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SAD 147

November 3, 1989

18452,020.02

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1600 63rd Street Associates, Inc.
c/o Wareham Development Group
1120 Nye Street, Suite 400
San Rafael, California 94901

Attention: Richard K. Robbins

Gentlemen:

Report - Second Quarter Ground-Water Quality Monitoring
1600 63rd Street
Emeryville, California

This report presents the results of second quarter ground-water monitoring conducted by Harding Lawson Associates (HLA) at 1600 63rd Street, Emeryville, California (Plate 1). HLA installed five ground-water monitoring wells at this site in May and June 1989. The results of initial ground-water sampling and analyses and water-level measurements are presented in HLA's October 2, 1989 report, *Ground-Water Quality Investigation, 1600 63rd Street, Emeryville, California*, together with a summary of investigations and remediation of the site performed by HLA and others.

Ground-water monitoring will continue at the site for one year in accordance with the procedures and recommendations outlined in the October 2 report. Monitoring comprises monthly water-level and product level (if present) measurement and quarterly ground-water sampling and chemical analyses for a suite of analytes.

GROUND WATER LEVEL MONITORING AND SAMPLING

Water levels were measured in the wells on September 21 and October 20, 1989. An electronic oil-water interface probe was used to measure ground-water level and product thickness in the monitoring wells. The ground water surface in each well was also visually inspected for the presence of floating product by carefully lowering a clear lucite bailer into the well, removing it, and observing the water/product in the bailer. No product was observed in any of the wells on either date. ✓

On September 21, 1989, after water levels were measured, the wells were purged using a PVC bailer. Approximately 24 and 28 gallons of water were removed from Wells MW-1 and MW-2, respectively (about three well casing volumes). Wells MW-3,

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MW-4, and MW-5 were purged of 27, 28, and 34 gallons of water, respectively (about 2 well casing volumes), at which point they were dry. The wells were allowed to recover about five or six hours, until the water level had risen to within 80 percent of the initial water level. Measurements of pH, conductivity, turbidity, and temperature were taken during well purging. In Wells MW-1 and MW-2, purging was continued until these parameters had stabilized, thus indicating that stagnant water in the well had been removed. All purge water was placed in 55-gallon steel drums and stored on site in a steel containment structure.

Water samples were collected from the wells using a stainless steel bailer and decanted in three 40-milliliter volatile organic analysis vials, three 1-liter amber glass bottles, and, for the metals analyses, one 250-ml plastic bottle containing nitric acid. These sample bottles were labeled, placed in a refrigerated environment, and transported under chain of custody to the analytical laboratory.

All water-level measurement and sampling equipment was decontaminated prior to use by washing in a low-phosphorous soap and double rinsed in tap water. Water used to clean and rinse the equipment was contained and stored on site within the containment structure.

GROUND-WATER GRADIENT AND FLOW DIRECTION

Ground-water elevations and product thicknesses measured throughout this investigation are presented in Table 1. The water table appears to be fluctuating in response to precipitation-induced recharge. The water table typically rises following precipitation and declines during dry periods. The change in water level elevations probably represents a typical seasonal fluctuation of the water table. Between August 3 and September 21, water-level elevations increased in Wells MW-1 through MW-4 between 0.18 and 0.34 foot; the water level in MW-5 decreased 0.03 foot. The increases likely were the result of precipitation in mid-September. Between September 21 and October 20, water levels in Wells MW-1 and MW-4 decreased from September levels by 0.05 to 0.72 foot; Well MW-5 increased by 0.01 foot.

Review of water-level elevations measured during the September 1989 sampling indicate that ground water flows onto the site from the east. Ground-water flow diverges in the central area of the site and discharges from the site toward the west and northwest. The ground-water gradient throughout the site on September 21 was 0.013 foot/foot. The discharge flow direction and discharge gradient are generally consistent with those calculated throughout this investigation.

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LABORATORY ANALYSIS AND RESULTS

The second quarterly ground-water samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline, diesel, and kerosene by EPA Test Method 8015/3510; volatile organics by EPA Test Method 8240; organochlorine pesticides and PCBs by EPA Test Method 8080; base/neutral and acid extractable semivolatile organics by EPA Test Method 8270; and the 17 priority pollutant metals. Sample analyses were performed by Curtis & Tompkins, Ltd., Analytical Laboratories of Berkeley, California, a state-certified laboratory for these analyses. Ground-water sample analytical results for all analyses performed during this investigation are presented in Table 2. Copies of the laboratory analytical data sheets and chain of custody forms for second quarter sampling are included as an appendix to this report.

Results of Analyses for Organic Compounds

No volatile organic compounds (EPA Test Method 8240) were detected in any of the ground-water samples. The following organics were detected at low levels in the sample from Well MW-2, located on the north side of the property:

- o TPH as diesel (1 part per million [ppm])
- o Semivolatile organic compounds (EPA Test Method 8270)
 - Fluorene (0.0060 ppm)
 - Bis (2 ethylhexyl) phthalate (0.0050 ppm)
 - 2-Methylnaphthalene (0.0061 ppm)
- o Organochlorine pesticides and PCBs (EPA Test Method 8080)
 - Heptachlor (0.00016 ppm)
 - 4,4'-DDD (0.00015 ppm)

Except for a trace of fluorene, none of these chemicals were detected in this well in the first quarter sampling round. TPH as gasoline, detected in the sample from this well in the first quarter at 0.30 ppm, was not detected during this sampling round with a detection limit of 0.5 ppm.

Low concentrations of endrin aldehyde and PCB 1260 were detected in the samples from Wells MW-1 and MW-5, located at the center of the eastern and western ends of the property, respectively. During the first sampling, the samples from wells MW-1, MW-3 and MW-5 were not analyzed for organochlorine pesticides. No other organic compounds were detected in any samples in this or the previous quarter.

