



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

Section: 3.01  
Site 20903-5640 (White Oak)  
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NSWC WHITE OAK  
5090.3a

August 27, 1999

Mr. Walter Legg  
Engineering Field Activity Chesapeake  
Washington Navy Yard, Building 212  
901 M Street, S.E.  
Washington, D.C. 20374-5018

Re: Review of Draft Project Plans for Remedial Investigation of Operable Unit 1 for the  
Former Naval Surface Warfare Center - White Oak

Dear Mr. Legg:

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

**GENERAL COMMENTS**

1. Most of the study objectives presented on page 1-2 of the Project Work Plan (WP) will be met by the field investigations proposed for the RI. However, field investigations should be amended to meet the following identified objectives:
  - a. Evaluate other source areas contributing VOCs to groundwater - only two other source areas will be investigated in the RI. They are Building 376 and the area of stressed vegetation on the Army property. Based on recent groundwater data, these are not the only suspected source areas. Additional possible source areas exist within Site 46 that should be investigated.
  - b. Investigate whether contamination is present in the saprolite or bedrock - many monitoring wells proposed for the RI will be screened within both the saprolite and the bedrock, making differentiating of contamination very difficult. The RI should be revised to make sure wells are either screened within the saprolite or bedrock, not both.
2. Based on recent sampling results, it is recommended that all monitoring well samples, including direct push and quick turnarounds, be analyzed for diesel range organics (DRO). Field procedures for these analyses, including bottleware, holding times, preservatives, etc. should be included in pertinent area of the WP and FSP.
3. To characterize surface water/sediment data fully, the RI should also investigate soil contamination. The RI will investigate if groundwater is a source for surface water/sediment contamination; however, soil contamination is not addressed as a possible

source. The investigation of soil should include previously collected soil data and the collection of additional soil samples.

4. Subsurface soil samples are only proposed for two areas within Site 46. Justification should be provided for not investigating subsurface soils for each site as they relate to risk assessment and as possible source areas.
5. It is recommended that additional bedrock wells be installed south of the Army property. Contamination has been detected in off-site private residences. Very little information is available about the construction of the residential wells. Therefore, additional bedrock monitoring wells should be installed upgradient of the Charlton, Irby, and Elder Care property. The well borehole should be drilled to a predetermined depth that is sufficient to determine the extent of fracturing near these areas. The final depth of the bedrock well screen or open borehole should be determined through borehole geophysics.
6. Recent sampling has revealed that groundwater flows radially from the Site 4 area. To date there has been no investigation how the gravel pit, located to the north, effects groundwater flow and contaminant transport from Site 4. This area should also be considered during the RI or justification given.
7. It is unclear why subsurface soil samples will not be incorporated in the human health risk assessment. It is possible that contamination in subsurface soils is present at Site 46. Subsurface soil should be assessed to ensure that potential human health risks to construction workers are not present.
8. It is unclear if historical data will be used in addition to the CH2M HILL data in the human health and ecological risk assessments. The use of historical data in the risk assessments should be evaluated carefully, especially if statistical analysis such as the calculation of a 95% upper confidence limit is to be employed. The text should clarify if historical data will be used in combination with the CH2M HILL data in the risk assessments.
9. The human health risk assessment will include screening based on background samples. It is unclear where the background data will be obtained; the text does not provide a reference or any technical information regarding the location and collection of the background data samples. Use of background data for screening should only be employed when the background data is proven to be truly representative of background. A reference should be provided for the background data.
10. The ecological risk assessment focuses only on Site 46. It is assumed that the base-wide risk assessment currently being performed by Tetra Tech NUS will sufficiently

characterize the other potential ecological risks in OU-1. Once completed, the RI should clearly state that the ecological risk assessment only addresses Site 46. The results of the basewide ecological risk assessment for OU-1 should, at a minimum, be provided in an appendix of the completed RI.

## **SPECIFIC COMMENTS**

### **WORK PLAN**

1. *Figure 1-1.* This figure presents the OU-1 site map. It appears that there are several existing wells near the centrifuge but only one will be surveyed. It is unclear in the text why only one well will be surveyed. At a minimum, one additional well should be surveyed near the centrifuge.

