UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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MAY 1 9 1995

Mr. Theodore Taylor
Program Manager
Environmental Restoration Program
Department of Energy
Los Alamos Area Office
Los Alamos, NM 87544

Re: *Interim Guidance for Evaluating Polycyclic Aromatic Hydrocarbons in Soil*
Los Alamos National Laboratory (NM0890010515)

Dear Mr. Taylor:

Enclosed are comments from the Environmental Protection Agency's (EPA) review of the draft document entitled *Interim Guidance for Evaluating Polycyclic Aromatic Hydrocarbons in Soil*. Los Alamos National Laboratory (LANL) has used a study (Bradley et al. 1994) from which data was collected for polycyclic aromatic hydrocarbons (PAHs) in New England. The selection and use of this data set is not appropriate. LANL may choose to collect their own background data for PAHs; however, EPA recommends that prior to conducting the actual study, EPA review the proposed sampling locations.

Should you have any questions, please contact Barbara Driscoll at (214) 655-7441.

Sincerely,

William K. Honker, P.E.
Chief, RCRA Permits Branch

Enclosure

cc: Mr. Benito Garcia
New Mexico Environment Department
Mr. Jorg Jansen
Los Alamos National Laboratory, MS M992

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General Comments
Interim Guidance for Evaluating
PAHs in Soil

1. The establishment of background data is for use in the determinations made for remedial action, not for determination of potential chemicals of concern. In that regard, the need for "Interim Guidance" (page 1) and the use of surrogate background data sets may not be necessary and the appropriate effort at this time should be to proceed with actual background sampling of polycyclic aromatic hydrocarbons (PAHs).

2. This document begins by stating that no actual background data for the LANL site have been collected. Although this document states (pg 1) that various publications exist on background concentrations of PAHs and that, ideally, the surrogate background data set should be comprised of data collected under conditions as close as possible to site-specific conditions at LANL, a data set from New England (Bradley et al. 1994) is selected for use. The selection and use of this data set does not appear to be appropriate. New England is known to have a greater likelihood of anthropogenic sources of PAHs than the southwest. For instance, many of the coal-fired electrical generating plants in northeastern U.S. have been around for 20+ years and some have not been required to meet recent air emission standards.

3. Other problems exist with this data set. Although the summary values of the original data suggest that the data set is strongly skewed to the right (most samples resulted in low background concentrations), LANL wishes to select a upper tolerance limit (UTL) as the concentration for comparison and define the UTL as the 95th percent upper confidence limit on the 99th percentile of the "estimated" distribution (NOTE: the actual data set is not provided nor are any details of the Bradley background study such as location, potential anthropogenic bias, etc.). Use of this UTL will result in specific PAH background values that are in some cases roughly an order of magnitude higher than the mean of that specific PAH of the surrogate data set. Note that the arithmetic means of the surrogate data set PAHs is much closer to the minimum values that the maximum values. In addition, use of this methodology for calculation of the UTL can result in a UTL higher that any sample analysis in the surrogate background data base (indeed, this has occurred for benzo(b)fluoranthene).

4. What is the documentation for the use of the 99% percentile as the tolerance interval? The risk assessment guidelines (RAGS) for Superfund recommend hypothesis testing with statistical significance generally determined at $P = 0.05$ for comparative testing of background samples with potential release sites (PRS).

5. For six of the PAHs (benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene and Indeno(1,2,3-cd)pyrene), the action levels are lower than the proposed UTLs for background. These chemicals should remain in the risk assessment process until risk management decision-making.

6. The *Statistical Comparisons to Background, Part 1* states (pg 2, paragraph 2) that "...guidance on statistical comparisons between PRS data and naturally occurring concentrations of metals in soils provided by this document may also be applicable to background comparisons of certain anthropogenic compounds...". The very next sentence states "...it should be emphasized that the approach presented in this document should be applied to naturally-occurring metals only...". This is contradictory. Either the methodologies of this document are appropriate for use with PAHs or they are not.