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Results of Analyses for Metals

Seven priority pollutant metals were detected. Barium and zinc were detected in the samples from all five wells at concentrations ranging from 0.06 to 0.19 ppm for barium and 0.03 to 0.05 ppm for zinc. Barium levels were all slightly higher than those measured in first quarter sampling, and zinc concentrations were all slightly lower.

In addition to barium and zinc, nickel and cadmium were detected in MW-1; molybdenum in MW-2; cadmium in MW-3; copper and nickel in MW-4; and arsenic in MW-5. On the basis of HLA's experience in the Bay Area, these concentrations of these metals likely represent naturally occurring background conditions.

In the field blank sample, no detectable concentrations of any of the analytes were reported.

HLA anticipates conducting the third quarterly sampling in December 1989.

A copy of this report should be sent to the California Regional Water Quality Control Board, San Francisco Bay Region.

If you have any questions, please call.

Yours very truly,

HARDING LAWSON ASSOCIATES

Wayne D. Haydon

Wayne D. Haydon
Senior Geologist

Michael L. Siembieda

Michael L. Siembieda
Associate Geologist - RG 4007

Edd Clark

Edd Clark
Project Manager

WDH/MLS/jjh/D10572-H



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1600 63rd Street Associates
Mr. Richard K. Robbins
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cc: Mark Scher
Sheldon Barch
David Mishell
Dennis Byrne (Dept. of Health, Alameda Co.)

Attachments: Table 1 Ground-Water Elevations
Table 2 Ground-Water Sample Analysis Results
Plate 1 Site Map
Appendix - Laboratory Report

Table 1. Ground-Water Elevations
1600 63rd Street, Emeryville

LAST UPDATE 18-Oct-89

WELL	TOP OF CASING ELEVATION (FT MSL)*	DATE	DEPTH TO PRODUCT FROM TOP OF CASING (FT)	DEPTH TO WATER FROM TOP OF CASING (FT)	PRODUCT THICKNESS (FT)	PRODUCT LEVEL ELEVATION (FT MSL)	WATER LEVEL ELEVATION, CORR. FOR PRODUCT (FT MSL)	CHANGE IN WATER LEVEL ELEVATION (FT) (-)=DECLINE	NOTES
MW-1	15.12	03-Aug-89	NO PRODUCT	5.99	0.00	NO PRODUCT	9.13		
MW-2	14.43	03-Aug-89	NO PRODUCT	6.66	0.00	NO PRODUCT	7.77		
MW-3	15.90	03-Aug-89	NO PRODUCT	4.06	0.00	NO PRODUCT	11.84		
MW-4	14.04	03-Aug-89	NO PRODUCT	7.10	0.00	NO PRODUCT	6.94		
MW-5	15.21	03-Aug-89	NO PRODUCT	4.35	0.00	NO PRODUCT	10.86		
MW-1	15.12	21-Sep-89	NO PRODUCT	5.81	0.00	NO PRODUCT	9.31	0.18	SECOND QUARTERLY SAMPLING OF WELLS
MW-2	14.43	21-Sep-89	NO PRODUCT	6.32	0.00	NO PRODUCT	8.11	0.34	
MW-3	15.90	21-Sep-89	NO PRODUCT	3.77	0.00	NO PRODUCT	12.13	0.29	
MW-4	14.04	21-Sep-89	NO PRODUCT	6.90	0.00	NO PRODUCT	7.14	0.20	
MW-5	15.21	21-Sep-89	NO PRODUCT	4.38	0.00	NO PRODUCT	10.83	-0.03	
MW-1	15.12	20-Oct-89	NO PRODUCT	6.24	0.00	NO PRODUCT	8.88	-0.43	
MW-2	14.43	20-Oct-89	NO PRODUCT	6.78	0.00	NO PRODUCT	7.65	-0.46	
MW-3	15.90	20-Oct-89	NO PRODUCT	4.49	0.00	NO PRODUCT	11.41	-0.72	
MW-4	14.04	20-Oct-89	NO PRODUCT	6.95	0.00	NO PRODUCT	7.09	-0.05	
MW-5	15.21	20-Oct-89	NO PRODUCT	4.37	0.00	NO PRODUCT	10.84	0.01	

* FT MSL: Feet above mean sea level

Table 2. Ground-Water Sample Analyses Results
 1600 63rd Street, Emeryville
 Concentrations in mg/l (ppm)

Well	Sampling Date	Sampling Event	Benzene EPA 8240	Toluene EPA 8240	Ethyl- benzene EPA 8240	Xylenes EPA 8240	TPH (gasoline) EPA 8015/ 3510	TPH (diesel) EPA 8015/ 3510	TPH (kerosene) EPA 8015/ 3510	Barium EPA 6010	Copper EPA 6010
MW-1	18-Jun-89	INITIAL SAMPLING	<0.001	<0.001	<0.001	<0.001	<0.5	<0.5	<0.5	0.13	0.01
	21-Sep-89	2ND QTR SAMPLING	<0.005	<0.005	<0.005	<0.005	<0.5	<0.5	<0.5	0.15	<0.01
MW-2	25-Jun-89	INITIAL SAMPLING	<0.005	<0.005	<0.005	<0.005	0.30	<0.5	<0.5	0.12	<0.01
	21-Sep-89	2ND QTR SAMPLING	<0.005	<0.005	<0.005	<0.005	<0.5	1.0	<0.5	0.16	<0.01
MW-3	18-Jun-89	INITIAL SAMPLING	<0.001	<0.001	<0.001	<0.001	<0.5	<0.5	<0.5	0.06	0.01
	21-Sep-89	2ND QTR SAMPLING	<0.005	<0.005	<0.005	<0.005	<0.5	<0.5	<0.5	0.06	<0.01
MW-4	25-Jun-89	INITIAL SAMPLING	<0.005	<0.005	<0.005	<0.005	<0.05	<0.5	<0.5	0.17	0.02
	21-Sep-89	2ND QTR SAMPLING	<0.005	<0.005	<0.005	<0.005	<0.5	<0.5	<0.5	0.19	0.01
MW-5	30-Jun-89	INITIAL SAMPLING	<0.005	<0.005	<0.005	<0.005	<0.05	<0.5	<0.5	NT	<0.01
	21-Sep-89	2ND QTR SAMPLING	<0.005	<0.005	<0.005	<0.005	<0.5	<0.5	<0.5	0.15	<0.01
FIELD BLANK	30-Jun-89	INITIAL SAMPLING	<0.005	<0.005	<0.005	<0.005	<0.05	<0.5	<0.5	NT	<0.01
	21-Sep-89	2ND QTR SAMPLING	<0.005	<0.005	<0.005	<0.005	<0.5	<0.5	<0.5	<0.01	<0.01

