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LETTER REGARDING SEACOAST ANTI-POLLUTION LEAGUE REVIEW COMMENTS OF
NOVEMBER 2004 DRAFT FEASIBILITY STUDY FOR OPERABLE UNIT 2 (OU 2) NSY
PORTSMOUTH ME
2/15/2005
LEPAGE ENVIRONMENTAL SERVICES

Lepage Environmental Services, Inc.

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

February 15, 2005

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

Subject: Review of November 2004 Draft *Feasibility Study, Operable Unit 2*

Dear Ms. Raymond:

Lepage Environmental Services, Inc., is submitting this comment letter on behalf of the Seacoast Anti-Pollution League (SAPL) regarding the November 2004 Draft *Feasibility Study, Operable Unit 2*. The comments below incorporate input from Dr. David R. Brown.

1. General Comment. SAPL concurs with the Maine Department of Environmental Protection's (MEDEP's) comments dated January 27, 2005, and the Environmental Protection Agency's (USEPA's) comments dated January 26, 2005, and will not repeat them below except where particular emphasis is desired.

2. Data Gaps. The Navy acknowledges that significant data gaps exist in the existing information for OU2 (see Section 3.1.3 on pages 3-4 - 3-5, for example). The Navy is proposing to fill these data gaps with substantial pre-design investigations after a remedy is selected. SAPL believes that this would be inappropriate and could result in selecting the wrong remedy and/or adding unnecessary costs. SAPL concurs with MEDEP (Comment Number 1, dated 1/27/05) and USEPA (Comment Number 3, dated 1/26/05) that it is necessary to conduct an investigation to fill the data gaps before a remedy can be selected for OU2.

SAPL is particularly troubled because data gaps were known to exist well before the OU2 FS was developed. As an example, following is SAPL's Comment Number 6, dated January 28, 2000, on the Draft Final *Field Investigation Report, Sites 10 and 29*: "We believe that additional investigations should be conducted at Site 29. As the Navy acknowledges in the Executive Summary and elsewhere in the text (see page 4-8, for example), the limits of the former ash disposal area are not known and are likely to extend beyond the sampling locations. And as we have pointed out in previous comments, results for surface and subsurface soils near the perimeter of the site exceed screening criteria, and the vertical extent of contamination has not been adequately defined. The range of contaminant concentrations present at the site,

particularly maximum values, also should be refined. Additional field investigations are needed to fully determine the extent and nature of contamination at Site 29 so that risks can be assessed more accurately and appropriate remedial decisions can be made."

SAPL also cites Comment Number 2, dated October 19, 2000, on the Responses to Comments on the March 2000 Revised OU2 Risk Assessment: "SAPL has expressed concern that the nature and extent of contamination at Site 29 has not been adequately defined, resulting in uncertainty regarding the adequacy of risk evaluation. This concern extends to the potential for wind-blown erosion and off-site deposition from contaminated soil horizons that are now buried (see SAPL's Original and Follow-up Comments 4, 12, and 21). The Navy's responses state that SAPL's concerns with site characterization and its impact on the understanding of risks at Site 29 are better addressed as part of the OU2 Feasibility Study Data Quality Objectives discussion to determine whether additional investigation of Site 29 is necessary. SAPL looks forward to that discussion."

Please clarify how and when the Data Quality Objectives for the OU2 FS were developed and how the Site 29 data needs were considered.

3. Groundwater Pathway. The USEPA's January 26, 2005 letter contains a number of comments regarding the potential for contaminants to migrate via tidally-influenced groundwater to the offshore. SAPL concurs that the remedial action objectives for OU2 must also include protecting the near- and offshore environment from transport of absorbed or dissolved or colloidal contaminants from fill material exposed to tidally-influenced groundwater flow. The FS should be revised in all appropriate sections to address the groundwater pathway. Technologies that limit lateral migration of contaminants to the offshore should also be considered.

