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April 5, 2002

Project Number N7538

Mr. James Shafer
Remedial Project Manager
Engineering Field Activity Northeast
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Reference: CLEAN Contract No. N62472-90-D-1298
Contract Task Order 0282

Subject: Supplemental Information, Final PRGs
Old Fire Fighting Training Area (OFFTA)
Naval Station Newport, Newport, Rhode Island

Dear Mr. Shafer:

Enclosed you will find two copies of tables for Appendix D to the Feasibility Study prepared for the OFFTA site, which was released on March 26, 2002. These tables were inadvertently excluded from that transmittal.

Each table set should simply be inserted after the text in each copy of the Draft Final FS.

Copies of this material have been distributed directly to EPA, RIDEM, and other parties who received the FS report. Please contact me if you have any questions or comments about this transmittal.

Very truly yours,

(for)

James R. Forrelli, P. E.
Project Manager

JRF/rp

Enclosures

c: M. Griffin, NAVSTA Newport (w/enc. – 2)
K. Keckler, EPA (w/enc. – 2)
P. Kulpa, RIDEM (w/enc. – 4)
C. Powell, RIDEM (w/enc.)
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bc: R. Sloboda, TtNUS (w/enc.)
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TABLE 1.1
SHORELINE SEDIMENT PRGS
RESIDENTIAL CONTACT WITH SEDIMENT, LIFETIME RECREATIONAL EXPOSURE
NSN NEWPORT, RHODE ISLAND

Substance	Exposure Point Concentration*	Estimated Risk at Exposure Pt. Conc.	PRGs at various risk levels*		
			1.00E-04	1.00E-05	1.00E-06
Arsenic	6.53	6.09E-06	107.31	10.73	1.07
Benz(a)anthracene	1900	1.42E-06	133821	13382	1338
Benzo(a)pyrene	1400	1.05E-05	13382	1338	134
Benzo(b)fluoranthene	1700	1.27E-06	133821	13382	1338
Dibenz(a,h)anthracene	290	2.17E-06	13382	1338	134

*Units are ug/kg for organics, mg/kg for inorganics.

Table 2.1
Sediment PRG Summary
Lifetime Recreational Fisherman Exposure to Lobster
NSN, Newport, Rhode Island

Substance	Tissue EPC*	Noncancer Risk	Cancer Risk	Tissue Concentration PRGs*				Median BAF	Median BSAF	Sediment Concentration PRGs*			
				Noncancer (HI = 1)	1E-4 Cancer Risk	1E-5 Cancer Risk	1E-6 Cancer Risk			Noncancer (HI = 1)	1E-4 Cancer Risk	1E-5 Cancer Risk	1E-6 Cancer Risk
Arsenic**	8 55	0.0652	9.74E-06	1 31E+02	8 78E+01	8 78E+00	8 78E-01	0 97		819	548	54 8	5 48
Cadmium	12 7	0 291		4 36E+01				26.165		10			
Chromium	17 1	0.13		1 32E+02				0 215		3708			
Mercury	3 53	0 807		4.37E+00				11.41		2 3			
Total PCB Congeners	265	0 303	4 03E-06	8 75E+02	6 58E+03	6 58E+02	6.58E+01		1.075		17450	1745	175
Dieldrin***	4 47		5 43E-07		8 23E+02	8 23E+01	8 23E+00		***		***	***	***
Benz(a)anthracene	94 6		5 25E-07		1 80E+04	1 80E+03	1 80E+02		0 015		3426991	342699	34270
Benzo(a)pyrene	172		9 54E-06		1.80E+03	1 80E+02	1 80E+01		0 005495		936019	93602	9360
Benzo(b)fluoranthene	187		1 04E-06		1.80E+04	1 80E+03	1 80E+02		0.01		5129566	512957	51296
Dibenz(a,h)anthracene	3 74		2 07E-07		1 81E+03	1 81E+02	1 81E+01		0 007645		674211	67421	6742
Indeno(1,2,3-cd)pyrene	101		5 60E-07		1 80E+04	1.80E+03	1.80E+02		0.007095		7251925	725193	72519

Shaded values are changes in the draft final.
*EPC and PRG Units are mg/kg for inorganics, ug/kg for organics
**Arsenic tissue EPCs are adjusted for As bioavailability - see text
Average tissue % solids· 16 5
Average tissue % lipids 5.651
Average sediment % TOC· 2 66
***Sediment PRG and BAF not calculable because substance not detected in sediment.
BAF and BSAF data from Appendix D-8-1, in Technical Support Document for the Marine Ecological Risk Assessment, OFFTA, Naval Station, Newport RI, December 1998

TABLE 3-1
WATER QUALITY SCREENING VALUES
ECOLOGICAL PRG DEVELOPMENT STEP 1
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND
PAGE 1 OF 3

Parameter	Koc[1]	Water Quality Screening Values (ug/L)				Sediment Benchmarks (ug/kg)		Final WQSV (ug/L)	
		Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Source	Value	Source	Value	Comment
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	7994							NA	
1-Methylphenanthrene	98610							NA	
2,3,5-Trimethylnaphthalene	NA							NA	
2,6-Dimethylnaphthalene	34034							NA	
2-Methylnaphthalene	7994					70	(7)	0.88	A
Acenaphthene	7139			710	(11)			710	B
Acenaphthylene	9581					44	(7)	0.46	A
Anthracene	29712					85.3	(7)	0.29	A
Benzo(a)anthracene	401218					261	(7)	0.065	A
Benzo(a)pyrene	1014869					430	(7)	0.042	A
Benzo(b,j,k)fluoranthene	1244171					1800	(11)	0.14	A
Benzo(e)pyrene	1014869							NA	
Benzo(g,h,i)Perylene	3858158					720	(8)	0.019	A
Biphenyl	7816					1100	(12)	14	A
Chrysene/triphenylene	401218					384	(7)	0.10	A
Dibenzo(a,h)Anthracene	3771812					63.4	(7)	0.0017	A
Fluoranthene	107954			16	(11)			16	B
Fluorene	13763					19	(7)	0.14	A
Indeno(1,2,3-cd)pyrene	3445323					690	(8)	0.020	A
Naphthalene	2010		2350		(11)			633	D
Perylene	885992							NA	
Phenanthrene	29712			4.6	(11)			4.6	B
Pyrene	105538					665	(7)	0.63	A
Sum PAHs (6 High Molecular Weight)	1014869					1700	(7)	0.17	A
Sum PAHs (7 Low Molecular Weight)	11483					552	(7)	4.8	A
Sum PAHs (NOAA Status &Trends)	107954					4022	(7)	3.7	A

TABLE 3-1
WATER QUALITY SCREENING VALUES
ECOLOGICAL PRG DEVELOPMENT STEP 1
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Parameter	Koc[1]	Water Quality Screening Values (ug/L)				Sediment Benchmarks (ug/kg)		Final WQSV (ug/L)	
		Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Source	Value	Source	Value	Comment
PCBs/Pesticides									
1a,2a,3b,4a,5a,6b-hexachlorocyclohexane (lindane)	5566		0.16		(2)			0.160	D
2,4'-DDE	4419366			0.001	(2,6)			0.001	B
2,4'-DDT	4419366			0.001	(2)			0.001	B
4,4'-DDD	992156			0.001	(2,6)			0.001	B
4,4'-DDE	4419366			0.001	(2,6)			0.001	B
4,4'-DDT	4419366			0.001	(2)			0.001	B
Aldrin	2453466		1.3		(2)			0.16	C
alpha-Chlordane	2453466			0.004	(2)			0.004	B
Heptachlor	2453466			0.0036	(2)			0.0036	B
Heptachlor Epoxide	2453466			0.0036	(2)			0.0036	B
Hexachlorobenzene	616808					22	(8)	0.0036	A
Mirex	5931301			0.001	(4)			0.001	B
trans-Nonachlor	5668785							NA	
PCBs	NA			0.03	(2)			0.03	B
Metals									
Aluminum	NA	87			(2)			87	C
Arsenic	NA			36	(2,3)			36	B
Barium	NA							NA	
Cadmium	NA			9.4	(2,3)			9.4	B
Chromium	NA			50	(2,3)			50	B
Copper	NA			3.7	(2,3)			3.7	B
Iron	NA	1000			(4)			1000	C
Lead	NA			8.5	(2,3)			8.5	B
Manganese	NA							NA	
Mercury	NA			1.1	(3,4,5)			1.1	B
Nickel	NA			8.3	(2,3)			8.3	B
Silver	NA			0.92	(3, 13)			0.92	B
Zinc	NA			86	(2,3)			86	B

TABLE 3-1
WATER QUALITY SCREENING VALUES
ECOLOGICAL PRG DEVELOPMENT STEP 1
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Parameter	Koc[1]	Water Quality Screening Values (ug/L)				Sediment Benchmarks (ug/kg)		Final WQSV (ug/L)	
		Freshwater Chronic	Saltwater Acute	Saltwater Chronic	Source	Value	Source	Value	Comment
SEM-AVS	NA					5	(10)	5	E

Sources of Data

1 - See Table 4 for source of Koc values
2 - RIDEM Ambient Water Quality Criteria and Guidelines for Toxic Pollutants, Appendix B, amended June 2000
3 - Values are based on total metals because the pore water samples were not filtered
4 - USEPA National Recommended Water Quality Criteria (USEPA, 1999)
5 - The mercury value from USEPA (1999) was used because it is based on protecting aquatic life. The RIDEM value is based on protecting wildlife, which is not an endpoint of the PRGs.
6 - Used the DDT value as a surrogate for DDD and DDE
7 - ER-L value from Long et al., (1995)
8 - Apparent Effects Threshold value (Option 2 - with mixcotox data excluded) from PTI (1989)
9 - Used the value for benzofluoranthenes
10 - Source of SEM - AVS value of 5 umole/g dry weight is USEPA (1997)
11 - Lowest Observed Effects Levels cited in Buchman (1999)
12 - Sediment Quality Benchmark from USEPA (1996)
13 - Proposed Value in the Water Quality Criteria Summary Table (USEPA, 1991)

Comments

A - Value was calculated from sediment benchmark using the following equilibrium partitioning equation with the Total Organic Carbon=1%:
WQSV - (Sediment Benchmark)/(Koc * TOC/100)
B - Values is the saltwater chronic water quality screening value
C - Value is the freshwater chronic water quality screening value
D - Values is the saltwater acute water quality screening value divided by the following chemical-specific acute-to-chronic ratios that were developed by SAIC for Portsmouth Naval Shipyard (TtNUS, 2001):
- Naphthalene - 3.71
- Lindane - 1
- Aldrin - 8

E - Value is the USEPA recommended screening level
NA - No data available

TABLE 3.2
SEDIMENT RESULTS
ECOLOGICAL PRG DEVELOPMENT STEP 2
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location	OFF-1	OFF-2	OFF-3	OFF-4	OFF-5	OFF-6	OFF-7	OFF-8	OFF-9	OFF-10	OFF-11	OFF-12	OFF-13	OFF-14	OFF-15
Sample Depth Interval	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm
Date Sampled	3/27/1998	3/27/1998	3/27/1998	3/27/1998	3/27/1998	3/27/1998	3/27/1998	4/7/1998	4/7/1998	4/3/1998	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/7/1998
Polyaromatic Hydrocarbons (ug/kg)															
1-Methylnaphthalene	14 8 J	52 4 J	62 2 J	35 8 J	278 J	132 J	34 6	11	1 7 J	2.2 J	6 2 J	78 8 J	43 2 J	9 4	4 6 J
1-Methylphenanthrene	132	364	539	282	1460	680	104	22	4 4 J	3 J	14 8	220	177 J	20 1	11 4
2,3,5-Trimethylnaphthalene	7 7 J	45 2 J	22 J	22 6 J	121 J	36.3 J	17 7	2.3 J	0 4 J	2 4 U	2 J	20 8 J	12 9 J	2 6 J	0 8 J
2,6-Dimethylnaphthalene	18 9 J	103 J	66 9 J	53 5 J	476 J	148 J	59 8	24 5	12 4	9 J	18 5 J	88 9 J	55 2 J	15 6	7 3 J
2-Methylnaphthalene	26 J	77 6 J	89 2 J	38 1 J	330 J	170 J	54 9	14 4	3 1 J	3 1 J	17 5 J	117 J	65 6 J	15 5	9 5
Acenaphthene	23	88.1	371	54	966	344	120	34	4 1 J	2 5 J	27 9	321	110 J	11 4	5 1 J
Acenaphthylene	93	488	350	424	509	195	169	18 5	5 7	4 1 J	9	58 3	156 J	25.2	11 9
Anthracene	255 J	1100 J	1460 J	774 J	2810 J	1170 J	393	70 1	11 3	9 8 J	64 J	572 J	482 J	51 8	35
Benzo(a)anthracene	100	3600	5690	2280	9300	4250	1160	214	57 3	35 2	168	1200	1160 J	216	106
Benzo(a)pyrene	595	2410	3450 J	2090	4830	1990	1330	218	76 1	45 1	148	1420	1150 J	255	103
Benzo(b,j,k)fluoranthene	2780	7710	17300 J	3500	25000	9390	2850	411	152	94 6	284	2730	2430 J	457	366
Benzo(e)pyrene	910 J	2370 J	5250 J	1310 J	7590 J	3270 J	966	181	58 4	41 3 J	107 J	1080 J	939 J	213	140
Benzo(g,h,i)Perylene	876 J	2520 J	5370 J	1290 J	5990 J	2630 J	1020	141	52.5	40 5 J	95 2 J	815 J	744 J	195	100
Biphenyl	7 2	22 1	38 6	6 6	151	46 7	14 7	3 2 U	3 2 U	1 2 J	3 7 J	28 8	20 5 J	3 2 U	3 2 U
Chrysene/triphenylene	790	2340	4560	1850	7300	3350	519 J	196	59 6	31 8	117	998	774 J	190	87 3
Dibenzo(a,h)Anthracene	441 J	1290 J	2810 J	352 J	3410 J	1390 J	293	41 5	6 8 U	8 6 J	23 9 J	280 J	213 J	52 2	44
Fluoranthene	1950	8350	14600	5580	19200	11200	2190	455	117	86 2	388	3120	2600 J	308	185
Fluorene	40 3 J	303 J	598 J	177 J	1360 J	392 J	160	34 7	5 3 J	2 8 J	25 1 J	271 J	123 J	17 2	7 6
Indeno(1,2,3-cd)pyrene	1010	3070	6560 J	1200	7390	3030	968	136	46 1	35 3	86 3	777	646 J	172	116
Naphthalene	31 9	171	149	138	258	161	70	22 8	4 3	4	9 8	128	61.2 J	20 6	11 3
Perylene	225	818	1490 J	607	1460	734	363	60 4	21 4	12 8	34 8	257	253 J	79 4	32 9
Phenanthrene	1060	5610	10700	3030	14600	9470	1320	261	46 3	31 3	238	2510	1440 J	130	87 4
Pyrene	1780	6750	10700	4810	16900	9770	2120	401	102	87 5	337	3020	2530 J	344	187
Sum PAHs (6 High Molecular Weight)	6660	24700	41800	16700	60900	32000	7620	1530	425	294	1180	10000	8430	1360	712
Sum PAHs (7 Low Molecular Weight)	1530	7830	13700	4640	20800	11900	2280	456	80	58	391	3980	2440	271	168
Sum PAHs (NOAA Status &Trends)	14200	49600	92100	29900	132000	64000	16300	2960	858	592	2230	20100	16200	2800	1660
Pesticides/PCBs (ug/kg)															
1a,2a,3b,4a,5a,6b-hexachlorocyclohexane (gamma-BHC)	0 3 U	0 3 U	0 3 U	0 3 U	0 3 U	0.8 J	0.2 J	0.3 J	0 1 J	0 3 U	0 3 U	0 3 U	0 3 U	0 3 U	0 5 J
2,4'-DDE	0 25 U	0 4 U	0 4 U	0.4 U	0 4 U	0.4 U	0 4 U	0 4 U	0 4 U	0 4 U	0 4 U	0 9	0 4 U	0 4 U	0 4 U
2,4'-DDT	1.1	1 8	0 7 J	2.6	1.7	1.4	0 5 U	0 5 U	0 5 U	0 5 U	0.5 U	0 6 J	1 2	0 5 U	0 5 U
4,4'-DDD	3 J	1 4 J	1 8 J	2 4 J	2 J	3 8 J	3 8	0 8 J	0 45 U	0 4 U	0 4 U	11 2 J	19 7 J	1 4	0 6 J
4,4'-DDE	1 25 U	1 25 U	1 1 U	1 U	1 5 U	3.8	3 1	0 7 J	0.45 U	0 45 U	0 45 U	6 2	10 8	0 9 J	0 5 J
4,4'-DDT	4 3	10	4	11.5	11 3	9.8	2.7	1.1	0 8	0 7	1 6	4 8	10 9	2	0 8
Aldrin	0 35 U	0 35 U	0 35 U	0 35 U	0.35 U	0.35 U	0 35 U	0 1 J	0 35 U	0 35 U	0.35 U	0 35 U	0 35 U	0 35 U	0 35 U
alpha-Chlordane	0 8	0 7 J	0 7 J	1.2	1.4	0.6 J	0 7 J	0 1 J	0.1 J	0.4 U	0 4 U	1 2	1 4	0 2 J	0 1 J
Heptachlor	0 25 U	0 25 U	0 25 U	0.7 U	0 25 U	0 25 U	0 3 J	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U	0.65 U	0 2 J	0 1 J
Heptachlor Epoxide	0 25 U	0 25 U	0.25 U	0 6 J	0 25 U	0 25 U	0.25 U	0.25 U	0 25 U	0.25 U	2.8 J	2.4 J	1.1 J	0 25 U	0.25 U
Hexachlorobenzene	0 2 U	0.2 U	0 2 U	0 2 U	0 25 U	0 3 U	0 2 U	0.2 U	0 2 U	0.2 U	0 2 U	0.4 U	0 2 U	0 2 U	0 2 U
Mirex	0 3 J	0 3 U	0 3 U	0 3 U	0 6	0.5 J	0 4 J	0.3 U	0 3 U	0.3 U	0 3 U	0 3 U	0 3 U	0 4 J	0 4 J
PCB 101/90	0 6 U	1 05 U	1.2 U	2.9	1.1 U	1 U	2.7	0 55 U	0.3 U	0.35 U	1.1 U	4.1	5 9	2.2	0.45 U
PCB 105	0 3 U	0 6 U	0.7 U	0.35 U	1 7 J	0.35 U	0.65 UJ	0 3 U	0.3 U	0.15 U	0.65 U	1.7 J	3.5 J	0.45 UJ	0 3 U
PCB 118	0.7 J	2 1	1 8	1.3	1.1	1 6	2 3	1.1	0 5 J	0.7 J	2	3.2	6 6	2 3	0 8
PCB 126	0 25 U	0 9 J	1 3 J	1.7 J	2.5 J	0.25 UJ	0 4 U	0.25 UJ	0.25 U	0 25 U	0.7 J	1.8 J	4 9 J	1 1	0 25 UJ
PCB 128	0 6	0 6 J	0.8 J	2.1	0.9 J	1 8 J	1	0 3 U	0 2 UJ	0 25 U	0 6	1 8	4	0.4 U	0.2 UJ
PCB 138/163/164	1 9	10 7 J	11.2 J	11 4	16 2 J	3 J	5.2	2 4	1	1 2	3 5	7.7	13 3	3 1	1 7
PCB 153	1.5	2 5	2 5	1 9	4	2 7	3 5	2	1	1 1	3 3	5 4	9 3	3 4	1 7

TABLE 3.2
SEDIMENT RESULTS
ECOLOGICAL PRG DEVELOPMENT STEP 2
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND
PAGE 2 OF 4

Sample Location	OFF-1	OFF-2	OFF-3	OFF-4	OFF-5	OFF-6	OFF-7	OFF-8	OFF-9	OFF-10	OFF-11	OFF-12	OFF-13	OFF-14	OFF-15
Sample Depth Interval	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm
Date Sampled	3/27/1998	3/27/1998	3/27/1998	3/27/1998	3/27/1998	3/27/1998	3/27/1998	4/7/1998	4/7/1998	4/3/1998	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/7/1998
PCB 170	0 45 U	0 35 U	0 35 U	1 8	1 8	1 8 J	0.6 U	0 45 U	0 25 UJ	0 35 U	1 5	3 8	5 8	0 45 U	0.3 U
PCB 18	1 3 J	0 35 U	1 7	0 35 U	1 4	2 8	0 6 J	0.35 U	0.35 U	0.35 U	3 5	2 4	0 5 J	1 1	0 35 U
PCB 180	1 1	1.5	2 4	2	3 9	2 1 J	2.5	1 2	0.7	0 6	3 2	6 4	9 3	1 6	1 1
PCB 187/182/159	0 6	0 7	0 6	2 8	1 6	1 9 J	1 6	0.45 U	0 3 U	0 6	2	3 7	5 5	1 8	0 35 U
PCB 188	0 3 U	0.3 U	0 8	0 3 U	1 3	2 6	0 7	0 5 J	0 3 U	0 3 U	0 6 J	1	1 6	0 8	0 3 U
PCB 195	0 25 U	0 3 U	0 3 U	1 2	3 5	0 3 UJ	0 3 U	0 3 U	0 3 U	0 3 U	0 7	0 8 J	3 7	0 3 U	0 3 U
PCB 200	0 3 J	1 2	1	1 8	2	1 1 J	0 4 J	0 4 J	0 3 J	0.4 J	0 4 J	1 6	0 25 U	0 4 J	0 4 J
PCB 206	0 25 U	0 25 U	0.25 U	1 2 U	0.3 U	0.3 UJ	0.6	0 8	0 4 J	0 65 U	0 75 U	0 95 U	4	1	0 7
PCB 209	0 25 U	0 25 U	0 25 U	0 25 U	0 35 U	4 1 J	0 8	0 8	0 3 J	0 35 U	0 25 U	2 2	3	1 2	0 6
PCB 28/50	0 7	0 35 U	0 6 J	0 35 U	1 8	2 7	1	0.3 J	0 5 J	0 35 U	7 4	4 2	1.3	0 9	0 3 J
PCB 29	0 35 U	0 35 U	0 35 U	0 35 U	0 35 U	0 35 U	0 35 U	0 35 U	0 35 U	0 35 U	0.35 U	0 35 U	0.35 U	0 35 U	0 35 U
PCB 44	0 6 J	0 4 J	1 4 J	1 4 J	1 4 J	1 8 J	1 9	0 25 U	0 25 U	0 3 J	3 3 J	2 J	2 4 J	0 6	0 25 U
PCB 50	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U	0.25 U	0 25 U	0 25 U	0 25 U	0 25 U
PCB 52	0 4 U	0 35 U	0 5 U	1 4 J	1 8 J	2 6 J	1 4	0 35 U	0 35 U	0 35 U	3 4 J	3 2 J	2 9 J	1 1	0 35 U
PCB 66/95	1 1	1 4	2	1 7	3 9	3 4	3 3	1.1	0 25 UJ	0 6	6 5	5	4 6	2 2	0 45 U
PCB 8	8 5 J	0 15 U	0 9 J	0 15 U	0 15 U	0 6	0 15 U	0 15 U	0.15 U	0 15 U	0 8	1 5	0 9	0 25 U	0 15 U
PCB 87	0 3 UJ	0 9 J	0 8 J	0 7 J	0 8 J	1 6 J	1	0 3 U	0 3 U	0 3 UJ	0 8 J	1 6 J	2 5 J	0 3 U	0 3 U
Sum of PCB Congeners	18 9	22.9	29 8	36 1	51 6	38 2	30.5	10 6	4 7	5 5	44 2	65.1	95 5	24 8	7 3
Sum of PCB Congeners X 2	37.8	45 8	59 6	72 2	103 2	76 4	61	21.2	9 4	11	88 4	130 2	191	49 6	14 6
trans-Nonachlor	0 6 J	0.4 U	0 7 J	0 4 U	1 3	0 4 U	0 8	0 2 J	0.1 J	0 4 U	0 4 U	0 6 J	1 J	0 4 J	0.2 J
Metals (mg/kg)															
Aluminum	21672 J	26984 J	23219 J	16492 J	16256 J	22707 J	21885 J	27137 J	26673 J	26244 J	19537 J	35681 J	40999 J	28276 J	26843 J
Arsenic	6 3 J	8 J	3 6 J	4 3 J	3 6 J	4 1 J	6 8 J	4 3 J	4 3 J	3 4 J	2 7 J	5 2 J	6 J	8 5 J	3 7 J
Cadmium	0 31	0.14	0 18	0 06	0 23	0 15	0 29	0 19	0 11	0.15	0 22	0 53	0 8	0 12	0 18
Chromium	31 1	36 6	26 5	24 3	27.4	23	43 1	42 3	38 6	32.1	30 2	58 6	73 7	44 9	41
Copper	58 3	23 7	12 3	31.4	16 9	11	32 8	11	6 9	9 8	9 1	37	80 8	18 9	11 6
Iron	24310 J	29487 J	22872 J	22908 J	17649 J	19993 J	27506 J	21704 J	24714 J	17985 J	14919 J	27717 J	33406 J	21879 J	21010 J
Lead	131 4	90 2	60 1	95 5	138 7	47.2	294	37 9	25 2	27 3	38 7	114 2	201 9	44 6	33 1
Manganese	353 6	302 2	387 4	369	166 8	257 5	331 6	356.2	515 8	357 1	331	368.1	335 9	324	366 5
Mercury	0.371	0 081	0 025 U	0 025 U	0 025 U	0 025 U	0 119	0 148	0 025 U	0 07	0 125	0.376	1.355	0 196	0 1
Nickel	34	26 2	22 2	20 2	19	19 3	28 1	15 8	18 3	12 5	5 45 U	21 4	29 7	15 9	14 2
Silver	0 46 J	0 065 UJ	0 065 UJ	0 065 UJ	0 065 UJ	0 065 UJ	0 18 J	0 17 J	0 065 UJ	0 065 UJ	0 17 J	0 48 J	1 06 J	0 23 J	0 19 J
Zinc	156 4	314 8	50 4 U	108	39 9 U	52 85 U	155.5	46 7 U	39 95 U	26.65 U	27 75 U	146 5	263 4	48 4 U	36 65 U
AVS/SEM (µmole/g dry weight)															
Acid Volatile Sulfide	0 05 U	0.05 U	0 23	0 05 U	23 82	26.06	38.21	6 21	4 44	7 29	13 03	24 03	48 59	10 3	7.1
Cadmium	0 001	0 001	0 001	0	0 002	0 002	0 002	0 003	0.001	0 002	0 002	0 005	0.009	0 002	0 002
Copper	0 341	0 0585 U	0 054 U	0 413	0 078 U	0 0885 U	0 045 U	0 397	0 269	0 212	0 0915 U	0 0395 U	0 031 U	0 417	0 393
Lead	0 505	0 215	0 119	0.507	0 386	0.168	0.221	0.122	0 061	0 079	0 094	0 249	0.589	0.15	0.121
Nickel	0.026 U	0.02 U	0 018 U	0.126	0 152	0 0385 U	0.034 U	0 0325 U	0.0245 U	0 031 U	0 033 U	0.0205 U	0.132	0 054 U	0.036 U
SEM-AVS	NA	NA	0 489 J	NA	-22 22 J	-24 97 J	-37.41 J	-4 68 J	-3.65 J	-6 394 J	-12 14 J	-23 08 J	-46 71 J	-8 4 J	-5 592 J
SEM/AVS	NA	NA	3.1261 J	NA	0 0672 J	0.0419 J	0.021 J	0.2465 J	0 178 J	0.1229 J	0.0681 J	0.0394 J	0 0387 J	0 1845 J	0 212 J
Zinc	0 407	0.549	0 527	0 517	0.982	0.794	0.499	0 976	0 435	0.572	0.667	0 632	1.12	1 277	0 957
Total Organic Carbon (percent)															
Total Organic Carbon	1 8	1.1	0.9	0.9	1	1 8	1 9	1 3	1 2	1 1	1.1	2 5	4	2	1 2
Grain Size (percent)															
CLAY	0.2	0 1	0.2	0.1	0.3	0 3	0 6	0 4	0 4	3 7	0 8	1	6 1	1 3	0 5
SAND	96	97.1	95.2	98 5	97 1	94 2	86.7	72 8	88 1	85.7	87.8	44 2	14 5	59 1	87.3
SILT	3 9	2 8	4.6	1.5	2.6	5 5	12 7	26 7	11.5	10 7	11 4	54.7	79 5	39.7	12 2