NOTES

NT = Not tested
 All unlisted 8240 analytes not detected.
 All unlisted 8080 analytes not detected.
 All unlisted 8270 analytes not detected.
 All unlisted priority pollutant metals
 analytes not detected.

Table 2.(cont) 1600 63rd Street, Emeryville
 Ground-water Sample Analyses Results
 Concentrations in mg/l (ppm)

Well	Sampling Date	Sampling Event	Nickel EPA 6010	Zinc EPA 6010	Molybdenum EPA 6010	Arsenic EPA 6010	Cadmium EPA 6010	Aroclor EPA 8080	Endrin Aldehyde EPA 8080	PCB 1260 EPA 8080
MW-1	18-Jun-89	INITIAL SAMPLING	0.08	0.06	<0.01	<0.10	<0.01	<0.0005	NT	<0.0005
	21-Sep-89	2ND QTR SAMPLING	0.10	0.03	<0.01	<0.05	0.03	NT	0.00010	0.00050 ✓
MW-2	25-Jun-89	INITIAL SAMPLING	<0.01	0.07	<0.01	<0.10	<0.01	NT	NT	<0.0005
	21-Sep-89	2ND QTR SAMPLING	<0.01	0.05	0.02	<0.05	<0.01	NT	<0.00005	<0.0005
MW-3	18-Jun-89	INITIAL SAMPLING	<0.01	0.07	<0.01	<0.10	<0.01	<0.0005	NT	<0.0005
	21-Sep-89	2ND QTR SAMPLING	<0.01	0.05	<0.01	<0.05	0.03	NT	<0.00005	<0.0005
MW-4	25-Jun-89	INITIAL SAMPLING	<0.01	0.10	<0.01	<0.10	<0.01	NT	NT	<0.0005
	21-Sep-89	2ND QTR SAMPLING	0.01	0.04	<0.01	<0.05	<0.01	NT	<0.00005	<0.0005
MW-5	30-Jun-89	INITIAL SAMPLING	<0.01	0.09	NT	<0.10	<0.01	<0.0005	NT	<0.0005
	21-Sep-89	2ND QTR SAMPLING	<0.01	0.05	<0.01	0.10	<0.01	NT	0.00015	0.00090 ✓
FIELD BLANK	30-Jun-89	INITIAL SAMPLING	<0.01	<0.01	NT	<0.10	<0.01	<0.00005	NT	<0.00005
	21-Sep-89	2ND QTR SAMPLING	<0.01	<0.01	<0.01	<0.05	<0.01	NT	<0.00005	<0.00050

NOTES:

NT = Not tested

All unlisted 8240 analytes not detected.

All unlisted 8080 analytes not detected.

All unlisted 8270 analytes not detected.

All unlisted priority pollutant metals
 analytes not detected.

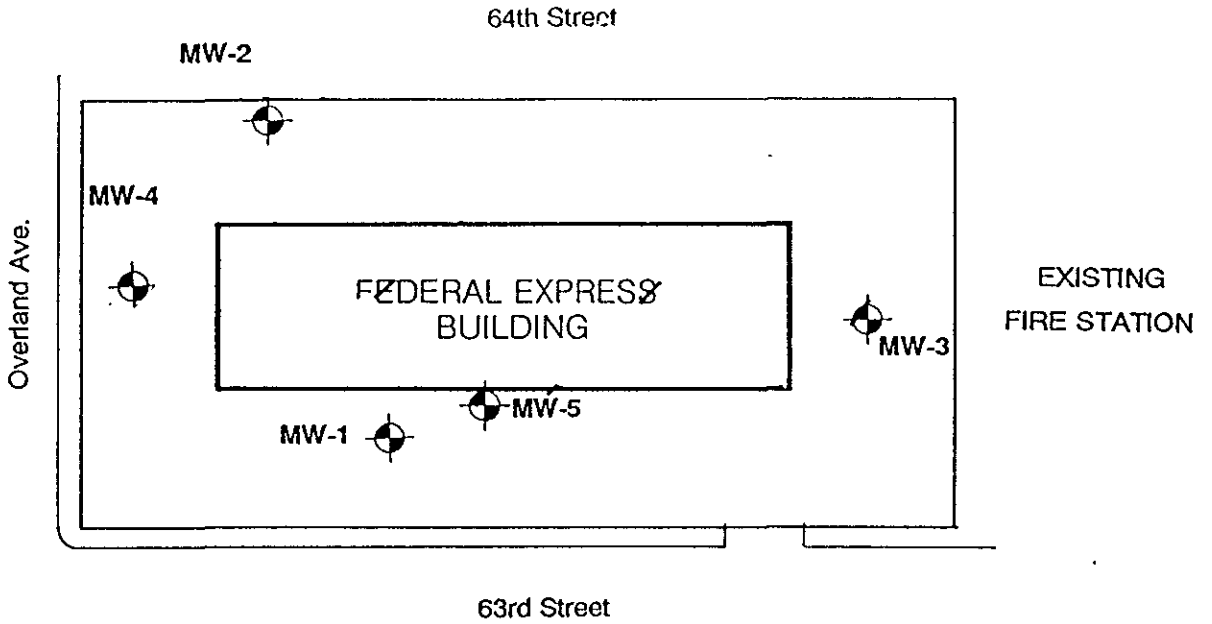
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Table 2.(cont.) 1600 63rd Street, Emeryville
 Ground-water Sample Analyses Results
 Concentrations in mg/l (ppm)

