Section : 12.01
Site 20903-5640 (White Oak)
Doc. #: 0021

00391

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

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NSWC WHITE OAK
5090.3a

November 7, 2000

Mr. Walter Legg
Engineering Field Activity Chesapeake
Washington Navy Yard, Building 212
1314 Harwood Street, S.E.
Washington, DC 20374-5018

Re: Draft Corrective Measures Study for Operable Unit 2, the Former Naval Surface Warfare Center (NSWC) White Oak

Dear Mr. Legg:

The United States Environmental Protection Agency Region III has reviewed the above report dated September 2000 and has the following comments:

SPECIFIC COMMENTS

1. **Section 2.2.2.2, page 2-4**. This section describes the hydrogeology of the OU-2 area. The text states that groundwater levels presented in the CMS were collected during drought conditions, and that the water levels may have been several feet lower than during non-drought conditions. In addition, text in Section 5.2.2.5, page 5-7, indicates that waste at Site 2 may be saturated. An evaluation of the conditions under which the water table is above the bottom of wastes in the landfill should be provided, and a brief discussion of the effect capping the landfill would have on the water table should be provided. The success of Alternative 2 alone to reduce the contamination of groundwater downgradient of Site 2 could be affected by whether or not the wastes are located below the water table. Water levels collected during non-drought conditions should be added to the text, and an appropriate discussion of any impacts on the recommended alternative should be included.

2. **Section 2.3.1.1, page 2-5**. This section describes the contents of the test pits excavated at Site 1. The descriptions of test pit number 2 (TP-02) and test pit number 5 (TP-05) indicate that fuel and solvent odors were noted during excavation. However, the analytical data provided in Table 2-2 indicate low concentrations of volatiles. An explanation of this apparent discrepancy and an explanation of what measures will be taken during confirmatory sampling if solvent and fuel odors are still present, but the analytical data reveal low concentrations of contamination, should be provided. The presence of solvent and fuel odors would suggest a contamination source remained.

3. **Section 2.3.1.1, page 2-5**. The text states that three large ordnance items were found in test pit number 8 (TP-08). Information on whether these ordnance items were unexploded ordnance (UXO), ordnance-related scrap, or bomb shapes should be provided in the text.

4. **Section 2.3.1.2, page 2-8**. This section indicates that beryllium was detected at a concentration in excess of screening criteria. According to Table 2-2, beryllium was not present at a concentration exceeding screening criteria. This discrepancy should be addressed.

5. **Tables 2-1, 2-2, 2-6, 2-7, and 2-8**. These tables summarize the analytical sampling at Site 1, Site 2, and the drainage swale. The tables also screen the detected concentrations against EPA Region III risk-based concentrations (RBCs). The RBCs used to screen the analytical data are from the April 1999 version of the RBC table; the current version at the time of the preparation of the CMS should have been used (i.e., April 2000). Given that the tables need to be revised, the most recent version of the RBC table (October 5, 2000) should be used to screen the analytical data. The tables should be revised.

6. **Figure 2-2**. This figure provides the site layout and sample locations for Site 2. This figure indicates that seven test pits were excavated within the landfill. The text does not describe the material excavated from the test pits. The contents of the test pits should be provided to indicate what may be encountered during construction. This information should be added to the text.

7. **Section 3.2.2, page 3-3**. This section indicates that groundwater and surface water will not be addressed by the CMS. Part of the rationale for excluding these media is that the nature of the COCs identified in these media are conducive to natural attenuation. If natural attenuation is known to be occurring at OU2, data or a reference substantiating this should be provided. Although natural attenuation may be occurring, it is inappropriate to insinuate that it is without data to support the conclusion.

   Furthermore, Section 2.1.2, page 2-2 states the unnamed stream to the south of Site 2 receives groundwater input from Site 2. Assuming this groundwater is contaminated, the surface water would be receiving contaminated groundwater. Thus, there would be potential receptors for the surface water pathway. In addition, the unnamed stream is a tributary to Paint Branch. Offsite sampling conducted during the Washington Suburban Sanitary Commission (WSSC) Investigation (CH2M Hill, 1999) revealed offsite contamination of Paint Branch downstream of its confluence with the unnamed stream at the toe of Site 2. Therefore, it appears the statement that groundwater is expected to naturally attenuate and that there are no receptors for groundwater and surface water from the site appears to be erroneous. If it is believed that it is likely that the recommended alternative will resolve these potential problems, it should be so stated. A provision for potential future groundwater remediation is appropriate. The unsubstantiated statements

noted above should be removed from the document, or information substantiating those statements should be added to the document. The Text on page 3-7 contains similar statements concerning groundwater and should also be addressed.

