UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

October 17, 1997

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

Re: Technical Memoranda, Ecological Risks from Ground Water at IR Program Sites 06, 08, 11 and 13, Ecological Risk-Based Surface Soil Remediation Evaluation at IR Program Site 13 dated July 1997, Former Naval Construction Battalion Center, Davisville, RI

Dear Mr. Otis:

The Environmental Protection Agency (EPA) reviewed the above referenced document. EPA agrees with the Navy's conclusions that the groundwater at sites 6, 8 & 11 is not contributing toward the risks seen in the watersheds and has no additional comments regarding the ecological risk from ground water at these sites.

However, EPA believes that Site 13 needs to progress towards a feasibility study in order to address surface soil contamination and possibly groundwater contamination at the Mill Creek. I have enclosed several comments on the Site 13 soils and groundwater evaluation. EPA requests the Navy respond to these comments in writing. US Fish and Wildlife Service is still reviewing this document and may relay their concerns to you directly.

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

Sincerely,

Christine A.P. Williams, RPM
Federal Facilities Superfund Section

Enclosure

cc: Richard Gottlieb, RIDEM
Walter Davis, CSO
Tim Prior, US F&WS
Marilyn Cohen, ToNK
Howard Cohen, RIEDC
Marjory Myers, Narragansett Indian Tribe
Bryan Wolfenden, RI RC&D
Eileen Curry, Dynamac
Jane Connet, EA

EPA REVIEW: GW For Sites 6, 8, 10 & 11 & All of Site 13

The memorandum was prepared in result of the Base Realignment and Closure (BRAC) Cleanup Team (BCT) in Boston on April 2, 1997, where the approach and schedule for the assessment of risk from groundwater at IR Sites 06, 08, 11, and 13, and from surface soil at IR Site 13 at the Naval Construction Battalion Center (NCBC) at Davisville, Rhode Island were discussed. As a result of decisions made during that meeting, it was decided that ecological risks from ground water would be evaluated on a site-specific basis. A preliminary submittal consisting of a comparison of CoCs in groundwater, surface water, and stream sediment associated with these sites was submitted to EPA Region I by the Navy's representatives (EA Engineering, Science, and Technology) on April 17, 1997. The Technical Memoranda currently under review have been modified in response to comments on the preliminary submittal. It was also decided during that meeting that the risk assessment for Site 13 would include both ground water and surface soil. The site-specific risk-based assessment of surface soil at Site 13 is similar to those previously submitted for surface soil at Sites 6, 10, and 11, but addresses many of the concerns EPA, FWS, RIDEM, and NOAA raised about those assessments.

The data presented in the current submittal were compared to data in previous submittals, including the Phase II Remedial Investigation (RI) of Installation Restoration (IR) Program Site 06 (TRC 1994), the Basewide Ground Water Study (Stone & Webster 1996), and the Draft Final Facility-Wide Freshwater/Terrestrial Ecological Risk Assessment (EA 1996).

GENERAL COMMENTS:

1. No problems were found with the discussions of the potential impact of groundwater from Sites 6, 8 & 11 on surface water and sediment. The discussions were clear, complete, and logical. The inclusion of maps for each site was helpful.

2. EPA has concerns with the Site 13 ERA, and is still reviewing all the additional information Navy has provided us, such as the maps and TRV table. Therefore, additional comments on Site 13 issues will be forth coming.

Technical Memorandum on Ecological Risk from Ground Water at Site 06 [Hall Creek Watershed]

Specific Comments

3. No problems were found in this section. The source of all data is adequately referenced. The use of a concentration ratio (CR) risk threshold of 1 for chemical constituents in groundwater is satisfactory. The text is clear and detailed, and all assumptions are justified with adequate discussion. The most conservative approach is selected throughout the decision-making process. The conclusion flows logically from the stepwise discussion.

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Conclusion

4. Based on the information provided, it is unlikely that the ground water at Site 06 is impacting the surface water or sediment in the Hall Creek watershed. There is no apparent ecological risk associated with the ground water at this site.

Technical Memorandum on Ecological Risk from Ground Water at Site 08 [Sandhill Brook Watershed]

Specific Comment

5. No problems were found in this section. The source of all data is adequately referenced. The occurrence of high levels of aluminum in the background well located upgradient from Site 8 is noted and adequately discussed.

Conclusion

6. No chemical constituents in the groundwater sampled from wells on or downgradient from Site 8 exceeded the screening criteria. There is no apparent ecological risk associated with the ground water at this site.

Technical Memorandum on Ecological Risk from Ground Water at Site 11 [Mill Creek Watershed]

Specific Comment

7. No problems were found in this section. The source of all data is adequately referenced. The use of a concentration ratio (CR) risk threshold of 1 for chemical constituents in groundwater is satisfactory. The text is clear and detailed, and all assumptions are justified with adequate discussion. The most conservative approach is selected throughout the decision-making process. The conclusion flows logically from the stepwise discussion.

Conclusion

8. Based on the information provided, it is unlikely that the ground water at Site 11 is impacting the surface water or sediment in the Mill Creek watershed. There is no apparent ecological risk associated with the ground water at this site.

