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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

August 18, 1998

Mr. Rob Sadorra, Code 1812
Department of the Navy
Engineering Field Activity Chesapeake
Washington Navy Yard Building 212
901 M Street SE
Washington, DC 20374-5018

RE: Indian Head Surface Warfare Center. Documents: 1. Remedial Investigation Report: Site 12 - Town Gut Landfill, Site 39/44 - Organics Plant/Scrap yard. Site 42 - Olson Road Landfill, Site 44 - Soak Out Area (May 1998); 2. RCRA Facility Investigation/Verification Investigation Report for Stump Neck Annex (January 1998)

Dear Mr. Sadorra:

The U.S. Fish and Wildlife Service, Chesapeake Bay Field Office (CBFO) has reviewed the Ecological Risk Assessment portions of the two referenced documents. The following comments are for your consideration.

General Comment

The CBFO recommends that the Navy and its contractor present the findings of these reports to the Region III Biological Technical Assistance Group (BTAG) for discussion. At this meeting, the recommendations for risk management should be discussed. Risk management decisions should reflect a consensus between EPA, the State of Maryland Department of the Environment, and the Navy, with BTAG providing technical guidance to EPA. Prior to this meeting, the ecological risk assessment sections should be revised in light of the comments provided below.

Remedial Investigation Report: Site 12 - Town Gut Landfill, Site 39/44 - Organics Plant/Scrap yard. Site 42 - Olson Road Landfill, Site 44 - Soak Out Area (May 1998)

Chapter 2

1. Pages 2-68, last full paragraph: The CBFO recommends using the Long and Morgan (1990) values which include freshwater as well as estuarine/marine and the Smith et al. (1996) values which are entirely freshwater-based. A reasonable, but conservative approach, would be to compare the ER-M and PEL concentrations and use the lower of the two.

2. Page 2-69, second full paragraph: CBFO does not agree with the method used to predict preliminary remediation goals with equilibrium partitioning models. Although Long et al. (1995) stated that the relationships between published ER-L and ER-M values and observed adverse effects were poor for several compounds, there is no assurance that the newly derived values will be better. Also, there are multiple K_{ow} values reported in the literature for all of the organics, which adds to the uncertainty in the approach.

Chapter 4 - Site 12

1. Page 4-3, last paragraph: A better description of the surface water/sediment sampling locations is needed.

1. Tables 4-19, 4-20, and 4-22: It would be useful if the maximum detected concentration was added to the table.

2. Table 4-21: These data are mentioned briefly on page 4-26 but are not interpreted in the text.

3. Table 4-24 and 4-25: It is not possible to review these values because the input parameters to the models are not provided. CBFO suggests that the authors include new tables which include the model inputs, rather than just the results.

4. Page 4-29: The authors use the previous biomonitoring studies in the Site 12 ponds to argue that no further action is required at the site. Yet, only a one-paragraph summary is provided. If the case is to be made for no further action, the data from the previous study should be described fully, and incorporated into the risk assessment.

5. A table of preferred remediation goals, along with the derivation and rationale for each, should be provided.

Chapter 5 - Site 39/41

1. Page 5-17: The locations for the Maryland Department of the Environment sampling stations should be provided. Additional sediment data is available from studies conducted in the mouth of Powells Creek, directly across the Potomac River from Mattawoman Creek (Pinkney et al. 1995, 1997).

2. Comments 1 and 3 from Chapter 4 apply to the risk assessment tables.

3. Page 5-34, second full paragraph: Since silver was not measured as part of the simultaneously extracted metals, no inferences on potential bioavailability are defensible.

4. Comment 5 from Chapter 4 applies.

5. Page 5-40: PCB concentrations as high as 180 mg/kg in the scrap yard exceed the preferred Region III BTAG cleanup level of 1 mg/kg. Despite the poor habitat, it is likely that small mammals may encounter these soil concentrations. CBFO recommends that EPA and the Navy evaluate the feasibility of removing soils with this level of contamination.

Chapter 6 - Olson Road Landfill

1. Page 6-3: It is unclear why the soils were analyzed for organics only and the surface water was analyzed for metals and cyanide only.

2. Page 6-3, last paragraph: The analysis of total organic compounds (TOC) is not described. Is this a screening analysis?

3. Page 6-16: It is stated that TOC concentrations ranged from 1720 mg/kg to 33,700 mg/kg. Are these all anthropogenic compounds? If so, there would be a tremendous risk.

4. Comments 1, 3, and 5 from Chapter 4 apply.

5. Page 6-30, second paragraph: Precise locations for samples should be available so that the risk assessment can be run excluding samples that have been remediated.

6. Page 6-35: The CBFO agrees with the recommendation for a feasibility study for the removal of silver from drainage swale sediments.

RCRA Facility Investigation/Verification Investigation Report for Stump Neck Annex (January 1998)

Chapter 2 - Investigation Activities

1. Section 2.6.1.3 Uncertainty analysis: This section should be revised to present a more objective consideration of the uncertainties; the current focus appears to be the conservative nature of the EPA screening level ecological risk assessment (ERA) procedures. It is because of the uncertainty associated with assessing risk to ecological receptors that the assumptions are conservative.

