

North Carolina
Department of Environment and Natural Resources

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
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December 13, 2007

NAVFAC Atlantic
Attn: Gary Tysor
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RE: Comments on the Draft Treatability Studies Report for Operable Unit # 16, Site 89
MCB Camp Lejeune, NC
NC6170022580
Jacksonville, Onslow County, North Carolina

Dear Mr. Tysor:

The NC Superfund Section has received and reviewed the Draft Treatability Studies Report for Operable Unit #16, Site 89 at Camp Lejeune, MCB Superfund Site, dated October 2007. The following comments are included for the Partnering Teams consideration.

1. The "Air sparing with HDD" heading located on pages ES-2 and I-2 has a typographical error. Please change sparing to Sparging.
2. The horizontal well Air Sparging system monitoring wells are not well located (See Figures 1-8 and 2-2) for proper confirmation on the east side of the plume. MW-49 wells are the only monitoring wells located 30-35 feet from the HDD Sparge Well. This appears to be an oversight in the Work Plan for this Treatability Study. The MW-43 and MW-48 monitoring well clusters are the only wells at the proper distance to evaluate the extent of the radius of influence. No other wells except MW32 are at extended distances to confirm the extent of the Radius of influence. If the partnering team chooses this technology for full-scale implementation it would be more appropriate to install a few permanent monitoring wells on either side of the HDD sparge well and then include several additional temporary monitoring wells to get better coverage at the extent of the

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radius of influence. Another alternative would be to use DPT technology to collect groundwater samples along the interstitial areas between HDD sparge wells. This would provide more information along the full length of the HDD sparge wells assuring that heterogeneous aquifer conditions have not limited the effectiveness of the sparging system in large areas of the site.

3. As noted in the fourth paragraph on page 5-3 and by observing Figures 5-9 through 5-11, it is clear that the indoor soil gas concentrations are extreme (100s to greater than 8000 ppbv) for TCE. These concentrations though they may not exceed the estimated indoor air concentrations for chronic health risk action are considerably high. If Air Sparging technology is chosen for full-scale implementation at Site 89, air monitoring in the area should be completed during the first month of sparging and soil gas or indoor air monitoring should be completed periodically throughout the sparging process. We would expect lower concentrations near buildings TC860 and TC864 since the soil and groundwater concentrations have decreased significantly as a result of the Treatability Study/Pilot Study treatment in this area.
4. The effectiveness section of Table 7-1 for Air Sparging should also note that rebound may occur but the sparge system could be restarted for a lower cost to further treat newly dissolved contaminants.

Enhanced Reductive Dechlorination of **high** concentrations of contaminant as discussed in Table 7-1 will almost certainly require multiple injections over a period of time due to some rebound. Please include this information in Table 7-1.

5. The conclusion section 6.0 in Appendix F by ARS Technology is inconsistent with the statements and conclusions in the body of the Draft Treatability Study Report and Table 2-1. ARS concludes based on data parameters including pressure curves during pneumatic fracturing that fracturing of soils occurred. This would also include some dispersion of the ZVI and Ferrox into the surrounding aquifer. It may be that the ZVI didn't work due to complex geochemistry rather than little or no ZVI distribution in the aquifer. Chemical reduction is a slow process and may just need more time to show positive results.

It is recommended that at least one additional 6 month monitoring event be completed in the ZVI treatment zone. The ORP in this area dropped significantly during the ZVI study. This may be a good indicator to help make a decision as to whether additional sampling should be completed. If the ORP remains low at the time of the sampling event in this area, it would indicate that aquifer conditions are good for chemical reduction. This information may not affect the decision process for Site 89 but may help the partnering team make future decisions regarding the use of ZVI at other Sites on base.

Mr. Gary Tysor

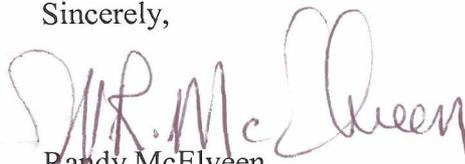
12-13-2007

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If you have any questions or comments, please contact me at (919) 508 8467 or email

randy.mcelveen@ncmail.net

Sincerely,

A handwritten signature in dark ink, appearing to read "Randy McElveen". The signature is fluid and cursive, with the first name "Randy" and last name "McElveen" clearly distinguishable.

Randy McElveen

Environmental Engineer

NC Superfund Section

Cc: Dave Lown, NC Superfund Section, Electronic only

Bob Lowder, EMD/IR

Gena Townsend, USEPA