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# Department of Environmental Protect

Lawton Chiles
Governor

Twin Towers Building
2600 Blair Stone Rod
Tallahassee, Florida 32399-2400

Virginia B, Wetherell
Secretary

January 5, 1998

RECEIVED
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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Bill Hill
Code 1851
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
P.O. Box 190010
North Charleston, South Carolina 29419-9010

RE: Final Remedial Investigation Report OU 2, NAS Pensacola

Dear Mr. Hill:

I have completed the technical review of the above referenced document dated October 10, 1997 (received October 14, 1997), and provide the following comments. Also address the attached comments from Dr. Stephen Roberts.

1. I still have the same comment as previously for Section 10.3.1.6 (Risk Uncertainty) which indicates that "exposure to current surface soil would be unlikely under a true future residential scenario" based on the assumption that buildings would be demolished, asphalt surfaces would be removed, and wetland areas would be filled." If buildings were destroyed and asphalt surfaces removed, the likelihood of potential contact with surface soil increases due to its being uncovered. Wetlands would likely not be filled unless a permit was received and mitigation approved. Also, due to the low elevation of the property, any homes would probably be elevated (stilt homes) and surface soil continuing to be exposed.

2. As stated in my previous comments, Section 11.2 (Recommendations) states Phase I groundwater is deemed inappropriate to evaluate nature and extent due to turbidity. This may be relevant to inorganic constituents. However, organic contaminants correlated well to Phase II data. Therefore, Phase I monitoring wells not sampled in Phase II yet had groundwater exceedences of PRGs for organic contamination should be considered in the nature and extent.

If I can be of any further assistance with this matter, please contact me at (904) 921-9989.

Sincerely,

John W. Mitchell
Remedial Project Manager

cc: Ron Joyner, NAS Pensacola
Gena Townsend, USEPA Region IV
Henry Beiro, EnSafe, Pensacola
Brian Caldwell, EnSafe, Knoxville
[redacted], EnSafe, Memphis
Karen Atchley, Bechtel, Knoxville
Tom Dillon, NOM CRC, USEPA Region IV
Tom Moody, FDEP Northwest District
Tony Ettore, OGC/Trustee File

TJB TB JJC JJC ESN ESN

UNIVERSITY OF
'FLORIDA

Center for Environmental & Human Toxicology

P.O Box 110885
Gainesville, Florida 32611-0885
Tel.: (352)392-4700, ext. 5500
Fax: (352)392-4707

BUREAU OF WASTE CLEANUP

DEC 01 1997

TECHNICAL REVIEW SECTION

November 26,1997

Mr. John Mitchell
Bureau of Waste Cleanup
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Mitchell:

At your request, we have reviewed the ***Remedial Investigation Report (RIR) for OU 2 at Naval Air Station Pensacola, Florida.*** This report was prepared by Ensafe/Allen & Hoshall (E/A&H) and dated September 10, 1997. We previously reviewed the *Draft* ***Remedial Investigation Report*** for OU 2 and provided comments to you in a letter dated November 15,1996, and we have been provided with responses to these comments from E/A&H. Based on our review of the RIS and comments, we have the following comments.

**Section 10 Baseline Risk Assessment**

OU 2 consists of 6 contaminated sites located on the northeast part of NAS Pensacola. The baseline risk assessment (BRA) addresses contamination of and potential risk from each site separately. The BRA, while generally performed in accordance with USEPA, USEPA Region IV, and FDEP guidelines and practices, still has some significant problems and inadequacies, as outlined below.

***Subsection 10-2-4- Management of Site-Related Data***

On page 10-7, the treatment of nondetected sample results is discussed. For organics, if the contaminant concentration was less than one-half the SQL, then one-half of the detected concentration was substituted for the concentration. If the detected value was higher than one-half of the SQL, then this value was compared to one-half of the lowest detected concentration, and the lower of the two was used as the concentration. For inorganics, one-half of the detected concentration was used. This method will tend to bias the mean of the data towards lower values, and is not as conservative as the RAGS guidelines, which state that "If there is reason to believe that the chemical is present in a sample at a concentration below the SQL, use one-half of the SQL as a proxy concentration. The SQL itself can be used if there is reason to believe the concentration is closer to it than to one-half the SQL." The method used by E/A&H assumes that the maximum detected concentration is the maximum for all samples (including samples with a large SQL), however there is no justification for this assumption. Therefore, one-half the SQL should be used for all nondetects, both organic and inorganic.

*Subsection 10-2-7 Exposure Assessment*

The potential risk from contact with subsurface soils was not addressed in this BRA. Construction workers could be expected to be exposed to subsurface soil, however risk to construction workers was not calculated because "Construction would generally not disturb soil below the 0- to 2-foot surface soil interval since the water table is too close to the surface. Therefore direct uniform exposure to subsurface soil conditions is not likely." However, the presence of groundwater near land surface does not preclude the plausibility of construction activities.