The site map shows the location of monitoring wells on the site. The boundaries of each site on the map are unclear. The boundaries of each site should be detailed on the site map.

2. *Table 2-1, page 4.* This table details the data gaps, probable scenarios and general and specific approaches for the RI. The table states that a well pair will be installed west of West Farm Branch, across from well 9PZ56. However, Figure 3-3 does not show the location for the proposed monitoring well. The discrepancy between the table and figure should be clarified. It does not appear that this well pair is necessary based on the location of other well pairs. Consideration should be given to moving the well pair to another area of OU-1.

The table shows that only one surface water and one sediment sample will be taken in the Paint Branch stream. Two samples of each media will be taken in the Irby stream and the Site W Swale stream. One or two samples are not enough to characterize contamination within a medium. This data is to be the basis of a human health risk assessment; therefore, a more substantial data set is required for each medium to characterize the stream adequately.

3. *Section 2.3.8, page 2-17.* The text does not include the Isherwood Drive stream as an area that will be sampled. Surface water/sediment samples should be collected from this stream or justification provided.
4. *Section 3.2.3, page 3-4, 5th bullet.* The text states that monitoring well boreholes may be backfilled, as necessary, to reach desired screen elevations. However, neither the WP nor FSP discusses the backfill material or backfill procedures. Both the WP and FSP should be revised to include this information.

5. *Section 3.2.3, page 3-4, 6th bullet.* Fluid rotary drilling techniques will be used to finish wells installed in saprolite and bedrock that encounter refusal with the hollow stem auger method. It is unclear why fluid rotary drilling will be used, since there is little worry about borehole collapse in the saprolite and bedrock layers. In addition, the use of fluid rotary methods will require more aggressive well development than is presented in the Master FSP. Justification should be provided for using fluid rotary drilling techniques over other methods (i.e., air rotary).
6. *Section 3.2.4, page 3-5.* The text should specifically state that low-flow sampling methods will be used, since the Master Work Plan does not specify low-flow sampling as the only sampling method for groundwater. The use of low-flow methods would make groundwater samples collected for OU-1 comparable to TtNUS data collected for the RFI.
7. *Section 3.2.6, page 3-7.* Contingency (biased) samples should also be considered if contamination is observed during monitoring well installation, direct push sampling, or during field investigations.
8. *Section 3.4.* This section discusses the human health risk assessment. A conceptual site model that details potential receptors and pathways is not provided. As such, there is no rationale provided for inclusion or exclusion of individual pathways. A human health conceptual site model should be provided.
9. *Section 3.4, page 3-13, paragraph 2.* This section discusses the various media that will be assessed in the human health risk assessment. Shallow groundwater and bedrock groundwater are listed together under one bullet; therefore, it is unclear if these separate aquifers will be assessed together as one unit. The text should clarify that the aquifers will be treated separately in the risk assessment.

Also, surface water and sediment media are listed together under one bullet for the various streams that will be assessed. The text should clarify that these streams will be treated separately in the risk assessment.

In addition, it is unclear if the human health risk assessment will evaluate data from each site in the OU separately or if the entire OU will be evaluated as a whole entity. This should be clarified in the text. It is recommended that data should be evaluated from each site separately.

10. *Section 3.4, page 3-14, paragraph 1.* This paragraph discusses the screening of chemicals of potential concern (COPCs) for the human health risk assessment. The text

does not specify the statistical procedures that will be used in this screening. For example, the maximum concentration from the background samples should be used. The text should specify the statistical procedures that will be used in the screening of COPCs.