8. **Table 3-1**. This table provides federal applicable or relevant and appropriate requirements (ARARs). Construction activities within stream channels are regulated under the Clean Water Act by the US Army Corps of Engineers. This should be added to the table.

9. **Table 3-2**. This table provides the State of Maryland ARARs. The Maryland Department of the Environment regulates construction within the 100-year floodplain of streams. This should be added to the table.

10. **Table 3-3**. This table provides the RGOs for soil and sediment for OU2. A reference for the RBC values utilized in the table should be provided. The October 5, 2000, version of the RBC table should be utilized.

    In addition, a reference for background concentrations for inorganics is not provided. This information along with whether the 95 percent upper confidence limit (UCL) of the mean concentration was used should be provided.

    Text in Section 3.3.2 on page 3-5 indicates that the ecological risk assessment has not been completed and, therefore, the RGOs that are protective of ecological receptors may change based on the results of the ecological risk assessment. The potential for the RGOs to change should be clearly indicated in the table.

11. **Appendix A, Alternative 2**. This appendix provides the cost estimates for the corrective measure alternatives. Under the recommended corrective measure (Alternative 2), costs are included for installation of three shallow and three deep monitoring wells. It is unclear whether these wells are to be installed to replace wells that may be abandoned during construction, or whether these new wells will be in addition to the existing wells. This information, along with the general locations of the wells to be installed, should be provided.

12. **Appendix A, Alternative 2**. The text in the calculation sheet for this alternative indicates annual groundwater monitoring and 5-year reviews will be performed. It does not appear that these costs have been included in the cost estimate table. Appropriate revisions should be made.

TOXICOLOGICAL COMMENTS

1. Section 2.4, Human Health Risk Assessment Summary. As stated in the USEPA comments for the EE/CA for Site 1 (dated, May 8, 2000) and the Draft Site Screening Report for Area of Concern 2 (dated April 24, 2000); The described streamlined risk approach presented in the report is **not acceptable**. The below streamlined risk approach

should only be used as a pre-remedial screening alternative process to determine if it is necessary to continue on to the RI/FS process. Thus, if the benchmark values are exceeded when using this approach then the presumptive remedy approach is acceptable however, a full risk assessment should be completed on the remaining residual contamination. Further, if the benchmark values are **not exceeded** when using the outlined streamlined approach then the presumptive remedy approach **will not** be considered acceptable and a full risk assessment at Site 1 will be necessary. Please use the following streamlined risk approach when assessing risk:

Screening Alternative (*Federal Facilities only)

A. Develop a risk ratio technique for screening risk.

- this technique will roughly estimate on-site risks using the same assumptions as the RBC Table.

- to account for exposure routes not considered by the RBCs, set risk benchmarks for triggering action accordingly.

- benchmarks cannot be too stringent, though, as this would defeat the objective of this streamlining effort.

- keeping in mind when EPA typically takes action at remedial sites (cumulative excess cancer risk> 1E-04 or HI>1), however Region III suggests following screening benchmarks for pre-remedial sites at Federal Facilities:

Cumulative Excess Cancer Risk = 5E-05; HI = 0.5

- setting the benchmarks in this manner allows for consideration of risks from exposure routes not accounted for (such as dermal contact), but is not so stringent that many sites are unnecessarily carried through the full-blown RI/FS and BLRA process.

B. Other Considerations

- for a pre-remedial site to be eligible for this approach, an adequate number of samples, from appropriate locations should be collected.

- sample analyses should consist of full TCL/TAL (plus TICs, as necessary).

- at facilities where adequate reference studies have been conducted, background conditions should be considered in related decision-making.

- ORC should be onboard with this before finalizing

- this approach does not consider eco impacts.

Human Health Effects - Carcinogens

The following equation will be used to evaluate chemicals which have potential or known carcinogenic effects. It is important to note that resultant incremental lifetime cancer risk estimates are those hypothetically incurred by a receptor exposed to COPCs in an environmental media according to the assumptions established in the exposure assessment and are not reflective of current or anticipated future conditions at the (name sites) sites under investigation.

$$\mathbf{ICR = (Cmax/RBC) \times 10^{-6}}$$

where:

ICR	=	**Incremental Lifetime Cancer Risk**
Cmax	=	**Maximum Detected Concentration (mg/kg, ug/L)**
RBC	=	**Risk-Based Concentration (mg/kg, ug/L)**
$\mathbf{10^{-6}}$	=	**Risk Assessment Point of Departure**

Multiplying the Cmax/RBC ratio by EPA's point of departure risk level, 10^{-5}, produces a risk estimate for the detected chemical. The ICR values for all COPCs should be summed to account for potential carcinogenic effects associated with multiple chemical exposures. The total ICR value should be assessed relative to the USEPA's target cancer risk range of 10-4 to 10-6 to determine whether remediation may be necessary.

