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LETTER AND COMMENTS ON BEHALF OF SEACOAST ANTI POLLUTION LEAGUE
REGARDING REVISED OPERABLE UNIT 2 (OU 2) RISK ASSESSMENT NSY PORTSMOUTH
ME
6/15/2000
LEPAGE ENVIRONMENTAL SERVICES

Lepage Environmental Services, Inc.

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June 15, 2000

Johanna Lyons

Seacoast Anti-Pollution League

P. O. Box 1136

Portsmouth, New Hampshire 03802

Subject: Review of the March 2000 *Revised OU2 Risk Assessment*

Dear Ms. Lyons:

We are transmitting comments to the Seacoast Anti-Pollution League (SAPL) on the March 2000 *Revised OU2 Risk Assessment*. Dr. David Brown's comments on the document are also enclosed.

1. Page ES-1, EXECUTIVE SUMMARY. The reference for the updated risk assessment guidance mentioned in the second paragraph (and elsewhere in the text) should be cited and added to the reference list.

2. Page ES-1, EXECUTIVE SUMMARY. The third paragraph should be amended to clarify that this risk assessment focuses on onshore areas; that human health risks in offshore areas were evaluated in the May 1994 *Final Human Health Risk Assessment Report for Off-shore Media*; and that potential offshore impacts are being monitored as part of the on-going OU4 monitoring program. This information should also be added to the discussion of the scope of this document on page 1-1.

3. Page ES-2, EXECUTIVE SUMMARY. The depth ranges for surface soil samples collected at the DRMO Impact Area are not presented consistently throughout the document. The first footnote on the table at the top of page ES-2 states that soil samples were evaluated for two depth ranges: 0 to 1 feet and 0 to 2 feet. The text on page 2-7 states that the maximum depth of soil samples collected at the DRMO Impact Area is 34 inches; while the text on page 2-10 states that surface soils of 0 to 12 inches were evaluated as part of the 1994 on-shore human health risk assessment. Tables 3-5 and 3-6, and the text on pages 3-9 and 3-10 present data for 0-1' and >1' intervals. Also, the bullet at the bottom of page ES-6 states that risks from surface and subsurface soils are within the USEPA target risk range. Additional information and/or editing is needed to prevent the reader from being confused.

4. **Page ES-5, Site 29.** As we stated in our comment letter dated May 10, 2000 regarding the responses to comments on the *Draft Final Field Investigation Report for Site 10 and Site 29*, we do not believe that the vertical and horizontal extent of contamination at Site 29 have been adequately defined. The range of contaminant concentrations, particularly maximum values, also needs to be refined. Without additional investigation to adequately characterize the site, it is likely that risks are being underestimated at Site 29.

5. **Page ES-5, Site 29.** What is the basis for the statement near the bottom of the page that risk estimates for military residents located in the general vicinity of Site 29 are anticipated not to exceed the USEPA target risk range? What about the State of Maine risk guideline?

6. **Page ES-6, Site 29.** The risk assessment document contains numerous references to and comparisons with facility background data. As we have stated in a number of previous comment letters (see our April 26, 2000 letter regarding the *Draft Final Facility Background Development*, for example), the issue of what constitutes representative background conditions for the Shipyard as a whole and for individual sites is still unresolved and we continue to have concerns with the interpretation and application of background values. We do not believe that the Navy is able to differentiate "background" contamination from site-related contamination. As the MEDEP points out in their comment letter dated May 15, 2000, "facility background" should not be considered the same as "local anthropogenic background" contaminant conditions without confirmatory data, particularly for substances such as DDT that are not naturally occurring. In our November 19, 1999, letter on the *Technical Memorandum for the Human Health Risk Assessment Protocol for OU2*, we commented on the Navy's proposal to eliminate inorganic compounds on the basis of background levels, even though the most recent USEPA guidance states that background levels should not be used to eliminate any COPC from the evaluation process. As the USEPA stated in their May 9, 2000, comment letter, if chemicals are eliminated based on background studies, the total site risk will be underestimated by the risk assessment, and that uncertainty associated with the background study should be discussed.