11. *Section 3.4, page 3-14, paragraph 2.* This paragraph discusses the exposure assessment. It is stated that a fish ingestion scenario will be evaluated for Paint Branch. It is unclear how this will be evaluated without fish tissue samples. The methodology for the assessment of risks from fish ingestion should be provided.
12. *Section 3.4, page 3-14, paragraph 2.* This paragraph discusses the exposure assessment. A construction worker scenario will be evaluated. The construction worker's exposure to soil in Site 46 should be evaluated based on subsurface soils not surface soils as identified in the text.
13. *Section 3.5.* This section discusses the ecological risk assessment. During June 29, 1999, BCT meeting, a decision was made to conduct a basewide ecological evaluation for the site. Therefore this section should delete this task and add a statement that the ecological evaluation for OU-1 will not be done under this activity because it will be evaluated under the basewide ecological risk assessment activity.
14. *Table 3-1.* The table states that field blanks will be collected at a rate of one per week of sample. EPA guidance is one field blank for every 20 samples, or one field blank per media per day. The text and sample collection frequency should be revised.
16. Throughout the report the collection of background groundwater and soil samples is not discussed. The EPA highly recommends collecting background samples because they can help in the elimination of COCs and the establishment of remediation goals. Note that there has been background data already available for White Oak. (Refer to the Background Investigation Report for White Oak, December 1998, by TetraTech NUS). The narrative should be revised accordingly to incorporate this reference.
17. Note that groundwater samples collected by direct push and/or piezometer cannot be used for risk assessment purposes.
18. *Section 3.4, Human Health Risk Assessment.* The report initially states that the resident and construction workers' exposure pathways will include soil and groundwater. However, the next sentence states "**Exposure to the surface water and sediment will be evaluated for a wading scenario . . .**" Is this sentence implying that both the resident and construction worker will both be evaluated for surface water and sediment pathways? The EPA recommends evaluating both the resident and construction worker for surface water and sediment using the wading scenario when deemed appropriate.

19. *Section 3.4, Human Health Risk Assessment.* The report states, "***Exposure to the surface water and sediment in West Farm Branch and surface soil outside Site 46 will not be evaluated in the risk assessment.***" Why will the surface water and sediment in West Farm Branch not be included as part of this risk assessment? According to the Introduction, OU-1 is a groundwater and surface water/sediment operable unit therefore, West Farm Branch should be included as part of this risk assessment. In addition, will the surface soils outside Site 46 be evaluated in a subsequent risk assessment? The EPA highly recommends evaluating for Tentatively Identified Compounds (TICs), as it is part of the routine analytical testing protocol.
20. The final RI report should include all RAGS D risk tables. In addition, a diskette with all RAGS D risk tables should be provided to the assigned EPA Toxicologist.
21. According to Figure 1-5, Proposed Locations for Surface Water and Sediment Samples there is only one proposed surface water and sediment sample planned along Paint Branch. The EPA recommends collecting at least two additional samples along this water body - one upstream and one downstream.
22. Although the Health and Safety Plan was not provided in the current report, the EPA recommends having the Health and Safety Plan evaluated by a certified Industrial Hygienist for completeness.

## **FIELD SAMPLING PLAN**

1. *Section 1.2.2, page 1-4.* The text states that direct-push groundwater samples will be collected according to the Master FSP, Section 3.1.1. However, Section 3.1.1 of the Master FSP does not pertain to direct-push groundwater samples. Furthermore, Section 1.2.2 states that groundwater samples will be collected at varying depths. Specific details or procedures should be provided describing depths that will be used for sample collection. Sample collection procedures should also be provided.
2. *Section 1.2.3, page 1-6.* The text states that monitoring wells will be developed according to Section 2.3.4 and SOP GH-2.8 of the Master FSP. However, the references discuss three methods of well development. A specific method of well development should be provided in the FSP. If fluid rotary drilling is used, surging is recommended during well development.

3. *Section 1.2.4, pages 1-6 to 1-7.* The text must provide detailed low-flow sampling procedures. The Master FSP does not designate low-flow sampling as the only groundwater sampling method.
4. *Section 1.2.6, page 1-8.* It is unclear why separate soil samples will be collected around Building 376 when direct push groundwater sampling is also going to occur in the same locations. It is recommended that the direct push technique be used to collect/screen soil before a groundwater sample is collected.

If you have any questions, please call me at (215) 814-3369.

Sincerely,



Yazmine J. Yap-Deffler  
Remedial Project Manager  
Federal Facilities Branch

cc: Henry Sokolowski, EPA Region III  
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