4. Petroleum Contamination. Until the MEDEP's 1/27/05 comments were submitted, SAPL was unaware that the former fuel storage tank area has significant petroleum contamination that could adversely affect OU2 groundwater, including mobilizing PCBs and dioxins/furans at Site 6. SAPL recognizes that the contamination at the fuel tank site is not regulated under CERCLA. However, the FS should address how the petroleum contamination might affect the remedies for OU2 and how these potential impacts will be assessed.

5. Lead Levels. During the February 3, 2005 conference call on the *Technical Memorandum, Derivation of Lead Screening Levels for Recreational Users Exposed to Intertidal Surface Water and Construction Workers Exposed to Shallow Groundwater*, Dr. David Brown made several important points that relate to the Navy's proposed "pickup levels" for lead at OU2. While the Navy is using lead concentration levels provided in USEPA guidance documents to determine "pickup levels", it is important to recognize and communicate to the public that these levels should not be considered safe. The guidance numbers that the Navy is using to determine pickup levels are not no-effects levels. Therefore, SAPL believes that the FS must clearly communicate

the safety limitations in both the basis for the pickup levels development and the resulting pickup level numbers. Furthermore, SAPL believes that a safety factor should be added to the pickup level development process.

6. Page ES-1, INTRODUCTION. *“The scope of this FS is limited to evaluation of soil (surface and subsurface) remedial alternatives with appropriate consideration given to potential offshore impacts from OU2.”*

The same passage in Section 1.2 on page 1-1 also includes consideration of groundwater remedial alternatives. The sentence quoted above should be amended to read the same - it should also include groundwater remedial alternatives. Please see Comment Number 3, above, regarding additional detail on the groundwater pathway.

7. Pages ES-1 - ES-3, REMEDIAL ACTION OBJECTIVES & DEVELOPMENT OF ALTERNATIVES. Without groundwater RAOs, the full range of appropriate alternatives cannot be developed.

8. Page 1-5, Section 1.4.2 OU2 Description and History. What is the frequency, or maximum interval, of the periodic shoreline inspections mentioned in the last paragraph on page 1-5?

9. Page 1-6, Section 1.4.2 OU2 Description and History. *“...but there are areas where the riprap has moved down the slope and appears to be in need of repair.”*

Why did the riprap fail? The reason(s) must be understood before moving into another phase of shoreline control measure repair and/or construction.

10. Pages 1-6 - 1-8, Section 1.4.2 OU2 Description and History. During the brief site visit on December 2, 2004, participants observed an area of rusted metal debris scattered in the wooded area adjacent to the eastern end of the Site 29 seawall. The area of debris wrapped around the end of the seawall and extended down toward the shore rocks. Fred Evans (Navy-EFANE) suggested during the site visit that the material was pushed from the incinerator, based on piles of material on old photographs, rather than being pushed down over the top of the bank that borders the east side of Site 29. The debris included some wire, metal turnings, and what appeared to be pieces of a drum or similar container.

The description of the site should reflect that metallic debris can still be observed in this area of Site 29 (Note: The 12/2/04 site visit was limited to the shoreline at Site 29). Of greater concern to SAPL is the impact pushing incinerated material around at the site has had on the distribution (spreading) of contamination at OU2. This should be addressed in the FS, including in Chapter 3 where the nature and extent of contamination are described.

