

N00102.AR.002353
NSY PORTSMOUTH
5090.3a

LETTER REGARDING SEACOAST ANTI-POLLUTION LEAGUE REVIEW COMMENTS ON
THE HUMAN HEALTH RISK SCREENING LEVELS FOR INTERTIDAL WATER AND
SEDIMENT NSY PORTSMOUTH ME
10/29/2002
LEPAGE ENVIRONMENTAL SERVICES

Lepage Environmental Services, Inc.

P. O. Box 1195 • Auburn, Maine 04211-1195 • 207-777-1049 • Fax: 207-777-1370

October 29, 2002

Portsmouth Naval Shipyard
Code 106.3R, Bldg. 44
Attn: Ms. Marty Raymond
Portsmouth, New Hampshire 03804-5000

Subject: *October 2002 Technical Memorandum, Development of Facility-Specific Human Health Risk Screening Levels for Intertidal Surface Water and Sediment*

Dear Ms. Raymond:

We are transmitting comments on behalf of the Seacoast Anti-Pollution League (SAPL) regarding the October 2002 *Technical Memorandum, Development of Facility-Specific Human Health Risk Screening Levels for Intertidal Surface Water and Sediment*. The following comments incorporate input from Dr. David R. Brown and James Horrigan:

1. General Concerns. SAPL has strong reservations about the development and application of generic screening criteria as described in the Technical Memorandum. SAPL believes that each site should be evaluated with specific criteria and OU4 data on a case-by-case basis at the appropriate times. Promulgating a list of generic data at this time might exclude critical parameters which should be considered in light of future developments at those various sites.

The timing of this Memorandum is questionable. The timeframes for completing remedial measures and for site-specific investigations stretches out over several years. Construction of the OU3 landfill cap, which assumedly will affect the flows and concentrations of contaminant in OU3 seeps, is not scheduled to be completed until 2005. The design of the remedial investigation of Sites 10 and 32 are only now being completed. The site screening of Site 34 hasn't even begun.

Furthermore, the shoreline characteristics of the various sites are so different. For example, human health concerns would presumably vary between Site 10 with its river wall and Site 32 with its extensive mudflats. The diverse shoreline surrounding OU2 would present similar problems. Even if the process set out in the Technical Memorandum is executed successfully, the screening criteria developed would still have to be revisited to ensure that important parameters have not been omitted and screening levels are appropriate.

In light of its concerns, SAPL believes that the rationale and purposes of developing generic criteria requires an explanation. If the Navy chooses to develop generic screening criteria at this time, SAPL insists that provision must be made for those criteria to be reconsidered in the future

October 29, 2002

Technical Memorandum, Facility Human Health Screening Criteria

when site-specific risks are evaluated. In that event, the Technical Memorandum would have to be revised to spell out clearly how those reconsiderations would be accomplished as site investigations and remedial actions unfold.

2. Frequency of Exposure. The Navy proposes an exposure frequency of 26 days per year based on the assumption that a receptor may visit the shoreline an average of 2 days per week over the course of the summer (June, July, and August). This exposure scenario was actually developed in response to comments on the Navy's proposed *Exposure Assumptions for Evaluation of Child Exposure to Dioxin-like PCBs in Surface Water*, dated January 29, 2002, for the OU6 Human Health Risk Evaluation. Both SAPL and the MEDEP, in letters dated February 8, 2002, suggested increasing the frequency of exposure to 2 days a week over the course of the summer, and increasing the event duration from 1 hour to 4 hours. While SAPL cannot speak for MEDEP, SAPL's February 2002 comments were intended to be specific to OU6, not for facility-wide exposure assumptions. SAPL is concerned that the frequency it suggested for just one site is being used for a different, more far-reaching purpose without qualification. SAPL also notes that near the bottom of page 3, the receptor is assumed to "live in close proximity to PNS...", while at the bottom of page 1, the resident is assumed to be "living in proximity to or on PNS...". The text on page 3 should be corrected to reflect the worse case for potential exposure - that of a resident living in the Shipyard.

With regard to development of facility-wide screening criteria, SAPL believes that the exposure assumption should consider that a resident child could have daily access to the entire shore, not just OU6, from late spring to early fall.

3. Nature of Shoreline. Throughout the Technical Memorandum, the Navy emphasizes the rocky nature of the shoreline as the reason that human exposure to surface water and sediment would be infrequent. It assumes further that children would not access those areas. SAPL disagrees with those premises. Not all of the shipyard shoreline is rocky, nor do all the rocky sections pose barriers to access. Indeed, RAB members had no trouble walking along the Site 32 shoreline on a recent site tour. Humans are drawn naturally to shorelines, whatever be their geologic nature.

