MEMORANDUM REGARDING THE TRANSMITTAL OF SEACOAST ANTI POLLUTION LEAGUE COMMENTS ON U S NAVY RESPONSES REGARDING DRAFT REVISED OPERABLE UNIT 3 (OU 3) RISK ASSESSMENT AND DRAFT FACILITY BACKGROUND DEVELOPMENT NSY PORTSMOUTH ME

8/18/1999

PORTSMOUTH NAVAL SHIPYARD

DEPARTMENT OF THE NAVY
PORTSMOUTH NAVAL SHIPYARD
PORTSMOUTH, N. H. 03804-5000

IN REPLY REFER TO:

August 18, 1999

MEMORANDUM

FOR THE MEMBERS OF THE RESTORATION ADVISORY BOARD (RAB) CERCLA REMEDIAL ACTION PROGRAM, PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

On behalf of the Seacoast Anti-Pollution League (SAPL), the Navy is forwarding SAPL's review of responses to comments on the *Draft Revised OU3 Risk Assessment* and the *Draft Facility Background Development* for your information. They were prepared for SAPL by their Technical Assistance Grant advisor, Lepage Environmental Services, Inc.

If you have any questions regarding these comments, they may be asked at a RAB meeting, by calling Lepage Environmental Services at (207) 777-1049 or by writing to:

Lepage Environmental Services
731 Hotel Road
P.O. Box 1195
Auburn, ME 04211-1195

Sincerely,

Ken Plaisted
Navy Co-Chairman
Restoration Advisory Board

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August 7, 1999

Peter Vandermark
Seacoast Anti-Pollution League
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Portsmouth, New Hampshire 03802

Subject: Review of responses to comments on the *Draft Revised OU3 Risk Assessment*

Dear Mr. Vandermark:

As you requested, we are transmitting comments on the Navy's responses to our February 25, 1999, comments on the Navy's January 1999 *Draft Revised OU3 Risk Assessment* to the Seacoast Anti-Pollution League (SAPL). Most of the Navy's responses to Dr. David Brown's and our comments were satisfactory. However, we still have the following comments remaining. We have retained the numbering of our original February 1999 comments, and repeated the original comment along with the Navy's June 1999 response.

Comments by Lepage Environmental Services, Inc.

2. General Comment. The *Draft Revised OU3 Risk Assessment* was "performed to characterize the potential risks to likely human receptors under current and future land use" (see Section 6.1.1). The document does not link the risks posed by on-shore contamination to 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. The final *Revised OU3 Risk Assessment* is to be used in developing and evaluating remedial alternatives. Clearly the linkage between on-shore and offshore contamination and risks must be considered in making remedial action decisions, and, therefore, should be addressed in this report.

Navy Response: As per the work plan [Technical memorandum, Recommended Human health Risk Assessment Protocol (November 1998)], the objective of the Revised OU3 Risk Assessment was the evaluation of risks incurred by receptors of concern potentially exposed to environmental media at Sites 8/9, 11, and the Former CDC. Also, refer to the Navy response to MEDEP follow-up Comment No. 8 on the work plan addressing offshore risks. The evaluation of offshore chemical concentrations was conducted separately. The studies conducted to date indicate the chemical concentrations noted in the offshore media can not be differentiated from the rest of the estuary. Please also refer to the Navy's letter to SAPL dated 1/27/99 regarding review of the human health risk assessment documents. Consequently, the calculation of a cumulative risk for a

receptor (i.e. on-shore plus off-shore risk) would be inappropriate and such results can not be used to make remedial decisions for the aforementioned sites. Therefore, risks associated with the offshore environmental media are not and should not be addressed in the OU3 Risk Assessment.

Additional Comment: As the MEDEP noted in their March 23, 1999, Comment No. 3, while the source of contaminants in seafood is currently under debate, ingestion of contaminated seafood should be factored into the assessment of potential risks for recreational users and residents. Contaminants in seafood contribute to the baseline level of risk, even if they are entirely from other sources. However, the Navy's response to the MEDEP's comment does not clarify matters as no date is provided for the information the reviewer is referred to. This portion of the Navy's response requires clarification.

In addition, we take issue with the part of the Navy's response that states that studies conducted to date indicate the chemical concentrations noted in the offshore media can not be differentiated from the rest of the estuary. This statement, as presented, is at odds with the findings of the *Draft Final Revised Estuarine Ecological Risk Assessment* (which linked contamination from the Shipyard to risks to offshore ecological receptors) and the results of seep and sediment monitoring (which demonstrate that contaminants are migrating from on-shore to off-shore environments.

