PORT OF OAKLAND

August 4, 1997

Ms. Madhulla Logan
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: Transmittal of Phase II Site Investigation Report for the Former Cryer Boat Yard - 1899 Dennison Street, Oakland

Dear Ms. Logan:

Enclosed please find the Port of Oakland's "Phase II Site Investigation" report for the former Cryer Boat Yard prepared by Shawnee Company, Inc. dated August 4, 1997. This report was prepared as required in your April 17, 1997 letter to me according to the Port's workplan transmitted to you on February 25, 1997 (as modified by your April 17, 1997 letter).

Regarding redevelopment of this property, you may be aware that the City and Port of Oakland are jointly funding preparation of an "Estuary Plan" to solicit stakeholder input into redevelopment of certain portions of the waterfront. Although my February 25, 1997 letter states that this site will continue to be used for industrial purposes, based on the draft conceptual plan for this area, the former Cryer Boat Yard property may be redeveloped as a park.

If you have any questions, please contact Rachel Hess (my replacement during my maternity leave) at 272-1134.

Sincerely,

Rachel Hess for

Diane Heinze, P.E.
Associate Environmental Scientist

enclosure
cc w/ encls: Michele Heffes, Port of Oakland
R. Allan Payne, Wendel, Rosen, Black & Dean
Steve Cowley, Steam Valve Machine Company, Inc.

cc w/out encls: Steve Hanson, Neil Werner and Mark O'Brien, Port of Oakland

530 Water Street ■ Jack London Square ■ P.O. Box 2064 ■ Oakland, California 94604-2064
Telephone (510) 272-1100 ■ Fax (510) 272-1172 ■ TDD (510) 763-5703 ■ Cable address, PORTOFOAK, Oakland
C:\RHESS\CRE\CRYERPH2.DOC

ENVIRONMENTAL
PROTECTION
97 AUG -5 PM 2:41

PHASE II SITE INVESTIGATION
CRYER BOAT YARD
(Port of Oakland owned portion of parcel only)
OAKLAND, CALIFORNIA

Prepared For

Port of Oakland
530 Water Street
Oakland, California

Prepared By

SHAWNEE COMPANY, INC.
Post Office Box 12517
Oakland, California 94604

August 4, 1997

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PHASE II SITE INVESTIGATION
Cryer Boat Yard
(Port of Oakland owned portion of parcel only)
Oakland, California

INTRODUCTION

The Port of Oakland (Port) retained Shawnee Company, Inc. (Shawnee) to undertake a Phase II Site Investigation on the Port owned portion of the former Cryer Boat Yard (Property) located at 1899 Dennison Street, in Oakland, California (Figure 1). The Port owns the portion of the parcel adjacent to the San Francisco bay waters. A boundary for the site is the Oakland Inner Harbor. The scope of the work consisted of drilling soil borings at five locations on the Property. The borings were hand augered until groundwater was encountered. At each boring location two soil samples and a grab groundwater sample were taken. The shallow soil samples were analyzed for copper, lead, mercury and the deeper soil samples were also analyzed for total petroleum hydrocarbons as diesel (TPH-d). The soil sample with the highest diesel concentration was analyzed for polynuclear aromatic hydrocarbons (PAHs). Based on the soil results, grab groundwater was analyzed at three locations. The water samples were analyzed for copper, lead, mercury, total dissolved solids, diesel, and PAHs. The purpose of the sampling and laboratory analysis was to respond to requirements from the Alameda County Health Care Services Agency (ACHCSA). This report describes activities undertaken for sample collection at the site and the results of the laboratory analysis.

BACKGROUND

In 1995 Clayton Environmental Consultants (Clayton) of Pleasanton, California conducted a soil investigation of the Property for the Port. The results of their soil sampling from eight locations are contained in Clayton's May 22, 1995 report, *Soil Investigation of Former Cryer Boat Yard*. Clayton's soil samples were analyzed for TPH-d and CAM 17 metals. Sample depths ranged from the surface to 4.0 feet below grade surface (bgs). It does not appear that silica gel cleanup was used prior to the TPH-d analysis. TPH-d results ranged from 18 to 530 mg/Kg. See Appendix A for a summary of Clayton's soil sample results.

The Port received a letter from ACHCSA dated January 25, 1997 indicating that ACHCSA had reviewed the Clayton report and expressed concerns that ACHCSA felt should be addressed. As a result of the ACHCSA concerns, Shawnee developed a workplan based upon the Clayton report and discussions with the Port. The workplan was submitted to ACHCSA for review and comment (Appendix B).

On April 21, 1997 the Port received a letter dated April 17, 1997 from Madhulla Logan, Hazardous Materials Specialist, for ACHCSA (Appendix C). In that letter, ACHCSA required that, for the five proposed borings:

- At least two samples be collected, one at six inches bgs and the other at a depth greater than three feet bgs. All soil samples would be analyzed for mercury, lead, and copper. The deeper samples would be analyzed for diesel. If diesel is found in any sample, the sample with the highest concentration of diesel would be analyzed for PAHs.

- Groundwater samples would be collect from at least three of the five borings. The borings would be selected based upon the concentrations of metals, diesel, and PAHs, if any, that are identified in the soil samples.

FIELD ACTIVITIES

Prior to field activities, the proposed boring locations were reviewed with and approved by the Port (Figure 2). The Port arranged to have water for decontamination and cleanup available at the adjacent Port marina parking lot.

Sampling

On May 1, 1997 initial sampling activities were undertaken at the site. All borings were hand augered because of the difficulty inherent in bringing in and using mechanized equipment; dry dock rails, abandoned equipment, scrap steel, wooden decking and debris are present on the Property.

Soil samples were collected in a California modified sampler (2-inch diameter) from each sample location at approximately six inches bgs and at three feet bgs. Hand augering continued until groundwater was encountered. A grab groundwater sample was collected using a disposable bailer. Also, one estuary water sample was taken from the Oakland Inner Harbor from the bridge leading to Coast Guard Island. At SB13 no groundwater was encountered after hand augering to a depth of 11 feet, the limits of the hand augering equipment. SB13 is a relatively high area on the Property, approximately the same elevation above the bay as Dennison Street.

Sample Location	Depth to water	Remarks
SB9	7 feet	Sand fill to 5 ft, bay mud to 7 ft
SB10	5 feet	Sand fill to 4 ft, bay mud to 5 ft, three augered locations required
SB11	7 feet	Gravel backfill to 2 ft, sand to 4 ft, bay mud to 7 ft.

Sample Location	Depth to water	Remarks
SB12	4 feet	Sand to 3 ft, bay mud to 4 ft
SB13	no water	Backfill to 8 feet, sandy fill to 11 ft - limit of hand auger equipment

Based upon analytical results for the soil samples collected on May 1, 1997 (Appendix D), Pace Analytical Services, Inc. of Petaluma (Pace) was instructed (Appendix E) to analyze the deeper soil sample at location SB12 (SB12-3.0) for PAHs. SB12-3.0 had the highest concentration of diesel (8,300 mg/Kg). Pace was instructed to analyze the grab groundwater samples at SB9, SB10, and SB12 for copper, lead, mercury, diesel, PAHs, and total dissolved solids (TDS). Finally, Pace was instructed to analyze the estuary water sample for copper, lead, mercury, and TDS.

These initial groundwater samples were not filtered prior to metal analysis. The laboratory results for these unfiltered samples are presented in Appendix H. On June 12th SB9, SB10, and SB12 were re-augered to obtain additional grab groundwater samples and obtain an additional 3 feet bgs soil sample at SB12. The laboratory filtered these subsequent grab groundwater samples and analyzed them for diesel (EPA Method 8015m using silica gel) and PAHs (EPA Method 8310). The subsequent soil sample was analyzed for PAHs using EPA Method 8310. Results for these June 12th samples are provided in Appendix F.

Decontamination

Decontamination procedures were identical for both days. At each sample location the sampling equipment was decontaminated using Alconox, a cleaning detergent, prior to any augering . The equipment was then rinsed with tap water.

Chain of Custody

After collection of soil and groundwater samples the sample containers were labeled and stored in a cooler containing blue ice. The Chain of Custody form was completed (Appendix G). At the end of the day, the samples were rechecked against the Chain of Custody form for accuracy. The following afternoon, the samples were picked up by Pace.

ANALYTICAL RESULTS

The Pace laboratory report for the analysis for metals and diesel in the soil samples are provided in Appendix D. A tabulations of the laboratory results are provided in Table 1 for the soil samples collected May 1, 1997.

TABLE 1

Cryer Boat Yard Soil Sample Results

mg/Kg

	Shallow Soil Samples				
Chemical	SB9-0.5	SB10-0.5	SB11-0.4	SB12-0.5	SB13-0.5
Hg (EPA 7471)	0.286	0.638	0.17	0.138	0.726
Pb (EPA 7421)	308	321	196	7.53	164
Cu (EPA 6010)	164	1130	95.6	49.4	136

	Deeper Soil Samples				
Chemical	SB9-3.0	SB10-3.0	SB11-3.0	SB12-3.0	SB13-3.0
Hg (EPA 7471)	0.0764	0.378	0.286	5.76	1.78
Pb (EPA 7421)	27.7	1740	1.96	513	138
Cu (EPA 6010)	108	1140	74.9	394	5250
TPH-d (8015m/sg)*	8.0	29	23	8300	7.7

* sg =silica gel

Figure 3 presents the soil sampling locations and soil sampling results for the Clayton and Shawnee investigations.

The deeper soil sample at SB12 had the highest concentration of diesel. Per the ACHCSA requirements, Pace was instructed to perform a PAH analysis on soil sample SB12-3.0. The Pace laboratory report using EPA 8310 for the SB12-3.0 soil sample taken on June 12, 1997 is provided in Appendix F. A tabulation of the laboratory results is provided in Table 2.

TABLE 2

POLYNUCLEAR AROMATIC HYDROCARBONS

Results in soil at SB12-3.0 (mg/Kg)

Date Sampled	6/12/97
Method	EPA 8310
Napthalene	<1.700
Acenaphtylene	<3.300
Acenaphthene	<1.700
Fluorene	1.600
Phenanthrene	8.700
Anthracene	<1.700
Fluoranthene	5.900
Pyrene	4.400
Benzo(a)anthracene	<1.700
Chrysene	<1.700
Benzo(a)Fluoranthene	<1.700
Benzo(k)Fluoranthene	<1.700
Benzo(a)pyrene	0.670
Dibenz(a,h)anthracene	<0.670
Benzo(g,h,i)perylene	<0.330
Indeno(1,2,3-cd)pyrene	<0.170
Total (with ND = 0)	21.27
Total (with ND = DL)	37.64

Pace analyzed the estuary water sample and grab groundwater samples SB9, SB10, and SB12 for total dissolved solids (TDS). The TDS concentrations are indicated in Table 3 below and the laboratory results are provided in Appendix H.

TABLE 3
TOTAL DISSOLVED SOLIDS

Sample ID	TDS (ug/L)
SB9	1340
SB10	1000
SB12	6980
Estuary	25100

Pace analyzed grab groundwater samples SB9, SB10, and SB12 for metals (Hg, Pb, and Cu), diesel, and PAHs. The laboratory results for the groundwater samples collected on June 12, 1997 are presented in Table 4 and the Pace report is provided in Appendix F.

TABLE 4

CRYER BOAT YARD
GROUNDWATER SAMPLE RESULTS

Samples Collected 6/12/97

ug/L

	Location		
Chemical	SB9	SB10	SB12
Hg (EPA 7470)	<0.2	<0.2	<0.2
Pb (EPA 7421)	<10	<10	<20
Cu (EPA 6010)	<10	<10	<10
Diesel (EPA 8015m/sg)	<100	<100	300
PAH (EPA 8310)			
Napthalene	<1	<1	<1
Acenaphtylene	<2	<2	<2
Acenaphthene	<1	<1	<1
Fluorene	<0.2	<0.2	<0.2
Phenanthrene	<0.1	<0.1	<0.1
Anthracene	<0.1	<0.1	<0.1
Fluoranthene	<0.1	<0.1	<0.1
Pyrene	<0.1	<0.1	<0.1
Benzo(a)anthracene	<0.1	<0.1	<0.1
Chrysene	<0.1	<0.1	<0.1
Benzo(a)Fluoranthene	<0.1	<0.1	<0.1
Benzo(k)Fluoranthene	<0.1	<0.1	<0.1
Benzo(a)pyrene	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	<0.4	<0.4	<0.4
Benzo(g,h,i)perylene	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	<0.1	<0.1	<0.1
Total	ND	ND	ND

Figure 4 presents the June 12th sampling locations and the filtered groundwater sampling results for metals and diesel.

CONCLUSIONS

- The scope of the investigation conducted by the Port responds to the requirements contained in the ACHCSA request.

- Based upon the spoils resulting from the hand augering, the Port portion of the property is covered mostly with sand and gravel backfill. Locations on the site contain unidentified obstructions below ground surface.

- Based upon the results from Clayton's 1995 and Shawnee's 1997 investigations, the highest concentrations of metals are generally found at the surface. Of the metals of concern to ACHCSA (copper, lead and mercury), the highest concentration of mercury was found at the surface in Clayton's SB7 boring (25 mg/Kg) - located near the end of the northern dry dock rail at the winch house.

  High concentrations of copper were found at or near SB7 (6,500 mg/Kg in SB7@surface and 5,250 mg/Kg in SB13@3.0). However, the highest concentration of copper was found at the surface near the southern dry dock rail (9,100 mg/Kg in SB2@surface).

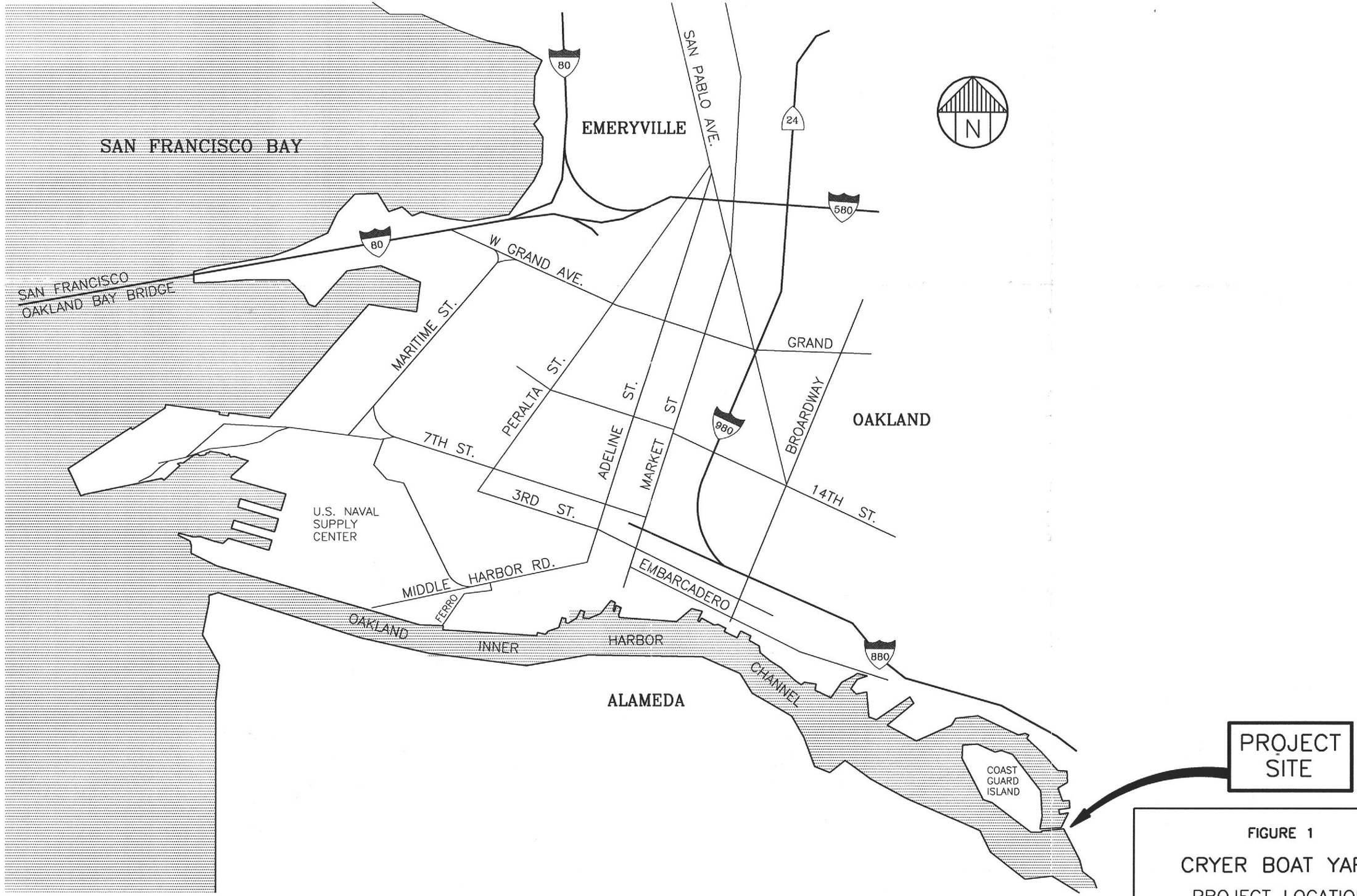
  Lead concentrations generally appear to decrease with depth, although the highest concentration of lead was detected south of the southern dry dock rail at a depth of three feet bgs (1,740 mg/Kg in SB10@3.0).

- Analysis of the SB12 soil sample at 3 feet bgs resulted in a TPH-diesel concentration of 8,300 mg/Kg and a total PAH of approximately 21 mg/Kg using EPA Method 8310 (assuming analytes less than detection limit equal to zero). Filtered grab groundwater at this location contained 300 ug/L diesel (EPA Method 8015m with silica gel) but no PAHs.

- Concentration of diesel in the soil samples from other borings (SB9, 10, 11, and 13) at 3.0 feet bgs ranged from 7.7 to 29 mg/Kg (EPA Method 8015m with silica gel). TPH diesel concentrations in the Clayton investigation (SB1 through SB8) ranged from 18 to 530 mg/Kg, although the Clayton soil samples probably did not undergo silica gel cleanup.

- Metals (Hg, Pb, and Cu) were not detected in the filtered grab groundwater samples.

- TPH diesel and PAHs in filtered grab groundwater samples for SB9 and SB10 were not detected when using EPA Method 8015m with silica gel and EPA Method 8310 respectively.



CRYR-LOC.DWG

FIGURE 1

CRYER BOAT YARD

PROJECT LOCATION

N

SCALE: 1"=40'

DENNISON STREET

12"SD

12"SD

12"SD

18"

15'

13'

SB-12

SB-13

15'

10'

SB-7

SB-5

SB-6

SHORE LINE

SB-8

SB-4

12'

SB-11

4'

SB-1

PROPERTY LINE

PORT OWNED

PRIVATELY OWNED

INNER HARBOR

SB-3

SB-2

SHORE LINE

SB-10

SB-9

19'

12'

12'

27"SD

27"SD

EMBARCADERO

LEGEND:

SB-2 CLAYTON SAMPLE POINT

SB-9 SHAWNEE SAMPLE POINT

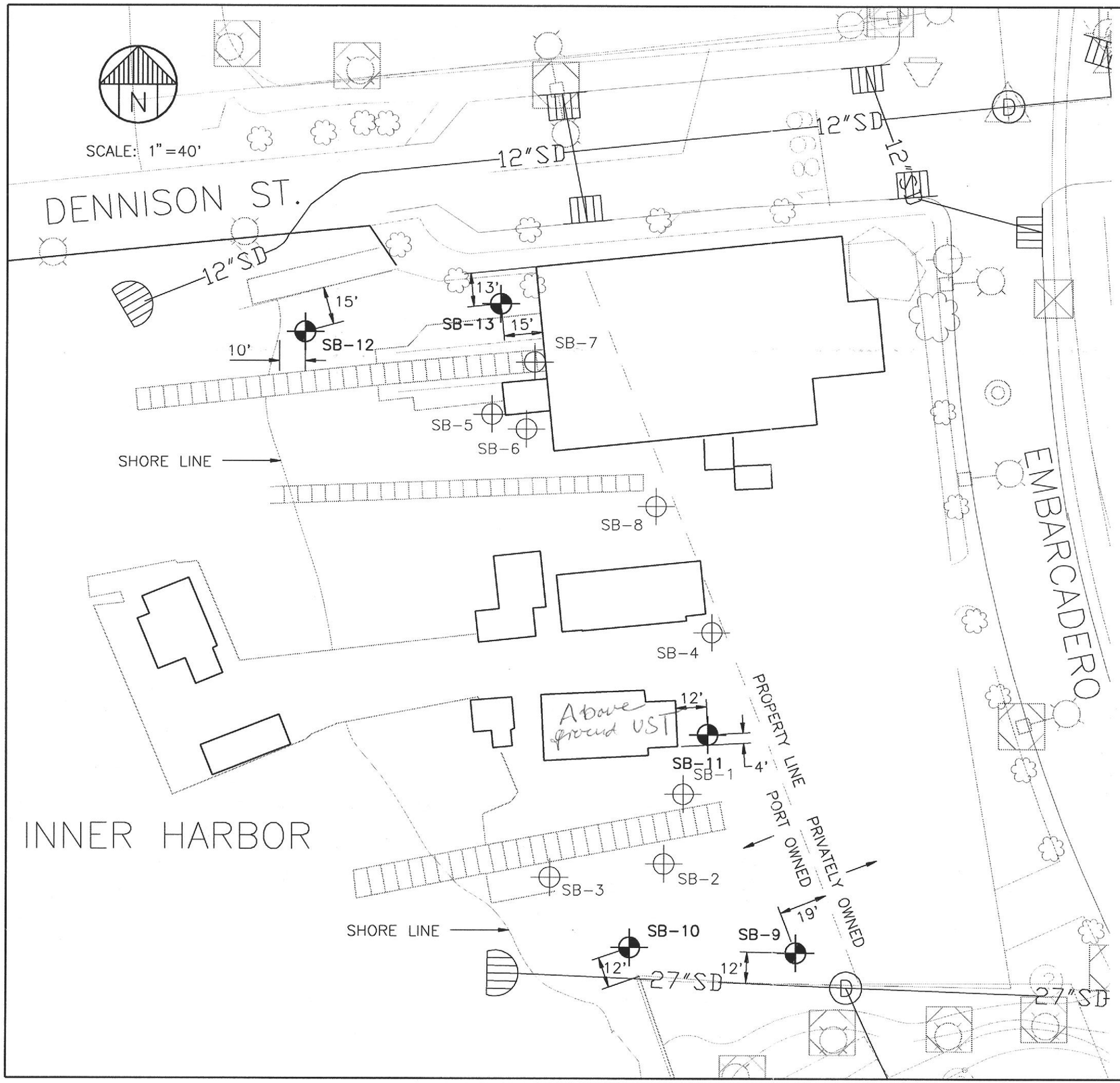
DRY DOCK RAIL

FIGURE 2

CRYER BOAT YARD

SAMPLING POINTS
SB-1 thru SB-13
(APPROXIMATE LOCATIONS)