TABLE 3.2
SEDIMENT RESULTS
ECOLOGICAL PRG DEVELOPMENT STEP 2
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location	OFF-16	OFF-17	OFF-18	OFF-19	OFF-20	OFF-21	OFF-22	OFF-23
Sample Depth Interval	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm
Date Sampled	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/3/1998	4/3/1998	3/27/1998	4/3/1998
Polyaromatic Hydrocarbons (ug/kg)								
1-Methylnaphthalene	17 6 J	11 J	31 4 J	18 9	43 7 J	7 7 J	2 J	27.8
1-Methylphenanthrene	43 6 J	25 3	108	20 2	44 4	19 3	2.6 J	49 9
2,3,5-Trimethylnaphthalene	6 J	2 5 J	11 5 J	3 6 J	5 6 J	2 4 J	0 3 J	8 2
2,6-Dimethylnaphthalene	37 8 J	22 1 J	45 3 J	54 3	43 9 J	13 7 J	5 8 J	38 6
2-Methylnaphthalene	23.9 J	19 7 J	63 8 J	31 5	40 4 J	13 1 J	3 1 J	43 4
Acenaphthene	37 6 J	25 6	59.7	43 8	75 3	9 4	1 8 J	89.5
Acenaphthylene	35 8 J	41.1	141	40 6	14.8	18 3	4 4 J	77 5
Anthracene	88 J	120 J	340 J	104	217 J	47 9 J	9 5 J	348
Benzo(a)anthracene	195 J	251	730	316	320	151	35 6	616
Benzo(a)pyrene	220 J	333	964	322	257	176	38 8	758
Benzo(b,j,k)fluoranthene	435 J	654	2290	618	588	375	78 6	1540
Benzo(e)pyrene	187 J	273 J	963 J	234	197 J	158 J	49 3 J	688
Benzo(g,h,i)Perylene	181 J	270 J	899 J	201	131 J	133 J	60 4 J	700
Biphenyl	9.1 J	5 6 J	17 3	18 2	17 9	5 9 J	0 8 J	12 8
Chrysene/triphenylene	151 J	203 J	631	277	296	151	26.7	540
Dibenzo(a,h)Anthracene	49 6 J	76.1 J	273 J	57 4	50 3 J	40 4 J	12.2 J	179
Fluoranthene	444 J	528 J	1880	542	882	291	65 9	1560
Fluorene	34 1 J	30 9 J	74 8 J	51.3	92 6 J	11 3 J	2 4 J	106
Indeno(1,2,3-cd)pyrene	156 J	237	785	195	150	126	33 9	511
Naphthalene	19 9 J	25	68 1	53 3	40 1	8 7	3 2 J	41 6
Perylene	62 9 J	80 5	276	85 6	63 4	43.3	12 9	205
Phenanthrene	331 J	271	918	294	828	126	23 5	770
Pyrene	513 J	544 J	1810	523	751	334	69 2	1420
Sum PAHs (6 High Molecular Weight)	1570	1930	6290	2040	2560	1140	248	5080
Sum PAHs (7 Low Molecular Weight)	570	533	1670	619	1310	234	48	1480
Sum PAHs (NOAA Status &Trends)	3280	4050	13400	4110	5150	2250	543	10300
Pesticides/PCBs (ug/kg)								
1a,2a,3b,4a,5a,6b-hexachlorocyclohexane (gamma-BHC)	0 3 U	0 3 U	0 3 U	0 9	0 3 U	0 3 U	0 3 U	0 3 U
2,4'-DDE	0 4 U	0 4 U	0 4 U	0 4 U	0 4 U	0 4 U	0 4 U	0 4 U
2,4'-DDT	1 2	0 7 J	1 8	0.5 U	0.5 U	0 5 U	0 5 U	0 8
4,4'-DDD	2 2 J	12.9 J	15 8 J	1.1	1 1 J	2 4 J	0 4 U	7 3
4,4'-DDE	0 9 U	1 15 U	10 5	1 2	0.55 U	0 9 U	0 45 U	3 2
4,4'-DDT	1 6	4 1	9 5	1 8	1.7	2.1	0.6 J	4.1
Aldrin	0 35 U	0 35 U	0 35 U	0 2 J	0 35 U	0 35 U	0.35 U	0.35 U
alpha-Chlordane	0 9	0 4 U	1.1	0 8	0 4 U	0.4 U	0.4 U	0.8 J
Heptachlor	0.25 U	0 25 U	0.25 U	0 25 U	0 23 U	0 25 U	0 25 U	0.25 U
Heptachlor Epoxide	0 25 U	0 25 U	1 J	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U
Hexachlorobenzene	0.2 U	0 2 U	0 2 U	0.9	0.2 U	0 2 U	0 2 U	0 5
Mirex	0 3 U	0 3 U	0 3 U	0 3 U	0 3 U	0 3 U	0 3 U	1 1 J
PCB 101/90	0 95 U	1.05 U	4 5	1 8	0 95 U	1.1 U	0 35 U	2.9
PCB 105	0 45 U	0 5 U	2 4 J	0 3 U	0 3 U	0.45 U	0.1 U	1.7 J
PCB 118	2 3	1 7	5 5	1 4	1 8	2	0 35 U	2.7
PCB 126	1.2 J	1.3 J	1 8 J	0 35 U	1 1 J	0.7 J	0 25 U	2
PCB 128	1	0 9	2.4	0 25 U	0 7	0 9	0.25 U	2.3
PCB 138/163/164	4 9	3.2	12 2	3	4.1	2.9	0.9	7 6
PCB 153	3 3	2.8	7.5	2 4	3.6	2 7	0.7	4.2

TABLE 3.2
SEDIMENT RESULTS
ECOLOGICAL PRG DEVELOPMENT STEP 2
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location	OFF-16	OFF-17	OFF-18	OFF-19	OFF-20	OFF-21	OFF-22	OFF-23
Sample Depth Interval	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm
Date Sampled	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/3/1998	4/3/1998	3/27/1998	4/3/1998
PCB 170	1 5	0 65 U	2 9	0 45 U	1 5	0 55 U	0 25 U	2 1
PCB 18	0 3 J	0 35 U	0 35 U	1.3 J	0 35 U	0 35 U	0 35 U	0 35 U
PCB 180	1.7	1 3	5 2	1 8	1.9	1 3	0 3 J	3 4
PCB 187/182/159	1 7	1 3	3 8	1.1	1 4	1 5 J	0 5	3 1
PCB 188	1	0 3 U	1 5	0 5 J	0 6	0 6	0 3 U	1
PCB 195	0 3 U	0.3 U	0 3 U	0 3 U	0 3 U	0 3 U	0 3 U	0 75 UJ
PCB 200	0 25 U	0 3 J	1 2	0 6	0 4 J	0 3 J	0 2 J	1 1
PCB 206	0.3 U	0 75 U	1 15 U	0 8	0 5 U	0 55 U	0 5 U	1 2
PCB 209	0 4 U	1 4	2 6	0 9	0 5 U	0 35 U	0 25 U	1 5
PCB 28/50	0 35 U	0 35 U	0 7	0 4 J	0 35 U	0 35 U	0 35 U	1 5
PCB 29	0 35 U	0 35 U	0 35 U	0 35 U	0 35 U	0 35 U	0 35 U	0.35 U
PCB 44	0 8 J	0.5 J	1 2 J	1 1 J	0 4 J	0 5 J	0 2 J	1 1
PCB 50	0.25 U	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U	0 25 U
PCB 52	0 4 U	0 35 U	1.2 J	0 45 UJ	0 35 U	0 45 U	0.35 U	1.4
PCB 66/95	1 7	1 3	3 9	2 3	1 4	1 6	0 5 U	2 7
PCB 8	0 6	0 15 U	0 8	8 5	0 15 U	0 15 U	0.15 U	0 3 U
PCB 87	0 7 J	0 6 J	1 6 J	0 5 J	0 3 UJ	0 6 J	0 3 UJ	1 1
Sum of PCB Congeners	22 7	16 6	62 9	28 4	18 9	15 6	2 8	44 6
Sum of PCB Congeners X 2	45.4	33 2	125 8	56 8	37 8	31 2	5 6	89 2
trans-Nonachlor	0 4 U	0 4 U	1 J	0 7 J	0 4 U	0 4 U	0.4 U	1.2
Metals (mg/kg)								
Aluminum	29667 J	32011 J	40750 J	37770 J	33977 J	37829 J	36058 J	92358 J
Arsenic	5 J	4 7 J	6 3 J	5 8 J	4 2 J	4 9 J	3 8 J	4 8 J
Cadmium	0.36	0 38	0 69	0 21	0.25	0 39	0 19	0 43
Chromium	48	44 1	73 6	55 6	52 5	52 9	47.8	53 2
Copper	23 9	26 4	83 5	30 3	19	22 7	18 3	44 7
Iron	24706 J	24564 J	31885 J	29787 J	28355 J	25993 J	28736 J	51703 J
Lead	61 2	71 4	190 4	56	40 6	46 2	21 7	74 2
Manganese	341 6	312 4	332 9	362 9	368 4	377 9	318 5	669 7
Mercury	0 208	0 225	0.562	0 299	0 171	0.112	0 111	0 387
Nickel	18 2	18 7	28 4	24	21	26 9	21 2	42.7
Silver	0 44 J	0 4 J	1 08 J	0 18 J	0 19 J	0 16 J	0 085 UJ	0 27 J
Zinc	50 9 U	125 7	248 3	166 3	108 5	143.9	39 15 U	306.2
AVS/SEM (µmole/g dry weight)								
Acid Volatile Sulfide	23 68	14.13	39	17 26	29 52	12 93	2 74	32.95
Cadmium	0 005	0 005	0 011	0 001	0 004	0.004	0 001	0 006
Copper	0 303	0 0555 U	0 22	0 232	0.285	0 0875 U	0.234	0 083 U
Lead	0.17	0 192	0.476	0.173	0 13	0 148	0 039	0 236
Nickel	0 0265 U	0.03 U	0 028 U	0 023 U	0 036 U	0 0455 U	0 0215 U	0 038 U
SEM-AVS	-22.08 J	-12 74 J	-36.14 J	-15.85 J	-27.9 J	-11.6 J	-1 43 J	-30.84 J
SEM/AVS	0 0674 J	0 0985 J	0.0733 J	0 082 J	0.055 J	0.1026 J	0.4783 J	0 064 J
Zinc	1 091	1.11	2.123	0 984	1.166	1 042	1 015	1.753
Total Organic Carbon (percent)								
Total Organic Carbon	2.6	2.6	4	2 9	2.3	2 3	1.3	2.7
Grain Size (percent)								
CLAY	3.9	2.3	2 7	2 5	2 4	2	0 6	1.3
SAND	3.3	46 2	6.9	49 4	59 3	50 9	91.5	54.6
SILT	92.8	51 6	90 4	48 1	38 3	47.2	8	44.1

TABLE 3.3
PORE WATER CONCENTRATIONS FOR ORGANICS AND METALS
ECOLOGICAL PRG DEVELOPMENT STEP 2
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location / Sample Depth Interval / Date Sampled	LogKow[1]	LogKoc[2]	Koc	OFF-1 0-15 cm 3/27/1998	OFF-2 0-15 cm 3/27/1998	OFF-3 0-15 cm 3/27/1998	OFF-4 0-15 cm 3/27/1998	OFF-5 0-15 cm 3/27/1998	OFF-6 0-15 cm 3/27/1998	OFF-7 0-15 cm 3/27/1998	OFF-8 0-15 cm 4/7/1998	OFF-9 0-15 cm 4/7/1998	OFF-10 0-15 cm 4/3/1998
Polyaromatic Hydrocarbons (ug/L)													
1-Methylnaphthalene	3 97	3 90	7994	1 03E-01 J	5 96E-01 J	8 64E-01 J	4 98E-01 J	3 48E+00 J	9 17E-01 J	2 28E-01	1 06E-01	1 77E-02 J	2 50E-02 J
1-Methylphenanthrene	5 08	4 99	98610	7 44E-02	3 36E-01	6 07E-01	3 18E-01	1 48E+00	3.83E-01	5 55E-02	1 72E-02	3 72E-03 J	2 77E-03 J
2,3,5-Trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylnaphthalene	4 61	4 53	34034	3 09E-02 J	2 75E-01 J	2 18E-01 J	1 75E-01 J	1 40E+00 J	2 42E-01 J	9 25E-02	5 54E-02	3 04E-02	2 40E-02 J
2-Methylnaphthalene	3 97	3 90	7994	1 81E-01 J	8.82E-01 J	1.24E+00 J	5 30E-01 J	4 13E+00 J	1 18E+00 J	3 61E-01	1 39E-01	3 23E-02 J	3 53E-02 J
Acenaphthene	3 92	3 85	7139	1 79E-01	1 12E+00	5 77E+00	8 40E-01	1 35E+01	2 68E+00	8 85E-01	3 66E-01	4 79E-02 J	3 18E-02 J
Acenaphthylene	4 05	3 98	9581	5 39E-01	4 63E+00	4 06E+00	4 92E+00	5 31E+00	1 13E+00	9 28E-01	1 49E-01	4 96E-02	3 89E-02 J
Anthracene	4 55	4 47	29712	4 77E-01 J	3 37E+00 J	5 46E+00 J	2 89E+00 J	9 46E+00 J	2.19E+00 J	6 96E-01	1 81E-01	3 17E-02	3 00E-02 J
Benzo(a)anthracene	5 7	5 60	401218	1 38E-02	8 16E-01	1 58E+00	6 31E-01	2 32E+00	5 88E-01	1 52E-01	4 10E-02	1 19E-02	7 98E-03
Benzo(a)pyrene	6 11	6 01	1014869	3 26E-02	2 16E-01	3 78E-01 J	2.29E-01	4 76E-01	1 09E-01	6 90E-02	1 65E-02	6 25E-03	4 04E-03
Benzo(b,j,k)fluoranthene	6 2	6 09	1244171	1.24E-01	5 63E-01	1.54E+00 J	3 13E-01	2 01E+00	4 19E-01	1.21E-01	2 54E-02	1 02E-02	6 91E-03
Benzo(e)pyrene	6 11	6 01	1014869	4 98E-02 J	2 12E-01 J	5 75E-01 J	1 43E-01 J	7 48E-01 J	1 79E-01 J	5 01E-02	1.22E-02	4 80E-03	3 70E-03 J
Benzo(g,h,i)Perylene	6 7	6 59	3858158	1 26E-02 J	5 94E-02 J	1 55E-01 J	3 72E-02 J	1 55E-01 J	3 79E-02 J	1 39E-02	2 81E-03	1 13E-03	9 54E-04 J
Biphenyl	3 96	3 89	7816	5 12E-02	2 57E-01	5 49E-01	9 38E-02	1 93E+00	3 32E-01	9 90E-02	3 15E-02 U	3 41E-02 U	1 40E-02 J
Chrysene/triphenylene	5 7	5 60	401218	1 09E-01	5 30E-01	1.26E+00	5 12E-01	1 82E+00	4 64E-01	6 81E-02 J	3 76E-02	1 24E-02	7 21E-03
Dibenzo(a,h)Anthracene	6 69	6 58	3771812	6 50E-03 J	3 11E-02 J	8.28E-02 J	1 04E-02 J	9 04E-02 J	2 05E-02 J	4 09E-03	8 46E-04	1 50E-04 U	2 07E-04 J
Fluoranthene	5 12	5 03	107954	1 00E+00	7 03E+00	1 50E+01	5 74E+00	1 78E+01	5 76E+00	1 07E+00	3 24E-01	9 03E-02	7 26E-02
Fluorene	4 21	4 14	13763	1 63E-01 J	2 00E+00 J	4 83E+00 J	1 43E+00 J	9 88E+00 J	1 58E+00 J	6 12E-01	1 94E-01	3 21E-02 J	1 85E-02 J
Indeno(1,2,3-cd)pyrene	6 65	6 54	3445323	1 63E-02	8 10E-02	2 12E-01 J	3 87E-02	2.14E-01	4 89E-02	1 48E-02	3 04E-03	1 16E-03	9 31E-04
Naphthalene	3 36	3 30	2010	8 82E-01	7 73E+00	8 24E+00	7 52E+00	1 28E+01	4 45E+00	1 83E+00	8 73E-01	1 78E-01	1 81E-01
Perylene	6 05	5 95	885992	1 41E-02	8.39E-02	1 87E-01 J	7 61E-02	1 65E-01	4 60E-02	2 16E-02	5 24E-03	2 01E-03	1 31E-03
Phenanthrene	4 55	4 47	29712	1 98E+00	1 72E+01	4 00E+01	1 13E+01	4 91E+01	1.77E+01	2 34E+00	6 76E-01	1 30E-01	9 58E-02
Pyrene	5 11	5 02	105538	9 37E-01	5 81E+00	1 13E+01	5 06E+00	1 60E+01	5 14E+00	1 06E+00	2 92E-01	8 05E-02	7 54E-02
Sum PAHs (6 High Molecular Weight)[3]	NA	NA	NA	2 10E+00	1 44E+01	2 96E+01	1.22E+01	3 85E+01	1 21E+01	2 42E+00	7 12E-01	2 02E-01	1 67E-01
Sum PAHs (7 Low Molecular Weight)[4]	NA	NA	NA	4 40E+00	3 69E+01	6 96E+01	2 95E+01	1 04E+02	3 09E+01	7 65E+00	2 58E+00	5 02E-01	4 31E-01
Sum PAHs (NOAA Status &Trends)[5]	NA	NA	NA	6 50E+00	5.13E+01	9 92E+01	4 17E+01	1 43E+02	4 30E+01	1 01E+01	3 29E+00	7.03E-01	5 99E-01
Pesticides/PCBs (ug/L)													
1a,2a,3b,4a,5a,6b-hexachlorocyclohexane (gamma-BHC)	3 81	3 75	5566	2 99E-03 U	4 90E-03 U	5 99E-03 U	5 99E-03 U	5 39E-03 U	7 99E-03 J	1 89E-03 J	4 15E-03 J	1 50E-03 J	4 90E-03 U
2,4'-DDE	6 76	6 65	4419366	3 14E-06 U	8.23E-06 U	1 01E-05 U	1 01E-05 U	9 05E-06 U	5 03E-06 U	4 76E-06 U	6 96E-06 U	7 54E-06 U	8 23E-06 U
2,4'-DDT	6 76	6 65	4419366	1 38E-05	3 70E-05	1 76E-05 J	6 54E-05	3 85E-05	1 76E-05	5 95E-06 U	8 70E-06 U	9 43E-06 U	1 03E-05 U
4,4'-DDD	6 1	6 00	992156	1 68E-04 J	1.28E-04 J	2 02E-04 J	2 69E-04 J	2 02E-04 J	2 13E-04 J	2 02E-04	6 20E-05 J	3 78E-05 U	3 67E-05 U
4,4'-DDE	6 76	6 65	4419366	1 57E-05 U	2 57E-05 U	2 77E-05 U	2 51E-05 U	3 39E-05 U	4 78E-05	3 69E-05	1 22E-05 J	8 49E-06 U	9.26E-06 U
4,4'-DDT	6 76	6 65	4419366	5 41E-05	2 06E-04	1 01E-04	2 89E-04	2 56E-04	1 23E-04	3 22E-05	1.91E-05	1 51E-05	1 44E-05
Aldrin	6 5	6 39	2453466	7 93E-06 U	1 30E-05 U	1 59E-05 U	1 59E-05 U	1 43E-05 U	7 93E-06 U	7 51E-06 U	3 14E-06 J	1 19E-05 U	1 30E-05 U
alpha-Chlordane	6 5	6.39	2453466	1 81E-05	2 59E-05 J	3 17E-05 J	5 43E-05	5 71E-05	1 36E-05 J	1 50E-05 J	3 14E-06 J	3 40E-06 J	1 48E-05 U
Heptachlor	6 5	6 39	2453466	5 66E-06 U	9.26E-06 U	1 13E-05 U	3 17E-05 U	1 02E-05 U	5 66E-06 U	6 44E-06 J	7 84E-06 U	8 49E-06 U	9 26E-06 U
Heptachlor Epoxide	6 5	6 39	2453466	5 66E-06 U	9.26E-06 U	1 13E-05 U	2 72E-05 J	1 02E-05 U	5 66E-06 U	5 36E-06 U	7 84E-06 U	8 49E-06 U	9 26E-06 U
Hexachlorobenzene	5 89	5 79	616808	1 80E-05 U	2 95E-05 U	3 60E-05 U	3 60E-05 U	4 05E-05 U	2 70E-05 U	1 71E-05 U	2 49E-05 U	2 70E-05 U	2 95E-05 U
Mirex	6 89	6 77	5931301	2 81E-06 J	4 60E-06 U	5 62E-06 U	5.62E-06 U	1 01E-05	4.68E-06 J	3 55E-06 J	3 89E-06 U	4 21E-06 U	4 60E-06 U
PCB 101/90	6 38	6.27	1869907	1 78E-05 U	5 10E-05 U	7.13E-05 U	1 72E-04	5 88E-05 U	2 97E-05 U	7.60E-05	2.26E-05 U	1 34E-05 U	1 70E-05 U
PCB 105	6 65	6 54	3445323	4 84E-06 U	1 58E-05 U	2.26E-05 U	1.13E-05 U	4 93E-05 J	5.64E-06 U	9.93E-06 UJ	6 70E-06 U	7 26E-06 U	3 96E-06 U
PCB 118	6 74	6 63	4223767	9.21E-06 J	4 52E-05	4 74E-05	3 42E-05	2 60E-05	2 10E-05	2 87E-05	2 00E-05	9 86E-06 J	1 51E-05 J
PCB 126	6 89	6 77	5931301	2 34E-06 U	1 38E-05 J	2 44E-05 J	3 18E-05 J	4.21E-05 J	2.34E-06 UJ	3 55E-06 U	3.24E-06 UJ	3 51E-06 U	3 83E-06 U
PCB 128	6 74	6 63	4223767	7 89E-06	1.29E-05 J	2 10E-05 J	5 52E-05	2 13E-05 J	2.37E-05 J	1.25E-05	5 46E-06 U	3 95E-06 UJ	5 38E-06 U
PCB 138/163/164	6 83	6 71	5178095	2 04E-05	1 88E-04 J	2 40E-04 J	2 45E-04	3 13E-04 J	3 22E-05 J	5.29E-05	3 57E-05	1 61E-05	2 11E-05
PCB 153	6 92	6 80	6348045	1.31E-05	3 58E-05	4.38E-05	3.33E-05	6 30E-05	2 36E-05	2 90E-05	2 42E-05	1 31E-05	1 58E-05
PCB 170	7.27	7 15	14018127	1.78E-06 U	2.27E-06 U	2 77E-06 U	1.43E-05	1.28E-05	7.13E-06 J	2.25E-06 U	2 47E-06 U	1.49E-06 UJ	2 27E-06 U
PCB 18	5.24	5 15	141645	5.10E-04 J	2.25E-04 U	1 33E-03	2 75E-04 U	9 88E-04	1 10E-03	2.23E-04 J	1 90E-04 U	2 06E-04 U	2 25E-04 U