"Compartmentalizing" the risks into on-shore and off-shore does not give an adequate picture of total risk. Therefore, the future feasibility study will potentially underestimate risks and the measures necessary to adequately address these risks. Furthermore, any remedial measure implemented may prove inadequate for the same reason. We stand by our original comment.

13. Page 2-32, Section 2.4, 1994 Baseline Human Health Risk Assessment Summary. The seventh sentence in the second paragraph states that the *Estuarine Ecological Risk Assessment* will be finalized once regulatory comments are finalized. We would like to point out that SAPL has raised some important issues with regard to off-shore risks that should also be resolved prior to finalizing the document.

Navy Response: Comment acknowledged.

Additional Comment: The Navy's response appears to indicate that only the comments of the regulatory agencies matter. The text should be revised to state that the *Estuarine Ecological Risk Assessment* will be finalized once public concerns have been addressed.

14. Page 2-34 - 2-36, Section 2.4.2, Offshore Human Health Risk Assessment. The discussion in this section cites new yearly consumption rates that suggest lobster, mussels, and flounder are no longer considered surrogates for overall seafood exposures. This change appears to **underestimate** seafood risk. Please clarify.

Navy Response: Please refer to the Navy response to MEDEP Comment No. 3.

Additional Comment: The Navy's response to MEDEP Comment No. 3 refers to the Navy's response to the MEDEP's follow-up Comment No.8. We are unsure what this MEDEP follow-up comment and Navy response say as no dates of correspondence are provided. Therefore, our original comment still requires a response.

16. Page 3-4, Section 3.3, Summary of Background Groundwater Datasets. We have concerns about the representativeness of the background locations selected. The fact that diesel-range and/or gasoline-range organics (DRO, GRO) were detected in half of the background samples indicates these locations are likely to be affected by facility activities. Therefore, we do not believe these are appropriate background samples, especially if the risks associated with "background" are going to be discounted in overall risk calculations and in risk-management decisions. Has the Navy considered background locations off-island? The maximum concentration for DRO in the background wells was four times the State of Maine Maximum Exposure Guideline (MEG), and the maximum gasoline-range concentration was just below the MEG. How were the risks associated with the DRO and GRO concentrations evaluated?

Navy Response: Disagree. The background data sets for PNS represent chemical concentrations in the environmental media (and the associated risks) in the general vicinity or region of the sites under investigation but at locations not anticipated to be influenced by the sites. This strategy is followed so that the background will be useful in distinguishing site-related contamination from naturally occurring levels or anthropogenic levels in the general vicinity of the sites. The strategy is in line with current EPA guidance (RAGS Part A) which recognizes both sources (i.e., naturally occurring and anthropogenic) of background chemicals and states that ..."Background samples are collected at or near the hazardous waste site in areas not influenced by site contamination....the locations of the background samples must be areas that could not have received contamination from the site, but that do have the same basic characteristics as the medium of concern at the site." The objective is not to collect a data set with no exceedances of standards and criteria. The objective is to collect data reflective of local non-site-related conditions. (Note that certain metals exceed regulatory standards even under pristine conditions (e.g., arsenic)). The organics in the background samples reflect the highly developed and industrialized nature of the PNS and surrounding areas and not the influence of the sites under investigation. It should be noted that the chemical concentrations in background data sets reflect the developed and industrialized nature of the general area and do not reflect pristine conditions.

Additionally, as state[d} in the *Draft Facility Background Development* the organic contamination does not appear to influence the inorganic profile of the samples. This is important because only the representative, inorganic concentrations were used for COPC selection in the *Draft Revised OU3 Risk Assessment*. Risk associated with DRO and GRO will be addressed qualitatively in the *Draft Final OU3 Risk Assessment*.

Additional Comment: There are several points we find troubling in the Navy's response. One is the implication that any contamination outside the boundaries of the already-designated "Sites" ("Site" here meaning Site 8, Site 9, etc.) is acceptable, regardless of concentration or source. While the source of certain inorganic constituents might realistically be debated (is it natural or anthropomorphic?), organic constituents, by and large, represent anthropomorphic activities. As the MEDEP points out in their July 26, 1999, letter regarding the *Draft Facility Background Development*, groundwater contamination that exceeds regulatory levels must be addressed, regardless of whether or not the groundwater is located at a "Site".