7. **Page ES-7, DRMO Impact Area.** The final paragraph on the page summarizes risks associated with the DRMO Impact Area. Do the risks presented consider the additional potential risks should the soils, including subsurface soils, at the DRMO be disturbed?

8. **Page 2-5, Section 2.2.1 Site 6 - DRMO.** The last paragraph in the section should be revised to include information regarding the sampling the Navy conducted in 1999 after discovering the soil erosion problem along the DRMO shoreline. The reference for the 1999 sampling results should also be added to the reference list. In addition, the text should state that potential offshore impacts have been evaluated as part of previous risk assessment efforts (with the appropriate documents cited) and will continue to be evaluated as part of the on-going OU4 monitoring.

9. **Page 2-7, Section 2.2.3 DRMO Impact Area - Quarters S, N, and 68.** The first paragraph in the section states that the DRMO Impact Area was identified as potentially being impacted by wind dispersion of contaminants from the DRMO. The reference that supplies the basis for this statement should be cited in the text and should be added to the reference list.

10. **Page 2-8, Section 2.2.4 OU2 Physical Characteristics.** The last sentence in the second paragraph on the page states that historical photographs of the site indicate a retaining wall separates the fill material along the shoreline from the river. The text should be revised to clarify what is being separated by the retaining wall. In addition, what is the (approximate) timeframe for the installation of the retaining wall?

11. **Page 2-10, Section 2.251 Previous Human Health Risk Assessment Summary.** The last paragraph on the page should also address how cumulative carcinogenic risks compared with the State of Maine risk guidelines.

12. **Page 2-11, Section 2.251 Previous Human Health Risk Assessment Summary.** The discussion of risks posed by dioxins/furans at Site 29 should state how risks compared with State of Maine risk guidelines. In addition, the DRMO is located immediately adjacent to the Teepee Incinerator (Site 29), and the DRMO Impact Area is located nearby. Have the potential risks posed by windblown deposition from Site 29 been evaluated at the other two sites?

13. **Page 3-1, Section 3.1 SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE (DRMO).** The last sentence states that the locations of surface soil samples collected in 1999 are shown on Figure 2-3. The text should refer to Figure 2-4 instead. However, it is not clear which of the soil sampling locations shown on Figure 2-4 are the 1999 sampling locations. The sampling designation for the 1999 soil samples should be added to the text in this section, and the legend on Figure 2-4 should be amended to indicate the 1999 surface soil sampling locations (as opposed to the soil boring symbol). In addition, the term "decaying cap" requires additional explanation. Earlier text describes the shoreline erosion problems and emergency remedial action. Does "decaying cap" mean that inland portions of the cap are also deteriorating?

14. **Page 3-1, Section 3.1.1 Surface Soils at Site 6.** The text states that acetone and methylene chloride are common laboratory contaminants and are not likely to be site-related. Do the laboratory blanks demonstrate that this is indeed the case? If so, this information should be added to the text. If not, it is not appropriate to dismiss the contaminants in this manner. This comment also applies to other parts of the text (see pages 3-5, 3-6, 3-11 and 4-1, for example) where compounds are identified as common laboratory contaminants, and therefore, not site-related.

June 15, 2000

Revised OU2 Risk Assessment

15. Page 3-2, Section 3.1.1 Surface Soils at Site 6. "One surface soil sample, SS-02, had a lead concentration of 12,100 mg/kg. However, Building 348 has since been built at or near this sample location." What is the significance of Building 348 being built at or near the location of the elevated lead concentration? Was the contaminated soil covered over, removed, or disturbed? If the soil was disturbed, what is the potential impact for contaminant migration at this and nearby sites? If the soil was removed, where was the soil disposed?

16. Pages 3-4 & 3-5, Section 3.2 SITE 29 - TEEPEE INCINERATOR. The text on page 3-4 states that soil boring TPI-SB03 is outside the ash disposal area, while the text on page 3-5 states that analytical data indicate that the ash disposal area extends at least to this soil boring location. The text must be revised to clear up this confusion.