TABLE 3.3
PORE WATER CONCENTRATIONS FOR ORGANICS AND METALS
ECOLOGICAL PRG DEVELOPMENT STEP 2
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location / Sample Depth Interval / Date Sampled	LogKow[1]	LogKoc[2]	Koc	OFF-1 0-15 cm 3/27/1998	OFF-2 0-15 cm 3/27/1998	OFF-3 0-15 cm 3/27/1998	OFF-4 0-15 cm 3/27/1998	OFF-5 0-15 cm 3/27/1998	OFF-6 0-15 cm 3/27/1998	OFF-7 0-15 cm 3/27/1998	OFF-8 0-15 cm 4/7/1998	OFF-9 0-15 cm 4/7/1998	OFF-10 0-15 cm 4/3/1998
PCB 180	7.36	7 24	17185414	3 56E-06	7 93E-06	1 55E-05	1.29E-05	2 27E-05	6 79E-06 J	7 66E-06	5 37E-06	3 39E-06	3 17E-06
PCB 187/182/159	7 17	7 05	11178667	2 98E-06	5 69E-06	5 96E-06	2 78E-05	1 43E-05	9 44E-06 J	7 53E-06	3 10E-06 U	2 24E-06 U	4 88E-06
PCB 188	6 82	6 70	5062208	3 29E-06 U	5 39E-06 U	1 76E-05	6 58E-06 U	2 57E-05	2 85E-05	7 28E-06	7 60E-06 J	4 94E-06 U	5 39E-06 U
PCB 195	7 56	7.43	27024645	5 14E-07 U	1 01E-06 U	1 23E-06 U	4 93E-06	1 30E-05	6 17E-07 UJ	5 84E-07 U	8 54E-07 U	9 25E-07 U	1 01E-06 U
PCB 200	7 27	7 15	14018127	1.19E-06 J	7 78E-06	7 93E-06	1.43E-05	1 43E-05	4.36E-06 J	1.50E-06 J	2 19E-06 J	1 78E-06 J	2 59E-06 J
PCB 206	8 09	7 95	89691234	1 55E-07 U	2 53E-07 U	3 10E-07 U	1 49E-06 U	3 34E-07 U	1 86E-07 UJ	3 52E-07	6 86E-07	3 72E-07 J	6 59E-07 U
PCB 209	8 18	8 04	109956270	1.26E-07 U	2 07E-07 U	2 53E-07 U	2 53E-07 U	3 18E-07 U	2.07E-06 J	3 83E-07	5 60E-07	2 27E-07 J	2 89E-07 U
PCB 28/50	5 67	5 57	374878	1.04E-04	8 49E-05 U	1 78E-04 J	1 04E-04 U	4 80E-04	4 00E-04	1 40E-04	6 16E-05 J	1 11E-04 J	8 49E-05 U
PCB 29	5 6	5 51	319948	6 08E-05 U	9 94E-05 U	1.22E-04 U	1 22E-04 U	1 09E-04 U	6 08E-05 U	5 76E-05 U	8 41E-05 U	9 12E-05 U	9 94E-05 U
PCB 44	5 75	5 65	449293	7 42E-05 J	8 09E-05 J	3 46E-04 J	3 46E-04 J	3 12E-04 J	2 23E-04 J	2 23E-04	4 28E-05 U	4 64E-05 U	6 07E-05 J
PCB 50	5 63	5 53	342429	4 06E-05 U	6 64E-05 U	8 11E-05 U	8 11E-05 U	7 30E-05 U	4 06E-05 U	3 84E-05 U	5 62E-05 U	6 08E-05 U	6 64E-05 U
PCB 52	5 84	5 74	550808	4 03E-05 U	5 78E-05 U	1 01E-04 U	2 82E-04 J	3 27E-04 J	2 62E-04 J	1 34E-04	4 89E-05 U	5 30E-05 U	5 78E-05 U
PCB 66/95	6 2	6 09	1244171	4.91E-05	1 02E-04	1.79E-04	1 52E-04	3.13E-04	1 52E-04	1 40E-04	6 80E-05	1.67E-05 UJ	4 38E-05
PCB 8	5.07	4 98	96403	4 90E-03 J	1 41E-04 U	1 04E-03 J	1 73E-04 U	1 56E-04 U	3 46E-04	8 19E-05 U	1 20E-04 U	1 30E-04 U	1.41E-04 U
PCB 87	6 29	6 18	1525281	1 09E-05 UJ	5 36E-05 J	5.83E-05 J	5 10E-05 J	5.24E-05 J	5 83E-05 J	3 45E-05	1 51E-05 U	1 64E-05 U	1 79E-05 UJ
trans-Nonachlor	6 87	6 75	5668785	5 88E-06 J	6.41E-06 U	1 37E-05 J	7 84E-06 U	2.29E-05	3 92E-06 U	7 43E-06	2 71E-06 J	1 47E-06 J	6 41E-06 U
Sum of PCB Congeners				5 88E-03	1.30E-03	3 96E-03	2 25E-03	3 49E-03	2 84E-03	1 31E-03	8.27E-04	8 14E-04	8 99E-04
Sum of PCB Congeners X 2				1 18E-02	2 61E-03	7 92E-03	4 50E-03	6.98E-03	5 68E-03	2 62E-03	1 65E-03	1 63E-03	1 80E-03
Metals (ug/L)													
Aluminum				55 9	67 4	61.2	54 9	63 8	43.2	58 7	51.2	69 3	48 1
Arsenic				1.1	5 5	3 4	2 8	1	2 9	3.2	2.4	2 1	2 6
Barium				10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cadmium				0.1 J	0 5	0 8	0 9	0 5	0 6	0 5	0 7	0 8	0 4
Chromium				28 6	19.2	18 6	22.4	21 8	15 4	19	20 1	23 9	22 3
Copper				26	21	23	28	84	19	15	19	31	30
Iron				610	310	120	200	170	220	120	280	410	340
Lead				18.22	16.43	14 62	18.66	18.24	15 83	16 41	15 8	12 4	15 71
Manganese				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury				R	R	R	R	R	R	R	R	R	R
Nickel				0.25 U	0.7	2	1 3	1 1	1 5	0.25 U	2 4	1 9	3.1
Silver				1 6	1 8	1 4	1 7	1 3	0 05 U	1 7	1 5	1 5	1 6
Zinc				170	140	100	130	260	420	170	180	200	270
Total Organic Carbon (percent)													
Total Organic Carbon				1 8	1.1	0 9	0 9	1	1 8	1.9	1.3	1.2	1 1

TABLE 3.3
PORE WATER CONCENTRATIONS FOR ORGANICS AND METALS
ECOLOGICAL PRG DEVELOPMENT STEP 2
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location	OFF-11	OFF-12	OFF-13	OFF-14	OFF-15	OFF-16	OFF-17	OFF-18	OFF-19	OFF-20	OFF-21	OFF-22	OFF-23
Sample Depth Interval	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm
Date Sampled	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/7/1998	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/3/1998	4/3/1998	3/27/1998	4/3/1998
Polyaromatic Hydrocarbons (ug/L)													
1-Methylnaphthalene	7 05E-02 J	3 94E-01 J	1 35E-01 J	5 88E-02	4.79E-02 J	8 47E-02 J	5.29E-02 J	9 82E-02 J	8.15E-02	2 38E-01 J	4 19E-02 J	1 92E-02 J	1 29E-01
1-Methylphenanthrene	1 36E-02	8 92E-02	4 49E-02 J	1 02E-02	9 63E-03	1 70E-02 J	9 87E-03	2 74E-02	7.06E-03	1 96E-02	8 51E-03	2 03E-03 J	1 87E-02
2,3,5-Trimethylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethylnaphthalene	4 94E-02 J	1 04E-01 J	4 05E-02 J	2 29E-02	1 79E-02 J	4.27E-02 J	2 50E-02 J	3 33E-02 J	5 50E-02	5 61E-02 J	1 75E-02 J	1.31E-02 J	4 20E-02
2-Methylnaphthalene	1 99E-01 J	5 85E-01 J	2 05E-01 J	9 69E-02	9 90E-02	1 15E-01 J	9 48E-02 J	2 00E-01 J	1 36E-01	2 20E-01 J	7 12E-02 J	2 98E-02 J	2 01E-01
Acenaphthene	3 55E-01	1 80E+00	3 85E-01 J	7 98E-02	5 95E-02 J	2 03E-01 J	1 38E-01	2 09E-01	2 12E-01	4 59E-01	5 72E-02	1 94E-02 J	4 64E-01
Acenaphthylene	8 54E-02	2 43E-01	4 07E-01 J	1 32E-01	1 03E-01	1.44E-01 J	1 65E-01	3 68E-01	1 46E-01	6 72E-02	8 30E-02	3 53E-02 J	3 00E-01
Anthracene	1.96E-01 J	7 70E-01 J	4 06E-01 J	8 72E-02	9 82E-02	1 14E-01 J	1 55E-01 J	2 86E-01 J	1 21E-01	3 18E-01 J	7 01E-02 J	2 46E-02 J	4 34E-01
Benzo(a)anthracene	3 81E-02	1 20E-01	7 23E-02 J	2 69E-02	2 20E-02	1 87E-02 J	2 41E-02	4 55E-02	2 72E-02	3 47E-02	1 64E-02	6 83E-03	5 69E-02
Benzo(a)pyrene	1 33E-02	5 60E-02	2 83E-02 J	1 26E-02	8 46E-03	8 34E-03 J	1 26E-02	2 37E-02	1 09E-02	1 10E-02	7 54E-03	2 94E-03	2 77E-02
Benzo(b,j,k)fluoranthene	2 08E-02	8 78E-02	4 88E-02 J	1 84E-02	2 45E-02	1 34E-02 J	2 02E-02	4 60E-02	1 71E-02	2 05E-02	1 31E-02	4 86E-03	4 58E-02
Benzo(e)pyrene	9 58E-03 J	4 26E-02 J	2 31E-02 J	1 05E-02	1 15E-02	7 09E-03 J	1 03E-02 J	2 37E-02 J	7 95E-03	8 44E-03 J	6 77E-03 J	3 74E-03 J	2 51E-02
Benzo(g,h,i)Perylene	2 24E-03 J	8 45E-03 J	4 82E-03 J	2 53E-03	2 16E-03	1 80E-03 J	2 69E-03 J	5 83E-03 J	1 80E-03	1 48E-03 J	1 50E-03 J	1 20E-03 J	6 72E-03
Biphenyl	4 30E-02 J	1 47E-01	6 56E-02 J	2 05E-02 U	3 41E-02 U	4.48E-02 J	2 76E-02 J	5 53E-02	8 03E-02	9 96E-02	3 28E-02 J	7 87E-03 J	6 07E-02
Chrysene/triphenylene	2 65E-02	9 95E-02	4 82E-02 J	2 37E-02	1 81E-02	1 45E-02 J	1 95E-02 J	3 93E-02	2 38E-02	3 21E-02	1 64E-02	5 12E-03	4 98E-02
Dibenzo(a,h)Anthracene	5 76E-04 J	2 97E-03 J	1 41E-03 J	6 92E-04	9 72E-04	5 06E-04 J	7 76E-04 J	1 81E-03 J	5 25E-04	5 80E-04 J	4 66E-04 J	2 49E-04 J	1 76E-03
Fluoranthene	3 27E-01	1 16E+00	6 02E-01 J	1 43E-01	1 43E-01	1 58E-01 J	1 88E-01 J	4 35E-01	1 73E-01	3 55E-01	1 17E-01	4 70E-02	5 35E-01
Fluorene	1 66E-01 J	7 88E-01 J	2 23E-01 J	6 25E-02	4 60E-02	9.53E-02 J	8 64E-02 J	1.36E-01 J	1 29E-01	2 93E-01 J	3 57E-02 J	1 34E-02 J	2 85E-01
Indeno(1,2,3-cd)pyrene	2 28E-03	9 02E-03	4 69E-03 J	2 50E-03	2 81E-03	1.74E-03 J	2 65E-03	5 70E-03	1 95E-03	1 89E-03	1 59E-03	7 57E-04	5 49E-03
Naphthalene	4 43E-01	2 55E+00	7 61E-01 J	5.12E-01	4 69E-01	3 81E-01 J	4 78E-01	8 47E-01	9 14E-01	8 67E-01	1 88E-01	1 22E-01 J	7 67E-01
Perylene	3 57E-03	1 16E-02	7 14E-03 J	4 48E-03	3 09E-03	2.73E-03 J	3 49E-03	7.79E-03	3 33E-03	3 11E-03	2 12E-03	1 12E-03	8 57E-03
Phenanthrene	7 28E-01	3 38E+00	1.21E+00 J	2 19E-01	2 45E-01	4.28E-01 J	3.51E-01	7 72E-01	3 41E-01	1 21E+00	1 84E-01	6 08E-02	9 60E-01
Pyrene	2 90E-01	1 14E+00	5 99E-01 J	1 63E-01	1 48E-01	1.87E-01 J	1.98E-01 J	4.29E-01	1 71E-01	3 09E-01	1.38E-01	5 04E-02	4 98E-01
Sum PAHs (6 High Molecular Weight)[3]	6 95E-01	2.58E+00	1 35E+00	3 69E-01	3 40E-01	3 87E-01	4 43E-01	9 74E-01	4 06E-01	7 43E-01	2 96E-01	1 13E-01	1.17E+00
Sum PAHs (7 Low Molecular Weight)[4]	2 17E+00	1 01E+01	3 60E+00	1 19E+00	1 12E+00	1.48E+00	1 47E+00	2 82E+00	2 00E+00	3 43E+00	6 90E-01	3.06E-01	3 41E+00
Sum PAHs (NOAA Status &Trends)[5]	2.87E+00	1 27E+01	4.95E+00	1.56E+00	1 46E+00	1 87E+00	1 91E+00	3 79E+00	2 40E+00	4.18E+00	9 85E-01	4 18E-01	4 58E+00
Pesticides/PCBs (ug/L)													
1a,2a,3b,4a,5a,6b-hexachlorocyclohexane (gamma-BHC)	4 90E-03 U	2 16E-03 U	1 35E-03 U	2 70E-03 U	7.49E-03 J	2 07E-03 U	2 07E-03 U	1 35E-03 U	5 58E-03	2 34E-03 U	2 34E-03 U	4 15E-03 U	2 00E-03 U
2,4'-DDE	8 23E-06 U	8 15E-06	2.26E-06 U	4 53E-06 U	7 54E-06 U	3 48E-06 U	3 48E-06 U	2 26E-06 U	3 12E-06 U	3 94E-06 U	3 94E-06 U	6 96E-06 U	3 35E-06 U
2,4'-DDT	1 03E-05 U	5 43E-06 J	6 79E-06	5.66E-06 U	9 43E-06 U	1 04E-05	6 09E-06 J	1 02E-05	3 90E-06 U	4 92E-06 U	4.92E-06 U	8 70E-06 U	6 70E-06
4,4'-DDD	3 67E-05 U	4 52E-04 J	4 96E-04 J	7 06E-05	5 04E-05 J	8 53E-05 J	5 00E-04 J	3 98E-04 J	3 82E-05	4 82E-05 J	1 05E-04 J	3 10E-05 U	2.73E-04
4,4'-DDE	9 26E-06 U	5 61E-05	6 11E-05	1.02E-05 J	9 43E-06 J	7 83E-06 U	1 00E-05 U	5 94E-05	9.36E-06	5 41E-06 U	8 85E-06 U	7 83E-06 U	2 68E-05
4,4'-DDT	3.29E-05	4 34E-05	6 17E-05	2.26E-05	1 51E-05	1 39E-05	3.57E-05	5 37E-05	1 40E-05	1 67E-05	2 07E-05	1 04E-05 J	3 44E-05
Aldrin	1 30E-05 U	5 71E-06 U	3.57E-06 U	7 13E-06 U	1 19E-05 U	5 49E-06 U	5 49E-06 U	3 57E-06 U	2 81E-06 J	6.20E-06 U	6 20E-06 U	1.10E-05 U	5 28E-06 U
alpha-Chlordane	1 48E-05 U	1 96E-05	1 43E-05	4 08E-06 J	3 40E-06 J	1 41E-05	6.27E-06 U	1 12E-05	1 12E-05	7 09E-06 U	7 09E-06 U	1.25E-05 U	1 21E-05 J
Heptachlor	9 26E-06 U	4 08E-06 U	6 62E-06 U	4 08E-06 J	3 40E-06 J	3 92E-06 U	3 92E-06 U	2.55E-06 U	3 51E-06 U	4 08E-06 U	4 43E-06 U	7 84E-06 U	3 77E-06 U
Heptachlor Epoxide	1 04E-04 J	3 91E-05 J	1.12E-05 J	5 09E-06 U	8.49E-06 U	3 92E-06 U	3 92E-06 U	1 02E-05 J	3 51E-06 U	4 43E-06 U	4 43E-06 U	7 84E-06 U	3 77E-06 U
Hexachlorobenzene	2 95E-05 U	2 59E-05 U	8 11E-06 U	1.62E-05 U	2 70E-05 U	1 25E-05 U	1.25E-05 U	8.11E-06 U	5 03E-05	1.41E-05 U	1 41E-05 U	2 49E-05 U	3 00E-05
Mirex	4 60E-06 U	2 02E-06 U	1.26E-06 U	3 37E-06 J	5 62E-06 J	1 95E-06 U	1 95E-06 U	1.26E-06 U	1 74E-06 U	2.20E-06 U	2 20E-06 U	3 89E-06 U	6 87E-06 J
PCB 101/90	5 35E-05 U	8 77E-05	7 89E-05	5 88E-05	2 01E-05 U	1.95E-05 U	2.16E-05 U	6.02E-05	3 32E-05	2 21E-05 U	2 56E-05 U	1 44E-05 U	5 74E-05
PCB 105	1 72E-05 U	1 97E-05 J	2 54E-05 J	6 53E-06 UJ	7.26E-06 U	5 02E-06 U	5 58E-06 U	1 74E-05 J	3 00E-06 U	3 79E-06 U	5 68E-06 U	2.23E-06 U	1 83E-05 J
PCB 118	4 30E-05	3 03E-05	3.91E-05	2.72E-05	1 58E-05	2.09E-05	1.55E-05	3 26E-05	1 14E-05	1.85E-05	2 06E-05	6 37E-06 U	2 37E-05
PCB 126	1.07E-05 J	1 21E-05 J	2 07E-05 J	9 27E-06	3 51E-06 UJ	7.78E-06 J	8 43E-06 J	7 59E-06 J	2 03E-06 U	8 06E-06 J	5 13E-06 J	3 24E-06 U	1 25E-05
PCB 128	1.29E-05	1 70E-05	2 37E-05	4.74E-06 U	3.95E-06 UJ	9 11E-06	8.20E-06	1 42E-05	2 04E-06 U	7.21E-06	9.26E-06	4 55E-06 U	2 02E-05
PCB 138/163/164	6 14E-05	5 95E-05	6 42E-05	2.99E-05	2 74E-05	3 64E-05	2 38E-05	5 89E-05	2 00E-05	3 44E-05	2 44E-05	1 34E-05	5 44E-05
PCB 153	4 73E-05	3.40E-05	3 66E-05	2 68E-05	2.23E-05	2.00E-05	1 70E-05	2.95E-05	1 30E-05	2 47E-05	1 85E-05	8 48E-06	2 45E-05
PCB 170	9.73E-06	1 08E-05	1.03E-05	1.61E-06 U	1.78E-06 U	4 12E-06	1 78E-06 U	5.17E-06	1 11E-06 U	4.65E-06	1 71E-06 U	1 37E-06 U	5 55E-06
PCB 18	2.25E-03	6 78E-04	8.82E-05 J	3.88E-04	2.06E-04 U	8.15E-05 J	9.50E-05 U	6 18E-05 U	3 16E-04 J	1.07E-04 U	1.07E-04 U	1.90E-04 U	9.15E-05 U

TABLE 3.3
PORE WATER CONCENTRATIONS FOR ORGANICS AND METALS
ECOLOGICAL PRG DEVELOPMENT STEP 2
LD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND
PAGE 4 F 4

Sample Location	OFF-11	OFF-12	OFF-13	OFF-14	OFF-15	OFF-16	OFF-17	OFF-18	OFF-19	OFF-20	OFF-21	OFF-22	OFF-23
Sample Depth Interval	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm
Date Sampled	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/7/1998	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/3/1998	4/3/1998	3/27/1998	4/3/1998
PCB 180	1 69E-05	1 49E-05	1 35E-05	4 66E-06	5 33E-06	3 80E-06	2 91E-06	7 56E-06	3 61E-06	4 81E-06	3 29E-06	1 34E-06 J	7 33E-06
PCB 187/182/159	1 63E-05	1 32E-05	1 23E-05	8.05E-06	2 61E-06 U	5 85E-06	4.47E-06	8 50E-06	3 39E-06	5 45E-06	5 83E-06 J	3 44E-06	1 03E-05
PCB 188	1 08E-05 J	7 90E-06	7 90E-06	7.90E-06	4 94E-06 U	7 60E-06	2.28E-06 U	7 41E-06	3 41E-06 J	5 15E-06	5 15E-06	4 56E-06 U	7 32E-06
PCB 195	2 35E-06	1.18E-06 J	3 42E-06	5 55E-07 U	9 25E-07 U	4 27E-07 U	4 27E-07 U	2 78E-07 U	3 83E-07 U	4 83E-07 U	4 83E-07 U	8 54E-07 U	1 03E-06 UJ
PCB 200	2 59E-06 J	4.57E-06	4 46E-07 U	1 43E-06 J	2 38E-06 J	6 86E-07 U	8.23E-07 J	2 14E-06	1 48E-06	1.24E-06 J	9 30E-07 J	1 10E-06 J	2 91E-06
PCB 206	7 60E-07 U	4 24E-07 U	1 11E-06	5 57E-07	6 50E-07	1 29E-07 U	3.22E-07 U	3 21E-07 U	3 08E-07	2 42E-07 U	2 67E-07 U	4 29E-07 U	4 96E-07
PCB 209	2 07E-07 U	8 00E-07	6 82E-07	5 46E-07	4 55E-07	1 40E-07 U	4 90E-07	5 91E-07	2 82E-07	1 98E-07 U	1 38E-07 U	1 75E-07 U	5 05E-07
PCB 28/50	1 79E-03	4 48E-04	8 67E-05	1.20E-04	6 67E-05 J	3 59E-05 U	3 59E-05 U	4 67E-05	3 68E-05 J	4 06E-05 U	4 06E-05 U	7 18E-05 U	1 48E-04
PCB 29	9 94E-05 U	4 38E-05 U	2 73E-05 U	5 47E-05 U	9 12E-05 U	4.21E-05 U	4 21E-05 U	2 73E-05 U	3 77E-05 U	4 76E-05 U	4 76E-05 U	8 41E-05 U	4 05E-05 U
PCB 44	6 68E-04 J	1 78E-04 J	1 34E-04 J	6 68E-05	4 64E-05 U	6 85E-05 J	4.28E-05 J	6 68E-05 J	8 44E-05 J	3 87E-05 J	4 84E-05 J	3 42E-05 J	9 07E-05
PCB 50	6 64E-05 U	2 92E-05 U	1.83E-05 U	3 65E-05 U	6.08E-05 U	2 81E-05 U	2 81E-05 U	1 83E-05 U	2 52E-05 U	3 17E-05 U	3 17E-05 U	5 62E-05 U	2 70E-05 U
PCB 52	5 61E-04 J	2 32E-04 J	1 32E-04 J	9 99E-05	5 30E-05 U	2.79E-05 U	2 44E-05 U	5 45E-05 J	2 82E-05 UJ	2 76E-05 U	3 55E-05 U	4 89E-05 U	9 41E-05
PCB 66/95	4 75E-04	1 61E-04	9.24E-05	8 84E-05	3 01E-05 U	5.26E-05	4 02E-05	7 84E-05	6 37E-05	4 89E-05	5 59E-05	3 09E-05 U	8 04E-05
PCB 8	7 54E-04	6.22E-04	2 33E-04	1 30E-04 U	1 30E-04 U	2 39E-04	5 98E-05 U	2 07E-04	3 04E-03	6 77E-05 U	6 77E-05 U	1 20E-04 U	1 15E-04 U
PCB 87	4 77E-05 J	4.20E-05 J	4 10E-05 J	9 83E-06 U	1 64E-05 U	1.77E-05 J	1 51E-05 J	2 62E-05 J	1 13E-05 J	8 55E-06 UJ	1 71E-05 J	1 51E-05 UJ	2 67E-05
trans-Nonachlor	6 41E-06 U	4 23E-06 J	4 41E-06 J	3 53E-06 J	2.94E-06 J	2 71E-06 U	2 71E-06 U	4 41E-06 J	4 26E-06 J	3 07E-06 U	3 07E-06 U	5 43E-06 U	7 84E-06
Sum of PCB Congeners	7 02E-03	2 75E-03	1 19E-03	1 18E-03	8 19E-04	7 35E-04	4.97E-04	8 40E-04	3 74E-03	5 60E-04	5 79E-04	7 17E-04	9 61E-04
Sum of PCB Congeners X 2	1 40E-02	5.50E-03	2 38E-03	2 37E-03	1 64E-03	1 47E-03	9 94E-04	1.68E-03	7.49E-03	1.12E-03	1 16E-03	1 43E-03	1 92E-03
Metals (ug/L)													
Aluminum	53 8	54.2	47 3	52.7	59.6	49 2	58 7	63 4	51 3	49 8	65 1	49 2	59 7
Arsenic	2	2 6	2 7	2 8	3.4	2 9	3.9	1 5	3	2 4	3	2 6	1 8
Barium	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cadmium	0 4	0 7	0 8	0 7	0 6	0 9	0.6	0.7	0 8	0 9	0 4	0 9	0 4
Chromium	20 8	14 7	19 6	18 6	21 3	23 8	17 3	19 5	17.4	18 5	25 6	17.2	19 7
Copper	31	17	21	18	26	19	24	28	20	21	18	18	11
Iron	470	210	230	160	230	340	180	270	290	110	530	250	390
Lead	13.24	21 4	18 5	19 9	14.3	12	18.1	12 5	11 7	15 9	11.3	17 14	27 9
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	R	R	R	R	R	R	R	R	R	R	R	R	R
Nickel	0 9	1 3	1.7	2 1	2 5	1 5	1	1 9	1 3	1 4	1.3	1.5	1 6
Silver	1 4	1 3	1 9	1 4	1.2	1 6	1 2	1 8	1.5	1 6	1 4	1.2	1 8
Zinc	260	140	160	110	190	210	240	180	150	150	220	200	160
Total Organic Carbon (percent)													
Total Organic Carbon	1 1	2 5	4	2	1.2	2 6	2.6	4	2 9	2.3	2.3	1 3	2 7