- 11. Page 1-7, Section 1.4.2 OU2 Description and History.** Building 298 is identified in the second paragraph as the Industrial Waste Treatment Building. The text should also state what kind of wastes were treated, if any releases occurred, and how the building was closed under RCRA. The sentence near the end of the second paragraph regarding the “flap valve” appears to be missing some words.
- 12. Page 1-7, Section 1.4.2 OU2 Description and History.** Please provide the [approximate] year the seawall was constructed. As currently written, it is not clear if it dates from the 1905 filling, the beginning of open burning in 1918, the construction of the Teepee Incinerator in 1965, or from some other date.
- 13. Page 1-8, Section 1.4.2 OU2 Description and History.** Additional information regarding the 2002 trenching and excavation activities at Site 29 must be provided, including reference citation(s) for soil testing results and field observations. The extent of the “clean area” where the trench was filled in should be identified on FS figures and the results of analytical testing provided.
- 14. Page 1-8, Section 1.4.2 OU2 Description and History.** The description of the seawall, specifically that “fill behind the wall may have eroded” should be updated. During the site visit on December 2, 2004, erosion had occurred at the western end of the seawall, extending around to the landward side of the wall.
- 15. Page 1-13, Section 1.4.3.5 On-Shore Ecological Risk Assessment.** This section mentions benthic community and eutrophication. Please identify the body of water involved.
- 16. Page 1-20, Section 1.4.3.17 Sampling to Support the Building 298 Trenching.** What is the reference citation for this work? SAPL requests copies of documents relating to sampling methods and locations, field observations, and analytical results for contaminated soil and “clean” fill. The next-to-last sentence is missing a word or words.
- 17. Page 2-1, Section 2.1 SURFACE FEATURES.** The last paragraph states that most of the surface area of Site 6 is covered with an impermeable medium. Since much of the site is covered by asphalt, please provide information on its permeability and the measures taken (inspections, testing, repairs, etc.) to maintain that level of protection.
- 18. Page 2-3, Section 2.2 DEMOGRAPHY AND LAND USE.** The last paragraph states that access to the river or toe of the shoreline from OU2 is dangerous. While access appeared to be difficult over much of the OU2 shore, during the December 2004 site visit, it appeared that access around the eastern end of the Site 29 seawall to the shore exposed at low tide was relatively easy. Please clarify and rephrase as necessary.

19. Page 2-4, Section 2.4 GEOLOGY. Please provide the references for the 1972 and 2002 data mentioned at the bottom of the page.

20. Page 2-6, Section 2.4 GEOLOGY, Cross-section Description-Site 29 Area. The use of the term "fill" in this section is a bit confusing. Are the gravel and rock fragments fill? If so, is it different from the fill specifically listed elsewhere in the section? If so, please clarify in the text. This is important because the Navy wants to differentiate fill areas at OU2 (see page 2-8, which is also a bit confusing). This comment also applies to the following section on Site 6.

21. Page 2-9, Section 2.5 HYDROGEOLOGY, PNS General Hydrogeology. *"Near the bedrock surface, fractures are pervasive because of weathering of the rock."*

SAPL recalls that the 1905 Henderson's Point blasting was described as the largest blast of its day. What bedrock fracturing can be or should be attributed to the blasting? How pervasive and interconnected are fractures expected to be with increasing distance from the blast site?

22. Page 2-10, Section 2.5 HYDROGEOLOGY, OU2 Hydrogeology. *"In general, hydraulic conductivities in groundwater monitoring wells completed in fill, fill with weathered bedrock, or bedrock were an order of magnitude higher than the groundwater monitoring wells completed only in bedrock."*

What is the difference between "in bedrock" and "only in bedrock"?

23. Pages 2-12 & 2-13, Section 2.5 HYDROGEOLOGY, OU2 Hydrogeology. On Figures 2-14 and 2-15, the groundwater flow direction at Site 6 appears to be closer to southerly than southeasterly.

24. Page 2-13, Section 2.6 SURFACE WATER AND HYDROLOGY. Please revise the description of the OU2 shore at the bottom of the page. The vertical seawall abuts only a portion of the OU2 shore.

25. Page 3-14, Section 3.4 NATURE AND EXTENT OF GROUNDWATER CONTAMINATION AT OU2. Please insert "not" in the sentence about groundwater as a drinking water source.

26. Table 3-1. The upper end of the non-detect range for semivolatiles appears to be quite high. Please provide additional information on nondetects, particularly with regard to the frequency at the higher end of the range.

27. Page 4-1, Chapter 4.0 CONTAMINANT FATE AND TRANSPORT. SAPL concurs with MEDEP (Comment Number 30 dated 1/27/05) that releases of lead-contaminated soil to the river has been documented and that additional discussion of how and why erosion occurs must be added to the FS in order to evaluate the effectiveness of any proposed shoreline erosion control measures. SAPL also agrees with USEPA (Comment Number 4 dated 1/26/05, for example) that the groundwater migration pathway must also be addressed in this chapter (See Comment Number 3, above).

