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LETTER AND COMMENTS FROM U S EPA REGION IV REGARDING REVIEW OF DRAFT FEASIBILITY STUDY REPORT OPERABLE UNIT 2 NAS PENSACOLA FL
2/27/2005
U S EPA REGION IV

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
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February 27, 2005

4WD-FFB

William J. Hill
CodeES31
South Division
Naval Facilities Engineering Command
2155 Eagle Dr.
P.O. Box 190010
North Charleston, South Carolina, 29419-9010

Subject: DRAFT FEASABILITY STUDY REPORT OPERABLE UNIT 2, NAS Pensacola, Pensacola, Florida

Dear Mr. Hill:

EPA has reviewed the above referenced document and we offer the following comments.

SPECIFIC COMMENTS

1. In Section 3.1.1 The Agency concurs with the soil cleanup criteria to be set at Commercial/Industrial SCTLs in Rule 62-777, F.A.C. as long as the site remains as non-residential use.

2. In Section 3.1.2 The Agency concurs that RAOs should be set to meet Risk Management Option Level II. Because the real property owner is not likely to change, institutional and engineering controls can be put in place to ensure compliance.

3. Section 4. After reviewing the laboratory data included in Appendix B and reviewing the figures included in Section 4.0, EPA concurs that the nature and extent of contamination has been suitably identified for the purposes of determining the feasibility of remediation methods. However, the data from the various sampling events from the different phases of sampling for the RI was reviewed. For example, only the sparse subsurface soil measurements taken during the 2003 activities are use to define nature and extent of contaminant throughout OU2 for the feasibility study. For example, according to Figure

4-2, the only subsurface soil boring location representing the east or south area of the Yacht Basin is 011S0015, which is only analyzed for metals. According to the 1997 RI report, there are VOC, and SVOC exceedences in the landfill trench samples throughout the northeastern area of OU2, and a black oily coating on the surface. The 2003 sample 011S0015 was not analyzed for these, and is located only at the southern boundary of the basin. No subsurface samples were taken to the east or in the center of the basin in Phase III. Exceedences do exist for VOCs and SVOCs, defined by the groundwater samples analyzed in the Yacht Basin in 2003. The 1997 report also shows groundwater flow having an eastward component. There have been no recent monitoring activities to confirm or deny these original exceedences or delineation to the east. Please consider using previous data as used in the surface soil as well as more recent data to define nature and extent of subsurface soil. These examples indicate that the nature and extent of contaminant in subsurface soil may not be adequately defined for remedial design.

4. Section 4.1.3. There are some concerns as to the assumptions used to estimate the volumes to be remediated were calculated. According to Page 4-3, Section 4.1.3 of the Feasibility Study, "isolated impacted soil (groundwater) areas were assumed to extend 20 (50) feet laterally from the sampling point." Looking over the figures in Chapter 4, it appears that this has not only been used for isolated incidents, but has also been used as a boundary around multiple detections that in some cases do not have further delineating samples or non-detects nearby to confirm such an assumption. It is not clear how the boundaries are estimated, since some cases , as seen in Figure 4-11, show an "L- shaped" remedial volume, when the same or similarly placed samples in 4-10 and 4-4 resulted in a triangle shaped remedial volume. The determination of the remedial volumes does not have clearly defined reasoning without the use of delineated data. The assumption of 20 feet for soil and 50 for groundwater does not account for the magnitude of the exceedance, where higher exceedences may have a larger circumference. It also does not account for the migration rate or adsorptivity of the contaminant in soil. If remedial actions move toward removal of the calculated soil volumes, it should be noted that boundary / wall confirmatory sampling will be required.

5. Section 5.2.1. Several technologies have been eliminated from consideration. Although ex-situ treatment of the soils is eliminated, it may be necessary prior to disposal, if the soil doesn't meet the requirements of the landfill. Prior to deciding whether or not soil disposal is the best option, it should be determined that the soil will be accepted by a landfill nearby, so that transportation will not be cost prohibitive. If nearby landfills will not accept the soil, then ex-situ treatment should be factored against additional transportation costs prior to selecting the method of soil remediation. Other than the possible need for ex-situ soil treatment, The Agency concurs with the technologies that were eliminated and the technologies that were retained.