2. Section 2.6.1.3.3 Uncertainty in the Exposure Assessment: As above, the discussion focuses on the conservative nature of the EPA's ERA approach, rather than a true, unbiased consideration of uncertainty. The uncertainty associated with the limited number of samples used to characterize the sites should be discussed. Finally, the CBFO does not believe the discussion of uncertainties associated with assessing risk of ground water is appropriate. The authors raise issues that can be considered caveats or faults of the approach, not uncertainties.

3. Page 2-10, line 4: A scientific management decision point is reached after the ERA screening.

4. Page 2-82: The CBFO recommends that sediment guidelines for freshwater be derived from Long and Morgan (1990) or Smith et al. (1996) because, as the authors state, the Long et al. (1995) data are derived from estuarine and marine sediments.

Chapter 4- SWMU 5 - Range 6

1. Page 4-49, lines 7-8: The CBFO disagrees with the statement. "However, the sporadic elevated concentrations of these metals limit the potential for widespread risk to terrestrial receptors". In addition, this is a risk management issue and is not appropriate in a summary of the ERA.

2. Page 4-49, last 3 lines on page: As above, the CBFO disagrees with the assumption that there is minimal exposure to terrestrial receptors based on the following: First, the assessment was based on limited number of samples (19 soil borings); hence, there is high uncertainty associated with characterization of the magnitude and extent of contamination. Second, maximum soil concentrations of several metals not only exceed BTAG screening levels but also the less conservative "alternative guidelines" which are concentrations indicative of toxicity to soil invertebrates and microbes. Third, food chain models indicate the potential for effects on higher trophic levels.

3. Page 4-49: The CBFO agrees with the recommendation that a feasibility study may be necessary at this site, in light of the discussion above and the possibility of an arsenic disposal pit at Range 6.

4. Tables 4-26 and 4-27: As indicated in comments on document 1, the CBFO suggests that when presenting results of food chain modeling, the authors include tables which include the model inputs, rather than just the results.

Chapter 5 - SWMU 2/3 - Range 3 Burn Point/chicamuxen Creek's Edge Dump Site A

1. Page 5-31, line 23: The term "significantly" often implies statistical differences. Since no statistics were conducted, this term should be replaced by a more suitable word here, and elsewhere in the document.

2. Page 5-33, third paragraph: The CBFO disagrees with the statement that soil concentrations do not "significantly" exceed base-wide background concentrations. For copper, mercury and selenium the maximum and average concentrations at the site are 2 - 3 times the base wide concentrations. In addition, the maximum concentration of copper (46.7 ppm) is only slightly less than one of the alternative guidelines (50 ppm), not "much less" as indicated in the document.

3. Page 5-33, fourth paragraph: The CBFO disagrees with the suggestion that soils are not a source of metals to nearby sediments. Concentration differences between sediments and soils are influenced by many complex physico-chemical factors (e.g., grain size, organic carbon content) not simply the source of material.

4. Page 5-36, third bullet: Soil concentrations of trace metals, including copper and mercury, were elevated in relation to base wide concentrations.

5. Page 5-41, number 1: The CBFO does not believe there is sufficient justification for eliminating metals as final potential chemical of concern in soils. Concentrations of chromium, copper and mercury exceed alternative guidelines. In addition, results of terrestrial food chain modeling indicate the potential for effects on higher level trophic receptors.

6. Page 5-41, last paragraph: At this time, the CBFO does not agree with the recommendation of "no further action" at this site and we re-iterate the need for risk management decisions to reflect a consensus between EPA, the State of Maryland Department of the Environment, and the Navy.

7. Tables 5-25, 5-26 and 5-27: Comment 1 from Chapter 4 applies.

Chapter 6 - SWMU 1 - Rum Point Landfill

1. On page 6-27 it is indicated that several polycyclic aromatic hydrocarbons (PAHs) were retained as potential chemicals of concern. However, they are not considered in section 6.7.3 or elsewhere. A discussion of the potential risk due to PAH contamination of soil should be included.

2. Tables 6-24 and 6-25: Comment 1 from Chapter 4 applies.

Chapter 7 - SWMU 4 - Chicamuxen Creek's Edge Dump Site B

1. Section 7.7.3: Although soil concentrations of chromium at the site approximated base wide background concentrations, these concentrations did exceed the "alternative guidelines", indicating the potential for soil toxicity. This issue should be discussed to justify eliminating chromium as a chemical of concern.

2. Tables 7-18 and 7-19: Comment 1 from Chapter 4 applies.

The Service appreciates the opportunity to comment on these documents. Should you have questions, please call Fred Pinkney at 410-573-4519 or Beth McGee at 410-573-4524.

Sincerely,

Robert J. Pennington, Chief
Branch of Habitat Evaluation and Protection

References:

Long, E.R. and L.G. Morgan. 1990. The potential for biological effects of sediment-sorbed contaminants tested in the National Status and Trends Program. NOAA Tech. Memo. NOS OMA 52. U.S. National Oceanic and Atmospheric Adiministration, Seattle, WA.

Long, E.R., D.D. MacDonald, S.L. Smith and F.D. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. Environmental Management, pp. 81-97.

Smith, S.L., D.D. MacDonald, K.A. Keenleyside, C.G. Ingersoll, and L.J. Field. 1996. A preliminary evaluation of sediment quality assessment values for freshwater ecosystems. Journal of Great Lakes Research, pp. 624-638.