



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
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August 26, 2004

Mark Evans, Remedial Project Manager
U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway
Code 1823, Mail Stop 82
Lester, PA 19113-2090

Re: Draft Thames River Validation Study Work Plan

Dear Mr. Evans:

EPA reviewed the *Draft Thames River Validation Study Naval Submarine Base - New London Groton, Connecticut Work Plan*, dated July 2004. Detailed comments are provided in Attachment A.

The results of the SERA identified several inorganic and organic COPC in sediments. According to the Validation Study Work Plan, the Baseline Ecological Risk Assessment (BERA) will be based on 22 sediment samples: six in Zone 4, six in Zone 7, four in the Outer Pier 1 area, and six reference sediment samples. Sediment at these locations will be analyzed for COPC identified in the SERA and will be used to conduct bioassays with *Leptocheirus plumulosus* as a surrogate for benthic invertebrates. The BERA will also incorporate 20 fish samples: five each in Zone 4, Zone 7, Outer Pier 1, and reference locations. The fish tissue data will be used in place of BSAF-calculated fish tissue concentrations to refine the food chain models for the cormorant. These efforts generally address the need for further evaluation in the BERA as identified in the SERA, with some exceptions detailed in the following comments. The Validation Study Work Plan is acceptable as a Work Plan for the BERA, pending satisfactory resolution of the following comments.

The sediment/bioassay locations at Outer Pier 1, Zone 4, and Zone 7 generally overlap with the areas previously sampled as part of the Pilot Study. While sample coverage appears to be adequate over the three areas, the locations with the highest contamination in Zone 4 may not be adequately represented. The highest concentrations of several COPC, as evident in the September 2003 Pilot Study and in the Battelle presentation "Thames River Naval Submarine Base - New London Ecological Screening Risk Assessment and Refinement Next Steps", dated November 2003, appear to be closer to shore, at previous sample locations Z4-33 and Z4-36. To capture the highest COPC contamination at Zone 4, it may be useful to reposition Z4-S2 and Z4-S3 closer to these previous sample locations.

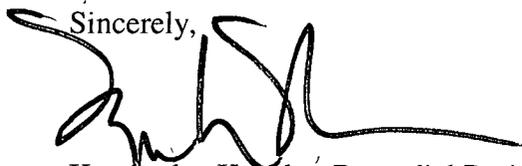
The list of COPC for Zones 4 and 7 and Pier 1 matches those identified in the SERA for nearly all cases. There are a few exceptions, however:

- According to Table D-14 (Appendix D), DDT is a COPC for benthic organisms in Zone 4. Table 2-1 lists DDE as a Zone 4 COPC, but not DDT.
- Table D-14 lists DDE and DDT as COPC, while Table 2-1 lists only DDT.
- Heptachlor is listed as a COPC for Pier 1 sediments, but is not included in Table 2-1.

In addition, PCB, DDE and DDT are bioaccumulative and should also be COPCs for piscivorous birds. Please review the COPC list and correct as necessary.

I look forward to working with you and the Connecticut Department of Environmental Protection to protect the Thames River. Please do not hesitate to contact me at (617) 918-1385 should you have any questions.

Sincerely,



Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Mark Lewis, CTDEP, Hartford, CT
Melissa Cokas, NSBNL, Groton, CT
Bart Hoskins, USEPA, Boston, MA
Jennifer Stump, Gannett Fleming, Harrisburg, PA