28. Page 4-2, Section 4.1.1 Potential Contaminant Migration Pathways. *"This flow pathway is not significant for OU2 contaminant migration because groundwater contamination has generally been observed in the overburden and not the bedrock groundwater samples."*

Please clarify if this statement applies only to paired bedrock and overburden wells or to the general distribution of groundwater contamination. In addition, please add the number of bedrock and overburden wells to the text.

29. Pages 4-5 & 4-6, Sections 4.2.2 Polychlorinated Biphenyls and 4.2.3 Dioxins/Furans. Both sections note that the mobility of these contaminants (PCBs and dioxins/furans) can be affected by oil. As noted in Comment Number 4 above, SAPL and MEDEP are concerned with the potential for petroleum contamination from the former tank farm to adversely affect contaminant migration at Site 6. The proximity of the fuel farm tanks and the existing hydrocarbon data for Site 6 strongly indicate that impact of petroleum releases on PCB and dioxin/furan transport should be evaluated in the FS.

30. Page 5-1, Chapter 5.0 BASELINE RISK ASSESSMENT. Please note comments 2 and 5 above.

31. Page 5-3, Section 5.1.1.1 Human Health Risk Assessment Results for Site 6. *"However, it has been determine that the concentrations of arsenic detected in soil at PNS are within naturally occurring levels for the region."*

Please provide the data for both the PNS and the regional concentrations, including reference citations. Are the regional concentrations derived from parent material similar to that found at the Shipyard? Do the regional data locations include arsenic "hot spots"? Is the arsenic at Site 6 naturally occurring? How do site arsenic concentrations compare with background concentrations? This comment also applies to Section 5.1.1.3 on page 5-5.

32. Page 6-1, Section 6.1 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS. The two bullets near the middle of the page seem to be missing something if they are intended to define an ARAR as the text states. As currently written, they are only federal or state standards, requirements, etc., without qualification as to what they cover.

33. Pages 7-4 & 7-5, Section 7.2.2.2 Monitoring. The description of monitoring at the bottom of page 7-4 is pretty limited. Collecting samples to analyze for trends in concentrations is not enough. How will monitoring determine if contaminated soil may erode to the offshore, as stated in the Effectiveness paragraph at the top of page 7-5? Please expand the description of monitoring.

34. Page 7-8, Section 7.2.5 Ex-Situ Treatment. The description of site activities and resulting contamination indicate that pieces of battery plates were likely broken off during handling and storage at Site 6. If these pieces are of varying sizes, not just fine particles or contaminants sorbed to fine particles, the assumption that the coarser fractions (gravel size, for example) of site material are likely to be "clean" will be incorrect. How will the Navy test this?

35. Page 7-17, Section 7.4 PRELIMINARY SCREENING OF SHORELINE EROSION CONTROLS TECHNOLOGIES. The condition of the Site 29A seawall is summarized. The condition of the Site 29B shoreline should also be described. Observations during the December 2, 2004 site visit indicate the unprotected shore could fail fairly soon. The small trees growing on top of the banking were obviously stressed. Once these trees die, their roots will not longer hold the soil in place. This stretch of shore should be fixed as soon as possible to prevent additional erosion and migration of contaminated soil and to protect the western end of the seawall.

36. Page 7-22, Section 7.5.4.1 Riprap. Riprap is described as having a long life. Please add an estimate of what is considered to be long life. In addition, please provide information regarding how sea level rise is factored in.

37. Page 8-9, Section 8.2.2.1 Description, Component 2: Shoreline erosion Controls. This section acknowledges that the available information on the shoreline is inadequate, but then assumes that modification of the Site 6 existing revetment system would be adequate. Without understanding why the Site 6 revetment is failing (it's only been a few years since the remedial action to shore it up), this assumption is wrong and could wreck havoc with the design and cost for Site 6. The Site 29 seawall is also failing at one end. Again, the assumption could cause design and cost to be grossly underestimated. There needs to be a better understanding of the causes of the failures before moving forward with the FS.

