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LETTER REGARDING U S EPA REGION IV COMMENTS ON DRAFT FEASIBILITY STUDY REPORT FOR OPERABLE UNIT 9 (OU 9) SITE 57 AND SITE 58 NAS CECIL FIELD FL
6/4/2002
U S EPA REGION IV

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

June 4, 2002

4WD/FFB

Commander Department of the Navy
SOUTHNAVFACENGCOM
Attn: Mark Davidson
Mail Code ES339
P.O. Box 190010
North Charleston, South Carolina 29419-9010

Subject: Draft Feasibility Study Report (April 2002)
Operable Unit 9, Sites 57 and 58
Naval Air Station Cecil Field, Jacksonville, Florida

Dear Mr. Davidson:

The U.S. Environmental Protection Agency (EPA) has reviewed the subject document using the following references:

EPA, 1999, Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Site, OSWER Directive 9200.4-17P.

EPA, 2000, Preliminary Remediation Goals, EPA Region 9
Internet address is http://www.epa.gov/region09/waste/sfund/prg/index.htm.

Our comments are as follows:

1. In Section E.4, page ES-3, a table identifies ground water cleanup goals or standards as "preliminary remediation goals", or PRGs. Use of this term must be avoided as it has implications with regard to the finality of the actual remediation goals and is also the terminology used in EPA tabulations of cleanup goals that are defined by EPA as "...risk-based concentrations..." that "... should be viewed as Agency guidelines, not legally enforceable standards" (EPA, 2000). This comment also applies to the discussion in Section 2.2 of the FS Report, text in Section 4.3.2.1 of the FS Report, and probably other parts of the FS Report as well. PRG can be replaced with "cleanup goal" or "target concentration."

2. Section E.5 discusses technologies and process options for Site 57 soils. Previous discussion on pages ES-through ES-3 omit any reference to a concern about Site 57 soils. This discrepancy needs to be removed. Probably, the intent in Section E.5 is to review technologies and process options for Site 58 soil, as Site 58 soil is referenced in the Section E.3 and E.4 discussions.

3. On page ES-6, the discussion of Alternative 4 could also add a statement about the air sparging treatment promoting aerobic degradation of BTEX.

4. Section E-8, Page ES-11. The text states, "Alternative 2 would have long-term effectiveness and permanence because natural attenuation has been demonstrated as effective for the timely removal of the Sites 57 and 58 groundwater COCs." However, the information provided in the FS does not appear to support this strong a statement. For example, text on Page 3-15 notes that some of the COCs in the Site 58 Naphthalene Plume are not within the FDEP's default values. Therefore, monitored natural attenuation (MNA) may not be a suitable remediation choice for the COCs. In addition, the FS estimates for costing purposes that the monitoring requirements for Alternative 2 will extend to 20 years. Therefore, "timely removal" may be a relative term. It is not clear from the text of the FS how the 20-year estimate was developed. Additional description of the time needed for MNA to arrive at the remediation goals should be presented.

5. In the first "bullet" on page 1-6, the report needs to provide a reference for the location of information regarding what constitutes the FDEP Kerosene Analytical Group (e.g. 62-770.200(18) F.A.C.).

6. With regard to the Site 58 soil contamination referenced on pages ES-1 and ES-2, information provided in Section 1.3.1 and on Table 1-1 and Figure 1-5 indicates that the Site 58 soil contamination is in "soil" from a wet-weather drainage ditch and represents one sample (and a duplicate) from that ditch with much lower (below any target cleanup level) concentrations in a downslope "soil" sample only about 70 feet down the drainage ditch. Target soil concentrations were in fact not exceeded in one of two duplicate "soil" samples from the sample location that is identified as being contaminated to the point that some remedial action is required (to deal with an assumed volume of soil of approximately 180 cubic yards). This evaluation of the "soil" needing some remedial action appears to be based on very limited and somewhat questionable data indicating a "soil" contamination problem, and it would probably be worthwhile to do some confirmatory soil evaluation before committing to any soil remedial program that would cost an estimated $87,000+ (reference cost tabulation at the top of page ES-10). Note that later in this memorandum, concern is expressed about the general absence of soil samples in the Site 58 area and the statement in the FS Report that no source for Site 58 ground-water contamination has been identified. Thus it is entirely possible that the soil remedial actions considered in the FS Report are in fact inadequate to address the full volume of Site 58 soil that really needs remediation.