ATTACHMENT A

<u>Page</u>	<u>Comment</u>
p. 1, §1.1	The second bullet refers to an “ERA Step 3A COPC refinement, according to EPA (1997) guidelines.” While the proposed BERA follows the 1997 EPA guidelines, it should be noted that the term “Step 3A COPC refinement” is taken from the Navy Guidance for Conducting Ecological Risk Assessments.
p. 30, §3.3	This section presents dose modeling data interpretation. The text and equations are contradictory. The text specifies that forage fish tissue data will be collected and refers reader to modeling methodology presented in Appendix B. The equations presented include modeled fish concentrations. The field sampling program includes collection of fish so that chemical concentrations in fish can be used in the bird dose modeling. Food chain models for the double-crested cormorant will be based on measured site tissue concentrations, not modeled concentrations. The equations should be deleted from this section. Also the text indicates that biota-sediment accumulation factors will be derived. Such a derivation discussion is out of place in this text and should be deleted. The text is presenting interpretation of food chain modeling results. It is appropriate to refer the reader to the appendix for the modeling methodology. Please only discuss the interpretation of results in this section. Please describe how the results will be interpreted if the field sampling effort is unsuccessful and no fish tissue data are available for the modeling. It is not necessary to indicate in this section how the model would be different, only how the data interpretation would be different.
Appendix B	<p>The ecological risk problem formulation does not specify how the assessment was focused to only evaluate piscivorous bird risk from exposure to chromium, lead, mercury and zinc. The rationale for dismissal of evaluating risk from exposure to PCB and pesticides should be specified. Because of the propensity for bioaccumulation, it is unclear why PCB, DDE and DDT are contaminants of concern for benthic invertebrates but not for piscivorous birds. Although the screening level risk assessment modeling may support the dismissal, the dose model did not include actual fish tissue data. The focus of contaminants of concern needs to be included in the problem formulation. A well developed problem formulation is essential to the baseline ecological risk assessment.</p> <p>Section 3.3 text refers reader to modeling methodology presented in Appendix B. However, the equations and methodology are not fully presented in Appendix B. The exposure parameters are presented. The food chain model equations should be added to Appendix B.</p>

- Appendix C Please provide a reference to the EPA Region I Data Validation Functional Guidelines within the Draft Sampling and Analysis Plan (SAP). The text of Section C.5.1.2 indicates that the EPA data validation guidelines may not apply to the low-level data because the requirements of the methods may vary. EPA expects the data validation report to clearly indicate when the EPA (Region I or National Functional Guidelines) were not used for the evaluation of the analytical data and provide rationale for following other guidelines for the evaluation of the analytical data.
- p. C-39, § C.3.2.5 In the Draft Sampling and Analysis Plan, Fish Sample Collection, the collection of *Fundulus sp.* is proposed to provide fish tissue data to use in the food web models for the double crested cormorant. Please provide rationale for collecting these taxa of fish. Mummichogs and striped killifish are not bottom feeders, may not be exposed to bedded contaminated sediments, and therefore may not represent forage fish with the highest body burdens of site COPC. Are there local species of fish that may be more exposed to COPC in sediments in the deep areas around the piers? Will bottom feeders be kept if they are collected?
- p. C-46, §C.3.4.3.6 Please clarify how the AVS/SEM sample will be collected and indicate what depth interval of the sediment will be targeted for the AVS/SEM sample. The AVS/SEM sample should be collected separately from the bulk sediment sample, *i.e.*, before homogenization, to avoid contact with oxygen. In addition, the amount of sediment seeded for the analysis should also be provided.
- p. C-55, §C.5.1.2 The EPA National Functional Guidelines (NFG) have been updated. References to the NFGs and use of the appropriate NFG for evaluation of this data must be ensured. Please review the following web site and verify that the up-to-date and applicable guidelines are used in the evaluation of the data: <http://www.epa.gov/superfund/programs/clp/guidance.htm>. Region I, EPA-New England Data Validation Functional Guidelines should also be reviewed and incorporated into the SAP.
- p. C-63, Table C-3 This table appears to indicate that the fish samples will not be subjected to the same analysis. Mercury should be analyzed in each of the fish samples.
- p. C-68, Table C-11 Please verify the holding time for the equipment blank to be analyzed for mercury.
- Appendix D In Tables D-4, D-5, D-10, D-12, D-15 the max or 95% UCL EPCs are listed in the second column. Please correct the units to read “ug/Kg.”