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MEMORANDUM

TO: Benito J. Garcia, Chief, HRMB, NMED
THROUGH: Neil Weber, Chief, DOE Oversight Bureau, NMED
FROM: Steve Yanicak, LANL POC, DOE Oversight Bureau, NMED
DATE: January 3, 1996
SUBJECT: LANL Solid Waste Management Unit (SWMU) 3-056(c),
Removal of PCB Contaminated Soil and Proposed Cleanup
Level

The following are DOE Oversight Bureau comments regarding a letter addressed to Mr. David Neleigh of the US EPA, dated December 6, 1995, which provides a status report for the Los Alamos National Laboratory Solid Waste Management Unit 3-056(c). Enclosed with the letter to Mr. Neleigh are supporting data, human health and ecological risk assessment summaries, and a slope stabilization scope of work. The following comments on these documents are provided to communicate the results of our technical review. They are not provided for the purpose of representing the regulatory position of the New Mexico Environment Department.

Comments on Cover Letter

Page one of the letter states that "...a cleanup level of 1 ppm will be difficult, if not impossible, to achieve without a prohibitive volume of soil removal, excessive costs, and significant natural resource damage associated with a large area of excavation in the drainage area."

Regardless of the resolution of questions about the extent of cleanup and determination of cleanup levels, appropriate measures should be taken to minimize the downstream movement of sediment, in accordance with New Mexico Water Quality Control regulations. These measures, generally known as best management practices (BMPs) should be taken immediately and should be taken irrespective of any current or proposed human or ecological risk assessments. Typically, these measures can be taken quickly, are not expensive, and do not result in significant natural resource damage.

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Page two of the letter states that "The map (Figure 2) also shows the presence of two drainage areas located to the north of the storage area where contamination above 10 ppm PCBs was discovered."

In these drainages, appropriate measures should be immediately taken to minimize the downstream movement of sediment.

According to the information in the letter and the data presented, the only contaminant of concern (COC) is PCBs. If other COCs are identified, the New Mexico Environment Department Hazardous and Radioactive Materials Bureau and the US EPA RCRA Permits Branch will need to be consulted as decisions are being made regarding the extent of cleanup activities at the site.

Comments on Table of Sample Results

Page 1

1. Sample locations are indicated as being found on Figure 5. Apparently not all of the sample locations referred to on Page 1 are to be found on Figure 5. Regardless of what approach is used to make decisions regarding the cleanup, the extent of contamination must be known. The figures presented do not provide a high level of confidence that the extent is known, nor has a plan for defining the extent been provided.

Comments on the Human Health Risk Assessment Summary

Page 1, Discussion

According to the information in the letter and the data presented, the only contaminant of concern is PCBs. Sampling should be conducted to determine if asbestos or hazardous constituents are also located at the site. If there are other contaminants, then the risk assessment should include the contributions of those contaminants.

Page 1, Exposure Scenarios and Assumptions

Two exposure scenarios are proposed in this section, that of the

long-term worker and of the trespasser. Exposure assumptions imply that decisions regarding future land use have been or will be made. The DOE Oversight Bureau notes that decisions regarding cleanup will depend upon future land use decisions.

Comments on the Ecological Risk Assessment Summary

Page 1, Modeled PCB Sediment and Soil Concentrations, Potential Aquatic Receptor Impacts

1. The statement is made that "Most of the toxicity data for PCBs in "sediments" really are for sediment-dwelling organisms."

If the toxicity data are for sediment-dwelling organisms, why was this data not used in the ECOTRAN model to assess potential aquatic receptor impacts? No aquatic receptor impacts were calculated; instead, predicted intakes for wildlife species are compared to mammalian toxicological dose limits.

2. Please provide the proper reference for the Oak Ridge Ecological Risk Assessment Benchmark database and the Estimated Equivalent Sediment Quality Criterion for PCBs.

Page 2, Potential Terrestrial Wildlife Impacts

3. The statement is made "The most ecologically defensible toxicological effect level is the reference dose for the deer-mouse population..."

This may not be correct considering the following:

A more ecologically defensible toxicological effect scenario could be an insect eating bird (*Empidonax* complex, fly-catcher), living in the wetlands (potential fly-catcher habitat), consuming aquatic insects (residents of the wetlands), which have bioconcentrated PCBs through the food chain. Chironomidae larvae (sediment dwelling aquatic insects) → consumed by Odonata (sediment dwelling, predatory aquatic insects) → consumed by fly-catcher adults → fed to young fly-catcher nestlings.

The use of terrestrial wildlife receptors is contraindicated by

the presence of multiple aquatic ecosystems (Sandia wetlands, the Rio Grande, and Cochiti Lake) downstream from the PRS. The most probable ecological impact from PCBs is not through the terrestrial food chain, but the aquatic food chain through bioconcentration. The ultimate fate of the PCBs in Sandia canyon (fish residing in Cochiti Reservoir) needs to be addressed in a comprehensive environmental risk assessment. The Pueblo De Cochiti Environment Department should be included on the distribution list for this ECO-RISK analysis.

The implication, derived from the sediment criterion used, that PCB concentrations as high as 1000 mg/kg (1000 ppm) are not damaging to potential aquatic receptors down gradient of the source is indicative that the model does not realistically account for bioconcentration in aquatic ecosystems or cumulative effect from multiple sources.

Page 3, Synopsis

4. Estimated concentrations of PCBs in the wetlands are unrealistically low. Four sediment samples are inadequate to assess the extent of PCB contamination in the Sandia wetlands. Two of the four sediment samples were collected from a sand bar in the stream channel, where PCBs would not be expected to be found (low or no organic matter content) and should be dropped from consideration. The wetlands need further characterization to determine a more realistic PCB concentration estimate.

While the stream channel (where the two samples referenced above were collected) will be periodically purged of PCB contaminated sediments, the surrounding wetlands are a natural sediment trap and will accumulate PCB contaminated sediments; hence, the wetlands create a natural concentrating effect that ECOTRAN should model. While the channel through the wetlands has indeed been down-cutting due to scour during high water flows, the wetlands have been filling with sediments during the same high water flow events.

The fact that the wetland is down gradient from possible multiple PCB source areas indicates there may be cumulative impacts that need to be considered in the model.

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Comments on the Slope Stabilization Scope of Work

1. Regardless of the resolution of questions about the extent of cleanup and determination of cleanup levels, the following BMPs should be incorporated in to the Slope Stabilization Plan:

- All storm water that may potentially run on to the site should be diverted away from SWMU 3-056(c). The existing run-on controls divert water into two side drainages (number 14, Slope Stabilization Plan) that have concentrations of PCB ranging from 2 - 8.8 ppm. This should be re-routed to an alternate drainage scheme to prevent mobilization of these known PCB deposits by storm water.

- Sediment retention structures should be put in place in the above drainages to retard the movement of PCB contaminated sediment in these drainages by storm water.

If there are any questions, please contact me (505-672-0448) or Ralph Ford-Schmid (505-827-1536) of the DOE Oversight Bureau.

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