

Division of  
Environmental Health



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November 21, 2000

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Re: Remedial Investigation Report for Operable Unit 1

This office has reviewed the Remedial Investigation Report for Operable Unit 1. Based on this the review, this office offers the following comments:

1. In general, the report is comprehensive and shows considerable time and thought in its presentation, especially with the rewrite of Chapter 3.
2. **Section 2.7.2 Seep Sampling (Page 2-4):** The report indicates that sampling of the seeps only occurred one time (February 29, 2000). Results from sampling the W Swale seep shows lower concentrations of TCE than recorded by the Prince George's County Health Department and TtNUS. This office recommends resampling the seeps two additional times and withhold any final health assessment until the results are evaluated.
3. **Section 2.8 Surface Water and Sediment (Page 2-4):** The report indicated that only the Paint Branch was sampled for sediment. It is recommended that sediment samplings occur at outfalls or stream basins closer to areas of the site where contamination is a potential issue.

It should be noted that sampling occurred during a time of the year when the area had just experienced an unusual amount of precipitation during the month of September. It is unsure what impact this precipitation may have on the sampling results. Comparison of data from the previous months when the area was in a drought condition may be useful in determining the impacts of precipitation of movement or dilution of various contaminants.

4. **Section 3.2 Hydrology of Surface Water (Page 3-3):** The report states that the baseline flow was based on groundwater discharge only. While this is basically true, the influence from man-made discharges cannot be discounted. For instance, the streams bordering the Irby property are influenced greatly by the discharges from pump and treat units and conduits

that discharge groundwater into the streams. These man-made discharges likely bias the amount and source of groundwater that normally would feed these two streams.

5. **Section 3.4 Geology (Page 3-6):** Of interest is that the thickness of the coastal plain soils increases in depth near Site 4, which is near or on the fall line and actually decreases in depth in a southern direction. This appears to be in direct conflict with the general consensus that coastal plain soils are thinnest near the fall line and increases in depth in a southeastern direction (top of Page 3-6).
6. **Section 3.5.1 Groundwater Flow Systems (Page 3-9):** The second paragraph indicates that the water table separates the saturated zone and unsaturated zone. This implies that the water table is a separate entity when in fact it is normally considered as part of the saturated zone. It is also recommended that the vadose zone be incorporated in the discussion.
7. **Section 3.5.3 Conceptual Hydrogeologic Model of OU-1 (Page 3-11):** The last paragraph correctly identifies that the majority of the groundwater within the confines of OU-1 flows towards Paint Branch. Questions arise as to the impact of that portion of Paint Branch that parallels West Farm Branch to the west on the intermediate groundwater flow and whether this is a concern. The implication made throughout the report is that groundwater is limited by the bounding streams. While there appears to be sufficient evidence to support this concept, there was no plausible explanation to support findings of contaminants in monitoring wells located on the west side of West Farm Branch adjacent to Site 3. An explanation to this finding should be included in the report.
8. **Section 3.5.4.1 Hydrogeology of the Coastal Plains – Water Table Elevations (Page 3-15):** In the third paragraph there is the implication that water flows freely between the coastal plain soils and the bedrock. While there appears to be an interchange of groundwater between the coastal plains, saprolite and bedrock fissures, this interchange does appear to be as boundless as suggested in the report. This interchange of groundwater is dependant on similarities in porosity, fissure alignment and the hydraulic gradient with greater exchange occurring when there is less gradient and similar hydraulic conductivity along with more conducive alignment of fissure within the saprolite and bedrock.
9. Site 4, and to some extent Sites 3 and 9, has been labeled as the source for the TEC plume throughout the report. However, many of the Figures (Figures 5-8, 5-9, 5-12, 5-14, and 5-15) and monitoring data also show that Site 13 may have been a contributing source. Why is Site 13 excluded as a contributing source of TCE?
10. The report is generally confusing as to the extent of migration of groundwater into the bedrock. The executive summary specifies that “some shallow groundwater also flows

downward through the underlying saprolite into the bedrock". Concentration of contaminants were observed to be highest in the coastal plain soils than in either the saprolite or bedrock. Page ES-2 of the Section titled, **Nature and Extent of Contamination** of the Executive Summary it states that, "Concentrations detected in the bedrock monitoring wells were generally significantly lower than in the Coastal Plain wells, if VOCs were detected at all". However, this concept appears to be contradicted on Page 5-13 Section 5.2.4 which states, "However, it appears that much of the groundwater in the Coastal Plain sediments passes through the saprolite and into the bedrock". If the majority of groundwater passes into the bedrock, then it would seem feasible that contamination of the groundwater within the bedrock would be significantly higher than observed in the coastal plains soils. As stated before, "the difference in the hydraulic conductivity between coastal plain sediments and either the saprolite or the bedrock does not support this concept." An interconnection between groundwater within the coastal plain sediments and the bedrock is occurring, but it appears, based on the report, that most of the groundwater and pollutants are moving in a south-southeastern direction within the coastal plain sediments.

11. **Section 5.2.4.2 Onsite Groundwater – VOCs (Page 5-14):** This office concurs with your theory about a single plume of TCE contamination originating primarily from Site 4 and transversing initially in a south-southeastern direction and then shifting slightly to primary southern trajectory. This concept is validated on groundwater contours, sampling data and the basic hydrology of the site. However, this office supports conducting several additional evaluations (monitoring wells, direct push, etc.) in the area between Wells 46GW219 and 07GW102 and the area bisecting Wells 46GW128 and 46GW126. One purpose of this exploration is to verify that the plume travels continuously through discrete and maybe restrictive paths from Site 4 through Site 46. A secondary purpose would define a possible area for remediation if this path were identified.
12. **Section 6.2 Bedrock Groundwater (Page 6-4):** It is unclear as to whether the first two paragraphs are alluding to bedrock aquifer sampling or sampling of the entire groundwater. In the second paragraph it states that groundwater-sampling activities consist of monitoring wells and seep sampling. It is unsure the relativeness of this information under this category. Do the sampling locations reflected in this paragraph allude to sampling only the bedrock wells or all wells used in the risk analysis. If the latter were the case, this office would recommend including analysis from well heads located downslope of the centrifuge.
13. **Section 6.2 Surface Water and Sediment (Page 6-5):** It would have been beneficial to have included a figure locating the monitoring wells or sampling points for shallow groundwater, surface water and sediment sampling points used in calculating the risk assessment. If the points reflect sampling points as shown by Figures 4-4 and 4-5, then references should have been made to these figures. It is recommended that a sampling point

Mr. Scott MacEwin, P.E.

Page 4

November 21, 2000

for both sediments and surface water be taken at the headwaters of the stream separating Paint Branch Home and Mr. Irby's property.

**14. Section 6.7 Summary (Page 6-41):** It is recommended that the summary and supporting risk assessment include the risk for properties downslope of the military property, which are either impacted or potentially could be impacted by the various contaminants from past military operations. The summary involves a risk assessment for the government property only.

Thank you for the opportunity to review this document and offer comments for your consideration. Should you have questions concerning these comments, please contact me at (301) 883-7602 weekdays between 7:30 a.m. and 4:00 p.m.

Sincerely yours,



Paul Meyer, Engineer  
Division of Environmental Health

PM:mbb

cc: Walter Legg, U. S. Navy