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NAB LITTLE CREEK  
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U S EPA COMMENTS TO TECHNICAL MEMORANDUM REGARDING RISK ASSESSMENT  
UPDATE FOR EVALUATION OF FUTURE POTABLE USE OF GROUNDWATER AND  
GROUNDWATER DISCHARGE TO SURFACE WATER SWMU 3 PIER 10 SANDBLAST YARD  
NAB LITTLE CREEK VA  
2/18/2011  
U S EPA

## Monica Marrow

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**From:** Boylan.Jeffrey@epamail.epa.gov  
**Sent:** Friday, February 18, 2011 11:31 AM  
**To:** Peed, Bryan K. CIV NAVFAC MIDLANT Norfolk; Livingston, David/VBO; peherman@deq.virginia.gov; Landin, Cecilia/VBO; Carver, Adina/VBO; Boylan.Jeffrey@epamail.epa.gov  
**Cc:** loven.Dawn@epamail.epa.gov; Pluta.Bruce@epamail.epa.gov  
**Subject:** JEB Little Creek - Risk Assessment Update SWMU 3 - GW discharge to SW Tech Memo (Draft) - EPA Comments (email)

**Subject Document: Technical Memorandum Risk Assessment Update - Evaluation of Future Potable Use of Groundwater and Groundwater Discharge to Surface Water at SWMU 3 - Pier 10 Sandblast Yard Joint Expeditionary Base - Little Creek Fort Story West, Virginia, December 1, 2009**

Folks,

Document Summary:

- December 2009 Technical Memorandum from CH2MHILL- Received draft version for review and comment.

Email Action: EPA (mailcode 3HS11 and 3HS41) has reviewed the subject document and offers the following comments:

1. Generally, from a toxicity viewpoint, the report concludes that the groundwater-to-surface water pathway does not pose a threat to human receptors, however

- The highest observed concentrations of PCE (210 ug/L) and TCE (180 ug/L) appear to be in an upgradient location (MW06). This is worth mentioning in the report.
- A noteworthy level of vinyl chloride (56 ug/L) was reported in MW12; this well seems to be either side gradient or downgradient of the source. More than likely, this observation is due to the degradation of PCE and TCE observed in upgradient groundwater; the hydro should be able to confirm (or refute) this based on groundwater chemistry. This point should probably also be noted in the report.
- EPA notes a few minor questions about selected input parameters in the risk assessment, such as exposure frequency, but this point is really irrelevant in terms of the bottom line at this site. Further, because maximum groundwater concentrations were assumed to represent surface water levels, potential risks are probably overestimated by an order of magnitude or more. Consequently, any fine-tuning of exposure inputs will not significantly impact conclusions.

2. From an ecological perspective, EPA concludes that the incremental risk posed by contaminated groundwater is not significant, particularly when compared with that posed by the contaminants present in sediment that is attributable to other transport mechanisms, however

- The information provided in the July 2008 Eco Update / Groundwater Forum Issue Paper Evaluating Ground-Water/Surface-Water Transition Zones in Ecological Risk Assessments (EPA-540-R-06-072) should have been considered and the appropriate evaluation included in the subject document.
- The document makes generalizations such as "The mean concentration is likely to provide a more realistic estimate of potential transport / exposure because groundwater discharge to the harbor is expected to be diffuse rather than concentrated at particular points." If this were the case, contaminant concentrations in groundwater monitoring wells closest to the harbor should reflect that and maximum concentrations in these wells should already be approaching means. That observation has not been made.

- Another such statement is “Groundwater is also unlikely to be discharged undiluted.” At the initial point of exposure to ecological receptors, this is equally likely not to be the case. As noted in the previously mentioned Eco Update, “...aquatic life within the zone can be exposed to relatively high concentrations when the contamination has not yet been diluted by surface-water.”
- While it may be acceptable to use a dilution factor of ten to account for the dilution in the water column and the subsequent exposure concentration of pelagic receptors, it does not represent a conservative exposure estimate for benthic and demersal receptors.
- This risk assessment document states several times that the results of the evaluations conclude that groundwater discharging to surface water is not a significant transport route. It is more accurate to state that the contaminant concentrations utilized for the evaluation do not appear to represent an unacceptable incremental increase in risk posed to aquatic receptors. (No transport analysis was performed. No definitive information was used to support that the diluted mean concentrations used are reflective of actual conditions.)

Path Forward: Navy to provide responses to comments.

**NOTE: No letter documenting no EPA's comments on the subject document will be provided. EPA will issue a formal acceptance letter once the final hardcopy version is received, reviewed and approved.**

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