Well	Sampling Date	Sampling Event	Heptachlor EPA 8080	4,4'-DDD EPA 8080	Fluorene EPA 8270	Bis (2-ethyl- hexyl) phthalate EPA 8270	2-Methyl- naphthalene EPA 8270
MW-1	18-Jun-89	INITIAL SAMPLING	NT	NT	<0.005	<0.005	<0.005
	21-Sep-89	2ND QTR SAMPLING	<0.00005	<0.00005	<0.005	<0.005	<0.005
MW-2	25-Jun-89	INITIAL SAMPLING	<0.00005	NT	trace	<0.005	<0.005
	21-Sep-89	2ND QTR SAMPLING	0.00016	0.00015	0.0060	0.0050	0.0061
MW-3	18-Jun-89	INITIAL SAMPLING	NT	NT	<0.005	<0.005	<0.005
	21-Sep-89	2ND QTR SAMPLING	<0.00005	<0.00005	<0.005	<0.005	<0.005
MW-4	25-Jun-89	INITIAL SAMPLING	<0.00005	NT	<0.005	<0.005	<0.005
	21-Sep-89	2ND QTR SAMPLING	<0.00005	<0.00005	<0.005	<0.005	<0.005
MW-5	30-Jun-89	INITIAL SAMPLING	NT	NT	<0.005	<0.005	<0.005
	21-Sep-89	2ND QTR SAMPLING	<0.00005	<0.00005	<0.005	<0.005	<0.005
FIELD BLANK	30-Jun-89	INITIAL SAMPLING	NT	NT	<0.005	<0.005	<0.005
	21-Sep-89	2ND QTR SAMPLING	<0.00005	<0.00005	<0.005	<0.005	<0.005

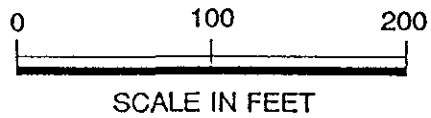
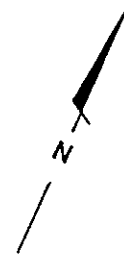
NOTES:

NT = Not tested
 All unlisted 8240 analytes not detected.
 All unlisted 8080 analytes not detected.
 All unlisted 8270 analytes not detected.
 All unlisted priority pollutant metals
 analytes not detected.



EXPLANATION

 MW-1 Monitoring Well



Harding Lawson Associates
Engineering and
Environmental Services

Site Plan
1600 63rd Street Association
Emeryville, California

PLATE

1

DRAWN EH	JOB NUMBER 18452,020.02	APPROVED	DATE 8/89	REVISED DATE
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Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 09/22/89
DATE REPORTED: 10/12/89
PAGE 1 OF 32

LAB NUMBER: 18333

CLIENT: HARDING LAWSON ASSOCIATES

REPORT ON: 6 WATER SAMPLES

JOB #: 18452 016 02
LOCATION: WAREHAM

RESULTS: SEE ATTACHED

M. E. Priester

QA/QC Officer
OB Spedman

Laboratory Director

LABORATORY NUMBER: 18333-1A
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092101

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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Title 22 Metals in Aqueous Solutions

METAL	RESULT mg/L	DETECTION LIMIT mg/L	METHOD
Antimony	ND	0.05	EPA 6010
Arsenic	ND	0.05	EPA 6010
Barium	0.15	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	0.03	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	ND	0.01	EPA 6010
Lead	ND	0.05	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	ND	0.01	EPA 6010
Nickel	0.10	0.01	EPA 6010
Selenium	ND	0.05	EPA 6010
Silver	ND	0.02	EPA 6010
Thallium	ND	0.10	EPA 7841
Vanadium	ND	0.02	EPA 6010
Zinc	0.03	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%RECOVERY		%RPD	%RECOVERY
Antimony	<1	103	Mercury	<1	78
Arsenic	4	103	Molybdenum	2	101
Barium	<1	105	Nickel	<1	113
Beryllium	<1	110	Selenium	22	97
Cadmium	2	105	Silver	5	113
Chromium	2	111	Thallium	7	105
Cobalt	<1	110	Vanadium	2	106
Copper	1	109	Zinc	1	115
Lead	9	106			

LABORATORY NUMBER: 18333-2A
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092102

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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Title 22 Metals in Aqueous Solutions

METAL	RESULT mg/L	DETECTION LIMIT mg/L	METHOD
Antimony	ND	0.05	EPA 6010
Arsenic	ND	0.05	EPA 7060
Barium	0.16	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	ND	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	ND	0.01	EPA 6010
Lead	ND	0.05	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	0.02	0.01	EPA 6010
Nickel	ND	0.01	EPA 6010
Selenium	ND	0.05	EPA 7740
Silver	ND	0.02	EPA 6010
Thallium	ND	0.10	EPA 7841
Vanadium	ND	0.02	EPA 6010
Zinc	0.05	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%RECOVERY		%RPD	%RECOVERY
Antimony	<1	103	Mercury	<1	78
Arsenic	4	103	Molybdenum	2	101
Barium	<1	105	Nickel	<1	113
Beryllium	<1	110	Selenium	22	97
Cadmium	2	105	Silver	5	113
Chromium	2	111	Thallium	7	105
Cobalt	<1	110	Vanadium	2	106
Copper	1	109	Zinc	1	115
Lead	9	106			

LABORATORY NUMBER: 18333-3A
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092103
mw-5

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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Title 22 Metals in Aqueous Solutions