It is stated on page 10-13 that "adolescent trespassers are a potentially exposed population; however, trespassers would not be likely to frequent all of the OU 2 sites. As a result, this population is not addressed for all sites." Presumably, this is because some sites are fenced and expected to remain "as is" for a period of at least five years. To prevent trespasser access to these sites after five years, the BRA should address the need for continued fencing, etc. around the sites to limit possible future access

Exposure point concentrations (EPC) were calculated for groundwater COPCs with more than 10 samples by using the larger of the 95% UCL for the mean or the arithmetic mean of all detected concentrations. This is contrary to USEPA Region IV guidance for groundwater, which does not recommend using the UCL or the arithmetic mean of all detected concentrations, but instead the arithmetic average of the concentrations in the most contaminated area of the plume. (Supplemental Guidance to RAGS: Region IV Bulletins - *Human* Health *Risk Assessment,* 1996.) E/H&A state on page 10-46 that "since there is no readily definable plume for Site 11 groundwater COPCs, the Region IV guidance for groundwater EPCs applies only marginally." If the Site 11 groundwater plume has not been defined, the more conservative approach would be to use the maximum detected concentrations as the EPCs. This comment is applicable for each site addressed in the BRA.

*Subsection 10.2.10 Risk Uncertainty*

It is stated on page 10-38 that "Exposure in a hot spot may be quantified by calculating an FI/FC from contaminated source factor based on the percentage of the total exposure area of the hot spot, then using this term to modify the maximum (or restricted area average) contaminant concentration to derive the EPC." As an example, this was done with Site 25, as explained on page 10-152 and shown on Table 10.3.3-10. The rationale for the use of the FI/FC term is stated as "the variability in the data caused the 95% UCL to exceed the maximum concentration, thus causing the EPC to default to the maximum concentration...since the traditional statistical approach failed to provide a reasonable EPC value, the FI/FC approach was used to account for the limited extent of contamination." For Site 25, FIs were used for Aroclor 1260 (0.4), cadmium (0.4), and dieldrin (0.5). However, Aroclor 1260 was detected in 7 of 16 samples (44%), cadmium was detected in 6 of 16 samples (38%), and dieldrin was detected in 8 of 16 samples (50%). This frequency of detection is not indicative of hot spot concentrations. Furthennore, when the 95% UCL is above the maximum detected Concentration, this is not necessarily indicative of a hot spot, but rather of variable data. As we stated in our November, 1996 letter, the use of FI/FC to adjust the EPC for soils is valid only when the areas of contamination are well characterized. "Hot spots" must be carefully evaluated, and should not disappear from the analysis by the use of FI/FC approaches. The use of the FI/FC approach throughout this RIR should be reevaluated.

Table 10.3.1-4 (chemicals present in Site 11 groundwater samples, phase I) and Table 10.3.1-5 (chemicals present in Site 11 groundwater samples, phase II) list contaminants which were selected as COPCs for Site 11. It should be pointed out that, in Phase I samples, ethylbenzene and xylenes, at maximum detected concentrations of 58 and 200 g/L, respectively, were not retained as COPCs. It should be noted that these concentrations in groundwater may not be harmful to human health, but exceed the FDEP secondary and organoleptic groundwater standards for ethylbenzene and xylenes (30 and 20 µg/L, respectively). Groundwater contaminated with ethylbenzene and xylenes may therefore be considered to have an objectionable taste and odor, and this should be addressed in further assessments. Likewise sodium at a maximum detected concentration of 1,220,000 µg/L was excluded because it is an essential nutrient, yet this concentration exceeds the Florida Primary Standard for sodium in groundwater of 160,000 µg/L.

In Table 10.3.1-5, aluminum (maximum detected concentration: 1,110 µg/L) exceeds the secondary standard (200 µg/L). In addition, ethylbenzene and xylenes exceed the secondary standard, and sodium exceeds the primary standard.

RGOs for Site 11 are presented in Table 10.3.1-24 for groundwater. Both residential and industrial RGOs were calculated. The industrial RGOs may be useful pending site-specific future land use characteristics of the base.

Groundwater RGOs for aluminum, cadmium, 1,2-dichloroethane, iron, manganese, nickel, and trichloroethene exceed either primary or secondary standards for these contaminants. The comments in this and the preceding three paragraphs should be considered to be applicable, as necessary, to all sites in OU 2 reviewed in this BRA.

We hope that these comments are helpful. Please do not hesitate to contact us if you have any further questions.

Sincerely,

Stephen M. Roberts

Stephen M. Roberts, Ph.D.

Christine Halmes

N. Christine Halmes, Ph.D.