17. Page 3-9, Section 3.3.1 DRMO Impact Area - 0 to 1 Foot bgs. As the Maine Department of Environmental Protection points out in their comment number 6 (dated 5/15/00), the extent of contamination by DDT and its metabolites DDE and DDD should be described for the individual compounds and collectively, as the sum of concentrations.

18. Pages 5-3 & 5-4, Section 5.1.1.1 Data Usability. We have noted in our comments on previous documents (the *Interim Offshore Monitoring Plan* and the *Site Screening Report for Sites 30, 31, and 32*, for example), that the frequency of detection for a compound may be underestimated if numerical detection limits are elevated. This would lead to the potential underestimation of the number of times action levels or other criteria are exceeded, and result in underestimation of risk. Therefore, we appreciate the Navy evaluating analytical detection limits by comparing detection limits to the screening criteria, as stated at the bottom of page 5-3. The text at the top of page 5-4 implies that detection limits for PAHs were the only ones to exceed screening criteria. How did detection limits for other compounds compare with screening criteria?

19. Page 5-14, Section 5.1.2.5 Exposure Point Concentrations. The text states that duplicates were averaged for purposes of calculating the EPC (exposure point concentration) for groundwater and soil. Why weren't the greater of the duplicate results used?

20. Page 5-17, Section 5.1.2.6.1 Incidental Ingestion of Soil. The scenario described in this section and the following section should also take into account disturbance of subsurface soils (such as with the construction of a foundation) that would bring these soils to the surface, allowing receptors other than construction workers to be potentially exposed.

21. Pages 5-25 through 5-34, Section 5.1.5. Uncertainty Analysis. We appreciate the discussion of the uncertainties affecting the OU2 risk assessment. As we pointed out in comment 4, above, we believe additional investigation is necessary to adequately characterize Site 29. In the meantime, the uncertainty regarding the extent of contamination at Site 29 and

Page 5 of 5, J. Lyons

June 15, 2000

Revised OU2 Risk Assessment

the resulting impact on the assessment of site risks should be added to the discussion in this section. This comment also applies to Section 5.3.4, which discusses the uncertainties specific to the risk assessment for Site 29.

22. Page 5-28, Section 5.1.5.1 Uncertainty in Selection of COPCs. We agree with the USEPA's comment number 14 (dated 5/9/00) that if chemicals are eliminated based on background data, then the risk assessment will underestimate the total site risk. Discussion of the uncertainty associated with the background study and the application of background data should be added to the report.

23. Page 5-41, Section 5.2.3.1 Quantitative Risk Estimates - RME Evaluation - Site 6. We note that "acceptable" risk range should be changed to "target" risk range here and elsewhere in the text, based on the USEPA's comment number 20 (dated 5/9/00).

22. Page 6-1, Section 6.1.1 Revised Human Health Risk Assessment. We agree that potential risks associated with inhalation exposures under the current land use are likely to be minimal. However, if soils are disturbed, the potential risks could be significantly greater.

23. Page 6-3, Section 6.1.1 Revised Human Health Risk Assessment. Given the proximity of Site 29, another potential source of PAHs found at Site 6 is the Teepee Incinerator.

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



Enc.

cc: Iver McLeod, Department of Environmental Protection
Meghan Cassidy, Environmental Protection Agency
David Brown, Sc.D.
Marty Raymond, Portsmouth Naval Shipyard

May 8, 2000

To: Carolyn A. Lepage, C.G.
Lepage Environmental Services, Inc.

From: David R. Brown ScD.

Subject: Comments on the Revised OU2 Risk Assessment
Portsmouth Naval Shipyard, Kittery, Maine, March 2000

Dear Ms. Lepage

I have reviewed the Revised OU2 Risk Assessment as requested. The objective of the Assessment is to calculate and to evaluate the human health risks for OU2 incorporating the updated risk assessment methodology and the new data since 1994. Compared with the conclusions of the 1994 risk assessment the March 2000 risk assessment identified a broader and different group of risks.