SHAW-2.DWG



METALS AND DIESEL IN SOIL Units in mg/Kg				
SAMPLE ID	COPPER	LEAD	MERCURY	TPH-d
SB1 @ SURFACE	3900	530	2.3	
SB1 @ 2.5	49	29	<0.1	18
SB2 @ SURFACE	9100	230	2.1	
SB2 @ 2.5	110	59	0.1	18
SB3 @ SURFACE	3100	520	1.1	
SB3 @ 2.5	1300	300	0.5	460
SB4 @ 4	34	13	<0.1	24
SB5 @ 1.5	51	33	0.4	530
SB6 @ 1.5	1100	220	20	240
SB7 @ SURFACE	6500	720	25	360
SB8 @ 3.5	500	280	0.6	84
SB9 @ 0.5	**164**	**308**	**0.286**	
SB9 @ 3.0	**108**	**27.7**	**0.0764**	**8**
SB10 @ 0.5	**1130**	**321**	**0.638**	
SB10 @ 3.0	**1140**	**1740**	**0.378**	**29**
SB11 @ 0.4	**95.6**	**196**	**0.17**	
SB11 @ 3.0	**74.9**	**1.96**	**0.286**	**23**
SB12 @ 0.5	**49.4**	**7.53**	**0.138**	
SB12 @ 3.0	**394**	**513**	**5.76**	**8300**
SB13 @ 0.5	**136**	**164**	**0.726**	
SB13 @ 3.0	**5250**	**138**	**1.78**	**7.7**

NOTES:

1. COPPER (EPA 6010)
2. LEAD SAMPLE POINTS SB1-SB8 (EPA 6010)
   SAMPLE POINTS SB9-SB13 (EPA 7421)
3. MERCURY (EPA 7471)
4. TOTAL PETROLEUM HYDROCARBONS AS DIESEL (TPH-d)
   SAMPLE POINTS SB1-SB8 (EPA 8015m)
   SAMPLE POINTS SB9-SB13 (EPA 8015m/silica gel)
5. BLANK = NOT ANALYZED
6. FOR SB12 @ 3.0 TOTAL PAH=21.27 ASSUMING ND=0 (SOIL SAMPLED 6-12-97)

LEGEND:

SB-2 CLAYTON SAMPLE POINT (SAMPLED 3-30-95)

SB-9 SHAWNEE SAMPLE POINT (SAMPLED 5-1-97)

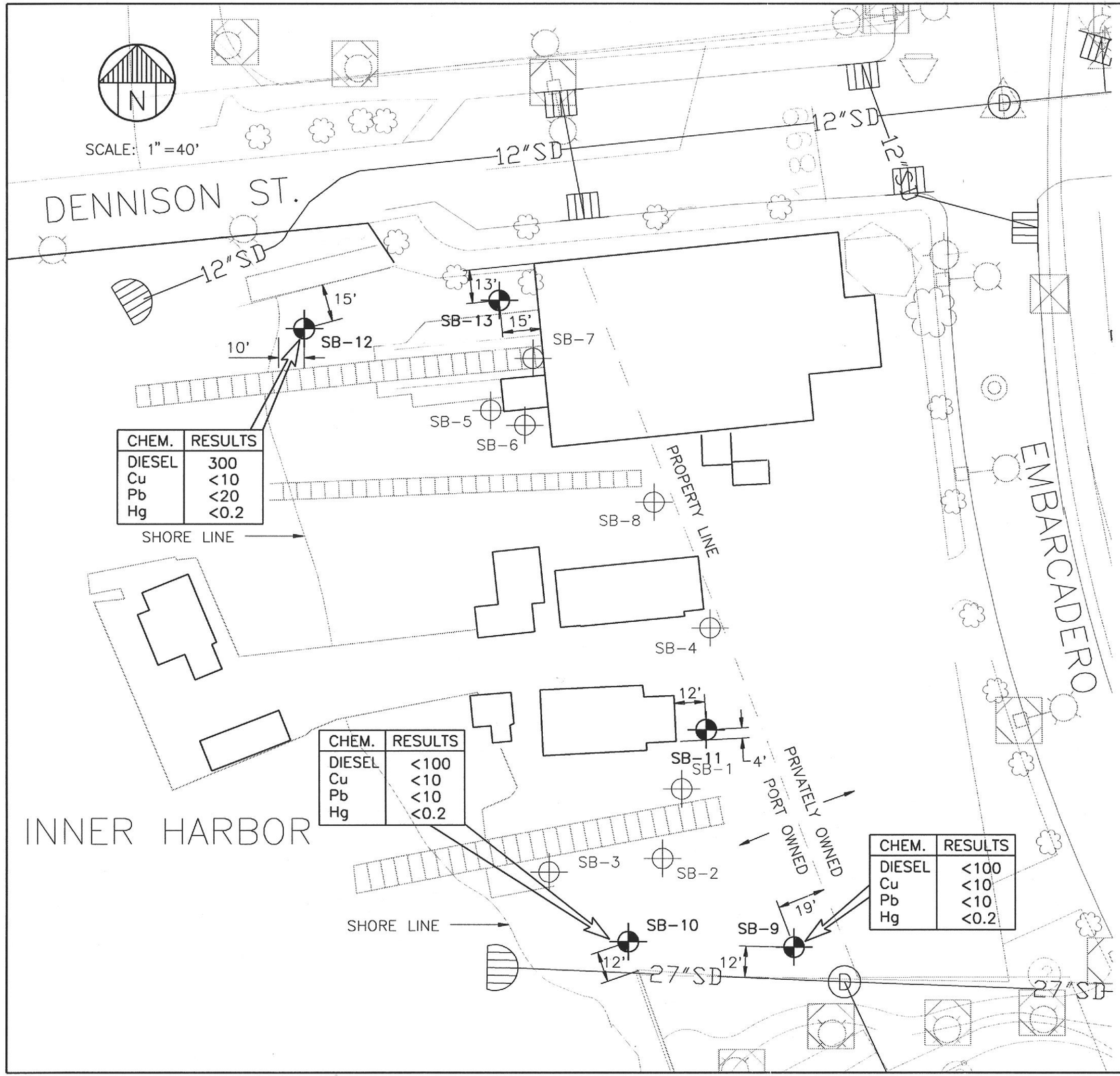
DRY DOCK RAIL

FIGURE 3

CRYER BOAT YARD

SOIL SAMPLING RESULTS

SHAW-3.DWG



NOTES:

1. RESULTS IN ug/L
2. DIESEL (EPA 8015 WITH SILICA GEL)
3. Cu (EPA 6010)
4. Pb (EPA 7421)
5. Hg (EPA 7470)
6. PAH (EPA 8310) WERE ND ALL THREE LOCATIONS
7. SAMPLES TAKEN ON 6-12-97
8. ALL SAMPLES FILTERED BY LABORATORY

LEGEND:

SB-2 CLAYTON SAMPLE POINT

SB-9 SHAWNEE SAMPLE POINT

DRY DOCK RAIL

FIGURE 4

CRYER BOAT YARD

GROUNDWATER SAMPLING RESULTS

SHAW-4.DWG

APPENDIX A
SUMMARY OF CLAYTON'S ANALYTICAL RESULTS

Summary of Analytical Results

Sample ID	Depth (feet)	TPH-D	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SB-1@S	Surface	-	9	10	190	0.2	5.5	280	32	3,900	530	2.3	5	110	<1	<0.5	5	45	1,600
SB-1@2.5	2.5	18	3	<1	110	0.3	<0.5	54	11	49	29	<0.1	<1	50	<1	<0.5	<1	39	93
SB-2@S	Surface	-	6	6	280	0.5	2.1	150	42	9,100	230	2.1	3	87	<1	<0.5	9	73	1,200
SB-2@2.5	2.5	18	3	<1	61	0.2	<0.5	47	10	110	59	0.1	1	30	<1	<0.5	<1	37	120
SB-3@S	Surface	-	24	5	170	0.2	2.6	410	27	3,100	520	1.1	2	140	<1	<0.5	4	39	1,700
SB-3@2.5	2.5	460	14	6	130	0.1	0.6	94	16	1,300	300	0.5	<1	58	<1	<0.5	<1	37	520
SB-4@4	4	24	2	<1	160	0.4	<0.5	59	8	34	13	<0.1	<1	67	<1	<0.5	<1	37	69
SB-5@1.5	1.5	530	3	2	24	<0.1	<0.5	26	6	51	33	0.4	<1	20	<1	<0.5	<1	25	220
SB-6@1.5	1.5	240	12	14	75	<0.1	1.5	16	12	1,100	220	20	<1	45	<1	<0.5	<1	18	780
SB-7@S	Surface	360	12	26	66	<0.1	7.5	240	9	6,500	720	25	2	29	<1	<0.5	<1	9	1,300
SB-8@3.5	3.5	84	14	5	99	0.2	<0.5	48	13	500	280	0.6	<1	79	<1	<0.5	<1	48	200

Concentrations are in miligrams per kilogram
- = Not analyzed

Samples collected March 1995

Clayton
ENVIRONMENTAL
CONSULTANTS

APPENDIX B
WORKPLAN SUBMISSION TO ACHCSA

PORT OF OAKLAND

February 25, 1997

Ms. Madhulla Logan
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, 2nd floor
Alameda, CA 94502

Subject: **Transmittal of Workplan for Former Cryer Boat Yard - 1899 Dennison Street, Oakland**

Dear Ms. Logan:

Enclosed please find the Port's proposed workplan for additional subsurface investigation at the former Cryer Boat Yard located at 1899 Dennison Street in Oakland. This workplan was prepared as required in your January 25, 1997 letter to me. Also enclosed find a copy of the Phase I report conducted in January 1995 as you requested. Lastly, I have also requested that the Port submit a check to the County of $1,500.00 to establish a deposit-refund account.

Note that access to the Port's property is via the Steam Valve property. The Port is currently working on an agreement with Steam Valve to allow Port access to its property. We anticipate that a letter report documenting our consultant's results can be available six weeks after we receive approval of the workplan and access to Port property.

I would like to point out the difficulty of obtaining representative groundwater samples since the site is immediately adjacent to the Oakland Estuary. Consequently, the workplan does not recommend grab groundwater sampling unless specifically required by you. Also, your letter compares metals concentrations in the soil to Region 9 Residential Preliminary Remediation Goals (PRGs). This site has been and will continue to be used for industrial purposes. Therefore, metals concentrations in the soil should be compared to Industrial PRGs.

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

Please call me at 510-272-1467 if you have any questions.

Sincerely,

Diane Heinze, P.E.
Associate Environmental Scientist

enclosures: Shawnee workplan
Clayton Environmental Consultants January 1995 Phase I report

cc: w/ workplan: Steve Cowley, Steam Valve Machine Company

cc: w/out encls:

Michele Heffes
Carter Stroud
Neil Werner
Mark O'Brien
Steve Hanson
Art Chen, Shawnee Company, Inc.

APPENDIX C
INVESTIGATION REQUIREMENTS FROM ACHCSA

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
(510) 337-9335 (FAX)

April 17, 1997
STID 205
Ms. Diane Heinze
Port of Oakland
530 Water Street
Oakland, CA - 94604

Ref: Former Cryer Boat Yard. Port of Oakland, 1899 Dennison Street, Oakland, CA

Dear Ms. Heinze:

I am in receipt of the report "Transmittal of Work plan for Former Cryer Boat Yard" prepared by Clayton Environmental Consultants for the above referenced site. Based on the review conducted by this Department, the Work plan is acceptable with the following changes:

- At least two samples should be collected from each of the boring at six inches below ground surface (bgs) and at a depth greater than three feet bgs. All the 10 samples (at a minimum) should be analyzed for mercury, lead and copper. Also, the deeper samples should be analyzed for diesel. If diesel is found in any of the samples, then the sample with the highest concentration of diesel should be analyzed for PNA's.

- A groundwater sample should be collected from at least three of the five borings. The borings should be chosen based on the concentration of metals, diesel and PNA's, if any, that are identified in the soil samples.

The Work plan should be implemented within 30 days of receiving this letter. Please be advised that this is a formal request for investigation pursuant to California Water Code Section 13267 (b) and Health and Safety Code Section 25185.6 and any delays should be requested in writing. If you have any questions, you may reach me at (510) 567-6764.

PORT OF OAKLAND
ENVIRONMENTAL DIVISION
APR 21 1997
RECEIVED
ENVIRONMENTAL DIVISION

Sincerely,

Madhulla Logan

Madhulla Logan
Hazardous Material Specialist

C: **Sum Arigala,** San Francisco Regional Water Quality Control Board, Oakland, CA

APPENDIX D
PACE LABORATORY RESULTS - SOIL SAMPLES
Collected 5/1/97

Pace Analytical Services, Inc.
1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

DATE: 05/15/97
PAGE: 1

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (520)748-9362

Solid results are reported on a wet weight basis

Pace Sample No: 70959028 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB10-0.5 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	1130	mg/kg	0.943	05/07/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	321	mg/kg	23.6	05/09/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	0.638	mg/kg	0.0204	05/07/97	GLG	7439-97-6	

REPORT OF LABORATORY ANALYSIS

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Fax: 707-792-0342

Pace Analytical

Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70959036 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB10-3.0 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	1140	mg/kg	0.99	05/07/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	1740	mg/kg	47.6	05/09/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	0.378	mg/kg	0.0217	05/07/97	GLG	7439-97-6	
GC -- Semi-VOA							
TPH by 8015M w/ silica gel	Method: EPA 8015M w/ SG				Prep Method: CA LUFT		
Diesel Fuel	29	mg/kg	5	05/07/97	JMH	11-84-7	1
n-Pentacosane (S)	38	%		05/07/97	JMH	629-99-2	
Date Extracted				05/06/97			

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Pace Analytical

Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70959044 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB9-0.5 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	164	mg/kg	0.935	05/07/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	308	mg/kg	23.8	05/09/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	0.286	mg/kg	0.0196	05/07/97	GLG	7439-97-6	

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Pace Analytical

Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70959051 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB9-3.0 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	108	mg/kg	0.98	05/07/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	27.7	mg/kg	2.31	05/09/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	0.0764	mg/kg	0.0225	05/07/97	GLG	7439-97-6	
GC -- Semi-VOA							
TPH by 8015M w/ silica gel	Method: EPA 8015M w/ SG				Prep Method: CA LUFT		
Diesel Fuel	8.0	mg/kg	5	05/07/97	JMH	11-84-7	1
n-Pentacosane (S)	29	%		05/07/97	JMH	629-99-2	
Date Extracted				05/06/97			

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Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70959085 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB11-0.4 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	95.6	mg/kg	1	05/07/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	196	mg/kg	24.3	05/09/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	0.17	mg/kg	0.0213	05/07/97	GLG	7439-97-6	

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Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70959093 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB11-3.0 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	74.9	mg/kg	0.99	05/07/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	1.96	mg/kg	0.463	05/08/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	0.286	mg/kg	0.024	05/07/97	GLG	7439-97-6	
GC -- Semi-VOA							
TPH by 8015M w/ silica gel	Method: EPA 8015M w/ SG				Prep Method: CA LUFT		
Diesel Fuel	23	mg/kg	5	05/08/97	JMH	11-84-7	2
n-Pentacosane (S)	53	%		05/08/97	JMH	629-99-2	
Date Extracted				05/06/97			

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Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70959101 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB12-0.5 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	49.4	mg/kg	0.98	05/07/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	7.53	mg/kg	0.476	05/08/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	0.138	mg/kg	0.0191	05/07/97	GLG	7439-97-6	

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Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70959119 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB12-3.0 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	394	mg/kg	1	05/07/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	513	mg/kg	47.2	05/09/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	5.76	mg/kg	0.102	05/07/97	GLG	7439-97-6	
GC -- Semi-VOA							
TPH by 8015M w/ silica gel	Method: EPA 8015M w/ SG				Prep Method: CA LUFT		
Diesel Fuel	8300	mg/kg	500	05/08/97	JMH	11-84-7	2
n-Pentacosane (S)	0	%		05/08/97	JMH	629-99-2	3
Date Extracted				05/06/97			

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Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70959127 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB13-0.5 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	136	mg/kg	0.971	05/07/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	+ 164	mg/kg	23.1	05/09/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	0.726	mg/kg	0.0231	05/07/97	GLG	7439-97-6	

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Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70959135 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB13-3.0 Date Received: 05/02/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3050		
Copper	5250	mg/kg	9.9	05/08/97	ADMM	7440-50-8	
Date Digested				05/07/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3050		
Lead	138	mg/kg	12	05/09/97	LMD	7439-92-1	
Date Digested				05/05/97			
Mercury, CVAAS	Method: EPA 7471				Prep Method: EPA 7471		
Mercury	1.78	mg/kg	0.023	05/07/97	GLG	7439-97-6	
GC -- Semi-VOA							
TPH by 8015M w/ silica gel	Method: EPA 8015M w/ SG				Prep Method: CA LUFT		
Diesel Fuel	7.7	mg/kg	5	05/08/97	JMH	11-84-7	1
n-Pentacosane (S)	55	%		05/08/97	JMH	629-99-2	
Date Extracted				05/06/97			

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Pace Analytical

Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
(S)	Surrogate
[1]	Hydrocarbon pattern present does not resemble requested fuel standard. Pattern more closely resembles motor oil, quantitation was based on requested hydrocarbon.
[2]	High-boiling point fuel-hydrocarbons are present above C23 range.
[3]	Spike and/or surrogate recoveries could not be calculated due to sample dilution.

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Pace Analytical

QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (520)748-9362

QC Batch ID: 23433
QC Batch Method: EPA 7471
Analysis Method: EPA 7471
Analysis Description: Mercury, CVAAS
Associated Pace Samples: 70959028 70959036 70959044 70959051 70959085 70959093 70959101 70959119 70959127 70959135

METHOD BLANK: 70959663
Associated Pace Samples: 70959028 70959036 70959044 70959051 70959085 70959093 70959101 70959119 70959127 70959135

Parameter	Units	Method Blank Result	PRL	Footnotes
Mercury	mg/kg	ND	0.025	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70959697 70959705

Parameter	Units	70959028	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Mercury	mg/kg	0.6382	0.18	0.9166	151	0.7941	82.8	58	1

LABORATORY CONTROL SAMPLE & LCSD: 70959671 70959689

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Mercury	mg/kg	0.20	0.2100	105	0.2100	105	0	

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QUALITY CONTROL DATA

DATE: 05/15/97
PAGE: 13

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (520)748-9362

QC Batch ID: 23435
QC Batch Method: EPA 3050
Analysis Method: EPA 7421
Analysis Description: Lead, AAS Furnace
Associated Pace Samples: 70959028 70959036 70959044 70959051 70959085 70959093 70959101 70959119 70959127 70959135

METHOD BLANK: 70959762
Associated Pace Samples: 70959028 70959036 70959044 70959051 70959085 70959093 70959101 70959119 70959127 70959135

Parameter	Units	Method Blank Result	PRL	Footnotes
Lead	mg/kg	ND	0.5	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70959796 70959804

Parameter	Units	70954490	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Lead	mg/kg	9795	3.8	8346	-38000	8580	-31300	19	2

LABORATORY CONTROL SAMPLE & LCSD: 70959770 70959788

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Lead	mg/kg	4.0	3.817	95.4	3.714	92.9	3	

LABORATORY CONTROL SAMPLE & LCSD: 70967955 70967963

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes

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QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (520)748-9362

QC Batch ID: 23462
QC Batch Method: EPA 3050
Analysis Method: EPA 6010
Analysis Description: Metals, ICP
Associated Pace Samples: 70959028 70959036 70959044 70959051 70959085 70959093 70959101 70959119 70959127 70959135

METHOD BLANK: 70960687
Associated Pace Samples: 70959028 70959036 70959044 70959051 70959085 70959093 70959101 70959119 70959127 70959135

Parameter	Units	Method Blank Result	PRL	Footnotes
Copper	mg/kg	ND	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70960836 70960844

Parameter	Units	70959028	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Copper	mg/kg	1131	95.24	1283	159	1457	336	71	3

LABORATORY CONTROL SAMPLE & LCSD: 70960810 70960828

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Copper	mg/kg	100	95.17	95.2	95.90	95.9	1	

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QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (520)748-9362

QC Batch ID: 23467
QC Batch Method: CA LUFT
Analysis Method: EPA 8015M w/ SG
Analysis Description: TPH by 8015M w/ silica gel
Associated Pace Samples: 70959036 70959051 70959093 70959119 70959135

METHOD BLANK: 70960968
Associated Pace Samples:
70959036 70959051 70959093 70959119 70959135

Parameter	Units	Method Blank Result	PRL	Footnotes
Diesel Fuel	mg/kg	ND	5	
n-Pentacosane (S)	%	82		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70960976 70960984

Parameter	Units	70959036	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/kg	28.86	33.33	6.420	-67.3	28.41	-1.40	192	4
n-Pentacosane (S)					14		71		5

LABORATORY CONTROL SAMPLE & LCSD: 70960992 70961008

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/kg	33.33	18.70	56.1	15.43	46.3	19	
n-Pentacosane (S)				79		61		

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Pace Project Number: 708258
Client Project ID: Former Cryer Boat Yard/202995

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
RPD	Relative Percent Difference
(S)	Surrogate
[1]	The spike recovery was outside acceptance limits for the MS due to non-homogeneity in the sample. The LCS and LCSD results were within acceptance limits showing the method is in control and data are acceptable.
[2]	Due to high analyte concentration the matrix spike and/or matrix spike duplicate do not provide reliable % Recovery and RPD values. Sample results for this QC batch were accepted based on LCS/LCSD % Recovery and/or RPD values.
[3]	Due to high analyte concentration and noted non homogeneity of the QC matrix, the MS/MSD did not provide reliable results for accuracy and precision. Sample results for this QC batch were accepted based on LCS/LCSD percent recoveries and RPD values.
[4]	Due to high analyte concentration the matrix spike and/or matrix spike duplicate do not provide reliable % Recovery and RPD values. Sample results for this QC batch were accepted based on LCS/LCSD % Recovery and/or RPD values.
[5]	The surrogate and/or spike recovery was outside acceptance limits.