Notes:

1/2 of the detection limit was used for all non-detected results

The pore water concentrations for the organic constituents is calculated using the following equation: [PW] = [SD]/(Koc*foc)

Where: [PW] = Pore water concentration
[SD] = Sediment concentration
Koc = Organic carbon partitioning coefficient
foc = Fraction of organic carbon = Total Organic Carbon/100

The pore water concentrations for the metals were measured

Footnotes:

1 - Sources of LogKow values are Karickhoff and Long, 1995 or Karickhoff et al., 1989

2 - LogKoc value is calculated using the following equantion from Karickhoff et al , 1989 $Log_{10}(koc) = 0\ 00028 + 0\ 983*log_{10}(Kow)$

3 - The pore water concentrations for HMW PAHs were calculated by summing the pore water concentrations for the following individual PAHs. [benzo(a)anthracene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, and pyrene]

4 - The pore water concentrations for LMW PAHs were calculated by summing the pore water concentrations for the following individual PAHs: (2-methylnaphthalene, acenaphthalene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene)

5 - The pore water concentrations for total PAHs were calculated by summing the pore water concentrations for HMW and LMW PAHs

TABLE 3.4
SUMMARY OF TOXIC AND NON-TOXIC PORE WATER AND SEDIMENT SAMPLES
ECOLOGICAL PRG DEVELOPMENT STEP 3
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

Station	Sea Urchin Development Test with Pore Water Samples					Amphipod Test with Sediment Samples	
	Mean Number of Normal Larvae				Toxic	Mean	Toxic
	100%[1]	50%[1]	10%[1]	EC50[2]	Samples[3]	Survival	Samples[3]
Site Stations							
OF-1	0	7	84	30	Toxic	95	
OF-2	0	13	88	33	Toxic	87	
OF-3	4	73	88	71		92	
OF-4	85	83	90	>100		90	
OF-5	0	1	19	6	Toxic	72	Toxic
OF-6	6	79	85	74		94	
OF-7	1	81	88	73		94	
OF-8	0	71	80	72		100	
OF-9	3	0	74	29	Toxic	95	
OF-10	0	74	91	69		100	
OF-11	9	95	94	78		98	
OF-12	0	1	93	30	Toxic	100	
OF-13	0	0	93	30	Toxic	99	
OF-14	54	81	79	>100		99	
OF-15	0	41	87	49	Toxic	98	
OF-16	0	93	90	75		97	
OF-17	17	94	94	81		98	
OF-18	1	0	94	30	Toxic	96	
OF-19	0	33	85	43	Toxic	98	
OF-20	2	89	93	75		100	
OF-21	7	88	91	76		98	
Reference Stations							
OF-22	2	82	91	73		90	
OF-23	0	0	89	30	Toxic	95	

Notes:
1 - Value is the percentage of pore water used in the toxicity test.
2 - The EC50 value is the percentage of pore water that causes 50% of the larvae to development abnormally.
3 - Samples with EC50 values of greater than ~70% are considered non-toxic.

NA - Not Applicable because the sample is a control sample
Source of data is Technical Support Document for the Marine Ecological Risk Assessment for OFFTA (TtNUS, 1998)

TABLE 3.5
PORE WATER SUMMARY STATISTICS
ECOLOGICAL PRG DEVELOPMENT STEP 4
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

PARAMETER	Non-Toxic Sea Urchin Samples[1]					
	Frequency of Detection	Maximum Detection	Location of Maximum Detection	Data Distribution	Statistic Selected[5]	Selected Pore Water Concentration
Metals (ug/L)						
Aluminum	12 / 12	6 51E+01	OFF-21-PW	Lognormal	95% UL-T	6.60E+01
Arsenic	12 / 12	3 90E+00	OFF-17-PW	Lognormal	95% UL-T	3.87E+00
Cadmium	12 / 12	9.00E-01	OFF-16-PW, OFF-20-PW, OFF-4-PW	Normal	95% UL-N	1.01E+00
Chromium	12 / 12	2.56E+01	OFF-21-PW	Lognormal	95% UL-T	2.59E+01
Copper	12 / 12	3.10E+01	OFF-11-PW	Lognormal	95% UL-T	3.26E+01
Iron	12 / 12	5.30E+02	OFF-21-PW	Lognormal	95% UL-T	5.91E+02
Lead	12 / 12	1.99E+01	OFF-14-PW	Normal	95% UL-N	2.03E+01
Nickel	11 / 12	3 10E+00	OFF-10-PW	Normal	95% UL-N	2.92E+00
Silver	11 / 12	1.70E+00	OFF-4-PW, OFF-7-PW	Undefined	95% UL-T	6.71E+00
Zinc	12 / 12	4.20E+02	OFF-6-PW	Lognormal	95% UL-T	3.99E+02
SEM and AVS (umol/g)						
SEM-AVS	11 / 12	4 89E-01 J	OFF-3-PW	Undefined	95% UL-T	4.89E-01
PAHs (ug/L)						
1-Methylnaphthalene	12 / 12	9.17E-01 J	OFF-6-PW	Lognormal	95% UL-T	1.21E+00
1-Methylphenanthrene	12 / 12	6 07E-01	OFF-3-PW	Lognormal	95% UL-T	6.99E-01
2,6-Dimethylnaphthalene	12 / 12	2.42E-01 J	OFF-6-PW	Lognormal	95% UL-T	3.00E-01
2-Methylnaphthalene	12 / 12	1.24E+00 J	OFF-3-PW	Lognormal	95% UL-T	1.49E+00
Acenaphthene	12 / 12	5.77E+00	OFF-3-PW	Lognormal	95% UL-T	5.61E+00
Acenaphthylene	12 / 12	4.92E+00	OFF-4-PW	Lognormal	95% UL-T	5.26E+00
Anthracene	12 / 12	5 46E+00 J	OFF-3-PW	Lognormal	95% UL-T	5.91E+00
Benzo(a)anthracene	12 / 12	1.58E+00	OFF-3-PW	Lognormal	95% UL-T	1.42E+00
Benzo(a)pyrene	12 / 12	3.78E-01 J	OFF-3-PW	Lognormal	95% UL-T	3.57E-01
Benzo(b,j,k)fluoranthene	12 / 12	1.54E+00 J	OFF-3-PW	Undefined	95% UL-T	1.02E+00
Benzo(e)pyrene	12 / 12	5.75E-01 J	OFF-3-PW	Undefined	95% UL-T	4.02E-01
Benzo(g,h,i)Perylene	12 / 12	1.55E-01 J	OFF-3-PW	Undefined	95% UL-T	1.03E-01
Biphenyl	10 / 12	5.49E-01	OFF-3-PW	Lognormal	95% UL-T	4.50E-01
Chrysene/triphenylene	12 / 12	1.26E+00	OFF-3-PW	Lognormal	95% UL-T	1.04E+00
Dibenzo(a,h)Anthracene	12 / 12	8.28E-02 J	OFF-3-PW	Undefined	95% UL-T	4.71E-02
Fluoranthene	12 / 12	1.50E+01	OFF-3-PW	Lognormal	95% UL-T	1.33E+01
Fluorene	12 / 12	4.83E+00 J	OFF-3-PW	Lognormal	95% UL-T	4.74E+00
Indeno(1,2,3-cd)pyrene	12 / 12	2.12E-01 J	OFF-3-PW	Undefined	95% UL-T	1.28E-01
Naphthalene	12 / 12	8.24E+00	OFF-3-PW	Lognormal	95% UL-T	1.05E+01
Perylene	12 / 12	1 87E-01 J	OFF-3-PW	Lognormal	95% UL-T	1.48E-01
Phenanthrene	12 / 12	4.00E+01	OFF-3-PW	Lognormal	95% UL-T	3.86E+01
Pyrene	12 / 12	1 13E+01	OFF-3-PW	Undefined	95% UL-T	1.07E+01
Sum PAHs (6 High Molecular Weight)	12 / 12	2 96E+01	OFF-3-PW	Lognormal	95% UL-T	2.68E+01
Sum PAHs (7 Low Molecular Weight)	12 / 12	6.96E+01	OFF-3-PW	Lognormal	95% UL-T	6.99E+01
Sum PAHs (NOAA Status &Trends)	12 / 12	9 92E+01	OFF-3-PW	Lognormal	95% UL-T	9.66E+01
Pesticides (ug/L)						
2,4'-DDE	0 / 12	0 00E+00	None	Lognormal	NA	0.00E+00
2,4'-DDT	5 / 12	6.54E-05	OFF-4-PW	Undefined	95% UL-T	3.82E-05
4,4'-DDD	10 / 12	5 00E-04 J	OFF-17-PW	Lognormal	95% UL-T	5.11E-04
4,4'-DDE	4 / 12	4 78E-05	OFF-6-PW	Lognormal	95% UL-T	4.85E-05
4,4'-DDT	12 / 12	2.89E-04	OFF-4-PW	Undefined	95% UL-T	2.03E-04
Aldrin	1 / 12	3 14E-06 J	OFF-8-PW	Lognormal	95% UL-T	1.96E-05
Alpha-Chlordane	7 / 12	5.43E-05	OFF-4-PW	Lognormal	95% UL-T	4.95E-05
Gamma-BHC	3 / 12	7 99E-03 J	OFF-6-PW	Lognormal	95% UL-T	8.79E-03
Heptachlor	2 / 12	6.44E-06 J	OFF-7-PW	Undefined	95% UL-T	2.08E-05

TABLE 3.5
PORE WATER SUMMARY STATISTICS
ECOLOGICAL PRG DEVELOPMENT STEP 4
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

PARAMETER	Non-Toxic Sea Urchin Samples[1]					
	Frequency of Detection	Maximum Detection	Location of Maximum Detection	Data Distribution	Statistic Selected[5]	Selected Pore Water Concentration
Heptachlor Epoxide	2 / 12	1.04E-04 J	OFF-11-PW	Undefined	95% UL-T	4.83E-05
Hexachlorobenzene	0 / 12	0 00E+00	None	Lognormal	NA	0.00E+00
Mirex	3 / 12	4.68E-06 J	OFF-6-PW	Normal	95% UL-N	6.18E-06
PCBs (ug/L)						
PCB 101/90	3 / 12	1 72E-04	OFF-4-PW	Lognormal	95% UL-T	1.38E-04
PCB 105	0 / 12	0 00E+00	None	Lognormal	95% UL-T	0.00E+00
PCB 118	12 / 12	4.74E-05	OFF-3-PW	Lognormal	95% UL-T	4.79E-05
PCB 126	8 / 12	3.18E-05 J	OFF-4-PW	Lognormal	95% UL-T	3.04E-05
PCB 128	9 / 12	5.52E-05	OFF-4-PW	Lognormal	95% UL-T	4.04E-05
PCB 138/163/164	12 / 12	2.45E-04	OFF-4-PW	Undefined	95% UL-T	2.09E-04
PCB 153	12 / 12	4.73E-05	OFF-11-PW	Lognormal	95% UL-T	4.78E-05
PCB 170	5 / 12	1.43E-05	OFF-4-PW	Lognormal	95% UL-T	1.30E-05
PCB 18	6 / 12	2.25E-03	OFF-11-PW	Lognormal	95% UL-T	2.13E-03
PCB 180	12 / 12	1.69E-05	OFF-11-PW	Lognormal	95% UL-T	1.87E-05
PCB 187/182/159	11 / 12	2.78E-05	OFF-4-PW	Lognormal	95% UL-T	2.11E-05
PCB 188	9 / 12	2.85E-05	OFF-6-PW	Lognormal	95% UL-T	2.42E-05
PCB 195	2 / 12	4.93E-06	OFF-4-PW	Undefined	95% UL-T	3.27E-06
PCB 200	11 / 12	1.43E-05	OFF-4-PW	Lognormal	95% UL-T	1.15E-05
PCB 206	3 / 12	6.86E-07	OFF-8-PW	Lognormal	95% UL-T	1.38E-06
PCB 209	5 / 12	2.07E-06 J	OFF-6-PW	Lognormal	95% UL-T	1.29E-06
PCB 28/50	6 / 12	1.79E-03	OFF-11-PW	Lognormal	95% UL-T	8.73E-04
PCB 44	11 / 12	6.68E-04 J	OFF-11-PW	Undefined	95% UL-T	6.98E-04
PCB 52	5 / 12	5.61E-04 J	OFF-11-PW	Lognormal	95% UL-T	5.42E-04
PCB 66/95	12 / 12	4.75E-04	OFF-11-PW	Lognormal	95% UL-T	3.58E-04
PCB 8	4 / 12	1.04E-03 J	OFF-3-PW	Lognormal	95% UL-T	9.25E-04
PCB 87	8 / 12	5 83E-05 J	OFF-3-PW, OFF-6-PW	Lognormal	95% UL-T	8.32E-05
Sum of PCB Congeners	12 / 12	7.02E-03	OFF-11-PW	Lognormal	95% UL-T	6.09E-03
Sum of PCB Congeners X 2	12 / 12	1.40E-02	OFF-11-PW	Lognormal	95% UL-T	1.22E-02
Trans-Nonachlor	4 / 12	1.37E-05 J	OFF-3-PW	Lognormal	95% UL-T	1.22E-05

TABLE 3.5
PORE WATER SUMMARY STATISTICS
ECOLOGICAL PRG DEVELOPMENT STEP 4
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

PARAMETER	Toxic Sea Urchin Samples[2]					
	Frequency of Detection	Maximum Detection	Location of Maximum Detection	Data Distribution[6]	Statistic Selected	Selected Pore Water Concentration
Metals (ug/L)						
Aluminum	8 / 8	6.93E+01	OFF-9-PW	< 11 Samples	Max	6.93E+01
Arsenic	9 / 9	5.50E+00	OFF-2-PW	< 11 Samples	Max	5 50E+00
Cadmium	9 / 9	8.00E-01	OFF-13-PW, OFF-19-PW, OFF-9-PW	< 11 Samples	Max	8.00E-01
Chromium	9 / 9	2.86E+01	OFF-1-PW	< 11 Samples	Max	2 86E+01
Copper	9 / 9	8 40E+01	OFF-5-PW	< 11 Samples	Max	8.40E+01
Iron	9 / 9	6.10E+02	OFF-1-PW	< 11 Samples	Max	6.10E+02
Lead	9 / 9	2.14E+01	OFF-12-PW	< 11 Samples	Max	2.14E+01
Nickel	8 / 9	2 50E+00	OFF-15-PW	< 11 Samples	Max	2.50E+00
Silver	9 / 9	1.90E+00	OFF-13-PW	< 11 Samples	Max	1.90E+00
Zinc	9 / 9	2.60E+02	OFF-5-PW	< 11 Samples	Max	2.60E+02
SEM and AVS (umol/g)						
SEM-AVS	7 / 7	-3.65E+00 J	OFF-15-PW	< 11 Samples	Max	-3.65E+00
PAHs (ug/L)						
1-Methylnaphthalene	9 / 9	3.48E+00 J	OFF-5-PW	< 11 Samples	Max	3.48E+00
1-Methylphenanthrene	9 / 9	1.48E+00	OFF-5-PW	< 11 Samples	Max	1.48E+00
2,6-Dimethylnaphthalene	9 / 9	1.40E+00 J	OFF-5-PW	< 11 Samples	Max	1.40E+00
2-Methylnaphthalene	9 / 9	4.13E+00 J	OFF-5-PW	< 11 Samples	Max	4.13E+00
Acenaphthene	9 / 9	1.35E+01	OFF-5-PW	< 11 Samples	Max	1.35E+01
Acenaphthylene	9 / 9	5.31E+00	OFF-5-PW	< 11 Samples	Max	5.31E+00
Anthracene	9 / 9	9.46E+00 J	OFF-5-PW	< 11 Samples	Max	9.46E+00
Benzo(a)anthracene	9 / 9	2.32E+00	OFF-5-PW	< 11 Samples	Max	2.32E+00
Benzo(a)pyrene	9 / 9	4 76E-01	OFF-5-PW	< 11 Samples	Max	4.76E-01
Benzo(b,j,k)fluoranthene	9 / 9	2.01E+00	OFF-5-PW	< 11 Samples	Max	2.01E+00
Benzo(e)pyrene	9 / 9	7 48E-01 J	OFF-5-PW	< 11 Samples	Max	7.48E-01
Benzo(g,h,i)Perylene	9 / 9	1 55E-01 J	OFF-5-PW	< 11 Samples	Max	1.55E-01
Biphenyl	7 / 9	1.93E+00	OFF-5-PW	< 11 Samples	Max	1.93E+00
Chrysene/triphenylene	9 / 9	1.82E+00	OFF-5-PW	< 11 Samples	Max	1.82E+00
Dibenzo(a,h)Anthracene	8 / 9	9.04E-02 J	OFF-5-PW	< 11 Samples	Max	9.04E-02
Fluoranthene	9 / 9	1.78E+01	OFF-5-PW	< 11 Samples	Max	1.78E+01
Fluorene	9 / 9	9.88E+00 J	OFF-5-PW	< 11 Samples	Max	9.88E+00
Indeno(1,2,3-cd)pyrene	9 / 9	2.14E-01	OFF-5-PW	< 11 Samples	Max	2.14E-01
Naphthalene	9 / 9	1.28E+01	OFF-5-PW	< 11 Samples	Max	1.28E+01
Perylene	9 / 9	1.65E-01	OFF-5-PW	< 11 Samples	Max	1.65E-01
Phenanthrene	9 / 9	4.91E+01	OFF-5-PW	< 11 Samples	Max	4.91E+01
Pyrene	9 / 9	1.60E+01	OFF-5-PW	< 11 Samples	Max	1.60E+01
Sum PAHs (6 High Molecular Weight)	9 / 9	3.85E+01	OFF-5-PW	< 11 Samples	Max	3.85E+01
Sum PAHs (7 Low Molecular Weight)	9 / 9	1.04E+02	OFF-5-PW	< 11 Samples	Max	1.04E+02
Sum PAHs (NOAA Status &Trends)	9 / 9	1.43E+02	OFF-5-PW	< 11 Samples	Max	1.43E+02
Pesticides (ug/L)						
2,4'-DDE	1 / 9	8.15E-06	OFF-12-PW	< 11 Samples	Max	8.15E-06
2,4'-DDT	6 / 9	3 85E-05	OFF-5-PW	< 11 Samples	Max	3.85E-05
4,4'-DDD	8 / 9	4.96E-04 J	OFF-13-PW	< 11 Samples	Max	4.96E-04
4,4'-DDE	5 / 9	6.11E-05	OFF-13-PW	< 11 Samples	Max	6.11E-05
4,4'-DDT	9 / 9	2 56E-04	OFF-5-PW	< 11 Samples	Max	2.56E-04
Aldrin	1 / 9	2.81E-06 J	OFF-19-PW	< 11 Samples	Max	2.81E-06
Alpha-Chlordane	9 / 9	5.71E-05	OFF-5-PW	< 11 Samples	Max	5.71E-05
Gamma-BHC	3 / 9	7.49E-03 J	OFF-15-PW	< 11 Samples	Max	7.49E-03
Heptachlor	1 / 9	3.40E-06 J	OFF-15-PW	< 11 Samples	Max	3.40E-06

TABLE 3.5
PORE WATER SUMMARY STATISTICS
ECOLOGICAL PRG DEVELOPMENT STEP 4
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

PARAMETER	Toxic Sea Urchin Samples[2]					
	Frequency of Detection	Maximum Detection	Location of Maximum Detection	Data Distribution[6]	Statistic Selected	Selected Pore Water Concentration
Heptachlor Epoxide	3 / 9	3.91E-05 J	OFF-12-PW	< 11 Samples	Max	3.91E-05
Hexachlorobenzene	1 / 9	5.03E-05	OFF-19-PW	< 11 Samples	Max	5.03E-05
Mirex	3 / 9	1.01E-05	OFF-5-PW	< 11 Samples	Max	1.01E-05
PCBs (ug/L)						
PCB 101/90	4 / 9	8.77E-05	OFF-12-PW	< 11 Samples	Max	8.77E-05
PCB 105	4 / 9	4.93E-05 J	OFF-5-PW	< 11 Samples	Max	4.93E-05
PCB 118	9 / 9	4.52E-05	OFF-2-PW	< 11 Samples	Max	4.52E-05
PCB 126	5 / 9	4.21E-05 J	OFF-5-PW	< 11 Samples	Max	4.21E-05
PCB 128	6 / 9	2.37E-05	OFF-13-PW	< 11 Samples	Max	2.37E-05
PCB 138/163/164	9 / 9	3.13E-04 J	OFF-5-PW	< 11 Samples	Max	3.13E-04
PCB 153	9 / 9	6.30E-05	OFF-5-PW	< 11 Samples	Max	6.30E-05
PCB 170	4 / 9	1.28E-05	OFF-5-PW	< 11 Samples	Max	1.28E-05
PCB 18	5 / 9	9 88E-04	OFF-5-PW	< 11 Samples	Max	9.88E-04
PCB 180	9 / 9	2.27E-05	OFF-5-PW	< 11 Samples	Max	2.27E-05
PCB 187/182/159	7 / 9	1.43E-05	OFF-5-PW	< 11 Samples	Max	1.43E-05
PCB 188	5 / 9	2.57E-05	OFF-5-PW	< 11 Samples	Max	2.57E-05
PCB 195	3 / 9	1.30E-05	OFF-5-PW	< 11 Samples	Max	1.30E-05
PCB 200	8 / 9	1.43E-05	OFF-5-PW	< 11 Samples	Max	1.43E-05
PCB 206	4 / 9	1.11E-06	OFF-13-PW	< 11 Samples	Max	1.11E-06
PCB 209	6 / 9	8.00E-07	OFF-12-PW	< 11 Samples	Max	8.00E-07
PCB 28/50	8 / 9	4.80E-04	OFF-5-PW	< 11 Samples	Max	4.80E-04
PCB 44	7 / 9	3.12E-04 J	OFF-5-PW	< 11 Samples	Max	3.12E-04
PCB 52	4 / 9	3.27E-04 J	OFF-5-PW	< 11 Samples	Max	3.27E-04
PCB 66/95	7 / 9	3.13E-04	OFF-5-PW	< 11 Samples	Max	3.13E-04
PCB 8	5 / 9	4.90E-03 J	OFF-1-PW	< 11 Samples	Max	4.90E-03
PCB 87	6 / 9	5 36E-05 J	OFF-2-PW	< 11 Samples	Max	5.36E-05
Sum of PCB Congeners	9 / 9	5.88E-03	OFF-1-PW	< 11 Samples	Max	5.88E-03
Sum of PCB Congeners X 2	9 / 9	1.18E-02	OFF-1-PW	< 11 Samples	Max	1.18E-02
Trans-Nonachlor	8 / 9	2.29E-05	OFF-5-PW	< 11 Samples	Max	2.29E-05

TABLE 3.5
PORE WATER SUMMARY STATISTICS
ECOLOGICAL PRG DEVELOPMENT STEP 4
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