7. Referring to Figure 1-6, the following comments are made:

   a. There is a concern about benzene ground-water contamination because one of the most downgradient shallow monitoring wells, CEF-824A-04S, yielded a sample with the highest observed benzene concentration. The data shown on this figure indicate the extent of benzene contamination along the plume centerline is unknown. If there are data to support closure of the downgradient end of the plume (most importantly, the 100 ug/L and 10 ug/L contours), they should be shown on Figure 1-6. A further discussion of the extent of the benzene plume

should then be added to the Section 1.3.2.1 text. Otherwise, it does not appear that the extent of the benzene contamination is actually known.

b. The most downgradient well in the supposed TCE plume (CEF-293-20) yielded a sample with 136 ug/L of cis 1,2-DCE. CEF-293-20 is a shallow well screened from 4 to 14 feet. The closest upgradient well at a comparable depth, CEF-824A-14S, yielded a sample with 139 ug/L cis 1,2-DCE. It does not appear that cis 1,2-DCE is degrading nor otherwise attenuating to any degree, at least to the location of CEF-293-20. Additionally, Figure 1-6 depicts both a TCE plume and benzene plume, which sort of implies those are the two contaminants of the greatest significance. There is a need for the Section 1.3.2.1 text to provide some sort of brief discussion of the cis 1,2-DCE contamination in the ground-water at Site 57, because that contamination appears to extend beyond the boundaries of the identified TCE plume.

8. On page 1-4, in the first "bullet", there is a discussion of free product at VEW-1 in Day Tank 1 area. This discussion states that the well has been bailed weekly since October 2000 and as of February 2001, approximately 10 gallons of product has been recovered. The text states "The thickness of free product has not significantly decreased in VEW-1 during this period." Several questions arise concerning that situation:

   a. What remedial activity is happening now versus what applied in February 2001?
   b. Has any consideration been given to doing something other than well bailing on a weekly basis to attempt to remove more free product?
   c. Is the biosparging/vapor collection system referenced on page 1-3 doing anything to remove free product?

   At the close of Section 1.3.2.1, the text indicates that the floating free product contamination is being addressed under the ongoing remedial activities for Day Tank 1 and thus it will not be further addressed in this FS. Hopefully those ongoing activities amount to more than removal of a bailer of contaminant per week, because if the free product is the contributor (or a major contributor) to the BTEX ground-water contamination that is being addressed in the FS, removal of a bailer full of product per week is not an acceptable remedial strategy to deal with a source of the Site 57 ground-water contamination that according to the text at the close of Section 1.3.2.1 supposedly covers an area of 400 ft^2.

9. Section 1.3.2.1, Page 1-8. The text notes the presence of free product from a pipeline leak in the vicinity of Sites 57 & 58. The text notes that the contamination at this site will be evaluated separately along with the evaluation of Day Tank 1. The free product contamination and its remediation could have a significant impact on Sites 57 & 58. Therefore, it is critical that the potential impacts of the pipeline free product spill to the remediation of Site 57 & 58 should be fully understood prior to selecting a clean-up strategy for these sites.

10. There is a typographical error in the legend of Figure 1-9.

11. With regard to Figure 1-9, it is by no means clear from the data that the chlorinated solvent contamination at CEF-B312-08S is now completely and irrevocably below the cleanup levels, given the considerable discrepancy between the September 2001 and December 2001 samples and a history of wildly fluctuating VOC concentrations at any number of monitoring locations at NAS Cecil Field. It is premature to write off as ground-water COCs at Site 58 any contaminants that have been detected in one of two Remedial Investigation samples in concentrations well above their respective MCLs. These chemicals include 1,1,1-trichloroethane and 1,1-dichloroethene. This position was confirmed with one of the EPA Region 4 human-health risk assessors. Unless, perhaps, there are historical data that show the chlorinated VOCs have been monitored many times at CFE-B312-08S and have only been detected once at concentrations of any concern, these contaminants should be included as potential ground-water contaminants of concern.

12. Figure 1-10 shows the 20 ug/L naphthalene concentration contour at Site 58 extending to the southeast but also appearing to extend to the west beyond locations with data posted on the figure. If there are unposted data from some of the wells shown on the map that were used to generate the contour, the results from those wells should be shown. As drawn, one must wonder why, if ground-water flow is roughly S40°E, why the naphthalene plume does not extend more directly to the southeast of the area of CEF-B312-08S. The same comment also applies to Figure 1-9 and Figure 1-11. Changes to Figure 1-10 may be needed to more realistically depict the extent of naphthalene contamination.