Review of Soil and Groundwater Remediation Alternatives in Sections 6-8

Soil:

Alternative 1, No Action. This method provides neither short term nor long term protection to human health or the environment. This method is not compliant with Proposed Rule 62-780 and will not accelerate remediation beyond natural attenuation. While "no action" is easily

implemented and the 30 year cost is very low ($53k), this method will have to be rejected because it doesn't meet the goals of the RA.

Alternative 2, Institutional Controls. Protection is afforded to human health through control measures, however long term and short term exposure is possible. This method is not compliant with Proposed Rule 62-780 and will not accelerate remediation beyond natural attenuation. Institutional controls are easily implemented and the 30 year cost is very low ($75k), however this method will have to be rejected because it doesn't meet the goals of the RA.

Alternative 3, Soil and Asphalt Capping. Capping will provide both short and long term protection to human health by minimizing the opportunity for people to come in contact with contaminated soil. While capping is compliant with Proposed Rule 62-780, it will not reduce the contaminant mass and will need to be designed accordingly to eliminate the risk of leaching contaminants from the soil to the groundwater. Design and construction of the caps are relatively easy, however long term maintenance must be completed to ensure the effectiveness of the caps. The estimated 30 year cost for this alternative is $3.4M, much higher than the first two alternatives, but it does meet the goals of the RA.

Alternative 4, Phytoremediation Covers and Asphalt Capping. Capping will provide both short and long term protection to human health by minimizing the opportunity for people to come in contact with contaminated soil. This method is compliant with Proposed Rule 62-780, and the inclusion of phytoremediation will reduce the contaminant mass and will lower the risk of leaching contaminants from the soil to the groundwater. Design and construction of the caps and phytoremediation areas are relatively easy, however long term maintenance must be completed to ensure the effectiveness of the caps and growth and prosperity of the phytoremediation plants. The estimated 30 year cost for this alternative is $2.8M and it meets the goals of the RA. Alternative 4 is less costly than Alternative 3 and benefits by including contaminant mass reduction, which would only be accomplished in Alternative 3 by natural attenuation.

Alternative 5, Excavation and Offsite Disposal. This alternative will provide both short and long term protection to human health and the environment by removing all of the contaminated soil from the site (theoretically). In order to ensure that all of the impacted soil is removed, a rigorous sampling plan should be completed. This method is compliant with Proposed Rule 62-780, and by removing all of the contaminant mass it will eliminate the threat of leaching contaminants from the soil to the groundwater. Although the 30 year cost ($5M) is significantly higher than the other four alternatives, GF believes that this method is the most effective in meeting the goals of the RA. This alternative will also release any constraints on land use which would be required by the first four alternatives.

Based on meeting the goals stated in the FS, and evaluating factors such as cost, implementability, land use restrictions, success and maintenance, the five soil remediation alternatives analyzed in Section 8 of the FS were evaluated. It is recommended that the alternatives for soil remediation in the following order from most desirable to least desirable: Alternative 5, Alternative 4, Alternative 3. Alternative 1 and Alternative 2 aren't considered because they are not compliant with Proposed Rule 62-780.

Groundwater:

Alternative 1, No Action. This method provides neither short term nor long term protection to human health or the environment (including adjacent wetlands). This method is not compliant with Proposed Rule 62-780 and will not accelerate remediation beyond natural attenuation. While no action is easily implemented and the 30 year cost is very low ($983k), this method will have to be rejected because it doesn't meet the goals of the RA.

Alternative 2, Riparian Corridors. Short term protection to human health and the environment is limited while allowing the trees to mature and long term protection is limited by the life span of the trees (approximately 20 years). The effectiveness of removing contaminant mass is also questionable, because of a lack of control of the depth of the root systems. This alternative is compliant with Proposed Rule 62-780 and can be easily implemented. The 30 year cost ($1.8M) is reasonable; however the goals of the RA may not be achieved during this period because the rate of reduction of contaminants in the groundwater cannot be accurately assessed.