PARAMETER	Non-Toxic Amphipod Samples[3,4]					
	Frequency of Detection	Maximum Detection	Location of Maximum Detection	Data Distribution	Statistic Selected	Selected Pore Water Concentration
Metals (ug/L)						
Aluminum	19 / 19	6.93E+01	OFF-9-PW	Lognormal	95% UL-T	6.93E+01
Arsenic	20 / 20	5.50E+00	OFF-2-PW	Lognormal	95% UL-T	4.78E+00
Cadmium	20 / 20	9.00E-01	OFF-16-PW, OFF-20-PW, OFF-4-PW	Normal	95% UL-N	1.00E+00
Chromium	20 / 20	2.86E+01	OFF-1-PW	Lognormal	95% UL-T	2.66E+01
Copper	20 / 20	3.10E+01	OFF-11-PW, OFF-9-PW	Lognormal	95% UL-T	3.23E+01
Iron	20 / 20	6.10E+02	OFF-1-PW	Lognormal	95% UL-T	5.84E+02
Lead	20 / 20	2.14E+01	OFF-12-PW	Normal	95% UL-N	2.07E+01
Nickel	18 / 20	3.10E+00	OFF-10-PW	Normal	95% UL-N	2.77E+00
Silver	19 / 20	1.90E+00	OFF-13-PW	Undefined	95% UL-T	4.90E+00
Zinc	20 / 20	4.20E+02	OFF-6-PW	Lognormal	95% UL-T	3.18E+02
SEM and AVS (umol/g)						
SEM-AVS	17 / 20	4.89E-01 J	OFF-3-PW	Undefined	95% UL-T	4.89E-01
PAHs (ug/L)						
1-Methylnaphthalene	20 / 20	9.17E-01 J	OFF-6-PW	Lognormal	95% UL-T	9.11E-01
1-Methylphenanthrene	20 / 20	6.07E-01	OFF-3-PW	Lognormal	95% UL-T	4.87E-01
2,6-Dimethylnaphthalene	20 / 20	2.75E-01 J	OFF-2-PW	Lognormal	95% UL-T	2.46E-01
2-Methylnaphthalene	20 / 20	1.24E+00 J	OFF-3-PW	Lognormal	95% UL-T	1.20E+00
Acenaphthene	20 / 20	5.77E+00	OFF-3-PW	Lognormal	95% UL-T	3.52E+00
Acenaphthylene	20 / 20	4.92E+00	OFF-4-PW	Undefined	95% UL-T	3.77E+00
Anthracene	20 / 20	5.46E+00 J	OFF-3-PW	Lognormal	95% UL-T	4.15E+00
Benzo(a)anthracene	20 / 20	1.58E+00	OFF-3-PW	Undefined	95% UL-T	8.56E-01
Benzo(a)pyrene	20 / 20	3.78E-01 J	OFF-3-PW	Lognormal	95% UL-T	2.45E-01
Benzo(b,j,k)fluoranthene	20 / 20	1.54E+00 J	OFF-3-PW	Undefined	95% UL-T	6.67E-01
Benzo(e)pyrene	20 / 20	5.75E-01 J	OFF-3-PW	Undefined	95% UL-T	2.67E-01
Benzo(g,h,i)Perylene	20 / 20	1.55E-01 J	OFF-3-PW	Undefined	95% UL-T	6.77E-02
Biphenyl	16 / 20	5.49E-01	OFF-3-PW	Lognormal	95% UL-T	3.34E-01
Chrysene/triphenylene	20 / 20	1.26E+00	OFF-3-PW	Undefined	95% UL-T	6.50E-01
Dibenzo(a,h)Anthracene	19 / 20	8.28E-02 J	OFF-3-PW	Lognormal	95% UL-T	3.35E-02
Fluoranthene	20 / 20	1.50E+01	OFF-3-PW	Undefined	95% UL-T	8.40E+00
Fluorene	20 / 20	4.83E+00 J	OFF-3-PW	Lognormal	95% UL-T	2.96E+00
Indeno(1,2,3-cd)pyrene	20 / 20	2.12E-01 J	OFF-3-PW	Undefined	95% UL-T	8.48E-02
Naphthalene	20 / 20	8.24E+00	OFF-3-PW	Lognormal	95% UL-T	7.94E+00
Perylene	20 / 20	1.87E-01 J	OFF-3-PW	Undefined	95% UL-T	9.29E-02
Phenanthrene	20 / 20	4.00E+01	OFF-3-PW	Lognormal	95% UL-T	2.32E+01
Pyrene	20 / 20	1.13E+01	OFF-3-PW	Undefined	95% UL-T	7.05E+00
Sum PAHs (6 High Molecular Weight)	20 / 20	2.96E+01	OFF-3-PW	Undefined	95% UL-T	1.72E+01
Sum PAHs (7 Low Molecular Weight)	20 / 20	6.96E+01	OFF-3-PW	Lognormal	95% UL-T	4.60E+01
Sum PAHs (NOAA Status &Trends)	20 / 20	9 92E+01	OFF-3-PW	Lognormal	95% UL-T	6.30E+01
Pesticides (ug/L)						
2,4'-DDE	1 / 20	8.15E-06	OFF-12-PW	Lognormal	95% UL-T	1.20E-05
2,4'-DDT	10 / 20	6.54E-05	OFF-4-PW	Undefined	95% UL-T	3.28E-05
4,4'-DDD	17 / 20	5.00E-04 J	OFF-17-PW	Lognormal	95% UL-T	6.14E-04
4,4'-DDE	9 / 20	6.11E-05	OFF-13-PW	Undefined	95% UL-T	6.56E-05
4,4'-DDT	20 / 20	2.89E-04	OFF-4-PW	Undefined	95% UL-T	1.83E-04
Aldrin	2 / 20	3.14E-06 J	OFF-8-PW	Lognormal	95% UL-T	1.88E-05
Alpha-Chlordane	15 / 20	5.43E-05	OFF-4-PW	Lognormal	95% UL-T	4.28E-05
Gamma-BHC	6 / 20	7 99E-03 J	OFF-6-PW	Lognormal	95% UL-T	8.72E-03
Heptachlor	3 / 20	6.44E-06 J	OFF-7-PW	Undefined	95% UL-T	1.62E-05

TABLE 3.5
PORE WATER SUMMARY STATISTICS
ECOLOGICAL PRG DEVELOPMENT STEP 4
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

PARAMETER	Non-Toxic Amphipod Samples[3,4]					
	Frequency of Detection	Maximum Detection	Location of Maximum Detection	Data Distribution	Statistic Selected	Selected Pore Water Concentrati n
Heptachlor Epoxide	5 / 20	1.04E-04 J	OFF-11-PW	Undefined	95% UL-T	3.82E-05
Hexachlorobenzene	1 / 20	5.03E-05	OFF-19-PW	Lognormal	95% UL-T	4.94E-05
Mirex	5 / 20	5.62E-06 J	OFF-15-PW	Normal	95% UL-T	5.99E-06
PCBs (ug/L)						
PCB 101/90	7 / 20	1.72E-04	OFF-4-PW	Lognormal	95% UL-T	1.25E-04
PCB 105	3 / 20	2.54E-05 J	OFF-13-PW	Lognormal	95% UL-T	2.56E-05
PCB 118	20 / 20	4.74E-05	OFF-3-PW	Lognormal	95% UL-T	5.35E-05
PCB 126	12 / 20	3.18E-05 J	OFF-4-PW	Lognormal	95% UL-T	2.73E-05
PCB 128	14 / 20	5.52E-05	OFF-4-PW	Lognormal	95% UL-T	3.71E-05
PCB 138/163/164	20 / 20	2.45E-04	OFF-4-PW	Undefined	95% UL-T	1.80E-04
PCB 153	20 / 20	4.73E-05	OFF-11-PW	Lognormal	95% UL-T	4.82E-05
PCB 170	8 / 20	1.43E-05	OFF-4-PW	Undefined	95% UL-T	1.27E-05
PCB 18	10 / 20	2.25E-03	OFF-11-PW	Lognormal	95% UL-T	1.42E-03
PCB 180	20 / 20	1.69E-05	OFF-11-PW	Undefined	95% UL-T	1.74E-05
PCB 187/182/159	17 / 20	2.78E-05	OFF-4-PW	Lognormal	95% UL-T	1.93E-05
PCB 188	13 / 20	2.85E-05	OFF-6-PW	Lognormal	95% UL-T	1.74E-05
PCB 195	4 / 20	4.93E-06	OFF-4-PW	Lognormal	95% UL-T	2.99E-06
PCB 200	18 / 20	1 43E-05	OFF-4-PW	Lognormal	95% UL-T	9.56E-06
PCB 206	7 / 20	1.11E-06	OFF-13-PW	Lognormal	95% UL-T	1.18E-06
PCB 209	11 / 20	2.07E-06 J	OFF-6-PW	Lognormal	95% UL-T	1.14E-06
PCB 28/50	13 / 20	1.79E-03	OFF-11-PW	Undefined	95% UL-T	5.63E-04
PCB 44	17 / 20	6.68E-04 J	OFF-11-PW	Undefined	95% UL-T	4.18E-04
PCB 52	8 / 20	5.61E-04 J	OFF-11-PW	Lognormal	95% UL-T	3.55E-04
PCB 66/95	18 / 20	4.75E-04	OFF-11-PW	Lognormal	95% UL-T	2.87E-04
PCB 8	9 / 20	4.90E-03 J	OFF-1-PW	Undefined	95% UL-T	2.06E-03
PCB 87	13 / 20	5.83E-05 J	OFF-3-PW, OFF-6-PW	Undefined	95% UL-T	7.22E-05
Sum of PCB Congeners	20 / 20	7.02E-03	OFF-11-PW	Lognormal	95% UL-T	5.79E-03
Sum of PCB Congeners X 2	20 / 20	1.40E-02	OFF-11-PW	Lognormal	95% UL-T	1.16E-02
Trans-Nonachlor	11 / 20	1.37E-05 J	OFF-3-PW	Lognormal	95% UL-T	1.03E-05

Footnotes:

1 - Samples were considered non-toxic for the sea urchin toxicity test (see Table 4)
2 - Samples were considered toxic for the sea urchin toxicity test (see Table 4)
3 - Samples were considered non-toxic for the amphipod toxicity test (see Table 4)
4 - The summary statistics for the toxic sediment samples are not presented because only one sediment sample (OFF-5) was toxic
5 - The selected statistic is based on the data distribution.
- The Maximum (Max) value was selected when the 95% Upper Limit (UL) exceeded the maximum detection
- The Log-normal 95% UL (95% UL-T) was selected when the data was lognormally distributed
- The Normal 95% UL (95% UL-N) was selected when the data was normally distributed

6 - There were not enough samples to accurately calculate a 95% UL

TABLE 3.6
CALCULATION OF NO OBSERVED EFFECTS CONCENTRATION
ECOLOGICAL PRG DEVELOPMENT STEP 5
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

PARAMETER	WQSV[1]	Sea Urchin Samples		NOEC[4]	Amphipod Samples		NOEC[4]	Aquatic NOEC[5]
		Non-Toxic Concentration[2]	Toxic Concentration[3]		Non-Toxic Concentration[2]	Toxic Concentration[3]		
Metals (ug/L)								
Aluminum	87	66	69		69	64		
Arsenic	36	4	5.5		5	1.0		
Cadmium	9.4	1	0.8		1	0.5		
Chromium	50	26	29		27	22		
Copper	3.7	33	84	33	32	84	32	32
Iron	1000	591	610		584	170		
Lead	8.5	20	21	20	21	18		20
Nickel	8.3	3	2.5		3	1.1		
Silver	0.92	7	1.9		5	1.3		
Zinc	86	399	260		318	260		
SEM and AVS (umol/g)								
SEM-AVS	5	0.49	0.21		0.5	-22.2		
PAHs (ug/L)								
2-Methylnaphthalene	0.88	1.5	4.1	1.5	1.2	4.1	1.2	1.20
Acenaphthene	710	5.6	14		3.5	14		
Acenaphthylene	0.46	5.3	5.3	5.3	3.8	5.3	3.8	3.8
Anthracene	0.29	5.9	9.5	5.9	4.2	9.5	4.2	4.2
Benzo(a)anthracene	0.065	1.4	2.3	1.4	0.86	2.3	0.86	0.86
Benzo(a)pyrene	0.042	0.36	0.48	0.36	0.24	0.48	0.24	0.24
Benzo(b,j,k)fluoranthene	0.14	1.0	2.0	1.0	0.67	2.0	0.67	0.67
Benzo(g,h,i)Perylene	0.02	0.10	0.16	0.10	0.07	0.16	0.068	0.068
Biphenyl	14	0.45	1.9		0.33	1.93		
Chrysene/triphenylene	0.10	1.0	1.8	1.0	0.65	1.8	0.65	0.65
Dibenzo(a,h)Anthracene	0.0017	0.047	0.090	0.047	0.033	0.09	0.033	0.033
Fluoranthene	16	13	18	16	8.4	18	16	16
Fluorene	0.14	4.7	10	4.7	3.0	10	3.0	3.0
Indeno(1,2,3-cd)pyrene	0.020	0.13	0.21	0.128	0.085	0.21	0.085	0.085
Naphthalene	633	11	13		7.9	13		
Phenanthrene	4.6	39	49	39	23	49	23	23
Pyrene	0.63	11	16	11	7.0	16	7.0	7.0
Sum PAHs (6 High Molecular Weight)	0.17	27	39	27	17	39	17	17

TABLE 3.6
CALCULATION OF NO OBSERVED EFFECTS CONCENTRATION
ECOLOGICAL PRG DEVELOPMENT STEP 5
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

PARAMETER	WQSV[1]	Sea Urchin Samples		NOEC[4]	Amphipod Samples		NOEC[4]	Aquatic NOEC[5]
		Non-Toxic Concentration[2]	Toxic Concentration[3]		Non-Toxic Concentration[2]	Toxic Concentration[3]		
Sum PAHs (7 Low Molecular Weight)	4.8	70	104	70	46	104	46	46
Sum PAHs (NOAA Status &Trends)	3.7	97	143	97	63	143	63	63
Pesticides (ug/L)								
2,4'-DDE	1.00E-03	0.00E+00	8.15E-06		1.20E-05	9.05E-06		
2,4'-DDT	1.00E-03	3.82E-05	3.85E-05		3.28E-05	3.85E-05		
4,4'-DDD	1.00E-03	5.11E-04	4.96E-04		6.14E-04	2.02E-04		
4,4'-DDE	1.00E-03	4.85E-05	6.11E-05		6.56E-05	3.39E-05		
4,4'-DDT	1.00E-03	2.03E-04	2.56E-04		1.83E-04	2.56E-04		
Aldrin	1.63E-01	1.96E-05	2.81E-06		1.88E-05	1.43E-05		
Alpha-Chlordane	4.00E-03	4.95E-05	5.71E-05		4.28E-05	5.71E-05		
Gamma-BHC	1.60E-01	8.79E-03	7.49E-03		8.72E-03	5.39E-03		
Heptachlor	3.60E-03	2.08E-05	3.40E-06		1.62E-05	1.02E-05		
Heptachlor Epoxide	3.60E-03	4.83E-05	3.91E-05		3.82E-05	1.02E-05		
Hexachlorobenzene	3.57E-03	0.00E+00	5.03E-05		4.94E-05	4.05E-05		
Mirex	1.00E-03	6.18E-06	1.01E-05		5.99E-06	1.01E-05		
PCBs (ug/L)								
Sum of PCB Congeners X 2	3.00E-02	1.22E-02	1.18E-02		1.16E-02	6.98E-03		

Notes:
WQSV - Water Quality Screening Value
NOEC - No Observed Effects Concentration
This table only includes constituents that have WQSVs

Footnotes:
1 - The sources of the Water Quality Screening Values (WQSVs) are presented in Table 1
2 - The cells in this column are shaded if the chemical concentrations exceed the WQSV
3 - The cells in this column are shaded if the chemical concentrations in the toxic samples exceed the chemical concentrations in the non-toxic samples **and** the WQSV
4 - This column only lists chemicals if the concentration in the toxic sample exceeds the WQSV **and** the chemical concentration in the toxic samples exceeds the chemical concentration in the non-toxic samples
The chemical concentration in this column is the higher of the WQSV or the non-toxic concentration
5 - The concentration in this column is the lower of the two NOEC values and is named the Aquatic NOEC

TABLE 3.7
SEM-AVS RESULTS
ECOLOGICAL PRG DEVELOPMENT STEP 5
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location	Bulk Chemistry Sediment Results						SEM-AVS	TOC	TOC Normalized SEM-AVS[2]
	Cadmium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)			
OFF-1	0.31	58	131	34	0.46 J	156	1.23[1]	1.8	68
OFF-2	0.14	24	90	26	0.065 UJ	315	0.79[1]	1.1	72
OFF-3	0.18	12	60	22	0.065 UJ	50 U	0.49	0.9	54
OFF-4	0.06	31	96	20	0.065 UJ	106	1.51[1]	0.9	168
OFF-5	0.23	17	139	19	0.065 UJ	40 U	-22	1	-2222
OFF-6	0.15	11	47	19	0.065 UJ	53 U	-25	1.8	-1387
OFF-7	0.29	33	294	28	0.18 J	156	-37	1.9	-1969
OFF-8	0.19	11	38	16	0.17 J	47 U	-4.7	1.3	-360
OFF-9	0.11	6.9	25	18	0.065 UJ	40 U	-3.6	1.2	-304
OFF-10	0.15	10	27	13	0.065 UJ	27 U	-6.4	1.1	-581
OFF-11	0.22	9.1	39	5.5 U	0.17 J	28 U	-12	1.1	-1104
OFF-12	0.53	37	114	21	0.48 J	147	-23	2.5	-923
OFF-13	0.80	81	202	30	1.06 J	263	-47	4	-1168
OFF-14	0.12	19	45	16	0.23 J	48 U	-8.4	2	-420
OFF-15	0.18	12	33	14	0.19 J	37 U	-5.6	1.2	-466
OFF-16	0.36	24	61	18	0.44 J	51 U	-22	2.6	-849
OFF-17	0.38	26	71	19	0.4 J	126	-13	2.6	-490
OFF-18	0.69	84	190	28	1.08 J	248	-36	4	-904
OFF-19	0.21	30	56	24	0.18 J	166	-16	2.9	-546
OFF-20	0.25	19	41	21	0.19 J	109	-28	2.3	-1213
OFF-21	0.39	23	46	27	0.16 J	144	-12	2.3	-504
OFF-22	0.19	18	22	21	0.065 UJ	39 U	-1.4	1.3	-110
OFF-23	0.43	45	74	43	0.27 J	306	-31	2.7	-1142

Notes:
SEM - Simultaneous Extracted Metals
AVS - Acid Volatile Sulfide
TOC - Total Organic Carbon
1 - AVS was not detected in these samples
2 - This value is calculated using the following equation: TOC Normalized SEM-AVS = (SEM-AVS)/(TOC/100)

TABLE 3.8
TOXICITY EFFECTS LEVEL CALCULATION
ECOLOGICAL PRG DEVELOPMENT STEP 6
OLD FIRE FIGHTING TRAINING CENTER, NETC
NEWPORT, RHODE ISLAND

PARAMETER	Aquatic NOEC[1]	Reference Stations		Toxicity Effects Level[2]
		OFF-22	OFF-23	
2-Methylnaphthalene	1.2	0.030	0.20	1.2
Acenaphthylene	3.8	0.035	0.30	3.8
Anthracene	4.2	0.025	0.43	4.2
Benzo(a)anthracene	0.86	0.0068	0.057	0.86
Benzo(a)pyrene	0.24	0.0029	0.028	0.24
Benzo(b,j,k)fluoranthene	0.67	0.0049	0.046	0.67
Benzo(g,h,i)Perylene	0.068	0.0012	0.0067	0.068
Chrysene/triphenylene	0.65	0.005	0.05	0.65
Dibenzo(a,h)Anthracene	0.033	0.00025	0.0018	0.033
Fluoranthene	16	0.047	0.54	16
Fluorene	3.0	0.013	0.29	3.0
Indeno(1,2,3-cd)pyrene	0.085	0.00076	0.0055	0.085
Phenanthrene	23	0.061	0.96	23
Pyrene	7.0	0.050	0.50	7.0
Sum PAHs (6 High Molecular Weight)	17	0.11	1.2	17
Sum PAHs (7 Low Molecular Weight)	46	0.31	3.4	46
Sum PAHs (NOAA Status &Trends)	63	0.42	4.6	63

Notes:
NOEC - No Observed Effects Concentration
This table only includes constituents that were retained as Aquatic NOECs
Footnotes:
1 - The Aquatic NOEC was obtained from Table 6
2 - The TEV is the higher of the reference concentration or the Aquatic NOEC

TABLE 3.9
LIMITING COCS CALCULATION
ECOLOGICAL PRG DEVELOPMENT STEP 7
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location Sample Depth Interval Date Sampled	TEV[1]	OFF-1 0-15 cm 3/27/1998	OFF-2 0-15 cm 3/27/1998	OFF-3 0-15 cm 3/27/1998	OFF-4 0-15 cm 3/27/1998	OFF-5 0-15 cm 3/27/1998	OFF-6 0-15 cm 3/27/1998	OFF-7 0-15 cm 3/27/1998	OFF-8 0-15 cm 4/7/1998	OFF-9 0-15 cm 4/7/1998	OFF-10 0-15 cm 4/3/1998	OFF-11 0-15 cm 4/3/1998
Polyaromatic Hydrocarbons												
2-Methylnaphthalene	1.2	1.50E-01 J	7 34E-01 J	1.03E+00 J	4 40E-01 J	3.43E+00 J	9.82E-01 J	3.01E-01	1 15E-01	2.69E-02	2 93E-02 J	1 65E-01 J
Acenaphthylene	3 8	1.43E-01	1.23E+00	1 08E+00	1 30E+00	1.41E+00	3 00E-01	2 46E-01	3 94E-02	1.31E-02	1 03E-02 J	2.26E-02
Anthracene	4 2	1 15E-01 J	8 10E-01 J	1 31E+00 J	6.97E-01 J	2 28E+00 J	5 27E-01 J	1.68E-01	4 37E-02	7 63E-03	7 22E-03 J	4 71E-02 J
Benzo(a)anthracene	0 86	1.62E-02	9 53E-01	1 84E+00	7.38E-01	2.71E+00	6 88E-01	1.78E-01	4 79E-02	1 39E-02	9 32E-03	4.45E-02
Benzo(a)pyrene	0.24	1 33E-01	8 82E-01	1 54E+00 J	9 35E-01	1 95E+00	4 45E-01	2.82E-01	6 75E-02	2 55E-02	1.65E-02	5 42E-02
Benzo(b,j,k)fluoranthene	0 67	1 86E-01	8 45E-01	2 32E+00 J	4.69E-01	3 01E+00	6 29E-01	1 81E-01	3 81E-02	1.53E-02	1.04E-02	3 11E-02
Benzo(g,h,i)Perylene	0 068	1 86E-01 J	8.77E-01 J	2 28E+00 J	5.49E-01 J	2 29E+00 J	5.59E-01 J	2 06E-01	4.15E-02	1 68E-02	1.41E-02 J	3 31E-02 J
Chrysene/triphenylene	0 65	1 68E-01	8 15E-01	1.94E+00	7 88E-01	2.80E+00	7.13E-01	1 05E-01 J	5.78E-02	1.90E-02	1 11E-02	4 08E-02
Dibenzo(a,h)Anthracene	0.033	1 94E-01 J	9.29E-01 J	2.47E+00 J	3.10E-01 J	2 70E+00 J	6.12E-01 J	1.22E-01	2 53E-02	4 49E-03 U	6 19E-03 J	1 72E-02 J
Fluoranthene	16	6 27E-02	4.39E-01	9 39E-01	3.59E-01	1 11E+00	3.60E-01	6.67E-02	2.03E-02	5 64E-03	4 54E-03	2.04E-02
Fluorene	3 0	5 50E-02 J	6 77E-01 J	1.63E+00 J	4.83E-01 J	3.34E+00 J	5 35E-01 J	2.07E-01	6.56E-02	1.09E-02 J	6 26E-03 J	5 61E-02 J
Indeno(1,2,3-cd)pyrene	0.08	1 92E-01	9.56E-01	2.50E+00 J	4 57E-01	2 53E+00	5 76E-01	1.74E-01	3.58E-02	1.37E-02	1.10E-02	2.69E-02
Phenanthrene	23	8 55E-02	7 40E-01	1.73E+00	4.89E-01	2.12E+00	7.63E-01	1.01E-01	2.91E-02	5.60E-03	4 13E-03	3 14E-02
Pyrene	7.0	1 33E-01	8 25E-01	1 60E+00	7 19E-01	2.27E+00	7 30E-01	1.50E-01	4 15E-02	1 14E-02	1 07E-02	4 12E-02
Sum PAHs (6 High Molecular Weight)	17	1.23E-01	8 42E-01	1.72E+00	7.11E-01	2.24E+00	7.05E-01	1.41E-01	4.15E-02	1 17E-02	9.76E-03	4 05E-02
Sum PAHs (7 Low Molecular Weight)	46	9.58E-02	8.03E-01	1 51E+00	6 41E-01	2.27E+00	6.73E-01	1.67E-01	5.61E-02	1 09E-02	9.38E-03	4 73E-02
Sum PAHs (NOAA Status &Trends)	63	1 03E-01	8 15E-01	1.57E+00	6 61E-01	2.27E+00	6.83E-01	1.60E-01	5.22E-02	1.12E-02	9 50E-03	4.55E-02
SUM TEV_{HQ}[2]		1.82E+00	1 17E+01	2 42E+01	8.73E+00	3 40E+01	8 42E+00	2.49E+00	6 69E-01	1.90E-01	1 51E-01	6 32E-01
MAX TEV_{HQ}		1 94E-01	1 23E+00	2.50E+00	1 30E+00	3 43E+00	9 82E-01	3 01E-01	1.15E-01	2.69E-02	2.93E-02	1 65E-01
Limiting COC[3]		Dibenzo(a,h)Anthracene	Acenaphthylene	Indeno(1,2,3-cd)pyrene	Acenaphthylene	2-Methylnaphthalene	2-Methylnaphthalene	2-Methylnaphthalen	NA	NA	NA	NA