13. With regard to ground-water remedial action objectives as listed in Section 2.1.1, EPA also considers an objective for remedial actions conducted under CERCLA to restore ground water to its beneficial uses (40 CFR 300.430(a)(1)(iii)(F); CERCLA Title 1 Section 104(c)(6)). Section 2.1.1 needs to reflect EPA's position with regard to restoration of ground-water quality to meet its beneficial uses, as defined in the referenced regulations.

14. As a general comment, with regard to Florida's "Groundwater Guidance Concentrations" referenced in Table 2-2, it is EPA Region 4's position that because some of these the state guidance concentrations are not promulgated, they are neither applicable nor are they relevant and appropriate. EPA defines any non-promulgated criteria as "to be considered" (TBC) values.

15. Also referencing Table 2-2, page 2-12, there are two entries for the Florida Guidance Concentrations. Only one entry is needed. That entry should reflect both the point that Florida considers the Guidance Concentrations as ARARs and the point that EPA does not consider as ARARs any Guidance Concentrations that are not promulgated standards.

16. On page 2-4, in Section 2.1.3, a wording change is needed in the phrase "...soil was and groundwater from the Surficial Aquifer were..."

17. In the table in Section 2.2.2, the last column of values under the heading "PRG" (which should be termed something else, per the discussion in point 1 above) should be identified as having either a non-promulgated guidance concentration or having a promulgated drinking-water maximum contaminant level (MCL), as appropriate.

18. In Section 3.5.2.1 on page 3-13, "St. John's Water Authority" should probably be "St. John's River Water Management District." The same comment applies to text under the heading Component 2: Institutional Controls on page 4-16, Section 4.3.2.1.

19. On page 3-13, Section 3.5.2.1, under the heading Effectiveness, the report states that institutional controls would be effective. They would be effective in limiting access to contaminated ground water but would not be effective in ground-water remediation (see comment 11 above). EPA does not consider institutional controls alone as an effective remedy to deal with ground-water contamination (reference 40 CFR 300.430(a)(1)(iii)(D)). The wording on page 3-13 needs to be corrected to avoid the implication that institutional controls would be effective in meeting all of the RAOs considered as applicable to the ground-water remedial action.

20. In the first paragraph of Second 3.5.2.3, the text defines the potential natural attenuation ground-water remedy as one which would "...determine the extent to which indigenous microorganisms and natural biodegradation processes would break down petroleum hydrocarbons and chlorinated VOCs over time." This definition only encompasses the biodegradation component of natural attenuation, whereas EPA has defined natural attenuation as inclusive of a range of physical chemical and biological processes which act to reduce the mass, mobility, toxicity, volume or concentration of contaminants in ground water (EPA, 1999). The discussion in Section 3.5.2.3 needs to be changed to reflect EPA's definition of natural attenuation (Monitored Natural Attenuation, in EPA parlance). In Section 4.3.2.1 on page 4-16, the text under the heading Component 1: Natural Attenuation provides a listing of some of the more important natural attenuation processes.

21. Regarding the application of ORC® and HRC® to address the organic ground-water contamination (Section 3.5.4.1), given the apparently reasonably effective (or effective) removal of parent chlorinated compounds in the Site 57 chlorinated VOC plume and the potential for build up of toxic chlorinated byproducts, as noted in the effectiveness discussion on page 3-18, it might be more beneficial as a remedial strategy to apply ORC® to the downgradient and/or the non-overlapping areas of both Site 57 VOC plumes and allow for natural attenuation to continue to reduce contaminant concentrations in the upgradient/overlapping parts of the VOC plumes at Site 57.

22. On page 3-23, under the Effectiveness heading in Section 3.5.5.4, the last line in the last sentence needs some type of wording correction.

23. On page 3-25, under the Effectiveness heading of Section 3.5.5.5, the text states that coagulation/flocculation and sedimentation are probably not needed to address a problem with suspended solids. This conclusion appears to conflict with the conclusion reached on page 3-21 regarding the importance and effectiveness of filtration as a pretreatment to remove suspended material. The discrepancy or apparent discrepancy should be

eliminated. Additionally, as further rationale for elimination of coagulation/flocculation and sedimentation as a pretreatment process, it would be useful to add that the same result would be accomplished by the filtration option. Note that if filtration is actually a less preferable alternative for removing suspended solids from the water, the comment in the preceding sentence can be reversed to apply to the other technology.

