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LETTER REGARDING U S EPA REGION IV REVIEW AND COMMENTS ON TREATMENT
EFFICIENCY REPORTS FOR STUDY AREA 36 AND STUDY AREA 39 NTC ORLANDO FL
7/31/2001
U S EPA REGION IV



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4**

**61 Forsyth Street
Atlanta, Georgia 30303-3104**

July 31, 2001

MEMORANDUM

4WD-OTS

SUBJECT: Treatment Efficiency Report, Study Areas 36 & 39, Main Base, NTC Orlando, July 2001

FROM: David N. Jenkins, Environmental Scientist
Office of Technical Services, Waste Management Division

CC: Elmer Akin, Chief
Office of Technical Services, Waste Management Division

TO: Nancy Rodriguez, Remedial Project Manager

Dear Nancy,

I am responding to your request review the Study Areas 36 & 39 Treatment Efficiency reports. The reports reviewed are:

CH2MHill, 2001, Treatment Efficiency Report, Study Area 36, Naval Training Center, Orlando, Florida, CH2MHill, 115 Perimeter Place N.E., Atlanta, GA 30346.

CH2MHill, 2001, Treatment Efficiency Report, Study Area 39, Naval Training Center, Orlando, Florida, CH2MHill, 115 Perimeter Place N.E., Atlanta, GA 30346.

Note that Appendix C of both reports appears to be identical and includes data regarding both Study Areas. I read the report for Area 36 first, but the comments should be considered relevant to both areas.

COMMENT:

The data presented in Area 36, Appendix A shows that very few of the hundreds of turbidity measurements collected met the criteria of the EPA Region 4 Standard Operating Procedure (SOP). Many of the turbidity values were reported to be >1,000 NTU, and were notably higher at the end of the purging period compared to the beginning. The SOP states that the turbidity of groundwater samples should be less than 10 NTU.

The data presented in Appendix A indicates that all of the wells were purged at a rate of 0.5 liters/minute (0.13 gpm). Equipment is available to permit pumping rates from the depths indicated on Table 2-1 to be lowered to 0.04 gpm or less. Further, the data presented in Appendix A does not indicate how much drawdown was induced while pumping. Therefore, there is no indication that the methods employed to purge these wells and collect the groundwater samples qualifies as a "low-flow" purging procedure.

The report provides no indication that the turbidity in the samples was due to colloids suspended in the water. These observations suggest that the analytical results reported for metals, dissolved oxygen, and possibly other analyses may be inaccurate. The well construction methods, well development methods and purging procedure

should be evaluated. Additional well development may be required. Proper low flow sampling procedures should be implemented for the next sampling event, and the procedures should be fully documented by including the time of field measurements and the response to pumping induced in the wells. Groundwater samples should be collected when the turbidity is less than 10 NTUs.

Similar comments apply to the data in Appendix A of the Area 39 report. Also, the Agency made almost identical comments on April 7, 1999, regarding the Remedial Investigation for McCoy Annex Landfill, Operable Unit 2 of the Naval Training Center, Orlando, Florida . All samples collected for remedial investigations in Region 4 should follow the EPA Region 4 SOP (<http://www.epa.gov/region4/sesd/eisopqam/eisopqam.html>).

COMMENT:

None of the figures in the Area 36 report clearly define the extent of groundwater contamination. Both Figure 1-2 and Appendix C Figure 3 show groundwater exceedances of screening criteria, but apparently contaminant concentrations from shallow (zone A), intermediate (zone B), and deep (zone C) wells are all presented in the same figures. Contaminant plume boundaries are not shown, and the depths of each well are not presented in Table 2-1, so contaminant distributions and relationships to groundwater flow directions can not be determined from these figures. This information may be contained in other reports, but this document can not stand alone. Future reports should contain maps showing water level contours and the extent of groundwater contamination before and subsequent to the Interim Remedial Action (IRA). Besides defining the extent of contamination, these figures will be essential in the evaluation of Monitored Natural Attenuation, in which the interpretation of the analytical results is strongly dependant on the assumption that the observations were made in the proper part of the contaminated plume. Evaluation of the BIOSCREEN model simulations described in Appendix C versus conditions in the real world will depend on good maps of pre- and post-IRA conditions. Similarly, concentrations of selected natural attenuation indicators, such as dissolved oxygen can be mapped to show relationships between contaminant sources, groundwater flow directions and groundwater discharge areas.

Along the same lines, some graphics showing the vertical relationships between the geology, hydrology and contaminant distributions would be useful. The report states that the "... plume is migrating downward as it nears Lake Gear" (Appendix C, p. 4). Cross-sections through the wells used for figures like C6-C8, showing the geology, monitoring well screen intervals and equi-potential lines could help support this interpretation by showing that the wells selected are located to intercept groundwater flow paths between the source and discharge areas. Similar comments apply to the data in the Area 39 report.

COMMENT:

Most of the figures in the Area 36 report, Appendix C, show groundwater quality versus

distance from an up-gradient well. As more data becomes available, the data also should be plotted as groundwater quality versus time. The recent data should be supplemented with data collected long before the implementation of the IRA so that pre- and post-treatment trends are apparent.

GENERAL COMMENT:

The monitoring plan appears to include monitoring or sampling of all of the parameters which are likely to be need to evaluate Monitored Natural Attenuation at this site. The recommendations presented in Appendix C, page 32 are reasonable and appropriate.

The presentation of the data should be improved in future reports. Specifically, the extent of groundwater contamination should be delineated. Interpretation of the data should rely on graphical presentations in the form of maps and cross-sections of contaminant plume distribution, which demonstrate that monitoring wells are located correctly to observe the movement and degradation of the plume. Conditions before and after the implementation of the IRA should be shown on these maps and cross-sections. EPA guidelines clearly state that the evaluation of Monitored Natural Attenuation should be based on observations from the site, not on modeled projections, so future reports should emphasize data presentations of observed trends in contaminant distributions.