38. Page 9-6, Section 9.5 SHORT-TERM EFFECTIVENESS. SAPL concurs with the MEDEP that the eight- to fifteen-year timeframes presented in this section are unacceptable, particularly with the ongoing failure to protect the Site 29 shoreline (See Comment Number 35, above).

39. Appendix B, PRG Development and Implementation Method. SAPL's general position on the Navy's proposed "pickup levels" for lead are presented in Comment Number 5, above. The following are additional comments on the Navy's method.

A) The Navy's proposed method employs a statistical approach to find the UCL (upper confidence level) for some compounds and the average for lead. In the formulas $C \cdot \exp \cdot CSF = \text{risk}$ and $C \cdot \exp / RFD = HQ$ C is the average or the UCL, so some site concentration will exceed the C. This means that a portion of the site will not be cleaned up, even when the post-remediation levels exceed the target level "C". The remaining contamination represents a potential human exposure pathway.

B) The Navy's approach is based in the assumption that the samples are statistically representative of the entire site. This presumes that the samples used in the calculations are random collections representative of the entire site and that the distribution of the four major pollutants is roughly comparable from sample location to sample location. An inspection of the maps and of the listed contaminants from each sample indicates it is likely that neither of the above assumptions are correct for these sites.

C) The iterative truncation approach for determination of the pick up level is a further bias of the sample set. Thus while it appears that the PRG is met statistically, it has not because the integrity of the sample has been compromised. The methodology focus is on the selection of the replacement values. But while that has in some cases a strong implied effect on the "lead pick up values", it will not correct for the biasing of the sample set.

D) This statistical approach is proposed as justification for leaving behind locations of 2000 mg/kg or less when the screening value is in fact 400 mg/kg for residential use. The 3500 mg/kg and the 11000 mg/kg proposed to protect the recreational and construction worker groups is also not justified. The clean-up analyses at these sites are not new or unique problems. They arise in part because the waste is not uniformly distributed about the sites. Connecticut addresses this with a rule of thumb, the 2X rule, in which the maximum allowed to be left behind is no more than 2X the target. In the case of 400 mg/kg for lead, that would require removal of all locations over 800 mg/kg AND the average for the whole site of less than 400 mg/kg. The 800 mg/kg was arrived at

based on the biological behavior of lead in the body and is thus directed related to public health. From the perspective of the biological behavior in an individual exposed, the statistical average is not important. Based on our analysis of the realistic conditions at the site, the proposed lead pick up levels are simply too high by factors of 2 to 10 times.

E) It is not immediately possible to determine which of Alternatives 1 through 5 meets the correct criteria without extensive re-analysis of the data presented. The statistical distribution questions, normal or log normal, are important, but the number of samples tested that are equivalent, i.e. Surface, 0-2', 2-6' seem too spaced to support a site-wide conclusion of the actual distribution. If such a conclusion were available, how does it affect the actual health-based risk assessment used to achieve a PRG? There is not enough information to determine whether this is health protective or not.

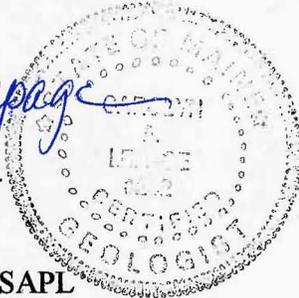
F) In the Construction Worker section on page B-5, the topic sentence indicates that it is assumed that the worker is exposed down to 10 feet. Does this mean that all samples of 10 feet or less are used in the statistical calculations? If it does than there is even greater bias in the calculations. For residential exposures, if one looks at the tables and compares the presence of the other 3 COCs, unacceptable levels would be left behind.

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: James Horrigan, SAPL
Iver McLeod, MEDEP
Matt Audet, USEPA
Dr. David R. Brown