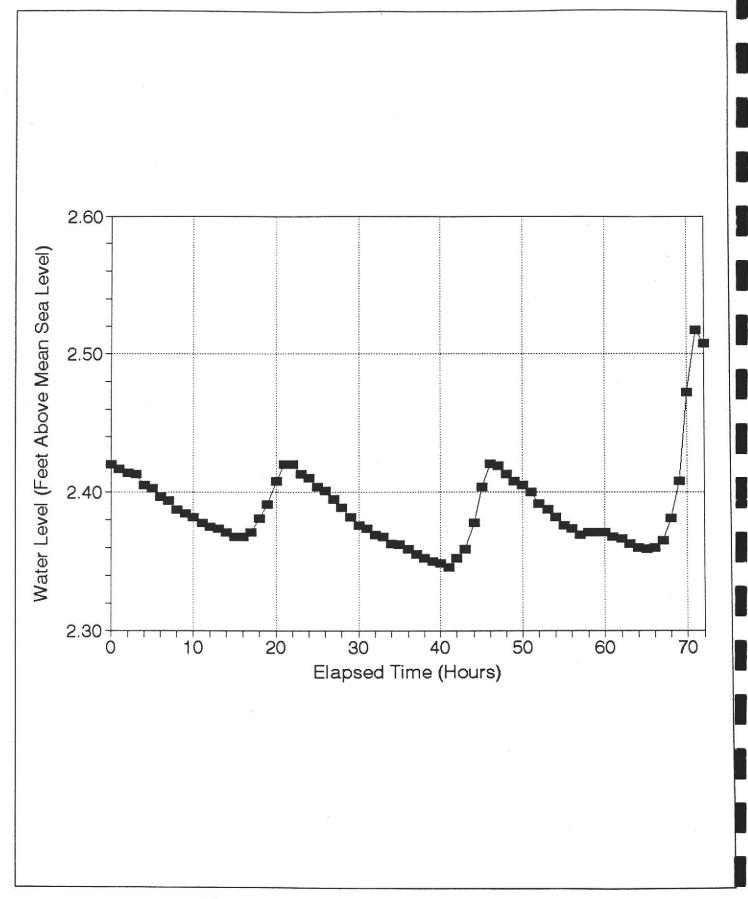
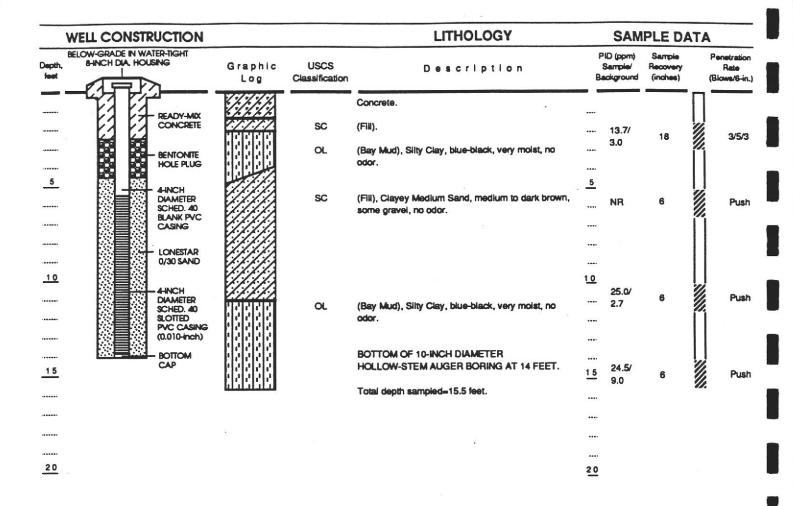


Figure 7: TIDAL STUDY RESULTS FOR PW-4

APPENDIX A MONITORING WELL LOGS AND SURVEY DATA



Date well drilled: January 31, 1995
Drilling Co.: Bayland Drilling
Driller: John
Sampling method: Split Spoon Sampler
Hammer Weight: 140 lbs.
Well Elevations (feet MSL): Top of Casing: 6.43
Ground Elevation: 6.60
Field Geologist: Ben Wells
Registered Geologist: John M. Fausthi

CA K.G. # 5873

Figure A-1: FIELD OF WELL CONSTRUCTION AND LITHOLOGY FOR PW-1 (page 1 of 1)



EXPLANATION

Sampled Interval

parts per million

Photoionization detector reading in

PID

(ppm)

Clay

SIIt

Sand

Gravel

V	VELL CONSTRUCTION			LITHOLOGY	SAMPLE DATA			
Depth,	ABOVE-GRADE MONUMENT	Graphic Log	USCS Classification	Description	PID (ppm) Sample/ Background	Sample Recovery (inches)	Penetration Rate (Blows/6-in.)	
	READY-MIX CONCRETE		sc	(Fill), Clayey Sand to Sandy Clay with Gravel, dark brown to grayish green, moist to very moist, firm/stiff, no odor.	2.6/0	12	12/15/18 50 (1)	
	BENTONITE HOLE PLUG			Wood encountered in bottom sleeve.	8.1/0	12	50 (1)	
5	4-INCH DIAMETER SCHED. 40 BLANK PVC CASING		OL	(Bay Mud), Silty Clay, grayish black to bluish black, very moist, soft, rotten egg odor (but no petroleum odor).	<u>5</u> 7.1/0	18	3/5/6	
10	LONESTAR 0/30 SAND 4-INCH DAMETER			Wood debris.	 1 <u>0</u> 9.2/0	18	3/2/3	
	SCHED. 40 SLOTTED PVC CASING (0.010-inch)			Shell fragments.		,0		
15	CAP			BOTTOM OF 10-INCH DIAMETER HOLLOW-STEM AUGER BORING AT 14 FEET.	1 5 37.1/0	18	Push	
				Total depth sampled=15.5 feet.	••••			

20					20			



Figure A-2: FIELD LOG OF WELL CONSTRUCTION AND LITHOLOGY FOR PW-2 (page 1 of 1)



1	WELL CONSTRUCTION			LITHOLOGY	SAMPLE DATA			
Depth,	ABOVE-GRADE MONUMENT	Graphic Log	USCS Classification	Description	PID (ppn Sample Backgrou	Recovery	Penetration Rate (Blows/6-in.)	
	READY-MIX		sc	(Fill), Clayey medium Sand with gravel and rock fragments, medium to dark brown, moist, soft, no	27 <i>.2/</i> 24 <i>.</i> 5	18	8/7/8	
	CONCRETE			odor.	48.7/ 25.3	18	3/5/3	
	- BENTONITE HOLE PLUG			Rock fragments jammed top 2 sleeves.	34.5/ 25.1	. 6	Push	
5	4-INCH DIAMETER SCHED. 40 BLANK PVC		OL	(Bay Mud), Sity Clay, bluish gray to black, very moist, decomposition odor but no chemical odor, shell fragments.	5 31.2/ 25.1	18	8/7/8 3/5/3 Push	
	CASING LONESTAR 0/30 SAND							
10	4-INCH DIAMETER SCHED. 40 SLOTTED PVC CASING		sc	(Fili), Clayey Sand, medium to dark brown, moist, no chemical odor, some gravel and crushed miscellaneous base, intermixed Bay Mud also present.	1 <u>0</u> 29.0 24.4	18	3/2/3	
	(0.010-Inch) BOTTOM		OL	(Bay Mud), Silty Clay, bluish gray, very moist, soft,				
15	CAP			no chemical odor but strong rotten egg decomposition odor.	15 66.7 24.0	2000	Push	
				BOTTOM OF 10-INCH DIAMETER HOLLOW-STEM AUGER BORING AT 14 FEET.	••••			
******				Total depth sampled= 15.5 feet.	•••			
20					20			

Date well drilled: January 31, 1995
Drilling Co.: Bayland Drilling
Driller: John
Sampling method: Split Spoon Sampler
Hammer Welght: 140 lbs.
Well Elevations (feet/msl): Top of Casing: 7.81
Ground Elevation: 6.36
Field Geologist: Tim Boyer
Registered Geologist: John M. Faustini

Sand PID Photolonization detector reading in (ppm) parts per million

Sampled interval

CA R.G. # 5873

Figure A-3: FIELD OF WELL CONSTRUCTION AND LITHOLOGY FOR PW-3 (page 1 of 1)

EXPLANATION

Clay

SIII

WELL CONSTRUCTION				LITHOLOGY	SAMPLE DATA				
Depth, feet	ABOVE-GRADE MONUMENT	Graphic Log	USCS Classification	Description		PID (ppm) Sample/ sackground	Sample Recovery (inches)		Penetration Rate (Blows/6-in.)
	T READY-MIX		sc	(Fill), Clayey Sand with Gravel, medium to dark brown, very moist, soft, no odor, same organic		23.7/ 16.1	18	7	8/4/5
******	CONCRETE			matter. Granite rock fragments and crushed miscellaneous		26.2/ 17.1	18		4/6/9
	BENTONITE HOLE PLUG	3333		base.	••••	27.6/ 14.7	18		7/9/13
5	4-INCH DAMETER SCHED. 40 BLANK PVC		sw	(Fill), Medium Sand to Gravellly Sand, medium brown, saturated, soft, no odor, granite rock fragments and crushed miscellaneous base. Same (no recovery).	5		0		5/6/8
	CASING LONESTAR 0/30 SAND								
10	44NCH			No recovery.	10				
	DAMETER SCHED, 40 SLOTTED		OL.	(Bay Mud) No recovery.	••••	27.5/ 16.5	6		Push
	PVC CASING (0.010-Inch)		18	(Partial Recovery), Silty Clay, bluish gray, saturated,	••••		0		Push
15	CAP BOTTOM	14444		soft, strong anaerobic decomposition odor. BOTTOM OF 10-INCH DIAMETER HOLLOW-STEM AUGER BORING AT 14 FEET.	1 5	46.4/ 15.3	6	7	Push
				Total depth sampled=15 feet.					

Date well drilled: January 30, 1995
Driller: John
Sampling method: Split Spoon Sampler
Hammer Weight: 140 lbs.
Well Elevations (feet/msi): Top of Casing: 7.32
Ground Elevation: 6.22
Field Geologist: Tim Boyer
Registered Geologist: John M. Faustini

Figure A-4: FIELD OF WELL CONSTRUCTION AND LITHOLOGY FOR PW-4 (page 1 of 1)



EXPLANATION

Sampled interval

(ppm) parts per million

Photoionization detector reading in

PID

Clay

SIII

Sand

Gravel

BATES AND BAILEY

LAND SURVEYORS

15 SHATTUCK SQUARE • BERKELEY, CA 94704 TELEPHONE (510) 843-2007

> P.O. BOX 592 BERKELEY, CA 94701-0592

February 8, 1995

MONITOR WELLS AT 280 6TH AVENUE, OAKLAND, CALIFORNIA

Station	N.Coord.	E. Coord	T.C. Elev.	Ground Elev.
PW - 1	806.5	781.1	6.43	6.60
PW - 2	739.2	885.9	6.57	5.56
PW - 3	691.7	751.5	7.81	6.36
PW - 4	616.7	725.1	7.32	6.22
Pt. on Pier*	719.0	957.1	6,88 **	6.90
SB - 1	830.1	858.3	7.25	
SB - 3	699.0	813.0	8.10	

* TMP-1

** Top of casing is 0.02 ft below surveyed elevation on pier

ELEVATIONS BASED ON N. G. V. D.

APPENDIX B

MONITORING WELL DEVELOPMENT AND SAMPLING FIELD LOGS

Project Na	ame: 6th are Oski	سا		►Mgr: ১ơ	hm F.	Well ID: PW-1			
Project Nu	ımber: 95-2120		1	2.1.9		Well Yield:			
Site Addre	ess:		Devel	opment Meth	od:	Well Diameter: 4"			
60	a we called			Ramp / 1	sile-/plu	Technician(s): Benualla			
Initial Dep	oth to Water: . To		Total '	Well Depth:	14'	Water Column Height: 12 3			
Volume/ft	: 565		1 Casi	ng Volume:	Ø	10 Casing Volumes: 400 600			
Purging D	evice: Jump/bil	Qe-	Did W	ell Dewater?:	423	Total Gallons Purged: 40			
l Casing Volume	13.7 e = Water column height x Volum	me/ ft.			Ü .	Well Diam. Volume/ft (gallons) 2" 0.16 6" 1.47			
Time	Activity	1	ater epth	Gallons Purged		Comments			
(0:00	baile		70		Dight	oder and Sheen atop			
10:15	 		10	10	water	apo ad hours and and			
10:30	pluma/	14		15	-sech	mas 13 30 min			
11:45	12600	17	.10	70	Devote				
17:15				30					
17:95				35	Rocks	- 21:			
2130				40	Dewater	, how show, light laws			
	v								
						<u> </u>			
					7				
					8:				
						8			
1.0									
TEMPLATEVORM	SFIELD/WELL-DEV WPD								

Project Name: 6th are Obland	Mgr: John F	Well ID: Pw-2
Project Number: 75 -2120	Date: 1.95	Well Yield:
Site Address:	Development Method:	Well Diameter: Д~
6th ave, Oshlad	bailar / plunger	Technician(s): Ben Wolls
Initial Depth to Water: 1/-1/= 10	Total Well Depth: \Δ΄	Water Column Height: 4
Volume/ft:	1 Casing Volume: ろとい	10 Casing Volumes: 30 40.
Purging Device: Saile	Did Well Dewater?:	Total Gallons Purged: 3040 +

1 Casing Volume = Water column height x Volume/ ft. _ 2.6

Well Diam.	Volume/ft (gallons)				
2"_	0.16				
4"	0.65				
6"	1.47				

Time	Activity	Water Depth	Gallons Purged	Comments
10:40	pailer - un	er 10'	0	NO codo o sas Alican
11:00	/ ((14	0	Do water rechange 30 min.
11:30		11	10	Towater 0
17:00			15	Dewretz
17:30		11	70	Dewriter
1:200		11	15	Denoite
1:30		11	30+	Towater water Sulty Clear No.
				0'
	and the second s			
		E .		
	•			
	i.e			
TEMPLATE/FORM	SVFIELD/WELL-DEV WPD			

Project Na	ame: 6th are OAK		Mgr: So	lm F.	Well ID: 7W-3			
Project N	ımber: 95-212	0	Date:	2.1.95		Well Yield:		
Site Addre	ecc. ,			opment Meth		Well Diameter: \(\sum_{\text{''}} \)		
	Get ave, Osklan	rd —	ba	ilen/	ilunger	Technician(s): Ben Wells		
Initial Dep	oth to Water: 6.7-1 =	5.7	Total	Well Depth:	4	Water Column Height:		
Volume/ft		1 Casi	ng Volume:	长5.70	10 Casing Volumes: 40 gol			
Purging D	evice:			ell Dewater?	7	Total Gallons Purged: 40 (7 v.)		
l Casing Volume	乞.З e = Water column height x Volun	ne/ ft.			We!	Diam. Volume/ft (gallons) 0.16 0.65 0.47		
Time	Activity		ater epth	Gallons Purged		Comments		
4:00	bailer/ohme	15	ת	0	wan			
à . 1/5	7 , 0	+	3'	10	light br	ato an, ato me		
4:40		14	7	15	Deinter	rachage 15 min		
			X	75	Dewate	^		
		1000	<u>z</u>	30				
6.140			<u> </u>	40	Denates	, wo do ught brown		
					0			
_								
			-					
	-			7	,			
TEMPLATE/FORMS	SVFIELD\WELL-DEV.WPD					1		