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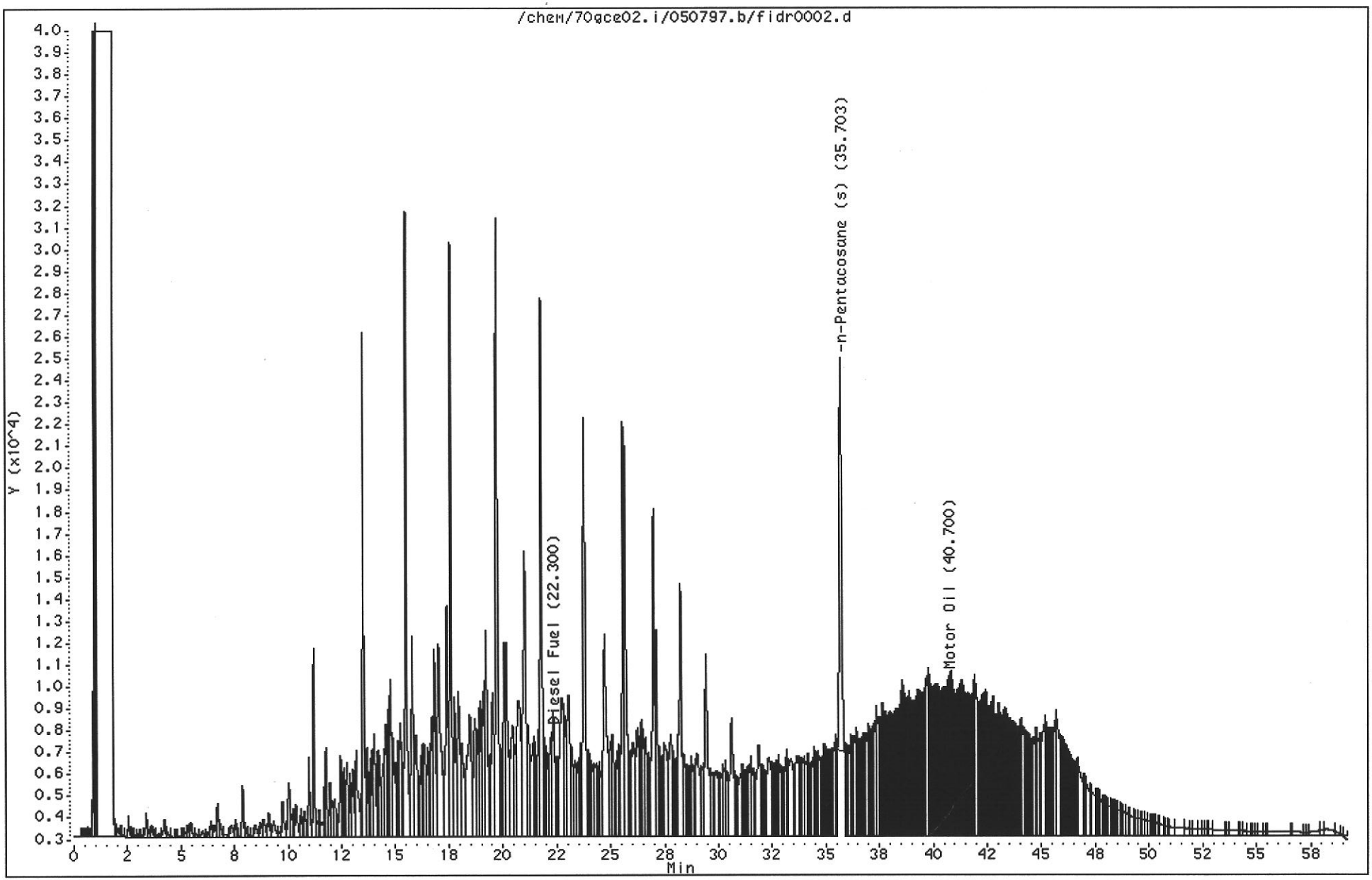
Data File: /chem/70gce02.i/050797.b/fidr0002.d
Date : 07-MAY-1997 18:39
Client ID: SSTD2500
Lab Sample ID: SSTD2500D

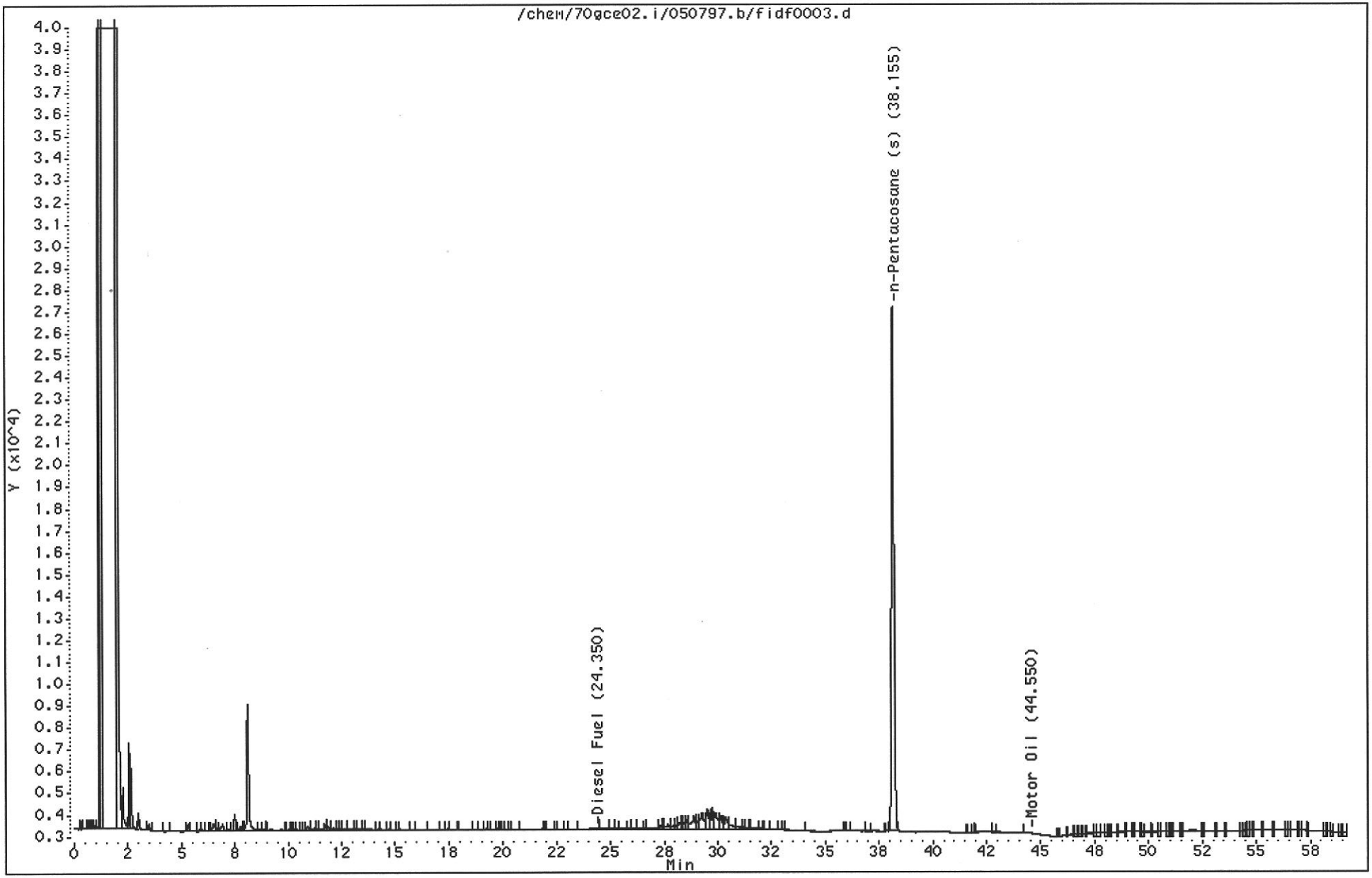
Column phase: J&W DB-1

Instrument: 70gce02.i
Misc Info: SSTD2500D,,,,,
Operator: JMH
Column diameter: 0.53



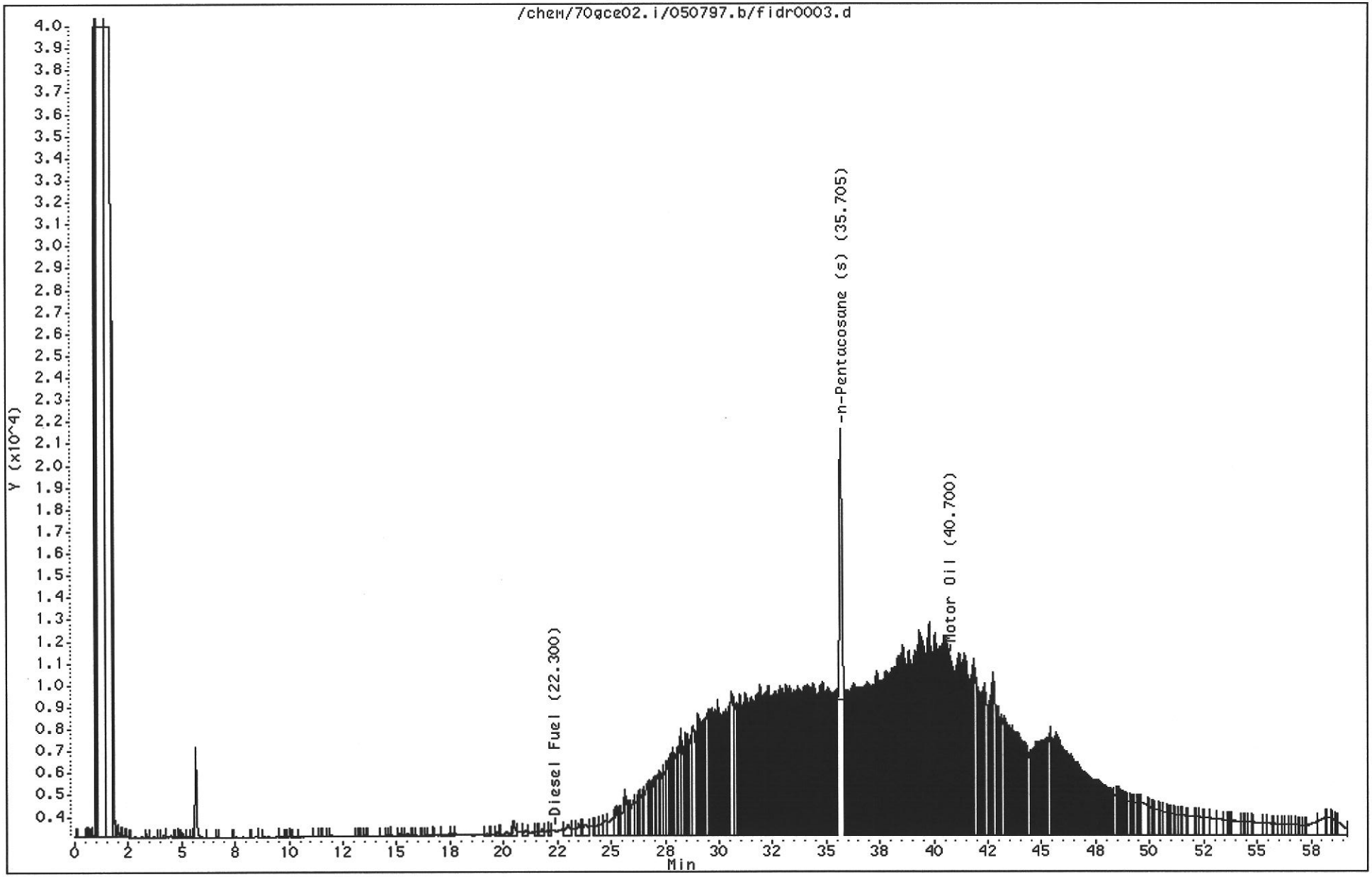
Data File: /chem/70gce02.i/050797.b/fidf0003.d
Date : 07-MAY-1997 19:46
Client ID: SBLKD1
Lab Sample ID: 70960968
Volume Injected (uL): 1.0
Column phase: RESTEK XTI-5

Instrument: 70gce02.i
Misc Info: 70960968,1,23467,,,
Operator: JMH
Column diameter: 0.53



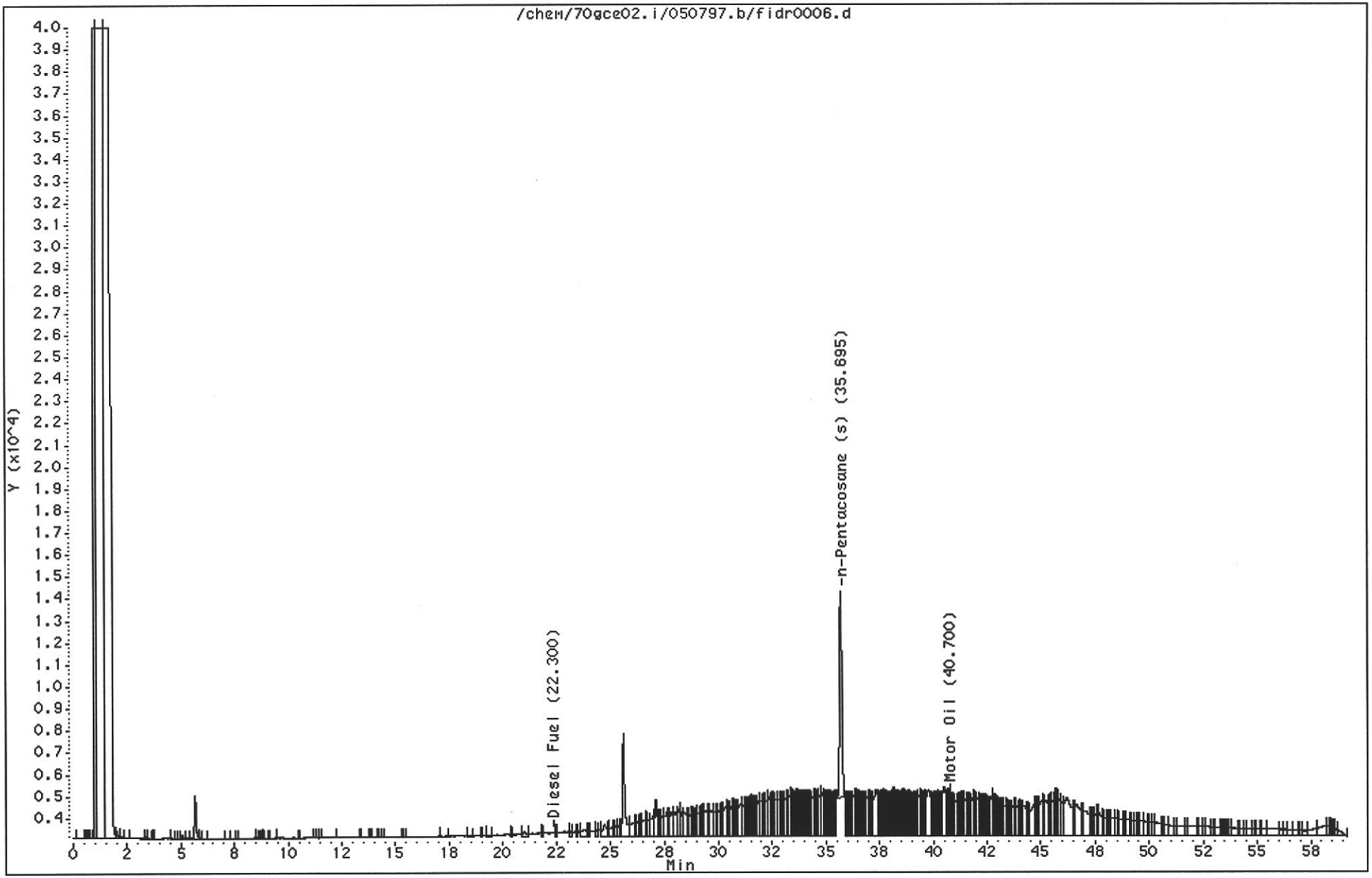
Data File: /chem/70gce02.i/050797.b/fidr0003.d
Date : 07-MAY-1997 19:46
Client ID: SB10-3.0
Lab Sample ID: 70959036
Volume Injected (uL): 1.0
Column phase: J&W DB-1

Instrument: 70gce02.i
Misc Info: 70959036,1,23467,,,
Operator: JMH
Column diameter: 0.53



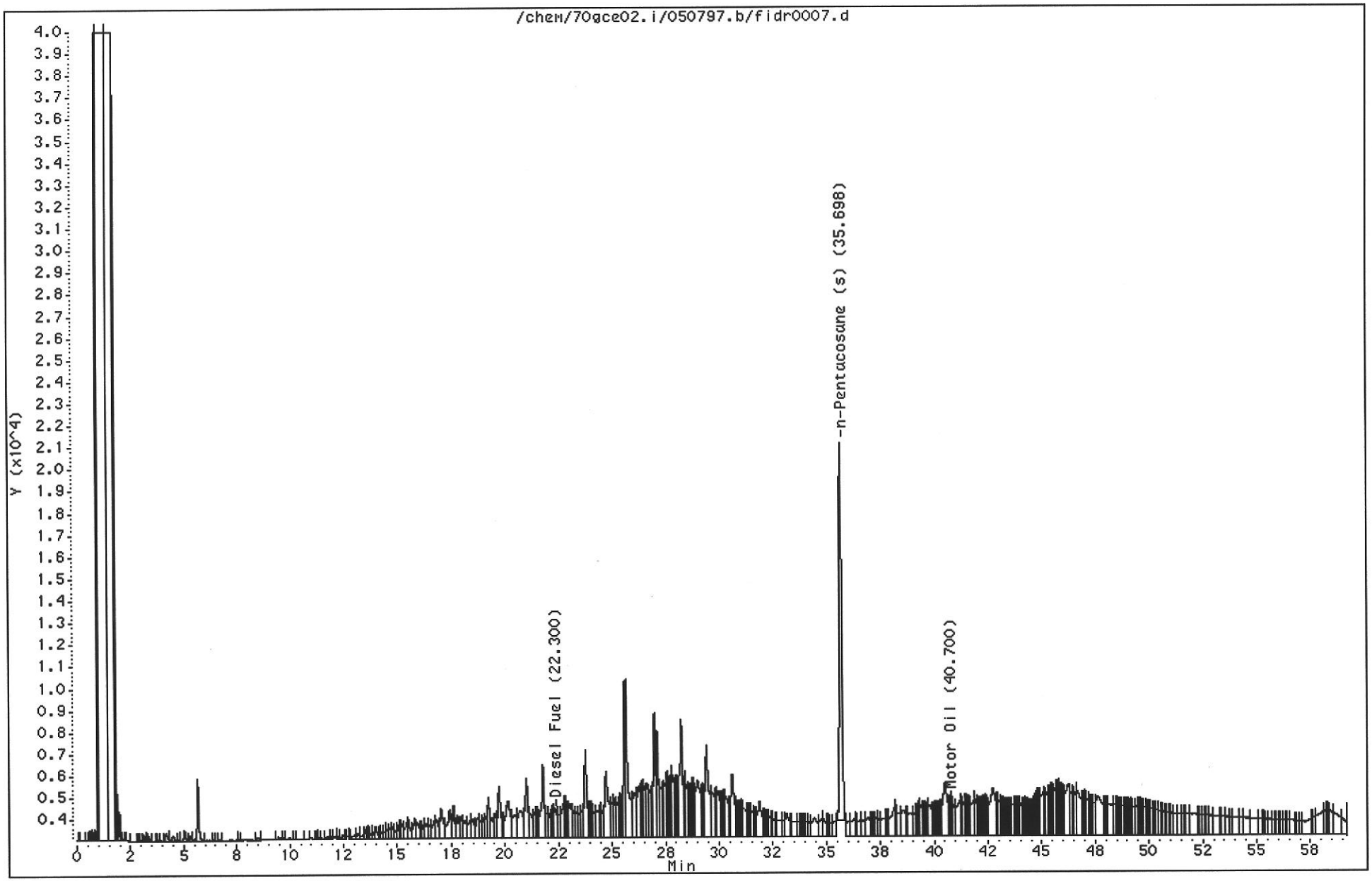
Data File: /chem/70gce02.i/050797.b/fidr0006.d
Date : 07-MAY-1997 23:06
Client ID: SB9-3.0
Lab Sample ID: 70959051
Volume Injected (uL): 1.0
Column phase: J&W DB-1

Instrument: 70gce02.i
Misc Info: 70959051,1,23467,,,
Operator: JMH
Column diameter: 0.53