24. In Section 4.3.2.1 on page 4-16, the monitoring component of the natural attenuation remedial action presumes a 20-year monitoring period for tracking the remedial action. Assuming that the Appendix A data analysis supports this estimated 20-year period (see comments below regarding that analysis), then that data analysis supporting a 20-year monitoring period should be referenced in Section 4.3.2.1 of the FS Report. Otherwise, the assumed duration of monitoring should be consistent with the 30-year post-closure period specified in the regulations applicable to RCRA hazardous waste management units (reference 40 CFR Part 264.117).

25. The FS Report assesses natural attenuation of ground-water contamination favorably on the basis of a favorable environment for natural attenuation (e.g. statement under the heading Long Term Effectiveness and Permanence on page 4-18, Section 4.3.2.2) and on the basis of the concentrations meeting FDEP's natural attenuation default values (reference the same section cited above with regard to an environment favorable for natural attenuation). EPA considers that natural attenuation needs to be demonstrated by at least one of three lines of evidence enumerated on page 16 of EPA (1999). Unless such evidence is presented in the FS Report (or presented elsewhere, and referenced in the FS Report) EPA would view natural attenuation as a ground-water remedy unfavorably. Among other factors, considering the Remedial Investigation data and data presented in the FS Report, there is apparently a significant unknown with respect to the effectiveness of natural attenuation at preventing further expansion of one or more of the identified contaminant plumes. Also, the sources for the Site 57 TCE and Site 58 naphthalene plumes have not even been identified (reference Section 4.3, next to last paragraph, page 4-14). EPA generally views MNA as an unfavorable remedial alternative where there is no source control; the same position applies where a source for the ground-water contamination has not even been identified. Under these conditions, it is poor policy to implement natural attenuation as a ground-water remedy because there is not an adequate understanding possible of the remedial time frame that should be used in part, as a comparison to active remedial measures and compared to an overall "reasonableness" for a remedial time frame, as discussed in EPA (1999).

As for the FS Report's citation of the FDEP's natural attenuation default values, presuming that those values would even be applicable (Chapter 62-777 FAC specifies that the criteria only apply to specific types of contaminant sources addressed by specific state regulatory programs, none of which match the contamination being considered in this FS), the program-specific regulations such as Chapter 62-782 (Drycleaning Solvent Cleanup Criteria) specify that an evaluation similar to what EPA would require be performed to show that monitored natural attenuation is indeed a viable remedial alternative that is capable of meeting RAOs.

26. On page 4-24, in the last paragraph under the Implementability heading of Section 4.3.4, a word or some words need to be added in the third sentence, following "construction."

27. On page 4-33, the last statement under the heading Long-term Effectiveness and Permanence needs a modifier to identify what controls are being noted.

28. In Section 5.1.1, it appears that a word ("by"?) needs to be added in the third sentence of the second paragraph, between the words "risk" and "preventing."

29. It should be noted that EPA does not consider Florida's Chapter 62-777 soil cleanup target levels as ARARs and thus statements regarding the soil alternatives meeting or not meeting ARARs (Section 4.2; Section 5.1.2) are not considered as valid points of comparison for soil remedial alternatives. Nevertheless, comparison of alternatives on the basis of their meeting or not meeting "TBCs" such as the soil cleanup target levels are valid and should be used by EPA as a part of the remedy evaluation process.

30. In the Section 5.3.3 discussion of the long-term effectiveness and permanence of Alternative 1, it can be stated that under this alternative, some contaminant reduction will occur over time through natural attenuation.

31. In the Section 5.3 comparative analysis of ground-water alternatives, the FS Report states that Alternative 2 will reduce ground-water concentrations to meet cleanup goals. This statement is considered valid if there has been an effective source control or remediation. It is unclear if source control or remediation is adequate for this OU, particularly with regard to the TCE and naphthalene plumes where the contaminant source is not even identified. Thus, it is unclear if Alternative 2 will attain cleanup goals in a reasonable time period. The same comment might be said of some if not all of the other ground-water remedial alternatives, as there is conceivably enough contaminant mass in an as yet unidentified source area to sustain the ground-water contamination for an extended period of time regardless of what is done to remediate the ground water.