This evaluation follows the process outlined in the December 1999 Technical Memorandum for Recommended Human Health Risk Assessment Protocol for Operational Unit 2 (OU2). There are three components to the risk assessment, 1) selection of chemicals of potential concern, 2) calculation of exposure point concentrations and 4) calculation and evaluation of the risks.

Dermal contact with ground water pathway was evaluated in the 1999 but not the 1994 risk assessment. The groundwater path way is a contributor to the Construction worker risk for non-cancer actions but not for the cancer risks due to the limited times of exposures.

The actual calculated risks for several pathways changes when more recent data is included. The primary cancer risk drivers in the 1999 risk assessment are PAHs, Arochlor 1254, and Arsenic for site 6, PAHs, dioxins/furans and Arsenic for site 29 and Arsenic for DRMO. These risks are characterized as exceeding State of Maine guidance but not EPA guidance all populations except the future residents. In the case of future residents both the EPA and State of Maine Guidance is exceeded.

The interpretation of cumulative risk is affected by the separation of the OU2 site into three parts. It does not appear that combining the sites would have a significant impact on the overall risk levels, however.

With respect to non-cancer risk, Arochlor 1254 and antimony are the identified risk drivers in the 1994 risk assessment. It is noted that mercury is a risk driver in the 1994 risk assessment but is not mentioned in discussions in the 1999 risk assessment. How was the mercury risk evaluated?

The lead risks found are unacceptable in site 6 and site 29.

The overall conclusions for the three areas indicate a low level of risk with some need for action in specific cases such as lead. None of the non-cancer or the cancer risks are characterized as high concern at the three sites. The comparison with background and limited opportunity for exposures of long durations are used to illustrate the low level of hazard.

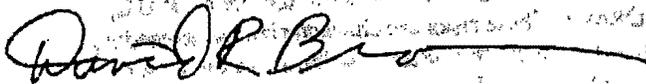
Comments and questions:

1. There are contaminants at the sites with both acute and chronic toxic actions but the limited opportunity for exposures reduces the potential for exposures. This appears to be a condition unique to the Shipyard site. In the interpretation of the risk assessment should include discussion of the mercury and other metals over the SSL.

2. Page 6-3 paragraph 5 cites work by Jones et al. 1998. Is it proposed that the contaminants at site 6 are due to background and thus not site related?
3. The IUBK model for lead is designed to identify public health actions needed when children are exposed to a contaminated environment. While IUBK can be used as an indicator of a problem with lead, it should not be interpreted as a safe level of lead at a contaminated site when 5% of exposed can have an elevated lead level.
4. State of Maine criteria for cancer should direct the remediation considerations even when the EPA criteria are not exceeded.
5. There is a question of the extent of the contamination at the former Teepee incinerator area. How did the extent of the contamination affect the interpretation of the dioxin/furan risks? Would this be characterized a low level of hazard?
6. What are the durations of exposure used for calculation of the HIs at site 29? What are the durations of exposure used to calculate the cancer risks, 1 year or 70 years?
7. The toxicological profiles are only referenced as to bibliographic source not with respect to each chemical. How did these profiles affect the interpretation of the risk?
8. It is noted that the mercury risks are not highlighted in the risk assessment but mercury has been a problem at the site. Is there a change in the status of the mercury exposures?
9. Although the exposures and risks tend to be characterized as low and justified by the comparison with background in an industrial area, it is noted that there are human health risks from these exposures? Such risks should be addressed by remediation activities.
10. In the current form the risk assessment presents a complex discussion of risks and the potential for human health impacts. It requires a concise summary which is understood by the typical reader. This should clearly explain the limitations of the risk assessment and the fact that risks off of the site are not considered.

In summary, this risk assessment provides detailed analysis of the risks for different pathways and for different exposure groups. It is an improvement over the 1994 Risk Assessment in that a broader group of hazards are evaluated. The report should assist in the evaluation and determination of the remedial alternatives. Thank you for this opportunity to read the documents.

Sincerely



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