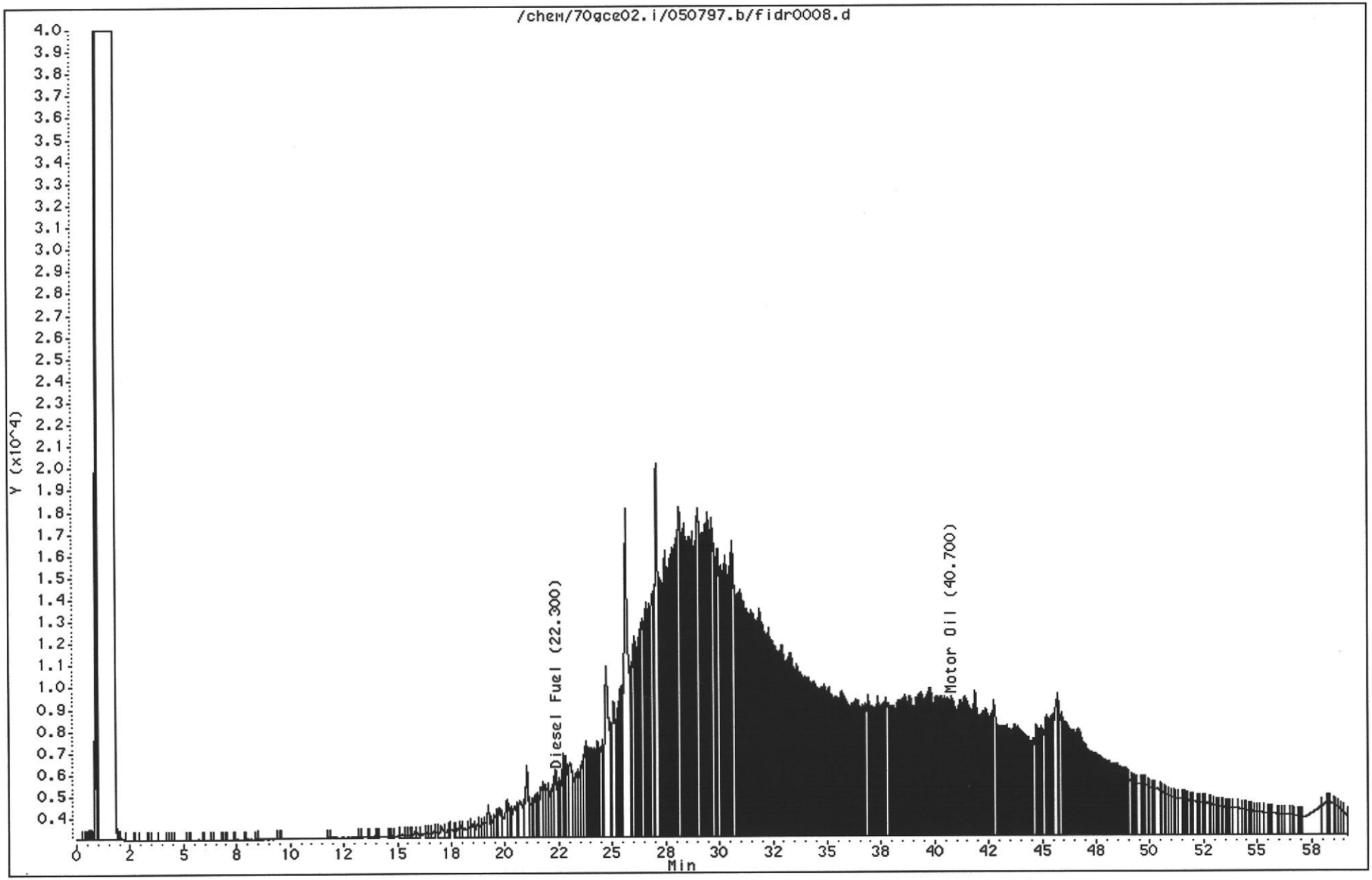
Data File: /chem/70gce02.i/050797.b/fidr0007.d
Date : 08-MAY-1997 00:13
Client ID: SB11-3.0
Lab Sample ID: 70959093
Volume Injected (uL): 1.0
Column phase: J&W DB-1

Instrument: 70gce02.i
Misc Info: 70959093,1,23467,,,
Operator: JMH
Column diameter: 0.53



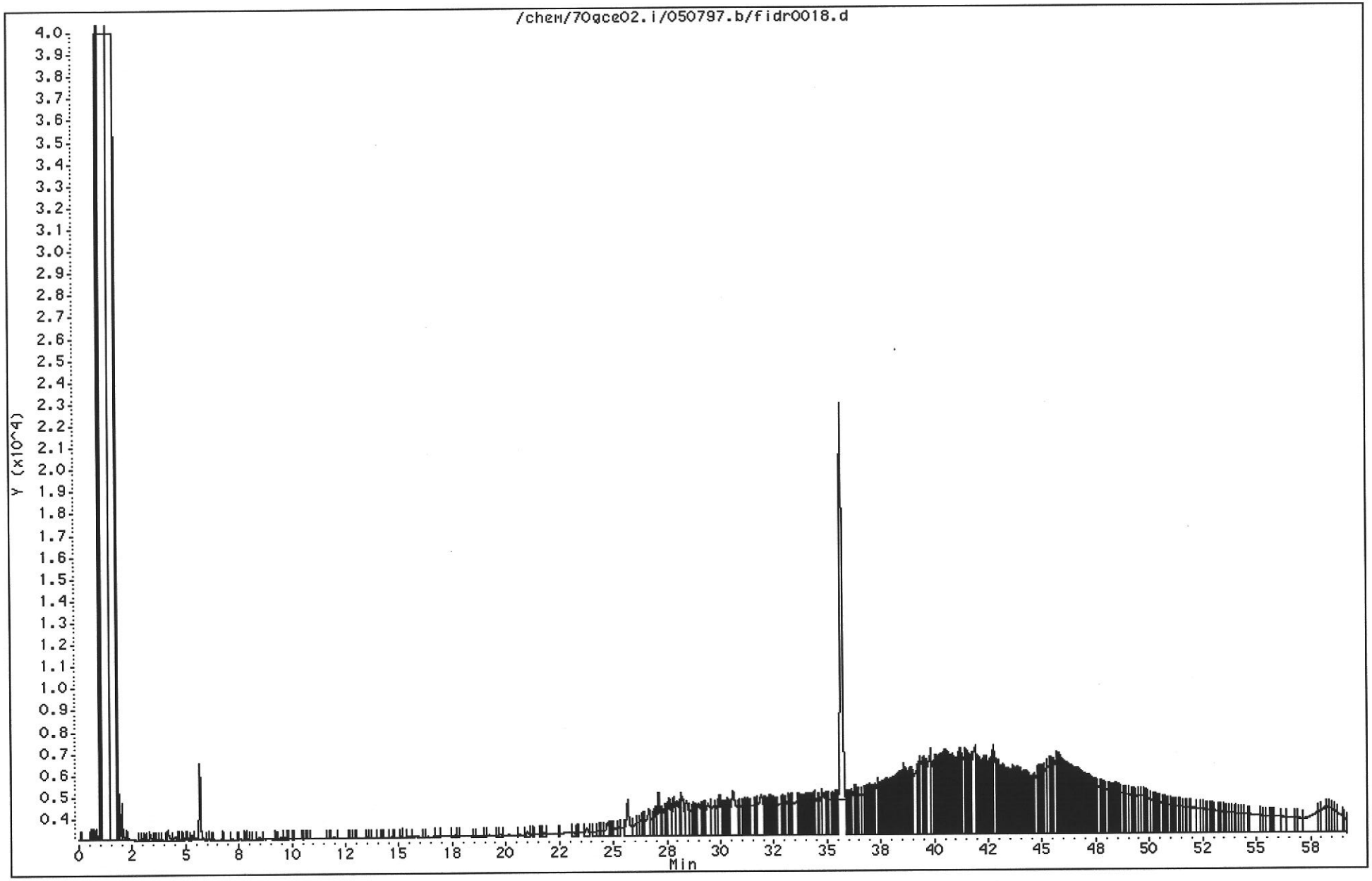
Data File: /chem/70gce02.i/050797.b/fidr0008.d
Date : 08-MAY-1997 01:20
Client ID: SB12-3.0
Lab Sample ID: 70959119
Volume Injected (uL): 1.0
Column phase: J&W DB-1

Instrument: 70gce02.i
Misc Info: 70959119,10,23467,,,
Operator: JMH
Column diameter: 0.53



Data File: /chem/70gce02.i/050797.b/fidr0018.d
Date : 08-MAY-1997 16:17
Client ID: SB13-3.0
Lab Sample ID: 70959135
Volume Injected (uL): 1.0
Column phase: J&W DB-1

Instrument: 70gce02.i
Misc Info: 70959135,1,23467,,,
Operator: JMH
Column diameter: 0.53



APPENDIX E
ANALYSIS INSTRUCTIONS TO PACE
5/14/97

SHAWNEE COMPANY, INC.

P. O. Box 12517
Oakland, CA 94604
Cal Cont Lic No. 567217

FACSIMILE COVER SHEET

DATE: 14 May 1997 TIME: 3:45 PM PAGES w/cover 1

TO: **PACE Analytical**

ATTN: **Ron Chew** FAX NO: 1-(707) 792-0342

FROM: **Shawnee Company, Inc.** SENDER: Arthur S. Chen, Jr.

SPECIAL INSTRUCTIONS AND COMMENTS:

RON

Shawnee has received draft final results for the soil samples from the CRYER site. Based upon these results continue your laboratory analysis as follows:

- A PNA analysis should be performed on soil sample **SB12-3.0** based upon PACE results of 8300 mg/kg for Diesel

- Groundwater samples **SB-9, SB-10, and SB-12** should be analyzed for metals (HG, Pb, and Cu), diesel, PNAs, and TDS.

- Estuary water sample **ESTUARY** should be analyzed for metals (HG, Pb, and Cu) and TDS.

If you have any questions, please contact me (510) 654-9309.

CORDIALLY,

ART CHEN
PRESIDENT

cc Diane Heintz, Port of Oakland

APPENDIX F
PACE LABORATORY RESULTS
GROUNDWATER SAMPLES - FILTERED
AND SOIL SAMPLE SB12-3.0
samples collect 6/12/97

Pace Analytical Services, Inc.
1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

June 27, 1997

Mr. Arthur Chen
Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

RE: Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Dear Mr. Chen:

Enclosed are the results of analyses for sample(s) received by the laboratory on June 13, 1997. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ron Chew
Project Manager

CA ELAP Certificate Number I2245

Enclosures

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Pace Analytical Services, Inc.
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Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

DATE: 06/27/97
PAGE: 1

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone: (402)444-4318

Solid results are reported on a wet weight basis

Pace Sample No: 701000986 Date Collected: 06/12/97 Matrix: Water
Client Sample ID: SP10 Date Received: 06/13/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Dissolved Metals, ICP		Method: EPA 6010			Prep Method: EPA 3010		
Copper, Dissolved	ND	ug/L	10	06/23/97	CBJ	7440-50-8	
Date Digested				06/19/97			
Dissolved Lead, Furnace		Method: EPA 7421			Prep Method: EPA 3020		
Lead, Dissolved	ND	ug/L	10	06/24/97	SCH	7439-92-1	1
Date Digested				06/19/97			
Dissolved Mercury, CVAAS		Method: EPA 7470			Prep Method: EPA 7470		
Mercury, Dissolved	ND	ug/L	0.2	06/18/97	GLG	7439-97-6	
GC -- Semi-VOA							
TPH by 8015M w/ silica gel		Method: EPA 8015M w/ SG			Prep Method: EPA 3520		
Diesel Fuel	ND	mg/L	0.1	06/20/97	JMH	11-84-7	2
n-Pentacosane (S)	78	%		06/20/97	JMH	629-99-2	
Date Extracted				06/16/97			
HPLC							
PAH's in Water by 8310		Method: EPA 8310			Prep Method: EPA 3520		
Naphthalene	ND	ug/L	1	06/23/97	SBC	91-20-3	
Acenaphthylene	ND	ug/L	2	06/23/97	SBC	208-96-8	
Acenaphthene	ND	ug/L	1	06/23/97	SBC	83-32-9	
Fluorene	ND	ug/L	0.2	06/23/97	SBC	86-73-7	
Phenanthrene	ND	ug/L	0.1	06/23/97	SBC	85-01-8	
Anthracene	ND	ug/L	0.1	06/23/97	SBC	120-12-7	
Fluoranthene	ND	ug/L	0.1	06/23/97	SBC	206-44-0	
Pyrene	ND	ug/L	0.1	06/23/97	SBC	129-00-0	
Benzo(a)anthracene	ND	ug/L	0.1	06/23/97	SBC	56-55-3	
Chrysene	ND	ug/L	0.1	06/23/97	SBC	218-01-9	
Benzo(b)fluoranthene	ND	ug/L	0.1	06/23/97	SBC	205-99-2	
Benzo(k)fluoranthene	ND	ug/L	0.1	06/23/97	SBC	207-08-9	
Benzo(a)pyrene	ND	ug/L	0.1	06/23/97	SBC	50-32-8	
Dibenz(a,h)anthracene	ND	ug/L	0.4	06/23/97	SBC	53-70-3	

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Petaluma, CA 94954
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Fax: 707-792-0342

Pace Analytical

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Pace Sample No: 701000986 Date Collected: 06/12/97 Matrix: Water
Client Sample ID: SP10 Date Received: 06/13/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Benzo(g,h,i)perylene	ND	ug/L	0.2	06/23/97	SBC	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.1	06/23/97	SBC	193-39-5	2
Carbazole (S)	75	%		06/23/97	SBC	86-74-8	
Terphenyl-d14 (S)	88	%		06/23/97	SBC	1718-51-0	
Date Extracted				06/16/97			

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Pace Analytical

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Pace Sample No: 701000994 Date Collected: 06/12/97 Matrix: Water
Client Sample ID: SP12 Date Received: 06/13/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Dissolved Metals, ICP	Method: EPA 6010				Prep Method: EPA 3010		
Copper, Dissolved	ND	ug/L	10	06/23/97	CBJ	7440-50-8	
Date Digested				06/19/97			
Dissolved Lead, Furnace	Method: EPA 7421				Prep Method: EPA 3020		
Lead, Dissolved	ND	ug/L	20	06/24/97	SCH	7439-92-1	3
Date Digested				06/19/97			
Dissolved Mercury, CVAAS	Method: EPA 7470				Prep Method: EPA 7470		
Mercury, Dissolved	ND	ug/L	0.2	06/18/97	GLG	7439-97-6	
GC -- Semi-VOA							
TPH by 8015M w/ silica gel	Method: EPA 8015M w/ SG				Prep Method: EPA 3520		
Diesel Fuel	0.30	mg/L	0.1	06/20/97	JMH	11-84-7	2,4
n-Pentacosane (S)	79	%		06/20/97	JMH	629-99-2	
Date Extracted				06/16/97			
HPLC							
PAH's in Water by 8310	Method: EPA 8310				Prep Method: EPA 3520		
Naphthalene	ND	ug/L	1	06/23/97	SBC	91-20-3	
Acenaphthylene	ND	ug/L	2	06/23/97	SBC	208-96-8	
Acenaphthene	ND	ug/L	1	06/23/97	SBC	83-32-9	
Fluorene	ND	ug/L	0.2	06/23/97	SBC	86-73-7	
Phenanthrene	ND	ug/L	0.1	06/23/97	SBC	85-01-8	
Anthracene	ND	ug/L	0.1	06/23/97	SBC	120-12-7	
Fluoranthene	ND	ug/L	0.1	06/23/97	SBC	206-44-0	
Pyrene	ND	ug/L	0.1	06/23/97	SBC	129-00-0	
Benzo(a)anthracene	ND	ug/L	0.1	06/23/97	SBC	56-55-3	
Chrysene	ND	ug/L	0.1	06/23/97	SBC	218-01-9	
Benzo(b)fluoranthene	ND	ug/L	0.1	06/23/97	SBC	205-99-2	
Benzo(k)fluoranthene	ND	ug/L	0.1	06/23/97	SBC	207-08-9	
Benzo(a)pyrene	ND	ug/L	0.1	06/23/97	SBC	50-32-8	
Dibenz(a,h)anthracene	ND	ug/L	0.4	06/23/97	SBC	53-70-3	
Benzo(g,h,i)perylene	ND	ug/L	0.2	06/23/97	SBC	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.1	06/23/97	SBC	193-39-5	2
Carbazole (S)	69	%		06/23/97	SBC	86-74-8	
Terphenyl-d14 (S)	90	%		06/23/97	SBC	1718-51-0	
Date Extracted				06/16/97			

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Pace Analytical

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Pace Sample No: 701001000 Date Collected: 06/12/97 Matrix: Water
Client Sample ID: SP9 Date Received: 06/13/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Dissolved Metals, ICP		Method: EPA 6010			Prep Method: EPA 3010		
Copper, Dissolved	ND	ug/L	10	06/23/97	CBJ	7440-50-8	
Date Digested				06/19/97			
Dissolved Lead, Furnace		Method: EPA 7421			Prep Method: EPA 3020		
Lead, Dissolved	ND	ug/L	10	06/24/97	SCH	7439-92-1	1
Date Digested				06/19/97			
Dissolved Mercury, CVAAS		Method: EPA 7470			Prep Method: EPA 7470		
Mercury, Dissolved	ND	ug/L	0.2	06/18/97	GLG	7439-97-6	
GC -- Semi-VOA							
TPH by 8015M w/ silica gel		Method: EPA 8015M w/ SG			Prep Method: EPA 3520		
Diesel Fuel	ND	mg/L	0.1	06/20/97	JMH	11-84-7	2
n-Pentacosane (S)	98	%		06/20/97	JMH	629-99-2	
Date Extracted				06/16/97			
HPLC							
PAH's in Water by 8310		Method: EPA 8310			Prep Method: EPA 3520		
Naphthalene	ND	ug/L	1	06/23/97	SBC	91-20-3	
Acenaphthylene	ND	ug/L	2	06/23/97	SBC	208-96-8	
Acenaphthene	ND	ug/L	1	06/23/97	SBC	83-32-9	
Fluorene	ND	ug/L	0.2	06/23/97	SBC	86-73-7	
Phenanthrene	ND	ug/L	0.1	06/23/97	SBC	85-01-8	
Anthracene	ND	ug/L	0.1	06/23/97	SBC	120-12-7	
Fluoranthene	ND	ug/L	0.1	06/23/97	SBC	206-44-0	
Pyrene	ND	ug/L	0.1	06/23/97	SBC	129-00-0	
Benzo(a)anthracene	ND	ug/L	0.1	06/23/97	SBC	56-55-3	
Chrysene	ND	ug/L	0.1	06/23/97	SBC	218-01-9	
Benzo(b)fluoranthene	ND	ug/L	0.1	06/23/97	SBC	205-99-2	
Benzo(k)fluoranthene	ND	ug/L	0.1	06/23/97	SBC	207-08-9	
Benzo(a)pyrene	ND	ug/L	0.1	06/23/97	SBC	50-32-8	
Dibenz(a,h)anthracene	ND	ug/L	0.4	06/23/97	SBC	53-70-3	
Benzo(g,h,i)perylene	ND	ug/L	0.2	06/23/97	SBC	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.1	06/23/97	SBC	193-39-5	2
Carbazole (S)	89	%		06/23/97	SBC	86-74-8	
Terphenyl-d14 (S)	103	%		06/23/97	SBC	1718-51-0	
Date Extracted				06/16/97			

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Pace Analytical

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Pace Sample No: 701001018 Date Collected: 06/12/97 Matrix: Soil
Client Sample ID: SP12-3.0 Date Received: 06/13/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
HPLC							
PAH's in Soil by 8310	Method: EPA 8310				Prep Method: EPA 3550		
Naphthalene	ND	ug/kg	1700	06/24/97	SBC	91-20-3	
Acenaphthylene	ND	ug/kg	3300	06/24/97	SBC	208-96-8	
Acenaphthene	ND	ug/kg	1700	06/24/97	SBC	83-32-9	
Fluorene	1600	ug/kg	330	06/24/97	SBC	86-73-7	
Phenanthrene	8700	ug/kg	1700	06/24/97	SBC	85-01-8	
Anthracene	ND	ug/kg	1700	06/24/97	SBC	120-12-7	
Fluoranthene	5900	ug/kg	1700	06/24/97	SBC	206-44-0	
Pyrene	4400	ug/kg	1700	06/24/97	SBC	129-00-0	
Benzo(a)anthracene	ND	ug/kg	1700	06/24/97	SBC	56-55-3	
Chrysene	ND	ug/kg	1700	06/24/97	SBC	218-01-9	
Benzo(b)fluoranthene	ND	ug/kg	1700	06/24/97	SBC	205-99-2	
Benzo(k)fluoranthene	ND	ug/kg	1700	06/24/97	SBC	207-08-9	
Benzo(a)pyrene	670	ug/kg	170	06/24/97	SBC	50-32-8	
Dibenz(a,h)anthracene	ND	ug/kg	670	06/24/97	SBC	53-70-3	
Benzo(g,h,i)perylene	ND	ug/kg	330	06/24/97	SBC	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	170	06/24/97	SBC	193-39-5	5
Carbazole (S)	250	%		06/24/97	SBC	86-74-8	6
Terphenyl-d14 (S)	1300	%		06/24/97	SBC	1718-51-0	6
Date Extracted				06/18/97			

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Pace Analytical

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
(S)	Surrogate
[1]	The reporting limit has been raised by a dilution factor of 2x due to matrix interferences determined by post digestion spike.
[2]	The normal initial volume could not be used for sample extraction. This resulted in elevated PRLs.
[3]	The sample was diluted to reduce matrix interference, resulting in elevated reporting limits.
[4]	The result for this hydrocarbon is elevated due to the presence of single analyte peak(s) in quantitation range.
[5]	The sample extract could not be concentrated to the normal final volume. This resulted in elevated PRLs.
[6]	High surrogate recovery was confirmed as a matrix effect by a second analysis.