TABLE 3.9
LIMITING COCS CALCULATION
ECOLOGICAL PRG DEVELOPMENT STEP 7
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location	OFF-12	OFF-13	OFF-14	OFF-15	OFF-16	OFF-17	OFF-18	OFF-19	OFF-20	OFF-21
Sample Depth Interval	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm
Date Sampled	4/3/1998	4/3/1998	4/7/1998	4/7/1998	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/3/1998	4/3/1998
Polyaromatic Hydrocarbons										
2-Methylnaphthalene	4.87E-01 J	1.71E-01 J	8 06E-02	8.23E-02	9 56E-02 J	7.88E-02 J	1.66E-01	1.13E-01	1 83E-01 J	5 92E-02 J
Acenaphthylene	6.45E-02	1.08E-01 J	3.48E-02	2.74E-02	3.81E-02 J	4.37E-02	9.75E-02	3 87E-02	1.78E-02	2.20E-02
Anthracene	1.85E-01 J	9 76E-02 J	2.10E-02	2.36E-02	2.74E-02 J	3.74E-02 J	6 89E-02 J	2.91E-02	7 64E-02 J	1 69E-02 J
Benzo(a)anthracene	1.40E-01	8 45E-02 J	3 15E-02	2 57E-02	2 18E-02 J	2 81E-02	5.31E-02	3.17E-02	4.05E-02	1 91E-02
Benzo(a)pyrene	2 29E-01	1 16E-01 J	5 14E-02	3.46E-02	3.41E-02 J	5.16E-02	9 71E-02	4 47E-02	4 50E-02	3 08E-02
Benzo(b,j,k)fluoranthene	1 32E-01	7.32E-02 J	2.75E-02	3.68E-02	2 02E-02 J	3.03E-02	6.90E-02	2 57E-02	3.08E-02	1 96E-02
Benzo(g,h,i)Perylene	1 25E-01 J	7.12E-02 J	3.73E-02	3.19E-02	2.67E-02 J	3 98E-02 J	8 61E-02 J	2.65E-02	2.18E-02 J	2.21E-02 J
Chrysene/triphenylene	1 53E-01	7 42E-02 J	3 64E-02	2.79E-02	2.23E-02 J	2.99E-02 J	6 05E-02	3.66E-02	4.93E-02	2.52E-02
Dibenzo(a,h)Anthracene	8.87E-02 J	4 22E-02 J	2.07E-02	2.90E-02	1 51E-02 J	2.32E-02 J	5 41E-02 J	1.57E-02	1.73E-02 J	1 39E-02 J
Fluoranthene	7.23E-02	3.76E-02 J	8 92E-03	8.93E-03	9.89E-03 J	1.18E-02 J	2 72E-02	1.08E-02	2 22E-02	7 32E-03
Fluorene	2.66E-01 J	7.56E-02 J	2.11E-02	1 56E-02	3.22E-02 J	2.92E-02 J	4 60E-02 J	4 35E-02	9 89E-02 J	1 21E-02 J
Indeno(1,2,3-cd)pyrene	1 06E-01	5 53E-02 J	2 94E-02	3.31E-02	2.05E-02 J	3 12E-02	6.72E-02	2.30E-02	2 23E-02	1 88E-02
Phenanthrene	1.46E-01	5.22E-02 J	9 43E-03	1 06E-02	1.85E-02 J	1.51E-02	3.33E-02	1 47E-02	5 22E-02	7.95E-03
Pyrene	1 62E-01	8 50E-02 J	2.31E-02	2.10E-02	2.65E-02 J	2.81E-02 J	6 08E-02	2.42E-02	4 39E-02	1.95E-02
Sum PAHs (6 High Molecular Weight)	1 50E-01	7.88E-02	2 15E-02	1 98E-02	2.26E-02	2.58E-02	5.88E-02	2 37E-02	4 33E-02	1.72E-02
Sum PAHs (7 Low Molecular Weight)	2.20E-01	7.83E-02	2.59E-02	2.44E-02	3.22E-02	3.19E-02	6.13E-02	4 35E-02	7 47E-02	1.50E-02
Sum PAHs (NOAA Status &Trends)	2 01E-01	7.86E-02	2.47E-02	2 32E-02	2.96E-02	3 03E-02	6.02E-02	3 82E-02	6 63E-02	1.56E-02
SUM TEV_{HQ} [2]	2.36E+00	1.14E+00	4 33E-01	4 08E-01	4.09E-01	4 78E-01	9.87E-01	4.78E-01	7.21E-01	2 95E-01
MAX TEV_{HQ}	4 87E-01	1.71E-01	8.06E-02	8 23E-02	9.56E-02	7.88E-02	1.66E-01	1.13E-01	1.83E-01	5.92E-02
Limiting COC [3]	2-Methylnaphthalene	2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1 - Source of TEV is presented in Table 8

2 - The SUM TEV_{HQs} does not include the Sum PAHs because they are already counted as individual PAHs

3 - Limiting COCs are the cells with the maximim TEV_{HQs} at each station (shaded cells)

The values in this table are calculated using the following equation. TEV_{HQ} = [PW]/TEV

Where: TEV_{HQ} = Toxicity Effects Value Hazard Quotient

[PW] = Pore Water Concentration (ug/L) (from Table 3)

TEV = Toxicity Effects Level (ug/L) (from Table 8)

TABLE 3.10
PRG CALCULATION
ECOLOGICAL PRG CALCULATION STEP 8
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location	OFF-1	OFF-2	OFF-3	OFF-4	OFF-5	OFF-6	OFF-7	OFF-8	OFF-9	OFF-10	OFF-11	OFF-12
Sample Depth Interval	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm
Date Sampled	3/27/1998	3/27/1998	3/27/1998	3/27/1998	3/27/1998	3/27/1998	3/27/1998	4/7/1998	4/7/1998	4/3/1998	4/3/1998	4/3/1998
Filtering	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Polyaromatic Hydrocarbons (ug/kg)												
2-Methylnaphthalene	1.73E+02	1.06E+02	8.65E+01	8.65E+01	9.61E+01	1.73E+02	1.83E+02	1.25E+02	1.15E+02	1.06E+02	1.06E+02	2.40E+02
Acenaphthylene	6.51E+02	3.98E+02	3.25E+02	3.25E+02	3.62E+02	6.51E+02	6.87E+02	4.70E+02	4.34E+02	3.98E+02	3.98E+02	9.04E+02
Dibenzo(a,h)Anthracene	2.27E+03	1.39E+03	1.14E+03	1.14E+03	1.26E+03	2.27E+03	2.40E+03	1.64E+03	1.51E+03	1.39E+03	1.39E+03	3.16E+03
Indeno(1,2,3-cd)pyrene	5.26E+03	3.21E+03	2.63E+03	2.63E+03	2.92E+03	5.26E+03	5.55E+03	3.80E+03	3.50E+03	3.21E+03	3.21E+03	7.30E+03

TABLE 3.10
PRG CALCULATION
ECOLOGICAL PRG CALCULATION STEP 8
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location	OFF-13	OFF-14	OFF-15	OFF-16	OFF-17	OFF-18	OFF-19	OFF-20	OFF-21	
Sample Depth Interval	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	0-15 cm	
Date Sampled	4/3/1998	4/7/1998	4/7/1998	4/3/1998	4/3/1998	4/3/1998	4/7/1998	4/3/1998	4/3/1998	Average
Filtering	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	PRG[1]
Polyaromatic Hydrocarbons (ug/kg)										
2-Methylnaphthalene	3.85E+02	1.92E+02	1.15E+02	2.50E+02	2.50E+02	3.85E+02	2.79E+02	2.21E+02	2.21E+02	185
Acenaphthylene	1.45E+03	7.23E+02	4.34E+02	9.40E+02	9.40E+02	1.45E+03	1.05E+03	8.32E+02	8.32E+02	697
Dibenzo(a,h)Anthracene	5.05E+03	2.52E+03	1.51E+03	3.28E+03	3.28E+03	5.05E+03	3.66E+03	2.90E+03	2.90E+03	2434
Indeno(1,2,3-cd)pyrene	1.17E+04	5.84E+03	3.50E+03	7.59E+03	7.59E+03	1.17E+04	8.47E+03	6.72E+03	6.72E+03	5633

Notes:
The values in this table are calculated using the following equation: PRG = [SD]/TEV_{HQ}
Where: PRG = Preliminary Remediation Goal
[SD] = Sediment Concentration (ug/kg or mg/kg) (from Table 2)
TEV_{HQ} = Toxicity Effects Level Hazard Quotient (unitless) (from Table 9)
1 - Average PRG is the arithmetic average of all the PRGs across each station

TABLE 4.1A
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL EXPOSURE TO SEDIMENT
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-5E-SD-2025		OFF-5E-SD-5560		OFF-SD-411-0006		OFF-SD-412-0006		OFF-SD-413-0006	
Sample Location		OFF-5E		OFF-5E		SD-411		SD-412		SD-413	
Date Sampled		4/27/1998		4/27/1998		11/13/2001		11/13/2001		11/13/2001	
Interval		0.7-0 8		1.8-2 0		0.0-0 5		0.0-0.5		0 0-0.5	
QC Identifier	Residential/ Recreational Sediment PRG	None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)											
2-Methylnaphthalene		18.7		3.6	U	66	U	28	J	58	U
Acenaphthylene		11		0.2	J	100		580		81	J
Benzo(a)anthracene	1338	829		8	U	840		1400		430	J
Benzo(a)pyrene	134	648		3	U	680	J	1000		320	J
Benzo(b)fluoranthene	1338		NA		NA	990	J	1200		470	J
Dibenzo(a,h)anthracene	134	115		1	J	66	UJ	120		58	UJ
Indeno(1,2,3-cd)pyrene		302		1.5	J	200	J	400		86	J
Pesticide/PCB Analysis (UG/KG)											
Sum of PCB Congeners		4 3		0.50			NA		NA		NA
TAL Metal Analysis (MG/KG)											
Arsenic	6.2**	7.3	J	4 6	J	4.4	J	5 4	J	4.7	J
Cadmium		0 11		0 10		0 024	UJ	0 023	UJ	0 022	UJ
Chromium		19 7		23 2		11.2		17 5		10 7	
Mercury		0 062		0.050	U	0 058		0.019	J	0 017	U

U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis, R - Rejected; NA - Not Analyzed
** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4.1A
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL EXPOSURE TO SEDIMENT
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-414-0006		OFF-SD-417-0006		OFF-SD-424-0006		OFF-SD-425-0006		OFF-SD-432-0006	
Sample Location		SD-414		SD-417		SD-424		SD-425		SD-432	
Date Sampled		11/9/2001		11/13/2001		11/13/2001		11/13/2001		11/13/2001	
Interval		0 0-0 5		0 0-0.5		0 0-0 5		0 0-0.5		0 0-0 5	
QC Identifier	Residential/ Recreational Sediment PRG	None		None		None		None		Field Dup. OFF-SD-432-0006	
Semivolatile Organic Analysis (UG/KG)											
2-Methylnaphthalene		100	J	68	U	58	U	44	J	55	U
Acenaphthylene		1500	J	250		38	J	52	J	84	
Benzo(a)anthracene	1338	4900	J	1100		300		830		340	
Benzo(a)pyrene	134	3900	J	810		230	J	640	J	240	
Benzo(b)fluoranthene	1338	5100	J	1000		320	J	900	J	300	
Dibenzo(a,h)anthracene	134	480	J	94		58	UJ	54	UJ	55	U
Indeno(1,2,3-cd)pyrene		1600	J	310		85	J	200	J	120	
Pesticide/PCB Analysis (UG/KG)											
Sum of PCB Congeners			NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)											
Arsenic	6.2**	6.7	J	5 2	J	5 8	J	10.6	J	4 7	J
Cadmium		0.87	J	1.5	J	0 13	J	2 8	J	0.020	UJ
Chromium		21.3	J	12 1		26.1		18 6		11.5	
Mercury		0 018	U	0 066		0.035		0 056		0.019	J

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate,
* - From dilution analysis; R - Rejected, NA - Not Analyzed
** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4.1A
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL EXPOSURE TO SEDIMENT
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-432-0006-D		OFF-SD-432-1824		OFF-SD-439-0006		OFF-SD-439-0006-D		OFF-SD-439-0612	
Sample Location		SD-432		SD-432		SD-439		SD-439		SD-439	
Date Sampled		11/13/2001		11/13/2001		10/29/2001		10/29/2001		10/29/2001	
Interval		0 0-0.5		1.5-2 0		0 0-0 5		0.0-0 5		0 5-1.0	
QC Identifier	Residential/ Recreational Sediment PRG	Field Dup. OFF-SD-432-0006		None		Field Dup. OFF-SD-439-0006		Field Dup. OFF-SD-439-0006		None	
Semivolatile Organic Analysis (UG/KG)											
2-Methylnaphthalene		58	U	60	J	370	U	370	U	47	J
Acenaphthylene		100		760		370	U	57	J	160	J
Benzo(a)anthracene	1338	520		2800		540		490		1400	
Benzo(a)pyrene	134	370		2000		550		500		710	
Benzo(b)fluoranthene	1338	500		2600		680		680		1400	
Dibenzo(a,h)anthracene	134	58	U	240		74	J	68	J	85	J
Indeno(1,2,3-cd)pyrene		140		810		240	J	200	J	240	J
Pesticide/PCB Analysis (UG/KG)											
Sum of PCB Congeners			NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)											
Arsenic	6.2**	6.1	J	4.6	J	2 4		1.5		14.9	
Cadmium		2 2	J	2 3	J	0 60	J	1 4	J	1 2	J
Chromium		12 7		12.1		9 5	J	21 3	J	17.5	J
Mercury		0 019	U	0 019	J	0 016	U	0.032	J	0.061	

U - Not detected; UJ - Detection limit approximate, J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed
** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4.1A
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL EXPOSURE TO SEDIMENT
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-439-1824		OFF-SD-442-0006		OFF-SD-442-1824		OFF-SD-445-0006		OFF-SD-445-1824	
Sample Location		SD-439		SD-442		SD-442		SD-445		SD-445	
Date Sampled		11/13/2001		11/9/2001		11/13/2001		11/13/2001		11/13/2001	
Interval		1 5-2 0		0 0-0 5		1 5-2.0		0.0-0 5		1 5-2 0	
QC Identifier	Residential/ Recreational Sediment PRG	None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)											
2-Methylnaphthalene		44	J	58	J	61	U	67	U	46	J
Acenaphthylene		41	J	870		56	J	76		66	J
Benzo(a)anthracene	1338	430		2900		360		570		450	
Benzo(a)pyrene	134	440	J	2400	J	290	J	500		470	J
Benzo(b)fluoranthene	1338	530	J	3200	J	400	J	670		640	J
Dibenzo(a,h)anthracene	134	59	UJ	280	J	61	UJ	67	U	66	UJ
Indeno(1,2,3-cd)pyrene		150	J	990	J	81	J	160		160	J
Pesticide/PCB Analysis (UG/KG)											
Sum of PCB Congeners			NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)											
Arsenic	6 2**	6 1	J	7.2	J	9.1	J	2.6	J	7.2	J
Cadmium		2.2	J	0 62	J	0.63	J	0 82	J	2 1	J
Chromium		20 1		10 2		18 7		6.2	J	30 3	
Mercury		0 068		0 020	J	0 035		0 058		0.18	

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate,
* - From dilution analysis; R - Rejected, NA - Not Analyzed
** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4.1A
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL EXPOSURE TO SEDIMENT
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SSD-333-00005		OFF-SSD-333-00005-MAX		OFF-SSD-334-00005		OFF-SSD-335-00005		OFF-SSD-336-00005	
Sample Location		OFF-SSD-333		OFF-SSD-333		OFF-SSD-334		OFF-SSD-335		OFF-SSD-336	
Date Sampled		11/19/1998		11/19/1998		11/19/1998		11/19/1998		11/19/1998	
Interval		0 0-0 5		0.0-0.5		0.0-0.5		0 0-0.5		0.0-0.5	
QC Identifier	Residential/ Recreational Sediment PRG	Field Dup OFF-SSD-333-00005		Field Dup. OFF-SSD-333-00005		None		None		None	
Semivolatile Organic Analysis (UG/KG)											
2-Methylnaphthalene		1800	U	1800	U	2300	U	2100	U	4000	U
Acenaphthylene		1800	U	1800	U	230	J	2100	U	4000	U
Benzo(a)anthracene	1338	850	J	1100		1900	J	1800	J	620	J
Benzo(a)pyrene	134	770	J	910		1400	J	1300	J	520	J
Benzo(b)fluoranthene	1338	940	J	1100		2300	U	1700	J	610	J
Dibenzo(a,h)anthracene	134	1800	U	1800	U	290	J	2100	U	4000	U
Indeno(1,2,3-cd)pyrene		430	J	550		1000	J	950	J	4000	U
Pesticide/PCB Analysis (UG/KG)											
Sum of PCB Congeners			NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)											
Arsenic	6 2**	3 1	J	4 3		5.3	J	4.2	J	4 8	
Cadmium		0 080	U	0.080	U	0.10	U	0.10	U	0 090	UJ
Chromium		12 3		13 0		13 3		11.8		10 9	
Mercury		0.050	U	0.050	U	0 060	U	0 060	U	0 060	U

U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate,
* - From dilution analysis, R - Rejected; NA - Not Analyzed
** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4.1A
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL EXPOSURE TO SEDIMENT
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SSD-337-00005	
Sample Location		OFF-SSD-337	
Date Sampled		11/19/1998	
Interval		0 0-0.5	
QC Identifier	Residential/ Recreational Sediment PRG	None	
Semivolatile Organic Analysis (UG/KG)			
2-Methylnaphthalene		4000	U
Acenaphthylene		4000	U
Benzo(a)anthracene	1338	4000	U
Benzo(a)pyrene	134	4000	U
Benzo(b)fluoranthene	1338	4000	U
Dibenzo(a,h)anthracene	134	4000	U
Indeno(1,2,3-cd)pyrene		4000	U
Pesticide/PCB Analysis (UG/KG)			
Sum of PCB Congeners			NA
TAL Metal Analysis (MG/KG)			
Arsenic	6 2**	7.1	
Cadmium		0 090	UJ
Chromium		15 8	
Mercury		0 050	U

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed
** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-1-SD-0015		OFF-2-SD-0015		OFF-3-SD-0015		OFF-4-SD-0015		OFF-5-SD-0015		OFF-5-SD-2025		OFF-5-SD-5560		OFF-6-SD-0015	
Sample Location		OFF-1		OFF-2		OFF-3		OFF-4		OFF-5		OFF-5		OFF-5		OFF-6	
Date Sampled		3/27/1998		3/27/1998		3/27/1998		3/27/1998		3/27/1998		4/27/1998		4/27/1998		3/27/1998	
Interval		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 7-0 8		1 8-2 0		0 0-0 5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile rganic Analysis (UG/KG)																	
2-Methylnaphthalene		26	J	77 6	J	89 2	J	38 1	J	330	J	42 5		3 6	U	170	J
Acenaphthylene		93		488		350		424		509		144		4 6	U	195	
Benzo(a)anthracene	34270	100		3600		5690		2280		9300		882		8	U	4250	
Benzo(a)pyrene	9360	595		2410		3450	J	2090		4830		973		3	U	1990	
Benzo(b)fluoranthene	51269		NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	6742	441	J	1290	J	2810	J	352	J	3410	J	345		2 8	U	1390	J
Indeno(1,2,3-cd)pyrene	72519	1010		3070		6560	J	1200		7390		524		1 2	J	3030	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175	18 9		22 9		29 8		36 1		51 6		37		3 0		38 2	
TAL Metal Analysis (MG/KG)																	
Arsenic	5 48	6.3	J	8.0	J	3 6	J	4 3	J	3 6	J	4 9	J	5 3	J	4 1	J
Cadmium	10	0 31		0 14		0 18		0 060		0 23		0 55		1 29		0 15	
Chromium	3708	31 1		36 6		26 5		24 3		27 4		17 6		29 5		23 0	
Mercury	2 3	0 371		0 081		0 050	U	0 050	U	0 050	U	0 071		0 050	U	0 050	U

U - Not detected; UJ - Detection limit approximate, J - Quantitation approximate;
* - From dilution analysis, R - Rejected; NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-6-SD-2025		OFF-6-SD-3540		OFF-7-SD-0015		OFF-8-SD-0015		OFF-9-SD-0015		OFF-10-SD-0015		OFF-10-SD-1520		OFF-10-SD-2530	
Sample Location		OFF-6		OFF-6		OFF-7		OFF-8		OFF-9		OFF-10		OFF-10		OFF-10	
Date Sampled		4/27/1998		4/27/1998		3/27/1998		4/7/1998		4/7/1998		4/3/1998		4/7/1998		4/7/1998	
Interval		0 7-0 8		1 1-1 3		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 5-0 7		0 8-1 0	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (U /K)																	
2-Methylnaphthalene		280		9 6		54 9		14 4		3 1	J	3 1	J	3	J	2 6	J
Acenaphthylene		95 8		3 1	J	169		18 5		5 7		4 1	J	3	J	2 1	J
Benzo(a)anthracene	34270	988		118		1160		214		57 3		35 2		23 4		15 5	
Benzo(a)pyrene	9360	1750		116		1330		218		76 1		45 1		31 3		19 8	
Benzo(b)fluoranthene	51269		NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	6742	357		22 3		293		41 5		13 6	U	8 6	J	6 6		4 8	
Indeno(1,2,3-cd)pyrene	72519	1140		72 2		968		136		48 1		35 3		26 9		14 8	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175	106 9		2 7		30 5		10 6		4 7		5 5		2 9		0 40	
TAL Metal Analysis (MG/KG)																	
Arsenic	5 48	7.5	J	3 7	J	6.8	J	4 3	J	4 3	J	3 4	J	2 9	J	3 3	J
Cadmium	10	0 68		0 14		0 29		0 19		0 11		0 15		0 18		0 070	
Chromium	3708	35 3		29 7		43 1		42 3		38 6		32 1		30 1		39 2	
Mercury	2 3	0 176		0 050	U	0 119		0 148		0 050	U	0 070		0 070		0 073	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-11-SD-0015		OFF-11-SD-5055		OFF-11-SD-105110		OFF-12-SD-0015		OFF-13-SD-0015		OFF-14-SD-0015		OFF-15-SD-0015		OFF-16-SD-0015	
Sample Location		OFF-11		OFF-11		OFF-11		OFF-12		OFF-13		OFF-14		OFF-15		OFF-16	
Date Sampled		4/3/1998		4/7/1998		4/7/1998		4/3/1998		4/3/1998		4/7/1998		4/7/1998		4/3/1998	
Interval		0 0-0 5		1 6-1 8		3 4-3 6		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile rganic Analysis (UG/KG)																	
2-Methylnaphthalene		17 5	J	3 6	U	3 6	U	117	J	65 6	J	15 5		9 5		23 9	J
Acenaphthylene		9		1 1	J	4 6	U	58 3		156	J	25 2		11 9		35 8	J
Benzo(a)anthracene	34270	168		44 7		8	U	1200		1160	J	216		106		195	J
Benzo(a)pyrene	9360	148		37 5		3	U	1420		1150	J	255		103		220	J
Benzo(b)fluoranthene	51269		NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	6742	23 9	J	4 8		0 8	J	280	J	213	J	52 2		44		49 6	J
Indeno(1,2,3-cd)pyrene	72519	86 3		23 1		1 5	J	777		646	J	172		116		156	J
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175	44 2		2 0		0 70		65 1		95 5		24 8		7 3		22 7	
TAL Metal Analysis (MG/KG)																	
Arsenic	5 48	2 7	J	5 0	J	4 7	J	5 2	J	6.0	J	8.5	J	3 7	J	5 0	J
Cadmium	10	0 22		0 27		0 20		0 53		0 80		0 12		0 18		0 36	
Chromium	3708	30 2		32 1		231 7		58 6		73 7		44 9		41 0		48 0	
Mercury	2 3	0 125		0 050	U	0 051		0 376		1 355		0 196		0 10		0 208	

