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National Ocean Service
Office of Response and Restoration
c/o EPA Office of Site Remediation and Restoration (HIO)
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Dear Meghan and Fred:

Thank-you for the Preliminary Remediation Goals for Operable Unit 4, Portsmouth Naval Shipyard, Kittery, Maine, prepared by Tetra Tech NUS, Inc., November 2000. In the past NOAA has supported this quantitative method to develop PRGs. We still do. However, it appears that this document leaves out some important detail to make the jump from an aquatic PRG to a sediment PRG. In addition, as also described below, we have questions concerning the step to create the No Observable Effects Quotient. Lastly, there were more than the usual number of typos that caused the reader problems in comprehending sections of the document. Questions/comments are numbered below.

1. Section 2.2 Aquatic PRG Derivation, Page 6. The EqP model equation is incorrect. The sediment and pore water should be reversed.

2. Section 2.2 Aquatic PRG Derivation, Page 7-8. The ER-L is incorrectly defined. It does not represent the sediment concentration below which no adverse effect is expected 90% of the time. The ER-L is the 10th percentile of the effects concentration for a specific chemical. Toxicity may occur below this concentration but is not expected. In fact, Long and others have consistently defined the ER-L as a concentration below which adverse effects upon sediment-dwelling fauna would be expected only infrequently; no percentages are provided.

3. Section 3.3.1 Baseline PRG Evaluation, Total PCBs, Page 19. The NOAA ER-M is 180 ng/g not 9600 ng/g. Nevertheless, the baseline PRG for total PCBs of 409 ng/g is above the NOAA ER-M.

4. According to Table 2.2-2, Summary of toxicity testing results, the toxic samples found from the amphipod survival test and the sea urchin developmental test are different

except for station 13-1. An explanation of why this may have occurred is not provided although it is stated that sea urchins are considered more sensitive than amphipod tests (Page 8). Hence, one would have expected that those other stations found toxic in the amphipod test (4-1, 4-3, 8-3, and 9-1) would also show toxicity in the sea urchin larval development test.

5. As discussed in Part 3 of Section 2.2 (Page 10) and shown in Table 2.2-3, the maximum porewater hazard quotient is used to determine if the toxic sample is above the nontoxic or test NOEQ. Granted, if below 1 it should be eliminated, but if above 1 then the minimum pore water hazard quotient should be used. In this way, a nontoxic test NOEQ much greater than 1 is not used because of an even greater maximum pore water hazard quotient. This of course means using the lowest concentration that shows a toxic effect rather than the highest concentration that does not show an effect; but that is appropriate because a test (nontoxic) NOEQ (pore water concentration over the NOEC for a non toxic sample) much greater than 1 implies no toxicity resulting from the chemical of concern where toxicity may actually exist at much lower concentrations elsewhere.

6. Does using the above argument, that a minimum pore water hazard quotient should be used, change the nickel or total PAH aquatic TEV value as shown on Table 2.2-5?

7. Table 2.2-5, Derivation of TEVs for the aquatic exposure pathway is clear but Table 2.2-6, Summary of baseline PRGs, is not. How do you get from the aquatic TEV in Table 2.2-5 to the sediment concentration-based PRGs of Table 2.2-6? As shown in Section 3.1 the unknown PRG is calculated by dividing sediment concentration by the TEV-HQ; but only the latter is known.

8. The copper at Station MS-4.1 is clearly a problem as shown by the PRG-HQ of 6.47 and a PRG of 546 mg/kg. Is there a seep at this location? When comparing Figures 3.3-1 with 3.3-2 (the second one!) Station 4.1 exceeds >2 PRG-HQ Maximum but it is displayed as exceeding only 1-2 PRG-HQ Maximum.

Please let me know if you have any questions.

Sincerely,

Kenneth Finkelstein, Ph.D.

cc: Patti Tyler (EPA)
Ken Munney (USF&WS)
Iver McLeod (MEDEP)