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TETRA TECH NUS, INC.
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C-NAVY-2-99-1326W

February 16, 1999

Project Number 7397

Mr. James Shafer
Remedial Project Manager
Northern Division, Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, Pennsylvania 19113

Reference: CLEAN Contract No. N62472-90-D-1298
Contract Task Order No. 0269

Subject: Transmittal of OFFTA Ecorisk Data Amendment No. 2
Naval Station - Newport, Newport Rhode Island

Dear Mr. Shafer:

This letter constitutes Amendment No. 2 to the Technical Support Document for the Marine Ecological Risk Assessment at Old Fire Fighting Training Area (OFFTA) dated December 1998. This amendment includes two revised data validation memoranda and summary data tables describing analysis of pore water for metals. This revision is necessary because new information not provided during the data reporting and validation process has recently been identified.

During the preparation of the ERA report, it became evident that mercury concentrations reported for pore water samples were unusually high, and higher than reported in previously analyzed samples from the study area (TRC 1994). During specific inquiries to the analytical laboratory (University of Mississippi), it became evident that the laboratory had not followed the SOPs for the mercury analytical method, incorrectly reported MDLs, and therefore incorrectly reported the data for porewater. Based on this new information, TtNUS is rejecting the mercury in pore water data provided by the University of Mississippi.

The University of Mississippi has stated that because a separate method was used for detection of all other analytes, this problem is isolated to the analysis of mercury in pore water. This statement is supported by back-up information provided by the laboratory.

The following two documents are enclosed:

1. Replacement data validation memoranda for metals in pore water - replace memoranda with correspondence numbers C-Navy-10-98-1257W and -1258W in Appendix C-2 with these revised memoranda.

2. Replacement summary tables of pore water results - Replace Appendix A-3.

We anticipate completion and delivery of the ecological risk assessment report for this site on February 23, 1998. If you have any questions regarding this material, please do not hesitate to contact me.

Very truly yours,

Stephen S. Parker
Project Manager

enclosure

c: M. Griffin, NETC (w/encl. - 4)
K. Keckler, USEPA (w/encl. - 3)
P. Kulpa, RIDEM (w/encl. - 4)
J. Stump, Gannett Fleming (w/encl. - 2)
K. Finkelstien, NOAA (w/encl. - 1)
D. Egan, TAG (w/encl. - 1)
J. Trepanowski/G. Glenn, B&RE (w/encl. - 1)
File 7397-3.2 (w/o encl.)

TETRA TECH NUS, INC. **INTERNAL CORRESPONDENCE**

C-Navy-2-99-1324W

To: Stephen Parker cc: File N7397-4.10

From: Maureen Parker MP

Reference: Letter No. C-Navy-10-98-1257W, dated October 5, 1998

Subject: Data Validation Revision, Navy CLEAN CTO 0269
Project No. 7397, SDG: GT05
University of Mississippi
Old Fire Fighting Training Area, NETC, Newport, Rhode Island

Trace Metals: /10/Porewater/
OF-SS3, OF-SS4, OF-SS5, OF-SS6,
OF-SS7, OF-SS22, OF-1SS, OF-2SS,
OFF-10-SUR, OFF-11-SUR

Date: February 12, 1999

Enclosed please find the revised trace metals summary table from Project 7397, SDG GT05, porewater samples collected by Science Applications International Corporation at the Old Fire Fighting Training Area site. Based on additional review of the data, the positive mercury results have been qualified as rejected (R).

The aliquot of porewater used by the laboratory was one-tenth the aliquot required by the standard operating procedure (SOP). The method detection limit reported for the mercury analysis was determined using a 100 ml aliquot when only a 10 ml aliquot was actually analyzed for the porewater samples. Based on the small volume of sample used for analysis, the mercury data reported are qualified as rejected (R).

Attachments
cc: File 7397-4.10

POREWATER TRACE METAL ANALYSIS (µg/L)
SITE: OLD FIRE FIGHTING TRAINING AREA
PROJECT: 7397 SDG: GT05
LAB: UNIVERSITY OF MISSISSIPPI

Station	Description	Date Coll	Aluminum		Arsenic	Cadmium		Chromium		Copper	Iron	Lead	Manganese	Barium		Mercury	Nickel		Silver		Zinc
OF-SS3	porewater	3/27/98	61 2		3 4	0 8		18 6		23 0	120	14.62	NA	20	U	R	2 0		1 4		100
OF-SS4	porewater	3/27/98	54 9		2 8	0.9		22.4		28 0	200	18.66	NA	20	U	R	1 3		1 7		130
OF-SS5	porewater	3/27/98	63 8		1.0	0.5		21 8		84 0	170	18 24	NA	20	U	R	1 1		1.3		260
OF-SS6	porewater	3/27/98	43 2		2 9	0.6		15 4		19 0	220	15 83	NA	20	U	R	1 5		0 1	U	420
OF-SS7	porewater	3/27/98	58 7		3 2	0.5		19 0		15 0	120	16 41	NA	20	U	R	0 5	U	1.7		170
OF-SS22	porewater	3/27/98	49.2		2 6	0.9		17 2		18.0	250	17 14	NA	20	U	R	1.5		1.2		200
OF-1SS	porewater	4/7/98	55 9		1.1	0.1	J	28 6		26 0	610	18 22	NA	20	U	R	0 5	U	1.6		170
OF-2SS	porewater	4/7/98	67 4		5.5	0 5		19.2		21 0	310	16 43	NA	20	U	R	0 7		1 8		140
OFF-10-SUR	porewater	4/7/98	48.1		2 6	0.4		22 3		30.0	340	15.71	NA	20	U	R	3 1		1 6		270
OFF-11-SUR	porewater	4/7/98	53 8		2 0	0 4		20 8		31.0	470	13 24	NA	20	U	R	0 9		1 4		260

NOTE:

1. U - Not detected; UJ - Detection limit approximate, J - Quantitation approximate, NA - Not Analyzed

TETRA TECH NUS, INC. **INTERNAL CORRESPONDENCE**

C-Navy-2-99-1325W

To: Stephen Parker cc: File N7397-4.10

From: Maureen Parker MP

Reference: Letter No. C-Navy-10-98-1258W, dated October 5, 1998

Subject: Data Validation Revision, Navy CLEAN CTO 0269
Project No. 7397, SDG: GT06
University of Mississippi
Old Fire Fighting Training Area, NETC, Newport, Rhode Island

Trace Metals: /13/Porewater/
OFF-8-SUR, OFF-9-SUR, OFF-12-SUR, OFF-13-SUR, OFF-14-SUR, OFF-15-SUR, OFF-16-SUR, OFF-17-SUR, OFF-18-SUR, OFF-19-SUR, OFF-20-SUR, OFF-21-SUR, OFF-23-SUR

Date: February 12, 1999

Enclosed please find the revised trace metals summary table from Project 7397, SDG GT06, porewater samples collected by Science Applications International Corporation at the Old Fire Fighting Training Area site. Based on additional review of the data, the positive mercury results have been qualified as rejected (R).

The aliquot of porewater used by the laboratory was one-tenth the aliquot required by the standard operating procedure (SOP). The method detection limit reported for the mercury analysis was determined using a 100 ml aliquot when only a 10 ml aliquot was actually analyzed for the porewater samples. Based on the small volume of sample used for analysis, the mercury data reported are qualified as rejected (R).

Attachments
cc: File 7397-4.10

POREWATER TRACE METAL ANALYSIS (µg/L)
SITE: OLD FIRE FIGHTING TRAINING AREA
PROJECT: 7397 SDG: GT06
LAB: UNIVERSITY OF MISSISSIPPI

Station	Description	Date Coll	Aluminum		Arsenic	Cadmium		Chromium		Copper	Iron	Lead	Manganese	Barium		Mercury	Nickel	Silver		Zinc
OFF-12-SUR	porewater	4/7/98	54 2		2 6	0 7		14.7		17 0	210	21.4	NA	20	U	R	1.3	1.3		140
OFF-13-SUR	porewater	4/7/98	47 3		2 7	0 8		19.6		21 0	230	18 5	NA	20	U	R	1.7	1.9		160
OFF-16-SUR	porewater	4/7/98	49 2		2 9	0 9		23 8		19 0	340	12.0	NA	20	U	R	1.5	1 6		210
OFF-17-SUR	porewater	4/7/98	58.7		3 9	0 6		17.3		24.0	180	18.1	NA	20	U	R	1 0	1 2		240
OFF-18-SUR	porewater	4/7/98	63.4		1 5	0.7		19.5		28.0	270	12 5	NA	20	U	R	1.9	1 8		180
OFF-20-SUR	porewater	4/7/98	49 8		2 4	0 9		18 5		21 0	110	15.9	NA	20	U	R	1.4	1 6		150
OFF-21-SUR	porewater	4/7/98	65.1		3 0	0 4		25.6		18.0	530	11 3	NA	20	U	R	1.3	1.4		220
OFF-23-SUR	porewater	4/7/98	59.7		1.8	0 4		19 7		11 0	390	27.9	NA	20	U	R	1 6	1 8		160
OFF-8-SUR	porewater	4/14/98	51.2		2.4	0.7		20.1		19.0	280	15 8	NA	20	U	R	2 4	1 5		180
OFF-9-SUR	porewater	4/14/98	69 3		2 1	0.8		23.9		31.0	410	12.4	NA	20	U	R	1.9	1 5		200
OFF-14-SUR	porewater	4/14/98	52 7		2.8	0.7		18.6		18.0	160	19 9	NA	20	U	R	2 1	1.4		110
OFF-15-SUR	porewater	4/14/98	59 6		3.4	0 6		21 3		26 0	230	14.3	NA	20	U	R	2.5	1.2		190
OFF-19-SUR	porewater	4/14/98	51.3		3 0	0.8		17 4		20.0	290	11 7	NA	20	U	R	1 3	1 5		150

NOTE:

1. U - Not detected, UJ - Detection limit approximate; J - Quantitation approximate, NA - Not Analyzed

APPENDIX A-3
RESULTS FROM CHEMICAL ANALYSIS OF POREWATER ORGANICS, METALS

ANALY[illegible] RESULTS
OLD FIREFIGHTER SITE
NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

Sample Number	OFF-1-PW		OFF-2-PW		OFF-3-PW		OFF-4-PW		OFF-5-PW		OFF-6-PW	
Sample Location	OFF-1		OFF-2		OFF-3		OFF-4		OFF-5		OFF-6	
Date Sampled	4/7/98		4/7/98		3/27/98		3/27/98		3/27/98		3/27/98	
QC Type	None		None		None		None		None		None	
Filtering	POREWATER		POREWATER		POREWATER		POREWATER		POREWATER		POREWATER	
Polyaromatic Hydrocarbons (PAH) (UG/L)												
1-Methylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
1-Methylphenanthrene	1	U	1	U	1	U	1	U	1	U	1	U
2,3,5-Trimethylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
2,6-Dimethylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
2-Methylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
Acenaphthene	1	U	1	U	1	U	1	U	1	U	1	U
Acenaphthylene	1	U	1	U	1	U	1	U	1	U	1	U
Anthracene	1	U	1	U	1	U	1	U	1	U	1	U
Benzo(a)anthracene	1	U	1	U	1	U	1	U	1	U	1	U
Benzo(a)pyrene	1	U	1	U	1	U	1	U	1	U	1	U
benzo(b,j,k)fluoranthene	1	U	1	U	1	U	1	U	1	U	1	U
benzo(e)pyrene	1	U	1	U	1	U	1	U	1	U	1	U
Benzo(g,h,i)Perylene	1	U	1	U	1	U	1	U	1	U	1	U
Biphenyl	1	U	1	U	1	U	1	U	1	U	1	U
chrysene/triphenylene	1	U	1	U	1	U	1	U	1	U	1	U
Dibenzo(a,h)Anthracene	1	U	1	U	1	U	1	U	1	U	1	U
Fluoranthene	1	U	1	U	1	U	1	U	1	U	1	U
Fluorene	1	U	1	U	1	U	1	U	1	U	1	U
Indeno(1,2,3-cd)pyrene	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	1	U	1	U	1	U	1	U	1	U	1	U
Perylene	1	U	1	U	1	U	1	U	1	U	1	U
Phenanthrene	1	U	1	U	1	U	1	U	1	U	1	U
Pyrene	1	U	1	U	1	U	1	U	1	U	1	U
PCB Congeners/Organochlorine Pesticides (UG/L)												
2,4'-DDD	1	U	1	U	1	U	1	U	1	U	1	U
2,4'-DDE	1	U	1	U	1	U	1	U	1	U	1	U
2,4'-DDT	1	U	1	U	1	U	1	U	1	U	1	U
4,4'-DDD	1	U	1	U	1	U	1	U	1	U	1	U
4,4'-DDE	1	U	1	U	1	U	1	U	1	U	1	U
4,4'-DDT	1	U	1	U	1	U	1	U	1	U	1	U
Aldrin	0 5	U	0.5	U	0.5	U	0 5	U	0 5	U	0.5	U
alpha-Chlordane	1 6		0.5	U	2 6		0.5	U	1		0.5	U
Dieldrin	1	U	1	U	1	U	1.6		1	U	1	U
endosulfan	0 5	U	0.5	U	0 5	U	0.5	U	0.5	U	0 5	U
Endrin	1	U	1	U	1	U	1	U	1	U	1.2	
Heptachlor	1	U	1	U	1	U	1	U	1	U	1	U
Heptachlor Epoxide	1	U	1	U	1	U	1	U	1	U	1	U
Hexachlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U

U - Not detected, UJ - DL approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected, B - Below CRDL; NA - Not Analyzed

ANALYTICAL RESULTS
OLD FIREFIGHTER SITE
NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

Sample Number	OFF-1-PW		OFF-2-PW		OFF-3-PW		OFF-4-PW		OFF-5-PW		OFF-6-PW	
Sample Location	OFF-1		OFF-2		OFF-3		OFF-4		OFF-5		OFF-6	
Date Sampled	4/7/98		4/7/98		3/27/98		3/27/98		3/27/98		3/27/98	
QC Type	None		None		None		None		None		None	
Filtering	POREWATER		POREWATER		POREWATER		POREWATER		POREWATER		POREWATER	
lindane	1	U	1	U	1	U	1	U	1	U	1	U
Mirex	0 5	U	0 5	U	0.5	U	0 5	U	0 5	U	0 5	U
PCB 101	1	U	1	U	1	U	1	U	2 1		1	U
PCB 105	2 3		1	U	1	U	1	U	1	U	1	U
PCB 118	1	U	1	U	1	U	5 7		1	U	1	U
PCB 126	1	U	2 4		2.9		1	U	1	U	2 1	
PCB 128	1	U	1	U	1	U	1	U	1	U	1	U
PCB 138	1	U	1	U	1	U	1	U	1	U	1	U
PCB 153	1	U	1.5		1	U	1	U	1	U	1	U
PCB 170	1	U	1	U	3.6		1	U	1	U	1	U
PCB 18	0.5	U	0 5	U	0 5	U	3 2		0.5	U	0.5	U
PCB 180	1	U	1	U	1	U	1	U	1	U	1	U
PCB 187	2 5		1	U	1	U	1	U	1	U	1	U
PCB 195	1	U	1	U	1	U	1	U	1	U	1 1	
PCB 206	1	U	1	U	1	U	1	U	1	U	1	U
PCB 209	1	U	1	U	1	U	1	U	1	U	1	U
PCB 28	1	U	1	U	1	U	1	U	1	U	1	U
PCB 44	1	U	1	U	1	U	1	U	1	U	1	U
PCB 52	0 5	U	0 5	U	1		0 5	U	0 5	U	0 5	U
PCB 66	1	U	1	U	1	U	1	U	1	U	1	U
PCB 77	1	U	3 7		1	U	1	U	1	U	1	U
PCB 8	1	U	1	U	1	U	1	U	1	U	1	U
PCB 99	0 5	U	0 5	U	0 5	U	0 5	U	0.5	U	0 5	U
Toxaphene	500	U	500	U	500	U	500	U	500	U	500	U
trans-Nonachlor	0 5	U	0.5	U	0 5	U	0 5	U	0 5	U	0 5	U
Metals (UG/L)												
Aluminum	55 9		67 4		61 2		54.9		63 8		43 2	
Arsenic	1.1		5.5		3.4		2 8		1		2 9	
Barium	20	U	20	U	20	U	20	U	20	U	20	U
Cadmium	0 1	J	0.5		0.8		0 9		0 5		0 6	
Chromium	28 6		19.2		18 6		22 4		21 8		15 4	
Copper	26		21		23		28		84		19	
Iron	610		310		120		200		170		220	
Lead	18 22		16.43		14.62		18 66		18.24		15 83	
Manganese		NA		NA		NA		NA		NA		NA
Mercury		R		R		R		R		R		R
Nickel	0.5	U	0.7		2		1.3		1 1		1 5	
Silver	1 6		1.8		1.4		1 7		1 3		0.1	U
Zinc	170		140		100		130		260		420	

U - Not detected; UJ - DL approx[illegible]e; J - Quantitation approximate,
* - From dilution analysis, R - Rejec[illegible] - Below CRDL; NA - Not Analyzed

ANALY[illegible] RESULTS
OLD FIREFIGHTER SITE
NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

Sample Number	OFF-7-PW		OFF-8-PW		OFF-9-PW		OFF-10-PW		OFF-11-PW		OFF-12-PW	
Sample Location	OFF-7		OFF-8		OFF-9		OFF-10		OFF-11		OFF-12	
Date Sampled	3/27/98		4/14/98		4/14/98		4/7/98		4/7/98		4/7/98	
QC Type	None		None		None		None		None		None	
Filtering	POREWATER		POREWATER		POREWATER		POREWATER		POREWATER		POREWATER	
Polyaromatic Hydrocarbons (PAH) (UG/L)												
1-Methylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
1-Methylphenanthrene	1	U	1	U	1	U	1	U	1	U	1	U
2,3,5-Trimethylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
2,6-Dimethylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
2-Methylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
Acenaphthene	1	U	1	U	1	U	1	U	1	U	1	U
Acenaphthylene	1	U	1	U	1	U	1	U	1	U	1	U
Anthracene	1	U	1	U	1	U	1	U	1	U	1	U
Benzo(a)anthracene	1	U	1	U	1	U	1	U	1	U	1	U
Benzo(a)pyrene	1	U	1	U	1	U	1	U	1	U	1	U
benzo(b,j,k)fluoranthene	1	U	1	U	1	U	1	U	1	U	1	U
benzo(e)pyrene	1	U	1	U	1	U	1	U	1	U	1	U
Benzo(g,h,i)Perylene	1	U	1	U	1	U	1	U	1	U	1	U
Biphenyl	1	U	1	U	1	U	1	U	1	U	1	U
chrysene/triphenylene	1	U	1	U	1	U	1	U	1	U	1	U
Dibenzo(a,h)Anthracene	1	U	1	U	1	U	1	U	1	U	1	U
Fluoranthene	1	U	1	U	1	U	1	U	1	U	1	U
Fluorene	1	U	1	U	1	U	1	U	1	U	1	U
Indeno(1,2,3-cd)pyrene	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	1	U	1	U	1	U	1	U	1	U	1	U
Perylene	1	U	1	U	1	U	1	U	1	U	1	U
Phenanthrene	1	U	1	U	1	U	1	U	1	U	1	U
Pyrene	1	U	1	U	1	U	1	U	1	U	1	U
PCB Congeners/Organochlorine Pesticides (UG/L)												
2,4'-DDD	1	U	1	U	1	U	1	U	1	U	1	U
2,4'-DDE	1	U	1	U	1	U	1	U	1	U	1	U
2,4'-DDT	1	U	1	U	1	U	1	U	1	U	1	U
4,4'-DDD	1	U	1	U	1	U	1	U	1	U	1	U
4,4'-DDE	1	U	1	U	1	U	1	U	1	U	1	U
4,4'-DDT	1	U	1	U	1	U	1	U	1	U	1	U
Aldrin	0.5	U	1 5		0 5	U	0 5	U	0 5	U	0.5	U
alpha-Chlordane	0.5	U	0 5	U	0.5	U	0.5	U	0 5	U	0.5	U
Dieldrin	1	U	1	U	1	U	2.3		1	U	1 3	
endosulfan	0 5	U	0 5	U	0.5	U	0.5	U	0.5	U	0 5	U
Endrin	1	U	1	U	1	U	1	U	1	U	1	U
Heptachlor	1	U	1	U	1	U	1	U	1	U	1	U
Heptachlor Epoxide	1	U	1	U	1	U	1	U	1	U	1	U
Hexachlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U

U - Not detected; UJ - DL approximate, J - Quantitation approximate;
* - From dilution analysis; R - Rejected, B - Below CRDL; NA - Not Analyzed

ANALYTICAL RESULTS
OLD FIREFIGHTER SITE
NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

Sample Number	OFF-7-PW		OFF-8-PW		OFF-9-PW		OFF-10-PW		OFF-11-PW		OFF-12-PW	
Sample Location	OFF-7		OFF-8		OFF-9		OFF-10		OFF-11		OFF-12	
Date Sampled	3/27/98		4/14/98		4/14/98		4/7/98		4/7/98		4/7/98	
QC Type	None		None		None		None		None		None	
Filtering	POREWATER		POREWATER		POREWATER		POREWATER		POREWATER		POREWATER	
lindane	1	U	1	U	1	U	1	U	1	U	1	U
Mirex	0 5	U	0 5	U	0.5	U	0.5	U	0.5	U	0.5	U
PCB 101	1	U	1	U	1	U	2 1		1	U	1	U
PCB 105	1	U	1	U	1	U	1	U	1.4		1	U
PCB 118	1	U	1	U	1	U	1	U	1	U	1	U
PCB 126	1	U	2 4		1	U	1	U	1	U	1 4	
PCB 128	1	U	1	U	2.1		1	U	1	U	1	U
PCB 138	1 3		1	U	1	U	1	U	1	U	1	U
PCB 153	1	U	1	U	1	U	1	U	1	U	1	U
PCB 170	1	U	1	U	1	U	1	U	1	U	1	U
PCB 18	0.5	U	0.5	U	0.5	U	0 5	U	0.5	U	0.5	U
PCB 180	1	U	1	U	1	U	1.2		1	U	1	U
PCB 187	1	U	1	U	1	U	1	U	1	U	1	U
PCB 195	1 7		1	U	2.7		3.4		1	U	3 5	
PCB 206	1	U	1	U	1	U	1	U	1	U	1	U
PCB 209	1	U	1	U	1	U	1	U	1	U	3 7	
PCB 28	1	U	1.4		1	U	1	U	2 2		2 7	
PCB 44	2 5		1	U	1.1		1	U	1	U	1	U
PCB 52	0.5	U	0 5	U	0.5	U	0 5	U	0 5	U	0 5	U
PCB 66	1	U	1	U	1	U	1	U	1	U	1	U
PCB 77	1	U	1 7		1	U	1	U	2.5		1	U
PCB 8	1	U	1	U	1	U	1	U	1	U	1	U
PCB 99	0 5	U	0.5	U	0 5	U	0.5	U	0 5	U	0.5	U
Toxaphene	500	U	500	U	500	U	500	U	500	U	500	U
trans-Nonachlor	0.5	U	0.5	U	0.5	U	0 5	U	0.5	U	0.5	U
Metals (UG/L)												
Aluminum	58 7		51.2		69.3		48 1		53 8		54 2	
Arsenic	3 2		2.4		2 1		2.6		2		2 6	
Barium	20	U	20	U	20	U	20	U	20	U	20	U
Cadmium	0 5		0.7		0 8		0.4		0 4		0.7	
Chromium	19		20 1		23.9		22 3		20 8		14 7	
Copper	15		19		31		30		31		17	
Iron	120		280		410		340		470		210	
Lead	16 41		15 8		12 4		15.71		13 24		21 4	
Manganese		NA		NA		NA		NA		NA		NA
Mercury		R		R		R		R		R		R
Nickel	0 5	U	2 4		1.9		3 1		0 9		1 3	
Silver	1.7		1.5		1.5		1 6		1.4		1 3	
Zinc	170		180		200		270		260		140	

U - Not detected, UJ - DL approxi[illegible]e; J - Quantitation approximate;
* - From dilution analysis; R - Reject[illegible] Below CRDL; NA - Not Analyzed

ANALYTICAL RESULTS
OLD FIREFIGHTER SITE
NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

Sample Number	OFF-13-PW		OFF-14-PW		OFF-15-PW		OFF-16-PW		OFF-17-PW		OFF-18-PW	
Sample Location	OFF-13		OFF-14		OFF-15		OFF-16		OFF-17		OFF-18	
Date Sampled	4/7/98		4/14/98		4/14/98		4/7/98		4/7/98		4/7/98	
QC Type	None		None		None		None		None		None	
Filtering	POREWATER		POREWATER		POREWATER		POREWATER		POREWATER		POREWATER	
Polyaromatic Hydrocarbons (PAH) (UG/L)												
1-Methylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
1-Methylphenanthrene	1	U	1	U	1	U	1	U	1	U	1	U
2,3,5-Trimethylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
2,6-Dimethylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
2-Methylnaphthalene	1	U	1	U	1	U	1	U	1	U	1	U
Acenaphthene	1	U	1	U	1	U	1	U	1	U	1	U
Acenaphthylene	1	U	1	U	1	U	1	U	1	U	1	U
Anthracene	1	U	1	U	1	U	1	U	1	U	1	U
Benzo(a)anthracene	1	U	1	U	1	U	1	U	1	U	1	U
Benzo(a)pyrene	1	U	1	U	1	U	1	U	1	U	1	U
benzo(b,j,k)fluoranthene	1	U	1	U	1	U	1	U	1	U	1	U
benzo(e)pyrene	1	U	1	U	1	U	1	U	1	U	1	U
Benzo(g,h,i)Perylene	1	U	1	U	1	U	1	U	1	U	1	U
Biphenyl	1	U	1	U	1	U	1	U	1	U	1	U
chrysene/triphenylene	1	U	1	U	1	U	1	U	1	U	1	U
Dibenzo(a,h)Anthracene	1	U	1	U	1	U	1	U	1	U	1	U
Fluoranthene	1	U	1	U	1	U	1	U	1	U	1	U
Fluorene	1	U	1	U	1	U	1	U	1	U	1	U
Indeno(1,2,3-cd)pyrene	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	1	U	1	U	1	U	1	U	1	U	1	U
Perylene	1	U	1	U	1	U	1	U	1	U	1	U
Phenanthrene	1	U	1	U	1	U	1	U	1	U	1	U
Pyrene	1	U	1	U	1	U	1	U	1	U	1	U
PCB Congeners/Organochlorine Pesticides (UG/L)												
2,4'-DDD	1	U	1	U	1	U	1	U	1	U	1	U
2,4'-DDE	1	U	1	U	1	U	1	U	1	U	1	U
2,4'-DDT	1	U	1	U	1	U	1	U	1	U	1	U
4,4'-DDD	1	U	1	U	1	U	1	U	1	U	1	U
4,4'-DDE	1	U	1	U	1	U	1	U	1	U	1	U
4,4'-DDT	1	U	1	U	1	U	1	U	1	U	1	U
Aldrin	0 5	U	0 5	U	0.5	U	0 5	U	0.5	U	0 5	U
alpha-Chlordane	0 5	U	0 5	U	0.5	U	0.5	U	0 5	U	0 5	U
Dieldrin	2 3		1.3		1	U	1	U	1	U	1	U
endosulfan	0 5	U	0.5	U	0.5	U	0 5	U	0.5	U	0 5	U
Endrin	1	U	1	U	1 1		1	U	1	U	1	U
Heptachlor	1	U	1	U	1	U	1	U	1 3		1	U
Heptachlor Epoxide	1	U	1	U	1	U	1	U	1	U	1	U
Hexachlorobenzene	1	U	1	U	1	U	1	U	1	U	1 8	

U - Not detected; UJ - DL approximate, J - Quantitation approximate;
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ANALYTICAL RESULTS
OLD FIREFIGHTER SITE
NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

Sample Number	OFF-13-PW		OFF-14-PW		OFF-15-PW		OFF-16-PW		OFF-17-PW		OFF-18-PW	
Sample Location	OFF-13		OFF-14		OFF-15		OFF-16		OFF-17		OFF-18	
Date Sampled	4/7/98		4/14/98		4/14/98		4/7/98		4/7/98		4/7/98	
QC Type	None		None		None		None		None		None	
Filtering	POREWATER		POREWATER		POREWATER		POREWATER		POREWATER		POREWATER	
lindane	1	U	1	U	1	U	1	U	1	U	1	U
Mirex	0 5	U	0 5	U	0.5	U	0 5	U	0 5	U	0 5	U
PCB 101	1	U	1	U	1	U	1	U	1	U	1	U
PCB 105	1	U	1	U	2 6		1	U	1	U	2 1	
PCB 118	1	U	1	U	1	U	4 9		1	U	1	U
PCB 126	1	U	1	U	1	U	1	U	1	U	1	U
PCB 128	1	U	2.8		1	U	1	U	1	U	1	U
PCB 138	1	U	1	U	1	U	1	U	1	U	1	U
PCB 153	1	U	1	U	1	U	1	U	1	U	1	U
PCB 170	2 3		1	U	1	U	2 1		1	U	1	U
PCB 18	0 5	U	0.5	U	0 5	U	0.5	U	0.5	U	0 5	U
PCB 180	1	U	1	U	2.4		1	U	1	U	1.1	
PCB 187	1	U	1	U	1	U	1	U	1	U	1	U
PCB 195	1	U	1	U	1	U	1	U	2 4		1	U
PCB 206	1	U	1	U	1	U	1	U	1	U	1	U
PCB 209	1	U	1.7		1	U	1	U	1	U	1	U
PCB 28	1	U	1	U	1	U	1	U	1	U	1	U
PCB 44	1	U	1	U	1	U	1.9		1	U	1	U
PCB 52	0.5	U	2.3		0 5	U	0.5	U	0.5	U	0.5	U
PCB 66	1	U	1	U	1	U	1	U	1	U	1	U
PCB 77	1	U	1	U	1	U	1	U	1 4		1	U
PCB 8	1	U	1	U	2.1		1	U	1	U	2 4	
PCB 99	0.5	U	0.5	U	0 5	U	0.5	U	0 5	U	0 5	U
Toxaphene	500	U	500	U	500	U	500	U	500	U	500	U
trans-Nonachlor	0 5	U	0.5	U	0.5	U	0.5	U	0.5	U	0 5	U
Metals (UG/L)												
Aluminum	47.3		52 7		59 6		49.2		58.7		63 4	
Arsenic	2 7		2.8		3.4		2 9		3.9		1.5	
Barium	20	U	20	U	20	U	20	U	20	U	20	U
Cadmium	0.8		0.7		0.6		0.9		0.6		0 7	
Chromium	19 6		18 6		21 3		23 8		17 3		19 5	
Copper	21		18		26		19		24		28	
Iron	230		160		230		340		180		270	
Lead	18 5		19.9		14.3		12		18 1		12 5	
Manganese		NA		NA		NA		NA		NA		NA
Mercury		R		R		R		R		R		R
Nickel	1.7		2 1		2.5		1.5		1		1.9	
Silver	1 9		1 4		1.2		1.6		1 2		1 8	
Zinc	160		110		190		210		240		180	

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ANALYTICAL RESULTS
OLD FIREFIGHTER SITE
NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

Sample Number	OFF-19-PW		OFF-20-PW		OFF-21-PW		OFF-22-PW		OFF-23-PW	
Sample Location	OFF-19		OFF-20		OFF-21		OFF-22		OFF-23	
Date Sampled	4/14/98		4/7/98		4/7/98		3/27/98		4/7/98	
QC Type	None		None		None		None		None	
Filtering	POREWATER		POREWATER		POREWATER		POREWATER		POREWATER	
Polyaromatic Hydrocarbons (PAH) (UG/L)										
1-Methylnaphthalene	1	U	1	U	1	U	1	U	1	U
1-Methylphenanthrene	1	U	1	U	1	U	1	U	1	U
2,3,5-Trimethylnaphthalene	1	U	1	U	1	U	1	U	1	U
2,6-Dimethylnaphthalene	1	U	1	U	1	U	1	U	1	U
2-Methylnaphthalene	1	U	1	U	1	U	1	U	1	U
Acenaphthene	1	U	1	U	1	U	1	U	1	U
Acenaphthylene	1	U	1	U	1	U	1	U	1	U
Anthracene	1	U	1	U	1	U	1	U	1	U
Benzo(a)anthracene	1	U	1	U	1	U	1	U	1	U
Benzo(a)pyrene	1	U	1	U	1	U	1	U	1	U
benzo(b,j,k)fluoranthene	1	U	1	U	1	U	1	U	1	U
benzo(e)pyrene	1	U	1	U	1	U	1	U	1	U
Benzo(g,h,i)Perylene	1	U	1	U	1	U	1	U	1	U
Biphenyl	1	U	1	U	1	U	1	U	1	U
chrysene/triphenylene	1	U	1	U	1	U	1	U	1	U
Dibenzo(a,h)Anthracene	1	U	1	U	1	U	1	U	1	U
Fluoranthene	1	U	1	U	1	U	1	U	1	U
Fluorene	1	U	1	U	1	U	1	U	1	U
Indeno(1,2,3-cd)pyrene	1	U	1	U	1	U	1	U	1	U
Naphthalene	1	U	1	U	1	U	1	U	1	U
Perylene	1	U	1	U	1	U	1	U	1	U
Phenanthrene	1	U	1	U	1	U	1	U	1	U
Pyrene	1	U	1	U	1	U	1	U	1	U
PCB Congeners/Organochlorine Pesticides (UG/L)										
2,4'-DDD	1	U	1	U	1	U	1	U	1	U
2,4'-DDE	1	U	1	U	1	U	1	U	1	U
2,4'-DDT	1	U	1	U	1	U	1	U	1	U
4,4'-DDD	1	U	1	U	1	U	1	U	1	U
4,4'-DDE	1	U	1	U	1	U	1	U	1	U
4,4'-DDT	1	U	1	U	1	U	1	U	1	U
Aldrin	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
alpha-Chlordane	1.1		0.5	U	0.5	U	0.5	U	0.5	U
Dieldrin	1	U	1	U	1.8		1	U	1	U
endosulfan	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Endrin	1	U	1	U	1	U	1	U	1.4	
Heptachlor	1	U	1	U	1	U	1	U	1	U
Heptachlor Epoxide	1	U	1	U	1	U	1	U	1	U
Hexachlorobenzene	1	U	1	U	1	U	1	U	1	U

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ANALYTICAL RESULTS
OLD FIREFIGHTER SITE
NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

Sample Number	OFF-19-PW		OFF-20-PW		OFF-21-PW		OFF-22-PW		OFF-23-PW	
Sample Location	OFF-19		OFF-20		OFF-21		OFF-22		OFF-23	
Date Sampled	4/14/98		4/7/98		4/7/98		3/27/98		4/7/98	
QC Type	None		None		None		None		None	
Filtering	POREWATER		POREWATER		POREWATER		POREWATER		POREWATER	
lindane	1	U	1	U	1	U	1	U	1	U
Mirex	0.5	U	0.5	U	2 4		0 5	U	0 5	U
PCB 101	1	U	1	U	1	U	1	U	2 5	
PCB 105	1	U	1	U	1	U	1	U	1	U
PCB 118	1	U	1	U	1.1		1	U	1	U
PCB 126	1	U	1	U	1	U	1	U	1	U
PCB 128	1	U	1	U	1	U	1	U	1	U
PCB 138	1	U	1	U	1	U	1	U	1	U
PCB 153	2 7		2 5		1	U	1	U	1	U
PCB 170	1	U	1	U	1	U	1 2		1	U
PCB 18	0 5	U	0 5	U	0.5	U	0 5	U	1 2	
PCB 180	1	U	1	U	1	U	1	U	1	U
PCB 187	1	U	1	U	1	U	1	U	1	U
PCB 195	1	U	1	U	1	U	1	U	1	U
PCB 206	1	U	1	U	1	U	1	U	1	U
PCB 209	1	U	1	U	1	U	1	U	1	U
PCB 28	3.6		1	U	1	U	1	U	1	U
PCB 44	1	U	1	U	1	U	1	U	1	U
PCB 52	0 5	U	0 5	U	0 5	U	2.4		0.5	U
PCB 66	1	U	1	U	3 7		1	U	1	U
PCB 77	1	U	1	U	1	U	1	U	1	U
PCB 8	1	U	1	U	1	U	1	U	1	U
PCB 99	2.5		1 5		0 5	U	0 5	U	0 5	U
Toxaphene	500	U	500	U	500	U	500	U	500	U
trans-Nonachlor	0.5	U	0.5	U	0.5	U	0 5	U	0.5	U
Metals (UG/L)										
Aluminum	51 3		49 8		65 1		49.2		59 7	
Arsenic	3		2 4		3		2.6		1.8	
Barium	20	U	20	U	20	U	20	U	20	U
Cadmium	0.8		0.9		0 4		0.9		0 4	
Chromium	17 4		18.5		25.6		17 2		19 7	
Copper	20		21		18		18		11	
Iron	290		110		530		250		390	
Lead	11 7		15 9		11 3		17 14		27 9	
Manganese		NA		NA		NA		NA		NA
Mercury		R		R		R		R		R
Nickel	1 3		1.4		1 3		1.5		1 6	
Silver	1.5		1.6		1 4		1.2		1 8	
Zinc	150		150		220		200		160	

U - Not detected; UJ - DL approx[illegible]; J - Quantitation approximate;
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