Project N	Name: / th	^	Mar. \	1 -	W.U.T.	11		
Project N	Vame: 6th we ONG	المما		ohn F.	Well ID:	TW-4		
1 1	Sumber: 95 - 212	,	~ '		Well Yield:			
Site Add	ress: . Oth ove, OAK	Deve	lopment Meth	nod:	Well Diamet	er: 4"		
			ulua	Plunging	Technician(s): Ren 1200		
Initial De	epth to Water: 6.5-1	55 Total	Well Depth:	14'	Water Column Height: 8.5			
Volume/f			ing Volume:	Heal.	10 Casing Volumes: 20			
Purging D	Device: bailer/plu	Did W	/ell Dewater?			Purged: 40 gal.		
	ne = Water column height x Volum	(1		۵		ume/ft (gailons) 7 vols 0.16 0.65 1.47		
Time	Activity	Water Depth	Gallons Purged		Commen	ts		
2:00	bailing/plung	5.5'	0	NO odn	light b	nous		
31.00	1)	7.8	16		0			
3:40		11.	20 20+	Deuzeter	NO oda	in recharge		
-								
EMPLATEFORMS	VFIELD\WELL-DEV.WPD							
4 5/24/94								

Site GCM St. DAKLOW Date(s) Z-Z-95 Geologist Benwoll A After Purging III A After Purging	.: ~ji		 2. \:	, i	*		PW-	_ \ ,		85			
Purging Bailer	Site 6 Well No Ben Wells												
Purging Bailer	Date(s)	1-2.9	<u>5</u> :										
DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT Depth to water measured from TOC (ft): Before Purging: After Purging: After Sampling: After Sampling: After Sampling: After Purging After Purging After Purging: After Purging: After Purging: After Purging:	Purging Bo	iler				Equipment Used							
Total purging fime (min.)* Depth to sediment in well (ft.): Before 'Purging' Time Since Purging Started (min) Time (1)	Sampling	Bailer											
Total purging fime (min.)* Depth to sediment in well (ft.): Before 'Purging* Time Since Purging Started (min) Time (1)	DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT												
Total purging fime (min.)* Depth to sediment in well (ft.): Before 'Purging* Time Since Purging Started (min) Time (1)	Depth to water measured from TOC (ft): Before Purging: 1.0 After Purging: 1.0												
Time Since Cumulative Volume Removed (1) F 9C Water Lumhos/cm Primary** Particulates Date	and the time [min]t												
Time Since Purging Started (min) Time (1) Water Temp PH of Water Water Temp PH of Water Wa	Depth to sediment in well (ft.): Before Purging: After Purging												
Puring Started (min) Time Removed (1) Puring During During During During During CCL = clear CCO = cloudy TU = turbid Puring Volume Removed (1) Particle Removed (1) Particle Removed (1) Particle Removed (1) Particle Removed (1) Particle Conductivity Particle Conductivity Particle Conductivity Particle Conductivity Particle Conductivity Particle Conductivity Particle Interpoper Particle Conductivity Particle Interpoper Particle Settle Time Conductivity Particle Interpoper Particle Settle Time Conductivity Particle Interpoper Particle Interpoper Interpoper Particle Interpoper Interpoper Particle Interpoper Interpoper Particle Interpoper Interpoper Particle Interpoper Interpoper Particle Interpoper Interpoper Particle Interpoper Interpoper Particle Interpoper Interpoper Interpoper Particle Interpoper Interpoper Interpoper Particle Interpoper Interpoper Interpoper Particle Interpoper Interpoper Interpoper Particle Interpoper Interpoper Interpoper Interpoper Particle Interpoper Interpoper Interpoper Interpoper Particle Interpoper Interpope													
Purging Started (min) Time Removed (1) PH of Water (umhos/cm) Appearance lates Date Before S:60 S:60 S:60 S:60 S:60 S:60 S:60 S:60		Time Since					V (897)	Water*	Primary**				
Before						pH of			Particu-				
During			Time	AND THE PROPERTY OF THE PROPER			(umhois/cm)	ance	lates	Date			
During	Before		3:60	01	2	·							
During During During During During Ouring After *CL = clear **Particle Settle Time CO = cloudy * S = sand 1 min TU = turbid ML = silt 1-2 hr CL = clay hrs	During			4.	-	1							
During During Ouring After *CL = clear **Particle Settle Time CO = cloudy * S = sand 1 min TU = turbid ML = silt 1-2 hr CL = clay hrs	During	÷				1-2							
During Ouring *CL = clear **Particle Settle Time CO = cloudy * S = sand 1 min TU = turbid ML = silt 1-2 hr CL = clay hrs	During		H'as	12	69.3	17.52	2.78						
Ouring Ouring CL = clear	During						<u> </u>						
Ouring After *CL = clear **Particle Settle Time CO = cloudy * S = sand 1 min TU = turbid ML = silt 1-2 hr CL = clay hrs	During						,			-			
*CL = clear **Particle Settle Time CO = cloudy · S = sand 1 min TU = turbid ML = silt 1-2 hr CL = clay hrs	During		•										
CO = cloudy · S = sand 1 min TU = turbid ML = silt 1-2 hr CL = clay hrs	After												
TU = turbid ML = silt 1-2 hr CL = clay hrs	•	*CL = clear					•						
CL = clay hrs	•		•				10: 1.E.B						
Comments NO odor, slight gas sheen on top of well		to = turbia											
Comments Woodan, Slight gas sheen on top of week					-			۔ س)ماران	0 /			
	Commen	is No ode	5	slight_	gal	s at	uen or	v cab	Al mo				
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Pu Sa OA	Site 16 St. in Obline 1 50MA Geologist Ben Woll Purging Bailer 1 500 Equipment Used Equipment Used Sampling Bailer 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1										
De	epth to se	Time Since Purging Started (min)	Time	Cumulative Volume Removed	Water Temp ≠ °€	pH of Water	Conductivity (µmhos/cm)	Water* Appear- ance	Primary** Particu- lates	Date	
		(ttiva)	מסימן	05	3-	-	<u> </u>	Obar		2/2/95	
1	Before		10.00	3	65.1	6.80	5tt =120				
-	During		1.2.	6:	67.0	7.10	"		1.		
-	During		11:60	9	67.7	1-	//		-		
-	During		11.00			1		-			
1	During	-	-		1		,	1			
	During									1	
	During										
	After	CD = clear CO = cloudy TU = turbid		*Particle S = sand ML = silt CL = clay	i	Settle Tin 1 min 1-2 hr hrs					
	Comme	nts WO od	0	NO F.F	<u> </u>	- :	Dower	alton	8 and		
		Laudini	ly=	31 - rale	100	(4th) -	BIGUE	- All			
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Depti	n to se	Time Since Purging Started (min)		Cumulative Volume Removed	Water Temp	pH of Water	X 1000	Water* Appear- ance	Primary** Particu- lates	Date
Be	fore		1:30	0:	=					
Du	ring			4	67.3	7.25	13.90			
Du	ring	·	, ,	3:	68.4	17.90	13.90			
Du	ring		2:30	12:	68.0	17.85	13.97			
Di	iring									
Di	uring						-	1.		
00	uring								-	
.	fter									
	<u>خ</u>	CD = clear CO = cloudy TU = turbid		*Particle S = sand ML = silt CL = clay		1 min 1-2 hr hrs				
Car	mmen	15 <u>U.U. alo</u>				 		•		
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Date(s)	2.2.0	15_				nent Used		1	
Purging Ba	iler		1.14		Equipo	rement Refer	ence Datur	n	
Sampling	Baller Pun	~P/	fitter		Weaz	Memeric more.	•	.,	.•
DATA FRO	M IMMEDIATE	LY BEF	ORE AND AF	TER DEV	ELOPME	ENT .		·ina	10%
Death to w	M IMMEDIATE	from	TOC (ft):	Before	Purging	•	After Put	gingeli	10
					The second secon				
Depth to s	ging time (mi ediment in wel	(ft.): 1	Before Purgi	ng:		After Pu	rging —		
								•	
	Time Since		Cumulative Volume	Water		×1000	Water*	Primary**	•
	Purging Started		Removed	Temp	pH of Water	Conductivity (umhos/cm)	Appear-	Particu- lates	Date
•	(min)	Time	287	F 9C	AASIEI	(Difficos) City			1/2/95
Before		12:0	01	3-		2/2			1
During			3.	1663	3.04 1.94	7.62			
During	:		<u></u>	107.5	100	7.48			
During		1,00	91	67.5	1.00	1.17			
During		-		-					
During		-		1				•	
Ouring				-					
After	1		Particle		iettle Tic	ne			
<u> </u>	*CL = clear CO = cloudy		S = sand		1 min				
	TU = turbid		ML = silt CL = clay		1-2 hr hrs				
		•	CC - 0.01	•					•
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APPENDIX C DRUM INVENTORY

MEMORANDUM

Date:

10 March 1995

To:

Michele Heffes and Dan Schoenholz, Port of Oakland

90

From:

Yane Nordhav and Julie Pettijohn, BASELINE

Subject:

Drum Inventory, Seabreeze Yacht Center, 280 Sixth Avenue, Oakland

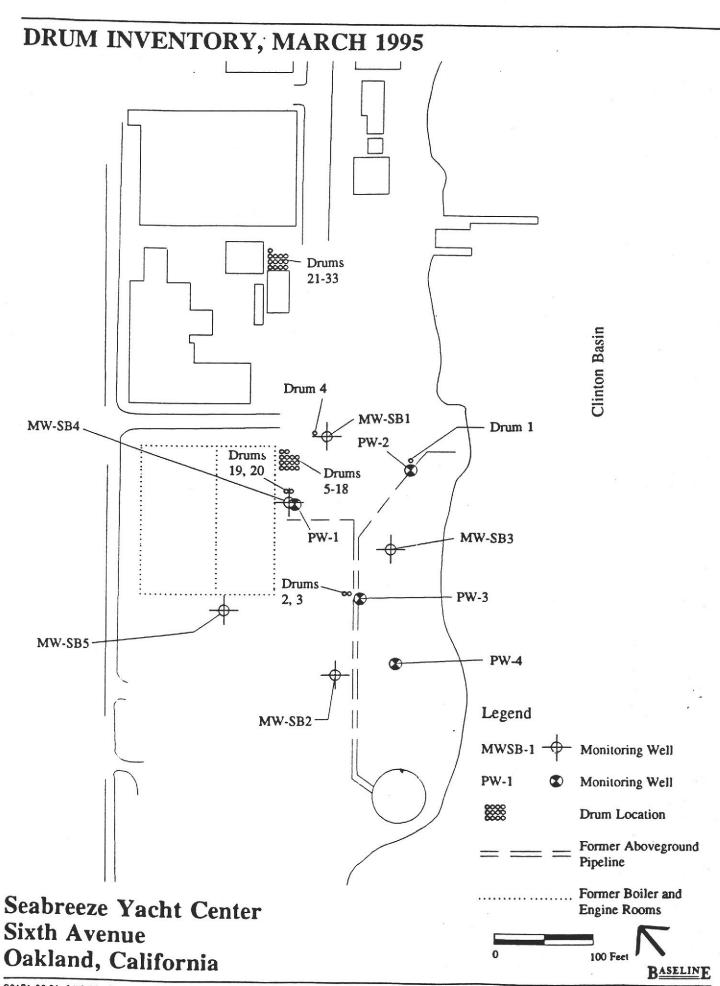
The purpose of this memorandum is to provide an inventory of on-site drums. The drum inventory was taken on the morning of 6 March 1995 by BASELINE personnel. Thirty-three drums were observed during the inventory. The contents of the drums recorded during the inventory are listed below. The location of the drums is presented in Figure 1. Note that some of the drums included in this inventory may have been transported off-site by Dillard Trucking, under the direction of the Port, during the removal of debris material from the site on the afternoon of 6 March 1995.

Map ID	Date	Approximate Volume (gallons)	Contents
1	2/1/95	30	Well development water from PW-2 (SOMA)
2	2/1/95	50	Well development water from PW-3 (SOMA)
3	3/3/95	55	Purge water from MW-SB1, MW-SB2, MW-SB3, PW-3, PW-4 (BASELINE)
4	4/11/91	55	Purge water from MW-SB1, MW-SB2 (BASELINE)
5	1/31/95	55	Decontamination water from PW-1, PW-3 (SOMA)
6	1/30/95	55	Decontamination water (SOMA)
7	1/30/95	55	Soil cuttings from PW-2 (SOMA)
8	1/30/95	55	Soil cuttings from PW-2 (SOMA)
9	1/30/95	55	Soil cuttings from PW-4 (SOMA)
10	1/30/95	55	Decontamination water (SOMA)
11	1/31/95	55	Soil cuttings from PW-1 (SOMA)
12	1/31/95	55	Soil cuttings from PW-3 (SOMA)
13		55	Unlabeled (SOMA?)
14	1/31/95	55	Soil cuttings from PW-3 (SOMA)
15	3/3/95	55	Purge water from PW-1, MW-SB4 (BASELINE)
16	2/1/95	55	Well development water from PW-4 (SOMA)
17		0	Unlabeled, empty
18			Unlabeled, rusty (possibly not related to sampling activities)
19	2/1/95	55	Well development water from PW-1 (SOMA)

BASELINE

Michele Heffes and Dan Schoenholz 10 March 1995 Page 2

Map ID	Date	Approximate Volume (gallons)	Contents
20	11/10/94 3/3/95	55	Purge water from MW-SB3; BD-1, BD-2, BD-4 (BASELINE)
21	11/10/94 11/22/94	55	Soil cuttings from MW-SB4, BD-4 (BASELINE)
22	11/22/94	- 55	Soil cuttings from MW-SB4, BD-3 (BASELINE)
23	11/22/94	55	Soil cuttings from MW-SB5, BD-5 (BASELINE)
24	11/22/94	55	Soil cuttings from MW-SB5 (BASELINE)
25	11/10/94	55	Soil cuttings from BD-2, BD-2A, MW-SB3 (BASELINE)
26	8/15/94	10	Steam cleaning rinsate from B1-B17 (BASELINE)
27	11/10/94	55	Soil cuttings from BD-1, BD-2, and BD-4 (BASELINE)
28	1/7/94	55	Soil cuttings from SB-9 (BASELINE)
29	1/7/94	55	Soil cuttings from SB-6, SB-9 (BASELINE)
30	1/7/94	55	Soil cuttings from SB-12, SB-14, and SB-6 (BASELINE)
31	1/7/94	55	Steam cleaning water (BASELINE)
32	3/6/96	27.5	Soil cuttings from TP-1, TP-1A, TP-2, TP-3, TP-4 (BASELINE)
33	3/6/95	14	Decontamination rinsate from TP-1, TP-1A, TP-2, TP-3, TP-4 (BASELINE)



