N00102.AR.002120
NSY PORTSMOUTH
5090.3a

LETTER AND COMMENTS ON BEHALF OF SEACOAST ANTI POLLUTION LEAGUE REGARDING DRAFT FEASIBILITY STUDY REPORT FOR OPERABLE UNIT 3 (OU 3) NSY PORTSMOUTH ME

12/22/1999

LEPAGE ENVIRONMENTAL SERVICES

Lepage Environmental Services, Inc.

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

December 22, 1999

Johanna Lyons
Seacoast Anti-Pollution League
P. O. Box 1136
Portsmouth, New Hampshire 03802

Subject: Review of the October 1999 *Draft Feasibility Study Report for Operable Unit 3*

Dear Ms. Lyons:

We are transmitting comments on the October 1999 *Draft Feasibility Study Report for Operable Unit 3* to the Seacoast Anti-Pollution League (SAPL). Operable Unit 3 (OU3) consists of Site 8 (the Jamaica Island Landfill (JILF)), the Jamaica Island Landfill Impact Area, Site 9 (Mercury Burial Sites (MBI and MBII)), and Site 11 (the former Waste Oil Tanks Nos. 6 & 7). The *Feasibility Study Report* (FS) summarizes background information and describes the evaluation of remedial alternatives to address contamination at OU3. Our comments on the FS are as follows.

1. Page ES-2, Media of Concern. "*The media of concern at OU3 is limited to the onshore soils and groundwater. Offshore media located in the vicinity of OU3 are being addressed as part of OU4 (offshore areas of concern at PNS)*" As we have pointed out in our comments on a number of other documents, "compartmentalizing" contamination, associated risks, and resulting remedial actions into on-shore and offshore categories has the effect of underestimating risk and selecting a remedial measure that will be inadequate to address the problem. Clearly the offshore area adjacent to the Shipyard has been adversely affected by contaminants emanating from various sites. Concentrations of contaminants in seeps associated with OU3 clearly show on-shore contamination migrating to the offshore environment. Therefore, we take issue with the statement quoted above. The media of concern, when evaluating remedial alternatives at OU3, should include those offshore media adversely affected by contaminant migration. In addition, remedial measures considered for OU3 must address not only onshore soils and groundwater, but also migration of contaminants to the offshore areas.

2. Page ES-2, Media of Concern. The last two sentences in the section touch upon additional soil sampling and possible remedial measures at the JILF Impact Area that would be separate from the OU3 FS. Given the limited area involved for additional characterization and possible remediation, why isn't the Navy taking action now?

3. Page ES-3, RAOs. With regard to the third Remedial Action Objective (RAO) listed, erosion of soil and/or waste from the entire landfill, not just from the edge, should be a consideration. In addition, the RAO should mention the adverse impact to be avoided. We suggest the following: "Prevent erosion of contaminated soils and/or waste from the landfill to the Piscataqua River or the Back Channel to prevent adverse impact to the offshore environment."

4. Page ES-3, DEVELOPMENT AND SCREENING OF ALTERNATIVES. The assessment of Alternative 2: Institutional Controls and Erosion Controls states it was developed to provide minimal action to meet all the RAOs. However, because this alternative does nothing to prevent migration of groundwater contaminants to the offshore environment, it does not meet the fourth RAO listed in the previous section.

5. Page ES-5, DETAILED ANALYSIS OF ALTERNATIVES. The section ends with the statement that the U.S. EPA, Maine Department of Environmental Protection (MEDEP), Natural Resource Trustees, and Restoration Advisory Board (RAB) will review and comment on draft and draft final documents produced by the Navy, and following this, the remedial plan is finalized. The text should be revised to reflect that the Navy must respond to and address comments before the remedial plan is finalized.

6. Table ES-1. The table indicates that Alternatives 2 (Institutional Controls and Erosion Controls) and 3 (Non-hazardous Waste Cover, Institutional Controls, and Erosion Controls) comply with ARARs. However, it is our understanding that the State of Maine Hazardous Waste Management Rules are an ARAR for OU3, and a cover or cap meeting the requirements of these rules will be necessary. Therefore, Table ES-1 should be corrected to indicate that Alternatives 2 and 3 do not comply with ARARs.

