UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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JUN 29 1998

Mr. Benito Garcia, Chief
Hazardous and Radioactive
Materials Bureau
New Mexico Environment Department
2044A Galisteo Street
Santa Fe, NM 87505

04469 General

Re: Comments on the Document entitled *Approach for Conducting Screening-Level Ecological Risk Assessments at the U.S. Department of Energy New Mexico National Laboratories*

Dear Mr. Garcia:

The Environmental Protection Agency (EPA) has reviewed the document entitled *Approach for Conducting Screening-Level Ecological Risk Assessments at the U.S. Department of Energy New Mexico National Laboratories*. The purpose of this document is to serve as a general umbrella approach for conducting screening level risk assessments at Los Alamos and Sandia National Laboratories. The document appears to have been substantially improved over previous versions, although it is very general and evaluation of follow-up documents will be necessary to completely understand the details of the methodology being presented. Enclosed are EPA's comments pertaining to the document.

Should you have any questions, please feel free to contact Mr. Jeff Yurk at (214) 665-8309.

Sincerely,

David W. Neleigh, Chief
New Mexico and Federal
Facilities Section

Enclosure

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Comments on the Document Entitled *Approach for Conducting Screening-Level Ecological Risk Assessments at the U.S. Department of Energy New Mexico National Laboratories*

1) Page 11 (1st para): This paragraph is unclear. It appears to suggest that a site may proceed to an accelerated clean-up to risk-based concentrations without conducting a screening level ecological risk assessment. If an accelerated site clean-up is done to background or analytical detection limits as described in NMED guidance, no ecological risk assessment may be necessary. However, if risk-based concentrations are used, by definition, an ecological risk assessment will need to be conducted.

2) Page 12 (2nd and 4th para): The procedure listed here appears to address each individual SWMU as a separate entity. Given that many of these units are close to each other and reside on Mesa tops which drain into the same water shed, it would seem prudent to have some procedure to evaluate cumulative risk prior to proceeding to a no further action decision. It may be appropriate to address cumulative risk from a risk management standpoint and allow a SWMU to proceed to no further action based on comparison to a hazard quotient or hazard index of 0.1 to 0.3.

3) Page 13 (4th para): The justification for the selection of screening aquatic receptors is not clear. The toxicity reference values for the four receptors selected (algae, daphnids, snails, and fish) are media concentration specific (i.e. would not account for bioaccumulation), and should probably be selected as the AWQC or their closest equivalent. Receptors that feed on aquatic fish and invertebrates, which could be used to assess bioaccumulative chemicals, are ignored.

4) Page 16 (4th para): It may be appropriate to present risk calculated using both a NOAEL and LOAEL to the risk manager as the true risk is best estimated to be between these two values. Also, there is no direction as to what will be done when neither a NOAEL or LOAEL can be found, but acute toxicity data exists, or what will be done when no toxicity data can be found in the literature. It may be appropriate to discuss where and how surrogate toxicity data will be used or how lack of this data will be addressed as an uncertainty.

5) Page 17 (4th para): The example presented states that the deer mouse, an omnivore mammal, would be evaluated assuming a 50% invertebrate diet and 50% vegetation diet. This is contrary to a response to comments, which stated that the deer mouse was evaluated assuming a 100% plant diet, a 100% insect diet, and a 50/50 plant-insect diet, as a justification for not evaluating other terrestrial receptors.

6) Page 20 (1st para): It should be documented that the soil-to-invertebrate TF is calculated on a dry weight basis.

7) Page 22 (last para): The literature sources cited for obtaining transfer factors are general sources used for terrestrial organisms. Aquatic transfer factors (more often referred to as bioaccumulation factors) would not be necessary in the proposed approach, because it does not select any ecological receptors which consume aquatic organisms, at least for which toxicity data exists (see comment 3 above). As I would recommend including ecological receptors which consume aquatic organisms in this methodology, I would also recommend using something equivalent to the food chain multiplier approach utilized in the Great Lakes Water Quality Initiative (GLWQI) to derive aquatic transfer factors. The GLWQI approach for addressing biomagnification may also be considered in the terrestrial food web when deriving dose to the top level predators.

8) Page 23 (2nd para): The last sentence prior to section 3.2.4.5 is extremely vague. How will the diet of carnivores be broken out? What portion of the diet will be mammals, birds, invertebrates, or fish?

APPENDIX A

PROCEDURES USED IN HEC-1 MODEL, CHAQUEHUI WATERSHED

PROCEDURES FOR HEC-1 MODEL OF CHAQUEHUI WATERSHED

1. **Area and Length.** Area and length were both determined electronically using a map digitized from U.S.G.S. 7.5 minute quadrangles. Values for sub basins are:
CH1A - 0.98 sq mi with channel length of 14,171 ft.
CH1B - 0.25 sq mi with channel length of 3424 ft.
CH2 - 0.38 sq mi with channel length of 6378 ft.

2. **Slope.** Change in elevation (ΔE) was determined directly from U.S.G.S. 7.5 minute quadrangles. Slope was calculated by:

$S = \Delta E/L*100$ Where

S = slope (%)
ΔE = change of elevation (ft)
L = Length (ft)

Results:

CH1A - ΔE = 640'	S = 4.52%
CH1B - ΔE = 640'	S = 18.69%
CH2 - ΔE = 500'	S = 7.84%

3. **Time of Concentration.** Time of concentration (T_c) was calculated by the Kirpich equation:

$T_c = 0.00013[L^{0.77}/S^{0.385}]$ Where

T_c = Time of concentration (hrs)
L = Length (ft)
S = Slope (dimensionless)

Results for T_c:
CH1A - 0.67 hrs
CH1B - 0.13 hrs
CH2 - 0.29 hrs

4. **Lag time.** Lag time was calculated using the equation from Hoggan (1989, page 60):

$L = 0.6\ T_c$ Where

L = Lag time (hrs)
T_c = Time of concentration (hrs)

Results for Lag time:
CH1A - 0.40 hrs
CH1B - 0.08 hrs
CH2 - 0.18 hrs