UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

April 18, 1995

Deborah Carlson, 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: Environmental Assessment Report, Derecktor Shipyard, Building 42 Area (December 1994)

Dear Ms. Carlson:

I am writing in response to your request for EPA to review the Navy's Environmental Assessment Report, Derecktor Shipyard, Building 42 Area at the Naval Education and Training Center ("NETC"). In general, the report requires some minor clarification in several areas. For example, starting in Section 3 and continuing through Section 4, most of the Table citations are not correct. Section 3 should explain the rationale for selection of all boring/well locations. Also, it is unclear whether sand blast grit and black beauty are the same material. Several of the pages reproduced quite poorly, including Tables 3-4 and 3-10, and Appendix B. EPA's more specific comments are listed on Attachment A.

I look forward to working with you on the revised report. 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
Bob DiBiccaro, USEPA, Boston, MA
Susan Svirsky, USEPA, Boston, MA
Mary Pothier, CDM, Boston, MA
Ken Finkelstein, NOAA, Boston, MA

ATTACHMENT A

Page	Comment
p. 1-1, § 1.0	Clarify whether this work was initiated by the Navy for internal purposes or if EPA was involved/provided a copy of the work plan.
p. 2-4, §2.3, 1st ¶	Appendix A-1 does not include the EP-toxicity results as stated.
p. 2-4, § 2.3, 3rd ¶	According to Appendix A-1 results, sand blast grit material also contains selenium and silver. Identify what numerical value (concentration) determines significance for each of the metals such that they are reported as elevated. Tin also appears elevated (372 ppm).
p. 3-2, § 3.2, 1st ¶	The text should indicate that grain size and total organic carbon ("TOC") samples were obtained from the screened interval from all shallow wells with the exception of MW-4 and from one deep well. Explain the criteria used in selecting the geotechnical samples from the screened interval for TOC and grain size analyses.
p. 3-2, § 3.2, 2nd ¶	Explain the rationale for the location of MW-4S and identify whether this was placed as a downgradient well.
p. 3-4, § 3.2.1, 1st ¶	The paper referenced in this paragraph, titled *Geophysical and Hydrogeological Investigation of a Contaminated Aquifer, Derecktor Naval Shipyard Project*, should be included in the Appendix.
p. 3-4, § 3.2.1, 2nd ¶	The last sentence incorrectly references Figures 3-3 and 3-6 for the geological cross-sections; the references should be Figures 3-3 and 3-4. In order to define the subsurface lithology using all available information, it would seem necessary to prepare a cross-section that ties the information from all the borings, both recent as well as historic. The historical site plan and logs are difficult to interpret and require further explanation. In particular, the report should identify when the borings were installed, the outline of Building 42 on the plan provided, and the elevation at the top of each boring log referencing. Also, it is unclear what is meant by the numerical values in the right-hand column and the left-hand side of each boring log.

p. 3-6, § 3.3, 3rd ¶

The text states that in all but one of the wells, the 10 NTU criteria for turbidity was not achievable. This scenario could suggest that the well construction might not be optimal for this particular aquifer. In order to determine if the slot size of the well screens used were properly suited for the aquifer materials, the agency requests that grain size distribution curves for the sand pack material be submitted for review. Based on available subsurface grain size data obtained as part of the study and the requested grain size distribution curves for the sand pack, referred to as #0 sand in the boring logs (*see* Appendix B), it will be feasible to determine if the wells should have been constructed of 10-slot openings (*i.e.*, 0.01 in.).

It appears that the increasing turbidity values actually correlate with the increasing total metals values. The above-requested information can be used to determine if the elevated levels of metals can be attributed to sediment (coarser than fines) infiltrating the screen.

p. 3-7, § 3.2, 2nd ¶

Confirm that "stabilization" of the pH, temperature, specific conductance in the wells is defined as three consecutive values within 10 percent variation of each other.

Identify what the flow rate was during well development (page 3-7).

p. 3-8, § 3.3, 1st ¶

A reference is made to the water level data presented in Table 3-5 (typographical mistake: reference should be to Table 3-6). Indicate if the depth to water is below ground surface or below top of casing. Also, this table needs to be revised to include the pressure head component and elevation head component of the total hydraulic head. This information is important later in the report when verifying the vertical gradients presented in Table 3-10.

p. 3-9, § 3.3, last ¶

The last sentence on this page indicates that the scope of this groundwater investigation only required sampling of the three originally-planned water table wells. This limited scope does not constitute a complete assessment. Results of the headspace monitoring of all the wells indicates that the only hits (not attributed to methane) were in MW-2I and MW-2D. Consideration must be given to sampling all of the data points. Also, provide a discussion of bedrock aquifer relative to potential contamination.

