



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

May 10, 1995

Commanding Officer  
Attn: Code 1823/LT Conroy  
NORTHNAVFACENGCOM  
10 Industrial Hwy., MSC. 82  
Lester, PA 19113-2090

Dear Lt. Conroy:

As discussed in our meeting with the Navy on April 11, 1995, the United States Environmental Protection Agency (EPA) is providing the following information with regard to the Media Protection Standard (MPS) approach for the Portsmouth Naval Shipyard (PNS). The following information relates to specific issues raised in the above-mentioned meeting.

1. Extrapolating from lead in fish tissue to lead in sediment (protection standard)

A review of the risk assessment results - specifically, the predicted children's blood lead levels resulting from ingestion of flounder, lobster, and mussels - indicates that human health based MPSS may not be needed for lead. Using lead concentrations in lobster and flounder tissue, and site-specific and default parameters, the IEUBK model predicted that over 95 percent of a population would have blood lead levels below the target of 10 ug/dL. Therefore, consumption of these species are not likely to pose a risk to children. In a population of children consuming mussels (at an average intake rate of 10% of their meat intake), the model predicted that 94 percent would have blood lead levels below 10 ug/dL. This is just below the target of maintaining 10 ug/dL or lower blood lead levels in 95 percent of the population.

For "subsistence" mussel consumers, the IEUBK model indicates that lead levels would pose a health hazard (only 55% of the population was predicted to have blood lead levels below the target of 10 ug/dL). This scenario is highly unlikely given that it assumes that mussels comprise 50% of the meat diet for children ages 0-7.



When a weighted average intake (lobster + flounder + mussels) was assumed for children, the model indicated that blood lead levels would not exceed the target of 10 ug/dL in over 95 % of a population of average fish consumers. For children whose meat diet consists of 50% fish, the predicted blood lead levels were below 10 ug/dl in approximately 93% of the population. This is just below the target EPA considers protective of children populations. Whether this should trigger the need for developing cleanup levels is a risk management decision.

It is more likely that adults rather than children would be subsistence fish consumers. To estimate potential risks to adult receptors, EPA used an interim method (Bowers model) for estimating blood lead levels in adults. At average and maximum fish tissue concentrations and at high end consumption rates, blood lead levels are predicted at less than 10 ug/dL, i.e., below a level of concern.

Therefore, based on the human health risk evaluations, a cleanup level for lead in sediment is not needed. It is important to note, however, that the ecological risk assessment most likely will trigger the need for cleanup levels for lead in sediment.

## 2. Arsenic

Region I does not adjust total arsenic concentrations to account for organic and inorganic forms. Risk assessments should incorporate total arsenic concentrations in conjunction with the toxicity criteria for arsenic. Unless arsenic speciation is conducted on fish tissue samples, total arsenic is assumed.

## 3. Percent lipid content in fish tissue

Region I has no general default values for percent lipid in fish tissue. This parameter should be determined based on the fish species collected at off-shore locations (i.e., flounder, lobster, and mussels).

## 4. Fish consumption rates (Table 2)

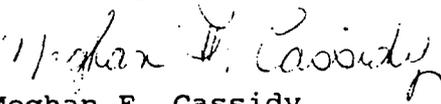
It should be noted that the Region I values for central tendency fish consumption rates are 9.5 g/day for saltwater fish and 3.0 g/day for shellfish. Previously the risk assessment for seafood consumption used average consumption rates of 32.4 g/day, as specified by the State. EPA does not object to the using the state value in lieu of the Region's default values. However, please clarify which value the Navy proposing for this exercise.

5. Equations

For completeness, the equations for MPS-water should include the unit conversion factor for kg to liter.

Should you have any additional questions regarding the above-referenced information please contact me at (617)573-5785 or Jayne Michaud at (617)223-5583.

Sincerely,

  
Meghan F. Cassidy  
Remedial Project Manager

cc: Nancy Beardsley/ME DEP  
Patty Whittemore/EPA  
Jayne Michaud/EPA