UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

August 29, 1996

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

Re: Derecktor Shipyard Marine Ecological Risk Assessment Report

Dear Mr. Shafer.

I am writing in response to your request for EPA to review the *Derecktor Shipyard Marine Ecological Risk Assessment Report* dated July 18, 1996. Overall, this assessment demonstrates significant improvement over other previous ecological risk assessments for the Naval Education and Training Center in Newport, RI. Several issues that EPA raised at the July 18, 1996 Ecological Advisory Board ("EAB") meeting about methods of "synthesizing risks" need to be resolved in the revised draft document Detailed comments are provided in Attachment A.

I look forward to working with you on the revised draft document. Please do not hesitate to contact me at (617) 573-5777 should you have any questions or wish to arrange a meeting.

Sincerely,

Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc Paul Kulpa, RIDEM, Providence, RI
Brad Wheeler, NETC, Newport, RI
Susan Svirsky, USEPA, Boston, MA
Mary Pothier, CDM, Cambridge, MA
Rayomand Bhumgara, Gannet Fleming, Braintree, MA
Ken Finkelstein, NOAA, Boston, MA
Steven Parker, Brown & Root, Wilmington, MA

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ATTACHMENT A

Page	Comment
p 1-9, §1.4 2, ¶1	The statement that "silver was not detected in residues from any station" is not supported by the data presented in Appendices A-1-6 2 and 1-6.3. Delete this statement
p 1-28, §1 6, ¶1	Refer to the minutes from the EAB that discuss setting categories of risk. Use of definitions/methods from Suter *et al.* (1995) were rejected by EPA at this meeting (*see also* p 1-29, §1 6, ¶3).
p 1-29, §1.6, ¶3	Support the statements, "...apparent localized hypoxia appears to explain this condition [of effects on benthic community structure]..."and " restricted water circulation and nutrients ..," with conclusions from specific data. For example, data from Stations DSY-40 and 41 concerning dissolved oxygen (8.37 mg/L D.O.), and unionized ammonia (0.001 mg/L) do not support the conclusions of hypoxia or restricted circulation. In addition, near-bottom velocity maxima illustrated in Figure 4.2-11 and near-bottom deposition/erosion in Figure 4 2-12 do not support these conclusions either Recheck the results of the data and revise the conclusions accordingly The method of categorizing risks used in the risk assessment is questionable because Station DSY-41 is identified as a "slight risk station," but life was absent from the benthos, and this is the same risk category assigned to the reference stations Define how the evidence was weighted in the assessment (*e.g.*, less weight given to field survey data versus more weight to chemistry or toxicity data) (*see also* p. 1-28, §1.6, ¶1).
p 2-1, §2.0, ¶2	Define abbreviations for University of Rhode Island (URI) and Science Applications International Corporation (SAIC).
p. 2-2, §2 0, ¶2	Add "potential for bioaccumulation of chemicals and food chain exposure modeling" to the list of components to be considered in the risk assessment After identifying the components (*e.g.*, direct field observations, chemical data, *etc.*) of the weight of evidence, edit the text by adding specific language concerning any "priority" or "weight" that may have been given to one of these components in characterizing risks as "slight," "moderate," *etc.* in the risk summary (*see also* p 1-28, §1.6, ¶1 and p 1-29, §1 6, ¶3)

Define how weights of evidence will be assembled to summarize risks, to the item "4" text on page 2-4 regarding risk communication in support of risk management decisions

p. 2-5, §2.2, ¶2 — Revise the third bullet by replacing inappropriate use of "endemic" with the more accurate "marine and semi-aquatic," and adding "food chain exposure modeling" to the list of items ending with "benthic community structure."

pp 4-5 to 4-18, §4 2 — Discuss how these studies synthesize the complimentary data. Do the different methods of characterizing the cove (presented in these sections) result in characterizations that are consistent with the currents, velocity, erosion/deposition, dissolved oxygen content, *etc.* in the cove? It is not clear in this draft document whether differences in the data, identified during the last EAB meeting (*e.g.*, substantial disagreement in characterizations of the cove based on hydrographic versus geotechnical data) are resolved. Zones of deposition/erosion still seem to conflict by method of field measurement, and combined with the dissolved oxygen data, do not support conclusions of the risk assessment (*see also* p. 1-29, §1 6, ¶3 and p. 1-28, §1.6, ¶1)

p. 4-17, §4 2.4, ¶¶1&2 — Conduct a quality assurance check of the dissolved oxygen ("DO") data predictions using the WASP5 model Discuss in Section 4.4 the uncertainty associated with the use of this simulation data