APPENDIX D

GROUNDWATER SAMPLING FORMS February 1995

Site 6	ch 5+.	140	cloud		Well	yo PW-	-1.20	701	
Date(s)	2-2.9	5							
Purging Br	iler	0				ment Used			
Samplina	Baller		•		Meas	urement Refer	ence Datui	n	· ·
DATA FRO	M IMMEDIATE	ELY BEF	ORE AND AF	TER DEV	kerobw	ENT		· 1\ -	70.
Depth to v	vater medsured	from	TOC (ft):	Before	Purgin	1-1.0	After Pu	rginge	
	alan dima (mi	-1.					Mile an		
Depth to s	ediment in we	11 (ft.):	Before Purg	ing:		After Po	reding —		
	Time Since Purging Started (min)	Time	Cumulative Volume Removed (1) .	Water Temp	pH of Water		Water* Appear- ance	Primary** Particu- lates	Date
Before		3:60	01	2					
During			4.	68.6	7.60	1.95	•		
During	·	,	8	69.5		1			
During		400	12		7,52	2.78			
During		1,00				•			
During						,			
During									
After									
	CL = clear CO = cloudy TU = turbid		Particle S = sand ML = silt CL = clay		ettle Tim 1 min 1-2 hr hrs	een o	top	or Je	
Commen	(3_77		0. /	V :					
•									
	•						•		
					•				
					•				
	•								
	•								

P S	urging Ba ampling ATA FRO	St. w of 2,95 iler 1 Mould Bailer 1 Mould Fulter MIMMEDIATE ater measured ging time (mi	LY BEF	ORE AND AF	<u>with</u> pur TER DEV Before	Equipo Measo ELOPMI Purging	gist Bend ment Used wrement Reference Referenc	After San	rgings 13.	<u></u>
	epth to s	Time Since Purging Started (min)	(ft.): I	Cumulative Volume Removed (1)	Water Temp	pH of Water		Water* Appear- ance	Primary** Particu- lates	Date
í	Before		10:00	03	3			Dan.		2/2/95
١			10.00	7	65.1	6.80	SET-10	·		
	During	· · · · · ·	-	(2)	67.0	-				
	During	•	lling	9	67.2	1-	"			
	During		11:00		0.1 . 0					
	During		-							
	During			<u> </u>	-				•	
	During		-	-	-			•		
		CD = clear CO = cloudy TU = turbid as NO od		CL = clay		1 min 1-2 hr hrs		after	8 gol	
				-0						
					1					·

				• .						
						<u> </u>				
						•				
0.00										
							V.	1		
	=			· + 1 2	として	5	V1000	1		

	2.2.0	- - 14	115	OMA	Well h	10 PW	1-3	00	
Site + Co	Jr. 6		and, a		Geolo	gist_B	mlet	Ols	
Date(s)	2.2.0	15			Caulor	nent Used		·	
Purging Ba	iler		A AMAL	0 ==	Edail.	urement Refere	ence Datur	n	
Sampling	iler P	ung	For Man						•
DATA ERO	A IMMEDIATE	LY BEF	ORE AND AF	TER DEV	ELOPMI	ENT	•	99	Λ ·.
Dank to w	M IMMEDIATE	from	TOC (ft):	Before	Purgin	1.40	After Pui	rging	
Total pure	rater measured ging time (mi	n.):					After San	מטונותם:	
Death to S	ging fime (mi ediment in wel	(ft.): 1	Before Purgi	ing:	,				0.:1
Deptil to 3		500 NET				13900 M	mios/an	1 - 10	m-arine
ſ	Time Since		Cumulative				Water*	Primary**	·
	Purging		Volume Removed	Water Temp	pH of	X Lobo Conductivity	Appear-	Particu-	D-1-
	Started (min)	Time	(1) .	F.00	Water	(umhois/cm)	ance	lates	Date
Before	(1:30	1	=-	-				
During		. 20	4	67.3	7.25	13.90			
During		,	8:	68.4	790	13.90			
During	•	2:30	12:		17.85	13.97			
During		10,00				•			
During						1	1		
During								1	-
After									
- CANCEL	CD= clear	-	*Particle		Settle Tic	ne .			
2	CO = cloudy		S = sand		1 min 1-2 hr	•			
	TU = turbid		ML = silt CL = clay		hrs				
		*	00	•					
C	ns U.U alo								
Commer	its with							· · · · · · · · · · · · · · · · · · ·	
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Site J	N St. ON	land	SOMA		Well	yo Pw	1,20	201	
Date(s)	2.2.6	15			Geolo	gist	~ <u>~~</u>	1	
Purging Bo	iiler				Equipo	ment Used		- 	
Sampling	iler Baller P	gm	filter		Meas	urement Refer	ence Datur	n	
	2		* · · · · · · · · · · · · · · · · · · ·		/FI OPM	ENT 7		•	
DATA FRO	M IMMEDIATE	ELY BEF	TO'S (U)	Palara	Quenin	: 685	After Pui	rging 10.0	10
Depth to w	rater medsured	from	100 (111)	PETOLE	ruigin		After San	ະຄຸກກິໄຊກ	
Total pur	ging time (m	in.) :	· · · · · · · · · · · · · · · · · · ·	nai		After Pu	raina		
Depth to s	ediment in we	!! (11.):	Before Purgi			1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
								•	
e	Time Since Purging		Cumulative Volume	Water		×1000	Water*	Primary**	•
	Started		Removed	Temp	pH of Water	Conductivity (umhos/cm)	Appear-	Particu- lates	Date
•	(വെബ)	Time	12/2011 .	F 9C	VValet	Unite 1057 City	Gillos		1/2/95
Before		12:0		3					172/95
Ouring			3.	1	3.04				
During	:	, t	6:	167.3	1.94	7.47			
During		1200	91	67.5	17.80	7.48			
During						1		-	-
During						1			
Ouring								 	-
After									
	CL = clear	•	Particle		ettle Tin	•			
e -	CO = cloudy	•	S = sand ML = silt		1 min 1-2 hr				
	TU = turbid		CL = clay	**	hrs				
		•		•					
Commen	is who she	s			· •		•		
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APPENDIX E

GROUNDWATER SAMPLING FORMS
March 1995

Decontamination method: TSP and water, DI water rinse

GROUN	DWATER	RSAMPLING				
Project no.:		S9171-B0	Well no.:	MW-SB1		Date: 3/3/95
Project name	e:	Seabreeze Yacht Center	Depth of wel	I from TOC (feet):	10.5	-
Location:		260 6th Avenue	Well diamete		2	
		Oakland, CA		erval from TOC (feet)		
Recorded by:		WKS/JCP	TOC elevation		7.25	
Weather:		Cloudy		from TOC (feet):	4.94	Time 0:05
Precip in pas		o.outy		from TOC (feet):		Time 9:05
5 days (inch)		.1.25			None	Time 9:05
o days (men)	•	~1.25	_ water level i	neasurement:	Dual interface	probe
VOLUME O	[(10.5 ft)	O BE REMOVED BEFO - (4.94 ft)] × (0.083 Water level Well radi	$ft)^2 \times 3.14 \times 3$	7.48 = 0.	9 gallons in one 6 gallons in 5 we 5 total gallons re	ell volumes
CALIBRATI	ON:					
			Temp	(*)	EC	
C 111		<u>Time</u>	(° C)	<u>pH</u>	(µmho/cm)	
	ion Standard: fore Purging:	0.10	12.0	7.00-10.01	10,000	
	fter Purging:	9:10 12:25	13.0 18.5	7.00-10.01 7.12-10.02	7,500 8,000	
Time	Temp	S: pH	EC (umho/cm)	Cumulative Gallons Removed	Α.	ppearance
44.00		•		2.0		ppearance
11:20 11:29	14.1	7.78	4,800	2.5		k algae particles
11:29	15.5 14.7	7.82 7.82	4,700 4,700	3.0 3.5		k algae particles
	ELL PUMPED		4,700	3.3	Clear with blac	k algae particles
Vater level af	fter purging pr	ior to sampling (feet):		5.45		Time 14:05
ppearance of	f sample:	Clear				Time 14:11
uplicate/blar	_	None				Time
urge method:	_	Double diaphragm pump				
ampling equi ample contai		Disposable PVC bailer		VOC attachment:	None	
ampie contai ample analys	-	Two one-liter amber glass, of EH-Bunker C, -diesel, -motor of			C 0 m	7.1
		SP and water, DI water rin	ii, turbiaity	Laboratory: Rinsate disposal:	Curtis & Tompl	kins, Ltd.

S9171MAR.XLW (3/17/95)

Rinsate disposal:

GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	MW-	SB2	Date: 3/3/95
Project name:	Seabreeze Yacht Ce		ell from TOC (feet):	11.0	Date. 515175
Location:	260 6th Avenue	Well diame	00000000000000000000000000000000000000	2	
	Oakland, CA		nterval from TOC (fee	***************************************	
Recorded by:	WKS/JCP	TOC elevat	2072	7.18	
Weather:	Cloudy		from TOC (feet):	2.84	Time 9:50
Precip in past	Cloudy				Time 8:50
5 days (inch):	1.25		el from TOC (feet):	None	_ Time <u>8:50</u>
3 days (IIICII)	~1.25	water level	measurement:	Dual interface	probe
[(1	TER TO BE REMOVED E 1.0 ft) - (2.84 ft)] × (6 1 depth Water level We	$0.083 ext{ ft})^2 \times 3.14 ext{ }$	× 7.48 = 1	gallons in one 5.5 gallons in 5 w 5.5 total gallons re	ell volumes
CALIBRATION:			2		
Calibration Sta Before P After P	urging: 9:10	Temp (° C) 13.0 18.5	<u>pH</u> 7.00-10.01 7.00-10.01 7.12-10.02	EC (<u>umho/cm)</u> 10,000 7,500 8,000	
FIELD MEASURE	:MENTS:				
Te	emp C) pH	EC (umho/cm	Cumulative Gallons Removed	A	Appearance
10:41 1	4.8 6.93	0.500		<i>C</i> 1 16	
N265500 024000 0000	4.4 6.92	9,500 9,000	1 3	Clear, sulfur si Clear, sulfur si	
	4.4 6.98	10,000	6	Clear, sulfur si	
WELL P	UMPED DRY		<u> </u>	ordar, buriar b	
Note: Recharge rat	e too slow to allow 80% rech	arge before samplin	g on 3/3/95. Sample of	collected on 3/6/9	95 .
Water level after pu Appearance of samp	rging prior to sampling (feet):6.4	8		Time 3/6/95 9:50 Time 3/6/95 10:25
Duplicate/blank nur					Time 3/6/95 10:25
Purge method:	Double diaphragm pu	The state of the s			
Sampling equipmen			VOC attachment:	None	
Sample containers:	Two one-liter amber				
Sample analyses:	TEH-Bunker C, -diesel, -rethod: TSP and water, DI wa	motor oil, turbidity	Laboratory:	Curtis & Tomp	okins, Ltd.
	Tor and water, DI Wa	ater thise	_Rinsate disposal:		

S9171MAR.XLW (3/17/95)

Decontamination method: TSP and water, DI water rinse

Project no.:		S9171-B0	Well no.:	MW-SB3		Date: 3/3/95
Project name:		Seabreeze Yacht Center	Depth of well	Il from TOC (feet):	11.06	
Location:		280 6th Street	Well diameter	er (inch):	2	
		Oakland, CA		erval from TOC (feet):	-	
Recorded by:		WKS/JCP	TOC elevation		8.10	
Weather:		Cloudy		from TOC (feet):	6.78	Time 8:40
Precip in past		<u>Cious</u>		from TOC (feet):	None	Time 8:40
5 days (inch):		~1.25		neasurement:	Dual interface	
o days (mon)		-1.23	Water level i	neasurement.	Duar interrace	probe
[(11.06 f	O BE REMOVED BEFOR t) - (6.78 ft)] × (0.083 Water level Well radius	$ft)^2 \times 3.14 \times$	7.48 = 0.70	gallons in one gallons in 5 w total gallons r	ell volumes
ALIBRATION						
	Standard: Purging: Purging:	9:10 12:25	Temp (° C) 13.0 10.4	<u>pH</u> 7.00-10.01 7.00-10.01 7.12-10.02	EC (<u>umho/cm)</u> 10,000 7,500 8,000	
IELD MEASU	REMENT	s:				
	Temp		EC	Cumulative Gallons		
	(°C)	pН	(µmho/cm)	Removed	<u> </u>	Appearance
9:55	15.1	6.96	10.000	•	Classical all	1.
10:00	15.7	6.98	19,000 21,500	1 2.5		ght amber color ght amber color
10:05	15.8	7.24	24,500	3.3 3.5		ght amber color
lote: Recharge r	rate too slo	ow to allow 80% recharge be	fore sampling	on 3/3/95. Sample co	llected on 3/6/9	95.
		rior to sampling (feet):	6.98			Time 3/6/95 10:55
ppearance of same	-	Clear to very slightly turbid				Time 3/6/95 11:05
ouplicate/blank nurge method:	-	None				_Time
ampling equipm	-	Double diaphragm pump Disposable PVC bailer		VOC attachment:	Mono	
ample containers		Two one-liter amber glass, or	ne 40-ml clear		None	
ample analyses:	-	IEH-Bunker Cdieselmotor oil		Laboratory:	Curtis & Tom	nkine I td

S9171MAR.XLW (3/17/95)

Rinsate disposal:

GROUNDWATER SAMPLING

Project no.:	S91	71-B0		Well no .:	MW-SB4	Date: 3/3/95
Project name:	Sea	breeze Yacht Cent	er	Depth of wel	from TOC (feet)	
Location:	260	6th Avenue		Well diamete		2
	Oak	land, CA		Screened inte	erval from TOC (feet): 2.55-14.75
Recorded by:	WK	S/JCP		TOC elevation		6.39
Weather:	Clo	udy			rom TOC (feet):	0.90 Time 8:35
Precip in past					from TOC (feet)	
5 days (inch):	~1.2	25		Water level n	, ,	Dual interface probe
		E REMOVED BE				
		0.90 ft)]×(0			7.48 =	2.2 gallons in one well volume
	Well depth W	ater level Well	radiu	S		11.2 gallons in 5 well volumes
					-	7.0 total gallons removed
CALIBRATIO	ON:					
		There		Temp		EC
Calibratio	on Standard:	<u>Time</u>		(<u>°C</u>)	<u>pH</u> 7.00-10.01	(<u>umho/cm)</u> 10,000
	ore Purging:	9:10		13.0	7.00-10.01	7,500
Af	ter Purging:	12:25		18.5	7.12-10.02	8,000
FIELD MEAS	SUREMENTS:					
	Temp			EC	Cumulative Gallons	
<u>Time</u>	(°C)	Hq		(umho/cm)	Removed	Appearance
11.20	15.0			•		
11:39 11:42	15.8 15.1	7.43 7.54		1,300	2.0	Clear to very slightly turbid
11:47	14.7	7.59		900 900	3.75 6.0	Clear to very slightly turbid Clear to very slightly turbid
11:52				700	7.0	Clear to very slightly turbid
						one to very ongawy tarony
Water level aft		o sampling (feet):	٠_		0.91	Time _13:33
Appearance of Duplicate/blant		r - very slightly tur	bid			Time 13:35
Purge method:		e ole diaphragm pum				Time
Sampling equip		osable PVC bailer	ф		VOC attachment	None
Sample contain		one-liter amber gla	ass. or			None None
Sample analyse	es: TEH-1	Bunker C, -diesel, -mo	otor oil	, turbidity	Laboratory:	Curtis & Tompkins, Ltd.
lacontominati	on mathod: TCD	and water, DI water			Rinsate disposal:	

S9171MAR.XLW (3/17/95)

Project no.:		S9171-B0	Well no.:	MW-SB5		Date: 3/3/95	
Project name:		Seabreeze Yacht Center		Depth of well from TOC (feet):		14.75	
Location:		260 6th Avenue		Well diameter (inch):		2	
	Oakland, CA		Screened interval from TOC (feet):		: 2.55-14.75		
Recorded by:			TOC elevation (feet):		6.30		
Weather:	Cloudy		Water level from TOC (feet):		2.54	Time 9:00	
Precip in past		•	Product level from TOC (feet):		None	Time 9:00	
5 days (inch):	rs (inch):~1.25			Water level measurement:		Dual interface probe	
VOLUME OF	WATER	TO BE REMOVED BEFOR	RE SAMPLING	3:			
		ft) - (2.54 ft)] × (0.083)			0 gallons in or	ne well volume	
	Well depth Water level Well radiu		-		.0 gallons in 5 well volumes		
	_				total gallons		
CALIBRATIO	ON:						
			Temp		EC		
G 111		Time	(°C)	<u>pH</u>	(umho/cm))	
Calibration Standard:			12.0	7.00-10.01	10,000		
Before Purging: After Purging:			13.0 18.5	7.00-10.01 7.12-10.02	7,500 8,000		
FIELD MEAS	SUREMEN'	TS:					
	Т		F.0	Cumulative			
Time	Temp	»U	EC	Gallons			
111110	1_0	<u>Н</u> д	(µmho/cm)	Removed		Appearance	
12:12	16.1	6.81	25,000	1.0	Light amber color		
12:13	15.4	6.78	24,000	2.0	Light amber color		
12:14	15.4	6.77	24,000	3.0	Light amber color		
12:16	15.1	6.83	24,000	3.5	Light amber color		
12:20	15.6	6.90	25,000	5.5	Light amber color		
12:22	16.7	6.98	26,000	6.0	Lig	tht amber color	
Note: Rechard	e rate too s	low to allow 80% recharge b	efore sampling	on 3/3/95 Sample of	allected on 2/6	./05	
•	,	oo woo allow oo wo loomago o	ororo omnipiling	on oronos. Sample ex	onected on 570		
Water level af	ter purging j	prior to sampling (feet):		2.5		Time 3/6/95 12:45	
Appearance of sample: Light amber color				Time 3/6/95 12:5			
Duplicate/blank number: MW		MWSB5-duplicate				Time 3/6/95 12:55	
Purge method:		Double diaphragm pump					
Sampling equi	pment:	Disposable PVC bailer		VOC attachment:	None		
ample contain	ners:	Two one-liter amber glass,	one 40-ml clear				

S9171MAR.XLW (3/17/95)

Curtis & Tompkins, Ltd.

Laboratory:

Rinsate disposal:

TEH-Bunker C, -diesel, -motor oil, turbidity

Decontamination method: TSP and water, DI water rinse

Sample analyses:

GROUNDWATER SAMPLING

CITOOILE	MAIL	K SAIVIPLING				
Project no.:		S9171-B0	Well no.:	PW-1	Date: 3/3/95	
Project name:_		Seabreeze Yacht Center	Depth of well from TOC (feet):		: 13.8	
		260 6th Avenue	Well diamete	er (inch):	4	
		Oakland, CA	Screened interval from TOC (feet):		eet): 5.3-13.8	
Recorded by:_			TOC elevation (feet):		6.43	
Weather:			Water level from TOC (feet):		1.34 Time 8:35	
Precip in past				from TOC (feet):		
5 days (inch):_	days (inch): ~1.25		Water level measurement:		Dual interface probe	
VOLUME OF	WATER	TO BE REMOVED BEFOR	RE SAMPLING	3:		
-	(13.8	ft) - (1.34 ft)] × (0.166		× 7.48 =	8.1 gallons in one well volume	
	Well depth	Water level Well radiu	S		40.5 gallons in 5 well volumes	
		3		-	9 total gallons removed	
CALIBRATIO	N:			®:		
		<u> </u>	Temp		EC	
Calibration	n Standard	Time	(°C)	pH	(<u>µmho/cm</u>)	
Before Purging:			13.0	7.00-10.01 7.00-10.01	10,000 7,500	
	er Purging:		18.5	7.12-10.02	8,000	
FIELD MEAS	UREMEN	rs:				
	_			Cumulative		
Т:	Temp		EC	Gallons		
<u>Time</u>	(°C)	<u>pH</u>	(µmho/cm)	Removed	Appearance	
11:12	15.7	7.21	12,000	1	Clear	
11:15	14.9	7.61	2,600	5	Clear	
11:22	15.5	7.33	6,500	8	Clear	
WEL	L PUMPE	D DRY		9		
		¥			σ	
Water level afte	r purging t	prior to sampling (feet):		1.35	Time 13:33	
Appearance of sample: Clear to very slightly turbid			2.00	Time 13:40		
Duplicate/blank number: None				Time		
urge method:		Double diaphragm pump				
Sampling equip		Disposable PVC bailer		VOC attachment:	None	
Sample containe Sample analyses		Two one-liter amber glass, o				
		TEH-Bunker C, -diesel, -motor oil TSP and water, DI water rins	, turbidity	Laboratory:	Curtis & Tompkins, Ltd.	
		201 and water, DI water Illis	.	Rinsate disposal:		

S9171MAR.XLW (3/17/95)

Sample analyses:

Project no.:	S917	S9171-B0		Well no.: PW-2		Date: 3/3/95	
Project name:	Seab	Seabreeze Yacht Center		Depth of well from TOC (feet):		15	
Location:	260	6th Avenue	Well diamete	Well diameter (inch):		4	
	Oakl	Oakland, CA		Screened interval from TOC (feet):			
Recorded by:	WKS	S/JCP°		TOC elevation (feet):			
Weather:		Cloudy		from TOC (feet):	6.57 3.90	Time 9:10	
Precip in past				from TOC (feet):	None	Time 9:10	
5 days (inch):		5		measurement:	Dual interfac		
VOLUME OF	F WATER TO BI	F REMOVED BE	FORE SAMPLING	g.			
			$.166 ext{ ft})^2 \times 3.14 \times$		7.2 gallons in on	ne well volume	
		ater level Well 1				1 gallons in 5 well volumes	
					13 total gallons		
CALIBRATIO	ON:						
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Temp		EC		
~ · · ·		Time	(° C)	<u>pH</u>	(µmho/cm)	1	
	on Standard:	0.10	12.0	7.00-10.01	10,000		
	ore Purging: fter Purging:	9:10 12:25	13.0 18.5	7.00-10.01 7.12-10.02	7,500 8,000		
FIELD MEAS	SUREMENTS:						
	Т			Cumulative			
Time	Temp (°C)	рH	EC (umho/cm)	Gallons		A	
THIC		<u>D11</u>	(minio/cm)	Removed		Appearance	
9:30	15.8	6.98	25,000	5.0	Very slightly	turbid (
9:38	15.0	7.12	24,000	10.0	Very slightly	y turbid	
9:45	16.4	7.25	28,500	13.0	Very slightly	/ turbid	
WE.	LL PUMPED DR	Ý					
Note: Recharg	ge rate too slow to	allow 80% rechar	ge before sampling	on 3/3/95. Sample	collected on 3/6	5/95.	
Water lavel of	tan musaina meias t	lima (faat).		6.26		T 2/2/05 0.50	
Water level after purging prior to sampling (feet): Appearance of sample: Clear to very slightly turbid		· Land	6.36		Time 3/6/95 9:50 Time 3/6/95 10:10		
Appearance of sample: Clear to very slightly turbid Duplicate/blank number: None		roiu			Time 3/6/95 10:10		
	-					_ I IIIIC	
Purge method:	Doub	ve diaboragio blim.	71				
Purge method: Sampling equip	-	ole diaphragm pum osable PVC bailer	<u>p</u>	VOC attachment:	None		

S9171MAR.XLW (3/17/95)

Curtis & Tompkins, Ltd.

Laboratory:

Rinsate disposal:

TEH-Bunker C, -diesel, -motor oil, turbidity

Decontamination method: TSP and water, DI water rinse

GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	PW-3		Date: 3/3/95		
Project name:	Seabreeze Yacht Center	Depth of wel	l from TOC (feet):	15.5			
Location:	280 6th Avenue	Well diamete	Well diameter (inch):		4		
	Oakland, CA		erval from TOC (feet)				
Recorded by:	WKS/JCP	TOC elevation	and the second s	7.81			
Weather:	Cloudy		rom TOC (feet):	4.76	Time 8:45		
Precip in past			from TOC (feet):	None	Time 8:45		
5 days (inch):	~1.25	Water level n		Dual interface			
[(15.5	TO BE REMOVED BEFOR ft) - (4.76 ft)] × (0.166 h Water level Well radiu	$ft)^2 \times 3.14 >$	× 7.48 = 35.0	7 gallons in one 0 gallons in 5 w 0 total gallons re	ell volumes		
CALIBRATION:				o tour ganons it	Sino vou		
Calibration Standard Before Purging After Purging	9:10	Temp (° C) 13 12	pH 7.00-10.01 7.00-10.01 7.12-10.02	EC (<u>µmho/cm)</u> 10,000 7,500 8,000			
CICL D MEACLIDEMEN		*					
FIELD MEASUREMEN	15:		Cumulative				
Temp		EC	Gallons				
Time (°C)	pН	(µmho/cm)	Removed	A	Appearance		
10:20 16.6	7.15	17,000	2	Cliobalo anabid	i-h		
10:23 15.7	7.12	14,000	5		 greenish gray color greenish gray color 		
10:26 15.4	7.13	14,000	8		- greenish gray color		
WELL PUMPE Note: Recharge rate too s	ED DRY	efore sampling	on 3/3/95. Sample co	ollected on 3/6/9	5.		
Water level after purging Appearance of sample:	prior to sampling (feet):	4.75			Time 3/6/95 11:24 Time 3/6/95 11:24		
Suplicate/blank number:	None				Time		
urge method:	Double diaphragm pump			17			
ampling equipment:	Disposable PVC bailer		VOC attachment:	None			
ample containers:	Two one-liter amber glass, o	ne 40-ml clear		•			
ample analyses:	TEH-Bunker C, -diesel, -motor oil		Laboratory:	Curtis & Tomp	kins Ltd		
	TSP and water, DI water rins				mano, mos.		

S9171MAR.XLW (3/17/95)

GROUNDWATER SAMPLING

Project no.:		S9171-B0	Well no.:	PW-4		Date: 3/3/95
Project name:		Seabreeze Yacht Center	Depth of wel	from TOC (feet):	15.1	
Location:		260 6th Avenue	- Well diamete	er (inch):	4	
		Oakland, CA	Screened inte	erval from TOC (fee	et): 6.6-15.1	
Recorded by:		WKS/JCP	TOC elevation		7.32	
Weather:		Cloudy	-	rom TOC (feet):	4.71	Time 8:57
Precip in past		Cloudy	-	from TOC (feet):	None	Time 8:57
5 days (inch):		~1.25	Water level n		Dual interfac	
VOLUME OF	WATER 1	O BE REMOVED BEFOR	RE SAMPLING	3:		
		ft) - (4.71 ft)] × (0.166)			6.8 gallons in on	e well volume
	Well depth	Water level Well radii	us		3.8 gallons in 5	
				1	9.0 total gallons	removed
CALIBRATIC	ON:					
			Temp		EC	
0.11	. 0	Time	(°C)	pΗ	(umho/cm)	
	on Standard:	0.10	10.0	7.00-10.01	10,000	ž.
	ore Purging: ter Purging:		13.0 18.5	7.00-10.01 7.12-10.02	7,500 8,000	
					3,000	
FIELD MEAS	UREMENT	rs:				
	Tome		rc	Cumulative		
Time	Temp (°C)	<u>pH</u>	EC	Gallons		A
Inte	<u>1_C/</u>	<u>DII</u>	(µmho/cm)	Removed		Appearance
10:23	16.0	7.26	19,000	1		Slightly turbid
10:27	15.1	7.59	9,000	3		Slightly turbid
10:35	15.2	7.80	8,000	5.5		Clear
10:40	14.8	7.80	8,000	7.0	#	Clear
10:43	14.5	7.81	7,500	10.0		Clear
10:50	14.5	7.93	7,000	12.0		Clear
10:57	14.4	7.91	6,000	15.0		Clear
11:05	14.6	7.80	6,000	18.0		Clear
				19.0		
Water lavel of	er nursins -	prior to sampling (feet):		4.67		Time 12.40
Appearance of		Clear		4.67		Time 13:49 Time 13:55
Duplicate/blan		None				Time
Purge method:		Double diaphragm pump				_ 111110
Sampling equip		Disposable PVC bailer		VOC attachment:	None	
Sample contair	• 10	Two one-liter amber glass,	one 40-ml clear		110110	
Duniple comuni		B.4600,				
Sample analyse	es:	TEH-Bunker C, -diesel, -motor o	il, turbidity	Laboratory:	Curtis & Ton	npkins, Ltd.