7. Page 1-6, Section 1.4.2.2 Site 9 - Mercury Burial Sites I and II (MBI and MBII). The first sentence in the third paragraph states that the poured concrete blocks and concrete pipe at MBI were encountered at approximately 7.5 feet below the ground surface (bgs). However, information in other reports, such as the *RFI Data Gap Report*, indicate the depth of the excavation at MBI was on the order of 16 to 17 feet bgs. This point requires clarification.

8. Page 1-7, Section 1.4.2.3 Site 11 - Former Waste Oil Tanks Nos. 6 and 7. According to the October 1996 *Community Relations Plan*, solvents were reportedly stored at Site 11. The November 1995 *RFI Data Gap Report* states that waste Freon was also stored at the site. This information should be added to the first paragraph.

9. Page 1-10, Section 1.4.3.1 Candidate Environmental Impact Statement. In addition to cyanide, oil and grease, and heavy metals, the April 1997 *Revised Draft Final Estuarine Ecological Risk Assessment*, also reported elevated phenols at the dredge site. The text should be revised.

10. Page 1-17, Section 1.4.3.14 RFI Data Gap Report. The paragraph in the middle of the page that begins "At Site 11, ..." should be split into two paragraphs to avoid confusion. The well cluster at JW-13 is not directly associated with Site 11.

11. Page 1-19, Section 1.4.3.17 1996/1997 Groundwater Monitoring and Seep/Sediment Sampling. The results of the statistical comparison of filtered versus unfiltered metals analytical results should also be presented in the last paragraph.

12. Page 1-20, Section 1.4.3.17 1996/1997 Groundwater Monitoring and Seep/Sediment Sampling. "*Seep flow rate patterns were used to properly link the hydraulic portions of the groundwater and surface water models.*" This sentence requires additional clarification. How were the two hydraulic regimes tied together? What does "properly link" mean?

13. Page 1-23, Section 1.4.3.25 Facility Background Report. There are still some unresolved issues regarding the *Draft Final Facility Background Report*. The Navy recently issued responses to regulatory agency and SAPL comments on the document which clarified a number of issues, but left others requiring additional explanation or discussion. For example, in one of the responses, the Navy suggests revising the text to read "*The purpose of developing background concentrations at PNS is to assist risk assessors and risk managers to differentiate between CERCLA and non-CERCLA related chemicals.*" However, as we have pointed out in several comments earlier this year, the Navy has not demonstrated that activities causing contamination at background locations have similar effects on CERCLA sites, and that non-CERCLA chemicals can be differentiated from CERCLA chemicals. So any comparison with background data gives the appearance of down-playing or minimizing CERCLA contamination and related risks. In the response to another of our comments on the *Facility Background Report*, the Navy stated that there does not appear to be a correlation between the presence of outliers in background samples and the presence of diesel or gasoline range organic (DRO/GRO) compounds. However, the tabulated results included in the response show that for the nine samples with DRO/GRO detections, almost half (four samples) also had outliers for metals. These and several other issues relating to the selection of background locations and application of background data are still on the table.

14. Page 1-23, Section 1.4.3.26 MTADS Geophysical Mapping. The May 1999 *Draft MTADS Geophysical Survey* report should be cited in this paragraph and added to the reference list. The first sentence should be revised to reflect which portions of OU3 the geophysical survey was performed on. According to the MTADS report, 30% of the site was inaccessible for survey.

15. Table 1-1. The April 1997 *Revised Draft Final Estuarine Ecological Risk Assessment* states that elevated concentrations of mercury, lead, cadmium, chromium, copper, zinc, PCBs, total cyanides, phenols, and oil and grease were detected in sediment samples. The entry for the contaminated dredge spoils in Table 1-1 should be revised accordingly.

