



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
DIVISION OF SITE REMEDIATION
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October 1, 1996

James Shaffer, Remedial Project Manager
U.S. Department of the Navy
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Code 1823-Mail Stop 82
Lester, PA 19113-2090

RE: Derecktor Shipyard Ecological Risk Assessment, Naval Education and Training Center,
Newport, Rhode Island

The Division has reviewed the Ecological Risk Assessment for Derecktor Shipyard. In general, the Office is concerned with the basis of the risk assessment, in terms of low priorities for protection of indigenous non-endangered species and inadequate consideration of future use of the site. In addition, there are a number of concerns with the relative risk analysis for the various stations.

Please find attached specific comments generated on the above document. If you have any questions concerning the above, please contact me at (401) 277-2797.

Sincerely,

A handwritten signature in cursive script that reads "Paul Kulpa".

Paul Kulpa, Project Manager
Division of Site Remediation

cc: Warren S. Angell, DEM DSR
Richard Gottlieb, DEM DSR
Christopher Deacutis, DEM DWS
Robert Richardson, DEM DWS
Kymberly Keckler, EPA Region I
Brad Wheeler, NETC

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**Comments on the
Draft Derecktor Shipyard
Marine Ecological Risk Assessment Report**

1. General Comment

The findings of the ecological risk assessment indicate that the levels of contaminants in the sediments at the site are significant. However, due to site conditions the document concludes that a number of these contaminants are not bioavailable and therefore do not pose a significant threat to the environment. In addition, the lack of endangered species results in low to moderate risk. This conclusion is based upon the premise that present site conditions at the site will prevail and non endangered species do not require the same degree of protection. Low bioavailability requires the assumption that the break water north of the site will be maintained, thereby continuing this area as a deposition zone, and the site will remain inactive. Neither of these conditions may hold true. As you are aware this site has been considered for redevelopment. In addition, use of the site as a shipyard or use of the piers for large vessels will significantly change conditions at the site. Amongst other things it will allow the contaminants to become bioavailable. This change in conditions will affect the conclusions drawn in the ecological risk assessment. Since redevelopment of this area is likely, the ecological risk assessment should consider this scenario.

2. General Comment

Clarification is requested on the overall risk characterization of the report. At a number of stations certain test parameters were high yet the stations received an overall low risk ranking. Therefore, a section should be added which discuss how the overall risk for the sampling station was determined. Specifically, the section should include a discussion of the following; discuss whether the different test received the same weight, (that is whether chemical data was considered more important than tissue data or the results of field observations etc), justification for weighing the different test equally or differently, etc.. Finally, the report should include a brief discussion of each sampling station and the rationale for the overall risk assigned to that station. This would clarify what appear to be apparent discrepancies in the risk ranking, that is locations with high relative risk for certain parameters were given a overall low risk ranking. Please be advised that concerns relating to rating, such nonbioaccumulation of measured PAHs, TBT issues, etc should be addressed in the risk ranking.

3. General Comment

The Division does not agree with the conclusion that "There does not appear to exist severe risk at any of the stations sampled for the Derecktor Shipyard Marine ERA"(p.6-56). The risk categories are biased by the endangered species requirement. The moderate risk in many cases is a severe risk when local species are considered as important. Rhode Island values the local marine biological community, and believes it should be protected from severe impacts whether listed as endangered species or not. The near-shore stations DSY-29, -40, -41, -28, and -27 all seem to have a lot of localized-source related problems. The categorization scheme needs to be revamped, and resuspension impacts need to be considered in any evaluation.

4. General Comment

The report includes a brief description of each of the test parameters. Where appropriate the report should list the known false positive or negatives associated with each of these parameters.

5. General Comment

The Division recommends adding a figure which includes a number of key parameters. This would allow the reader to compare the results of the various tests. The Division has created a figure which includes eight parameters for the surface sediment and core samples.

6. General Comment

The report discusses separately the various geophysical processes observed in the cove. The report should note whether the various observed physical and chemical parameters are in concert. That is whether the observed velocities, current flow paths, etc, corresponded with the sediment distribution, dissolved oxygen levels, etc. The report should note any discrepancies.

7. General Comment

Through out the report the results of the various test are compared to the reference stations. The report should therefore include a more elaborate discussion of these stations, including an expanded discussion of all past and present potential sources of contamination at these stations, (for example boat maintenance may have occurred at the Castle Hill Station).

8. General Comment

During an underwater investigation conducted at the site, Naval divers filmed an area named the "Dead Zone". This area was devoid of life and was subsequently subject to investigation. The ERA does not adequately address this zone. The location of the zone should be depicted on all appropriate figures and narrative discussion of the zone should also be included.