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Pace Analytical

QUALITY CONTROL DATA

DATE: 06/27/97

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone: (402)444-4318

QC Batch ID: 24410
QC Batch Method: EPA 3520
Analysis Method: EPA 8310
Analysis Description: PAH's in Water by 8310
Associated Pace Samples: 701000986 701000994 701001000

METHOD BLANK: 701001026
Associated Pace Samples:
701000986 701000994 701001000

Parameter	Units	Method Blank Result	PRL	Footnotes
Naphthalene	ug/L	ND	0.5	
Acenaphthylene	ug/L	ND	1	
Acenaphthene	ug/L	ND	0.5	
Fluorene	ug/L	ND	0.1	
Phenanthrene	ug/L	ND	0.05	
Anthracene	ug/L	ND	0.05	
Fluoranthene	ug/L	ND	0.05	
Pyrene	ug/L	ND	0.05	
Benzo(a)anthracene	ug/L	ND	0.05	
Chrysene	ug/L	ND	0.05	
Benzo(b)fluoranthene	ug/L	ND	0.05	
Benzo(k)fluoranthene	ug/L	ND	0.05	
Benzo(a)pyrene	ug/L	ND	0.05	
Dibenz(a,h)anthracene	ug/L	ND	0.2	
Benzo(g,h,i)perylene	ug/L	ND	0.1	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.05	
Carbazole (S)	%	80		
Terphenyl-d14 (S)	%	97		

LABORATORY CONTROL SAMPLE & LCSD: 701001034 701001042

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Naphthalene	ug/L	10	3.750	37.5	2.300	23.0	48	1

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Pace Analytical

QUALITY CONTROL DATA

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

LABORATORY CONTROL SAMPLE & LCSD: 701001034 701001042

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Acenaphthylene	ug/L	20	8.130	40.7	5.490	27.5	39	1
Acenaphthene	ug/L	10	3.980	39.8	2.390	23.9	50	1
Fluorene	ug/L	2.0	0.8400	42.0	0.5260	26.3	46	1
Phenanthrene	ug/L	1.0	0.4790	47.9	0.3310	33.1	37	1
Anthracene	ug/L	1.0	0.2990	29.9	0.3320	33.2	10	1
Fluoranthene	ug/L	2.0	1.470	73.5	1.340	67.0	9	
Pyrene	ug/L	1.0	0.7700	77.0	0.7020	70.2	9	
Benzo(a)anthracene	ug/L	1.0	0.8290	82.9	0.8990	89.9	8	
Chrysene	ug/L	1.0	0.9100	91.0	0.8900	89.0	2	
Benzo(b)fluoranthene	ug/L	2.0	1.880	94.0	1.860	93.0	1	
Benzo(k)fluoranthene	ug/L	1.0	0.9120	91.2	0.9080	90.8	0	
Benzo(a)pyrene	ug/L	1.0	0.4150	41.5	0.9090	90.9	75	2
Dibenz(a,h)anthracene	ug/L	2.0	1.780	89.0	1.810	90.5	2	
Benzo(g,h,i)perylene	ug/L	2.0	1.790	89.5	1.800	90.0	1	
Indeno(1,2,3-cd)pyrene	ug/L	1.0	0.8660	86.6	0.8780	87.8	1	
Carbazole (S)				82		77		
Terphenyl-d14 (S)				96		92		

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Fax: 707-792-0342

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QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone: (402)444-4318

QC Batch ID: 24412
QC Batch Method: EPA 3520
Analysis Method: EPA 8015M w/ SG
Analysis Description: TPH by 8015M w/ silica gel
Associated Pace Samples: 701000986 701000994 701001000

METHOD BLANK: 701001059
Associated Pace Samples:
701000986 701000994 701001000

Parameter	Units	Method Blank Result	PRL	Footnotes
Diesel Fuel	mg/L	ND	0.05	
n-Pentacosane (S)	%	92		

LABORATORY CONTROL SAMPLE & LCSD: 701001067 701001075

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/L	1.0	0.4375	43.8	0.5212	52.1	17	
n-Pentacosane (S)				114		83		

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1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone: (402)444-4318

QC Batch ID: 24438
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: Dissolved Mercury, CVAAS
Associated Pace Samples: 701000986 701000994 701001000

METHOD BLANK: 701002388
Associated Pace Samples:
701000986 701000994 701001000

Parameter	Units	Method Blank Result	PRL	Footnotes
Mercury, Dissolved	ug/L	ND	0.2	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 701002396 701002404

Parameter	Units	701000986	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Mercury, Dissolved	ug/L	0.02000	1.6	1.220	75.0	1.220	75.0	0	

LABORATORY CONTROL SAMPLE & LCSD: 701002412 701002420

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Mercury, Dissolved	ug/L	1.6	1.670	104	1.660	104	0	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone: (402)444-4318

QC Batch ID: 24476
QC Batch Method: EPA 3550
Analysis Method: EPA 8310
Analysis Description: PAH's in Soil by 8310
Associated Pace Samples: 701001018

METHOD BLANK: 701003832
Associated Pace Samples:
701001018

Parameter	Units	Method Blank Result	PRL	Footnotes
Naphthalene	ug/kg	ND	170	
Acenaphthylene	ug/kg	ND	330	
Acenaphthene	ug/kg	ND	170	
Fluorene	ug/kg	ND	33	
Phenanthrene	ug/kg	ND	17	
Anthracene	ug/kg	ND	17	
Fluoranthene	ug/kg	ND	17	
Pyrene	ug/kg	ND	17	
Benzo(a)anthracene	ug/kg	ND	17	
Chrysene	ug/kg	ND	17	
Benzo(b)fluoranthene	ug/kg	ND	17	
Benzo(k)fluoranthene	ug/kg	ND	17	
Benzo(a)pyrene	ug/kg	ND	17	
Dibenz(a,h)anthracene	ug/kg	ND	67	
Benzo(g,h,i)perylene	ug/kg	ND	33	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	17	
Carbazole (S)	%	77		
Terphenyl-d14 (S)	%	96		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 701003840 701003857

Parameter	Units	701001018	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Naphthalene	ug/kg	1167	333.3	1577	123	1880	214	54	

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Fax: 707-792-0342

Pace Analytical

QUALITY CONTROL DATA

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 701003840 701003857

Parameter	Units	701001018	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Acenaphthylene	ug/kg	0	666.7	11700	1755	12600	1890	7	
Acenaphthene	ug/kg	836.7	333.3	953.3	35.0	2140	391	167	
Fluorene	ug/kg	1570	66.67	2287	1075	1897	490	75	
Phenanthrene	ug/kg	8667	33.33	7933	-2200	5900	-8300	116	
Anthracene	ug/kg	307.3	33.33	350.0	128	566.7	778	143	
Fluoranthene	ug/kg	5933	66.67	5867	-100	5400	-800	156	
Pyrene	ug/kg	4400	33.33	4433	100	3967	-1300	233	
Benzo(a)anthracene	ug/kg	376.7	33.33	370.0	-20.0	380.0	10.0	600	
Chrysene	ug/kg	0	33.33	2093	6280	1797	5390	15	
Benzo(b)fluoranthene	ug/kg	846.7	66.67	920.0	110	750.0	-145	1457	
Benzo(k)fluoranthene	ug/kg	0	33.33	1083	3250	880.0	2640	21	
Benzo(a)pyrene	ug/kg	670.0	33.33	900.0	690	773.3	310	76	
Dibenz(a,h)anthracene	ug/kg	0	66.67	0	0	0	0	0	
Benzo(g,h,i)perylene	ug/kg	0	66.67	1033	1550	746.7	1120	32	
Indeno(1,2,3-cd)pyrene	ug/kg	0	33.33	2017	6050	1197	3590	51	3
Carbazole (S)					264		265		
Terphenyl-d14 (S)					1840		1670		

LABORATORY CONTROL SAMPLE & LCSD: 701003865 701003873

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Naphthalene	ug/kg	333.3	226.3	67.9	205.0	61.5	10	
Acenaphthylene	ug/kg	666.7	500.0	75.0	453.3	68.0	10	
Acenaphthene	ug/kg	333.3	213.3	64.0	202.7	60.8	5	
Fluorene	ug/kg	66.67	49.33	74.0	46.67	70.0	6	
Phenanthrene	ug/kg	33.33	25.70	77.1	24.37	73.1	5	
Anthracene	ug/kg	33.33	24.80	74.4	23.60	70.8	5	
Fluoranthene	ug/kg	66.67	52.33	78.5	49.33	74.0	6	
Pyrene	ug/kg	33.33	25.83	77.5	24.37	73.1	6	
Benzo(a)anthracene	ug/kg	33.33	27.40	82.2	26.83	80.5	2	
Chrysene	ug/kg	33.33	27.23	81.7	26.63	79.9	2	
Benzo(b)fluoranthene	ug/kg	66.67	55.33	83.0	54.67	82.0	1	
Benzo(k)fluoranthene	ug/kg	33.33	27.33	82.0	27.27	81.8	0	
Benzo(a)pyrene	ug/kg	33.33	26.27	78.8	25.67	77.0	2	
Dibenz(a,h)anthracene	ug/kg	66.67	54.67	82.0	55.00	82.5	1	
Benzo(g,h,i)perylene	ug/kg	66.67	52.67	79.0	52.67	79.0	0	
Indeno(1,2,3-cd)pyrene	ug/kg	33.33	27.47	82.4	27.33	82.0	0	
Carbazole (S)				77		73		
Terphenyl-d14 (S)				91		88		

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone: (402)444-4318

QC Batch ID: 24505
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: Dissolved Metals, ICP
Associated Pace Samples: 701000986 701000994 701001000

METHOD BLANK: 701004848
Associated Pace Samples:
701000986 701000994 701001000

Parameter	Units	Method Blank Result	PRL	Footnotes
Copper, Dissolved	ug/L	ND	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 701004962 701004970

Parameter	Units	701000986	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Copper, Dissolved	ug/L	0	2000	1834	91.7	1893	94.7	3	

LABORATORY CONTROL SAMPLE & LCSD: 701004947 701004954

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Copper, Dissolved	ug/L	2000	1792	89.6	1732	86.6	3	

REPORT OF LABORATORY ANALYSIS

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Fax: 707-792-0342

Pace Analytical

QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone: (402)444-4318

QC Batch ID: 24506
QC Batch Method: EPA 3020
Analysis Method: EPA 7421
Analysis Description: Dissolved Lead, Furnace
Associated Pace Samples: 701000986 701000994 701001000

METHOD BLANK: 701004897
Associated Pace Samples:
701000986 701000994 701001000

Parameter	Units	Method Blank Result	PRL	Footnotes
Lead, Dissolved	ug/L	ND	5	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 701004921 701004939

Parameter	Units	701004665	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Lead, Dissolved	ug/L	0.8800	40	17.11	40.6	16.49	39.0	4	4

LABORATORY CONTROL SAMPLE & LCSD: 701004905 701004913

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Lead, Dissolved	ug/L	40	31.90	79.8	35.54	88.9	11	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954

Tel: 707-792-1865
Fax: 707-792-0342

Pace Project Number: 708585
Client Project ID: Pt. Oak./Former Cryer Boatyard

UALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

D	Not Detected
C	Not Calculable
PRL	Pace Reporting Limit
PD	Relative Percent Difference
S)	Surrogate
[1]	The surrogate and/or spike recovery was outside acceptance limits.
[2]	RPD value was outside control limits, however both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
[3]	Due to matrix interference the matrix spike and/or matrix spike duplicate do no provide reliable % Recovery and RPD values. Sample results for this QC batch accepted based on LCS and/or LCSD % Recovery and/or RPD values.
[4]	The spike recovery was outside acceptance limits for the MS and /or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

REPORT OF LABORATORY ANALYSIS

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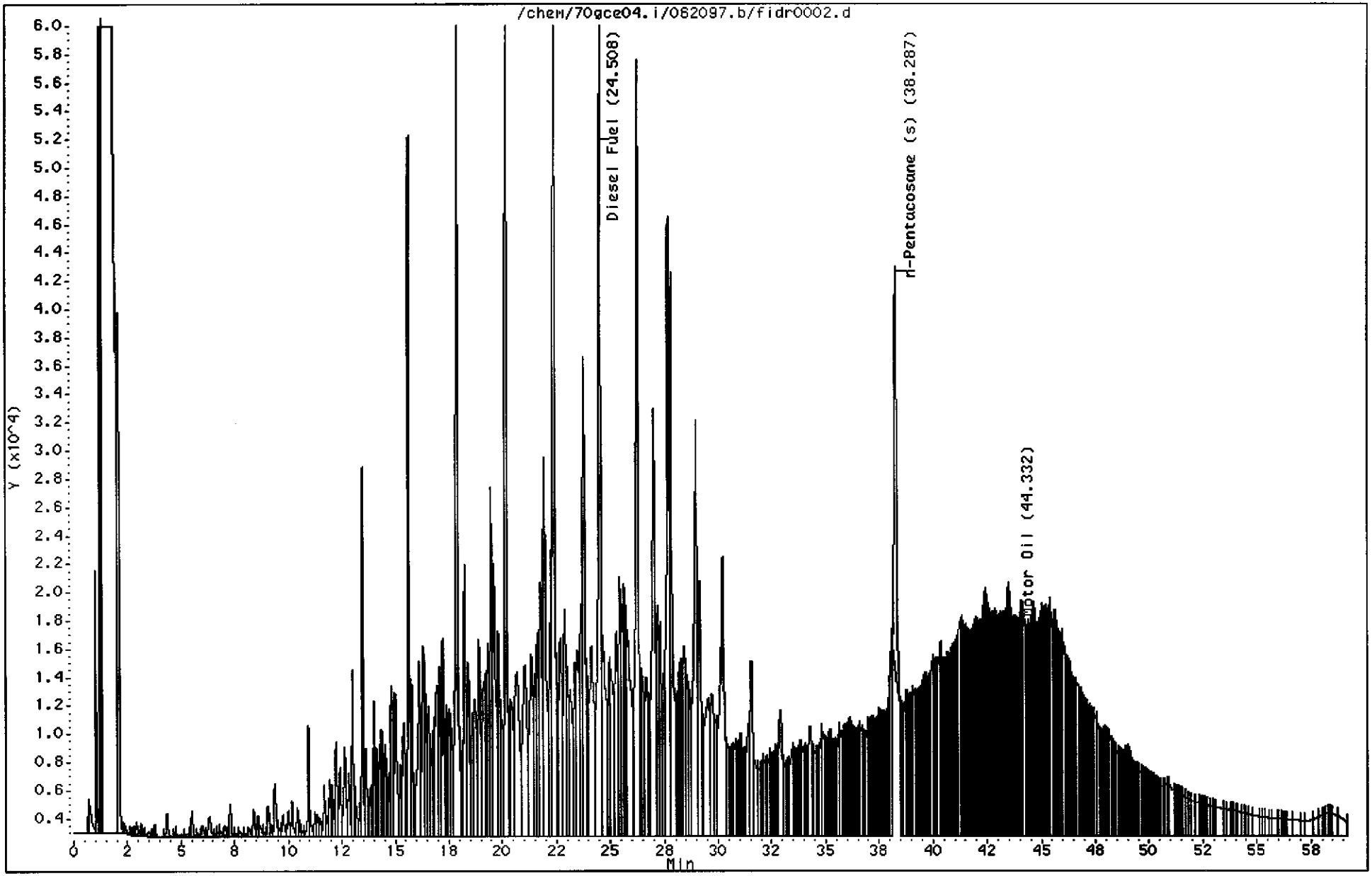
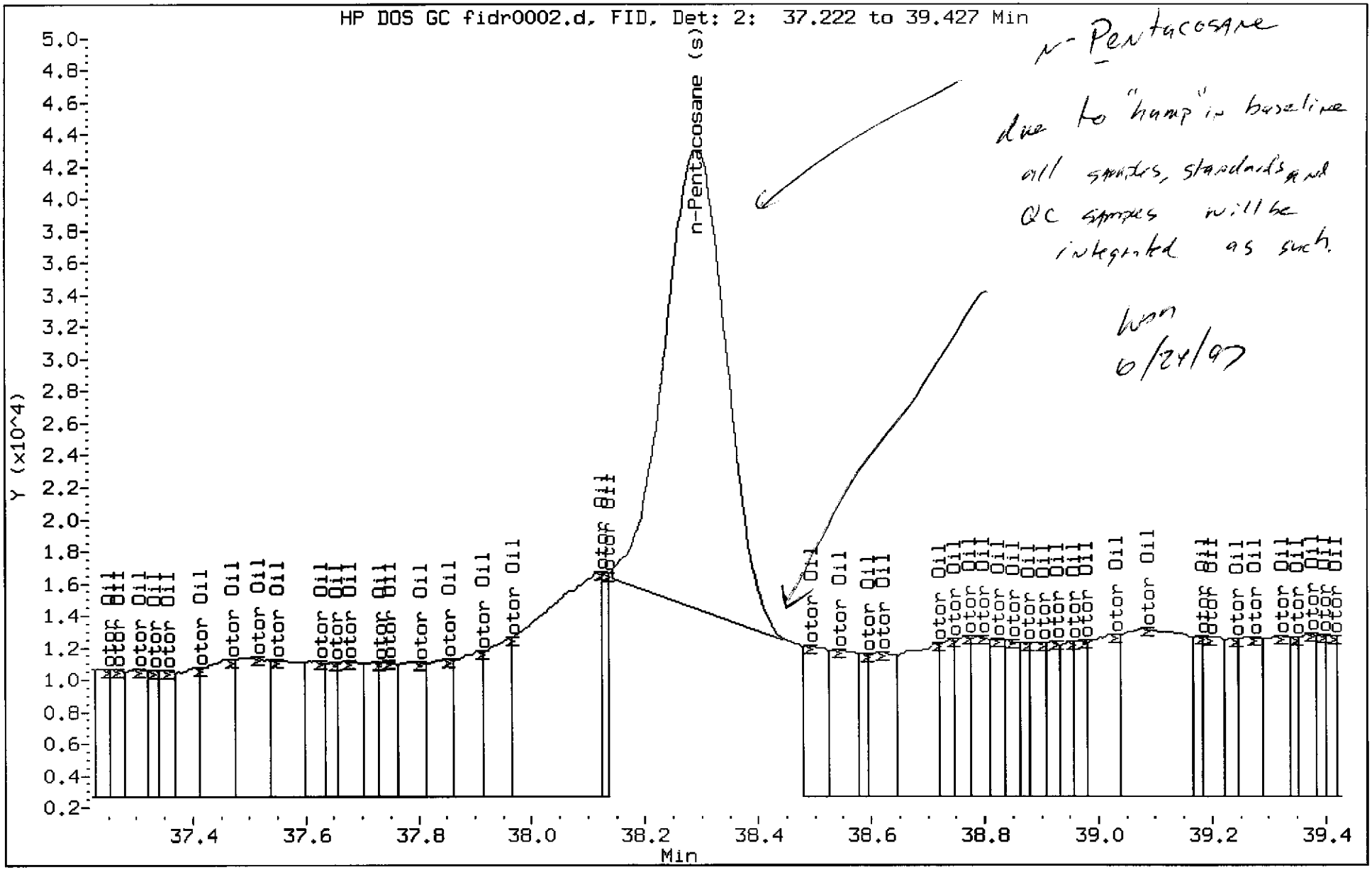
Data File: /chem/70gce04.i/062097.b/fidr0002.d
Date : 20-JUN-1997 16:29
Client ID: SSTD2500
Lab Sample ID: SSTD2500D

Column phase: J&W DB-1

Instrument: 70gce04.i
Misc Info: SSTD2500D,,,,,Dcal-97D
Operator: WSN
Column diameter: 0.53

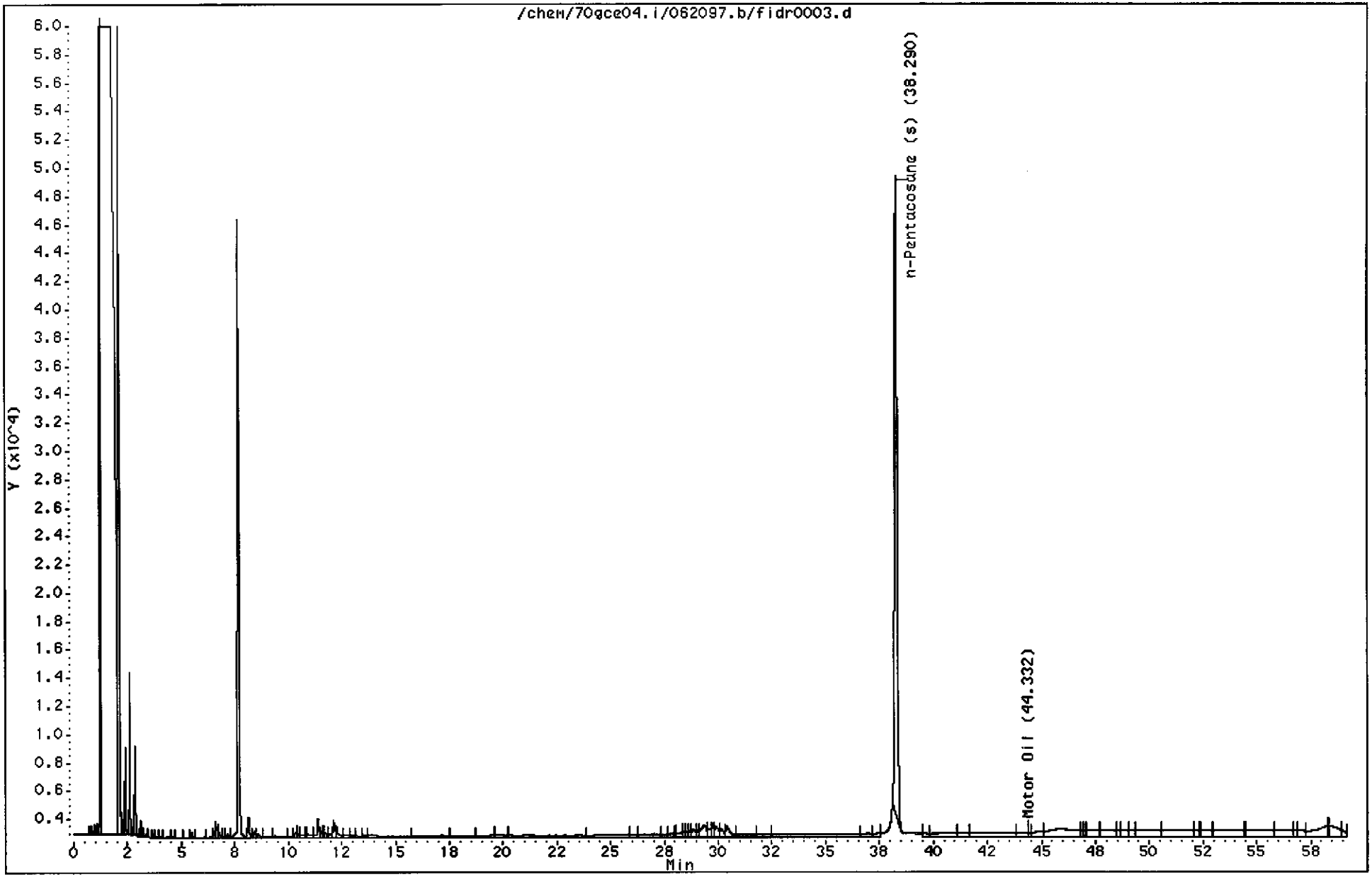


Data File: /chem/70gce04.i/062097.b/fidr0002.d
Injection Date: 20-JUN-97 16:29
Instrument: 70gce04.i
Client Sample ID: SSTD2500