16. Figure 1-6 +. We note that the figures in this section were all (re-)drawn in 1999. Where the figures are reproduced from earlier documents, a reference citation similar to that at the bottom of Figure 1-5 should be added. In other instances, it may be appropriate to add a footnote with the date the work was performed (such as the date of the well/direct drive installation on Figure 1-12). Without this information, the implication is that the work is newly or recently performed. A reference citation would also lead the reader to the primary source.

17. Page 2-1, Section 2.1 SURFACE FEATURES. The information on elevations in this section is confusing. In the first paragraph, the maximum elevation at the Shipyard is given as 60 feet above sea level. But in the second paragraph, elevations are given relative to the local sea level datum of 100 feet. Elevations should be presented consistently throughout the report.

18. Page 2-2, Section 2.2 DEMOGRAPHY AND LAND USE. The last paragraph states that land uses adjacent to OU3 include equipment storage and hazardous waste storage. We are aware of adjacent residential use (H27). Are there other uses as well? The text should be amended to include other adjacent land uses, not just industrial uses.

19. Page 2-2, Section 2.3 SOILS. The phrase "fine-grained, organic rock, tidal flat sediment" used in the second sentence does not make sense. Please revise.

20. Page 2-3, Section 2.4 GEOLOGY. Information regarding the physical characteristics of the shallow bedrock should also be included in this section. The *RFI Data Gap Report* (page 3-5) states that shallow bedrock is likely weathered with pervasive fractures. The overburden deposits are described as all having fairly high hydraulic conductivities. The range of values should be provided. If this data is located elsewhere in the FS, the reader should be directed to the appropriate section. This information is important in understanding groundwater and contaminant migration at OU3.

21. Page 2-4, Section 2.5 HYDROGEOLOGY. "*Recharge to groundwater is derived from local precipitation and tidal effects.*" Tidal effects are not normally a source of recharge to groundwater. This passage requires an explanation.

22. Page 2-4, Section 2.5 HYDROGEOLOGY. The paragraph at the bottom of the page describes the general concept of groundwater flow at the facility. What is the effect of the bedrock depression and thick overburden at well JW-19 on groundwater flow and contaminant migration?

23. Page 2-5, Section 2.5 HYDROGEOLOGY. "*Groundwater flow is also to the southwest from JW-3 toward the JW-14 and JW-13 well clusters.*" While flow from JW-3 toward the JW-14 well cluster is logical, flow from JW-3 toward well cluster JW-13 does not appear to make much sense. Additional information is needed to clarify this point.

24. Page 2-6, Section 2.5 HYDROGEOLOGY. The discussion of seawater intrusion at the top of the page requires clarification that there are not massive volumes of water migrating back and forth across much of OU3 with each tide cycle. The issue of how tidal effects lag behind the tidal cycle at individual wells, and the resulting implications for measuring and contouring water level data also requires additional scrutiny. Until the timing and magnitude of lag at each well is identified, contoured water level data will remain suspect.

25. Page 2-7, Section 2.6 SURFACE WATER USE AND HYDROLOGY. Uses of the estuary include commercial and recreational fishing, as well as other recreational uses. Hence the public's concern with the impact of OU3 contaminant migration on the offshore environment. Information on these uses must be added to this section.

26. Figures 2-3 - 2-7. Where appropriate, the source (reference citation) of the figure and the date of water level measurement should be added to the figure.

27. Page 3-1, Section 3.0 NATURE AND EXTENT OF CONTAMINATION. "*Currently, an evaluation of seep/sediment data collected as part of the 1996/1997 monitoring is being conducted. To the extent possible, the evaluation will be used to determine whether the seeps represent a significant potential current migration pathway of onshore contaminants to the offshore. ... [Data collected from offshore monitoring stations will be used to determine] whether the onshore is a potential continuing source of contamination to the offshore.*" Evaluation of data isn't needed to determine if there is a potential source of contamination at OU3. As long as waste remains in place and groundwater continues to migrate through the site to seeps along the shore, there will be a potential continuing source of contamination to the offshore. And while the evaluation of the 1996/1997 data will be useful, we recommend analyzing seep samples on an on-going basis to gather some of the data needed to determine the magnitude and significance of contaminant migration to the offshore.

