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LETTER REGARDING U S EPA REGION IV REVIEW AND COMMENTS ON DRAFT FEASIBILITY STUDY AT OPERABLE UNIT 4 (OU 4) NTC ORLANDO FL
5/3/1999
U S EPA REGION IV

UNITED STATES ENVIRONMENTAL PROTECT
REGION 4
61 Forsyth Street
Atlanta, Georgia 30303-3104

May 3, 1999

4WD-FFB

Mr. Wayne J. Hansel
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
Charleston, SC 29419-9010

SUBJ: Draft Feasibility Study, Operable Unit 4, Naval Training Center, Orlando, Florida.

Dear Mr. Hansel:

The United States Environmental Protection Agency (EPA) has completed the review of the Draft Feasibility Study (FS), Operable Unit 4, Naval Training Center, Orlando. The purpose of the FS is to identify remedial action alternatives which will achieve the site-specific cleanup goals, and provide a basis for selecting a preferred remedial alternative from the list of alternatives. There is contamination in groundwater, surface water, soils and sediments. Contamination has created two types of groundwater plumes:

1) Chlorinated VOCs in two commingled groundwater plumes originating beneath Building 1100 which discharge to surface water of Lake Druid

2) Antimony in a groundwater plume which appears to originate in the vicinity of Building 1068.

EPA's comments on the subject report are as follows:

Comment No. 1
The description of the remedial measures in Section 4 states that there are two sub-options for each of these remedial measures. For example, the description of Alternative V-6 (FS, p. 4-40) states that the groundwater extraction wells could be operated:

(1) until groundwater concentrations reach MCLs or
(2) could be operated until concentrations are reduced sufficiently to allow natural attenuation to reduce levels before groundwater reaches Lake Druid.

Both options are said to be evaluated in this FS, but both options and the related costs are not apparent in Table 5-8 or 6-1. The individual cost summary tables in Section 5 describe the estimated duration of the active remedial measures and the estimated duration Monitored Natural Attenuation. The cost for operating the remedial measures until groundwater concentrations reach MCLs is not clearly stated. Please clarify the text if just one cost option is presented.

Comment No. 2 (from EPA's letter dated December 8, 1998, OU4 RI Comments)
A... *some VOC concentrations in groundwater were approximately 20 percent of the solubility limit for PCE, which is strongly suggestive of NAPL presence. The text also states that a residual source for PCE probably has migrated downward in the aquifer beneath the source area and has become immobile (RI, p.7-4).* These observations are restated in the FS on page 1-15.

The possible source area for DNAPL under Building 1100 is addressed by remedial measures V-3 through V-7. But all of these measures require more than 30 years to reduce contaminant concentrations to drinking water standards (p.6-5 and Table 6-1), which indicates that the proposed remedial measures are not effective in a reasonable time frame. The cleanup time estimates for the PCE plume are not well documented in the report, so EPA can not comment on the results. However, the estimated cleanup times are so long for the estimated costs, that these may not be appropriate remedial measures for this site. The cleanup time estimates may be correct, but EPA can not confirm them with the data presented. Additional comments regarding one of the methods used to estimate the cleanup times are presented in the next comment.

Comment No. 3
Regarding the Batch Flush Model cleanup time calculations in Appendix G and Appendix I, the Kd for antimony is given first in Appendix G as 52 mg/L. Then the Kd value was changed to 13.6, apparently because the resulting calculated cleanup time looked more reasonable according to notes written on Appendix G, p. 2/2, 12/14/98. The Kd used in Appendix I is also assumed to be 13.6 without supporting data.

The original Kd estimate agrees closely with a value of 45 mg/L in the EPA Guidance Document (TBD, Part 5, Table 43). Kd is a basic physical parameter which should not be altered because the result looks more reasonable without supplying site specific supporting data.

The velocity and the distance to the discharge area (length of contaminant travel) in the Batch Flush calculations in Appendix G can be controlled by the remedial measure. Under natural conditions, a pore volume flushes at a rate depending on the hydraulic conductivity, porosity and hydraulic gradient. Cleanup time estimates are based on the number of dilutions required to flush out the contaminant with clean water. Wells installed for a remedial measure replace the natural discharge area and become man-made discharge areas. Pumping changes the natural hydraulic gradient and groundwater velocity near the wells, accelerating the natural flush rate upgradient from the well. This reduces the calculated flush time, so changing the velocity in the

Batch Flush calculation is both more defendable and more manageable than changing the Kd without supporting data. The velocity and distance used for cleanup time estimates becomes a function of the number of wells used and the average distance to the nearest well.

Flush time estimates remain proportional to the assumptions used in Appendix G, so the cleanup time estimates presented in Appendix G are not unreasonable. I make these points, in part, because the cleanup time calculations for the PCE plume in the northern part of this area are not well documented in the report and the calculated cleanup times for the PCE plume are very long.

Comment No. 4

The calculations presented in Appendix I, Plume Migration Calculations, include an estimate of the duration of the IRA operation dated January 27, 1999. The retardation factor for PCE is given as 13. The source cited for this factor is Appendix H. Appendix H contains Air Stripping Emissions Calculations and does not include an estimate of the retardation factor for PCE. VOCs seem to be relatively mobile in this aquifer. From TBD Part 5, Table 39, it is estimated that the retardation factor for PCE to be between 3 and 6 depending the fraction of organic carbon (f_{oc}) in the aquifer. This would decrease the IRA duration estimate. Site specific estimates for the parameters needed to get a site specific retardation factor of PCE are not presented. Further, a retardation factor was not found in Appendix H as indicated in the report.

If you have any questions regarding these comments, please call me at (404) 562-8536.

Sincerely,

Nancy Rodriguez
Remedial Project Manager

cc: Dave Grabka, FDEP
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