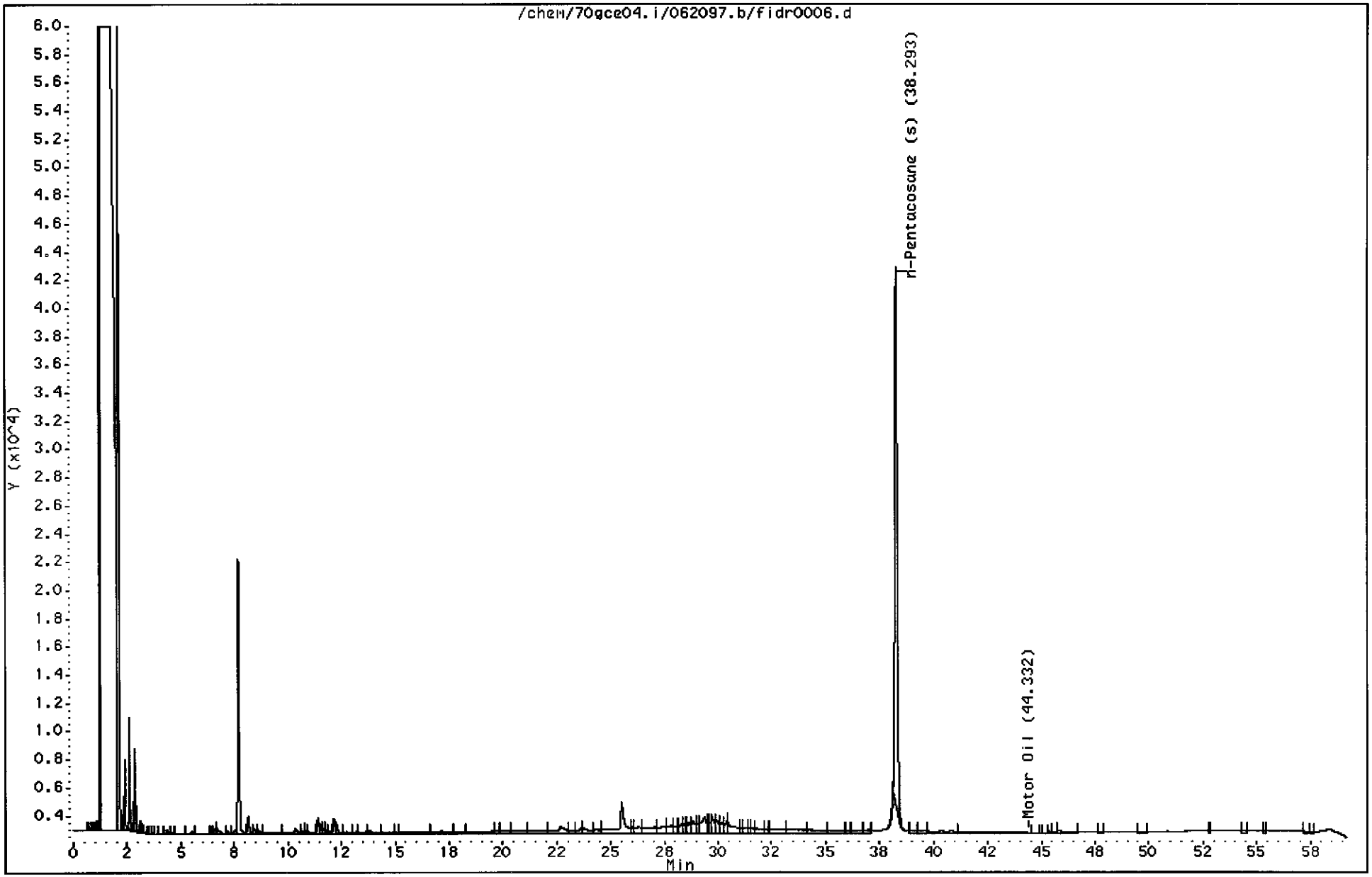
Data File: /chem/70gce04.i/062097.b/fidr0003.d
Date : 20-JUN-1997 18:07
Client ID: SBLKF1
Lab Sample ID: 701001059
Volume Injected (uL): 1.0
Column phase: J&W DB-1

Instrument: 70gce04.i
Misc Info: 701001059,1,24412,,,
Operator: JMH
Column diameter: 0.53



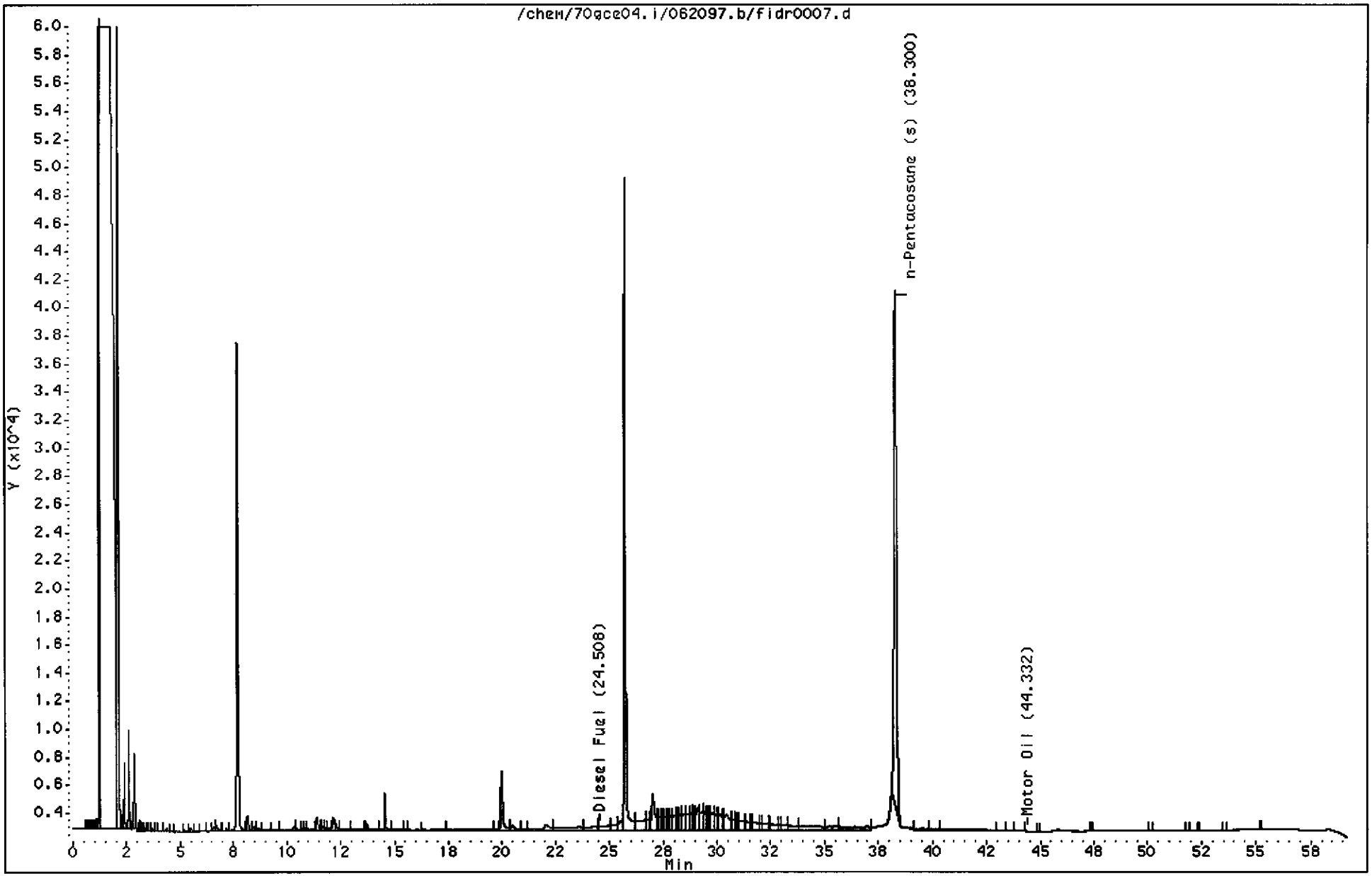
Data File: /chem/70gce04.i/062097.b/fidr0006.d
Date : 20-JUN-1997 21:22
Client ID: SP10
Lab Sample ID: 701000986
Volume Injected (uL): 1.0
Column phase: J&W DB-1

Instrument: 70gce04.i
Misc Info: 701000986,1,24412,,,
Operator: JMH
Column diameter: 0.53



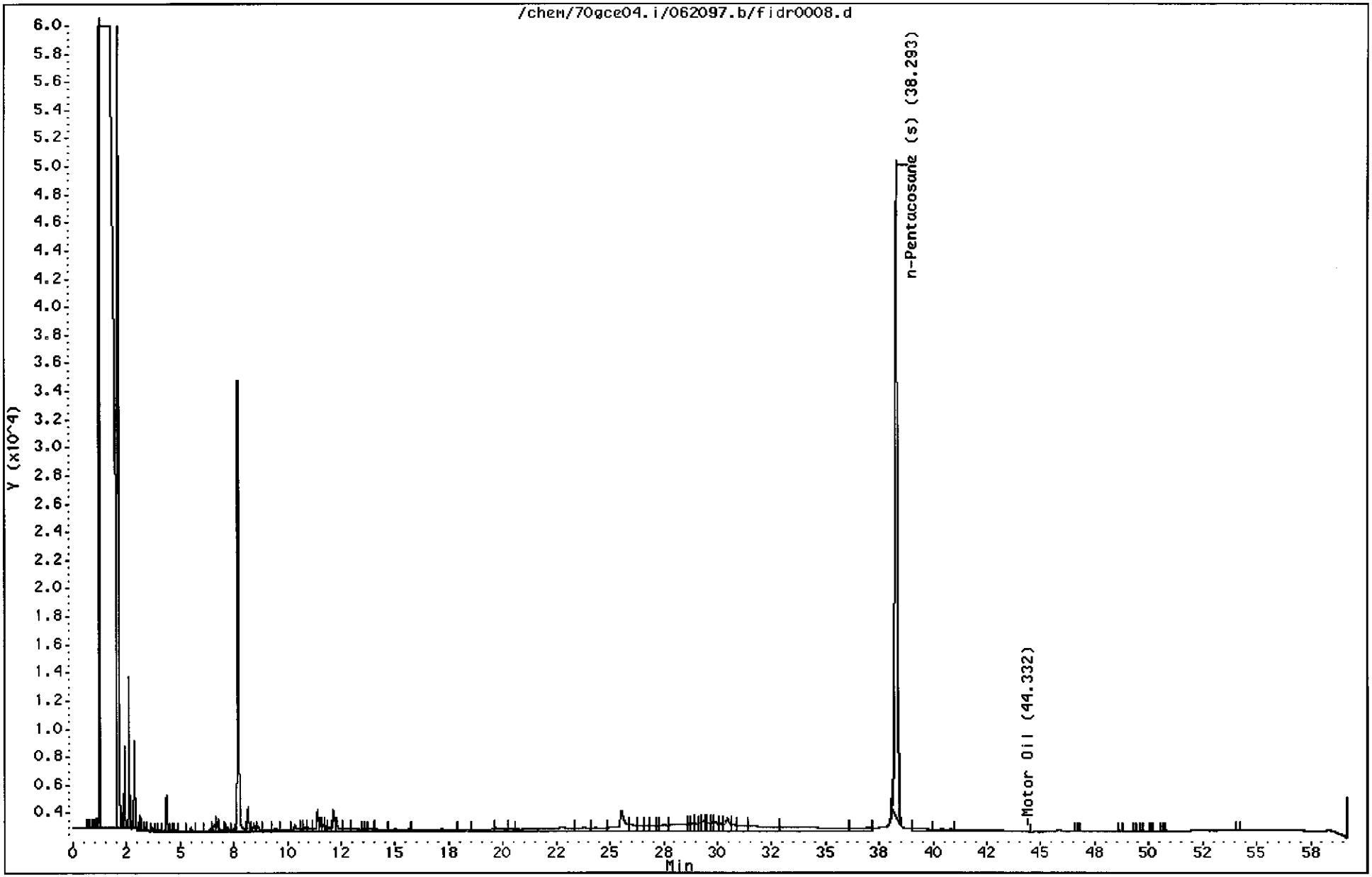
Data File: /chem/70gce04.i/062097.b/fidr0007.d
Date : 20-JUN-1997 22:29
Client ID: SP12
Lab Sample ID: 701000994
Volume Injected (uL): 1.0
Column phase: J&W DB-1

Instrument: 70gce04.i
Misc Info: 701000994,1,24412,,,
Operator: JMH
Column diameter: 0.53



Data File: /chem/70gce04.i/062097.b/fidr0008.d
Date : 20-JUN-1997 23:35
Client ID: SP9
Lab Sample ID: 701001000
Volume Injected (uL): 1.0
Column phase: J&W DB-1

Instrument: 70gce04.i
Misc Info: 701001000,1,24412,,,
Operator: JMH
Column diameter: 0.53



APPENDIX G
CHAIN-OF-CUSTODY FORMS

Pace Analytical

377872

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client SHANNON

Address P.O. Box 1257
OAKLAND, CA 94604

Phone (510) 654-9309

Report To:

Bill To:

P.O. # / Billing Reference

Project Name / No.

Pace Client No.

Pace Project Manager

Pace Project No. 708258

*Requested Due Date:

Sampled By (PRINT): A. CHEN

Sampler Signature: ASChen

Date Sampled: 5-1-97

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: Cr (EPA 7211)	Pb (EPA 7421)	Hg (EPA 7471)	Diesel (8015M)	PNA 8310
1	SB10-0.5	8:10 AM	SOIL	70959028	1	✓				✓	✓	✓		
2	SB10-3.0	8:30	SOIL	70959036	1	✓				✓	✓	✓	✓	
3	SB9-0.5	9:45	SOIL	70959044	1	✓				✓	✓	✓		
4	SB9-3.0	9:50	SOIL	70959051	1	✓				✓	✓	✓	✓	
5	SB9-6.0	10:00	SOIL	70959069	1	✓								
6	SB11-0.5	11:30	SOIL	70959085	1	✓				✓	✓	✓	✓	
7	SB11-3.0	11:40	SOIL	70959093	1	✓				✓	✓	✓	✓	
8	SB12-0.5	~~11:10~~	SOIL	70959101	1	✓				✓	✓	✓	✓	

Talk to Roger

REMARKS

Analyze for PNA only for soil sample with highest diesel detected (1 of 5)

Petrol. like odor (HOLD)

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	A Chen / Shannon	Thu Mau	5/2/97	1330
	Thu Mau	Jack Hermann	5/2/97	15:00

Additional Comments
Roger Laman 9702115PH01R2

SEE REVERSE SIDE FOR INSTRUCTIONS

ORIGINAL

Pace Analytical

377866

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client SHANNON

Address P.O. Box 2517
OAKLAND, CA 94604

Phone

Report To:

Bill To:

P.O. # / Billing Reference

Project Name / No.

Pace Client No.

Pace Project Manager

Pace Project No. 708258

*Requested Due Date:

Sampled By (PRINT): A. CHEW

Sampler Signature: A Chu

Date Sampled: 5-1-97

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: Cam	7211 Pb	7421 Hg	7471 Diesel	8015M PNA	8310
1	SB12-3.0	2:25	SOIL	70959119	1	✓				✓	✓	✓	✓		
2	SB13-0.5	3:20	SOIL	70959127	1	✓				✓	✓	✓			
3	SB13-3.0	3:35	SOIL	70959135	1	✓				✓	✓	✓	✓		
4															
5															
6															
7															
8															

Talk to Roger

REMARKS: Analyze for PNA only for soil sample with highest diesel Detected (1 of 5 samples)

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
		[illegible]	5/2/97	1330
	[illegible]	[illegible]	5/2/97	15:00

Additional Comments
Roger Lamon 9702 11587401R2

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ORIGINAL

Pace Analytical

377867

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client SHAWNEE COMPANY
Address P.O. BOX 12517
OAKLAND, CA 94604
Phone (510) 654-9309

Report To:
Bill To:
P.O. # / Billing Reference
Project Name / No.

Pace Client No.
Pace Project Manager
Pace Project No.
*Requested Due Date:

Sampled By (PRINT): A. CHEW
Sampler Signature: a Chew
Date Sampled: 5-1-97

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: EXTRACT PNA FOR CALC PNA	DNA 8310	Diesel 8015m	Pb (7421)	TDS (160.1)	Hex (7471)	Cr (7211)	REMARKS
1	SB11	12:30	WATER	70959234	✓	✓							✓				DO extract only Hold See Roger
2	SB11	12:30	WATER	↓	✓			✓						✓	✓		
3	~~SB11~~		WATER														Well Hole #13 dry at start elevation abandon @ 4:50 PM depth - 11' bgs
4	SB12	3:00	WATER	70959242	✓	✓				✓							
5	SB12	3:00	WATER	70959259	✓	✓					✓						
6	SB12	3:00	WATER	1	✓	✓		✓				✓					
7	SB12	3:00	WATER	1	✓	✓							✓				
8	SB12	3:00	WATER	1	✓	✓		✓							✓	✓	

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	A. Chew / Shawnee	Thor Magnusson	5/2/97	1330
	Thor Magnusson	Jack Hartmann	5/2/97	1500

Additional Comments
Roger Lamon 970211SRH01R2

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

Pace Analytical

377868

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client SHAW MEE

Address P.O. BOX 12517
OAKLAND, CA 94604

Phone (510) 654-9309

Report To:

Bill To:

P.O. # / Billing Reference

Project Name / No.

Pace Client No.

Pace Project Manager

Pace Project No.

*Requested Due Date:

Sampled By (PRINT): A. CHEW

Sampler Signature: a Chew

Date Sampled: 9-1-97

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA			ANALYSES REQUEST: TVH 8310	DIESEL 8015M	Pb (7421)	TDS (160.1)	Hg (7471)	Cd (7211)	REMARKS
1	~~SB-12~~	~~see~~	WATER		1	✓												Do extract only Hold See Roger
2	SB-13	No Samples	WATER		6	✓						✓						
3	SB-13	this sheet	WATER		6	✓							✓					
4	SB-13		WATER		6	✓								✓				
5	SB-13		WATER		6	✓									✓			
6	SB-13		WATER		6			✓							✓	✓		
7	~~SB-13~~																	
8																		

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
		Thea Mar	9/2/97	1330
	Thea Mar	Gail Kellmann	9/3/97	15:00

Additional Comments

SB-13 has no water samples well hole dry. Elev at street level, abandon at 42 PM depth 11'ft bgs

Roger Lamon 970211SRH01R2

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

Pace Analytical

377865

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: SHAWMEE COMPANY
Address: P.O. Box 12517
OAKLAND, CA 94604
Phone: (510) 654-9309

Report To:
Bill To:
P.O. # / Billing Reference
Project Name / No.

Pace Client No.
Pace Project Manager
Pace Project No. 708258
*Requested Due Date:

Sampled By (PRINT): A. CHEN
Sampler Signature: A. Chen
Date Sampled: 5-1-97

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUESTED: Extract for PNA	PNA (8310)	Diesel (Modified)	Pb (7421)	TDS (160.1)	Hg (7471)	Cr (7211)	REMARKS
1	SB-9	10^10	WATER	70959176	1	✓							✓				DO extract only
2	SB-9	10^10	WATER	↓	1	✓		✓				✓		✓	✓		Hold See Roger
3	ESTUARY	3^05	WATER	70959184	1	✓						✓					
4	ESTUARY	3^05	WATER	↓	1	✓							✓				
5	ESTUARY	3^05	WATER	↓	1	✓		✓						✓	✓		
6	SB-11	12^35	WATER	70959192	2	✓				✓							
7	SB-11	12^35	WATER	70959239	1	✓					✓						
8	SB-11	12^30	WATER	↓	1	✓						✓					

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	A. Chen, Shawmee	Thu Mai	5/2/97	1330
	Thu Mai	Jack Hestmann	5/2/97	15:00

Additional Comments
Roger Lamen 9706211SPH01R2

SEE REVERSE SIDE FOR INSTRUCTIONS

ORIGINAL

Pace Analytical

37863

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client SHAWNEE

Address P.O. Box 12517
OAKLAND, CA 94604

Phone (510) 654-9309

Report To:

Bill To:

P.O. # / Billing Reference

Project Name / No.

Pace Client No.

Pace Project Manager RMC

Pace Project No. 708258

*Requested Due Date:

Sampled By (PRINT): A. CHEN

Sampler Signature: AChen

Date Sampled: 5-1-97

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA			ANALYSES REQUEST: Extract only Pet PNA	PNA (8310)	Diesel (8015m)	Modified (8015m)	Lead (7421)	TDS (160.1)	Mg (7471)	Ca (7211)	REMARKS
1	SB-10	850	WATER	70959143	2	✓						✓								DO EXTRACT ONLY
2	SB-10	852	WATER	70959150	1	✓							✓							Hold —
3	SB-10	852	WATER		1	✓		HNO3							✓					See Roger
4	SB-10	852	WATER		1	✓										✓				
5	SB-10	852	WATER		1	HCl		✓									✓	✓		
6	SB-9	1010	WATER	70959168	2							✓								
7	SB-9	1010	WATER	70959176	1	✓							✓							
8	SB-9	1010	WATER		1	✓		HNO3						✓		HNO3				

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	A Chen Shawnee	Thor Man	5/1/97	1330
	Thor Man	Fred Hermann	5/2/97	15:00

Additional Comments

Roger Lamon
9702115H01R2

SEE REVERSE SIDE FOR INSTRUCTIONS

ORIGINAL

Pace Analytical

378229

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: SHAWNEE
Address: P.O. Box 12517
OAKLAND, CA 94604
Phone: (510) 654-9309 Pager 639-9412

Report To:
Bill To:
P.O. # / Billing Reference
Project Name / No.