Alternative 3, Riparian Corridors and Permeable Reactive Barriers (PRB). Short term protection to human health and the environment (including the wetlands) will be provided by the PRB while allowing the trees to mature, however long term protection will be limited by the life span of the trees and the loss of reactivity and permeability of the barrier. The addition of the PRB will greatly improve the effectiveness of removing contaminant mass from the groundwater and reducing the migration of contaminants. This alternative is compliant with Proposed Rule 62-780 and can be relatively easily implemented, however the construction of the PRB will have to contend with roadways, structures and utilities. The 30 year cost is $4.7M and this alternative will meet the goals of the RA.

Alternative 4, Groundwater Pumping and Discharge to FOTW. Short term and long term protection to human health and the environment will be provided by groundwater pumping. However, removing the groundwater and discharging to the FOTW may result in the wetlands drying up, which is a significant impact on the environment. Groundwater pumping will greatly improve the effectiveness of removing contaminant mass from the groundwater and reducing the migration of contaminants. However, as contaminant mass is removed the efficiency of groundwater pumping is reduced and GCTLs may not be easily achieved. This alternative is compliant with Proposed Rule 62-780 and can be relatively easily implemented, however the construction of the pump and treat system may meet resistance from NAS. The 30 year cost is $3.2M; however the goals of the RA may require a long period of time to complete because the efficiency of groundwater remediation will be reduced over time.

Alternative 5, Groundwater Pumping, Treatment and Discharge to Wetlands. Short term and long term protection to human health and the environment (including the wetlands) will be provided by groundwater pumping. Groundwater pumping will greatly improve the effectiveness of removing contaminant mass from the groundwater and reducing the migration of contaminants. However, as contaminant mass is removed the efficiency of groundwater pumping is reduced and GCTLs may not be easily achieved. This alternative is compliant with Proposed Rule 62-780 and can be relatively easily implemented, however the construction of the pump and treat system may meet resistance from NAS. The 30 year cost is $11.9M, which is significantly higher than any of the other alternatives. Considering that the goals of the RA (meeting GCTLs) may not be achieved during this period and the high cost, this alternative is not very attractive.

Based on meeting the goals stated in the FS, and evaluating factors such as cost, implementability, success and maintenance, the five groundwater remediation alternatives analyzed in Section 8 of the FS were evaluated. It is recommended that the alternatives for groundwater remediation in the following order from most desirable to least desirable: Alternative 3, Alternative 5, Alternative 4, Alternative 2. Alternative 1 wasn't considered because it is not compliant with Proposed Rule 62-780.

Alternative 3 is more desirable because it will offer greater protection to the wetlands than Alternative 4 and Alternative 2. Additionally, Alternative 3 will cost significantly less than Alternative 5. Based on the conditions presented, Alternative 3 also has a higher probability of achieving GCTLs than Alternatives 2, 4 and 5.

Conclusion and Recommendations:

After evaluating all of the technologies presented, and reviewing the environmental conditions at the site, the following conclusions are identified. Excavation and offsite disposal of soil (Alternative 5) and riparian corridors with permeable reactive barriers (Alternative 3) would offer the best combination of technologies to remediate the soil and groundwater and achieve CTLs as defined in Rule 62-777. This combination of technologies provides the best cost-benefit ratio of the technologies presented and appear easily implementable at NAS Pensacola. Additional delineation work should be performed during the remedial design to assure that the selected remedies actually cover the affected areas, not just the areas as they were defined years ago.

If you have any questions or comments, please contact me in writing or at 404.562.8544.

Sincerely,

Gregory D. Fraley

Digitally signed by Gregory D. Fraley
DN: CN = Gregory D. Fraley, C = US, O = FFB, OU = USEPA
Reason: I am the author of this document
Date: 2005.03.01 15:18:18 -06'00'

Gregory D. Fraley
Senior Remedial Project Manager

cc: Tracie Vaught, FDEP