32. Appendix A should identify the reference or references for the Koc values that are used in the cleanup time analyses.

33. Appendix A presents estimations of ground-water cleanup times that consider pore volume flushing times under natural attenuation and pumping (extraction well) conditions. The following comments pertain to these calculations:

    a. A porosity of 0.35 is used in the calculations. This value conflicts with an assumed aquifer porosity of 0.25 that is cited in Section 2.4.2 and Section 2.4.3 of the FS Report. Some consistency in values is needed and calculated volumes of contaminated ground water or ground-water velocity will need to be changed as appropriate, to reflect that consistency. Given the data presented in the RI Report (Section 4.4.3), the value of 0.35 is more appropriate.

b. As cited in Section 4.3 of the FS Report, there has been no identification of the source of either the TCE or naphthalene plumes. The Appendix A calculations presume that contaminant mass that must be addressed through one of the modeled remedial scenarios is either dissolved or is sorbed, with a sorbed mass predicted by the partitioning coefficient and observed ground-water concentration. Presuming that conceptual model for the known subsurface contamination is reasonably accurate, it is nevertheless uncertain, based on the information presented in this FS Report if the modeling is a reliable remedial decision tool because of the potential that a significant mass of either TCE or naphthalene is present in some as yet unidentified source volume. One might make the argument that the contaminant source, whatever its magnitude, will affect cleanup times in about the same way so that at least the calculated cleanup times under the pore volume flushing model are valid in a relative sense and can thus be used in remedial decision making. This point may be valid, but when there have been inadequate subsurface soil samples taken to allow for a reasonably valid definition of the contaminant sources to ground water, there is clearly a need for further definition of the subsurface contamination. As is, the data presented in the FS Report (and the draft RI Report) are such that I have little confidence in the Appendix A projected cleanup times for the TCE and naphthalene plumes.

c. Table 1 presents half-life estimates that apparently rely on some data that were not obtained as a part of the Remedial Investigation. Any data used to prepare the table (and, for that matter any TCE/benzene/naphthalene data from the wells in Table 1 of Appendix A) need to be included in the appendix, along with an indication of what investigation(s) those data are from. This information will demonstrate that the appropriate site data were used to estimate half lives. Some analysis to verify that the apparent calculated half lives actually represent a biodegradation factor (rather than, for example, concentration reductions due to some source area remediation around the Site 57 benzene plume) is also needed in the appendix. Also, since the Appendix A text notes that literature values for half lives were considered, the references that were consulted to evaluate such literature half life values should be cited in the appendix.

34. In Appendix B, the aquifer characteristics presented on the first page list an aquifer porosity of 0.35 and an unconfined storage coefficient (i.e., specific yield) of 0.15. This difference does not make any sense unless the aquifer material contains such an appreciable amount of fine grained material that the specific retention is greater than the specific yield. Although the RI Report cites a reference that supposedly indicates the specific yield of medium to fine sands is 0.1, other references give much higher specific yield values for such sands. Data presented in Section 4.4.3 of the RI Report indicate that the sands at Site 57 and Site 58 are very clean, which suggests that the specific yield or storativity of the sands should probably be at least 0.2 or 0.25.

35. Referring to the tabulation on the first page of Section B.5 in Appendix B, it is unclear why there should be an allowable 5-foot drawdown criterion per well for Site 57 when there is 30+ feet of available drawdown if a 40-foot deep extraction well is constructed. The potential available drawdown is even higher (the surficial aquifer is supposedly at least 85 feet thick), and, given the fact that some significant ground-water contamination has been found at depths of at least 40 feet in the Site 57 plumes, there may be some reason for constructing somewhat deeper recovery wells in that area (note in particular the tabulations on the second page of Appendix A regarding the plume thicknesses). For Site 58, on the other hand, if the data presented in the FS Report define the approximate total depth of naphthalene contamination as being somewhat less, then a 30-foot deep well makes more sense and the 5-foot allowable drawdown might be more reasonable, although it still appears there is more available drawdown, even accounting for some superimposed drawdown from the other extraction wells.

Should you have any questions, or if I may be of further assistance, please contact Bill O'Steen at (404) 562-8645 or by email at osteen.bill@epa.gov or contact me by phone at (404) 562-8575 or by email at taylor.dawn@epa.gov.

Sincerely,

Dawn C. Taylor

Dawn C. Taylor
Remedial Project Manager

cc: Scott Glass, SOUTHDIV
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