

July 15, 1997

**MEMORANDUM**

**SUBJECT:** Review of *Canyon Investigation Core Workplan* for Los Alamos National Laboratory

**FROM:** Jeff Yurk  
RCRA Risk Assessment Team (6PD-O)

**TO:** David Neleigh, Chief  
NM/Federal Facilities RCRA Permits Section (6PD-N)

**THRU:** William Gallagher, Chief  
OK/TX RCRA Permits Section (6PD-O)

I have reviewed the document entitled *Canyon Investigation Core Workplan* for Los Alamos National Laboratory. My review primarily focused on Chapters 5 and 6 which make up the bulk of the proposed technical and risk assessment approach. The overall proposed process for evaluating the canyon and canyon systems at Los Alamos appears to be severely flawed. The following comments are submitted for you review.

- 1) Issue: (General Comment) The overall scope of the proposed project does not follow the RCRA corrective action process. As presented, the canyon assessment would be research in nature, require tens of years to complete, and most probably be inconclusive to regulatory decisions. The proposed approach does not evaluate sources of contamination (i.e. SWMU's). It is a survey of current contamination levels and the risk they impose. It is unclear how future risk can be characterized without evaluating the potential future fate and transport of contaminants from their source.

Action: In order to evaluate canyon systems, all SWMU's in the canyon systems themselves and on adjacent mesa tops will need to be fully characterized (i.e. extent of contamination for all SWMU's which could be potential sources of contamination to the canyon will need to be defined). This is critical to defining chemicals of concern, areas of concern within a canyon, and provide a basis for evaluation of the cumulative impacts from multiple sources.

- 2) Issue: (Page 3-43; Table 3-5) Lists of culturally significant species are provided in this Table, however, this information has not been presented in the proposed ecological or human health risk assessment guidance presented by LANL to date.

Action: In revisions to risk assessment methodology documents include lists of



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culturally significant species and take them into account in determining exposure pathways for human health and levels of protection for ecological species.

- 3) Issue: (Page 4-2; Bullet 4) Defining ecological habitation taking into account effects of human occupation is confusing.

Action: Revise this bullet to state that what is being taken into consideration is whether or not complete exposure pathways exist.

- 4) Issue: (Page 5-7; 3rd para) Data to be used to develop sampling plans from the FIMAD data base has not been approved. Much of the data appears to have significant problems associated with it. For example, in several draft risk assessments for SWMU's, it was found that samples exceeded holding times by as much as 60 days, composite samples were used, and samples from inappropriate depths were used. This is contrary to the Quality Assurance Plan (QAP) and Data Quality Objectives (DQO's), however, the data is still used.

Action: A complete overhaul of data in the FIMAD data base should be conducted and numbers and their appropriate use should be approved prior to using this information.

- 5) Issue: (Page 5-7; Decision Point 1) Until the extent of contamination for all SWMU's on adjacent mesa tops and potential future fate and transport has been modeled, there is insufficient information to determine the potential presence of COPCs in each canyon.

Action: Determine extent of contamination and potential future fate and transport of COPC's associated with all SWMU's.

- 6) Issue: (Page 5-9; bottom) The argument is issued here that the DQO process may be exploratory in nature and require a research type study. This may be an appropriate DQO for a site at which the source of contamination is not clearly defined. However, the majority of possible canyon contamination from laboratory operations appears to associated with define sources (i.e. SWMU's).

Action: See comment 1.

- 7) Issue: (Page 5-12; Section 5.3.5) Data is proposed to be evaluated by comparison to background, however, background levels have never been approved at LANL. No site should be proposed for No Further Action (NFA) if comparison to background concentrations is used to evaluate COPCs until background levels are approved.

Action: Do not use background for screening of chemicals of concern until levels have been approved by NMED.

- 8) Issue: (Page 5-12; Decision Point 3) It is proposed here that the only alternative to dealing with a high level of uncertainty is to collect more data. Rather than trying to

refine the uncertainty at this point it may be more prudent to remediate the area due to cost, time, and probable effectiveness of further evaluating uncertainties.

Action: Add the possibility of remedial action at this decision point.

- 9) Issue: (Page 5-13; Section 5.3.8.1) The American Indian is referred to as a conservative scenario. If the American Indian receptor exists the scenario is not conservative, but realistic. Also, it is never made clear whether the American Indian is an adult exposure scenario, a child exposure scenario or both.

Action: The American Indian may be better referred to as a special subpopulation. It is recommended that both the adult and child American Indian exposure scenarios be evaluated.

- 10) Issue: (Page 5-26; top) It is unclear how radiological risk at LANL will be assessed. Previous human health methodology has proposed using a bright line concentration. The methodology here appears to propose using dose and cancer slope factors to determine risk. It is not clear whether either methodology has been approved.

Action: Approved methodology for evaluating risk from radioactive contaminants should be referenced here.

- 11) Issue: (Page 5-40; Section 5.9) The first bullet in this section advocates studies of ecosystem receptors and biological communities. No details of what is meant by study are presented.

Action: Any studies proposed should be presented in much more detail and approved prior to implementation.

- 12) Issue: (Page 5-41; Section 5.9.3) It is unclear why site-specific sampling of plants, wildlife, and livestock is proposed prior to conducting a screening risk assessment.

Action: Conduct a screening risk assessment prior to proposing site-specific sampling or present the reasoning for skipping this step.

- 13) Issue: (Page 6-2; Overview) The technical approach for risk-based decision making only incorporates a probabilistic approach.

Action: For all risk-based decision making, a reasonable maximum exposure must be calculated. The probabilistic approach may also be presented to justify site recommendations.

- 14) Issue: (Page 6-15; 2nd para) It is stated the concentrations in elk, deer and small game will be estimated as part of the ecological risk assessment. It is not clear that this will be the case. The ecological risk assessment methodology is not approved and will

probably not require calculation of concentrations in all of these animals.

Action: Document a procedure for either using measure animal concentrations or calculating animal concentrations.