The Navy's response includes the statement that, according to the *Draft Facility Background Development*, the organic contamination does not appear to influence the inorganic profile of the samples. What is the basis and supporting data for this statement?

The Navy has attempted to select background locations that are not influenced by "Site" contamination. However, the Navy hasn't demonstrated that the activities that caused the contamination at background locations have had similar effects at the various "Sites", and that the results of these activities can be differentiated from "Site-related" contamination. The Navy has not established that "Site"-related contamination can be differentiated from so-called background contamination. Therefore, it is not clear why the risks associated with a "Site" should be discounted because of contamination found at non-Site locations. Application of EPA guidance is not an acceptable reason to ignore risks.

We acknowledge the difficulty in selecting appropriate background sampling locations at a long-time industrial facility that has a number of hazardous waste sites scattered about and a hydrogeologic setting complicated by factors such as historic landfilling activities and natural tidal influences. Hence our question regarding consideration of off-island locations for background sampling (this question was not answered in the Navy's response). We also acknowledge that collecting background samples at locations other than the Shipyard property presents potential problems with regard to areas having the same "basic characteristics" mentioned in the Navy's response. Perhaps background locations specific to each "Site", rather than facility-wide background determinations, would provide the "Site"-specific information necessary to reduce uncertainty to acceptable levels. In their July 26, 1999, comment letter, the MEDEP presents another possible solution, given the State's interpretation that "site" means the entire Shipyard - that of addressing groundwater over the entire Shipyard as an operable unit, as has been done at the former Loring Air Force Base. We look forward to discussion of options for dealing with the background sampling location selection issue.

Comments by Dr. David Brown.

1. General Comment. Lobster, mussels and flounder are used as surrogates for all exposure pathways and estimates of risks for the entire array of human consumption pathways that occur in the estuary. There are data and analysis currently available that will permit an evaluation of this assumption. Further analysis would allow a more focused public health message to those consuming seafood.

Navy Response: The reviewer is referred to the Navy response to SAPL Comment No. 2.

Additional Comment: Please see our comment regarding the Navy's response to SAPL Comment No. 2, above. We also point out that there is not likely to be public acceptance of the remedial process until concerns are clearly addressed. EPA guidance is not a reason to overlook an obvious risk. The guidance does not prevent any assessment activity that is necessary.

2. General Comment. The rationale for ruling out all compounds except lead as site related is based on comparisons of chemical contamination concentrations before 1994. Does the current data and analysis still support this rationale?

Navy Response: The reviewer is referred to the Navy response to MEDEP Comment No. 3, paragraph 1.

Additional Comment: The Navy's response to MEDEP Comment No. 3 refers to the Navy's response to the MEDEP's follow-up Comment No.8. We are unsure what MEDEP follow-up comment and Navy response the Navy is referring to, as no dates of correspondence are provided. Therefore, our original comment still requires a response.

COMPARISON OF 1998 AND 1994 RISK ASSESSMENTS

A. Scope: The areas are evaluated differently. The landfill and mercury burial sites are combined in the 1999 Risk Assessment. The seeps are evaluated in the 1999 Risk Assessment but not in the 1994 Risk Assessment.

B. Methodology: Inhalation exposures are based on modeled estimates rather than on measured concentrations. Inorganic compounds are included in evaluation of dermal contact. Calculation of representative exposure point concentrations differed.

C. Pathway and Exposure Scenarios: Populations potentially exposed are increased. Pathways are added. Food pathway is not considered.

While the quantitative risk estimates in the 1999 Assessment are less than those in the 1994 Assessment, the chemicals of concern for each area are similar. The risk assessment comparison should include a table shown which risks are detected in each Risk Assessment.

Navy Response: Table E-1 summarizes the results for the 1994 and 1999 risk assessments. The table currently appears at the end of Appendix E and will be preceded with a clearly labeled divider page in the draft final version of the Revised OU3 Risk Assessment.

Additional Comment: The information in Table E-1 will be helpful and we suggest it be included in the body of the report along with a brief discussion of the differences in the assessments and resulting impacts on risk evaluation. We also note that Table E-1 does not appear to address exposures to seeps. Please clarify.

Specific Comment 6. The use of model estimates for the air pathways appears to have identified only two chemicals for inclusion in the assessment: Chromium and TCE. About four different compounds, including mercury, arsenic, and benzene are measured in the 1994 assessment. Can the assessment show how the use of modeled estimates modified the compound evaluated in the inhalation pathway?

