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NAS CECIL FIELD, FL
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LETTER REGARDING UNIVERSITY OF FLORIDA COMMENTS ON DETERMINATION OF SITE-SPECIFIC SOIL CLEANUP TARGET LEVELS AT SITE 15 NAS CECIL FIELD FL
2/21/2003
UNIVERSITY OF FLORIDA

File - CTO 39 Site 15 FS

UNIVERSITY OF FLORIDA

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February 21, 2003

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

Dear Ms. Mora-Applegate:

At your request, we have reviewed the Site 15 Determination of Site Specific SCTLs for NAS Cecil Field, Jacksonville, Florida. This document proposes cleanup goals for lead and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) in soil at the 85-acre Site 15. Cleanup goals for lead have been developed with the objective of eliminating significant exposures to mammalian and avian receptors, as well as to children and adults visiting the site. For cPAHs, the goal is to reduce exposure to bring cancer risks below the goal of 1.0E-06.

Based on our review, we have the following comments:

1. The document explains that cPAH concentrations should be assessed as total benzo(a)pyrene equivalents (BaPEq) rather than developing SCTLs for individual cPAHs. We agree with this approach — it is consistent with current FDEP procedures for addressing cPAH contamination in soils.

2. The proposed SCTL for carcinogenic PAHs (4.5 mg/kg) is based on the FDEP "Restricted II" scenario. This scenario was originally developed by FDEP to calculate risks posed by remote cattle dip vat sites. Some of the exposure assumptions have been modified for Site 15 — most notably, body weight. The body weight assumption was increased from 35 kg to 70 kg so as to reflect an <u>adult</u> recreational user. This begs the question why only adults are expected to visit Site 15, since no institutional/engineering controls are planned that would prevent access by adolescents and children. Presumably, at least some adults using the site for recreational purposes (e.g., hiking, biking, trail riding) will bring their children. Also, adolescents have sufficient mobility that they could visit the site by themselves. Since children and adolescents receive greater doses

of contaminants from soils than adults on a per unit body weight basis, a cleanup goal for cPAHs based strictly on adult exposure is not necessarily protective in the case of exposure of children and adolescents. One approach to address this would be to use the original body weight assumption from the Restricted II scenario, 35 kg, which includes exposure while an adolescent. This would reduce the cPAH SCTL to 2.25 mg/kg. This would cover the most likely age group, other than adults, that might visit the site on a regular basis. Alternatively, if the possibility of repeated visits by small children is considered, a lower SCTL would be needed. One could be derived simply by modifying the FDEP aggregate resident scenario to limit the exposure frequency to 50 days and the exposure duration to 20 years. This would result in a cPAH SCTL of about 1.5 mg/kg.[1]

3. This SCTL is intended to be the acceptable upper limit for the average (or more precisely, the 95%UCL of the mean) concentration over an exposure unit. Currently, the entire 85-acre site is assumed to constitute a single exposure unit. In reality, contact with this large site is unlikely to be random, but instead more frequent near roads, trails, and access points. In part to address uncertainty about true randomness of contact within an exposure unit, FDEP requires that that the highest post-remediation concentrations not exceed three times the SCTL. This means that the not-to-exceed concentration for cPAHs would be 13.5 mg/kg if the SCTL proposed in the document is used, and 6.75 mg/kg if an SCTL is used that doesn't limit exposure to adults (see comment 2, above). Both of these concentrations are substantially below the estimated pick-up level for cPAHs needed to achieve an SCTL of 4.5 mg/kg presented in the report. Also, with respect to non-random exposure, it would be helpful to remove structures at the site which might attract visitors (especially children) to areas with elevated cPAH concentrations, such as the burn areas.

4. Two SCTLs for lead are presented for protection of human health. One is based on acute exposure for a small child. We participated in the development of this acute lead SCTL of 6,500 mg/kg, and agree that its use is appropriate for this site. Because it is based on acute exposure, it is used as a not-to-exceed value. A second SCTL, 3,281 mg/kg, was developed for chronic exposure using the same assumptions as for cPAHs. As with cPAHs, it is not clear why the assessment of chronic exposure doesn't include older children or adolescents. In the case of lead, however, the question is probably moot. If the prediction of post-remediation concentrations in the report is accurate, cleanup of the site to satisfy the acute lead SCTL will leave a site-wide average lead concentration of 577 mg/kg. This concentration is only about 50% higher than the residential lead SCTL, and consequently should be protective for chronic lead exposure for children and adolescents at this undeveloped site.

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[1] This is an approximate value based on changing only exposure duration and exposure frequency. Technically, all of the age-weighted inputs for the aggregate resident scenario (e.g. soil ingestion, body weight, etc.) should be re-derived for an age interval of 1 to 21 years instead of 1 to 31 years.

5. We are in agreement with the remedial goals selected for lead based on protection of mammalian and avian species (1,149 mg/kg site-wide average for avian species; 2,512 mg/kg average over 2-acre parcels for mammalian species; Table 5). We also agree that cleaning the site to lead and cPAH levels protective of human health will also result in concentrations safe for ecological receptors.

6. Regarding the section on determining the extent of remediation, we have received the concentration data for both B[a]PEq and lead in a spreadsheet format. We note that a single location is represented by several samples, and that some sample values are averages, presumably of discrete samples. It is not clear which samples are being included in the iterative processes used to determine the extent of remediation. For example, for B[a]PEq, the spreadsheet contains 515 observations that decrease to 472 if we exclude average values, whereas 430 of these are surface samples (starting at 0 depth). However, the number of distinct locations is only 325. The calculation sheet included in the pdf document states that 385 samples are considered. We are unable to sort this out, and consequently unable to check the calculation of projected post-remediation concentrations. It would be very helpful to have a clearer articulation of the concentrations assigned to specific sampling locations and their basis.

We hope these comments are helpful. Please do not hesitate to contact us if you need further assistance regarding the evaluation of this site.

Sincerely,

Hugo G. Ochoa, DVM, Ph.D.

Stephen M. Roberts, Ph.D.