METAL	RESULT	DETECTION LIMIT	METHOD
	mg/L	mg/L	
Antimony	ND	0.05	EPA 6010
Arsenic	0.10	0.05	EPA 7060
Barium	0.15	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	ND	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	ND	0.01	EPA 6010
Lead	ND	0.05	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	ND	0.01	EPA 6010
Nickel	ND	0.01	EPA 6010
Selenium	ND	0.05	EPA 6010
Silver	ND	0.02	EPA 6010
Thallium	ND	0.05	EPA 7841
Vanadium	ND	0.02	EPA 6010
Zinc	0.05	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%RECOVERY		%RPD	%RECOVERY
Antimony	<1	103	Mercury	<1	78
Arsenic	4	103	Molybdenum	2	101
Barium	<1	105	Nickel	<1	113
Beryllium	<1	110	Selenium	22	97
Cadmium	2	105	Silver	5	113
Chromium	2	111	Thallium	7	105
Cobalt	<1	110	Vanadium	2	106
Copper	1	109	Zinc	1	115
Lead	9	106			

LABORATORY NUMBER: 18333-4A
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092104

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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mw-4
 Title 22 Metals in Aqueous Solutions

METAL	RESULT mg/L	DETECTION LIMIT mg/L	METHOD
Antimony	ND	0.05	EPA 6010
Arsenic	ND	0.05	EPA 6010
Barium	0.19	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	ND	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	0.01	0.01	EPA 6010
Lead	ND	0.05	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	ND	0.01	EPA 6010
Nickel	0.01	0.01	EPA 6010
Selenium	ND	0.05	EPA 6010
Silver	ND	0.02	EPA 6010
Thallium	ND	0.05	EPA 7841
Vanadium	ND	0.02	EPA 6010
Zinc	0.04	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%RECOVERY		%RPD	%RECOVERY
Antimony	<1	103	Mercury	<1	78
Arsenic	4	103	Molybdenum	2	101
Barium	<1	105	Nickel	<1	113
Beryllium	<1	110	Selenium	22	97
Cadmium	2	105	Silver	5	113
Chromium	2	111	Thallium	7	105
Cobalt	<1	110	Vanadium	2	106
Copper	1	109	Zinc	1	115
Lead	9	106			

LABORATORY NUMBER: 18333-5A
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092105

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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Field Blank

Title 22 Metals in Aqueous Solutions

METAL	RESULT	DETECTION LIMIT	METHOD
	mg/L	mg/L	
Antimony	ND	0.05	EPA 6010
Arsenic	ND	0.05	EPA 6010
Barium	ND	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	ND	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	ND	0.01	EPA 6010
Lead	ND	0.05	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	ND	0.01	EPA 6010
Nickel	ND	0.01	EPA 6010
Selenium	ND	0.05	EPA 6010
Silver	ND	0.02	EPA 6010
Thallium	ND	0.05	EPA 7841
Vanadium	ND	0.02	EPA 6010
Zinc	ND	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%RECOVERY		%RPD	%RECOVERY
Antimony	<1	103	Mercury	<1	78
Arsenic	4	103	Molybdenum	2	101
Barium	<1	105	Nickel	<1	113
Beryllium	<1	110	Selenium	22	97
Cadmium	2	105	Silver	5	113
Chromium	2	111	Thallium	7	105
Cobalt	<1	110	Vanadium	2	106
Copper	1	109	Zinc	1	115
Lead	9	106			

LABORATORY NUMBER: 18333-6A
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092106
 mw-3

DATE RECEIVED: 09/22/89
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Title 22 Metals in Aqueous Solutions

METAL	RESULT mg/L	DETECTION LIMIT mg/L	METHOD
Antimony	ND	0.05	EPA 6010
Arsenic	ND	0.05	EPA 6010
Barium	0.06	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	0.03	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	ND	0.01	EPA 6010
Lead	ND	0.05	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	ND	0.01	EPA 6010
Nickel	ND	0.01	EPA 6010
Selenium	ND	0.05	EPA 7740
Silver	ND	0.02	EPA 6010
Thallium	ND	0.05	EPA 7841
Vanadium	ND	0.02	EPA 6010
Zinc	0.05	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%RECOVERY		%RPD	%RECOVERY
Antimony	<1	103	Mercury	<1	78
Arsenic	4	103	Molybdenum	2	101
Barium	<1	105	Nickel	<1	113
Beryllium	<1	110	Selenium	22	97
Cadmium	2	105	Silver	5	113
Chromium	2	111	Thallium	7	105
Cobalt	<1	110	Vanadium	2	106
Copper	1	109	Zinc	1	115
Lead	9	106			

LABORATORY NUMBER: 18333-1
 CLIENT: HARDING LAWSON ASSOCIATES
 SAMPLE ID: 89092101
 JOB #: 18452 016 02
 JOB NAME: WAREHAM

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 09/27/89
 DATE ANALYZED: 09/29/89
 DATE REPORTED: 10/12/89
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MW-1
 EPA 8080: Organochlorine Pesticides and PCBs in Water
 Extraction Method: EPA 3520

COMPOUND	Result (ug/L)	Detection Limit (ug/L)
alpha-BHC	ND	0.05
beta-BHC	ND	0.05
gamma-BHC	ND	0.05
delta-BHA	ND	0.05
Heptachlor	ND	0.05
Aldrin	ND	0.05
Heptachlor Epoxide	ND	0.05
Endosulfan I	ND	0.05
4,4'-DDE	ND	0.05
Dieldrin	ND	0.05
Endrin	ND	0.05
Endosulfan II	ND	0.05
Endosulfan Sulfate	ND	0.05
4,4'-DDD	ND	0.05
Endrin Aldehyde	0.10	0.05
4,4'-DDT	ND	0.05
Chlordane	ND	0.5
Toxaphene	ND	0.5
Methoxychlor	ND	0.5
PCB 1016	ND	0.5
PCB 1221	ND	0.5
PCB 1232	ND	0.5
PCB 1242	ND	0.5
PCB 1248	ND	0.5
PCB 1254	ND	0.5
PCB 1260	0.5	0.5

ND = Not detected. Limit of detection appears right column.

