



NEW MEXICO  
ENVIRONMENT DEPARTMENT



*Hazardous Waste Bureau*

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EP2012-5218

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 31, 2012

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National Nuclear Security Administration  
Los Alamos Site Office  
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Michael J. Graham  
Associate Director  
Environmental Programs  
Los Alamos National Security, L.L.C.  
P.O. Box 1663, MS M991  
Los Alamos, NM 87545

**RE: REVIEW  
TECHNICAL APPROACH FOR CALCULATING RECREATIONAL SOIL  
SCREENING LEVELS FOR CHEMICALS, REVISION 2  
LOS ALAMOS NATIONAL LABORATORY  
EPA ID #NM0890010515  
HWB-LANL-12-042**

Dear Messrs. Maggiore and Graham:

The New Mexico Environment Department (NMED) has received the United States Department of Energy (DOE) and the Los Alamos National Security L.L.C.'s (LANS) (collectively, the Permittees) *Technical Approach for Calculating Recreational Soil Screening Levels for Chemicals, Revision 2*, dated July 2012 and referenced by LA-UR-12-22799/EP2012-0147. NMED has reviewed the document and provides following comments.

1. There were some updates noted in input parameters for the derivation of the recreational screening levels. Some of the assumptions were not consistent with the NMED soil

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screening level document. However, the differences appear to be more conservative and are therefore acceptable.

2. The recreational screening levels are an expansion of the backyard user scenario and include children potentially exposed to soil while playing outside in the areas of canyons accessible for extended periods of time. A major concern with this scenario is that it was derived based on children at least six years of age (6-12 year old children); it excludes potential exposures to children younger than six. While it is noted that this age group has been applied in past versions of the recreational screening levels, it appears that the screening levels need to be updated so that they are protective of younger children. As noted in the derivation of mutagenic chemicals, early childhood exposures were also eliminated.

In reviewing the derivation of the lead screening level (Appendix B), it was clearly presented that the lead screening level based on children six to seven years of age is not protective of children under six. The calculated lead screening level for children four to seven years of age was 1,110 milligrams per kilogram (mg/kg) versus that for a six to seven year old child of 1,350 mg/kg. It is plausible that younger children accompany parents or older siblings on hikes and/or may play in accessible canyon areas.

The recreational screening levels should be derived so that they are protective of all children potentially exposed to canyon soils; this includes children younger than 6 years of age. Revise the screening levels (to include the mutagenic calculations and lead) to encompass exposure to all children (two to 12 years old). While it is agreed that children younger than two are unlikely to be exposed to canyon soils through walking or playing, the supporting documentation should contain a discussion of exposure and potential risks to infants/toddlers younger than two years of age.

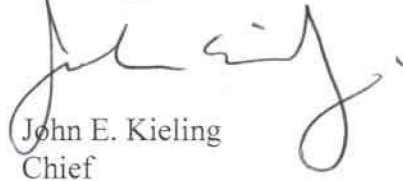
3. In looking at the spreadsheet for the calculation of recreational soil screening levels for carcinogenic effects (with adjustment for mutagenicity), the following issues were identified:
  - a. It appears that the age-adjusted soil ingestion factor mutagens were based on Equation 7 for all three pathways (ingestion, dermal and inhalation). The age-adjusted soil ingestion factor mutagens should have been derived using Equation 13. Modify the spreadsheet accordingly.
  - b. The equation for derivation of the inhalation pathway appears to have been based on Equation 5 instead of Equation 11. Modify the spreadsheet accordingly.
  - c. Equations 6 and 8 appear to have been used to derive the dermal pathway data; Equations 12 and 14 should have been applied. Modify the spreadsheet accordingly.

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Messrs. Maggiore and Graham  
August 31, 2012  
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Please contact Neelam Dhawan at (505) 476-6042, if you have any questions.

Sincerely,



John E. Kieling  
Chief

Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB  
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File: 2012 LANL, Recreational Soil Screening Levels, Rev 2 (LANL 12-042)

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