S9171MAR.XLW (3/17/95)

APPENDIX F

LABORATORY REPORTS, GROUNDWATER February 1995



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

AP

APR 4 1995

ANALYTICAL REPORT

BASELINE

Prepared for:

SOMA Environmental Engineering Inc. 2680 Bishop Dr. Suite 203 San Ramon, CA 94583

Date: 17-FEB-95

Lab Job Number: 119799 Project ID: 95-2120

Location: 6th St., Oakland

Reviewed by:

Reviewed by:

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Berkeley

Irvine



SAMPLE ID: PW-1B LAB ID: 119799-005

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th St., Oakland

MATRIX: Water

DATE SAMPLED: 02/02/95 DATE RECEIVED: 02/02/95 DATE REPORTED: 02/17/95

RCRA Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	19 18 ND ND 6.0 ND ND ND	5.0 10 5.0 10 3.0 0.20 5.0	19006 19006 19006 19006 19006 18917 19006	EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 7470 EPA 6010A EPA 6010A	02/13/95 02/13/95 02/13/95 02/13/95 02/13/95 02/07/95 02/13/95 02/13/95



DATE SAMPLED: 02/02/95

DATE RECEIVED: 02/02/95

DATE REPORTED: 02/17/95

SAMPLE ID: PW-2B LAB ID: 119799-006

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th St., Oakland

MATRIX: Water

RCRA Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	14 100 ND ND 4.3 ND 11	5.0 10 5.0 10 3.0 0.20 5.0	19006 19006 19006 19006 19006 18917 19006	EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 7470 EPA 6010A EPA 6010A	02/13/95 02/13/95 02/13/95 02/13/95 02/13/95 02/07/95 02/13/95 02/13/95



SAMPLE ID: PW-3B LAB ID: 119799-007

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th St., Oakland

MATRIX: Water

DATE SAMPLED: 02/02/95 DATE RECEIVED: 02/02/95 DATE REPORTED: 02/17/95

RCRA Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	15 84 ND ND ND ND ND ND	5.0 10 5.0 10 3.0 0.20 5.0	19006 19006 19006 19006 19006 18917 19006	EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 7470 EPA 6010A EPA 6010A	02/13/95 02/13/95 02/13/95 02/13/95 02/13/95 02/07/95 02/13/95 02/13/95



SAMPLE ID: PW-4B LAB ID: 119799-008

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th St., Oakland

MATRIX: Water

DATE SAMPLED: 02/02/95 DATE RECEIVED: 02/02/95

DATE REPORTED: 02/17/95

RCRA Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	14 81 ND ND ND ND ND ND	5.0 10 5.0 10 3.0 0.20 5.0	19006 19006 19006 19006 19006 18917 19006	EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 7470 EPA 6010A EPA 6010A	02/13/95 02/13/95 02/13/95 02/13/95 02/13/95 02/07/95 02/13/95 02/13/95



CLIENT: SOMA Environmental Engineering Inc. DATE REPORTED: 02/17/95

JOB NUMBER: 119799

BATCH QC REPORT PREP BLANK

Compound	Result	Reporting Limit	Units	QC Batch	Method	Analysi: Date
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	ND ND ND ND ND ND ND ND ND	5 10 5 10 3 0.2 5	ug/L ug/L ug/L ug/L ug/L ug/L ug/L	19006 19006 19006 19006 19006 18917 19006 19006	EPA 6010A	02/13/99 02/13/99 02/13/99 02/13/99 02/13/99 02/07/99 02/13/99



CLIENT: SOMA Environmental Engineering Inc. DATE REPORTED: 02/17/95 JOB NUMBER: 119799

BATCH QC REPORT BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS % Recovery	BSD % Recovery	Average Recovery	RPD	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	2000 2000 50 200 500 4 2000 50	1750 1780 44.1 174 441 4.431 1770 41.7	1760 1780 44.2 173 441 4.436 1790 41.3	ug/L ug/L ug/L ug/L ug/L ug/L ug/L	88 89 88 87 88 111 89 83	88 89 88 87 88 111 90 83	88 89 88 87 88 111 90 83	1 0 0 1 0 0	19006 19006 19006 19006 19006 18917 19006 19006	EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 7470 EPA 6010A EPA 6010A	02/13/95 02/13/95 02/13/95 02/13/95 02/13/95 02/07/95 02/13/95 02/13/95



LABORATORY NUMBER: 119799-001

CLIENT: SOMA Environmental Engineering, Inc. DATE RECEIVED: 02/02/95

PROJECT ID: 95-2120

LOCATION: 6th St., Oakland

SAMPLE ID: PW-1A

DATE SAMPLED: 02/02/95
DATE RECEIVED: 02/02/95
DATE EXTRACTED: 02/07/95
DATE ANALYZED: 02/09/95

DATE REPORTED: 02/17/95

BATCH #: 18944

EPA 8270: Base/Neutral and Acid Extractables in Water Extraction Method: EPA 3520 Continuous Liquid/Liquid

ACID COMPOUNDS	RESULT ug/L	REPORTING LIMIT
Phenol 2-Chlorophenol Benzyl Alcohol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 2,4-Dimethylphenol Benzoic Acid 2,4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol 4-Nitrophenol	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ug/L 9.4 9.4 9.4 9.4 47 9.4 47 9.4 9.4 47 47
4,6-Dinitro-2-methylphenol Pentachlorophenol	ND ND	47 47
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine Aniline Bis(2-chloroethyl)ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bis(2-chloroisopropyl)ether N-Nitroso-di-n-propylamine Hexachloroethane Nitrobenzene Isophorone Bis(2-chloroethoxy)methane 1,2,4-Trichlorobenzene Naphthalene 4-Chloroaniline Hexachlorobutadiene 2-Methylnaphthalene Hexachlorocyclopentadiene 2-Chloronaphthalene	ND ND ND ND ND ND ND ND ND ND ND ND ND N	9.4 9.4 9.4 9.4 9.4 9.4 9.4 9.4 9.4 9.4
2-Nitroaniline	ND	47



LABORATORY NUMBER: 119799-001

SAMPLE ID: PW-1A

BASE/NEUTRAL COMPOUNDS	RESULT	REPORTING LIMIT
	ug/L	
Dimethylabthalata	MD	ug/L
Dimethylphthalate	ND	9.4
Acenaphthylene	ND	9.4
2,6-Dinitrotoluene	ND	9.4
3-Nitroaniline	ND	47
Acenaphthene	ND	9.4
Dibenzofuran	ND	9.4
2,4-Dinitrotoluene	ND	9.4
Diethylphthalate	ND	9.4
4-Chlorophenyl-phenylether	ND	9.4
Fluorene	ND	9.4
4-Nitroaniline	ND	47
N-Nitrosodiphenylamine	ND	9.4
Azobenzene	ND	9.4
4-Bromophenyl-phenylether	ND	9.4
Hexachlorobenzene	ND	9.4
Phenanthrene	ND	9.4
Anthracene	ND	9.4
Di-n-butylphthalate	ND	9.4
Fluoranthene	ND	9.4
Pyrene	ND	9.4
Butylbenzylphthalate	ND	9.4
3,3'-Dichlorobenzidine	ND	47
Benzo(a) anthracene	ND	9.4
Chrysene	ND	9.4
Bis(2-ethylhexyl)phthalate	38	
Di-n-octylphthalate	ND	9.4
Benzo(b) fluoranthene	ND	9.4
Benzo(k) fluoranthene	ND	9.4
Benzo(a) pyrene	ND	9.4
Indeno(1,2,3-cd)pyrene	ND	9.4
Dibenzo(a,h)anthracene	ND	9.4
Benzo(g,h,i)perylene	ND	9.4
perine (A) II, I) ber à reile	ND	J • 4

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

2-Fluorophenol	89	Nitrobenzene-d5	81
Phenol-d5	97	2-Fluorobiphenyl	86
2,4,6-Tribromophenol	75	Terphenyl-d14	49
2-Chlorophenol-d4	90	1,2-Dichlorobenzene-d4	73



LABORATORY NUMBER: 119799-Method Blank

CLIENT: SOMA Environmental Engineering, Inc. DATE ANALYZED: 02/09/95

PROJECT ID: 95-2120

LOCATION: 6th St., Oakland

SAMPLE ID: N/A

DATE EXTRACTED: 02/07/95
DATE ANALYZED: 02/09/95
DATE REPORTED: 02/17/95

BATCH #: 18944

EPA 8270: Base/Neutral and Acid Extractables in Water Extraction Method: EPA 3520 Continuous Liquid/Liquid

ACID COMPOUNDS	RESULT ug/L	REPORTING LIMIT ug/L
Phenol	ND	10
2-Chlorophenol	ND	10
Benzyl Alcohol	ND	10
2-Methylphenol	ND	10
4-Methylphenol	ND	10
2-Nitrophenol	ND	50
2,4-Dimethylphenol	ND	10
Benzoic Acid	ND	50
2,4-Dichlorophenol	ND	10
4-Chloro-3-methylphenol	ND	10
2,4,6-Trichlorophenol	ND	10
2,4,5-Trichlorophenol	ND	50
2,4-Dinitrophenol	ND	50
4-Nitrophenol	ND	50
4,6-Dinitro-2-methylphenol	ND	50
Pentachlorophenol	ND	50
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	10
Aniline	ND	10
Bis(2-chloroethyl)ether	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
1,2-Dichlorobenzene	ND	10
Bis(2-chloroisopropyl)ether	ND	10
N-Nitroso-di-n-propylamine	ND	10
Hexachloroethane	ND	10
Nitrobenzene	ND	10
Isophorone	ND	. 10
Bis(2-chloroethoxy) methane	ND	10
1,2,4-Trichlorobenzene	ND	10
Naphthalene 4-Chloroaniline	ND	10
Hexachlorobutadiene	ND	10
2-Methylnaphthalene	ND	10
Hexachlorocyclopentadiene	ND	10
2-Chloronaphthalene	ND	10
2-Nitroaniline	ND	10
2 NICLOGHILLINE	ND	50

Curtis	& Tompkins	, Ltd.	CHA	IN) F	CU	STODY	FORM	1	(2000)	3	Page _	1	of _	1
	2323 Fifth Stree Berkeley, CA	et 94710	Sai	mpler:(Sen	<u>W</u>	20ls			\sim		Analy	ses		
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Project No:	15-212	0		npany:											
roject Name:_	Geh St	. Osklana	Tele	ephone:	510) - Z	44-6600		-						
urnaround Ti	me: No	mal	Fax				44-6601		- 3	172					
Laboratory Number	Sample ID.	Sampling Date Time	Soil Water W		1	rvative		es	PCO A						
	PW-1A	2/2/45 4100		ι					12	X	\perp			$\perp \perp$	
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	PW-3A PW-1A	7:35		++-		+	Hold			X					+
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5	PW-1B	7/2/95 A:00	×		3		·		V	-	+	- -		 .	-
	PW-3B	11,00	X X		×				X		+		\dashv		+-
	PW-4B	Z:30	×		×				X						+
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LABORATORY NUMBER: 119799-Method Blank

SAMPLE ID: N/A

BASE/NEUTRAL COMPOUNDS	RESULT	REPORTING
	ug/L	LIMIT
		ug/L
Dimethylphthalate	ND	10
Acenaphthylene	ND	10
2,6-Dinitrotoluene	ND	10
3-Nitroaniline	ND	50
Acenaphthene	ND	10
Dibenzofuran	ND	10
2,4-Dinitrotoluene	ND	10
Diethylphthalate	ND	10
4-Chlorophenyl-phenylether	ND	10
Fluorene	ND	10
4-Nitroaniline	ND	50
N-Nitrosodiphenylamine	ND	10
Azobenzene	ND	10
4-Bromophenyl-phenylether	ND	10
Hexachlorobenzene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Di-n-butylphthalate	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Butylbenzylphthalate	ND	10
3,3'-Dichlorobenzidine	ND	50
Benzo(a)anthracene	ND	10
Chrysene	ND	10
Bis(2-ethylhexyl)phthalate	ND	10
Di-n-octylphthalate	ND	10
Benzo(b) fluoranthene	ND	10
Benzo(k) fluoranthene	ND	10
Benzo(a) pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenzo(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10
27 ************************************		(770)(30)

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

2-Fluorophenol	93	Nitrobenzene-d5	86
Phenol-d5	109	2-Fluorobiphenyl	91
2,4,6-Tribromophenol	91	Terphenyl-d14	131
2-Chlorophenol-d4	96	1,2-Dichlorobenzene-d4	76

APPENDIX G

LABORATORY REPORTS, GROUNDWATER
March 1995



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Baseline Environmental 5900 Hollis Street Suite D Emeryville, CA 94608

Date: 13-MAR-95

Lab Job Number: 120141 Project ID: S9171-BO

Location: Seabreeze Yacht Center

Reviewed by: Tuesa K Morrison

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Berkeley

Irvine



LABORATORY NUMBER: 120141

CLIENT: Baseline Environmental

PROJECT ID: S9171-BO

LOCATION: Seabreeze Yacht Center

DATE SAMPLED: 03/06/95 DATE RECEIVED: 03/06/95 DATE ANALYZED: 03/08/95

DATE REPORTED: 03/09/95

ANALYSIS: TURBIDITY

ANALYSIS METHOD: EPA 180.1

LAB ID	SAMPLE ID	RESULT	UNITS
120141-002	MWSB2	130	NTU
120141-003	MWSB2-DUP	100	NTU
120141-004	PW-2	84	NTU
120141-005	MW-SB3	76	NTU
120141-006	PW-3	6.8	NTU
120141-007	MW-SB5	180	NTU
120141-008	MW-SB5-DUP	190	NTU

ND = Not detected at or above reporting limit.

QA/QC	C SUMMARY:	
=====		
222	^	

RPD, % < 1

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120141

CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171-B0

LOCATION: SEABREEZE YACHT CENTER

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE EXTRACTED: 03/08/95
DATE ANALYZED: 03/09/95
DATE REPORTED: 03/09/95

BATCH NO: 19355

Extractable Petroleum Hydrocarbons in Aqueous Solutions California DOHS Method LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	MOTOR OIL RANGE (ug/L)	BUNKER C RANGE (ug/L)
120141-002	MWSB2	**	16,000*	4,900*	28,000*
120141-003	MWSB2-DUP	**	18,000*	ND(25,000)	33,000*
120141-004	PW-2	**	1,700*	1,100*	4,400*
120141-005	MW-SB 3	**	2,300*	1,500*	5,800*
120141-006	PW-3	**	5,800*	1,200*	9,400*
120141-007	MW-SB 5	**	16,000*	8,100*	34,000*
120141-008	MW-SB 5-DUP	**	15,000*	6,900*	31,000*
METHOD BLANK	N/A	ND(50)	ND(50)	ND(1300)	ND(1300)

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

* Sample chromatogram does not resemble hydrocarbon standard.