QA/QC:

Duplicate: Relative % Difference 11
 Average Spike Recovery % 137

LABORATORY NUMBER: 18333-2
 CLIENT: HARDING LAWSON ASSOCIATES
 SAMPLE ID: 89092102
 JOB #: 18452 016 02
 JOB NAME: WAREHAM

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 09/27/89
 DATE ANALYZED: 09/29/89
 DATE REPORTED: 10/12/89
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MW-2
 EPA 8080: Organochlorine Pesticides and PCBs in Water
 Extraction Method: EPA 3520

COMPOUND	Result (ug/L)	Detection Limit (ug/L)
alpha-BHC	ND	0.05
beta-BHC	ND	0.05
gamma-BHC	ND	0.05
delta-BHA	ND	0.05
Heptachlor	0.16	0.05
Aldrin	ND	0.05
Heptachlor Epoxide	ND	0.05
Endosulfan I	ND	0.05
4,4'-DDE	ND	0.05
Dieldrin	ND	0.05
Endrin	ND	0.05
Endosulfan II	ND	0.05
Endosulfan Sulfate	ND	0.05
4,4'-DDD	0.15	0.05
Endrin Aldehyde	ND	0.05
4,4'-DDT	ND	0.05
Chlordane	ND	0.5
Toxaphene	ND	0.5
Methoxychlor	ND	0.5
PCB 1016	ND	0.5
PCB 1221	ND	0.5
PCB 1232	ND	0.5
PCB 1242	ND	0.5
PCB 1248	ND	0.5
PCB 1254	ND	0.5
PCB 1260	ND	0.5

ND = Not detected. Limit of detection appears right column.

QA/QC:

Duplicate: Relative % Difference
 Average Spike Recovery %

11
 137

LABORATORY NUMBER: 18333-3
 CLIENT: HARDING LAWSON ASSOCIATES
 SAMPLE ID: 89092103
 JOB #: 18452 016 02
 JOB NAME: WAREHAM

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 09/27/89
 DATE ANALYZED: 09/29/89
 DATE REPORTED: 10/12/89
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EPA 8080: Organochlorine Pesticides and PCBs in Water
 Extraction Method: EPA 3520

COMPOUND	Result (ug/L)	Detection Limit (ug/L)
alpha-BHC	ND	0.05
beta-BHC	ND	0.05
gamma-BHC	ND	0.05
delta-BHA	ND	0.05
Heptachlor	ND	0.05
Aldrin	ND	0.05
Heptachlor Epoxide	ND	0.05
Endosulfan I	ND	0.05
4,4'-DDE	ND	0.05
Dieldrin	ND	0.05
Endrin	ND	0.05
Endosulfan II	ND	0.05
Endosulfan Sulfate	ND	0.05
4,4'-DDD	ND	0.05
Endrin Aldehyde	0.15	0.05
4,4'-DDT	ND	0.05
Chlordane	ND	0.5
Toxaphene	ND	0.5
Methoxychlor	ND	0.5
PCB 1016	ND	0.5
PCB 1221	ND	0.5
PCB 1232	ND	0.5
PCB 1242	ND	0.5
PCB 1248	ND	0.5
PCB 1254	ND	0.5
PCB 1260	0.9	0.5

ND = Not detected. Limit of detection appears right column.

QA/QC:

Duplicate: Relative % Difference
 Average Spike Recovery %

11
 137

LABORATORY NUMBER: 18333-4
 CLIENT: HARDING LAWSON ASSOCIATES
 SAMPLE ID: 89092104
 JOB #: 18452 016 02
 JOB NAME: WAREHAM

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 09/27/89
 DATE ANALYZED: 09/29/89
 DATE REPORTED: 10/12/89
 PAGE 11 OF 32

MW - 4
 EPA 8080: Organochlorine Pesticides and PCBs in Water
 Extraction Method: EPA 3520

COMPOUND	Result (ug/L)	Detection Limit (ug/L)
alpha-BHC	ND	0.05
beta-BHC	ND	0.05
gamma-BHC	ND	0.05
delta-BHA	ND	0.05
Heptachlor	ND	0.05
Aldrin	ND	0.05
Heptachlor Epoxide	ND	0.05
Endosulfan I	ND	0.05
4,4'-DDE	ND	0.05
Dieldrin	ND	0.05
Endrin	ND	0.05
Endosulfan II	ND	0.05
Endosulfan Sulfate	ND	0.05
4,4'-DDD	ND	0.05
Endrin Aldehyde	ND	0.05
4,4'-DDT	ND	0.05
Chlordane	ND	0.5
Toxaphene	ND	0.5
Methoxychlor	ND	0.5
PCB 1016	ND	0.5
PCB 1221	ND	0.5
PCB 1232	ND	0.5
PCB 1242	ND	0.5
PCB 1248	ND	0.5
PCB 1254	ND	0.5
PCB 1260	ND	0.5

ND = Not detected. Limit of detection appears right column.

QA/QC:

Duplicate: Relative % Difference
 Average Spike Recovery %

11
 137

LABORATORY NUMBER: 18333-5
 CLIENT: HARDING LAWSON ASSOCIATES
 SAMPLE ID: 89092105
 JOB #: 18452 016 02
 JOB NAME: WAREHAM

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 09/27/89
 DATE ANALYZED: 09/29/89
 DATE REPORTED: 10/12/89
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Field Blank

EPA 8080: Organochlorine Pesticides and PCBs in Water
 Extraction Method: EPA 3520

COMPOUND	Result (ug/L)	Detection Limit (ug/L)
alpha-BHC	ND	0.05
beta-BHC	ND	0.05
gamma-BHC	ND	0.05
delta-BHA	ND	0.05
Heptachlor	ND	0.05
Aldrin	ND	0.05
Heptachlor Epoxide	ND	0.05
Endosulfan I	ND	0.05
4,4'-DDE	ND	0.05
Dieldrin	ND	0.05
Endrin	ND	0.05
Endosulfan II	ND	0.05
Endosulfan Sulfate	ND	0.05
4,4'-DDD	ND	0.05
Endrin Aldehyde	ND	0.05
4,4'-DDT	ND	0.05
Chlordane	ND	0.5
Toxaphene	ND	0.5
Methoxychlor	ND	0.5
PCB 1016	ND	0.5
PCB 1221	ND	0.5
PCB 1232	ND	0.5
PCB 1242	ND	0.5
PCB 1248	ND	0.5
PCB 1254	ND	0.5
PCB 1260	ND	0.5

ND = Not detected. Limit of detection appears right column.

