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LETTER AND COMMENTS FROM U S EPA REGION IV REGARDING DRAFT TECHNICAL
MEMORANDUM GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191 NS MAYPORT FL
3/29/1999
U S EPA REGION IV



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

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Ms. Adrienne Wilson
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
Charleston, S.C. 29419-9010

SUBJ: NAVSTA Mayport, Florida
EPA ID# FL9 170 024 260

Dear Ms. Wilson:

EPA has received and reviewed the following document:

- **Technical Memorandum - Groundwater Assessment of Tetrachloroethene Release Near Building 191 (HLA, January 1999).**

EPA considers this document adequate for its purpose and concurs with its recommendation of further investigation. The comments that are enclosed with this letter are provided FYI only, with the thought that they may be of assistance in the scoping of the additional investigation.

If you have any questions, please contact me at 404.562.8533.

Sincerely,

Martha Berry
Remedial Project Manager
Federal Facilities Branch

Enclosure

cc: Frank Lesesne, HLA
Terry Hanson, TtNUS
Jim Cason, FDEP
Randy Bishop, NAVSTA Mayport

Naval Station Mayport
Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release Near Building 191
January 1999

General Comments

1. There is significant uncertainty in the basis for the groundwater flow directions as mapped. In the report a survey of existing wells is recommended. If the well elevations have not been surveyed, it is hard to understand how groundwater elevations/flow directions were derived. All wells need to be surveyed to a common datum before interpreting groundwater and plume flow directions. Further, there appears to be no accounting for the possible tidal influence on groundwater levels. Some of the data points are within 50 feet of the Mayport Turning Basin, which is tidal. Until the survey is complete and tidal influences are addressed and appropriate corrections are made, interpretations of groundwater flow and plume fate are suspect.
2. The report begins to make a case for natural attenuation, without concluding whether it is an appropriate remedy. The recommendations indicate that further monitoring is required to support such a conclusion. First the report should clearly define the appropriate goals. Once the goals are established, the scope of the future work can be determined. If, in fact, the plume needs remediation then an appropriate monitoring program should be implemented, to assess natural attenuation as well as other remedies. Groundwater and plume migration pathways, source characterization, contaminant concentration trends, a conceptual site model, and many other issues should be addressed. The draft document "Region 4 Approach to Natural Attenuation of Chlorinated Solvents" may be used as a reference to plan the program.

Specific Comments

1. Page 3-4, Table 3-1. Monitoring wells beginning with the designation MPT-TC-DPW3 could not be found on the figures.

All elevations are referenced to NGVD, however in the Recommendations it is suggested that all wells be surveyed to a common datum, suggesting some wells have not been surveyed. It should be clarified which locations are accurately surveyed.

In some well clusters, significant water level differences (over 1 foot) were noted, even within aquifer zone A. This is surprising, because the aquifer is thin, there is little topography, and the aquifer description suggests a relatively consistent sandy unit. These vertical gradients warrant explanation, if they are valid.

Given the low elevations and proximity to salt water, an evaluation of the tidal influence on groundwater levels needs to be carried out to qualify any interpretations of groundwater flow directions. If there are significant influences by tides, the time of water level observation and possible well-specific corrections may need to be recorded.

2. **Page 3-14.** In several locations it is noted that the analytical results for groundwater samples obtained from direct push wells differ from those from conventional monitoring wells. No significant effort was given to explaining these differences. Given the effort that was put forth to compare the two technologies, an explanation of the differences should be provided.
3. **Page 3-20, Last Paragraph.** It was observed that for many natural attenuation parameters, concentrations increase with depth. It was also observed on Page 3-15 that the deep groundwater zone differs in salinity from the shallower aquifer. Any discussion of geochemical differences at depth in the aquifer should first account for the impact of saltwater intrusion.
4. **Page 4-7, Second Paragraph.** The text concludes that anaerobic biodegradation of chlorinated organics in the shallow and intermediate aquifer zones is supported. Appendix D shows that this is based on scoring using USEPA protocol, but that the scores use maximum and minimum parameter concentrations for an entire aquifer zone. The minimum scores show limited evidence for anaerobic biodegradation. A preferable approach would be to calculate scores at individual wells. This would allow evaluation of areas in the aquifer where biodegradation could occur and an assessment of how much of the plume may be addressed using natural attenuation. This section should be rewritten, and Appendix D should be recalculated and more detail of the actual calculations should be provided.
5. **Pages 4-7 to 4-10.** The fate of several volatile organic chemicals (VOCs) is predicted and discussed. The predictions appear to be based on the model in Appendix E, although it is not referenced. Many of the key values used in the model are not discussed or supported. A reference is made to site hydraulic data collected by ICON (1998). A summary of these data, the means to collect them, and their reliability should be provided to support the model. Since source and plume dimensions and dispersivity are assumed, some discussion of the basis for these assumptions is warranted.

The text describes a half-life for individual VOCs based on "unacclimated aqueous aerobic biodegradation". It is unclear what this means, or how it may apply at this facility given that there are both aerobic and anaerobic zones distributed about the base. The reference used to support these values should be included and discussed in Appendix E.

6. **Page 4-8, First Complete Paragraph.** In the third and fourth lines of this paragraph, the phrases "octanol/water partition" and "soil/sediment partition", respectively should be explained.
7. **Page 5-7.** The text mentions vinyl chloride detections at Echo Pier. Given that the mapped groundwater flow directions at Building 191 are away from Echo Pier, it is unclear how these detections are related to this report. Further, the text on Pages 4-7 to 4-10 asserts VOC migration distances of no greater than 150 feet, and Echo Pier is over 400 feet from the spill area. The possible relationship between Echo Pier and Building 191 should be clarified, or this portion of the text should be deleted.
8. **Appendix D.** As noted above, natural attenuation scores for individual wells should be compiled, as opposed to lumped scores for all wells at particular aquifer depths.
9. **Appendix E.** There is no reference given to acknowledge who developed the models used to assess VOC migration. There are a number of values input to the model which need discussion to support their selection; among these are fraction organic carbon, source and plume dimensions, and dispersivity. Aquifer material could be analyzed for organic carbon if the model is sensitive to it.