Navy Response: The COPCs selected in the 1994 OU3 risk assessment are not the same as those selected in the 1999 OU3 Risk Assessment. Consequently, a comparison of modeled versus monitored concentrations is not possible. In the 1999 OU3 Risk Assessment, trichloroethene and chromium (Site 8/9 subsurface soils) were the only chemicals in soils (surface and subsurface soils to a depth of 10 feet) selected as COPCs for the air pathway. They were selected as COPCs for the air pathway based on a comparison of the maximum detected concentration in soils to the conservative USEPA SSLs for the migration of chemicals from soil to air.

Neither chemical (TCE or chromium) was detected during the Phase 1 air monitoring. Therefore, TCE was not monitored during 1994 Phase II air monitoring effort. The concentrations of arsenic, cadmium, total chromium, nickel, and lead did not exceed Maine air criteria during the Phase II study. Phase II benzene and tetrachloroethene (PCE) air concentrations were also not of concern, nor were volatile mercury detections attributable to a given site (B&R Environmental, June 1996).

Arsenic, mercury and benzene were not detected at soil maximum concentrations exceeding the SSLs and were not included in the 1999 Revised OU3 Risk Assessment. (Please note, the SSLs

were conservatively developed assuming a future residential land use scenario.) The model used in the 1999 Revised OU3 Risk Assessment relies upon methodology presented in the USEPA SSL guidance document. It should be noted that the referenced monitoring in the 1994 assessment indicated that most chemical concentrations in the site-specific air samples were less than the concentrations reported for the background sampling locations. An exception to this was the volatile mercury concentrations reported for SWMU 8. However, as noted previously, the mercury concentrations noted in the SWMU 8 soils do not exceed the conservative SSL for mercury (10 mg/kg).

Additional Comment: We recommend that the Navy's response to this comment be incorporated into the text as it explains the differences in the risk assessments.

New Comment on Additional IEUBK Modeling Results. We note that the last four graphs included in the attachment to the Navy's responses present disturbing results. All four indicate that over 90% of the populations represented would have unacceptable blood lead levels. These appear to be significant findings. What is the rationale for not including this information in the draft report? Are there other contaminants of concern that need to be (re-)visited? What do the data mean? What does the Navy plan to do about it? The Navy has previously expressed a desire to communicate risks clearly to the public. If the public is to accept risk, reliable and accurate information must be presented the first time around.

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

Sincerely,

Carolyn A. Lepage

Carolyn A. Lepage, C.G.
President

Enc.
cc: Iver McLeod, Department of Environmental Protection
Meghan Cassidy, Environmental Protection Agency
David Brown, Sc.D.
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August 8, 1999

Peter Vandermark
Seacoast Anti-Pollution League
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Portsmouth, New Hampshire 03802

Subject: Review of Responses to Comments on the *Draft Facility Background Development*

Dear Mr. Vandermark:

As you requested, we are transmitting comments to the Seacoast Anti-Pollution League (SAPL) concerning the Navy's responses to our February 25, 1999, comments on the January 1999 *Draft Facility Background Development.* Most of the Navy's responses were acceptable. However, we still have the following comments remaining. We have retained the numbering of our original February 1999 comments, and repeated the original comment along with the Navy's June 1999 response.

3. Page 2-1, Section 2.0, Evaluation of Background Soil Datasets. The paragraph below the two bullets states that samples demonstrating obvious contamination were not selected for a background dataset. However, collecting background samples in an industrial area at a Superfund Site is likely to result in "background" concentrations that are elevated. Using elevated "background" conditions as the basis for comparison or risk calculation will have the effect of down-playing or minimizing risks at contaminated sites.

Navy Response: Disagree. The background data sets for PNS represent chemical concentrations in the environmental media (and the associated risks) in the general vicinity or region of the sites under investigation but at locations not anticipated to be influenced by the sites. This strategy is followed so that the background will be useful in distinguishing site-related contamination from naturally occurring levels or anthropogenic levels in the general vicinity of the sites. The strategy is in line with current EPA guidance (RAGS Part A) which recognizes both sources (i.e., naturally occurring and anthropogenic) of background chemicals and states that ..."Background samples are collected at or near the hazardous waste site in areas not influenced by site contamination....the locations of the background samples must be areas that could not have received contamination from the site, but that do have the same basic characteristics as the

medium of concern at the site." The objective is not to collect a data set with no exceedances of standards and criteria. The objective is to collect data reflective of local non-site-related conditions. (Note that certain metals exceed regulatory standards even under pristine conditions (e.g., arsenic)). The organics in the background samples reflect the highly developed and industrialized nature of the PNS and surrounding areas and not the influence of the sites under investigation. It should be noted that the chemical concentrations in background data sets reflect the developed and industrialized nature of the general area and do not reflect pristine conditions.