Human Health Effects - Noncarcinogens

The potential for adverse noncarcinogenic health effects will be evaluated using the following equation. The resultant hazard quotients and hazard indices are indicative of the potential for adverse noncarcinogenic health effects. However, the potential noncarcinogenic risks are those hypothetically incurred by a receptor exposed to COPCs in an environmental media according to the assumptions established in the exposure assessment and are not reflective of current or anticipated future conditions at the (name sites) sites under investigation.

$$\mathbf{HQ = Cmax/RBC}$$
$$\mathbf{HI = HQ}$$

where:

HQ	=	**Hazard Quotient**
Cmax	=	**Maximum Detected Concentration (mg/kg,ug/L)**
RBC	=	**Risk-Based Concentration (mg/kg,ug/L)**
HI	=	**Hazard Index**

The HI value for each environmental medium will be compared to unity (.5). An HI that is equal to or less than unity indicates that noncarcinogenic effects are not expected to

occur under the conditions established in the exposure assessment. An HI value that exceeds unity indicates that noncarcinogenic health effects may occur.

2. According to USEPA Application of CERCLA Municipal Landfill Presumptive Remedy to Military Landfills, December 1996, "A site generally is eligible for a streamlined risk evaluation if groundwater contaminant concentrations clearly exceed chemical-specific standards or the Agency level of risk or if other conditions exist that provide a justification for action (e.g., direct contact with landfill contents due to unstable slopes). If these conditions do not exist, a quantitative risk assessment that addresses all exposure pathways will be necessary to determine whether action is needed." Since this is the case, the report does not provide a clear rational for meeting the conditions to apply a presumptive remedy. For instance, at Site 1 were MCLs and/or risk levels exceeded, or are landfill contents exposed so that an individual may be directly exposed? The report should clearly provide the rationale for selecting and meeting the requirements necessary to conduct a presumptive remedy.

3. According to USEPA Presumptive Remedy for CERCLA Municipal Landfill Sites, September 1993 and USEPA Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites, February 1991 a site conceptual model should be used to identify all potential exposure pathways. The site conceptual model is not presented within the report nor does the report provide information verifying the site conceptual model was compared to pathways addressed by the containment presumptive remedy.

4. Section 2.4.1.1, Data Evaluation. The report states, "This comparison is done in accordance with the procedure set forth by EPA Region IV." USEPA Region III does not follow guidance provided by other regions. In addition, the described comparative analysis has been found to offer no statistical basis. Therefore, USEPA Region III recommends the following statistical applications when comparing site data to background data; Student t-Test, Wilcoxin Rank Sum, Mann-Whitney U-test, Upper Tolerance Limit. All comparative statistical testing should be presented within the report for review.

5. Section 2.4.1.2, Exposure Assessment. The report states, "When the results of the test were inconclusive, the distribution was assumed to be lognormal." As stated in numerous previous USEPA Toxicology comments (8/30/99, 9/22/99, 2/23/00, 5/8/00, and 5/17/00). This assumption has been found to be statistically **not true** and will no longer be accepted by USEPA Region III. To determine the correct data distribution, the following statistical methods should be applied; H-statistics, Chebychev Theorem, Central Limit Theorem, Jackknife procedures, and/or Bootstrap procedures. Therefore, the currently reported 95% UCL results for undefined distributions will not be accepted in this report. Please recalculate the data distributions for the contaminants using the recommended statistics mentioned above.

6. Section 3.0, Corrective Action Objectives. The report states, "The development of CAOs for OU2 is based upon information gathered and evaluated during the Site 1 SSR and EE/CA and the Site 2 RFI . . . " USEPA Toxicological comments for Site 1 EE/CA dated May 8, 2000 have not been addressed in this report. Please see comment#1, 2, and 3.

7. Section 3.2.2, Media of Concern. The report should be clear that groundwater (and surface water?) will be addressed under a separate operable unit. Any discussion or evaluation of natural attenuation as remedy in this case should be deferred to reporting for this separate operable unit. The soil to groundwater pathway must be taken into consideration in this report. Since groundwater from both landfills (Site 1 and 2) maybe directly impacted by the soil, EPA soil- to-groundwater soil screening levels must be taken into account when developing remediation goals.

If you have any questions, please call me at (215) 814-3360.

Sincerely,

Darius Ostrauskas
Remedial Project Manager
Federal Facilities Section

cc: Jeff Thornburg, MDE