28. Page 3-1 Section 3.1 OU3 SOILS. The description of contaminants in soils at OU3 includes a qualitative description of the frequency of detection of various parameters ("sporadically detected", etc.). It is unclear to us, based on the information included in the FS, if the frequency of detection is underestimated due to elevated numerical detection levels. This has important implications for interpreting the magnitude and extent of contamination, as well as the frequency that criteria are exceeded and the risks presented by site contaminants. The data summarized in Tables 3-1 through 3-6 shows that the range of non-detect values can be great. This section should include a discussion of the impact of elevated detection levels on frequency of detection and number of exceedances.

29. Page 3-1 Section 3.1 OU3 SOILS. Have any of the soils at OU3 been tested for dioxin? Information concerning dioxin testing must be included given the results of investigations at Site 29.

30. Page 3-4, Section 3.1.1 Site 8. "*The number of soil samples collected to date is not sufficient to determine the extent of contamination.*" We find this statement disturbing with regard to the assessment of risks associated with the site. It would appear that risks are very likely underestimated. This problem is compounded by the way the results of the risk assessment are handled - see our comments on Section 6.3, below.

31. Page 3-4, Section 3.1.2 Site 9 (MBI and MBII). "*Concrete blocks/pipes at MBII are the only contaminated media associated with Site 9.*" This passage requires clarification as MBII has not yet been located, so the nature of contamination (if any) has yet to be determined at that location. If the passage is intended to refer to MBI, we note that during the MBI excavation reported in the *RFI Data Gap Report*, an oily sheen was observed on groundwater at the bottom of the excavation, and a tar-like material was observed seeping near the vault. This information should be added to the paragraph at the bottom of the page.

32. Page 3-6, Section 3.2 GROUNDWATER. As we noted in Comment 28, above, the frequency of detection and number of exceedances of criteria can be affected by detection levels. Discussion of this issue with regard to groundwater data must be added to this section, including the effect on the frequency of detection and frequency of exceedance numbers presented in Table 3-8.

33. Page 4-1, Section 4.0 CONTAMINANT FATE AND TRANSPORT. "*Onshore contamination at OU3 appears to have migrated to the offshore environment. However, it is not known whether there is current contribution of onshore contamination to the offshore environment.*" Given what we know about contaminants in seeps that discharge along the OU3 shore, the first sentence should be rewritten to clearly state that onshore contamination at OU3 has migrated to the offshore environment. The way to answer the unknown in the second sentence is to collect data from OU3 seeps on an on-going basis, as we have recommended in Comment 27, above.

34. Page 4-1, Section 4.1.1 Potential Contaminant Migration Pathways. The migration pathways described in this section are also illustrated in Figure 4-2, with the exception of the contaminant source directly to the groundwater. Figure 4-2 should be revised to illustrate this point.

35. Page 4-2, Section 4.1.1 Potential Contaminant Migration Pathways. The last paragraph in the section mentions density-driven currents as a transport mechanism. Are density-driven currents common along the Shipyard shore? If so, are they rapid enough to erode and transport sediments?

36. Page 4-6, Section 4.3 CONTAMINANT FATE AND TRANSPORT. Why were the general classes of compounds listed in the bullets selected for discussion in subsequent sections?

37. Page 4-12, Section 4.3.7 PCBs. *"At OU3, tidal action and the porous nature of the fill could enhance and facilitate transport of PCBs to the Estuary."* This statement must be amended to explain how PCB transport is enhanced and facilitated.

38. Page 4-15, Section 4.4 ONSHORE/OFFSHORE CONTAMINANT FATE AND TRANSPORT MODELING. The discussion of the MEDEP geochemical modeling at the top of the page should include the finding that predicted concentrations for mercury and nickel are considered more uncertain than for other metals.

39. Page 4-16, Section 4.4 ONSHORE/OFFSHORE CONTAMINANT FATE AND TRANSPORT MODELING. *"Based on the history and use of OU3 and a comparison of the RFI groundwater data (early 1990s) with the 1996/1997 low-flow groundwater data, steady state conditions are assumed to be the current conditions at OU3. Understanding the groundwater concentration trends over time would be necessary to confirm this assumption."* How will the Navy test this assumption? Does the Navy have plans to collect groundwater monitoring data on a regular basis at OU3?