p. 3-10, § 3.3, 1st ¶

The last two sentences in this paragraph indicate that a split duplicate sample was collected at MW-3S. This split is not a duplicate because it was field filtered. Comparison of a total metals analysis versus a dissolved metals analysis sample does not constitute a duplicate. Revise accordingly.

p. 3-10, § 3.3, 3rd ¶

The text needs to be revised to indicate that a duplicate groundwater sample was collected and not duplicate soil sample.

p. 3-11, § 3.1.1 — This entire page is a repeat of the text on the bottom of page 3-9 and most of page 3-10. In addition, some text appears missing because page 3-10 does not flow with page 3-12.

p. 3-13, § 3.3.1, 1st ¶ — Note that the absolute value of the elevation head is used in calculating the vertical gradient.

p. 3-14, § 3.3.1, 3rd ¶ — The values cited for hydraulic conductivity and porosity presented in the report appear to be reasonable. Attempts should have been made to perform *in situ* hydraulic conductivity (*i.e.*, slug tests) on the media being evaluated. Since this was not done, the grain size data obtained from the screened interval of several shallow and deep wells should have been used to evaluate the hydraulic conductivity "K" of the subsurface soils based on the methods of Hazen or Masch and Denny (Freeze and Cherry, 1979). An assessment of the difference in hydraulic conductivity between the cited values in the text and those derived using the aforementioned grain size data should be evaluated by the Navy. An assessment of the data evaluated using the aforementioned methods is presented as follows:

i. An evaluation of the grain size data contained in Appendix B for the three wells screened in the sand and silt layer (note: no data is available for MW-4) yields a K value ranging from $1*10^{-4}$ cm/sec for MW-1 (10-12') to $2.5*10^{-5}$ cm/sec for MW-3 (14-16') when evaluating the data by the Hazen Method. An evaluation of K by the Masch and Denny Method yields a K value of $2*10^{-3}$ cm/sec for MW-1 (10-12') and for MW-3 (14-16'); the 10^{-3} value is within an order of magnitude of the Hazen value, whereas the 10^{-5} value elicits a two order difference from the Hazen value. Converting the values to ft/day to be consistent with the text, K values range between 0.07 ft/day (MW-3) to 5.5 ft/day. As indicated by the differences in K values the estimate value of 10 ft/day presented in the text may be overestimated.

ii. An evaluation of the one grain size curve obtained from the till layer (MW-1 @ 15-17') yields a K value of 0.2 ft/day or 5.5 ft/day when evaluated using the Hazen or Masch and Denny Method, respectively. The K value of the till layer differs from the value cited in the report (0.01 ft/day) by more than 2 orders of magnitude (Masch and Denny Method). Since subsurface grain size data was not obtained from a depth greater than 15-17' below ground surface (bgs), it is not feasible based on available data to determine if K decreases with depth, therefore, it is recommended that either in-situ hydraulic conductivity tests be conducted on the intermediate/deep till wells, or the K values outlined in this comment be used in the Navy's evaluation of till K values.

iii. With respect to the porosity values cited in the report, Todd (1980)

indicates that the porosity value for a sandy till (as confirmed by Appendix C) is approximately 31%. However, the net effective porosity (drainable water), commonly referred to as the specific yield for a sandy till is 16%. It is believed that this value should be used in the report when calculating the seepage velocity. The change in K values for the till along with the change in specific yield increases the velocity through the till compared to that presented in the report.

p 4-2, § 4.4.1, 2nd ¶ — According to information contained in the boring logs, the 10-12' sample containing acetone was obtained from the upgradient boring MW-1 and not MW-2 as cited.

p. 4-5, § 4.1.4, 1st ¶ — As noted previously, the EP toxicity test results were not included in Appendix A.

p. 5-2, § 5.2 — Based on groundwater flow maps for the shallow overburden, an overburden well should be installed along the northwest corner of Building 42. Based on flow direction depicted in Section 3 figures, contamination that may have been released from within the north-central portion of the building may have been missed based on the existing monitoring well network. Overburden wells should be resampled for total and dissolved metals using EPA's preferred low-flow purge and sampling procedure in order to confirm that elevated levels of total metals are attributable to metals sorbed to particle fines.

Figure 3 — According to Appendix B, well MW-3S has a 10' screen and not a 5' screen as depicted in the figure.

Figures 3 & 4 — According to the text, the overburden material refers to a sand and silt layer. However, the figures refer solely to a sand layer.

Table 3-3 — Clarify whether "mean sea level" noted in Table 3-3 as the reference elevation is the same as "mean low water" noted in the boring logs as the reference elevation.

Table 3-6 — See comment to Section 3.3, page 3-8, Paragraph 1 (Number 5 above).