QA/QC:

Duplicate: Relative % Difference
 Average Spike Recovery %

11
 137

LABORATORY NUMBER: 18333-6
 CLIENT: HARDING LAWSON ASSOCIATES
 SAMPLE ID: 89092106
 JOB #: 18452 016 02
 JOB NAME: WAREHAM

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 09/27/89
 DATE ANALYZED: 09/29/89
 DATE REPORTED: 10/12/89
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MW-3

EPA 8080: Organochlorine Pesticides and PCBs in Water
 Extraction Method: EPA 3520

COMPOUND	Result (ug/L)	Detection Limit (ug/L)
alpha-BHC	ND	0.05
beta-BHC	ND	0.05
gamma-BHC	ND	0.05
delta-BHA	ND	0.05
Heptachlor	ND	0.05
Aldrin	ND	0.05
Heptachlor Epoxide	ND	0.05
Endosulfan I	ND	0.05
4,4'-DDE	ND	0.05
Dieldrin	ND	0.05
Endrin	ND	0.05
Endosulfan II	ND	0.05
Endosulfan Sulfate	ND	0.05
4,4'-DDD	ND	0.05
Endrin Aldehyde	ND	0.05
4,4'-DDT	ND	0.05
Chlordane	ND	0.5
Toxaphene	ND	0.5
Methoxychlor	ND	0.5
PCB 1016	ND	0.5
PCB 1221	ND	0.5
PCB 1232	ND	0.5
PCB 1242	ND	0.5
PCB 1248	ND	0.5
PCB 1254	ND	0.5
PCB 1260	ND	0.5

ND = Not detected. Limit of detection appears right column.

QA/QC:

Duplicate: Relative % Difference
 Average Spike Recovery %

11
 137

LABORATORY NUMBER: 18333-1
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092101

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/02/89
 DATE REPORTED: 10/12/89
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MW-1
 EPA METHOD 8240: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethylene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	103
Toluene-d8	100
Bromofluorobenzene	99

LABORATORY NUMBER: 18333-2
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092102

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/02/89
 DATE REPORTED: 10/12/89
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MW-2
 EPA METHOD 8240: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethylene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	101
Toluene-d8	99
Bromofluorobenzene	109

LABORATORY NUMBER: 18333-3
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092103

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/02/89
 DATE REPORTED: 10/12/89
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mw-5

EPA METHOD 8240: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethylene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	78
Toluene-d8	103
Bromofluorobenzene	96

LABORATORY NUMBER: 18333-4
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092104

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/02/89
 DATE REPORTED: 10/12/89
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MW-4

EPA METHOD 8240: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethylene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	86
Toluene-d8	89
Bromofluorobenzene	95

LABORATORY NUMBER: 18333-5
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092105

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/02/89
 DATE REPORTED: 10/12/89
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Field Blank

EPA METHOD 8240: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethylene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	87
Toluene-d8	95
Bromofluorobenzene	100

LABORATORY NUMBER: 18333-6
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092106

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/02/89
 DATE REPORTED: 10/12/89
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MW-3

EPA METHOD 8240: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethylene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	101
Toluene-d8	86
Bromofluorobenzene	105

LABORATORY NUMBER: 18333-1
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092101

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 10/03/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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mw-1
 EPA 8270: Base/Neutral and Acid Extractables in Water
 Extraction Method: EPA 3510

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	10
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	5
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 18333-1
 SAMPLE ID: 89092101

 EPA 8270
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 BASE/NEUTRAL COMPOUNDS *MW-1*

	RESULT ug/L	LOD ug/L
Azobenzene	ND	5
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Benzidine	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	10
Dibenzo (a,h) anthracene	ND	10
Benzo (g,h,i) perylene	ND	10

HSL COMPOUNDS

Aniline	ND	5
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroaniline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY:

2-Fluorophenol	39	Nitrobenzene-d5	59
Phenol-d5	34	2-Fluorobiphenyl	69
2,4,6-Tribromophen	56	Terphenyl-d14	62

LABORATORY NUMBER: 18333-2
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092102

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 10/03/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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MW-2
 EPA 8270: Base/Neutral and Acid Extractables in Water
 Extraction Method: EPA 3510

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	10
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	5
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	6.0	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 18333-2
 SAMPLE ID: 89092102

 EPA 8270
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mw-2

BASE/NEUTRAL COMPOUNDS

	RESULT ug/L	LOD ug/L
Azobenzene	ND	5
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	TRACE	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Benzidine	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	5.0	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	10
Dibenzo (a,h) anthracene	ND	10
Benzo (g,h,i) perylene	ND	10

HSL COMPOUNDS

Aniline	ND	5
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	6.1	5
2-Nitroaniline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY:

2-Fluorophenol	31	Nitrobenzene-d5	55
Phenol-d5	35	2-Fluorobiphenyl	53
2,4,6-Tribromophen	65	Terphenyl-d14	57

LABORATORY NUMBER: 18333-3
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092103

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 10/03/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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EPA 8270: Base/Neutral and Acid Extractables in Water
 Extraction Method: EPA 3510

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	10
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	5
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 18333-3
 SAMPLE ID: 89092103

 EPA 8270
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BASE/NEUTRAL COMPOUNDS

