



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

January 6, 1997

Mr. Philip Otis
U.S. DoN, Northern Division - NAVFAC
10 Industrial Highway, Code 1811/PO - Mail Stop 82
Lester, PA 19113-2090

Re: Review of Final Technical Memorandum Human Health Risk Assessment (HHRA) for IR Program Sites 06, 10, 11 and 13, and response to comments on the draft HHRA dated November 1996, at the former Naval Construction Battalion Center (NCBC) - Davisville, Rhode Island

Dear Mr. Otis:

Pursuant to § 7.6 of the NCBC Federal Facility Agreement (FFA), the Environmental Protection Agency's (EPA) has reviewed the above referenced documents. Please find our comments enclosed. Please note that these comments have already been sent via e-mail, the content has not changed. As was stated in our review of the draft document, the risk assessment will be sufficient once the enclosed comments are satisfactorily addressed. Since a few comments on the draft document were not satisfactorily addressed in this final document the Navy should provide change pages to address the enclosed comments.

Additionally, EPA acknowledges that the current dermal exposure methods may *underestimate* human health risks. A review of the risk assessment results for PAHs in soil at Sites 6, 10 and 11 indicate that the potential incremental dermal risks associated with PAHs in soil will not substantially change the risk assessment results. This is because (1) the risks associated with PAHs (ingested) were low at Sites 6 and 11, and (2) although PAHs would pose a risk at Site 10, soil removal has been completed since this risk assessment was done. Future risk assessments performed for other operable units should account for the absorptive characteristics of soil contaminants such as PAHs that are not quantified. EPA may consider dermal intake estimates to be equivalent to ingestion intake estimates for the qualitative evaluations.

If you have any other questions with regard to this letter, please contact me at (617) 573-5736.

Sincerely,

A handwritten signature in cursive script that reads "Christine A.P. Williams".

Christine A.P. Williams
Remedial Project Manager
Federal Facilities Superfund Section

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Enclosure

cc: Richard Gottlieb, RIDEM
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George Horvat, Dynamac

EPA Review of Final HHRA for Sites 6, 10 & 11

1. **Response to USEPA Specific Comment 3:** The USEPA indicated that potential risks from dermal exposure to chemicals in soils other than cadmium, dioxins, and PCBs should be qualitatively discussed. As with the Draft HHRA, this issue was not addressed in the Final HHRA. EPA acknowledges that the current dermal exposure methods may *underestimate* human health risks. A review of the risk assessment results for PAHs in soil at Sites 6, 10 and 11 indicate that the potential incremental dermal risks associated with PAHs in soil will not substantially change the risk assessment results. This is because (1) the risks associated with PAHs (ingested) were low at Sites 6 and 11, and (2) although PAHs would pose a risk at Site 10, soil removal has been completed since this risk assessment was done. Future risk assessments should account for the absorptive characteristics of soil contaminants such as PAHs that are not quantified. EPA may consider dermal intake estimates to be equivalent to ingestion intake estimates for the qualitative evaluations.

2. **Response to USEPA Specific Comment 4:** EPA concluded benzene should be included in the soil gas tables because samples were analyzed for benzene. The data tables in the Draft and the Final HHRA include only compounds detected at the sites; non-detects were not presented. For clarity, the data tables should be revised to include as a footnote a list of those compounds that were included as target analytes in the analytical methods used, but were not detected in the samples.

3. **Response to USEPA Specific Comment 5:** EPA requested clarification of the statement on page 8, item no. 2, bullet no. 1 of the Draft HHRA: *"If both samples/analyses..., the data were averaged if the two values were within 35 percent of each other for soil and 20 percent for water; otherwise the sample concentration was used."* A basis for these limits (35% for soil and 20% for water) and a rationale for addressing water samples when the risk assessment specifically excludes this medium were required. In response, the Final HHRA appropriately eliminated *"and 20 percent for water"* from the statement; however, no explanation for the 35 percent limit for soil was given and it remains outstanding.

4. **Response to USEPA Specific Comment 12:** EPA required clarification of the statement in Section 5.2.1, page 40 of the Draft HHRA: *"Subchronic risks for cancer and other health effects other than cancer were estimated for future construction workers."* Section 5.2.1, page 37 of the Final HHRA was revised appropriately and now states: *"Subchronic risks for health effects other than cancer were estimated for future construction workers"*. It should be noted that the same sentences can be found in Sections 5.2.1, 5.2.2 and 5.2.3 (pages 38, 39, 40, 41, and 42) and should also be amended as in Section 5.2.1, page 37.