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General

MAY 2 '57 1996

Mr. Theodore J. Taylor
Program Manager
Department of Energy
Los Alamos Area Office
Los Alamos National Laboratory
Los Alamos, NM 87544

Re: Review of Draft Ecological Risk Assessment Approach for
Los Alamos National Laboratory (NM0890010515)

Dear Mr. Taylor:

Enclosed are comments from the Environmental Protection Agency on the draft document Ecological Risk Assessment Approach for Los Alamos National Laboratory. Also enclosed are examples of an ecological risk assessment approach which was developed for a Superfund site, Lavaca Bay. This risk assessment was developed with the assistance of the EPA.

Should you have any questions, please feel free to contact Ms. Barbara Driscoll at (214) 665-7441.

Sincerely,


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

Enclosure

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**Comments on Draft
Ecological Risk Assessment Approach for
Los Alamos National Laboratory**

- 1) Page 4: The document entitled "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments" has been updated and should be available within one month. The updated version will remain somewhat general in the approach method presented, however, specific methodologies and protocols will follow. Region 6 is currently working with EPA headquarters to develop these specific methodologies at various Region 6 sites. Attached please find an example of the use of these methodologies for determining 1) General assessment endpoints and 2) The problem formulation process including selection of site-specific assessment and measurement endpoints for an example chemical.

Methodology for selection of chemicals of concern in ecological risk assessments has previously been provided to LANL. Methods to further screen the list of chemicals of concern down to a manageable number include screening in comparison to background concentrations and a ranking of remaining chemicals of concern based on such factors as toxicity, persistence, exposure potential, bioavailability, and food chain transfer. Once chemicals are ranked, a decision in conjunction with the risk manager and risk assessor may be made to narrow the list of chemicals of concern to a priority list which will be carried forward into the baseline ecological risk assessment.

- 2) Page 4: The document referred to as "Draft Proposed Guidelines for Ecological Risk Assessment" is an update to the "Framework for Ecological Risk Assessment". It does not provide specific methodologies or protocols to follow, rather it is more the theoretic basis behind ecological risk assessment.
- 3) Page 6: The proposed preliminary screening assessment should be performed on an Ecological Exposure Unit (EEU) basis, not a PRS basis. If information from an individual PRS will artificially inflate risk the PRS may be evaluated as a individual EEU.
- 4) Page 9: The habitat condition ratings presented are arbitrary and need to be further defined or, alternatively, a process should be proposed to define them in concurrence with regulators on a site-specific basis.
- 5) Page 10 (Fig 3): The habitat quality rankings presented are arbitrary (See comment 4).
- 6) Page 11 (Fig 4): Defining the exposure units should be the first step in the problem formulation process. The rest of

the problem formulation process should be expanded as follows: 2) determine chemicals of potential concern; 3) generate food webs for each EEU and determine general assessment endpoints; 4) compile toxicity benchmarks, chemical fate data, bioavailability data, and chemical specific mode of toxic action data; 5) determine site-specific assessment endpoints for each major exposure pathway; and 6) select measurement endpoints.

- 7) Pages 13 and 14: Assessment endpoints will need to be developed for each EEU separately. They should also be justified based on their ecological relevance in the food web. The ultimate goal might be the protection of an endangered species, however assessing exposure from what it eats may not be protective of that species if a critical food or habitat from a lower level of the food chain is adversely impacted or eliminated.
- 8) Page 16 (Fig 5): The definition of the EEU should be kept as simple as possible. The first step should be to put together a habitat map of the area with all the SWMUs on it. Most of the EEUs should be able to be determined from this. Other considerations listed in this figure may be appropriate to define what is left.
- 9) Page 17: Other sources for toxicity data include U.S. Fish and Wildlife publications authored by Eisler, ATSDR, Hazardous Substance Data Base, Verschueren (Handbook of Environmental Data), Devillers and Exbrayat (Handbooks of Ecotoxicological Data), Ambient Water Quality Criteria (Federal and State), Sediment Quality Criteria (Federal, Ontario, NOAA, State), and Registry of Toxic Effects of Chemical Substances Database.

Mr. Benito Garcia, Chief
Hazardous and Radioactive
Materials Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

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