40. Page 5-1, Section 5.1.1 Human Health Risk. As we pointed out in our comments on the January 1999 *Draft Revised Human Health Risk Assessment for OU3*, the document does not link the risks posed by on-shore contamination with risks associated with off-shore areas, or address the accumulated risk posed by seafood consumption in addition to the on-shore scenarios described in the document. Yet clearly the linkage between on-shore and offshore contamination and risks should be considered in making effective and appropriate remedial action decisions. The *Draft Final Revised Estuarine Ecological Risk Assessment* linked contamination from the Shipyard to risks to offshore ecological receptors, and the results of seep and sediment monitoring demonstrate that contaminants have migrated from on-shore to off-shore environments. "Compartmentalizing" the human health risks into on-shore and off-shore does not give an adequate picture of total risk, which leads to potentially underestimating risks and the measures necessary to adequately address these risks. The statement quoted in Comment 30, above, also gives rise to concerns about the adequacy of the risk assessment at OU3.

41. Page 5-1, Section 5.1.1 Human Health Risk. The citation for the *Revised Human Health Risk Assessment for OU3* is incorrect in the References section. The document is currently in draft form and was released in January, not October. The discussion of the JILF Impact Area at the bottom of the page is confusing and needs to be revised. The sentence that begins at the very bottom of the page is incomplete and must be corrected.

42. Page 5-2, Section 5.1.1.1 Sites 8/9. This section should clearly state that because MBII has not yet been located and any associated contamination has not yet been evaluated, the assessment of risk at Sites 8/9 is incomplete.

43. Page 5-2, Section 5.1.1.1 Sites 8/9. Concentrations of contaminants are compared with concentrations at background locations. As noted in Comment 13, above, there are unresolved issues regarding the use of "background" data to determine risks posed by contaminants at a site.

44. Page 5-5, Section 5.1.1.4 Seep/Sediment. What are the onshore surface water sources contributing to seep discharge?

45. Page 5-7, Section 5.2.2 Ecological Risk. We would like to point out we are still awaiting the Navy's responses to the latest round of comments on the *Draft Final Revised Estuarine Ecological Risk Assessment*, and there may still be unresolved issues relating to off-shore ecological risks.

46. Page 6-1 +, Section 6.0 REMEDIAL ACTION OBJECTIVES. We focused our review of ARARs on the State of Maine Hazardous Waste Management Rules, and therefore do not have comments on the other ARARs.

47. Page 6-17, Section 6.1.3 Action-Specific ARARs and TBCs. The text incorrectly states that the State of Maine has not been delegated authority from the U.S. EPA to manage its own hazardous waste disposal rules, and should be corrected. In addition to the performance standards regarding materials compaction and cover design mentioned in the second paragraph (which must be met), there are additional performance standards in Chapter 854 of the State of Maine Hazardous Waste Management Rules that apply to OU3. Section 5 lists the Environmental Performance Standards that must be met by all hazardous waste facilities, and Section 8 provides Additional Standards Applicable to Hazardous Waste Landfills.

Of particular note in both these sections are considerations for preventing adverse impacts on surface water quality. Addressing these performance standards necessitates linking migration of contaminants from the offshore with impacts to offshore media, a point SAPL has consistently articulated in previous comments. At a minimum, the remedial alternative selected for OU3 must address managing seep discharges. In addition of capping the landfill, it may be necessary to install other systems to divert the migration of groundwater from upgradient areas and limit or prevent seep discharge.

48. Page 6-18, Section 6.2 MEDIA OF CONCERN. The opening sentence of this section states that the media of concern at OU3 is limited to the onshore soils and groundwater. As we have noted in several comments above, remedial actions must address migration of onshore contamination to the offshore environment.

49. Page 6-19, Section 6.3 REMEDIAL ACTION OBJECTIVES. Please see our Comment 3, above, regarding the third Remedial Action Objective. This comment also applies to the paragraph on page 6-20 dealing with RAO 3.