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Technical Memorandum on Ecological Risk from Ground Water and Ecological Risk-Based Soil Remediation Evaluation at Site 13 [Hall Creek Watershed]

Soil-based Remediation Evaluation at Site 13

General Comments

9. The site-specific risk-based assessment of surface soil at Site 13 is similar to those previously submitted for surface soil at Sites 6, 10, and 11, but addresses many of the concerns EPA, FWS, RIDEM, and NOAA raised about those assessments. The use of a hazard quotient (HQ) of >10 is used as the risk threshold for individual COCS is discussed. The origin of each benchmark screening value is clearly identified. The potential for additive effects is addressed and those chemicals that may have additive effects are discussed. The risk from Total PAHs is discussed at length in both the introductory text and Step 4 of the assessment. Aluminum was the only inorganic that was not identified as a COC in the ERA. A qualitative discussion of the potential ecological risk from aluminum in surface soil is included.

Specific Comments

10. Section 1.0, page 13-6, paragraph 5: The potential additivity of aldrin and dieldrin is discussed at length. However, aldrin was not detected in environmentally significant concentrations in any watershed at NCBC and is therefore not a concern in this risk assessment. It appears that endrin may have been mistakenly called aldrin, since in other documents that discuss the potential additive toxic effects of chlorinated hydrocarbons, the focus is on endrin and dieldrin. If the chemical was incorrectly named, then the text should be revised. Otherwise, a discussion of the additive effects of endrin and dieldrin, both of which are found at Site 13, should be included.

11. Section 1.1.2, Step 4, Table 1: Table 1 is identified in the table heading as being for the non-excavated area. The data in the table are, in fact, for COC concentrations for the entire Site 13 area prior to excavation, including the area later excavated. The table heading should be clarified.

12. Section 1.1.2, Step 4, page 13-10: There has been considerable discussion prior to the submission of this document about the Navy's use of a risk threshold of 10. To strengthen the discussion of the selection of risk drivers (HQs>10), it should be noted in the text that 2.61 was the highest HQ calculated for the five individual constituents that were eliminated from consideration.

13. Section 1.1.2, Step 4, Table 2 and text: It was unclear if the newly collected samples from just outside the excavation area were analyzed for pesticides, since no pesticides are reported in

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Table 2. Since pesticides were found in the original Site 13 surface soil samples, the samples should have been analyzed for pesticides. If the samples were analyzed for pesticides and none were found, that fact should be noted in the text and footnoted in Table 2.

Conclusions

14. A zinc concentration resulting in an HQ>10 was found at a single sampling location at Site 13 (DV13SW135RC). The HQ for zinc at this site is 51.1 for the hawk; the HQ for zinc at all other sites is ≤4.2. The Navy believes that because the impacted area is small and located in an area of low quality habitat (grass field located close to a paved road and buildings), the high concentration of zinc poses a minimal ecological risk. EPA is still reviewing this issue.

15. A total PCB concentration (22 mg/kg) that would result in an HQ>10 was found at a single sampling location at Site 13. The sampling location (DV13SW12A) is just outside of the area of soil removal. The Navy notes that this sample is approximately 15 feet from a sample that contained 2620 mg/kg total PCB, evidence that a steep concentration gradient for total PCBs exists at the site. The Navy believes that because the impacted area is small and located in an area of low quality habitat, the high concentration of total PCBs poses a minimal ecological risk. There is, however, evidence that the total PCB concentration gradient at Site 13 is not linear and does not continue a similar steep decline past DV13SW12A. The closest soil sample to DV13SW12A (S-13-08-00-S) is located approximately 125 feet to the north and has a total PCB content of 2.5 mg/kg. The conservative assumption must be that DV13SW12A is not a limited area total PCB hot spot, and that the concentration of total PCB slowly declines for some distance beyond the sampling station. Without additional analysis of the soil between DV13SW12A and S-113-08-00-S for total PCBs, it is impossible to estimate the size of the impacted area and to assess the ecological risk.

16. The PRG for total PCB for this site is the RIDEM criterion of 10 mg/kg, however this level is not protective of the ecological receptors. This issue was pointed out to the Navy when the Navy started the removal action in 1996 and again when the Navy decided to move from removal authority to remedial authority in 1997.

Ecological Risk From Ground Water at Site 13

Specific Comment

17. In Step 3 (page 13-17), it is stated that although Site 13 straddles a ground water divide between the Hall Creek and Mill Creek watersheds, the comparison assessment focuses only on Hall Creek "for reasons developed below". However, Mill Creek is mentioned again in the text only in reference to antimony in Well MW13-10S. A more complete discussion of the potential for ground water COCS other than antimony to impact the Mill Creek watershed should be

provided.

Conclusion

18. More discussion is needed on the potential for ground water at Site 13 to impact the Mill Creek watershed. However, based on the map of ground water flow, well location, and COC concentrations included in this Technical Memorandum and on the lists of COCS in surface water and sediment in the Mill Creek watershed included in the ERA, it does not appear that the Mill Creek watershed is impacted by ground water at Site 13.