UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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ATLANTA, GEORGIA 30365

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New Interim Region IV Guidance:

(1) As an interim procedure, until more definitive Agency guidance is established, Region IV has adopted a toxicity equivalency factor (TEF) methodology for carcinogenic PAHs based on each compounds relative potency to the potency of benzo(a)pyrene (BaP). The following TEFs should be used to convert each cPAH concentration to an equivalent concentration of BaP:

Compound	TEF
Benzo(a)pyrene	1.0
Benzo(a)anthracene	0.1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.1
Chrysene	0.01
Dibenzo(a,h)anthracene	1.0
Indeno(1,2,3-c,d)pyrene	0.1

Also, EPA's CRAVE workgroup has verified a new cancer slope factor (CSF) for BaP. The CSF is 5.8 $(mg/kg/day)^{-1}$.

(2) The following absorption factors (including the soil matrix effect) should be used in determining the risks associated with dermal exposure to contaminated soils.

1.0 % for organics
0.1 % for inorganics

(3) The soil to skin adherence factors given in EPA's Risk Assessment Guidance to Superfund (RAGS) are 1.45 mg/cm^2 to 2.77 mg/cm^2. Because of new data in this area, this range should be changed to 0.2 to 1.0 mg/cm^2.

Agency-wide guidance in these areas is pending.

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NOTE TO: Bonnie Lavelle

SUBJECT: Toxicity Values for Rocky Flats Risk Assessments

Per your request, I've looked at the list of compounds submitted by Dames and Moore for the Rocky Flats risk assessment. Toxicity values are already available for these compounds. Specifically:

1. PAH's - Eleven PAH's are listed in the memo. A Reference Dose (RfD) is available for pyrene on IRIS. Currently, official EPA policy is to use the cancer slope factor for benzo[a]pyrene for all carcinogenic PAH's. However, mainstream scientific thought is that this method overestimates the risk associated with exposure to PAH's. A number of regions, including Region 8, have been using a toxicity equivalency factor (TEF) approach based on potency of the PAH relative to the potency of benzo[a]pyrene. This approach is outlined in the 1988 report from Clement Associates entitled "Comparative Potency Approach for Estimating the Cancer Risk Associated with Exposure to Mixtures of Polycyclic Aromatic Hydrocarbons" and summarized in the attached memo from Region IV. The TEF for benzo(ghi)perylene, which is not provided in this memo, is 0.01. The PAH listed above benzo[ghi]perylene is not readable.

2. PCB's - Toxicity values for Aroclor 1254 and the Dibenzofurans can also be calculated by a TEF approach relative to 2,3,7,8-TCDD. These approaches are outlined in the EPA Risk Assessment Forum Publications "Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and - Dibenzofurans" (EPA/625/3-89/016 - March 1989) and "Workshop Report on Toxicity Equivalency Factors for Polychlorinated Biphenyl Congeners" (EPA/625/3-91/020 - June 1991).

3. Thallium, Nitrate, N-nitrosodiphenylamine - RfD's or slope factors are available on IRIS.

4. Iron, Chloride and Sulfate - Secondary maximum contaminant levels are available under drinking water regulations. No RfD's or slope factors are available for these chemicals, however exposure from soil ingestion or inhalation of these chemicals is not expected to significantly impact risk.

5. Interim RfD's have previously been derived for aluminum, cobalt, and trichloroethylene with assistance from the Superfund Technical Support Center (ECAO). They are:

   - Aluminum - 2.9 mg/kg/day (oral RfD)

- Cobalt - 2.9 E-04 mg/kg/day (inhalation RfD)
- Trichloroethylene - 6E -03 mg/kg/day (oral RfD)

If you have any questions, please feel free to contact me at 294-1062.

Susan Griffin