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-17-SD-0015		OFF-18-SD-0015		OFF-18-SD-5055		OFF-18-SD-105110		OFF-19-SD-0015		OFF-20-SD-0015		OFF-21-SD-0015		OFF-22-SD-0015	
Sample Location		OFF-17		OFF-18		OFF-18		OFF-18		OFF-19		OFF-20		OFF-21		OFF-22	
Date Sampled		4/3/1998		4/3/1998		4/7/1998		4/7/1998		4/7/1998		4/3/1998		4/3/1998		3/27/1998	
Interval		0 0-0 5		0 0-0 5		1 6-1 8		3 4-3 6		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		19 7	J	63 8	J	210		91 1		31 5		40 4	J	13 1	J	3 1	J
Acenaphthylene		41 1		141		210		80 2		40 6		14 8		18 3		4 4	J
Benzo(a)anthracene	34270	251		730		787		1260		316		320		151		35 6	
Benzo(a)pyrene	9360	333		964		931		1170		322		257		176		38 8	
Benzo(b)fluoranthene	51269		NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	6742	76 1	J	273	J	248		204		57 4		50 3	J	40 4	J	12 2	J
Indeno(1,2,3-cd)pyrene	72519	237		785		821		619		195		150		126		33 9	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175	16 6		62 9		46 8		12		28 4		18 9		15 6		2 8	
TAL Metal Analysis (MG/KG)																	
Arsenic	5 48	4 7	J	6.3	J	5.6	J	6.4	J	5.8	J	4 2	J	4 9	J	3 8	J
Cadmium	10	0 38		0 69		1 12		0 50		0 21		0 25		0 39		0 19	
Chromium	3708	44 1		73 6		79 7		76 4		55 6		52 5		52 9		47 8	
Mercury	2 3	0 225		0 562		0 97		1 901		0 299		0 171		0 112		0 111	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis, R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-23-SD-0015		OFF-SD-406-0006		OFF-SD-407-0006		OFF-SD-408-0006		OFF-SD-408-0006-D		OFF-SD-409-0006		OFF-SD-409-0006-D	
Sample Location		OFF-23		SD-406		SD-407		SD-408		SD-408		SD-409		SD-409	
Date Sampled		4/3/1998		11/12/2001		11/12/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5	
QC Identifier	Lobster Ingestion PRG	None		None		None		Field Dup OFF-SD-408-0006		Field Dup OFF-SD-408-0006		Field Dup OFF-SD-409-0006		Field Dup OFF-SD-409-0006	
Semivolatile rganic Analysis (UG/KG)															
2-Methylnaphthalene		43 4		64	U	66	U	60	U	64	UJ	61	U	77	UJ
Acenaphthylene		77 5		64	U	66	U	60	U	64	UJ	61	U	77	UJ
Benzo(a)anthracene	34270	616		64	U	66	U	85		110	J	58	J	110	J
Benzo(a)pyrene	9360	758		64	U	66	U	90		130	J	69		120	J
Benzo(b)fluoranthene	51269		NA	64	U	66	U	120		170	J	78		160	J
Dibenzo(a,h)anthracene	6742	179		64	U	66	U	60	U	64	UJ	61	U	77	UJ
Indeno(1,2,3-cd)pyrene	72519	511		64	U	66	U	74		100	J	61	U	77	UJ
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175	44 6			NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5 48	4 8	J	2 4		2 1		3 1	J	3 0	J	6.4	J	4 9	J
Cadmium	10	0 43		0 025	U	0 022	U	0 021	U	0 025	U	0 022	U	0 031	U
Chromium	3708	53 2		10 8		11 4		11 3		13 6		11 2		15 4	
Mercury	2 3	0 387		0 032	J	0 038	J	0 029	J	0 035	J	0 030	J	0 073	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-410-0006		OFF-SD-415-0006		OFF-SD-416-0006		OFF-SD-418-0006		OFF-SD-419-0006		OFF-SD-419-0006-D		OFF-SD-420-0006	
Sample Location		SD-410		SD-415		SD-416		SD-418		SD-419		SD-419		SD-420	
Date Sampled		11/14/2001		11/12/2001		11/14/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001	
Interval		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		Field Dup OFF-SD-419-0006		Field Dup OFF-SD-419-0006		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene		470		62	U	61	U	120	U	130	U	140	U	280	U
Acenaphthylene		400		24	J	280		120	U	91	J	130	J	120	J
Benzo(a)anthracene	34270	9200		120	J	1200		180		580		530		860	
Benzo(a)pyrene	9360	9500		140	J	1400		160		470		540		850	
Benzo(b)fluoranthene	51269	12000		160		1600		180		600		700		1000	
Dibenzo(a,h)anthracene	6742	1500		62	U	220		120	U	130	U	140	U	280	U
Indeno(1,2,3-cd)pyrene	72519	5200		91		860		80	J	200		200	J	310	J
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5 48	4 4	J	2 2		3 3	J	3 2	J	2 7	J	2 9	J	3 4	J
Cadmium	10	0 025	U	0 023	U	0 021	U	0 47	J	0 44	J	0 45	J	0 52	J
Chromium	3708	17 5		10 6		10 8		11 3		11 8		12 4		14 6	
Mercury	2 3	0 060		0 049		0 037	J	0 053		0 057		0 061		0 085	

U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-421-0006		OFF-SD-422-0006		OFF-SD-423-0006		OFF-SD-426-0006		OFF-SD-427-1824		OFF-SD-427-1824-D		OFF-SD-427-0006	
Sample Location		SD-421		SD-422		SD-423		SD-426		SD-427		SD-427		SD-427	
Date Sampled		11/8/2001		11/8/2001		11/8/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001	
Interval		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		1 5-2 0		1 5-2 0		0 0-0 5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		Field Dup OFF-SD-427-1824		Field Dup OFF-SD-427-1824		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene		260	U	290	U	380	U	63	U	60	U	58	U	82	U
Acenaphthylene		260	U	210	J	380	U	63	U	60	U	58	U	82	U
Benzo(a)anthracene	34270	320		1300		1600		63	U	60	U	58	U	82	U
Benzo(a)pyrene	9360	340		1000		1600		63	U	60	U	58	U	82	U
Benzo(b)fluoranthene	51269	420		1200		2100		63	U	60	U	58	U	82	U
Dibenzo(a,h)anthracene	6742	260	U	290	U	380	U	63	U	60	U	58	U	82	U
Indeno(1,2,3-cd)pyrene	72519	150	J	500		560	J	63	U	60	U	58	U	82	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5 48	2 6	J	3 5	J	6.9	J	2 8	J	2 4	J	2 0		2 6	
Cadmium	10	0 42	J	0 57	J	1 1	J	0 024	UJ	0 022	U	0 021	U	0 029	U
Chromium	3708	12 7		15 9		27 5		10 2		13 5		13 7		14 0	
Mercury	2 3	0 078		0 096		0 23		0 025	J	0 026	J	0 027		0 041	J

U - Not detected; UJ - Detection limit approximate, J - Quantitation approximate;
* - From dilution analysis; R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-428-0006		OFF-SD-428-1824		OFF-SD-429-0006		OFF-SD-430-0006		OFF-SD-430-1824		OFF-SD-431-0006		OFF-SD-431-1824	
Sample Location		SD-428		SD-428		SD-429		SD-430		SD-430		SD-431		SD-431	
Date Sampled		11/14/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001	
Interval		0 0-0 5		1 5-2 0		0 0-0 5		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None	
Semivolatile rganic Analysis (UG/KG)															
2-Methylnaphthalene		73	U	60	U	65	U	63	U	61	U	62	U	58	U
Acenaphthylene		64	J	47	J	65	U	63	U	61	U	62	U	58	U
Benzo(a)anthracene	34270	580		370		65	U	63	U	61	U	62	U	58	U
Benzo(a)pyrene	9360	530	J	320	J	65	U	63	U	61	U	62	U	58	U
Benzo(b)fluoranthene	51269	740	J	420	J	65	U	63	U	61	U	62	U	58	U
Dibenzo(a,h)anthracene	6742	73	UJ	60	UJ	65	U	63	U	61	U	62	U	58	U
Indeno(1,2,3-cd)pyrene	72519	200	J	120	J	65	U	63	U	61	U	62	U	58	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5 48	4 5	J	3 1	J	4 7	J	2 6	J	4 5	J	1 4	J	3 2	J
Cadmium	10	0 030	UJ	0 023	UJ	0 024	U	0 026	U	0 022	U	0 024	U	0 023	U
Chromium	3708	15 6		11 8		17 6		11 6		14 8		12 3		14 8	
Mercury	2 3	0 059		0 096		0 070		0 061		0 032	J	0 040	J	0 033	J

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate;
* - From dilution analysis, R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-433-0006		OFF-SD-433-1824		OFF-SD-434-0006		OFF-SD-434-0006-D		OFF-SD-434-1824		OFF-SD-435-0006		OFF-SD-435-1824	
Sample Location		SD-433		SD-433		SD-434		SD-434		SD-434		SD-435		SD-435	
Date Sampled		11/12/2001		11/12/2001		11/14/2001		11/14/2001		11/14/2001		11/12/2001		11/12/2001	
Interval		0 0-0 5		1 5-2 0		0 0-0 5		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Lobster Ingestion PRG	None		None		Field Dup OFF-SD-434-0006		Field Dup OFF-SD-434-0006		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene		68	U	61	U	65	U	67	U	62	U	72	U	60	U
Acenaphthylene		68	U	61	U	93		51	J	94		72	U	60	U
Benzo(a)anthracene	34270	68	U	61	U	400		330		540		72	U	60	U
Benzo(a)pyrene	9360	68	U	61	U	340	J	280	J	460		32	J	60	U
Benzo(b)fluoranthene	51269	37	J	61	U	440	J	360	J	570		48	J	60	U
Dibenzo(a,h)anthracene	6742	68	U	61	U	65	UJ	67	UJ	60	J	72	U	60	U
Indeno(1,2,3-cd)pyrene	72519	68	U	61	U	120	J	94	J	190		27	J	60	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5 48	2 2	J	5 4	J	3 6	J	3 4	J	3 3	J	2 5	J	2 3	J
Cadmium	10	0 025	U	0 022	U	0 026	UJ	0 026	UJ	0 023	UJ	0 027	U	0 020	U
Chromium	3708	11 9		12 2		11 8		12 1		11 1		14 1		11 1	
Mercury	2 3	0 053		0 019	U	0 030	J	0 036	J	0 033	J	0 050		0 018	U

U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis, R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-436-0006		OFF-SD-436-0006-D		OFF-SD-436-1824		OFF-SD-437-0006		OFF-SD-437-1824		OFF-SD-438-0006		OFF-SD-438-1824	
Sample Location		SD-436		SD-436		SD-436		SD-437		SD-437		SD-438		SD-438	
Date Sampled		11/12/2001		11/12/2001		11/12/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001	
Interval		0 0-0 5		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Lobster Ingestion PRG	Field Dup OFF-SD-436-0006		Field Dup OFF-SD-436-0006		None		None		None		None		None	
Semivolatile Organic Analysis (UG/K)															
2-Methylnaphthalene		64	U	65	U	26	J	140	U	120	U	130	U	120	U
Acenaphthylene		210		210		280		140	U	120	U	150		120	U
Benzo(a)anthracene	34270	980		1200		1200		140		120	U	770		120	U
Benzo(a)pyrene	9360	850		1000		1100		130	J	120	U	740		120	U
Benzo(b)fluoranthene	51269	1000		1300		1300		160		120	U	880		120	U
Dibenzo(a,h)anthracene	6742	140		170		160		140	U	120	U	130	U	120	U
Indeno(1,2,3-cd)pyrene	72519	540		610		680		62	J	120	U	280	J	120	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5 48	6.0	J	3 9		5.5	J	3 4	J	2 3	J	4 1	J	1 9	J
Cadmium	10	0 022	U	0 025	U	0 024	U	0 40	J	0 34	J	0 43	J	0 27	J
Chromium	3708	11 8		10 8		14 9		11 6		9 4		11 7		11 4	
Mercury	2 3	0 023	J	0 027		0 047		0 057		0 019	U	0 045		0 019	U

U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate,
* - From dilution analysis, R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-440-0006		OFF-SD-440-1824		OFF-SD-441-0006		OFF-SD-441-1824		OFF-SD-443-0006		OFF-SD-443-1824		OFF-SD-444-0006	
Sample Location		SD-440		SD-440		SD-441		SD-441		SD-443		SD-443		SD-444	
Date Sampled		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/13/2001		11/13/2001		11/8/2001	
Interval		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/K)															
2-Methylnaphthalene		120	U	120	U	630	U	160	U	67	U	67	U	130	U
Acenaphthylene		140		120	U	630	U	160	U	110		67	U	100	J
Benzo(a)anthracene	34270	580		120	U	600	J	180		670		58	J	530	
Benzo(a)pyrene	9360	580		120	U	570	J	170		550		43	J	540	
Benzo(b)fluoranthene	51269	660		120	U	670		180		690		53	J	680	
Dibenzo(a,h)anthracene	6742	120	U	120	U	630	U	160	U	67	U	67	U	130	U
Indeno(1,2,3-cd)pyrene	72519	270		120	U	310	J	85	J	180		67	U	220	J
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5 48	2 6	J	1 8	J	1 7	J	4 5	J	3 1	J	3 4	J	2 1	J
Cadmium	10	0 41	J	0 25	J	0 37	J	0 73	J	1 1	J	0 79	J	0 41	J
Chromium	3708	11 2		8 2		10 3		18 2		9 0	J	9 0		12 0	
Mercury	2 3	0 066		0 018	U	0 060		0 41		0 091		0 022	U	0 065	

U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis, R - Rejected; NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-444-1824		OFF-SD-446-0006		OFF-SD-446-1824		OFF-SD-460-0006		OFF-SD-460-1824		OFF-SD-461-0006		OFF-SD-461-1824	
Sample Location		SD-444		SD-446		SD-446		SD-460		SD-460		SD-461		SD-461	
Date Sampled		11/8/2001		11/8/2001		11/8/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene		77	J	300	U	53	J	65	U	62	U	67	U	55	U
Acenaphthylene		140	U	330		58	J	65	U	62	U	67	U	55	U
Benzo(a)anthracene	34270	960		2300		590		120		29	J	67	U	55	U
Benzo(a)pyrene	9360	860		2500		700	J	140		40	J	46	J	55	U
Benzo(b)fluoranthene	51269	950		3100		920	J	200		42	J	56	J	55	U
Dibenzo(a,h)anthracene	6742	140	U	270	J	150	UJ	65	U	62	U	67	U	55	U
Indeno(1,2,3-cd)pyrene	72519	290	J	1000	J	290	J	110		62	U	67	U	55	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5 48	3 7	J	4 2	J	7.9	J	3 9	J	3 6	J	3 0	J	5 4	J
Cadmium	10	0 55	J	0 59	J	1 2	J	0 024	U	0 023	U	0 026	U	0 021	U
Chromium	3708	14 6		17 2		25 6		14 0		14 7		15 2		11 9	
Mercury	2 3	0 20		0 11		0 33		0 047	J	0 032	J	0 047	J	0 015	U

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate,
* - From dilution analysis; R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-462-0006		OFF-SD-462-1824		OFF-SD-463-0006		OFF-SD-463-1824		OFF-SD-464-0006		OFF-SD-464-1824		OFF-SD-465-0006	
Sample Location		SD-462		SD-462		SD-463		SD-463		SD-464		SD-464		SD-465	
Date Sampled		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None	
Semivolatile rganic Analysis (UG/KG)															
2-Methylnaphthalene		68	U	60	U	61	U	59	U	70	U	56	U	63	U
Acenaphthylene		68	U	60	U	61	U	59	U	70	U	56	U	63	U
Benzo(a)anthracene	34270	110		60	U	61	U	59	U	34	J	56	U	32	J
Benzo(a)pyrene	9360	130		60	U	61	U	59	U	70	U	56	U	63	UJ
Benzo(b)fluoranthene	51269	160		60	U	61	U	59	U	70	U	56	U	63	UJ
Dibenzo(a,h)anthracene	6742	68	U	60	U	61	U	59	U	70	U	56	U	63	UJ
Indeno(1,2,3-cd)pyrene	72519	98		60	U	61	U	59	U	70	U	56	U	63	UJ
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5 48	3 4	J	4 8	J		NA	2 3	J	3 8	J	4 6	J	2 2	J
Cadmium	10	0 026	U	0 023	U		NA	0 024	UJ	0 028	U	0 021	U	0 024	UJ
Chromium	3708	14 0		13 2			NA	10 6		14 5		14 5		9 9	
Mercury	2 3	0 028	J	0 019	U		NA	0 016	U	0 069		0 017	U	0 050	

U - Not detected; UJ - Detection limit approximate, J - Quantitation approximate,
* - From dilution analysis, R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-465-1824		OFF-SD-466-0006		OFF-SD-466-1824		OFF-SD-467-0006		OFF-SD-467-1824		OFF-SD-468-0006	
Sample Location		SD-465		SD-466		SD-466		SD-467		SD-467		SD-468	
Date Sampled		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/12/2001	
Interval		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None	
Semivolatile Organic Analysis (U /KG)													
2-Methylnaphthalene		58	U	62	U	63	U	69	U	61	U	1600	U
Acenaphthylene		58	U	74	J	63	U	69	U	61	U	1600	U
Benzo(a)anthracene	34270	26	J	420	J	280		63	J	61	U	660	J
Benzo(a)pyrene	9360	58	U	370		420		53	J	61	U	710	J
Benzo(b)fluoranthene	51269	24	J	450		450		74		61	U	1200	J
Dibenzo(a,h)anthracene	6742	58	U	62	U	62	J	69	U	61	U	1600	U
Indeno(1,2,3-cd)pyrene	72519	58	U	150	J	210		69	U	61	U	1600	U
Pesticide/PCB Analysis (UG/KG)													
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)													
Arsenic	5 48	4 4	J	2 2	J	3 0	J	2 2	J	6.3	J	9.9	J
Cadmium	10	0 021	UJ	0 025	UJ	0 025	UJ	0 024	UJ	0 022	UJ	0 058	U
Chromium	3708	9 7		7 0		12 8		11 2		13 1		46 9	
Mercury	2 3	0 020	U	0 023	J	0 093		0 032	J	0 043		0 50	

U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate,
* - From dilution analysis; R - Rejected, NA - Not Analyzed

TABLE 4.1B
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
LIFETIME RECREATIONAL INGESTION OF LOBSTER
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-468-1824		OFF-SD-469-0006		OFF-SD-469-1824	
Sample Location		SD-468		SD-469		SD-469	
Date Sampled		11/12/2001		11/12/2001		11/12/2001	
Interval		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Lobster Ingestion PRG	None		None		None	
Semivolatile Organic Analysis (UG/KG)							
2-Methylnaphthalene		100	U	150	U	100	UJ
Acenaphthylene		100	U	70	J	47	J
Benzo(a)anthracene	34270	180		460		160	J
Benzo(a)pyrene	9360	200		500		240	J
Benzo(b)fluoranthene	51269	280		690		350	J
Dibenzo(a,h)anthracene	6742	100	U	98	J	100	UJ
Indeno(1,2,3-cd)pyrene	72519	160		350		170	J
Pesticide/PCB Analysis (UG/KG)							
Sum of PCB Congeners	175		NA		NA		NA
TAL Metal Analysis (MG/KG)							
Arsenic	5 48	10.0	J	11.1	J	14.7	J
Cadmium	10	0 89		0 051	U	0 037	U
Chromium	3708	49 1		50 6		55 8	
Mercury	2 3	0 89		0 41		0 64	

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate,
* - From dilution analysis, R - Rejected; NA - Not Analyzed

TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-1-SD-0015		OFF-2-SD-0015		OFF-3-SD-0015		OFF-4-SD-0015		OFF-5-SD-0015		OFF-5-SD-2025		OFF-5-SD-5560		OFF-6-SD-0015	
Sample Location		OFF-1		OFF-2		OFF-3		OFF-4		OFF-5		OFF-5		OFF-5		OFF-6	
Date Sampled		3/27/1998		3/27/1998		3/27/1998		3/27/1998		3/27/1998		4/27/1998		4/27/1998		3/27/1998	
Interval		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 7-0 8		1 8-2 0		0 0-0 5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile rganic Analysis (UG/KG)																	
2-Methylnaphthalene	185	26	J	77 6	J	89 2	J	38 1	J	330	J	42 5		3 6	U	170	J
Acenaphthylene	697	93		488		350		424		509		144		4 6	U	195	
Benzo(a)anthracene		100		3600		5690		2280		9300		882		8	U	4250	
Benzo(a)pyrene		595		2410		3450	J	2090		4830		973		3	U	1990	
Benzo(b)fluoranthene			NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	2434	441	J	1290	J	2810	J	352	J	3410	J	345		2 8	U	1390	J
Indeno(1,2,3-cd)pyrene	5633	1010		3070		6560	J	1200		7390		524		1 2	J	3030	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners		18 9		22 9		29 8		36 1		51 6		37		3 0		38 2	
TAL Metal Analysis (MG/KG)																	
Arsenic		6 3	J	8 0	J	3 6	J	4 3	J	3 6	J	4 9	J	5 3	J	4 1	J
Cadmium		0 31		0 14		0 18		0 060		0 23		0 55		1 29		0 15	
Chromium		31 1		36 6		26 5		24 3		27 4		17 6		29 5		23 0	
Mercury		0 371		0 081		0 050	U	0 050	U	0 050	U	0 071		0 050	U	0 050	U

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate;
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TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-6-SD-2025		OFF-6-SD-3540		OFF-7-SD-0015		OFF-8-SD-0015		OFF-9-SD-0015		OFF-10-SD-0015		OFF-10-SD-1520		OFF-10-SD-2530	
Sample Location		OFF-6		OFF-6		OFF-7		OFF-8		OFF-9		OFF-10		OFF-10		OFF-10	
Date Sampled		4/27/1998		4/27/1998		3/27/1998		4/7/1998		4/7/1998		4/3/1998		4/7/1998		4/7/1998	
Interval		0 7-0 8		1 1-1 3		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 5-0 7		0 8-1 0	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (U /KG)																	
2-Methylnaphthalene	185	280		9 6		54 9		14 4		3 1	J	3 1	J	3	J	2 6	J
Acenaphthylene	697	95 8		3 1	J	169		18 5		5 7		4 1	J	3	J	2 1	J
Benzo(a)anthracene		988		118		1160		214		57 3		35 2		23 4		15 5	
Benzo(a)pyrene		1750		116		1330		218		76 1		45 1		31 3		19 8	
Benzo(b)fluoranthene			NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	2434	357		22 3		293		41 5		13 6	U	8 6	J	6 6		4 8	
Indeno(1,2,3-cd)pyrene	5633	1140		72 2		968		136		48 1		35 3		26 9		14 8	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners		106 9		2 7		30 5		10 6		4 7		5 5		2 9		0 40	
TAL Metal Analysis (MG/KG)																	
Arsenic		7 5	J	3 7	J	6 8	J	4 3	J	4 3	J	3 4	J	2 9	J	3 3	J
Cadmium		0 68		0 14		0 29		0 19		0 11		0 15		0 18		0 070	
Chromium		35 3		29 7		43 1		42 3		38 6		32 1		30 1		39 2	
Mercury		0 176		0 050	U	0 119		0 148		0 050	U	0 070		0 070		0 073	

U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate,
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TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-11-SD-0015		OFF-11-SD-5055		OFF-11-SD-105110		OFF-12-SD-0015		OFF-13-SD-0015		OFF-14-SD-0015		OFF-15-SD-0015		OFF-16-SD-0015	
Sample Location		OFF-11		OFF-11		OFF-11		OFF-12		OFF-13		OFF-14		OFF-15		OFF-16	
Date Sampled		4/3/1998		4/7/1998		4/7/1998		4/3/1998		4/3/1998		4/7/1998		4/7/1998		4/3/1998	
Interval		0 0-0 5		1 6-1 8		3 4-3 6		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	17 5	J	3 6	U	3 6	U	117	J	65 6	J	15 5		9 5		23 9	J
Acenaphthylene	697	9		1 1	J	4 6	U	58 3		156	J	25 2		11 9		35 8	J
Benzo(a)anthracene		168		44 7		8	U	1200		1160	J	216		106		195	J
Benzo(a)pyrene		148		37 5		3	U	1420		1150	J	255		103		220	J
Benzo(b)fluoranthene			NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	2434	23 9	J	4 8		0 8	J	280	J	213	J	52 2		44		49 6	J
Indeno(1,2,3-cd)pyrene	5633	86 3		23 1		1 5	J	777		646	J	172		116		156	J
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners		44 2		2 0		0 70		65 1		95 5		24 8		7 3		22 7	
TAL Metal Analysis (MG/KG)																	
Arsenic		2 7	J	5 0	J	4 7	J	5 2	J	6 0	J	8 5	J	3 7	J	5 0	J
Cadmium		0 22		0 27		0 20		0 53		0 80		0 12		0 18		0 36	
Chromium		30 2		32 1		231 7		58 6		73 7		44 9		41 0		48 0	
Mercury		0 125		0 050	U	0 051		0 376		1 355		0 196		0 10		0 208	

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate;
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TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-17-SD-0015		OFF-18-SD-0015		OFF-18-SD-5055		OFF-18-SD-105110		OFF-19-SD-0015		OFF-20-SD-0015		OFF-21-SD-0015		OFF-22-SD-0015	
Sample Location		OFF-17		OFF-18		OFF-18		OFF-18		OFF-19		OFF-20		OFF-21		OFF-22	
Date Sampled		4/3/1998		4/3/1998		4/7/1998		4/7/1998		4/7/1998		4/3/1998		4/3/1998		3/27/1998	
Interval		0 0-0 5		0 0-0 5		1 6-1 8		3 4-3 6		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	19 7	J	63 8	J	210		91 1		31 5		40 4	J	13 1	J	3 1	J
Acenaphthylene	697	41 1		141		210		80 2		40 6		14 8		18 3		4 4	J
Benzo(a)anthracene		251		730		787		1260		316		320		151		35 6	
Benzo(a)pyrene		333		964		931		1170		322		257		176		38 8	
Benzo(b)fluoranthene			NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	2434	76 1	J	273	J	248		204		57 4		50 3	J	40 4	J	12 2	J
Indeno(1,2,3-cd)pyrene	5633	237		785		821		619		195		150		126		33 9	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners		16 6		62 9		46 8		12		28 4		18 9		15 6		2 8	
TAL Metal Analysis (MG/KG)																	
Arsenic		4 7	J	6 3	J	5 6	J	6 4	J	5 8	J	4 2	J	4 9	J	3 8	J
Cadmium		0 38		0 69		1 12		0 50		0 21		0 25		0 39		0 19	
Chromium		44 1		73 6		79 7		76 4		55 6		52 5		52 9		47 8	
Mercury		0 225		0 562		0 97		1 901		0 299		0 171		0 112		0 111	