** Kerosene range not reported due to overlap of hydrocarbon ranges.

QA/QC SUMMARY: BS/BSD

RPD, % 2
RECOVERY, % 99

120141

BASELINE

(510) 420-8686

CCSTRCDEEM

5900 Hollis Street, Suite D

Emeryville, CA 94608

CHAIN OF CUSTODY RECORD

Turn-around Time Lab

BASELINE Contact Person

Jane Naghar I Ful

Project No. Project Name and Location (ht Chnter SEABTER) he oalland, CA analysis B9171-B0 TEH DIOSO/MO. (TPH with BTX&E) Samplers: (Signature)

Autu C. fethyou 80 Title 22 Metals Oil & Grease Total Lead Motor Oil Sample ID Date Time Media Depth No. of Detec-No. Station Contain-Remarks/ tion ers Composite Limits 11/22/94 MWSBY-Grab Soi 4.75-5.0 Return 195 10:25 action 3 MUKB2-chydiand 36 3 Printitude, 16:45 nater rater 10:10 MW-583 nover 11:05 3 Liter MW SBS 12:50 6 95 woter MUSBS -chipliate 3/6/95 nada centration dulide Relinquished by: (Signature) Date / Time Received by: (Signature) Dare / Time Conditions of Samples Upon Arrival at 3/6/95 Laboratory: \$6/95 3:47 Relinquished by: (Signature) Date / Time Received by: (Signature) Date / Time Remarks: Upolum sample to BASEZINE 2/also submit chromatograms 3)cumary amplicate Relinquished by: (Signature) Date / Time Received by: (Signature) Date / Time (n'ar to annivsis



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: 10-MAR-95

Lab Job Number: 120129 Project ID: S9171-B0

Location: Seabreeze Yacht Center

Reviewed by:

Reviewed by:

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LABORATORY NUMBER: 120129

CLIENT: Baseline Environmental

PROJECT ID: S9171-BO

LOCATION: Seabreeze Yacht Center

DATE SAMPLED: 03/03/95 DATE RECEIVED: 03/03/95 DATE ANALYZED: 03/03/95

DATE REPORTED: 03/09/95

ANALYSIS: TURBIDITY

ANALYSIS METHOD: EPA 180.1

LAB ID	SAMPLE ID	RESULT	UNITS
120129-001	MW-SB4	130	NTU
120129-002	PW-1	60	NTU
120129-003	PW-4	4.4	NTU
120129-004	MW-SB1	23	NTU

QA/QC	SUMMARY:	
=====		
RPD, S		4
=====		

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120129

CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171-B0

LOCATION: SEABREEZE YACHT CENTER

DATE SAMPLED: 03/03/95
DATE RECEIVED: 03/03/95
DATE EXTRACTED: 03/08/95
DATE ANALYZED: 03/09/95
DATE REPORTED: 03/09/95

BATCH NO: 19359

Extractable Petroleum Hydrocarbons in Aqueous Solutions California DOHS Method LUFT Manual October 1989

LAB ID	CLIENT ID	DIESEL RANGE (ug/L)	MOTOR OIL RANGE (ug/L)	BUNKER C RANGE (ug/L)
120129-001 120129-002 120129-003 120129-004	MWSB-4 PW-1 PW-4 MW-SB1	1,400* 1,700* 610* 1,800*	660* 1,000* ND(1300) 1,400*	3,000* 3,900* 1,600* 4,800*
METHOD BLANK	N/A	ND(50)	ND(1300)	ND(1300)

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

* Sample chromatogram does not resemble hydrocarbon standard.

QA/QC SUMMARY: BS/BSD

RPD, % 2
RECOVERY, % 99

BASELINE CHAIN OF CUSTODY RECORD Turn-around Time 5900 Hollis Street, Suite D 4 Tameluns Lab Emeryville, CA 94608 BASELINE Contact Person Jane Nashall (510) 420-8686 Project Name and Location Seabreeze Yacht Center 200 6th Project No. Analysis 59171-BO as Bunker (TPH with BTX&E) qui c. Pertijoh Samplers: (Signature)// Title 22 Metals Sample ID Date TEH Time Media Depth D No. of No. Station Contain-Remarks/ CIS Composite muss-3 1:35 water 3 1:40 water 3 3 1:55 water 2:11 water bil 4 shap you alloled 3/6/9t Relinquished by: (Signature) Date / Time Received by: (Signature) Conditions of Samples Upon Arrival at Date / Time Laboratory: Relinquished by: (Signature) Date / Time Received by: (Signature) Date / Time Remarks: Relinquished by: (Signature) Date / Time Received by: (Signature) Date / Time

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

CHAIN OF CUSTODY RECORD

Turn-around Time Lab

BASELINE Contact Person Jane Nacha

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Project No. 59111- BO	Project Name Seabled ZSO	and Locati	on acut (Tenter	_	An	alysis												
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Sample ID No. Station	Date	Time	Media	Depth	No. of Contain- ers	祖	(TPH with Street	Oil & Greass	Motor Oil	PNAs	Title 22 Metals	Total Lead	42010					Remarks/ Composite	Detec- tion Limits
musb-4	3395	1:35	water	-	3	Х						TV							
PW-1	33195	1:40	water		3	T			一十			$+\Diamond$							
PW-4	3 3 95	1:55	water		3		\vdash	-	+	-		10	+						
mw-581	33 95				3	1	-			_		+0	-						. 15
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73

APPENDIX H

BORING LOGS TP1-TP4 and T1-T4 March 1995

Location		Center, Port of Oakland	Boring no. TP-1
Driller	Clear Heart Drillin		Project no. S9171
Method	Hollow-stem auger		Date 3/6/95
Logger	BBA	Datum Bore size 4 "	Casing size
Depth (ft.)	Graphic	Lithology	Notes
0	SP	Brown, gravelly SAND, minor fines, angular fragments up to	Standard pen (18") sampler lined with 1.5" x 6" brass liners
1		1-inch diameter, moist (Fill).	
3			28-20-13 Poor recovery (8") Rock in shoe
▼	SP SC	Blue-gray, gravelly SAND, angular gravel fragments up to 3/4-inch diameter, moist to wet (Fill). Black, clayey, gravelly SAND, angular gravel fragments up to 1-inch diameter, wet (Fill).	6-8-13 Poor recovery (8")
. 5		Total depth = 5.0 feet.	No sample retrieved Moved one foot away and redrilled (TP-1A)
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Page 1 of 1

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Location		Center, Port of Oakland	Boring no.	TP-1A
Driller	Clear Heart Drillin		Project no.	S9171
Method	Hollow-stem auge		Date	3/6/95
Logger	BBA	Bore size 4 "	Casing size	
Depth (ft.)	Graphic	Lithology		Notes
0	SP	Brown, gravelly SAND, angular gravel fragments up to 1-inch	Standard per with 1.5" x 6	n (18") sampler lined 5" brass liners
1		diameter, moist (Fill).		
2			18-12-9-18 (recovery 14	")
▼ 4	SP	Blue-gray, gravelly SAND, angular gravel fragments up to 3/4-inch diameter, moist to wet (Fill).		
5	SC	Black, clayey, gravelly SAND, angular gravel fragments up to 1-inch diameter, wet (Fill).		
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Page 1 of 1				

Page 1 of 1

Location Driller	Seabreeze Yacht C	Center, Port of Oakland	Boring no. TP-2 Project no. S9171
Method	Hollow-stem auge	Date 3/6/95	
Logger	BBA	Datum Bore size 4 "	Casing size
Depth (ft.)	Graphic	Lithology	BT-4
0	Отарис	Litthology	Notes Standard pen (18") sampler lined with 1.5" x 6" brass liners
1	SP	Gray, gravelly, SAND with minor fines, gravel fragments up to 1/2-inch diameter, moist (Fill).	with 1.5 x 0 blass lines
2			32-38-8-8
3	SP	Blue-gray, gravelly SAND, medium-grained, moist (Fill).	
4 Y	SP	Black, gravelly SAND, minor fines, rock and glass fragments up to 1-inch diameter, moist (Fill).	
		White granular material, 6 inches thick.	2-2-2-2
5	SP	Medium gray, gravelly SAND, medium-grained, wet (Fill).	
6		Total depth = 6.0 feet.	Woody material in shoe
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10 Page 1 of 1			

Page 1 of 1

Location	Seabreeze Yacht C	Center, Port of Oakland	Boring no.	TP-3
Driller	Clear Heart Drillin		Project no.	S9171
Method	Hollow-stem auger	Г	Date	3/6/95
Logger	BBA	Datum Bore size 4 "	Casing size	
Depth (ft.)	Graphic	Lithology		Notes
0	GP	Brown/rust, sandy GRAVEL, moist (Fill).	Standard per with 1.5" x (n (18") sampler lined 5" brass liners
1	CL	Black, sandy, gravelly, silty CLAY, moderately plastic, moist (Fill).		
2	SP	Brown, gravelly SAND, medium-grained, moist (Fill).	9-8-8-9	
3	SC	Black, clayey, gravelly SAND, angular fragments up to 3/4-inch		
4	SP	diameter, moist to wet (Fill). Gray, gravelly SAND, minor fines, medium-grained, wet (Fill).		
. 5	_	Total depth = 4.0 feet.		
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10 Page 1 of 1	_			

Page 1 of 1

Location	Seabreeze Yacht	Center, Port of Oakland	Boring no.	TP-4
Driller	Clear Heart Drilli	ing	Project no.	S9171
	Hollow-stem aug	ег	Date	3/6/95
Logger	BBA	Datum Bore size 4 "	Casing size	
Depth (ft.)	Graphic	Lithology		Notes
0	GP	Brown, sandy GRAVEL, rounded gravel fragments up to 1.5-inch diameter, moist (Fill).	with 1.5" x	n (18") sampler lir 6" brass liners
2	SM	Gray, silty SAND, medium-grained, moist (Fill?).		
3			41-22-16-11	
▼ 4	CL	Dark gray, gravelly, sandy, silty CLAY, moderately plastic, moist to wet (Fill). Total depth = 4.0 feet.		
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Page 1 of 1

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Location		Center, Port of Oakland	Boring no.	T-1
Driller	Clear Heart Drillin		Project no.	S9171
Method	Hollow-stem auge		Date	3/6/95
Logger	BBA	Datum Bore size 4 "	Casing size	
Depth (ft.)	Graphic	Lithology	1	Notes
0	GP	Gray, sandy GRAVEL, minor fines, rounded gravel fragments up to 1-inch diameter, wet (poor drainage, small amount of standing	with 1.5" x 6	n (18") sampler lined 5" brass liners
2	SP	water) (Fill). Brown, gravelly SAND, medium-grained, gravel fragments up to 3/4-inch diameter, moist (Fill).	000000000000000000000000000000000000000	
3	SP	Gray, SAND, medium-grained, well-sorted, moist (Fill).	26-28-43-18	
4 ▼			4-10-7-6	
5	СН	Black, mottled, silty CLAY, highly plastic, wet (Bay Mud).		
6		Total depth = 6.0 feet.		
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Page 1 of 1				

Page 1 of 1

Location Driller	Seabreeze Yacht (Clear Heart Drillin	Center, Port of Oakland	Boring no.	T-2
Method	Hollow-stem auge		Project no.	S9171
1	BBA	Datum Bore size 4 "	Date Casing size	3/6/95
		Doic size 4	Casing size	
Depth (ft.)	Graphic	Lithology		Notes
0	GP	Gray, sandy GRAVEL, minor fines, rounded gravel fragments up to 1-inch diameter, moist to wet (Fill).	with 1.5" x 6	n (18") sampler lined 5" brass liners
2	SP	Brown, gravelly SAND, medium-grained, gravel fragments up to 3/4-inch diameter, moist (Fill).		
3	SP	Medium-brown, SAND, medium-grained, well-sorted, moist (Fill).	35-28-17-15	
4 ▼	<u>,</u>	Total depth = 4.0 feet.		
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Page 1 of 1

Location	Seabreeze Yacht C	Center, Port of Oakland	Boring no.	T-3
Driller	Clear Heart Drillin		Project no.	S9171
Method	Hollow-stem auger		Date	3/6/95
Logger	BBA	Datum Bore size 4 "	Casing size	
Depth (ft.)	Graphic	Lithology		Notes
0	GP	Gray, sandy GRAVEL, minor fines, rounded gravel fragments up	with 1.5" x 6	n (18") sampler lined 5" brass liners
1	SP	to 1.5-inch diameter, moist (Fill). Medium-brown, SAND, medium-grained, well-sorted, moist		1
2		(Fill).	27-17-16-17	w
3				
4 ▼		Brick fragment in shoe. Total depth = 4.0 feet.		
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10 Page 1 of 1	_			

Page 1 of 1

Location Driller	Seabreeze Yacht (Clear Heart Drilling	Center, Port of Oakland	Boring no. Project no.	T-4 S9171
Method	Hollow-stem auge	er	Date	3/6/95
Logger	BBA	Datum Bore size 4 "	_ Casing size	
Depth (ft.)	Graphic	Lithology		Notes
0	GP	Blue-gray, sandy GRAVEL, moist (Fill).	Standard per with 1.5" x	n (18") sampler lined 6" brass liners
1				
2	SM	Medium-brown, silty SAND, with minor gravel, moist (Fill).		
			14-8-5-6	
3				
4	СН	Black, mottled, silty CLAY, highly plastic, moist (Bay Mud). Total depth = 4.0 feet.		
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Page 1 of 1

APPENDIX I

LABORATORY REPORTS, SOIL February and March 1995



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

RECEIVED

APR 4 1995

ANALYTICAL REPORT

BASELINE

Prepared for:

SOMA Environmental Engineering Inc. 2680 Bishop Dr. Suite 203 San Ramon, CA 94583

Date: 15-FEB-95 Lab Job Number: 119768

Project ID: 95-2120 Location: 6th Ave, Oakland

Reviewed by:

Reviewed by:

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Berkeley

Irvine



LABORATORY NUMBER: 119768

CLIENT: SOMA ENVIRONMENTAL ENGINEERING

PROJECT ID: 95-2120

LOCATION: 6TH AVE, OAKLAND

DATE SAMPLED: 01/30/95 DATE RECEIVED: 01/31/95 DATE ANALYZED: 02/08/95

DATE REPORTED: 02/15/95

ANALYSIS: PERCENT MOISTURE

ANALYSIS METHOD: EPA CLP

LAB ID	SAMPLE ID	RESULT	UNITS
119768-008		52	00
119768-012		13	00

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: ______

RPD, %



LABORATORY NUMBER: 119768

CLIENT: SOMA ENVIRONMENTAL ENGINEERING

LOCATION: 6TH AVE, OAKLAND

DATE SAMPLED: 01/30/95 DATE RECEIVED: 01/31/95 DATE ANALYZED: 02/08/95 DATE REPORTED: 02/15/95

ANALYSIS: TOTAL ORGANIC CARBON

ANALYSIS METHOD: EPA 9060

LAB ID	SAMPLE ID	RESULT	UNITS	REPORTING LIMIT
119768-008 119768-012	PW2 10' PW3 10'	3,900 1,200	mg/Kg mg/Kg	500 150
METHOD BLANI	K	ND	mg/Kg	10

ND = Not detected at or above reporting limit.