9. General Comment

The risk assessment notes the results of previous investigations. It is the Division's understanding that geophysical investigations were performed when the shipyard was active. If this is the case, the results of these investigations should be noted in the report.

10. General Comment

If possible please provide a copy of the report to the Division on computer disk in Word Perfect Format. Graphs and tables may be submitted in a suitable database form.

11. Section 1.4.1, Sediment Contaminants
Page 1-5, 1st line

There does not appear to be enough information to judge how well the WASP5 run reflects actual conditions. Furthermore, the model obviously cannot account for benthic community impacts from the conclusions of the report that benthic/DO problems were the impact driver for the abnormal benthic sample results for stations such as DSY - 40, 41, 29, etc. It is therefore incorrect to state that low DO does not pose a threat.

In addition, there are puzzling issues related to low depth redox, DO issues etc. at several stations. For example, p.1-7 indicates that DSY-40 has low organic content, yet redox levels/benthic DO environment is indicated in the risk assessment as the source of the degraded benthic community. If little organic carbon, what is driving the shallow redox? p.1-13, last ¶ indicates that organic enrichment is thought to occur at sta.-40 and -41. The report should indicate why there is low organic carbon. Also, is this the "dead zone" referred to in the Navy diver film ? It is not referenced anywhere in the maps or text where that area is within the sampling program.

12. Section 1.4.1, Sediment Contaminants
Page .1-6 2nd Paragraph, last sent.

"and therefore are not bioavailable..." - Add: "under *present* (redox) conditions"...

13. Section 1.4.1, Sediment Contaminants
Page 1-7, last Paragraph last line

These results showing "unique source" PCBs at DSY-29 should be considered seriously during the final conclusions concerning response plans/actions. These issues are not adequately addressed when discussing risk and risk sources in Ch.6.0. This station area appears to provide significant risk, and it appears to be local sources v. discharges from out in the Bay/WWTFs, etc.

14. Section 1.4.2, Tissue Residue
Page 1-9, 2nd full Paragraph - 3rd line + last Paragraph

and other places - "were, in general, comparable to or only slightly higher than those from Reference Stations..." - This statement is very difficult to interpret - Please give an idea in the text such as "never exceeded 1.5x ref sta. levels or a % of reference values v. "in general...comparable to".

15. Section 1.5, Risk Characterization
Page 1-20, top lines

The Division questions whether it is appropriate to essentially put low weighing on TBT results due to lack of ER-L or ER-M values. The test results suggest that the levels of TBT are well above the "degraded condition" value previously mentioned of 5 ng Sn/g for at least some stations. The Navy should attempt to provide some sort of benchmark for this important shipyard-related pollutant. This may be an important CoC since mussels and other bivalves at some stations were shown to be accumulating it from TCR analyses Figs 6.2-1A, 6.2-2A, & 6.2-3A, as was noted on p.1-21 top line.

16. Section 1.5, Risk Characterization
Page 1-21, 2nd full Paragraph

CBRs are not acceptable measures of risk from PAHs for vertebrates like fish since they are rapidly broken down into metabolites which the Navy did not measure, yet they can be significant risks for increased neoplasia and other pre-cancerous tissue indicators. This method will underestimate the risk from PAHs to vertebrates.

17. Section 1.5, Risk Characterization
Page 1-22 top, last sentence

Attributing the high Cu levels in inshore organisms to the Newport WWTF is not acceptable interpretation because Fig.6.1-11 clearly shows that the sediment Cu source is localized and greatest close to shore (Sta. 27-32) and not from an outer cove source.

18. Section 1.5, Risk Characterization
Page 1-25, Benthic Comm. Structure

Does the organic carbon level at these stations reflect the hypothesis of organic enrichment? Also, organic enrichment is not necessarily from sewage discharge, but may be from a local source such as illegal toilet plumbing into storm drains as well as storm water runoff itself. Please acknowledge these other possibilities.

19. Section 1.7, Risk Summary and Uncertainty
Page 1-27

As noted above, several of the "weights of evidence" such as CBRs for PAHs and the lack of HI for TBT tend to bias these results to dilute the potential risk from these important COCs. Later chapters suggest that levels are significantly above reference values (e.g., p.6-7 TBT in mussels $>2x$ ref *at most stations*). Yet later conclusions suggest metals may drive risk at some stations although metal residue levels were often less than the TBT results. PAH and TBT risks need to be better included in the weighing process since they appear to be weighted too low under the present effort.

20. Section 1.7, Risk Summary and Uncertainty
Page 1-28

The Division questions with the categorization of "severe risk" to only apply to threatened and endangered species. Rhode Island does not have a Natural Heritage for marine threatened and endangered species, (the program only addresses terrestrial species). There is only limited and disjointed information on certain species, such as the fact that Ridley turtles have been tracked by researchers to the Newport Bridge. However, no RI list exists for the State marine species. This rare and endangered species concept usually applies to new activities in an area, not cleanup, where such species are unlikely to be found. The impacts in terms of risk severity should reflect risk to the normally expected marine fauna, not a special group of organisms listed by one federal agency based on rarity.