	RESULT ug/L	LOD ug/L
Azobenzene	ND	5
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Benzidine	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	10
Dibenzo (a,h) anthracene	ND	10
Benzo (g,h,i) perylene	ND	10

HSL COMPOUNDS

Aniline	ND	5
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroaniline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY:

2-Fluorophenol	34	Nitrobenzene-d5	46
Phenol-d5	30	2-Fluorobiphenyl	66
2,4,6-Tribromophenol	50	Terphenyl-d14	45

LABORATORY NUMBER: 18333-4
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092104

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 10/03/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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mw-1
 EPA 8270: Base/Neutral and Acid Extractables in Water
 Extraction Method: EPA 3510

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	10
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	5
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 18333~4
 SAMPLE ID: 89092104

 EPA 8270
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MW-4

BASE/NEUTRAL COMPOUNDS

	RESULT ug/L	LOD ug/L
Azobenzene	ND	5
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Benzidine	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	10
Dibenzo (a,h) anthracene	ND	10
Benzo (g,h,i) perylene	ND	10

HSL COMPOUNDS

Aniline	ND	5
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroaniline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY:

2-Fluorophenol	23	Nitrobenzene-d5	47
Phenol-d5	22	2-Fluorobiphenyl	68
2,4,6-Tribromophenol	31	Terphenyl-d14	41

LABORATORY NUMBER: 18333-5
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092105

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 10/03/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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Field Blank

EPA 8270: Base/Neutral and Acid Extractables in Water
 Extraction Method: EPA 3510

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	10
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	5
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 18333-5
 SAMPLE ID: 89092105

 EPA 8270
 PAGE 29 OF 32

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	LOD ug/L
Azobenzene	ND	5
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Benzidine	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	10
Dibenzo (a,h) anthracene	ND	10
Benzo (g,h,i) perylene	ND	10

HSL COMPOUNDS

Aniline	ND	5
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroaniline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY:

2-Fluorophenol	28	Nitrobenzene-d5	56
Phenol-d5	25	2-Fluorobiphenyl	85
2,4,6-Tribromophenol	43	Terphenyl-d14	57

LABORATORY NUMBER: 18333-6
 CLIENT: HARDING LAWSON ASSOCIATES
 JOB #: 18452 016 02
 JOB NAME: WAREHAM
 SAMPLE ID: 89092106

DATE RECEIVED: 09/22/89
 DATE EXTRACTED: 10/03/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
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EPA 8270: Base/Neutral and Acid Extractables in Water
 Extraction Method: EPA 3510

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	10
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	5
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 18333-6
 SAMPLE ID: 89092106

 EPA 8270
 PAGE 31 OF 32

BASE/NEUTRAL COMPOUNDS

	RESULT ug/L	LOD ug/L
Azobenzene	ND	5
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Benzidine	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	10
Dibenzo (a,h) anthracene	ND	10
Benzo (g,h,i) perylene	ND	10

HSL COMPOUNDS

Aniline	ND	5
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroaniline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY:

2-Fluorophenol	21	Nitrobenzene-d5	37
Phenol-d5	22	2-Fluorobiphenyl	56
2,4,6-Tribromophenol	34	Terphenyl-d14	36

LABORATORY NUMBER: 18333
 CLIENT: HARDING LAWSON ASSOCIATES
 PROJECT #: 18452 016 02
 LOCATION: WAREHAM

DATE RECEIVED: 09/22/89
 DATE ANALYZED: 10/04/89
 DATE REPORTED: 10/12/89
 PAGE 32 OF 32

Extractable Petroleum Hydrocarbons in Aqueous Solutions
 EPA 8015 (Modified)
 Extraction Method: EPA 3510

LAB ID	CLIENT ID	GASOLINE (mg/L)	KEROSENE (mg/L)	DIESEL (mg/L)	OTHER (mg/L)
18333-1	89092101 <i>mw-1</i>	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
18333-2	89092102 <i>mw-2</i>	ND(0.5)	ND(0.5)	1.0*	ND(0.5)
18333-3	89092103 <i>mw-5</i>	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
18333-4	89092104 <i>mw-4</i>	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
18333-5	89092105 <i>black</i>	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
18333-6	89092106 <i>mw-3</i>	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not Detected; Limit of detection in parentheses.

* = Fingerprint pattern does not match Hydrocarbon Standards.
 Quantitation based on area sum within C12 to C26 boiling range.

QA/QC SUMMARY

RPD, %	5
Spike: % Recovery	93



Harding Lawson Associates
 200 Rush Landing Road
 P.O. Box 6107
 Novato, California 94948
 415/892-0821
 Telecopy 415/892-1586

10000
CHAIN OF CUSTODY FORM

Lab: C+T

Job Number: 18452 016 02
 Name/Location: Wareham
 Project Manager: Ed Clark

Samplers: RM Carter
DM Evans
 Recorder: [Signature]
 (Signature Required)

ANALYSIS REQUESTED										
EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Piltint. Metals Filtered	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 8015	" 8080		
/	/	/	/	/	/	/	/	/	/	/

SOURCE CODE	MATRIX				#CONTAINERS & PRESERV.			SAMPLE NUMBER OR LAB NUMBER			DATE				STATION DESCRIPTION/ NOTES
	Water	Sediment	Soil	Oil	Unpres.	H ₂ SO ₄	HNO ₃	Yr	Wk	Seq	Yr	Mo	Dy	Time	
23	/				6	1		89	09	2101	89	09	211	550	
23	/				6	1		89	09	2102	89	09	211	650	
23	/				6	1		89	09	2103	89	09	211	720	
23	/				6	1		89	09	2104	89	09	211	735	
23	/				6	1		89	09	2105	89	09	211	750	
23	/				6	1		89	09	2106	89	09	211	810	

LAB NUMBER			DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
Yr	Wk	Seq				

CHAIN OF CUSTODY RECORD		
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)
	9/21/89 18:15	9/21/89 18:15
METHOD OF SHIPMENT		
In cooler w/ ice		