The simulation data presented in this section and illustrated in Figures 4.2-13 and 4.2-14 do not compare with the relationships described by U. S. Fish and Wildlife Service (USFWS, 1982) among water temperature, DO, and % saturation of the water Using rough estimates of the measured data for water temperature (14°C) and DO (7 6 mg/L) for 10/28/95 in the tables, approximately 105% saturation of seawater would have to been present Therefore, in the simulation, a water temperature of 26°C (in Figure 4 2-13 - not worst-case) is accompanied by 7 1 mg/L DO (Figure 4 2-14), and would require 125% saturation of seawater It is questionable whether this % saturation by DO could be accomplished in a natural marine system, and raises concern over the model's predictive ability. If 105% saturation occurred at 26°C, DO would approximate 6 mg/L and not 7.2 mg/L DO which is reported in Figure 4 2-14 This discrepancy could be greater under the worst-case condition of 30°C in Figure 4.2-16.

p 4-18, §4 2.4, ¶1 — If the concerns raised above are correct, reduce the "threshold of 6 mg/L during critical summer months" (a worst-case estimate); or if there is sufficient uncertainty regarding this "threshold" estimate, qualify related

	statements in the report (edit the text elsewhere accordingly and revise analyses/conclusions that depend on the simulation estimates).
p. 5-15, §5.1	Add effects on ecological receptors evaluated in this risk assessment to the discussion of effects concerning the COCs Although discussion of toxic effects on humans is helpful, this section of the report must include effects on ecological receptors. In other words, the discussion of toxic effects of PAHs in relation to human health effects (top of page 5-15) should be replaced with relevant data on ecological receptor effects. Metabolism of PAHs is more common among vertebrates than invertebrates. It is appropriate to discuss the bioaccumulation potential of PAHs by invertebrates (that do not readily metabolize PAHs) and the food chain transfer potential of PAHs to receptors, such as gulls or herons.
pp. 6-7 to 6-10, §6.2.1	Edit the introduction to this section, and improve the clarity of the discussions in this section, to highlight the relevance of these comparisons for developing a measure of relative risk
p. 6-12, §6 2.2.2, ¶2	Revise the statements about the relevance of using a narcosis model of toxic action in the assessment Based on the site tissue residue data in Appendices A-1-6 2 and A-1-6 3 and Section 6 3 3 3, metals (*e.g.*, mercury) are "major contributors of risk" to the gull and the heron, and metals do not fit such a narcosis model
p 6-45, §6.6, Table 6.6-3	Refer to minutes from the last meeting of the NETC EAB regarding the setting of risk categories such as in this section (*e.g.*, de minimis, *etc.*). Suter *et al.* (1995) was rejected by EPA at this meeting (*see also* pp. 1-28 & 1-29, §1 6, ¶¶1&3) EPA also expressed the need for data reduction or results interpretation using the "+" approach Review the minutes to this meeting and revise the report accordingly Revise the manner in which risks are reduced in the risk assessment. The current overall risk ranking of stations in Table 6 6-3 does not correspond to the reader's perception of risk based on the actual exposure and effects data (prior to data reduction to "-" or "+" symbols)
pp 7-1 to 7-5, §7.1	Review minutes of the last EAB meeting and aforementioned comments for pp 1-28 & 1-29, §1 6, ¶¶1&3 and p 6-45, §6 6, Table 6.6-3
pp 8-1 to 8-24, §8.0	Add references for Page and Widdows (1991) and Hoke *et al.* (1994), which are cited in Table 6 2-3.

Appendix A-2	The table is missing Include these data in the revised version of the document
Appendices A-2-2 1 to A-2-2 5	Revise these tables by including the equations that were used to generate the ratios To improve the clarity of data, either summarize these data and their meaning, or add a parameter such as "percentage of reference," *etc.*, to help interpret their meaning. Define in the footnotes which reference station(s) the data was obtained from It is assumed that the purpose of the data is to provide a measure of relative risk, therefore, this data should be developed in this appendix/tables to add clarity to the previous risk estimates and permit the reader to "cross check" results with the risk data For example, hazard quotients in Appendices A-1-6 2 and 6.3 indicate that arsenic, mercury, and zinc are major contributors of risk to the gull or heron owing to consumption of prey, with the addition of silver and possibly copper for lobster Explain what might be a "background" contribution to this estimated risk by developing the reference location data (presumably outside the influence of the site) further and with greater clarity.
Appendices A-2-3.1 & 2-2-3.2	Define Station JPC-1 as a reference station in the footnotes to these tables.

REFERENCES

USFWS, 1982. *Fish Hatchery Management* (R G Piper *et al.*) Department of Interior, Washington, D.C., 517 pp.