21. Section 1.7, Risk Summary and Uncertainty
Page 1-29 bottom

As noted previously, if hypoxia is the local driver for sta 40 & 41 why is sta.41 96% sand? One would expect very high SOD/ Organic Carbon in such sediments in order to drive what appears to be a substantial and continuing stressor at these stations. Also, as noted above, the nutrient source is likely to be much more local and related to the storm drains v. offshore discharge source.

22. Section 1.7, Risk Summary and Uncertainty
Page 1-30, Whole Section

The likely reuse of the area needs to be considered in this risk assessment as with all risk assessments. Here, the likely reuse is as a boat basin with boatyard related activities in the future. This means deep draft vessels which have a high likelihood of being capable of resuspending sediments with their props, etc. Therefore, impacts following possible resuspension need to be considered in the risk assessment.

23. Section 4.2.4, Dissolved Oxygen Modeling for Coddington Cove,
Page 4-22, 3d paragraph.

This section of the report discusses the importance of AVS. In this assessment the critical benchmark is 0.5. The report indicates that this value is considered to be conservative. In order to make the reader aware of recent developments in this area the report should note that the previous bench mark was 1.0 and now 0.5 is considered to be the appropriate value.

24. Section 4.3.3.1, Sediments
Page 4-20, Paragraph 2.

This section of the report appears to state that normalization to aluminum is carried out to account for lithogenic effects with respect to grain size, that is normalization should reduce the influence to grain size. This discussion needs to be expanded. Specifically, for the metals of concern the report should indicate whether grain size normalization will inappropriately reduce the levels of metals which were anthropogenic introduced. In addition, the report should note whether this normalization is for dried weight samples and the ramifications of performing this procedure.

25. Section 4.3.3.1, Sediments
Page 4-21, Paragraph 1.

This section of the report discusses MEF relative to Station 39. This station was chosen based on the premise that it was least affected by the shipyard and still reflect regional concentrations. With respect to the latter the report should discuss the concentrations observed at this station with that of the controls.

26. Section 5.3, Biological Field Investigations
Whole Section

This section of the report deals with the biotic condition analysis conducted at the site. In addition to listing the different species found at the sampling locations the report should note which species are pollution tolerant and intolerant. Furthermore, the report should include a narrative which discusses whether the organisms found at a particular sampling station was composed of primarily pollution tolerant or intolerant species and the importance of these observations..

27. Section 5.3, Biological Field Investigations
Whole Section

The section of the report compares the number and type of species found at the different sampling stations to that found at the reference stations. Comparisons of this nature are normally carried out using Shannon Weiner Diversity Analysis or other similar analysis. The report should be modified accordingly.

28. Section 6.1.2, Elutriate Contaminants
Page 6-5.

This and other sections of the risk assessment includes the results from a series of dilutions from the elutriate test. The report should note the significance of the dilutions. In addition, the risk assessment should note whether the concentrations representing 100% elutriate is in fact a dilution in itself.

29. Section 6.2.2.1, Tissue Screening Concentration Assessments
Page .6-11, Bottom

The fact that lobster is the species at greatest risk should be considered in the evaluation of action responses since this species *is* allowed as a commercial fishery in the area and will be a component to both possible human exposure and impacts to local economic interests if the population is impacted.

30. Section 6.5.1.2, Sand Bottom Communities
Page 6-35, Top

The Division questions the position that a dominant mat of *A. abdita* is an indicator of low pollution impacts ("Pollution sensitive sp."). Dr. Gene Gallagher of U.M.A. Bos. indicated at a 1995 MASS BAYS conference that Chesapeake Bay Project results show that when >70% of total species in the benthic community consist of *A. abdita*, this is an indication of a *degraded* environment being colonized by a highly opportunistic species that can rapidly colonize an area following disruptions. The high fecal results are suggestive of a storm drain related source of problems since offshore discharge of the Newport WWTF is chlorinated and has very low fecal count.

31. Section 8.0, References,
Page 8-19, third references

Tracey G.A. and D.J. Hansen, 1996.

The report indicates that the above was found in Achieves of Environmental Contamination and Toxicology 1996, Contribution NO. 1641 US EPA-ERLIN,30(4). The report should note whether this citation as well as any other citation if from peer review literature or approved EPA guidance

32. Appendix D-1, Geophysical Survey Data

The report includes a description of the vibracore samples collected at the site. However the location of all of the vibracore samples was not include in a figure. The report should be modified accordingly.