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Ligia Mora-Applegate  
Bureau of Waste Cleanup  
Florida Department of Environmental Protection  
Room 471A, Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Re: NAS Pensacola Site 38

Dear Ms. Mora-Applegate:

We have reviewed at your request the *Focused Feasibility Study for NAS Pensacola Site 38*, dated October 22, 2004. Most of the attention in this review was directed to Section 2, *Basis for Feasibility Study Action*. In a previous review of the *Technical Memorandum, Evaluation of Soil Concentrations, Site 38, NAS Pensacola*, provided in a letter to you dated April 16, 2004, we expressed concerns regarding some of the technical approaches being used to evaluate risks from contaminants in soils at this site. Although some improvements have been made, many of the points made in our April 16, 2004 letter apply also to the *Focused Feasibility Study*, as discussed below.

1. The data set for carcinogenic PAHs (cPAH) in soil is not very helpful in assessing risks because reporting limits for soil concentrations are rather high. Reporting limits for benzo(a)pyrene were consistently above residential soil cleanup target levels (SCTLs). As a consequence, no conclusions can be reached whether unrestricted land use criteria for cPAHs are met anywhere on the site, even in areas where cPAHs were not detected.

The projected future land use for this site is commercial/industrial. The reporting limits for many of the samples are below the commercial/industrial SCTL for benzo(a)pyrene, but many are above. For example, for Site 71 surface soil, 15 out of 37 samples (40%) had reporting limits above the commercial/industrial SCTL. Although there are no samples with concentrations that are not "U" or "J" values, it is nevertheless difficult with this data set to state with confidence that cPAH contamination in soil here meets FDEP risk goals.

For other areas, specifically Bldg 71 subsurface and Bldg 604 surface and subsurface soil, available data indicate cPAH concentrations above the FDEP commercial/industrial SCTL. Determining the exact extent to which concentrations exceed criteria is hampered somewhat by the manner of presentation of the cPAH data (addressed in comment 2, below), but 95% UCL concentrations appear to exceed the SCTL, and maximum concentrations in some areas exceed 3-times the SCTL.

2. In our previous review, we pointed out that cPAH concentrations for soil samples should be expressed and evaluated as total benzo(a)pyrene equivalent concentrations. In the *Focused Feasibility Study*, concentrations of some cPAHs continue to be expressed separately (see Table 2-7). In our review letter, we provided 95% upper

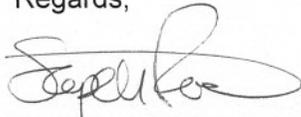
confidence limit (UCL) concentrations for several chemicals, including some individual cPAHs, calculated using FLUCL. By providing values for individual cPAHs, this may have led to some confusion. However, to account for additive effects among cPAHs, concentrations of all cPAHs should be converted to benzo(a)pyrene equivalents and added. As an approximation, the 95% UCL values for each of the cPAHs, expressed as benzo(a)pyrene equivalents, can be added. Alternatively, a better approach is to calculate the total benzo(a)pyrene equivalents for each soil sample, and then calculate the 95% UCL from those values. Since the 95% UCL for benzo(a)pyrene alone exceeds the commercial/industrial SCTL for Bldg 71 subsurface soils and Bldg 604 surface and subsurface soils, the outcome will be the same regardless which approach is used — the 95% UCL for total benzo(a)pyrene equivalents will be above the FDEP commercial/industrial SCTL.

3. The Feasibility Study seems to be focused on removing soils that are greater than 3-times the SCTL in uncovered areas. It is important to point out that under current FDEP requirements, remediation should also reduce the 95% UCL to a concentration at or below the SCTL (1X). Also, when soil contamination is evaluated using a 95% UCL approach, there is a concurrent requirement to explicitly consider potential additive toxic effects of the contaminants present. For this site, the principal issue would be total cancer risks from the carcinogens, which include arsenic and PCBs in addition to the cPAHs. It is unclear whether simply removing soils with concentrations greater than 3-times the commercial/industrial SCTL, if that is what is proposed, would satisfy all of the Department's requirements.

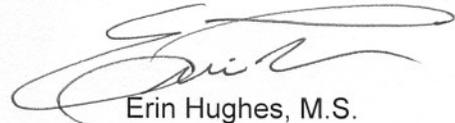
4. In section 2.2.2.1 on Soil Remediation Goals, the use of asphalt and concrete structures to reduce leaching of contaminants from soils to groundwater is proposed. The Focused Feasibility Study notes that an institutional control would be required to maintain the cover in this situation. As you know, FDEP currently has additional requirements for this scenario that should be considered; namely, that a Professional Engineer must certify the engineering control, and a minimum of one year of groundwater monitoring data is needed to demonstrate that contaminants will not leach into the groundwater at concentrations exceeding the appropriate groundwater cleanup target level.

We hope that these comments are helpful in reaching an effective risk management strategy for this site. Please do not hesitate to contact us if you have any questions.

Regards,



Stephen M. Roberts, Ph.D.



Erin Hughes, M.S.