QA/QC SUMMARY:

RPD, %	2
RECOVERY, %	80



LABORATORY NUMBER: 119825

CLIENT: SOMA ENVIRONMENTAL ENGINEERING

PROJECT ID: 95-2120

LOCATION: 6TH AVE, OAKLAND

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95

DATE ANALYZED: 02/02,03/95 DATE REPORTED: 02/15/95

ANALYSIS: DENSITY

ANALYSIS METHOD: ASTM D854

LAB ID	SAMPLE ID	RESULT	UNITS
119825-008		2.0	g/ml
119825-012		2.1	g/ml

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119768-001

CLIENT: SOMA ENVIRONMENTAL ENGINEERING DATE RECEIVED: 01/31/95

PROJECT ID:95-2120

LOCATION: 6TH AVE, OAKLAND

SAMPLE ID: PW1 36"

DATE SAMPLED: 01/31/95

DATE EXTRACTED: 02/06/95

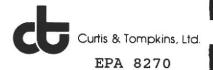
DATE ANALYZED: 02/08/95 DATE REPORTED: 02/15/95

BATCH NO.: 18905

EPA 8270: Base/Neutral and Acid Extractables in Soils & Wastes

Extraction Method: EPA 3550 Sonication

	RESULT	REPORTING
ACID COMPOUNDS	ug/Kg	LIMIT
	7.7	ug/Kg
Phenol	ND	1,700
2-Chlorophenol	ND	1,700
Benzyl Alcohol	ND	1,700
2-Methylphenol	ND	1,700
4-Methylphenol	ND	1,700
2-Nitrophenol	ND	8,300
2,4-Dimethylphenol	ND	1,700
Benzoic Acid	ND	8,300
2,4-Dichlorophenol	ND	8,300
4-Chloro-3-methylphenol	ND	1,700
2,4,6-Trichlorophenol	ND	1,700
2,4,5-Trichlorophenol	ND	8,300
2,4-Dinitrophenol	ND	8,300
4-Nitrophenol	ND	8,300
4,6-Dinitro-2-methylphenol	ND	8,300
Pentachlorophenol	ND	8,300
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	1,700
Aniline	ND	1,700
Bis(2-chloroethyl)ether	ND	1,700
1,3-Dichlorobenzene	ND	1,700
1,4-Dichlorobenzene	ND	1,700
1,2-Dichlorobenzene	ND	1,700
Bis(2-chloroisopropyl)ether	ND	1,700
N-Nitroso-di-n-propylamine	ND	1,700
Hexachloroethane	ND	1,700
Nitrobenzene	ND	1,700
Isophorone	ND	1,700
Bis(2-chloroethoxy)methane	ND	1,700
1,2,4-Trichlorobenzene	ND	1,700
Naphthalene	ND	1,700
4-Chloroaniline	ND	1,700
Hexachlorobutadiene	ND	1,700
2-Methylnaphthalene	ND	1,700
Hexachlorocyclopentadiene	ND	1,700
2-Chloronaphthalene	ND	1,700
2-Nitroaniline	ND	8,300



LABORATORY NUMBER: 119768-001

SAMPLE ID: PW1 36"

BASE/NEUTRAL COMPOUNDS	RESULT	REPORTING
	ug/Kg	LIMIT
		ug/Kg
Dimethylphthalate	ND	1,700
Acenaphthylene	ND	1,700
2,6-Dinitrotoluene	ND	1,700
3-Nitroaniline	ND	8,300
Acenaphthene	ND	1,700
Dibenzofuran	ND	1,700
2,4-Dinitrotoluene	ND	1,700
Diethylphthalate	ND	1,700
4-Chlorophenyl-phenylether	ND	1,700
Fluorene	ND	1,700
4-Nitroaniline	ND	8,300
N-Nitrosodiphenylamine	ND	1,700
Azobenzene	ND	1,700
4-Bromophenyl-phenylether	ND	1,700
Hexachlorobenzene	ND	1,700
Phenanthrene	ND	1,700
Anthracene	ND	1,700
Di-n-butylphthalate	ND	1,700
Fluoranthene	ND	1,700
Pyrene	ND	1,700
Butylbenzylphthalate	ND	1,700
3,3'-Dichlorobenzidine	ND	8,300
Benzo(a)anthracene	ND	1,700
Chrysene	ND	1,700
Bis(2-ethylhexyl)phthalate	ND	1,700
Di-n-octylphthalate	ND	1,700
Benzo(b)fluoranthene	ND	1,700
Benzo(k)fluoranthene	ND	1,700
Benzo(a) pyrene	ND	1,700
Indeno(1,2,3-cd)pyrene	ND	1,700
Dibenzo(a,h)anthracene	ND	1,700
Benzo(g,h,i)perylene	ND	1,700
The second secon	•••	1,,00

^{*} High surrogate recovery due to matrix interference.

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

	========			
2-Fluorophenol	74	Nitrobenzene-d5	65	
Phenol-d5	77	2-Fluorobiphenyl	69	
2,4,6-Tribromophenol	57	Terphenyl-d14	156	*
2-Chlorophenol-d4	72	1,2-Dichlorobenzene-d4	66	
		26 (1.00)		



LABORATORY NUMBER: 119768-MB

CLIENT: SOMA ENVIRONMENTAL ENGINEERING DATE ANALYZED: 02/09/95

PROJECT ID:95-2120

LOCATION: 6TH AVE, OAKLAND SAMPLE ID: METHOD BLANK

DATE EXTRACTED: 02/06/95 DATE ANALYZED: 02/09/95 DATE REPORTED: 02/15/95

BATCH NO.: 18905

EPA 8270: Base/Neutral and Acid Extractables in Soils & Wastes Extraction Method: EPA 3550 Sonication

ACID COMPOUNDS	RESULT ug/Kg	REPORTING LIMIT ug/Kg
Phenol 2-Chlorophenol Benzyl Alcohol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 2,4-Dimethylphenol Benzoic Acid 2,4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 4-Opinitro-2-methylphenol Pentachlorophenol	ND ND ND ND ND ND ND ND ND ND ND ND ND N	330 330 330 330 330 1,700 330 1,700 1,700 1,700 1,700 1,700 1,700 1,700
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine Aniline Bis(2-chloroethyl)ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bis(2-chloroisopropyl)ether N-Nitroso-di-n-propylamine Hexachloroethane Nitrobenzene Isophorone Bis(2-chloroethoxy)methane 1,2,4-Trichlorobenzene Naphthalene 4-Chloroaniline Hexachlorobutadiene 2-Methylnaphthalene Hexachlorocyclopentadiene 2-Chloronaphthalene 2-Nitroaniline	ND ND ND ND ND ND ND ND ND ND ND ND ND N	330 330 330 330 330 330 330 330 330 330



LABORATORY NUMBER: 119768-MB

SAMPLE ID: METHOD BLANK

BASE/NEUTRAL COMPOUNDS	RESULT ug/Kg	REPORTING LIMIT ug/Kg
Dimethylphthalate	ND	330
Acenaphthylene	ND	330
2,6-Dinitrotoluene	ND	330
3-Nitroaniline	ND	1,700
Acenaphthene	ND	330
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
Diethylphthalate	ND	330
4-Chlorophenyl-phenylether	ND	330
Fluorene	ND	330
4-Nitroaniline	ND	1,700
N-Nitrosodiphenylamine	ND	330
Azobenzene	ND	330
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Phenanthrene	ND	330
Anthracene	ND	330
Di-n-butylphthalate	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	1,700
Benzo(a)anthracene	ND	330
Chrysene	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo(b) fluoranthene	ND	330
Benzo(k) fluoranthene	ND	330
Benzo(a) pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	ND	330

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

			=======
2-Fluorophenol	92	Nitrobenzene-d5	79
Phenol-d5	111	2-Fluorobiphenyl	83
2,4,6-Tribromophenol	83	Terphenyl-d14	107
2-Chlorophenol-d4	98	1,2-Dichlorobenzene-d4	85

Curtis & Tompkins, Ltd



8270 Laboratory Control Sample Report

Lab No:

QC84529

LCS Datafile: 5_lcs_18905re.d

Date Analyzed: 08-FEB-95

Matrix: SOIL Extraction Chemist: DC

Dilution Factor : 1

Batch No: 18905 515039172005

MS Operator: KC Prep Final Vol

Compound	Instrdg	SpikeAmt	% Rec	Limits
Phenol 2-Chlorophenol 4-Chloro-3-methylphenol 4-Nitrophenol Pentachlorophenol	122 121 132 34 101	150 150 150 150 150	81 % 81 % 88 % 23 % 68 %	26-103% 11-114% 17-109%
1,4-Dichlorobenzene N-Nitroso-di-n-propylamine 1,2,4-Trichlorobenzene Acenaphthene 2,4-Dinitrotoluene Pyrene	79 76 89 77 91 94	100 100 100 100 100	79 % 76 % 89 % 77 % 91 % 94 %	41-126% 38-107% 31-137% 28-89%
Surrogate Recoveries				
2-Fluorophenol Phenol-d5 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14 2-Chlorophenol-d4 1,2-Dichlorobenzene-d4	127 137 148 90 95 116 135	150 150 150 100 100 100 150	85 % 91 % 99 % 90 % 95 % 116 % 90 %	24-113% 19-122% 23-120% 30-115% 18-137%

^{*} Result is out of limits - Fail Calculations based on On-Column amounts(ngs)



Curtis & Tompkins, Ltd 8270 MS/MSD Report

Matrix Sample Number: 119768-001

Date Analyzed:

08-FEB-95

Lab No: QC84531 QC84532 Matrix: SOIL

Spike File:

Batch No: 0208.b 515039180006

Spike File: 06_ms_18905.d Spike Dup File: 07_msd_18905.d 515039187007 515039194008 Analyst: KC

Instid: BNA02

Dilution factor: 5

	Instrdg	SpikeAmt	% Rec	T 111	
WG DEGREE	11100109	ppikeAut	. s Rec	Limits	
MS RESULTS Phenol		ž.			
	19	150	63 %	26-90%	
2-Chlorophenol	18	150	61 %		
4-Chloro-3-methylphenol	17	150	56 %		
4-Nitrophenol	3	150	11 %	11-114%	
Pentachlorophenol	11	150	38 %	17-109%	
1,4-Dichlorobenzene	11	100	57 %	28-104%	40
N-Nitroso-di-n-propylamine	13	100	63 %	41-126%	
1,2,4-Trichlorobenzene	12	100	62 %	38-107%	
Acenaphthene	10	100	51 %	31-137%	
2,4-Dinitrotoluene	9	100	44 %		
Pyrene	22	100	110 %	35-142%	
Surrogate Recoveries					
2-Fluorophenol	19	7.50		202	
Phenol-d5	21	150	62 %	25-121%	
2,4,6-Tribromophenol		150	68 %	24-113%	
Nitrobenzene-d5	14	150	47 %	19-122%	
2-Fluorobiphenyl	12	100	58 %	23-120%	
Terphenyl-d14	13	100	64 %	30-115%	
2-Chlorophenol-d4	26	100	130 %	18-137%	
1,2-Dichlorobenzene-d4	19	150	64 %	20-130%	
1,2 Dichiolobenzene-d4	12	100	61 %	20-130%	
MCD DEGIT TO					
MSD RESULTS					
Phenol	19	150	64 %	26-90%	
2-Chlorophenol	19	150	64 %	25-102%	
4-Chloro-3-methylphenol	17	150	58 %	26-103%	
4-Nitrophenol	3	150	11 %	11-114%	
Pentachlorophenol	12	150	39 %	17-109%	
1,4-Dichlorobenzene	12	100	62 %	28-104%	
N-Nitroso-di-n-propylamine	13	100	63 %	41-126%	
1,2,4-Trichlorobenzene	13	100	65 %		
Acenaphthene	11	100	53 %	38-107%	
2,4-Dinitrotoluene	9	100		31-137%	
Pyrene	24	100	45	28-89% 35-142%	
Surrogate Recoveries				33 112 0	
-Fluorophenol	0.0				
Phenol-d5	20	150	66 %	25-121%	
,4,6-Tribromophenol	20	150	68 %	24-113%	
itrobenzene-d5	15	150	51 %	19-122%	
-Fluorobiphenyl	12	100	62 %	23-120%	
ernhenvil 414	13	100	65 %	30-115%	36
erphenyl-d14	29	100	145 %	18-137%	*
-Chlorophenol-d4	20	150	67 %	20-130%	
,2-Dichlorobenzene-d4	12	100	59 %	20-130%	
			1976 1		



SAMPLE ID: PW1 36" LAB ID: 119768-001

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th Ave, Oakland

MATRIX: Soil

DATE SAMPLED: 01/31/95 DATE RECEIVED: 01/31/95 DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	2.6	2.5	18956	EPA 7060	02/10/95
	54	0.50	18957	EPA 6010A	02/10/95
	ND	0.25	18957	EPA 6010A	02/10/95
	48	0.50	18957	EPA 6010A	02/10/95
	9.3	1.5	18956	EPA 7421	02/09/95
	ND	0.095	19024	EPA 7471	02/13/95
	ND	2.5	18956	EPA 7740	02/10/95
	ND	0.50	18957	EPA 6010A	02/10/95



SAMPLE ID: PW1 B5' LAB ID: 119768-002

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th Ave, Oakland

MATRIX: Soil

DATE SAMPLED: 01/31/95 DATE RECEIVED: 01/31/95 DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch				
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	5.0	2.5	18956	EPA 7060	02/10/95		
	120	0.50	18957	EPA 6010A	02/10/95		
	0.49	0.25	18957	EPA 6010A	02/10/95		
	22	0.50	18957	EPA 6010A	02/10/95		
	38	1.5	18956	EPA 7421	02/09/95		
	ND	0.091	19024	EPA 7471	02/13/95		
	ND	2.5	18956	EPA 7740	02/10/95		
	ND	0.50	18957	EPA 6010A	02/10/95		



SAMPLE ID: PW2 4.5-6B LAB ID: 119768-006

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th Ave, Oakland

MATRIX: Soil

DATE SAMPLED: 01/30/95 DATE RECEIVED: 01/31/95 DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	ND 28 ND 55 6.4 ND ND ND	2.5 0.50 0.25 0.50 1.5 0.10 2.5 0.50	18956 18957 18957 18957 18956 19024 18956 18957	EPA 7060 EPA 6010A EPA 6010A EPA 6010A EPA 7421 EPA 7471 EPA 7740 EPA 6010A	02/10/95 02/10/95 02/10/95 02/10/95 02/10/95 02/13/95 02/10/95 02/10/95



SAMPLE ID: PW2 12" LAB ID: 119768-007

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th Ave, Oakland

MATRIX: Soil

DATE SAMPLED: 01/30/95 DATE RECEIVED: 01/31/95 DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date				
Arsenic Barium Cadmium Chromium (to Lead Mercury Selenium Silver	4.9 190 0.53 0.53 140 210 0.22 ND ND	2.5 0.50 0.25 0.50 5.0 0.095 2.5 0.50	18956 18957 18957 18957 18957 19024 18956 18957	EPA 7060 EPA 6010A EPA 6010A EPA 6010A EPA 7420 EPA 7471 EPA 7740 EPA 6010A	02/10/95 02/10/95 02/10/95 02/10/95 02/13/95 02/13/95 02/10/95 02/10/95				