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate;
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TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-23-SD-0015		OFF-SD-406-0006		OFF-SD-407-0006		OFF-SD-408-0006		OFF-SD-408-0006-D		OFF-SD-409-0006		OFF-SD-409-0006-D	
Sample Location		OFF-23		SD-406		SD-407		SD-408		SD-408		SD-409		SD-409	
Date Sampled		4/3/1998		11/12/2001		11/12/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5	
QC Identifier	Ecological PRG	None		None		None		Field Dup OFF-SD-408-0006		Field Dup OFF-SD-408-0006		Field Dup OFF-SD-409-0006		Field Dup OFF-SD-409-0006	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	43 4		64	U	66	U	60	U	64	UJ	61	U	77	UJ
Acenaphthylene	697	77 5		64	U	66	U	60	U	64	UJ	61	U	77	UJ
Benzo(a)anthracene		616		64	U	66	U	85		110	J	58	J	110	J
Benzo(a)pyrene		758		64	U	66	U	90		130	J	69		120	J
Benzo(b)fluoranthene			NA	64	U	66	U	120		170	J	78		160	J
Dibenzo(a,h)anthracene	2434	179		64	U	66	U	60	U	64	UJ	61	U	77	UJ
Indeno(1,2,3-cd)pyrene	5633	511		64	U	66	U	74		100	J	61	U	77	UJ
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners		44 6			NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		4 8	J	2 4		2 1		3 1	J	3 0	J	6 4	J	4 9	J
Cadmium		0 43		0 025	U	0 022	U	0 021	U	0 025	U	0 022	U	0 031	U
Chromium		53 2		10 8		11 4		11 3		13 6		11 2		15 4	
Mercury		0 387		0 032	J	0 038	J	0 029	J	0 035	J	0 030	J	0 073	

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TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-410-0006		OFF-SD-415-0006		OFF-SD-416-0006		OFF-SD-418-0006		OFF-SD-419-0006		OFF-SD-419-0006-D		OFF-SD-420-0006	
Sample Location		SD-410		SD-415		SD-416		SD-418		SD-419		SD-419		SD-420	
Date Sampled		11/14/2001		11/12/2001		11/14/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001	
Interval		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5	
QC Identifier	Ecological PRG	None		None		None		None		Field Dup OFF-SD-419-0006		Field Dup OFF-SD-419-0006		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	470		62	U	61	U	120	U	130	U	140	U	280	U
Acenaphthylene	697	400		24	J	280		120	U	91	J	130	J	120	J
Benzo(a)anthracene		9200		120	J	1200		180		580		530		860	
Benzo(a)pyrene		9500		140	J	1400		160		470		540		850	
Benzo(b)fluoranthene		12000		160		1600		180		600		700		1000	
Dibenzo(a,h)anthracene	2434	1500		62	U	220		120	U	130	U	140	U	280	U
Indeno(1,2,3-cd)pyrene	5633	5200		91		860		80	J	200		200	J	310	J
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		4 4	J	2 2		3 3	J	3 2	J	2 7	J	2 9	J	3 4	J
Cadmium		0 025	U	0 023	U	0 021	U	0 47	J	0 44	J	0 45	J	0 52	J
Chromium		17 5		10 6		10 8		11 3		11 8		12 4		14 6	
Mercury		0 060		0 049		0 037	J	0 053		0 057		0 061		0 085	

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TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-421-0006		OFF-SD-422-0006		OFF-SD-423-0006		OFF-SD-426-0006		OFF-SD-427-1824		OFF-SD-427-1824-D		OFF-SD-427-0006	
Sample Location		SD-421		SD-422		SD-423		SD-426		SD-427		SD-427		SD-427	
Date Sampled		11/8/2001		11/8/2001		11/8/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001	
Interval		0 0-0 5		0 0-0 5		0 0-0 5		0 0-0 5		1 5-2 0		1 5-2 0		0 0-0 5	
QC Identifier	Ecological PRG	None		None		None		None		Field Dup OFF-SD 427-1824		Field Dup OFF-SD-427-1824		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	260	UJ	290	UJ	380	UJ	63	U	60	U	58	U	82	U
Acenaphthylene	697	260	U	210	J	380	U	63	U	60	U	58	U	82	U
Benzo(a)anthracene		320		1300		1600		63	U	60	U	58	U	82	U
Benzo(a)pyrene		340		1000		1600		63	U	60	U	58	U	82	U
Benzo(b)fluoranthene		420		1200		2100		63	U	60	U	58	U	82	U
Dibenzo(a,h)anthracene	2434	260	U	290	U	380	U	63	U	60	U	58	U	82	U
Indeno(1,2,3-cd)pyrene	5633	150	J	500		560	J	63	U	60	U	58	U	82	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		2 6	J	3 5	J	6 9	J	2 8	J	2 4	J	2 0		2 6	
Cadmium		0 42	J	0 57	J	1 1	J	0 024	UJ	0 022	U	0 021	U	0 029	U
Chromium		12 7		15 9		27 5		10 2		13 5		13 7		14 0	
Mercury		0 078		0 096		0 23		0 025	J	0 026	J	0 027		0 041	J

U - Not detected; UJ - Detection limit approximate, J - Quantitation approximate,
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TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-428-0006		OFF-SD-428-1824		OFF-SD-429-0006		OFF-SD-430-0006		OFF-SD-430-1824		OFF-SD-431-0006		OFF-SD-431-1824	
Sample Location		SD-428		SD-428		SD-429		SD-430		SD-430		SD-431		SD-431	
Date Sampled		11/14/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001	
Interval		0 0-0 5		1 5-2 0		0 0-0 5		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	73	U	60	U	65	U	63	U	61	U	62	U	58	U
Acenaphthylene	697	64	J	47	J	65	U	63	U	61	U	62	U	58	U
Benzo(a)anthracene		580		370		65	U	63	U	61	U	62	U	58	U
Benzo(a)pyrene		530	J	320	J	65	U	63	U	61	U	62	U	58	U
Benzo(b)fluoranthene		740	J	420	J	65	U	63	U	61	U	62	U	58	U
Dibenzo(a,h)anthracene	2434	73	UJ	60	UJ	65	U	63	U	61	U	62	U	58	U
Indeno(1,2,3-cd)pyrene	5633	200	J	120	J	65	U	63	U	61	U	62	U	58	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		4 5	J	3 1	J	4 7	J	2 6	J	4 5	J	1 4	J	3 2	J
Cadmium		0 030	UJ	0 023	UJ	0 024	U	0 026	U	0 022	U	0 024	U	0 023	U
Chromium		15 6		11 8		17 6		11 6		14 8		12 3		14 8	
Mercury		0 059		0 096		0 070		0 061		0 032	J	0 040	J	0 033	J

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate,
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TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-433-0006		OFF-SD-433-1824		OFF-SD-434-0006		OFF-SD-434-0006-D		OFF-SD-434-1824		OFF-SD-435-0006		OFF-SD-435-1824	
Sample Location		SD-433		SD-433		SD-434		SD-434		SD-434		SD-435		SD-435	
Date Sampled		11/12/2001		11/12/2001		11/14/2001		11/14/2001		11/14/2001		11/12/2001		11/12/2001	
Interval		0 0-0 5		1 5-2 0		0 0-0 5		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Ecological PRG	None		None		Field Dup OFF-SD-434-0006		Field Dup OFF-SD-434-0006		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	68	U	61	U	65	U	67	U	62	U	72	U	60	U
Acenaphthylene	697	68	U	61	U	93		51	J	94		72	U	60	U
Benzo(a)anthracene		68	U	61	U	400		330		540		72	U	60	U
Benzo(a)pyrene		68	U	61	U	340	J	280	J	460		32	J	60	U
Benzo(b)fluoranthene		37	J	61	U	440	J	360	J	570		48	J	60	U
Dibenzo(a,h)anthracene	2434	68	U	61	U	65	UJ	67	UJ	60	J	72	U	60	U
Indeno(1,2,3-cd)pyrene	5633	68	U	61	U	120	J	94	J	190		27	J	60	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		2 2	J	5 4	J	3 6	J	3 4	J	3 3	J	2 5	J	2 3	J
Cadmium		0 025	U	0 022	U	0 026	UJ	0 026	UJ	0 023	UJ	0 027	U	0 020	U
Chromium		11 9		12 2		11 8		12 1		11 1		14 1		11 1	
Mercury		0 053		0 019	U	0 030	J	0 036	J	0 033	J	0 050		0 018	U

U - Not detected; UJ - Detection limit approximate, J - Quantitation approximate,
* - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-436-0006		OFF-SD-436-0006-D		OFF-SD-436-1824		OFF-SD-437-0006		OFF-SD-437-1824		OFF-SD-438-0006		OFF-SD-438-1824	
Sample Location		SD-436		SD-436		SD-436		SD-437		SD-437		SD-438		SD-438	
Date Sampled		11/12/2001		11/12/2001		11/12/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001	
Interval		0 0-0 5		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Ecological PRG	Field Dup OFF-SD-436-0006		Field Dup OFF-SD-436-0006		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	64	U	65	U	26	J	140	U	120	U	130	U	120	U
Acenaphthylene	697	210		210		280		140	U	120	U	150		120	U
Benzo(a)anthracene		980		1200		1200		140		120	U	770		120	U
Benzo(a)pyrene		850		1000		1100		130	J	120	U	740		120	U
Benzo(b)fluoranthene		1000		1300		1300		160		120	U	880		120	U
Dibenzo(a,h)anthracene	2434	140		170		160		140	U	120	U	130	U	120	U
Indeno(1,2,3-cd)pyrene	5633	540		610		680		62	J	120	U	280	J	120	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		6 0	J	3 9		5 5	J	3 4	J	2 3	J	4 1	J	1 9	J
Cadmium		0 022	U	0 025	U	0 024	U	0 40	J	0 34	J	0 43	J	0 27	J
Chromium		11 8		10 8		14 9		11 6		9 4		11 7		11 4	
Mercury		0 023	J	0 027		0 047		0 057		0 019	U	0 045		0 019	U

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate,
* - From dilution analysis; R - Rejected, NA - Not Analyzed

TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-440-0006		OFF-SD-440-1824		OFF-SD-441-0006		OFF-SD-441-1824		OFF-SD-443-0006		OFF-SD-443-1824		OFF-SD-444-0006	
Sample Location		SD-440		SD-440		SD-441		SD-441		SD-443		SD-443		SD-444	
Date Sampled		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/13/2001		11/13/2001		11/8/2001	
Interval		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	120	U	120	U	630	U	160	U	67	U	67	U	130	U
Acenaphthylene	697	140		120	U	630	U	160	U	110		67	U	100	J
Benzo(a)anthracene		580		120	U	600	J	180		670		58	J	530	
Benzo(a)pyrene		580		120	U	570	J	170		550		43	J	540	
Benzo(b)fluoranthene		660		120	U	670		180		690		53	J	680	
Dibenzo(a,h)anthracene	2434	120	U	120	U	630	U	160	U	67	U	67	U	130	U
Indeno(1,2,3-cd)pyrene	5633	270		120	U	310	J	85	J	180		67	U	220	J
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		2 6	J	1 8	J	1 7	J	4 5	J	3 1	J	3 4	J	2 1	J
Cadmium		0 41	J	0 25	J	0 37	J	0 73	J	1 1	J	0 79	J	0 41	J
Chromium		11 2		8 2		10 3		18 2		9 0	J	9 0		12 0	
Mercury		0 066		0 018	U	0 060		0 41		0 091		0 022	U	0 065	

U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate,
* - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-444-1824		OFF-SD-446-0006		OFF-SD-446-1824		OFF-SD-460-0006		OFF-SD-460-1824		OFF-SD-461-0006		OFF-SD-461-1824	
Sample Location		SD-444		SD-446		SD-446		SD-460		SD-460		SD-461		SD-461	
Date Sampled		11/8/2001		11/8/2001		11/8/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	77	J	300	U	53	J	65	U	62	U	67	U	55	U
Acenaphthylene	697	140	U	330		58	J	65	U	62	U	67	U	55	U
Benzo(a)anthracene		960		2300		590		120		29	J	67	U	55	U
Benzo(a)pyrene		860		2500		700	J	140		40	J	46	J	55	U
Benzo(b)fluoranthene		950		3100		920	J	200		42	J	56	J	55	U
Dibenzo(a,h)anthracene	2434	140	U	270	J	150	UJ	65	U	62	U	67	U	55	U
Indeno(1,2,3-cd)pyrene	5633	290	J	1000	J	290	J	110		62	U	67	U	55	U
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		3 7	J	4 2	J	7 9	J	3 9	J	3 6	J	3 0	J	5 4	J
Cadmium		0 55	J	0 59	J	1 2	J	0 024	U	0 023	U	0 026	U	0 021	U
Chromium		14 6		17 2		25 6		14 0		14 7		15 2		11 9	
Mercury		0 20		0 11		0 33		0 047	J	0 032	J	0 047	J	0 015	U

U - Not detected; UJ - Detection limit approximate, J - Quantitation approximate;
* - From dilution analysis, R - Rejected, NA - Not Analyzed

TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-462-0006		OFF-SD-462-1824		OFF-SD-463-0006		OFF-SD-463-1824		OFF-SD-464-0006		OFF-SD-464-1824		OFF-SD-465-0006	
Sample Location		SD-462		SD-462		SD-463		SD-463		SD-464		SD-464		SD-465	
Date Sampled		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	68	U	60	U	61	U	59	U	70	U	56	U	63	U
Acenaphthylene	697	68	U	60	U	61	U	59	U	70	U	56	U	63	U
Benzo(a)anthracene		110		60	U	61	U	59	U	34	J	56	U	32	J
Benzo(a)pyrene		130		60	U	61	U	59	U	70	U	56	U	63	UJ
Benzo(b)fluoranthene		160		60	U	61	U	59	U	70	U	56	U	63	UJ
Dibenzo(a,h)anthracene	2434	68	U	60	U	61	U	59	U	70	U	56	U	63	UJ
Indeno(1,2,3-cd)pyrene	5633	98		60	U	61	U	59	U	70	U	56	U	63	UJ
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		3 4	J	4 8	J		NA	2 3	J	3 8	J	4 6	J	2 2	J
Cadmium		0 026	U	0 023	U		NA	0 024	UJ	0 028	U	0 021	U	0 024	UJ
Chromium		14 0		13 2			NA	10 6		14 5		14 5		9 9	
Mercury		0 028	J	0 019	U		NA	0 016	U	0 069		0 017	U	0 050	

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate,
* - From dilution analysis, R - Rejected; NA - Not Analyzed

TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-465-1824		OFF-SD-466-0006		OFF-SD-466-1824		OFF-SD-467-0006		OFF-SD-467-1824		OFF-SD-468-0006		OFF-SD-468-1824	
Sample Location		SD-465		SD-466		SD-466		SD-467		SD-467		SD-468		SD-468	
Date Sampled		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/12/2001		11/12/2001	
Interval		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0		0 0-0 5		1 5-2 0	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	58	U	62	U	63	U	69	U	61	U	1600	U	100	U
Acenaphthylene	697	58	U	74	J	63	U	69	U	61	U	1600	U	100	U
Benzo(a)anthracene		26	J	420	J	280		63	J	61	U	660	J	180	
Benzo(a)pyrene		58	U	370		420		53	J	61	U	710	J	200	
Benzo(b)fluoranthene		24	J	450		450		74		61	U	1200	J	280	
Dibenzo(a,h)anthracene	2434	58	U	62	U	62	J	69	U	61	U	1600	U	100	U
Indeno(1,2,3-cd)pyrene	5633	58	U	150	J	210		69	U	61	U	1600	U	160	
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		4 4	J	2 2	J	3 0	J	2 2	J	6 3	J	9 9	J	10 0	J
Cadmium		0 021	UJ	0 025	UJ	0 025	UJ	0 024	UJ	0 022	UJ	0 058	U	0 89	
Chromium		9 7		7 0		12 8		11 2		13 1		46 9		49 1	
Mercury		0 020	U	0 023	J	0 093		0 032	J	0 043		0 50		0 89	

U - Not detected, UJ - Detection limit approximate, J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4.1C
CONTAMINANTS IN EXCEEDANCE OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
ECOLOGICAL EXPOSURES
OLD FIREFIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Sample Number		OFF-SD-469-0006		OFF-SD-469-1824	
Sample Location		SD-469		SD-469	
Date Sampled		11/12/2001		11/12/2001	
Interval		0 0-0 5		1 5-2 0	
QC Identifier	Ecological PRG	None		None	
Semivolatile Organic Analysis (UG/KG)					
2-Methylnaphthalene	185	150	U	100	UJ
Acenaphthylene	697	70	J	47	J
Benzo(a)anthracene		460		160	J
Benzo(a)pyrene		500		240	J
Benzo(b)fluoranthene		690		350	J
Dibenzo(a,h)anthracene	2434	98	J	100	UJ
Indeno(1,2,3-cd)pyrene	5633	350		170	J
Pesticide/PCB Analysis (UG/KG)					
Sum of PCB Congeners			NA		NA
TAL Metal Analysis (MG/KG)					
Arsenic		11 1	J	14 7	J
Cadmium		0 051	U	0 037	U
Chromium		50 6		55 8	
Mercury		0 41		0 64	

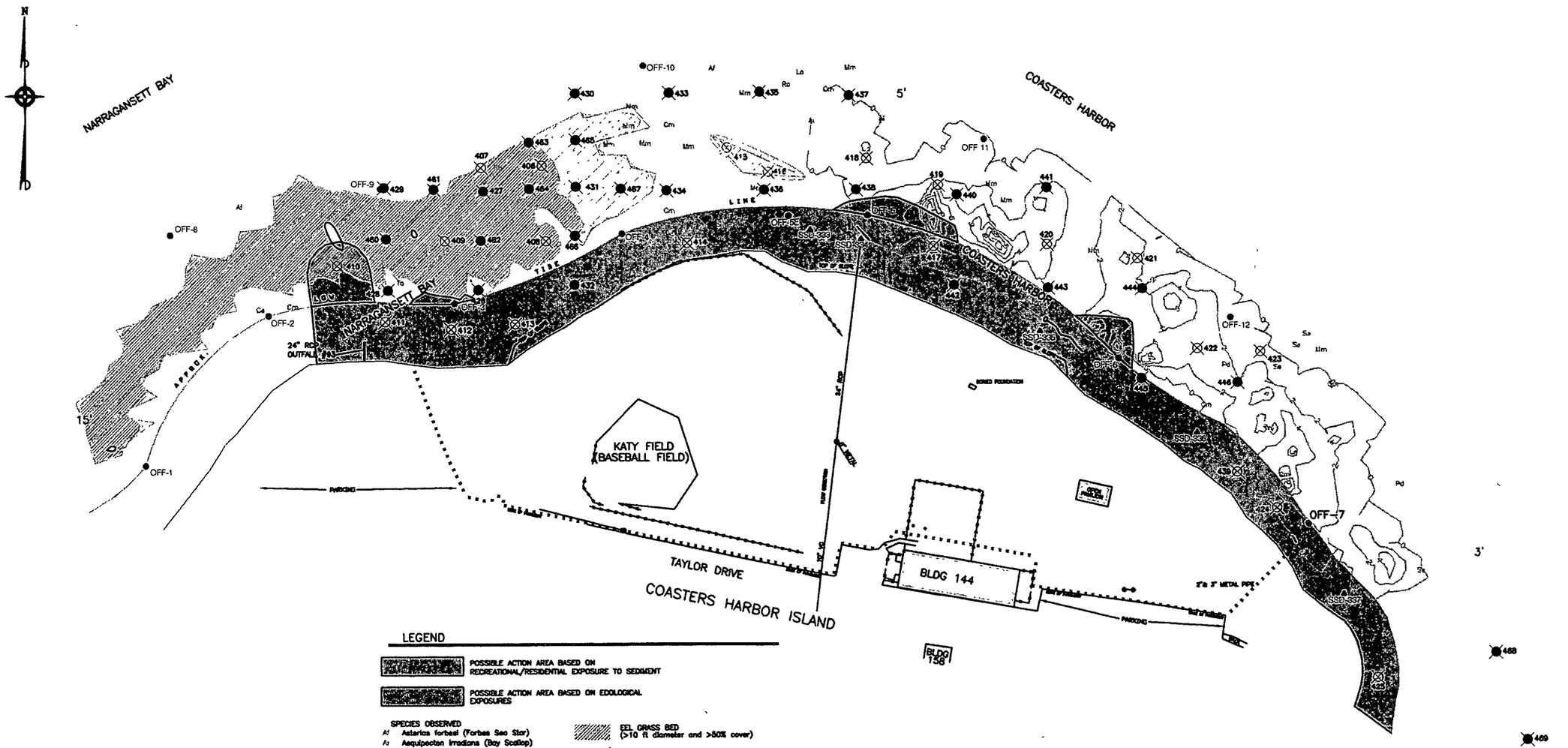
U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4.2
SUMMARY OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
OLD FIREFIGHTING TRAINING AREA, NSN NEWPORT, RHODE ISLAND

Contaminant	Ecological PRGs (2)	Human Health Lifetime Recreational Exposure PRGs	Lifetime Recreational Lobster Ingestion PRGs (1)
Polyaromatic Hydrocarbons (ug/kg)			
2-Methylnaphthalene	185		
Acenaphthylene	697		
Benz(a)anthracene		1338	34270
Benzo(a)pyrene		134	9360
Benzo(b)fluoranthene		1338	51296
Dibenz(a,h)anthracene	2434	134	6742
Indeno(1,2,3-cd)pyrene	5633		72519
PCB/Pesticides			
Total PCB Congeners			175
Metals (mg/kg)			
Arsenic**		6.2**	5.48
Cadmium			10
Chromium			3708
Mercury			2.3

Note: All Human health PRGs are based on an exposure specific risk of 1E-6.

Lifetime Recreational exposure to sediment compared to stations above low tide line
Lobster Ingestion PRGs only compared to stations at and below low tide line
Ecological PRGs only compared to stations at and below low tide line
** arsenic PRG for human health is based on HHRA and background assessment
(1) - Lifetime recreational ingestion of lobster scenario.
(2) - Ecological PRGs for metals are eliminated based on low AVS-SEM values indicating no toxicity from metals - see text



LEGEND

POSSIBLE ACTION AREA BASED ON RECREATIONAL/RESIDENTIAL EXPOSURE TO SEDIMENT

POSSIBLE ACTION AREA BASED ON ECOLOGICAL EXPOSURES

SPECIES OBSERVED

- As Asterias forbesi (Forbes Sea Star)
- Ai Aequipecten irradians (Bay Scallop)
- Cm Carcinus maenas (Green Crab)
- Cs Callinectes sapidus (Blue Crab)
- Le Libinia emarginata (Common Spider Crab)
- Me Mytilus edulis (Blue Mussel)
- Mm Mercenaria mercenaria (Quahog)
- Po Paralichthy dentatus (Summer Flounder)
- Ro Raja ocellatus (Winter Skate)
- Sc Squilla empusa (Mantis Shrimp) (burrows observed)
- To Tautoga onitis (Tautog)

OYSTER DENSITY (# per 50cm x 50cm quadrat)

EEL GRASS BED (>10 ft diameter and >50% cover)

SPARSE EEL GRASS

EEL GRASS BOUNDARY (spine)

APPROXIMATE LOW TIDE LINE (THIUS)

5' APPROXIMATE DEPTH AT MEAN LOW WATER

436 ACTUAL GRID SAMPLE LOCATIONS (MAX SAMPLE DEPTH 2.0 FEET)

445 ACTUAL SUPPLEMENTAL SAMPLE LOCATIONS (0–0.5' INTERVAL)

GRAPHIC SCALE

0' 120' 240'

1 INCH = 120 FEET

NOTES AND REFERENCES:

1. DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 258, BY BROWN & ROOT ENVIRONMENTAL, SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/16/99, PRESENTED ON A DRAWING ENTITLED "KATY FIELD, TOPOGRAPHIC, SOIL SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA, NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/16/99, DWG NO. 990205-01.

2. HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1927. VERTICAL DATUM BASED ON NAVAL BASE MEAN LOW WATER.

3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.

4. PLAN NOT TO BE USED FOR DESIGN.

5. EELGRASS SURVEY CONDUCTED ON JULY 26 AND 27, 2001. A COMPLETE DESCRIPTION OF THE FIELD WORK IS PROVIDED IN THE COASTERS HARBOR EEL GRASS SURVEY SUMMARY OF FINDINGS, DATED AUGUST 10, 2001. RAW DATA POINTS AND PHOTOS ARE NOT SHOWN, BUT INCLUDED IN THE DIGITAL FILE OF THIS PLAN (COASTERS HARBOR EEL GRASS 10AUG01.DWG) INCLUDED WITH THE SUMMARY OF FINDINGS.

6. LOCATIONS OF EEL GRASS AND OTHER OBSERVED SPECIES DEPICTED ARE ACCURATE TO WITHIN 15 FEET.

7. NO DATA DEPICTED IS INTENDED FOR NAVIGATION.

8. OUTFALL #93 TAKEN FROM NSN STORM SEWER AND EXISTING CONDITIONS MAP, SHEET 9 OF 24, 9/16/94.

POSSIBLE ACTION AREAS, MARINE SEDIMENT			FIGURE 4-1
OLD FIRE FIGHTING TRAINING SITE, COASTERS HARBOR ISLAND			
NAVAL STATION NEWPORT, RHODE ISLAND			
DRAWN BY:	D.W. MACDOUGALL	REV.: 0	TETRA TECH NUS, INC.
CHECKED BY:	S. PARKER	DATE: MARCH 12, 2002	55 Jonspin Road Wilmington, MA 01887 (978)658-7899
SCALE:	1" = 120'	FILE NO.: DWG\7538\1702\FIG_4-1.DWG	