In regard to children, neither the Navy nor anyone else, for that matter, can predict their behavior. Risk assessments on their behalf should be performed with utmost caution and concern. Any evaluation of shoreline human health risks should be based on an assumption that children in particular will be attracted to the accessible sites. In that regard, participants in a site tour last year witnessed children playing on the shore in the vicinity of OU3, at a time when presumably few children would have had access to shipyard property. For the long run, the only reasonable assumption is that children will enjoy exploring the accessible shoreline sites, as well they should.

In general, if the screening levels are intended to be very conservative, as claimed in the Technical Memorandum, then the "worst-case" scenario should be assumed for human exposure, especially for children. Assumptions that rocky shorelines create impenetrable access barriers should be dropped from the analysis.

4. Very Young Children. The Technical Memorandum states on page 2 that the "... to 3 year old child was not included in the risk assessment because young children would not play in seeps or sediment since the shore is rocky and not safe for children." SAPL strongly takes issue with that statement. SAPL will never assent to any risk assessment that excludes very young children.

As was pointed out above, the statement is not even accurate. The physical characteristics of the shoreline vary from one site to another. Certain sites would provide very easy access to children along the Back Channel and in Jamaica and Clark's Coves. Also, in residential scenarios, children could well be carried to other less accessible areas as well.

But more importantly, very young children do not share an adult's perception of risks and safety. Given the opportunity, they will play in the sediment of seeps, since there is ample evidence that children love to play in mud. Therefore, the implicit sociological and behavioral assumptions, such as the bullet at the bottom of page 9, should be discarded entirely. The Navy should engage in extremely conservative modeling when the human health of very young children is the concern.

5. Calculated Screening Levels. Why were the 1 ug/L or 1 mg/kg concentrations for chemicals in surface water or sediment used to calculate risk estimates? An explanation should be added to the bottom of page 6.

6. Uncertainty and Overestimation of Risk. The first bullet on Section 4 on page 7 opens with the statement that there no published data available regarding the appropriate exposure assumptions to intertidal surface waters and sediments for rocky shorelines such as those existing at PNS. SAPL finds this confusing. Did the Navy assume that all the shoreline is rocky? Is there published data regarding exposure to sediment and surface water in a tidal flat environment rather than a rocky shore environment? Is there data to support a wading (in the seeps) rather than a swimming scenario? For the reasons outlined in this comment letter, SAPL takes issue with the statement at the end of the first bullet on page 7 that COPC selection using the screening levels will likely overestimate the potential for risk.

7. Uncertainty Regarding Dermal Risk. The first full bullet on page 8 states that the USEPA model used assumes that the receptor is in constant contact with the water source [why isn't sediment also considered?] for the time of the event, and that given the nature of the seeps, a receptor is not likely to be in constant contact with the seeps. The bullet goes on to discuss the uncertainties for a number specific compounds in surface water and recommends comparing dermal screening levels with ingestion criteria. A large difference between dermal and ingestion

criteria where the dermal levels are considerably lower can indicate an over-prediction of chemical absorption by the EPA model. A comparison is presented in the table on page 8. SAPL believes that it is important for the narrative below the table to note that the calculated dermal screening levels are the same order of magnitude as the USEPA Region 9 Tap-water PRGs. If the dermal contact numbers are similar to at least one of the criteria used for comparison, what is the basis for saying that the COPC selection and risk estimation for dermal screening levels should be considered highly uncertain? What is the significance of the Facility-Specific Screening Level Ingestion Route values being two orders of magnitude greater than the Region 9 PRGs and an order of magnitude greater than the Safe Drinking Water Act MCLs? Why is it acceptable for the Facility-Specific Screening Level Ingestion Route values to be 2 orders of magnitude greater than the Region 9 PRGs and one order of magnitude greater than the MCLs? Further explanation is needed.

8. Recommended Screening Levels. The Navy recommends that only the ingestion screening levels be used to select COPCs for PCBs, PAHs, TCDD, and DDT (and by-products). SAPL understands that there are uncertainties associated with some of the dermal screening levels. However, dermal contact, rather than ingestion, is the more likely scenario for repetitive exposure to contaminants in seeps. Furthermore, the Facility-Specific Screening Level Ingestion Route values were consistently the highest (by 1-2 orders of magnitude) of the criteria presented in the table on page 8. If the screening criteria are intended to be very conservative, it does not seem reasonable to select the highest (and presumably least conservative) criteria considered. The Technical Memorandum does not make the case to use the highest criteria and to ignore dermal contact altogether. And as stated in Comment Number 1, above, SAPL is very concerned that the development and acceptance of generic criteria now will exclude parameters from consideration in site-specific risk assessments at some future date. SAPL is also concerned that the risks associated with a/the primary route of exposure will not be considered in the future as well.

If you have any questions regarding the comments above, please give me a call at 207-777-1049.

Sincerely,



Carolyn A. Lepage, C.G.
President

cc: Jim Horrigan, Seacoast Anti-Pollution League
Iver McLeod, Maine Department of Environmental Protection
Mike Barry, US Environmental Protection Agency
David R. Brown, Sc.D.