Pace Client No.
Pace Project Manager
Pace Project No. 708585
*Requested Due Date:

Sampled By (PRINT): ART CHEN
Sampler Signature: [signature]
Date Sampled: 6-12-97

FILTER ALL WATER SAMPLES

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA			ANALYSES REQUEST: Lead	Copper	Mercury	Diesel (SHIGAS GC)	PNA	PNA (8310)	REMARKS
1	SP10	830	WATER	70-1000986	4							✓	✓	✓	✓	✓		
2	SP12	1130	WATER	70 1000994	4							✓	✓	✓	✓	✓		
3	SP9	130	WATER	70100100 ~~1000984~~	4							✓	✓	✓	✓	✓		
4	SP 12-3.0	1100	SOIL	70-1001018	1												✓	
5																		
6																		
7																		
8																		

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	ART CHEN / Shawnee	[signature]	6/13/97	12:20
	[signature]	Jim Mooter	6/13/97	13:51

Additional Comments

COOLER CUSTODY SEALS INTACT ☐ NOT INTACT ☐ NA
COOLER TEMPERATURE 2 °C
Blue

SEE REVERSE SIDE FOR INSTRUCTIONS

ORIGINAL

APPENDIX H
PACE LABORATORY RESULTS
TOTAL DISSOLVED SOLIDS
Groundwater samples and Estuary Sample

Pace Analytical Services, Inc.
1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

June 03, 1997

Mr. Arthur Chen
Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

RE: Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Dear Mr. Chen:

Enclosed are the results of analyses for sample(s) received by the laboratory on May 16, 1997. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ron Chew
Project Manager

CA ELAP Certificate Number I2245

Enclosures

REPORT OF LABORATORY ANALYSIS

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Fax: 707-792-0342

Pace Analytical

DATE: 06/03/97
PAGE: 1

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (808)593-1116 x42

Solid results are reported on a wet weight basis

Pace Sample No: 70972997 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: SB-9 Date Received: 05/16/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
HPLC							
PAH's in Water by 8310	Method: EPA 8310				Prep Method: EPA 3520		
Naphthalene	ND	ug/L	2.5	05/13/97	SBC	91-20-3	
Acenaphthylene	ND	ug/L	5	05/13/97	SBC	208-96-8	
Acenaphthene	ND	ug/L	2.5	05/13/97	SBC	83-32-9	
Fluorene	2.1	ug/L	0.5	05/13/97	SBC	86-73-7	
Phenanthrene	5.6	ug/L	0.25	05/13/97	SBC	85-01-8	
Anthracene	3.0	ug/L	0.25	05/13/97	SBC	120-12-7	
Fluoranthene	11	ug/L	0.25	05/13/97	SBC	206-44-0	
Pyrene	12	ug/L	0.25	05/13/97	SBC	129-00-0	
Benzo(a)anthracene	3.2	ug/L	0.25	05/13/97	SBC	56-55-3	
Chrysene	5.0	ug/L	0.25	05/13/97	SBC	218-01-9	
Benzo(b)fluoranthene	4.5	ug/L	0.25	05/13/97	SBC	205-99-2	
Benzo(k)fluoranthene	2.1	ug/L	0.25	05/13/97	SBC	207-08-9	
Benzo(a)pyrene	5.5	ug/L	0.25	05/13/97	SBC	50-32-8	
Dibenz(a,h)anthracene	ND	ug/L	1	05/13/97	SBC	53-70-3	
Benzo(g,h,i)perylene	5.1	ug/L	0.5	05/13/97	SBC	191-24-2	
Indeno(1,2,3-cd)pyrene	7.2	ug/L	0.25	05/13/97	SBC	193-39-5	
Carbazole (S)	138	%		05/13/97	SBC	86-74-8	
Terphenyl-d14 (S)	125	%		05/13/97	SBC	1718-51-0	
Date Extracted				05/05/97			

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Pace Analytical

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70973003 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: SB-9 Date Received: 05/16/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3010		
Copper	8310	ug/L	100	05/23/97	ADMM	7440-50-8	1
Date Digested				05/20/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3020		
Lead	1510	ug/L	100	05/30/97	LMD	7439-92-1	
Date Digested				05/20/97			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	2.36	ug/L	0.2	05/20/97	GLG	7439-97-6	
Wet Chemistry							
Total Dissolved Solids	Method: EPA 160.1				Prep Method: EPA 160.1		
Total Dissolved Solids	1340	mg/L	5	05/19/97	RVC		

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Pace Analytical

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70973011 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: SB-10 Date Received: 05/16/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
HPLC							
PAH's in Water by 8310	Method: EPA 8310				Prep Method: EPA 3520		
Naphthalene	ND	ug/L	2.5	05/13/97	SBC	91-20-3	
Acenaphthylene	ND	ug/L	5	05/13/97	SBC	208-96-8	
Acenaphthene	ND	ug/L	2.5	05/13/97	SBC	83-32-9	
Fluorene	ND	ug/L	0.5	05/13/97	SBC	86-73-7	
Phenanthrene	11	ug/L	0.25	05/13/97	SBC	85-01-8	
Anthracene	6.0	ug/L	0.25	05/13/97	SBC	120-12-7	
Fluoranthene	35	ug/L	0.25	05/13/97	SBC	206-44-0	
Pyrene	36	ug/L	2.5	05/13/97	SBC	129-00-0	
Benzo(a)anthracene	7.6	ug/L	0.25	05/13/97	SBC	56-55-3	
Chrysene	ND	ug/L	0.25	05/13/97	SBC	218-01-9	
Benzo(b)fluoranthene	14	ug/L	0.25	05/13/97	SBC	205-99-2	
Benzo(k)fluoranthene	6.0	ug/L	0.25	05/13/97	SBC	207-08-9	
Benzo(a)pyrene	14	ug/L	0.25	05/13/97	SBC	50-32-8	
Dibenz(a,h)anthracene	ND	ug/L	1	05/13/97	SBC	53-70-3	
Benzo(g,h,i)perylene	ND	ug/L	0.5	05/13/97	SBC	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.25	05/13/97	SBC	193-39-5	
Carbazole (S)	166	%		05/13/97	SBC	86-74-8	2
Terphenyl-d14 (S)	255	%		05/13/97	SBC	1718-51-0	2
Date Extracted				05/05/97			

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Pace Analytical

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70973029 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: SB-10 Date Received: 05/16/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3010		
Copper	18200	ug/L	100	05/23/97	ADMM	7440-50-8	1
Date Digested				05/20/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3020		
Lead	7820	ug/L	1000	05/30/97	LMD	7439-92-1	
Date Digested				05/20/97			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	27	ug/L	0.4	05/20/97	GLG	7439-97-6	
Wet Chemistry							
Total Dissolved Solids	Method: EPA 160.1				Prep Method: EPA 160.1		
Total Dissolved Solids	1000	mg/L	5	05/19/97	RVC		

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Pace Analytical

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70973037 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: SB-12 Date Received: 05/16/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
HPLC							
PAH's in Water by 8310	Method: EPA 8310				Prep Method: EPA 3520		
Naphthalene	2.6	ug/L	0.5	05/13/97	SBC	91-20-3	
Acenaphthylene	ND	ug/L	1	05/13/97	SBC	208-96-8	
Acenaphthene	1.2	ug/L	0.5	05/13/97	SBC	83-32-9	
Fluorene	1.0	ug/L	0.1	05/13/97	SBC	86-73-7	
Phenanthrene	2.0	ug/L	0.05	05/13/97	SBC	85-01-8	
Anthracene	1.4	ug/L	0.05	05/13/97	SBC	120-12-7	
Fluoranthene	2.2	ug/L	0.05	05/13/97	SBC	206-44-0	
Pyrene	1.7	ug/L	0.05	05/13/97	SBC	129-00-0	
Benzo(a)anthracene	ND	ug/L	0.05	05/13/97	SBC	56-55-3	
Chrysene	ND	ug/L	0.05	05/13/97	SBC	218-01-9	
Benzo(b)fluoranthene	ND	ug/L	0.05	05/13/97	SBC	205-99-2	
Benzo(k)fluoranthene	ND	ug/L	0.05	05/13/97	SBC	207-08-9	
Benzo(a)pyrene	0.21	ug/L	0.05	05/13/97	SBC	50-32-8	
Dibenz(a,h)anthracene	ND	ug/L	0.2	05/13/97	SBC	53-70-3	
Benzo(g,h,i)perylene	ND	ug/L	0.1	05/13/97	SBC	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.05	05/13/97	SBC	193-39-5	
Carbazole (S)	104	%		05/13/97	SBC	86-74-8	
Terphenyl-d14 (S)	44	%		05/13/97	SBC	1718-51-0	
Date Extracted				05/05/97			

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Pace Analytical

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70973094 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: SB-12 Date Received: 05/16/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3010		
Copper	1110	ug/L	10	05/21/97	ADMM	7440-50-8	
Date Digested				05/20/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3020		
Lead	1060	ug/L	250	05/30/97	LMD	7439-92-1	
Date Digested				05/20/97			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	12.2	ug/L	0.2	05/20/97	GLG	7439-97-6	
Wet Chemistry							
Total Dissolved Solids	Method: EPA 160.1				Prep Method: EPA 160.1		
Total Dissolved Solids	6980	mg/L	5	05/19/97	RVC		

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Pace Analytical

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Pace Sample No: 70973102 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: ESTUARY Date Received: 05/16/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals, ICP	Method: EPA 6010				Prep Method: EPA 3010		
Copper	ND	ug/L	10	05/21/97	ADMM	7440-50-8	
Date Digested				05/20/97			
Lead, AAS Furnace	Method: EPA 7421				Prep Method: EPA 3020		
Lead	ND	ug/L	25	05/30/97	LMD	7439-92-1	1
Date Digested				05/20/97			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	0.29	ug/L	0.2	05/20/97	GLG	7439-97-6	
Wet Chemistry							
Total Dissolved Solids	Method: EPA 160.1				Prep Method: EPA 160.1		
Total Dissolved Solids	25100	mg/L	5	05/19/97	RVC		

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Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
(S)	Surrogate
[1]	The sample was diluted to reduce matrix interference, resulting in elevated reporting limits.
[2]	High surrogate recovery was confirmed as a matrix effect by a second analysis.

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Pace Analytical

QUALITY CONTROL DATA

DATE: 06/03/97

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (808)593-1116 x42

QC Batch ID: 23773
Analysis Method: EPA 7470
QC Batch Method: EPA 7470
Analysis Description: Mercury in Water
Associated Pace Samples: 70973003 70973029 70973094 70973102

METHOD BLANK: 70974027
Associated Pace Samples:
70973003 70973029 70973094 70973102

Parameter	Units	Method Blank Result	PRL	Footnotes
Mercury	ug/L	ND	0.2	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70974050 70974068

Parameter	Units	70969738	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Mercury	ug/L	0.03000	1.6	0.6300	37.5	0.5800	34.4	9	1

LABORATORY CONTROL SAMPLE & LCSD: 70974035 70974043

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Mercury	ug/L	1.6	1.600	100	1.660	104	4	

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QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (808)593-1116 x42

QC Batch ID: 23779
QC Batch Method: EPA 160.1
Analysis Method: EPA 160.1
Analysis Description: Total Dissolved Solids
Associated Pace Samples: 70973003 70973029 70973094 70973102

METHOD BLANK: 70974357
Associated Pace Samples:
70973003 70973029 70973094 70973102

Parameter	Units	Method Blank Result	PRL	Footnotes
Total Dissolved Solids	mg/L	ND	5	

SAMPLE DUPLICATE: 70974365

Parameter	Units	70973003	Dup. Result	RPD	Footnotes
Total Dissolved Solids	mg/L	1340	1380	2	

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Fax: 707-792-0342

Pace Analytical

QUALITY CONTROL DATA

DATE: 06/03/97

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (808)593-1116 x42

QC Batch ID: 23783
QC Batch Method: EPA 3020
Analysis Method: EPA 7421
Analysis Description: Lead, AAS Furnace
Associated Pace Samples: 70973003 70973029 70973094 70973102

METHOD BLANK: 70974449
Associated Pace Samples:
70973003 70973029 70973094 70973102

Parameter	Units	Method Blank Result	PRL	Footnotes
Lead	ug/L	ND	5	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70974845 70974852

Parameter	Units	70973102	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Lead	ug/L	4.700	40	46.30	104	43.75	97.6	6	

LABORATORY CONTROL SAMPLE & LCSD: 70974456 70974464

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Lead	ug/L	40	45.69	114	44.58	111	3	

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QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (808)593-1116 x42

QC Batch ID: 23784
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: Metals, ICP
Associated Pace Samples: 70973003 70973029 70973094 70973102

METHOD BLANK: 70974498
Associated Pace Samples:
70973003 70973029 70973094 70973102

Parameter	Units	Method Blank Result	PRL	Footnotes
Copper	ug/L	ND	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70974563 70974571

Parameter	Units	70971759	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Copper	ug/L	10.61	2000	1941	96.5	1941	96.5	0	

LABORATORY CONTROL SAMPLE & LCSD: 70974548 70974555

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Copper	ug/L	2000	1852	92.6	1897	94.9	2	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

QUALITY CONTROL DATA

DATE: 06/03/97

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

Attn: Mr. Arthur Chen
Phone: (808)593-1116 x42

QC Batch ID: 23788
Analysis Method: EPA 8310
Associated Pace Samples: 70972997 70973011 70973037

QC Batch Method: EPA 3520
Analysis Description: PAH's in Water by 8310

METHOD BLANK: 70974761
Associated Pace Samples:
70972997 70973011 70973037

Parameter	Units	Method Blank Result	PRL	Footnotes
Naphthalene	ug/L	ND	0.5	
Acenaphthylene	ug/L	ND	1	
Acenaphthene	ug/L	ND	0.5	
Fluorene	ug/L	ND	0.1	
Phenanthrene	ug/L	ND	0.05	
Anthracene	ug/L	ND	0.05	
Fluoranthene	ug/L	ND	0.05	
Pyrene	ug/L	ND	0.05	
Benzo(a)anthracene	ug/L	ND	0.05	
Chrysene	ug/L	ND	0.05	
Benzo(b)fluoranthene	ug/L	ND	0.05	
Benzo(k)fluoranthene	ug/L	ND	0.05	
Benzo(a)pyrene	ug/L	ND	0.05	
Dibenz(a,h)anthracene	ug/L	ND	0.2	
Benzo(g,h,i)perylene	ug/L	ND	0.1	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.05	
Carbazole (S)	%	95		
Terphenyl-d14 (S)	%	90		

LABORATORY CONTROL SAMPLE & LCSD: 70974795 70974803

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Naphthalene	ug/L	10	6.490	64.9	7.080	70.8	9	

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QUALITY CONTROL DATA

Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

LABORATORY CONTROL SAMPLE & LCSD: 70974795 70974803

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Acenaphthylene	ug/L	20	14.10	70.5	15.50	77.5	9	
Acenaphthene	ug/L	10	7.110	71.1	8.110	81.1	13	
Fluorene	ug/L	2.0	1.420	71.0	1.620	81.0	13	
Phenanthrene	ug/L	1.0	0.7570	75.7	0.8350	83.5	10	
Anthracene	ug/L	1.0	0.7490	74.9	0.8090	80.9	8	
Fluoranthene	ug/L	2.0	1.690	84.5	1.710	85.5	1	
Pyrene	ug/L	1.0	0.8390	83.9	0.8320	83.2	1	
Benzo(a)anthracene	ug/L	1.0	0.9170	91.7	0.9290	92.9	1	
Chrysene	ug/L	1.0	0.9090	90.9	0.9300	93.0	2	
Benzo(b)fluoranthene	ug/L	2.0	1.870	93.5	1.920	96.0	3	
Benzo(k)fluoranthene	ug/L	1.0	0.9310	93.1	0.9460	94.6	2	
Benzo(a)pyrene	ug/L	1.0	0.9210	92.1	0.8920	89.2	3	
Dibenz(a,h)anthracene	ug/L	2.0	1.830	91.5	1.840	92.0	1	
Benzo(g,h,i)perylene	ug/L	2.0	1.780	89.0	1.800	90.0	1	
Indeno(1,2,3-cd)pyrene	ug/L	1.0	0.9000	90.0	0.8890	88.9	1	
Carbazole (S)				90		88		
Terphenyl-d14 (S)				86		89		

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Pace Project Number: 708353
Client Project ID: Former Cryer Boat Yard/202995

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
RPD	Relative Percent Difference
(S)	Surrogate
[1]	The spike recovery was outside acceptance limits for the MS and /or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

REPORT OF LABORATORY ANALYSIS

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369136

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: Shawnee Co.
Address: P.O. Box 12517
Oakland, CA 94604
Phone: (510) 654-9309

Report To: Art Chen
Bill To: Port of Oakland.
P.O. # / Billing Reference: 202995
Project Name / ~~No.~~: Former Cryer Boat Yard

Pace Client No.:
Pace Project Manager: RMC
Pace Project No.: 70853
*Requested Due Date: 5/28/97.

Sampled By (PRINT):
Sampler Signature
Date Sampled

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA			ANALYSES REQUEST: Diesel 8015 M.	PNA 8310.	TDS	Hg, Pb, Cu.			REMARKS
1	SB 12-3-0	5/1/97	Soil	70972989	1	X						X						Sample AKA 7095-9119. ← Project AKA 708258
2	SB-9		Water	70972997	2								X					
3	SB-9		Water	70973003	2	X		X						X	X			This sample cancelled per instruction from client. 5/21/97 RG Confirmed verbal.!!
4	SB-10		Water	70973011	2								X					
5	SB-10		Water	70973029	2	X		X						X	X			
6	SB-12		Water	70973037	2								X					
7	SB-12		Water	70973094	2	X		X						X	X			
8	ESTUARY		Water	70973102										X	X			

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME

Additional Comments

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

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Pace Analytical

DATE: 06/09/97
PAGE: 1

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708513
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone:

Solid results are reported on a wet weight basis

Pace Sample No: 70990718 Date Collected: 05/01/97 Matrix: Soil
Client Sample ID: SB12-3.0 Date Received: 06/05/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC/MS -- Semi-VOA							
Semivolatile Organics	Method: EPA 8270				Prep Method: EPA 3550 Sonication		
Naphthalene	ND	ug/kg	3300	06/06/97	WSN	91-20-3	
Acenaphthylene	ND	ug/kg	3300	06/06/97	WSN	208-96-8	
Acenaphthene	1500	ug/kg	3300	06/06/97	WSN	83-32-9	1
Fluorene	1300	ug/kg	3300	06/06/97	WSN	86-73-7	1
Phenanthrene	4700	ug/kg	3300	06/06/97	WSN	85-01-8	
Anthracene	1400	ug/kg	3300	06/06/97	WSN	120-12-7	1
Fluoranthene	5600	ug/kg	3300	06/06/97	WSN	206-44-0	
Pyrene	5100	ug/kg	3300	06/06/97	WSN	129-00-0	
Benzo(a)anthracene	1400	ug/kg	3300	06/06/97	WSN	56-55-3	1
Chrysene	2800	ug/kg	3300	06/06/97	WSN	218-01-9	1
Benzo(b)fluoranthene	930	ug/kg	3300	06/06/97	WSN	205-99-2	1
Benzo(k)fluoranthene	1400	ug/kg	3300	06/06/97	WSN	207-08-9	1
Benzo(a)pyrene	950	ug/kg	3300	06/06/97	WSN	50-32-8	1
Indeno(1,2,3-cd)pyrene	360	ug/kg	3300	06/06/97	WSN	193-39-5	1
Dibenz(a,h)anthracene	ND	ug/kg	3300	06/06/97	WSN	53-70-3	
Benzo(g,h,i)perylene	560	ug/kg	3300	06/06/97	WSN	191-24-2	1
Date Extracted				05/06/97			

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Pace Analytical

Pace Project Number: 708513
Client Project ID: Pt. Oak./Former Cryer Boatyard

Pace Sample No: 70990841 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: SB-9 Date Received: 06/05/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC/MS -- Semi-VOA							
8270 Fuel Fingerprint in Water	Method: EPA 625 CLLE				Prep Method: EPA 3522		
Diesel #2	2600	ug/L	250	06/06/97	WSN		2
Date Extracted				05/05/97			

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Pace Analytical

Pace Project Number: 708513
Client Project ID: Pt. Oak./Former Cryer Boatyard

Pace Sample No: 70990858 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: SB-10 Date Received: 06/05/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC/MS -- Semi-VOA							
8270 Fuel Fingerprint in Water	Method: EPA 625 CLLE				Prep Method: EPA 3522		
Diesel #2	2500	ug/L	250	06/06/97	WSN		2
Date Extracted				05/05/97			

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Pace Analytical

Pace Project Number: 708513
Client Project ID: Pt. Oak./Former Cryer Boatyard

Pace Sample No: 70990866 Date Collected: 05/01/97 Matrix: Water
Client Sample ID: SB-12 Date Received: 06/05/97

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC/MS -- Semi-VOA							
8270 Fuel Fingerprint in Water	Method: EPA 625 CLLE				Prep Method: EPA 3522		
Diesel #2	830	ug/L	50	06/06/97	WSN		3
Date Extracted				05/05/97			

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Tel: 707-792-1865
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Pace Project Number: 708513
Client Project ID: Pt. Oak./Former Cryer Boatyard

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
[1]	Detected but below the PRL; therefore, result is an estimated concentration (CLP J-Flag).
[2]	Hydrocarbons are present in the requested fuel quantitation range but resemble heavier fuel hydrocarbon pattern.
[3]	High-boiling point fuel-hydrocarbons are present above C24 range.