Additional Comment: There are several points we find troubling in the Navy's response. One is the implication that any contamination outside the boundaries of the already-designated "Sites" ("Site" here meaning Site 8, Site 9, etc.) is acceptable, regardless of concentration or source (for example, the DRO/GRO exceedances described in comment 5, below). As the MEDEP points out in their July 26, 1999, letter regarding the *Draft Facility Background Development*, groundwater contamination that exceeds regulatory levels must be addressed, regardless of whether or not the groundwater is located at a "Site".

The Navy has attempted to select background locations that are not influenced by "Site" contamination. However, the Navy hasn't demonstrated that the activities that caused the contamination at background locations have had similar effects at the various "Sites", and that the results of these activities can be differentiated from "Site-related" contamination. The Navy has not established that "Site"-related contamination can be differentiated from so-called background contamination. Therefore, it is not clear why the risks associated with a "Site" should be discounted because of contamination found at non-Site locations. Application of EPA guidance is not an acceptable reason to ignore risks.

We acknowledge the difficulty in selecting appropriate background sampling locations at a long-time industrial facility that has a number of hazardous waste sites scattered about and a hydrogeologic setting complicated by factors such as historic landfilling activities and natural tidal influences. Hence our question regarding consideration of off-island locations for background sampling (this question was not answered in the Navy's response). We also acknowledge that collecting background samples at locations other than the Shipyard property presents potential problems with regard to areas having the same "basic characteristics" mentioned in the Navy's response. Perhaps background locations specific to each "Site", rather than facility-wide background determinations, would provide the "Site"-specific information necessary to reduce uncertainty to acceptable levels. In their July 26, 1999, comment letter, the MEDEP presents another possible solution, given the State's interpretation that "site" means the entire Shipyard - that of addressing groundwater over the entire Shipyard as an operable unit, as has been done at the former Loring Air Force Base. We look forward to discussion of options for dealing with the background sampling location selection issue.

5. Page 3-2, Section 3.1, Evaluation of the Freshwater Groundwater Dataset. The second bullet on page 3-2 states that diesel-range and/or gasoline-range organics (DRO, GRO) were detected in half of the background samples for freshwater wells. The maximum concentration for DRO was four times the State of Maine Maximum Exposure Guideline (MEG), and the maximum gasoline-range concentration was just below the MEG. These concentrations are indicative of environmental contamination. What is the rationale for using data from wells with significant levels of contamination and concentrations exceeding regulatory levels? While the detections may not appear to influence the inorganic profile of the samples, as stated in the last sentence in the bullet, what is the justification for considering data from wells that appear to be contaminated, as representative of background conditions? How were the risks associated with the DRO and GRO concentrations evaluated?

Navy Response: Please see the Navy response to SAPL Comment No. 3. Additionally, as state[d} in the *Draft Facility Background Development* the organic contamination does not appear to influence the inorganic profile of the samples. This is important because only the representative, inorganic concentrations were used for COPC selection in the *Draft Revised OU3 Risk Assessment*. Risk associated with DRO and GRO will be addressed qualitatively in the *Draft Final OU3 Risk Assessment*.

Additional Comment: Please see our comment on the Navy's response to SAPL Comment No. 3. As we noted in our additional comment, above, the MEDEP has stated that groundwater contamination that exceeds regulatory levels must be addressed, regardless of whether or not the groundwater is located at a "Site". In addition, what is the basis and supporting data for the statement that the organic contamination does not appear to influence the inorganic profile of the samples?

6. Page 3-3, Section 3.2, Evaluation of the Saline/Brackish Groundwater Dataset. Six out of eight saline/brackish groundwater samples also had detections of DRO, with the maximum concentration almost four times the MEG. While the water in the wells may not be suitable for drinking, the concentrations and frequency of DRO detections indicates contamination and potential risk. What is the rationale for using data from these wells as representative of background conditions? Why are the wells "saline/brackish" in this section and "saline"elswhere?

Navy Response: Please see response to SAPL Comment No. 5. Also, the text will be revised to use the term "saline/brackish" throughout the document.

Additional Comment: Please see our comment on the Navy's response to SAPL Comment No. 5.

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

Sincerely,

Carolyn A. Lepage

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