

North Carolina
Department of Environment and Natural Resources

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director



May 9, 2005

NAVFAC Atlantic
Attn: Daniel R Hood
Code: OPCEV
NC/Caribbean IPT, EV Business Line
6506 Hampton Blvd
Norfolk, VA 23508-1273

RE: Comments on the Site 93 Operable Unit # 16, Draft Final Feasibility Study,
MCB Camp Lejeune, NC
NC6170022580
Jacksonville, Onslow County, North Carolina

Dear Mr. Hood:

The NC Superfund Section has received and reviewed the Draft Final Feasibility Study for Site 93, Operable Unit #16, Camp Lejeune, MCB Superfund Site. The following comments are included for the Partnering Teams consideration.

General Comment

The State disagrees with the conclusions of the Study. It is inappropriate to choose a remedy to exclusively treat groundwater for the protection of surface waters when it has not been documented that surface waters downgradient of Site 93 are contaminated and that, if the surface water are contaminated, they are contaminated by the Site we are treating (site 93 not Site 89). Permeable Reactive Barriers (PRBs) also have a poor track record based on the experience of other remediation consulting firms that I have worked with. In general the contaminants going in one side of the wall do not decrease significantly on the other side of the wall. It is well documented that the longevity of PRBs is also very limited. After the material in the wall is used, clogged or otherwise fowled, the wall material would need to be replaced. This will increase its cost considerably.

Therefore it is not a permanent, long-term remedy and fails this and other parts of the nine USEPA evaluation criteria. It also does not reduce the toxicity, mobility, or volume of the plume until it reaches the PRB. The toxicity of the plume will be unaffected by this remedy in the source and upgradient areas of the plume. Therefore, alternatives 3, 4, or 5 would be more appropriate remedies for this site. However, alternative 5 is discouraged since air sparging and other aerobic enhancing remedies have not been effective at Camp Lejeune

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Sites (Air sparging of the VC plume at site 73, recent air sparging at site 86, ORC at site 78 North, and modified fenton's at site 35. This could also be from ineffective distribution but it is well known that the natural oxygen demand (NOD) at many sites at Camp Lejeune is very high.)

Specific Comments

1. The last sentence of the first paragraph under Section 2.3 on page 2-1 states that site 93 include the area surrounding Building TC-940 and TC942. Building TC-942 is shown on the figures included in the study. Building TC-940, however, is not shown on any figures. Please include and reference a figure that includes building TC-940. If it has been demolished please show it on a figure as Former Building TC-940 and clarify in the text that it no longer exists.
2. Ethane is listed twice in the fourth paragraph on page 2-7. One should likely be ethene. Please make appropriate corrections.
3. Very little is stated about contamination at Building G920 as shown on Figure 2-1 upgradient of the Building 942 area. Do we have any data on this area? If so, please include a brief discussion of the results in Section 2.7 of this Study.
4. If a clean well or geoprobe data exist upgradient of monitoring well MW10 as shown on Figure 2-7 please show it on one of the figures or make a note on Figure 2-7 stating that non-detect groundwater data has been collected upgradient of monitoring well MW-10. If no data exists, then the plume at this Site is not properly delineated and should be. At a minimum geoprobe or monitoring well data should be provided upgradient of this area and in Edwards Creek. Please clarify this important detail.
5. The first bullet at the top of page 2-9 states that "it has been assumed that shallow impacted soils were excavated at the time of the UST removal." We need to confirm that all source materials have been removed to the extent practicable. Please include the word feet after the 15 at the end of this paragraph.
6. Please change the second sentence of the second bullet at the bottom of page 3-1 for clarification. The last part of the sentence should include that "standards for remediation of groundwater that has been impacted [by chemicals or inorganic metals from] human activity."
7. The last item on page 3-12, of Table 3-5 is **In-Situ Chemical Oxidation, Reduction**, and includes several oxidizing agents including zero valent iron. Zero valent iron is a reducing not oxidizing agent. Page 3-13 of Table 3-5 includes zero valent iron under the chemical reduction column as well. Zero valent iron should only be listed under the chemical reduction process option. Please make appropriate corrections.

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8. Please remove the either in the last line of next to the last paragraph on page 4-4 or include the either statement in the sentence.
9. The last sentence of the last paragraph on page 5-5 states that the “remaining 24 injections will be completed at 16-24 feet bgs to address deeper transition” impacts. The box for deep Geoprobe injections on Figure 5-2 states that the 24 deep injections are from 8-16 feet rather than 16-24 feet bgs. Please make appropriate corrections.
10. Please define SOD as used in Section 5.2.4 at the bottom of page 5-6.
11. Please define “ROI” as used in next to the last sentence of the first paragraph under section 5.2.2 on page 5-7.
12. Alternative 2 as discussed on page 5-9 is **not** an appropriate remedy for this site since it is **not a permanent solution** or an alternative treatment technology used to the maximum extent practicle. For a PRB to operate effectively it would need to be replaced in a few years. Since the source area plume is not treated, higher concentrations of contaminants sorbed to soil particles will continue to leach to the groundwater increasing the duration of the plume. In this manner the toxicity of the plume will remain above the NCAC 2L Groundwater standards for a period far greater than the estimated 20 years. Thus the cost of monitoring the plume will likely be cost prohibitive. By effectively treating the source areas, the sorbed contaminants can be destroyed, reducing the duration of the plume and the resulting monitoring requirements.
13. Section 5.4 discusses Remedial Action Objectives (RAOs). By effectively treating the source area “hot spots” we can reduce the contaminant concentrations to the RAOs more quickly and return the property and the groundwater to the base for unrestricted. When we reduce concentrations in the “hot spots” we also reduce toxicity and volume of contaminants and therefore, future risk. This is usually the preferred alternative for the community, the State , the EPA and the Base.
14. Before moving forward with a remedy the actual impacts to Edwards Creek should be evaluated by sampling the creek downgradient of Site 93 and preferably installing sentry wells within a few feet of the creek to confirm that the contaminants are from site 93 and not site 89. We also need to be able to monitor the impacts to the plume moving toward or into the creek from Site 93 after treatment for future decision purposes.

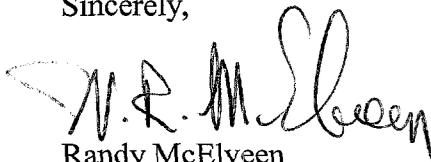
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If you have any questions or comments, please contact me, at (919) 508 8467 or email randy.mcelveen@ncmail.net

Sincerely,

A handwritten signature in black ink, appearing to read "Randy McElveen". The signature is written in a cursive style with a large, looping initial "R".

Randy McElveen
Environmental Engineer
NC Superfund Section

Cc: Dave Lown, NC Superfund Section
Bob Lowder, EMD/IR
Gena Townsend, USEPA