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QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708513
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone:

QC Batch ID: 24209
QC Batch Method: EPA 3522
Analysis Method: EPA 625 CLLE
Analysis Description: 8270 Fuel Fingerprint in Water
Associated Pace Samples: 70990841 70990858 70990866

METHOD BLANK: 70992805
Associated Pace Samples:
70990841 70990858 70990866

Parameter	Units	Method Blank Result	PRL	Footnotes
Diesel #2	ug/L	ND	50	

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QUALITY CONTROL DATA

Shawnee Company, Inc.
P.O. Box 12517
Oakland, CA 94604

Pace Project Number: 708513
Client Project ID: Pt. Oak./Former Cryer Boatyard

Attn: Mr. Arthur Chen
Phone:

QC Batch ID: 24211
Analysis Method: EPA 8270
Associated Pace Samples: 70990718

QC Batch Method: EPA 3550 Sonication
Analysis Description: Semivolatile Organics

METHOD BLANK: 70992839
Associated Pace Samples:
70990718

Parameter	Units	Method Blank Result	PRL	Footnotes
Naphthalene	ug/kg	ND	330	
Acenaphthylene	ug/kg	ND	330	
Acenaphthene	ug/kg	ND	330	
Fluorene	ug/kg	ND	330	
Phenanthrene	ug/kg	ND	330	
Anthracene	ug/kg	ND	330	
Fluoranthene	ug/kg	ND	330	
Pyrene	ug/kg	ND	330	
Benzo(a)anthracene	ug/kg	ND	330	
Chrysene	ug/kg	ND	330	
Benzo(b)fluoranthene	ug/kg	ND	330	
Benzo(k)fluoranthene	ug/kg	ND	330	
Benzo(a)pyrene	ug/kg	ND	330	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	330	
Dibenz(a,h)anthracene	ug/kg	ND	330	
Benzo(g,h,i)perylene	ug/kg	ND	330	

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Pace Project Number: 708513
Client Project ID: Pt. Oak./Former Cryer Boatyard

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
RPD	Relative Percent Difference

REPORT OF LABORATORY ANALYSIS

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369142

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: Shawnee Co.
Address: P.O. Box 12517
Oakland, CA 94604
Phone: (510) 654-9309

Report To: Art Chen
Bill To: Port of Oakland
P.O. # / Billing Reference
Project Name / No.: Former Cryer Boat Yard.

Pace Client No.
Pace Project Manager: RMC
Pace Project No.: 708573
*Requested Due Date: 6/12/97

Sampled By (PRINT):
Sampler Signature
Date Sampled

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: PNA 8270	Diesel	REMARKS
1	SB 12-3.0	5/1/97	Soil	70990718	1	X				X	Sample AKA 7095-9119	Project AKA 70825-8
2	SB-9	↓	water	70990841	1	X				X	70972997	
3	SB-10	↓	↓	70990858	1	X				X	70973011	
4	SB-12	↓	↓	70990860	1	X				X	70973037	
5												
6												
7												
8												

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

Additional Comments

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

FORM 3
WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: PACE ANALYTICAL SERVICES Contract:

Lab Code: NORCAL Case No.: SAS No.: SDG No.: 060697

Matrix Spike - Sample No.: SBLKA2

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Naphthalene	10.00	0.0000	9.186	92	32-102
Acenaphthylene	20.00	0.0000	19.68	98	37-114
Acenaphthene	10.00	0.0000	9.648	96	36-113
Fluorene	2.000	0.0000	1.808	90	38-115
Phenanthrene	1.000	0.0000	0.8986	90	37-126
Anthracene	1.000	0.0000	0.9025	90	38-120
Fluoranthene	2.000	0.0000	1.731	86	40-125
Pyrene	1.000	0.0000	0.8232	82	43-123
Benzo(a)anthracene	1.000	0.0000	0.9034	90	46-127
Chrysene	1.000	0.0000	0.9234	92	46-127
Benzo(b)fluoranthene	2.000	0.0000	1.289	64	49-127
Benzo(k)fluoranthene	1.000	0.0000	1.363	136*	47-126
Benzo(a)pyrene	1.000	0.0000	0.6710	67	41-131
Indeno(1,2,3-cd)pyrene	1.000	0.0000	0.7598	76	46-130
Dibenz(a,h)anthracene	2.000	0.0000	1.352	68	31-131
Benzo(g,h,i)perylene	2.000	0.0000	1.383	69	40-127

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: PACE ANALYTICAL SERVICES Contract:

Lab Code: NORCAL Case No.: SAS No.: SDG No.: 060697

Matrix Spike - Sample No.: SBLKA2

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	10.00	8.523	85	8	33	32-102
Acenaphthylene	20.00	18.04	90	8	20	37-114
Acenaphthene	10.00	8.640	86	11	40	36-113
Fluorene	2.000	1.661	83	8	25	38-115
Phenanthrene	1.000	0.8390	84	7	47	37-126
Anthracene	1.000	0.8228	82	9	28	38-120
Fluoranthene	2.000	1.670	84	2	39	40-125
Pyrene	1.000	0.8385	84	2	30	43-123
Benzo(a)anthracene	1.000	0.8717	87	3	29	46-127
Chrysene	1.000	0.9533	95	3	32	46-127
Benzo(b)fluoranthene	2.000	1.278	64	0	37	49-127
Benzo(k)fluoranthene	1.000	1.176	118	14	30	47-126
Benzo(a)pyrene	1.000	0.7288	73	8	20	41-131
Indeno(1,2,3-cd)pyrene	1.000	0.7956	80	5	35	46-130
Dibenz(a,h)anthracene	2.000	1.375	69	1	20	31-131
Benzo(g,h,i)perylene	2.000	1.310	66	4	51	40-127

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 16 outside limits
Spike Recovery: 1 out of 32 outside limits

COMMENTS: _____

FORM 3
SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: PACE ANALYTICAL SERVICES Contract:

Lab Code: NORCAL Case No.: SAS No.: SDG No.: 060697

Matrix Spike - Sample No.: SBLKA1 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Diesel (C10-C24)	33330	0.0000	21810	65	30-120

COMPOUND	SPIKE ADDED (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Diesel (C10-C24)	33330	18360	55	17	40	30-120

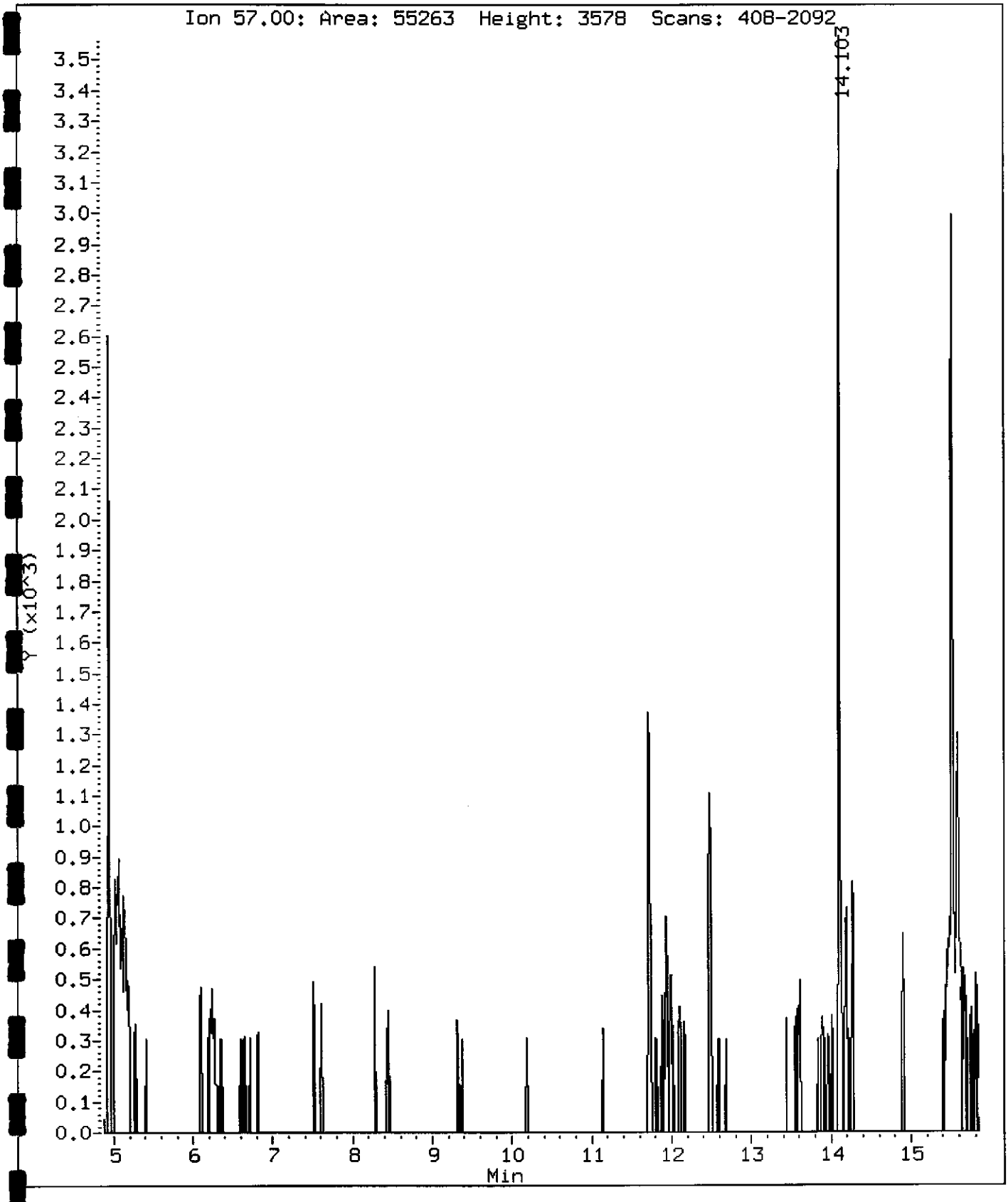
Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: _____

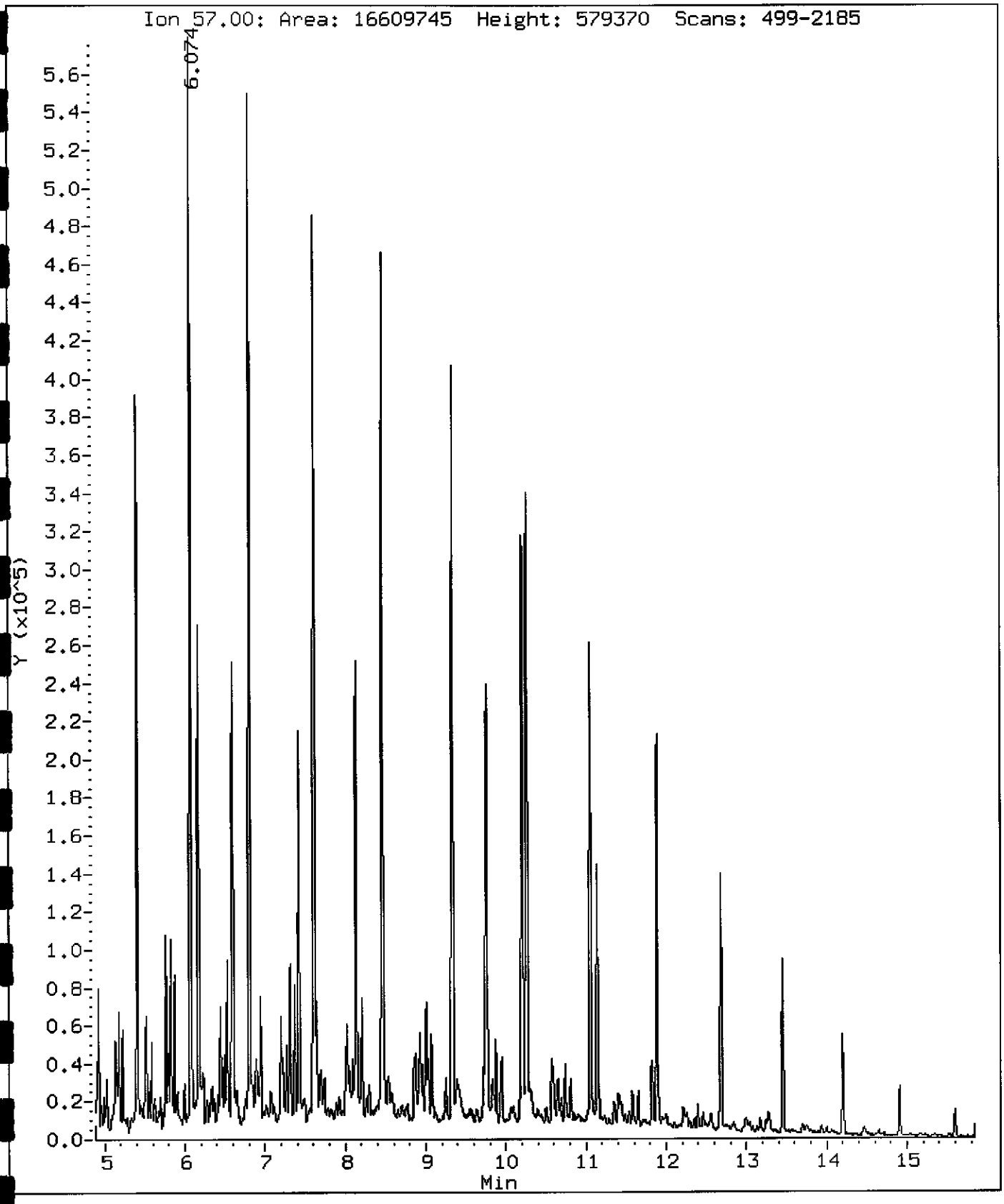
Data File: /chem/70mss01.i/060997.b/1sv6168.d
Injection Date: 09-JUN-97 14:31
Instrument: 70mss01.i
Client Sample ID: SBLKA1

Compound: Diesel (C10-C24)
CAS Number:



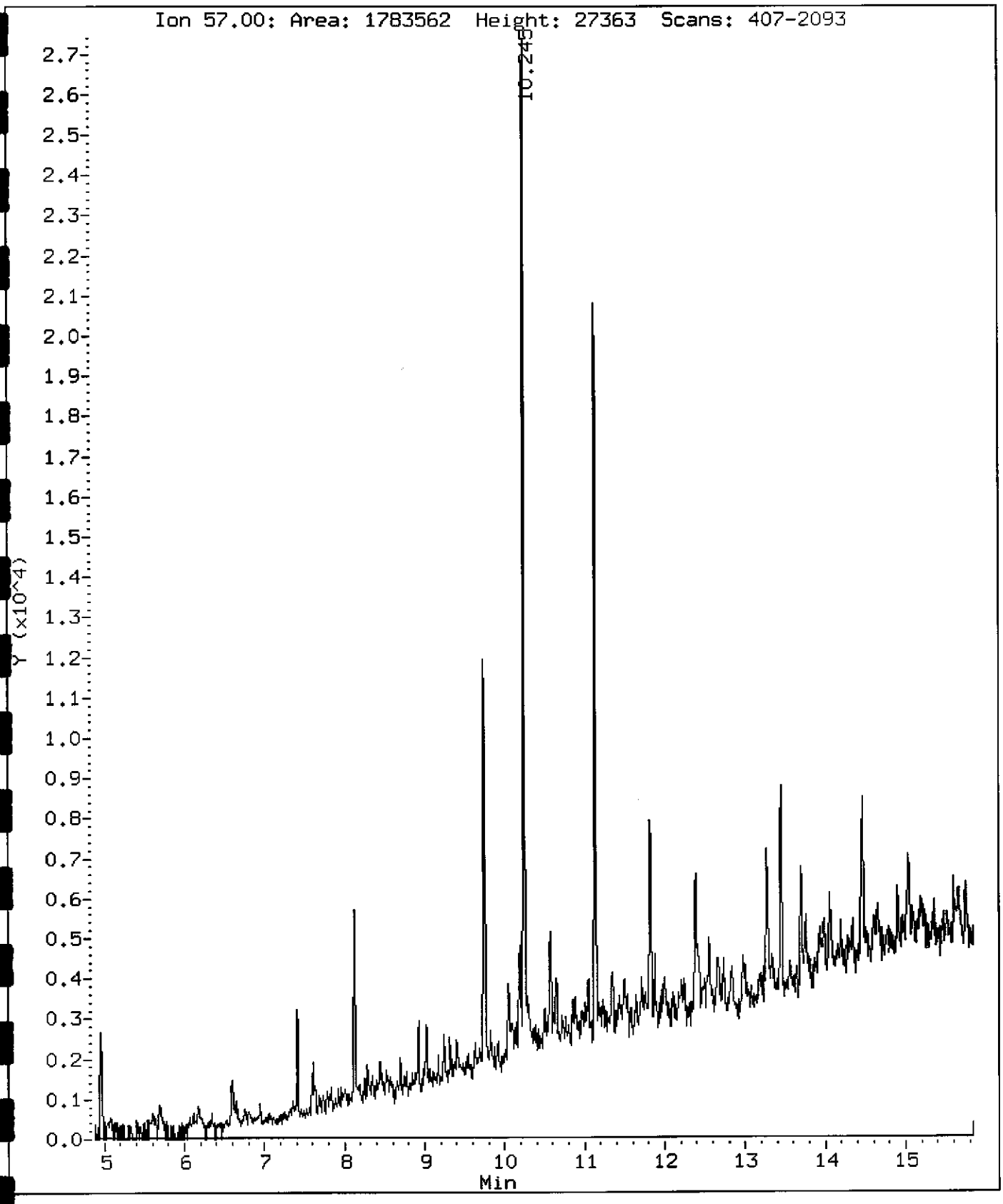
Data File: /chem/70mss01.i/060697.b/1sv6151.d
Injection Date: 06-JUN-97 15:01
Instrument: 70mss01.i
Client Sample ID: SSTD5000

Compound: Diesel (C10-C24)
CAS Number:



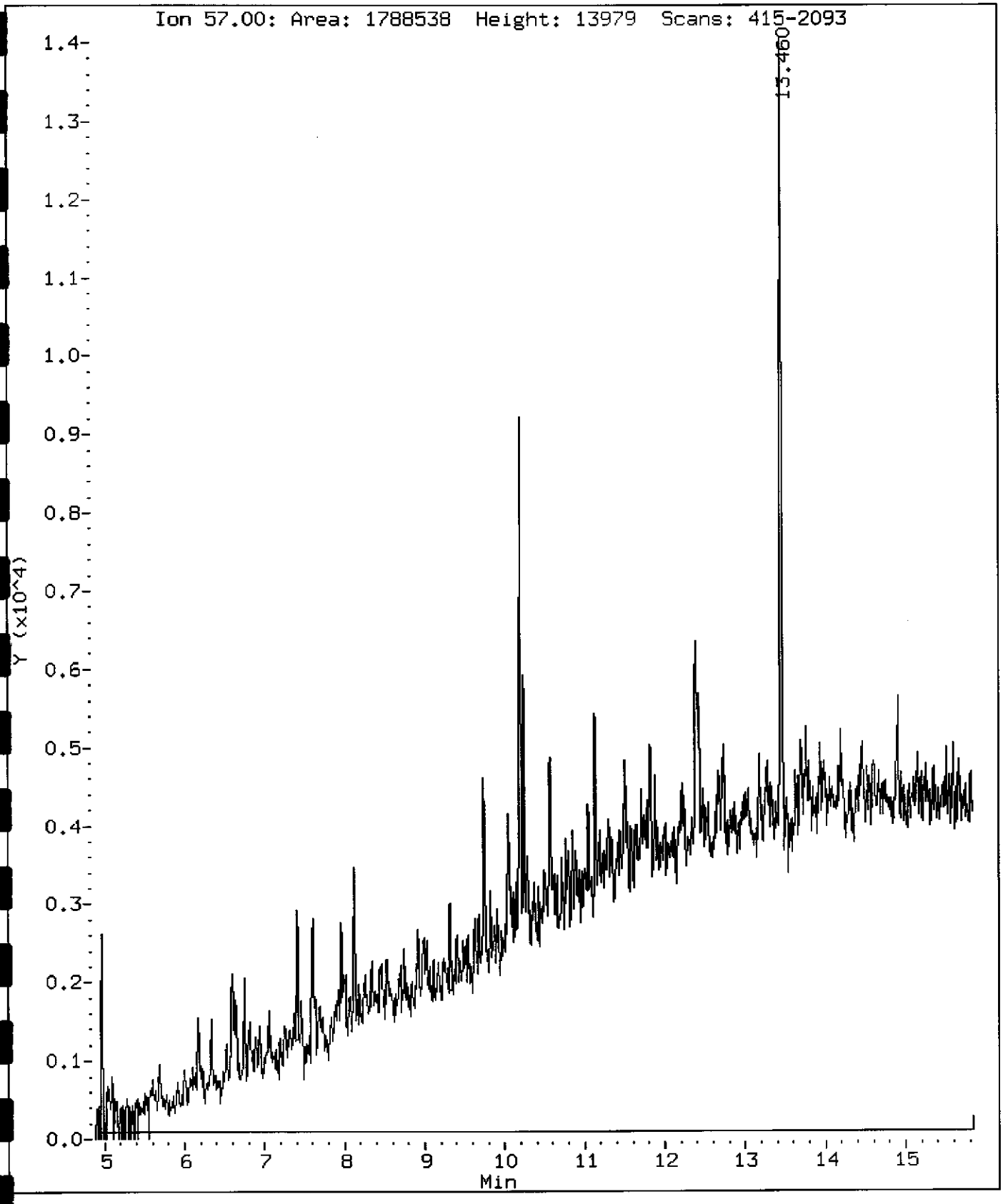
Data File: /chem/70mss01.i/060697.b/1sv6163.d
Injection Date: 06-JUN-97 23:08
Instrument: 70mss01.i
Client Sample ID: SB-9

Compound: Diesel (C10-C24)
CAS Number:



Data File: /chem/70mss01.i/060697.b/1sv6164.d
Injection Date: 06-JUN-97 23:46
Instrument: 70mss01.i
Client Sample ID: SB-10

Compound: Diesel (C10-C24)
CAS Number:



Data File: /chem/70mss01.i/060697.b/1sv6160.d
Injection Date: 06-JUN-97 21:14
Instrument: 70mss01.i
Client Sample ID: SB-12

Compound: Diesel (C10-C24)
CAS Number: