TETRA TECH NUS, INC.
55 Jonspin Road • Wilmington, MA 01887-1020
Tel 978.658.7899 • Fax 978.658.7870 • www.tetratech.com

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November 29, 2001

Project Number N7397

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: Response to RIDEM Comment Regarding Limited PRGs for Marine Sediment
Old Firefighting Training Area, Naval Station - Newport, Newport Rhode Island

Dear Mr. Shafer:

As you are aware, RIDEM has requested the Navy submit Preliminary Remediation Goals (PRGs) for marine sediment at OFFTA with a variation from that provided in previous PRG documents. This letter and attachments are being provided to comply with that request. This material references the process for development of PRGs in the Draft Final PRGs for Marine Sediment at OFFTA (TtNUS, November 8, 2001)

The PRG document referenced above has a step in them that "limits" the number of contaminants for which remedial action is proposed. This step was originally developed to focus the remedial actions on the contaminants that pose the highest risk, and to keep a manageable list of contaminants through the remedial action. During review of the Draft version of this document, RIDEM requested that the Navy provide a list of PRGs that would be calculated if this step was excluded.

The attached tables calculate PRGs for all the PAHs which pass the toxicity screening (Step 5). Step 7, the limiting step, is modified to calculate TEV HQs for all these PAHs, and does not select the highest TEV HQ at each station. All the TEV-HQs are subsequently used to calculate PRGs, which are presented on the far right column of Table B-3.10 Table B-3.11 depicts sediment concentrations exceeding these PRGs. You will note that the same stations selected in the Draft Final PRG document (Stations 3 and 5) are still the only stations where PRGs are exceeded.

As stated above, this material is being provided for informational purposes in response to RIDEMs request.. It is not recommended that these changes be implemented for PRG development at OFFTA.

If you have any questions regarding this material, please do not hesitate to contact me.

Very truly yours,

Stephen S Parker
Project Manager

SSP:rp

Enclosure

c: M. Griffin, NETC (w/encl. - 5)
K. Keckler, USEPA (w/encl. - 3)
P Kulpa, RIDEM (w/encl. - 4)
J. Stump, Gannett Fleming (w/encl. - 2)
K. Finkelstein, NOAA (w/encl - 1)
C. Powell, RI F&W (w/encl. - 1)
D. Egan, TAG (w/encl. - 1)
J. Trepanowski/G. Glenn, TtNUS (w/encl - 1)
File N7397-3.2 (w/o encl.)

TABLE B-3.9
UNLIMITED PRG HQs
RIDEM ECOLOGICAL PRG DEVELOPMENT
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 3/27/98	OFF-2 0-15 cm 3/27/98	OFF-3 0-15 cm 3/27/98	OFF-4 0-15 cm 3/27/98	OFF-5 0-15 cm 3/27/98	OFF-6 0-15 cm 3/27/98	OFF-7 0-15 cm 3/27/98	OFF-8 0-15 cm 4/7/98	OFF-9 0-15 cm 4/7/98	OFF-10 0-15 cm 4/3/98
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	9 82E-01	3 01E-01	1 15E-01	2 69E-02	2 93E-02 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
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
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
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
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
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
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
Dibenzo(a,h)Anthracene	0 033	1 94E-01	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
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
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
Indeno(1,2,3-cd)pyrene	0 08	1 92E-01	9 56E-01	2 50E+00	4 57E-01	2 53E+00	5 76E-01	1 74E-01	3 58E-02	1 37E-02	1 10E-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
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
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
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
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
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
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

TABLE B-3.9
UNLIMITED PRG HQs
RIDEM ECOLOGICAL PRG DEVELOPMENT
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND
PAGE 2 OF 2

Sample Location	OFF-11	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	0-15 cm
Date Sampled	4/3/98	4/3/98	4/3/98	4/7/98	4/7/98	4/3/98	4/3/98	4/3/98	4/7/98	4/3/98	4/3/98
Polyaromatic Hydrocarbons											
2-Methylnaphthalene	1 65E-01 J	4 87E-01	1 71E-01	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	2 26E-02	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	4 71E-02 J	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	4 45E-02	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	5 42E-02	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	3 11E-02	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	3 31E-02 J	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	4 08E-02	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	1 72E-02 J	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	2 04E-02	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	5 61E-02 J	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	2 69E-02	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	3 14E-02	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	4 12E-02	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)	4 05E-02	1 50E-01	7 88E-02	2 15E-02	1 98E-02	2 26E-02	2 58E-02	5 68E-02	2 37E-02	4 33E-02	1 72E-02
Sum PAHs (7 Low Molecular Weight)	4 73E-02	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)	4 55E-02	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)	6 32E-01	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}	1 65E-01	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

Notes:

1 - Source of TEV is presented in Table 8

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 B-3.10
UNLIMITED PRG CALCULATION
RIDEM 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
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
Date Sampled	3/27/98	3/27/98	3/27/98	3/27/98	3/27/98	3/27/98	3/27/98	4/7/98	4/7/98	4/3/98	4/3/98
Filtering	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
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
Anthracene	2 22E+03	1 36E+03	1 11E+03	1 11E+03	1 23E+03	2 22E+03	2.34E+03	1 60E+03	1 48E+03	1 36E+03	1 36E+03
Benzo(a)anthracene	6 18E+03	3 78E+03	3 09E+03	3 09E+03	3.43E+03	6 18E+03	6 52E+03	4 46E+03	4 12E+03	3.78E+03	3 78E+03
Benzo(a)pyrene	4 47E+03	2 73E+03	2 23E+03	2.23E+03	2 48E+03	4 47E+03	4 72E+03	3 23E+03	2.98E+03	2 73E+03	2 73E+03
Benzo(b,j,k)fluoranthene	1 49E+04	9 13E+03	7 47E+03	7 47E+03	8.30E+03	1 49E+04	1 58E+04	1 08E+04	9.96E+03	9 13E+03	9 13E+03
Benzo(g,h,i)Perylene	4 70E+03	2 87E+03	2 35E+03	2 35E+03	2 61E+03	4.70E+03	4 96E+03	3 40E+03	3 13E+03	2.87E+03	2 87E+03
Chrysene/triphenylene	4 70E+03	2 87E+03	2 35E+03	2 35E+03	2.61E+03	4.70E+03	4 96E+03	3.39E+03	3 13E+03	2 87E+03	2 87E+03
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
Fluoranthene	3 11E+04	1 90E+04	1 55E+04	1 55E+04	1 73E+04	3 11E+04	3.28E+04	2.25E+04	2 07E+04	1 90E+04	1 90E+04
Fluorene	7 32E+02	4 48E+02	3.66E+02	3 66E+02	4 07E+02	7 32E+02	7 73E+02	5.29E+02	4.88E+02	4 48E+02	4 48E+02
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
Phenanthrene	1 24E+04	7 58E+03	6 20E+03	6 20E+03	6 89E+03	1 24E+04	1 31E+04	8 96E+03	8 27E+03	7 58E+03	7 58E+03
Pyrene	1 34E+04	8 18E+03	6 69E+03	6 69E+03	7 44E+03	1 34E+04	1 41E+04	9 67E+03	8 92E+03	8 18E+03	8 18E+03
Sum PAHs (6 High Molecular Weight)	5 43E+04	2 93E+04	2 42E+04	2 35E+04	2 71E+04	4 54E+04	5 41E+04	3 68E+04	3 62E+04	3 01E+04	2 91E+04
Sum PAHs (7 Low Molecular Weight)	1 60E+04	9.75E+03	9 05E+03	7 24E+03	9 17E+03	1 77E+04	1 37E+04	8 13E+03	7 33E+03	6 18E+03	8 27E+03
Sum PAHs (NOAA Status &Trends)	1 38E+05	6 09E+04	5 85E+04	4 52E+04	5 82E+04	9 38E+04	1.02E+05	5 67E+04	7 69E+04	6 23E+04	4 90E+04

TABLE B-3.10
UNLIMITED PRG CALCULATION
RIDEM ECOLOGICAL PRG CALCULATION STEP 8
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	4/3/98	4/3/98	4/7/98	4/7/98	4/3/98	4/3/98	4/3/98	4/7/98	4/3/98	4/3/98	Average
Filtering	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	PRG[1]
Polyaromatic Hydrocarbons (ug/kg)											
2-Methylnaphthalene	2.40E+02	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	9 04E+02	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
Anthracene	3 09E+03	4 94E+03	2 47E+03	1 48E+03	3 21E+03	3.21E+03	4 94E+03	3 58E+03	2 84E+03	2 84E+03	2380
Benzo(a)anthracene	8 58E+03	1 37E+04	6 87E+03	4.12E+03	8 93E+03	8.93E+03	1 37E+04	9 96E+03	7 90E+03	7 90E+03	6623
Benzo(a)pyrene	6 21E+03	9 93E+03	4 97E+03	2 98E+03	6 45E+03	6 45E+03	9 93E+03	7 20E+03	5 71E+03	5 71E+03	4788
Benzo(b,j,k)fluoranthene	2 07E+04	3 32E+04	1 66E+04	9 96E+03	2 16E+04	2 16E+04	3 32E+04	2 41E+04	1 91E+04	1 91E+04	16002
Benzo(g,h,i)Perylene	6 53E+03	1.04E+04	5 22E+03	3 13E+03	6 79E+03	6 79E+03	1 04E+04	7 57E+03	6 01E+03	6 01E+03	5037
Chrysene/triphenylene	6 52E+03	1 04E+04	5 22E+03	3 13E+03	6 78E+03	6.78E+03	1 04E+04	7 57E+03	6 00E+03	6 00E+03	5032
Dibenzo(a,h)Anthracene	3 16E+03	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
Fluoranthene	4 32E+04	6 91E+04	3 45E+04	2 07E+04	4 49E+04	4.49E+04	6 91E+04	5 01E+04	3 97E+04	3.97E+04	33312
Fluorene	1 02E+03	1 63E+03	8 14E+02	4 88E+02	1 06E+03	1.06E+03	1 63E+03	1.18E+03	9.36E+02	9 36E+02	785
Indeno(1,2,3-cd)pyrene	7 30E+03	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
Phenanthrene	1 72E+04	2 76E+04	1 38E+04	8 27E+03	1 79E+04	1 79E+04	2 76E+04	2 00E+04	1 58E+04	1 58E+04	13290
Pyrene	1 86E+04	2 97E+04	1.49E+04	8 92E+03	1.93E+04	1.93E+04	2 97E+04	2 16E+04	1 71E+04	1 71E+04	14343
Sum PAHs (6 High Molecular Weight)	6.65E+04	1 07E+05	6 31E+04	3 59E+04	6 96E+04	7.47E+04	1 11E+05	8 61E+04	5 91E+04	6 62E+04	53776
Sum PAHs (7 Low Molecular Weight)	1.81E+04	3 12E+04	1 05E+04	6 90E+03	1 77E+04	1 67E+04	2 72E+04	1 42E+04	1 75E+04	1 56E+04	13719
Sum PAHs (NOAA Status &Trends)	9 98E+04	2.06E+05	1 13E+05	7 16E+04	1 11E+05	1.33E+05	2 23E+05	1 08E+05	7 77E+04	1 44E+05	99417

TABLE B-3.11
UNLIMITED SEDIMENT HAZARD QUOTIENTS
RIDEM ECOLOGICAL PRG DEVELOPMENT STEP 8
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location Sample Depth Interval Date Sampled	PRG[1]	OFF-1 0-15 cm 3/27/98	OFF-2 0-15 cm 3/27/98	OFF-3 0-15 cm 3/27/98	OFF-4 0-15 cm 3/27/98	OFF-5 0-15 cm 3/27/98	OFF-6 0-15 cm 3/27/98	OFF-7 0-15 cm 3/27/98	OFF-8 0-15 cm 4/7/98	OFF-9 0-15 cm 4/7/98	OFF-10 0-15 cm 4/3/98
Polyaromatic Hydrocarbons (ug/kg)											
2-Methylnaphthalene	185	0 14 J	0 42 J	0 48 J	0 21 J	1.78 J	0 92 J	0 30	0 08	0 02 J	0 02 J
Acenaphthylene	697	0 13	0 70	0 50	0 61	0 73	0 28	0 24	0 03	0 01 J	0 01 J
Anthracene	2380	0 11	0 46	0 61	0 33	1.18	0 49	0 17	0 03	0 00	0 00 J
Benzo(a)anthracene	6623	0 02 J	0 54 J	0 86 J	0 34 J	1.40 J	0 64 J	0 18	0 03	0 01	0 01 J
Benzo(a)pyrene	4788	0 12	0 50	0 72	0 44	1.01	0 42	0.28	0 05	0 02	0 01
Benzo(b,j,k)fluoranthene	16002	0 17	0 48	1.08 J	0 22	1.56	0 59	0 18	0 03	0 01	0 01
Benzo(g,h,i)Perylene	5037	0 17	0 50	1.07 J	0 26	1.19	0 52	0 20	0 03	0 01	0 01
Chrysene/triphenylene	5032	0 16 J	0 47 J	0 91 J	0 37 J	1.45 J	0 67 J	0 10	0 04	0 01	0 01 J
Dibenzo(a,h)Anthracene	2434	0 18 J	0 53 J	1.15 J	0 14 J	1.40 J	0 57 J	0 12	0 02	0 00	0 00 J
Fluoranthene	33312	0 06	0 25	0 44	0 17	0 58	0 34	0 07	0 01 U	0 00 U	0 00 J
Fluorene	785	0 05	0 39	0 76	0 23	1.73	0 50	0 20 J	0 04	0 01	0 00
Indeno(1,2,3-cd)pyrene	5633	0 18 J	0 55 J	1.16 J	0 21 J	1.31 J	0 54 J	0 17	0 02	0 01 U	0 01 J
Phenanthrene	13290	0 08	0.42	0 81	0.23	1.10	0 71	0 10	0 02	0 00	0 00
Pyrene	14343	0 12 J	0.47 J	0 75 J	0 34 J	1.18 J	0 68 J	0 15	0 03	0 01 J	0 01 J
Sum PAHs (6 High Molecular	53776	0 12	0 46	0 78 J	0 31	1.13	0 60	0 14	0 03	0 01	0 01
Sum PAHs (7 Low Molecular	13719	0 11	0.57	1.00	0 34	1.52	0 87	0.17	0 03	0 01	0 00
Sum PAHs (NOAA Status &T	99417	0 14	0 50	0 93 J	0 30	1.33	0 64	0 16	0 03	0 01	0 01
Sum PRG_{HQ}[2]		2.1	8.2	14.0	5 0	21 6	10 0	2 9	0 5	0 1	0 1
Max PRG_{HQ}[2]		0 2	0 7	1 2	0 6	1 8	0 9	0 3	0 1	0 0	0 0
Max CoC[3]		NA	NA	Indeno(1,2,3-cd)pyre	NA	2-methylnaphthaler	NA	NA	NA	NA	NA

TABLE B-3.11
UNLIMITED SEDIMENT HAZARD QUOTIENTS
RIDEM ECOLOGICAL PRG DEVELOPMENT STEP 8
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT RHODE ISLAND