50. Page 6-19, Section 6.3 REMEDIAL ACTION OBJECTIVES. We are troubled by the statement in the last paragraph that, based on current and likely future land use, risks are acceptable. This statement is followed by others identifying instances where risk is not acceptable, including exceedances of the State of Maine risk guidelines. In each instance, the unacceptable risk is dismissed for one reason or another. It is unclear, based on the analysis presented in this paragraph, at what point risk exceedances become unacceptable. This requires additional explanation if the public is going to understand and accept why the results of the risk assessment appear to be "written off", even if target risk levels are exceeded. The affect of cumulative risks also needs to be addressed. In addition, the points we raised in Comment 30 (in sufficient soil sampling at Site 8 likely means that risks are underestimated) and Comment 40 (risks, if any, posed by MBII are unknown) also need to be addressed.

51. Page 6-20, Section 6.3 REMEDIAL ACTION OBJECTIVES. The paragraph on RAO 4 states that groundwater concentrations are not increasing, and that active groundwater controls are not needed to meet the RAO. As has been described in comments on other documents and discussed in meetings, it is possible that releases have yet to occur from drums disposed at the JILF. In addition, the nature and extent of contamination associated with MBII has not yet been determined. And, as stated in the last sentence of the paragraph, environmental monitoring is needed to confirm that steady-state conditions exist at the landfill.

52. Page 7-4, Section 7.2.1.2 Institutional Controls. The FS should specify that any institutional controls implemented must be tied to and documented in the Master Plan for the Shipyard. This section should also clarify the Navy's role and responsibilities for ensuring institutional controls remain in effect in the future, particularly if the use and/or ownership of the Shipyard changes.

53. Page 7-5, Section 7.2.1.3 Capping. "*At OU3, a shallow groundwater table, which is tidally influenced, is the main mechanism for contaminant leaching as opposed to infiltration of precipitation. In this case, the main objective of the cap would be to prevent exposure to contaminated soil/fill ... Reducing infiltration of precipitation will be secondary because contaminants in the soil below the water table could continue to leach to groundwater.*" What is the basis for the first statement? With managing groundwater discharge via seeps an important consideration, controlling infiltration of precipitation should be a high priority.

54. Page 7-5, Section 7.2.1.3 Capping. The first sentence of the last paragraph on the page requires clarification. Under what circumstances would movement of waste material be likely? The last paragraph should also include consideration of capping in association with diversion of upgradient groundwater and seep management measures, such as barriers.

55. Page 7-7, Section 7.2.1.3 Capping. In addition to the specific cover requirements mentioned under the Maine Hazardous Waste Management Rules, there are other performance standards the remedy must meet, as we have noted on Comment 47, above.

56. Page 7-9, Section 7.2.1.3 Capping. The information presented in the paragraph at the top of the page requires additional explanation. Is the 400 gallons the tidal flux? How does it relate to groundwater flow rates in various parts of the landfill? As noted above, controlling infiltration of precipitation is important when considering seep management and/or diversion of upgradient groundwater. The explanation of the 400 gallons per minute and its relationship to groundwater flow should also be added to Section 9.1 on page 9-1.

57. Page 7-9, Section 7.2.1.3 Capping. What is the availability in the Kittery area of clayey soils appropriate for cover material?

58. Page 7-9, Section 7.2.1.4 Erosion Control. While the primary focus of erosion control may be along the shore, erosion control measures should be implemented over the entire site to keep soil and/or waste material from migrating to and adversely affecting the offshore environment.

59. Page 8-1+, Section 8.0 DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES. With regard to evaluating long-term effectiveness and permanence, how are the alternatives likely to fare during and following an extreme storm event? What effect will rising sea level have on the alternatives?

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

Sincerely,

Carolyn A. Lepage

STATE OF MAINE CAROLYN A LEPAGE 6882 CERTIFIED GEOLOGIST

Carolyn A. Lepage, C.G.
President

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

105OU3FS.DC9