SAMPLE ID: PW3 12" LAB ID: 119768-010

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th Ave, Oakland

MATRIX: Soil

DATE SAMPLED: 01/30/95 DATE RECEIVED: 01/31/95 DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total) Lead Mercury Selenium Silver	5.7	2.5	18956	EPA 7060	02/10/95
	140	0.50	18957	EPA 6010A	02/10/95
	0.58	0.25	18957	EPA 6010A	02/10/95
	35	0.50	18957	EPA 6010A	02/10/95
	81	5.0	18957	EPA 7420	02/13/95
	ND	0.091	19024	EPA 7471	02/13/95
	ND	2.5	18956	EPA 7740	02/10/95
	ND	0.50	18957	EPA 6010A	02/10/95



SAMPLE ID: PW3 5.6' LAB ID: 119768-011

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th Ave, Oakland

MATRIX: Soil

DATE SAMPLED: 01/30/95 DATE RECEIVED: 01/31/95 DATE REPORTED: 02/15/95

RCRA Metals

Compound		Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	(total)	4.4 61 ND 51 28 0.18 ND ND	2.5 0.50 0.25 0.50 1.5 0.087 2.5 0.50	18956 18957 18957 18957 18956 19024 18956 18957	EPA 7060 EPA 6010A EPA 6010A EPA 6010A EPA 7421 EPA 7471 EPA 7740 EPA 6010A	02/10/95 02/10/95 02/10/95 02/10/95 02/09/95 02/13/95 02/10/95 02/10/95



DATE SAMPLED: 01/30/95

DATE RECEIVED: 01/31/95

DATE REPORTED: 02/15/95

SAMPLE ID: PW4 12" LAB ID: 119768-014

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th Ave, Oakland

MATRIX: Soil

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total Lead Mercury Selenium Silver	5.5	2.5	18956	EPA 7060	02/10/95
	86	0.50	18957	EPA 6010A	02/10/95
	0.40	0.25	18957	EPA 6010A	02/10/95
	31	0.50	18957	EPA 6010A	02/10/95
	43	5.0	18957	EPA 7420	02/13/95
	ND	0.10	19024	EPA 7471	02/13/95
	ND	2.5	18956	EPA 7740	02/10/95
	ND	0.50	18957	EPA 6010A	02/10/95

RCRA Metals



SAMPLE ID: PW4 42" LAB ID: 119768-016

CLIENT: SOMA Environmental Engineering Inc.

PROJECT ID: 95-2120

LOCATION: 6th Ave, Oakland

MATRIX: Soil

DATE SAMPLED: 01/30/95 DATE RECEIVED: 01/31/95 DATE REPORTED: 02/15/95

RCRA Metals

Compound		Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date				
Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	(total)	6.7 180 0.25 33 63 0.13 ND	2.5 0.50 0.25 0.50 5.0 0.10 2.5 0.50	18956 18957 18957 18957 18957 19024 18956 18957	EPA 7060 EPA 6010A EPA 6010A EPA 7420 EPA 7471 EPA 7740 EPA 6010A	02/10/95 02/10/95 02/10/95 02/10/95 02/13/95 02/13/95 02/10/95 02/10/95				



CLIENT: SOMA Environmental Engineering Inc. DATE REPORTED: 02/15/95

JOB NUMBER: 119768

BATCH QC REPORT BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS % Recovery	BSD % Recovery	Average Recovery	RPD	QC Batch	Method	Analysis Date
Arsenic Barium Cadmium Chromium (total) Lead Lead Mercury Selenium Silver	40 2000 50 200 30 500 4 30 50	403.5 1924 53.63 190.7 308 480 3.935 305.8 42.54	419.4 1981 54.91 196.2 300.8 490 3.986 297.4 44.13	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	101 96 107 95 103 96 98 102 85	105 99 110 98 100 98 100 99 88	103 98 109 97 102 97 99 101 87	4 3 2 3 2 2 1 3 4	18956 18957 18957 18957 18956 18957 19024 18956 18957	EPA 7060 EPA 6010A EPA 6010A EPA 7421 EPA 7420 EPA 7470 EPA 7740 EPA 6010A	02/10/95 02/09/95 02/09/95 02/09/95 02/09/95 02/13/95 02/13/95 02/10/95



CLIENT: SOMA Environmental Engineering Inc. DATE REPORTED: 02/15/95

JOB NUMBER: 119768

BATCH QC REPORT PREP BLANK

Compound	Result	Reporting Limit	Units	QC Batch	Method	Analysis Date				
Arsenic Barium Cadmium Chromium (total) Lead Lead Mercury Selenium Silver	ND ND ND ND ND ND ND ND ND ND ND	2.5 0.5 0.25 0.5 1.5 5 0.1 2.5 0.5	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	18957 18957 18956 18957 19024	EPA 6010A EPA 6010A EPA 6010A EPA 7421 EPA 7420 EPA 7471	02/10/95 02/09/95 02/09/95 02/09/95 02/09/95 02/13/95 02/10/95 02/09/95				

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Curtis & Tompkins, Ltd.

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Curis & Tompkins, Itd.

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman James E. Bruya, Ph.D. (206) 285-8282

3012 16th Avenue West Seattle, WA 98119-2029 FAX: (206) 283-5044

February 13, 1995

Michele Heffes, Deputy Port Attorney Port of Oakland P.O. Box 2064 Oakland, CA 94604

Dear Ms. Heffes:

Enclosed are the results from the additional testing of material submitted on February 1, 1995 from your project #95-2120, Seabreeze.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

James E. Bruya, Ph.D. Chemist

jdp Enclosures FAX: (510) 444-2093 FAX: Jonathan Redding (510) 451-1527

FRIEDMAN & BRUYA, INC.

TO

ENVIRONMENTAL CHEMISTS

Date of Report: February 13, 1995 Date Received: February 1, 1995 Project: #95-2120, Seabreeze

Date Samples Extracted: February 8, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL BY GC/FID (Modified 8015)

Extended to Include Motor Oil Range Compounds Results Reported as µg/g (ppm)

Sample ID	Diesel Extended	Surrogate Standard (% Recovery)
PW-1 18"	30	104%
PW-1 24"	410	111%
PW-2 .6"	1,000	108%
PW-2 @ 4.5-6'	620	117%
PW-8 @ 6"	<50	110%
PW-3 @ 5'	<50	104%
PW-4@.6	<50	1119
PW-4@36"	<50	111%
		11176
Quality Assurance		
Blank		
PW-4 @ 36"	<10	94%
(Duplicate)	<50	93%
PW-4 @ 86		
(Matrix Spike) % Recovery	105%	100%
PW-4 @ 36"	100	200
(Matrix Spike Duplicate) % Recovery	: 117%	1000
Spike Blank	: 11/70	109%
% Recovery	98%	105%
Spike Level	500	. 173 54
- <u>a</u> se		10 mg
	1 1 4	ī

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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: 14-MAR-95

Lab Job Number: 120142 Project ID: S9171

Location: Seabreeze Yacht Oakland

Reviewed by:

Reviewed by: Koning

This package may be reproduced only in its entirety.

Rarkalav

Irvine

CG Curtis & Tompkins. Ltd

LABORATORY NUMBER: 120142

CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171

LOCATION: SEABREEZE YACHT, OAKLAND

DATE SAMPLED: 03/06/95 DATE RECEIVED:03/06/95 DATE EXTRACTED:03/09/95 DATE ANALYZED: 03/13/95 DATE REPORTED: 03/14/95

BATCH NO: 19385

Extractable Petroleum Hydrocarbons in Soil & Wastes California DOHS Method LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	MOTOR OIL RANGE (mg/Kg)	BUNKER C RANGE (mg/Kg)
120142-001 120142-002 120142-003 120142-004 120142-006	TP-1A 3.0-3.5 TP-2 3.0-3.5 TP-2 5.5-6.0 TP-3 3.0-3.5 TP-4 3.0-3.5	** ND(1.0) ND(1.0) ** ND(1.0)	28* ND(1.0) 14* 92* ND(1.0)	200* ND(25) 120* 190* ND(25)	340* ND(25) 190* 400* ND(25)
METHOD BLANK	N/A	ND(1.0)	ND(1.0)	ND(25)	ND(25)

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

* Sample chromatogram does not resemble hydrocarbon standard.

** Kerosene range not reported due to overlap of hydrocarbon ranges.

QA/QC SUMMARY: LCS

RECOVERY, %

CUrtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-007 CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171

LOCATION: SEABREEZE YACHT, OAKLAND

SAMPLE ID: T-1 3.0-3.5

DATE SAMPLED: 03/06/95 DATE RECEIVED: 03/06/95 DATE EXTRACTED: 03/10/95 DATE ANALYZED: 03/13/95

DATE REPORTED: 03/14/95

BATCH NO:19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)

ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550

AROCLOR	TYPE	æ.	RESULT (ug/Kg)	REPORTING (ug/l	
AROCLOR	1221		ND		20
AROCLOR	1232		ND		20
AROCLOR	1016		ND		20
AROCLOR	1242	6	ND		20
AROCLOR	1248		ND	v g	20
AROCLOR	1254		ND .		20
AROCLOR	1260	2	ND		20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY:	MS/MSD
RPD, %	1
RECOVERY, %	108
The state of the s	100

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-008 CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171

LOCATION: SEABREEZE YACHT, OAKLAND

SAMPLE ID: T-1 5.5-6.0

DATE SAMPLED: 03/06/95 DATE RECEIVED: 03/06/95 DATE EXTRACTED: 03/10/95 DATE ANALYZED: 03/12/95 DATE REPORTED: 03/14/95

BATCH NO:19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)

ANALYSIS METHOD: EPA 8080 EXTRACTION METHOD: EPA 3550

100	AROCLOR	TYPE		RESULT (ug/Kg)	REPORTING (ug/l	
	AROCLOR	1221		ND	ii.	20
	AROCLOR	1232		ND	*	20
į	AROCLOR	1016	K - *	ND		20
2	AROCLOR	1242		ND		20 .
2	AROCLOR	1248		ND		20
2	AROCLOR	1254		ND		20
2	AROCLOR	1260		ND		20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %

RECOVERY, %

108

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-009 CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171

LOCATION: SEABREEZE YACHT, OAKLAND

SAMPLE ID: T-2 3.0-3.5

DATE SAMPLED: 03/06/95 DATE RECEIVED: 03/06/95 DATE EXTRACTED: 03/10/95 DATE ANALYZED: 03/12/95

DATE REPORTED: 03/14/95

BATCH NO: 19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)

ANALYSIS METHOD: EPA 8080 EXTRACTION METHOD: EPA 3550

AROCLOR	TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
			9 5
AROCLOR	1221	ND	20
AROCLOR	1232	ND	20
AROCLOR	1016	31m	
AKOCTOK	1016	ND	20
AROCLOR	1242	ир	20
AROCLOR	1248	ND	
	1240	ND ,	20
AROCLOR	1254	150	20
AROCLOR	1260		
OCLOR	1500	65	20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY:	MS/MSD
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RPD, %	•	1
RECOVERY, %		108

CG Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-010 CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171

LOCATION: SEABREEZE YACHT, OAKLAND

SAMPLE ID: T-3 3.0-3.5

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE EXTRACTED: 03/10/95
DATE ANALYZED: 03/12/95
DATE REPORTED: 03/14/95

BATCH NO: 19397

ANALYSIS, DOLLOW ON THE PROPERTY OF THE PROPER

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)

ANALYSIS METHOD: EPA 8080 EXTRACTION METHOD: EPA 3550

AROCLOR	TYPE		RESULT (ug/Kg)	REPORTING (ug/F	
AROCLOR	1221	2 5 1	ND	ė	20
AROCLOR	1232		ND		20
AROCLOR	1016		ND		20
AROCLOR	1242	×	ND		20
AROCLOR	1248		ND	to a	20
AROCLOR	1254		ND		20
AROCLOR	1260	8	ND	E	20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %
RECOVERY, %
108

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-011 CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171

LOCATION: SEABREEZE YACHT, OAKLAND

SAMPLE ID: T-4 3.0-3.5

DATE SAMPLED: 03/06/95 DATE RECEIVED: 03/06/95 DATE EXTRACTED: 03/10/95 DATE ANALYZED: 03/12/95

DATE REPORTED: 03/14/95

BATCH NO:19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)

ANALYSIS METHOD: EPA 8080 EXTRACTION METHOD: EPA 3550

AROCLOR	TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR	1221	ND	20
AROCLOR	1232	ND	20
AROCLOR	1016	ND	20
AROCLOR	1242	ND	20
AROCLOR	1248 .	ND	20
AROCLOR	1254	ND	20
AROCLOR	1260	ND	20

ND = Not detected at or above reporting limit.

QA/QC S	UMMARY:	MS/MSD		ă.	
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RPD, %				. 1	

RECOVERY, % 108

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-MB CLIENT: BASELINE ENVIRONMENTAL

PROJECT ID: S9171

LOCATION: SEABREEZE YACHT, OAKLAND

SAMPLE ID: METHOD BLANK

DATE SAMPLED: N/A DATE RECEIVED: N/A

DATE EXTRACTED:03/10/95 DATE ANALYZED: 03/12/95 DATE REPORTED: 03/14/95

BATCH NO: 19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)

ANALYSIS METHOD: EPA 8080 EXTRACTION METHOD: EPA 3550

AROCLOR TYPE		, E	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221		· .	ND	20
AROCLOR 1232			ND	20
AROCLOR 1016		*	ND	20
AROCLOR 1242	•		ND	20
AROCLOR 1248	•		ND	20
AROCLOR 1254	100		ND	20
AROCLOR 1260			ND	20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, % RECOVERY, % 1 108

130,42

BASELINE

(707) 762-5233

101 H Street, Suite L

Petaluma, CA 94952

CHAIN OF CUSTODY RECORD

Turn-around Time Lab BASELINE Contact Person

5-04-Curtis & Tomptions
YANE NORDHAY

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TP-1430-35	3/4/95	10.10	501L	3.0-3.5	1		X		0/	~	14		-	2					Composite	Limits	ĸ
TP-2 3.0-3.5		10:35	Soil	3.0.3.5	1		X		\dashv	-		-									-
TP-2 5.5-6.0		10.20	. 1	5.5-6.6	1		x	-	\dashv		\dashv	\dashv									-
TP-3 30-5.5		11:10		3.0-3.5	1		×		\neg					-							-
Shore 2x		11:15		0.5-1.0	1.							\neg		X							×
TP-4 3.0-3.5		11:35		3.0 - 3.5			X						-								-
7-1 55-6.0		12:35		3.c - 3.5 5.5 - c.c	1									×							7
T-2 3.0-7.5		12:45		3.0-3.5	1									X							¥1
T-3 3.0-3.5	-	13:10		3.0-3.5	1.									x							
T.4 3.0.3.5	\	13:30		3.6-3.5										x					***		•
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