Sample Location Sample Depth Interval Date Sampled	OFF-11 0-15 cm 4/3/98	OFF-12 0-15 cm 4/3/98	OFF-13 0-15 cm 4/3/98	OFF-14 0-15 cm 4/7/98	OFF-15 0-15 cm 4/7/98	OFF-16 0-15 cm 4/3/98	OFF-17 0-15 cm 4/3/98	OFF-18 0-15 cm 4/3/98	OFF-19 0-15 cm 4/7/98	OFF-20 0-15 cm 4/3/98	OFF-21 0-15 cm 4/3/98	OFF-22 0-15 cm 3/27/98	OFF-23 0-15 cm 4/3/98
Polyaromatic Hydrocarbons													
2-Methylnaphthalene	0 09 J	0 63 J	0 35 J	0 08	0.05	0 13 J	0.11 J	0 34 J	0 17	0 22 J	0 07 J	0 02 J	0 23
Acenaphthylene	0 01	0 08	0 22 J	0.04	0 02 J	0 05 J	0 06	0 20	0 06	0 02	0 03	0 01 J	0 11
Anthracene	0 03	0 24	0 20 J	0 02	0 01	0 04 J	0 05	0.14	0 04	0 09	0 02	0 00 J	0 15
Benzo(a)anthracene	0 03 J	0 18 J	0 18 J	0 03	0 02	0.03 J	0 04 J	0 11 J	0 05	0 05 J	0 02 J	0 01 J	0 09
Benzo(a)pyrene	0 03	0 30	0 24 J	0 05	0 02	0.05 J	0 07	0 20	0 07	0 05	0 04	0 01	0 16
Benzo(b,j,k)fluoranthene	0 02	0 17	0 15 J	0 03	0 02	0 03 J	0 04	0 14	0 04	0 04	0 02	0 00	0 10
Benzo(g,h,i)Perylene	0 02	0 16	0 15 J	0 04	0.02	0 04 J	0.05	0 18	0 04	0 03	0 03	0 01	0 14
Chrysene/triphenylene	0 02 J	0 20 J	0 15 J	0 04	0 02	0 03 J	0 04 J	0 13 J	0 06	0 06 J	0 03 J	0 01 J	0 11
Dibenzo(a,h)Anthracene	0 01 J	0 12 J	0 09 J	0 02	0 02	0 02 J	0 03 J	0 11 J	0 02	0 02 J	0 02 J	0 01 J	0 07
Fluoranthene	0.01 J	0 09	0 08 J	0 01 U	0 01 U	0 01 J	0 02 J	0 06	0 02	0 03	0 01 J	0 00 J	0 05
Fluorene	0 03	0 35	0 16 J	0 02	0 01	0 04 J	0.04 J	0 10	0 07	0 12	0 01	0 00	0 14
Indeno(1,2,3-cd)pyrene	0 02 J	0 14 J	0 11 J	0 03	0 02	0 03 J	0.04 J	0 14 J	0 03	0 03 J	0 02 J	0 01 J	0 09
Phenanthrene	0 02	0 19	0 11 J	0 01	0 01	0 02 J	0.02 J	0 07	0.02	0 06	0 01	0 00	0 06
Pyrene	0 02 J	0 21 J	0 18 J	0 02	0 01	0 04 J	0.04 J	0 13 J	0 04	0.05 J	0 02 J	0 00 J	0 10
Sum PAHs (6 High Molecular	0 02	0 19	0 16 J	0 03	0 01	0 03 J	0 04	0 12	0 04	0 05	0 02	0 00	0 09
Sum PAHs (7 Low Molecular	0 03	0 29	0 18 J	0 02	0 01	0 04 J	0 04	0.12	0 05	0 10	0 02	0 00 J	0 11
Sum PAHs (NOAA Status &T	0 02	0 20	0 16 J	0 03	0 02	0 03 J	0 04	0.13	0 04	0 05	0 02	0 01	0 10
Sum PRG_{HQ} (2)	0 4	3 7	2 9	0 5	0 3	0.7	0 8	2 4	0 8	1 1	0 4	0 1	1 9
Max PRG_{HQ} (2)	0 1	0 6	0 4	0 1	0 1	0 1	0 1	0 3	0 2	0 2	0 1	0 0	0 2
Max CoC (3)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Shaded cells are parameters with PRG_{HQ} that are greater than 1 0

1 - Source of PRG is presented in Table 10

2 - The values in this table are calculated using the following equation PRG_{HQ} = [SD]/PRG

Where PRG_{HQ} = Preliminary Remediation Goal Hazard Quotient

[SD] = Sediment Concentration (ug/kg or mg/kg)

PRG = Preliminary Remediation Goal (ug/kg or mg/kg)