

General

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DENISE FORT, DIRECTOR

September 7, 1984

Comments on LANL's Ground-Water Monitoring Waiver Documentation

(Oral comments made to LANL on Sept. 11, 1984. Revisions made at the Sept. 26 meeting and subsequently are in **bold**.)

**LANL has agreed to provide a final draft of the ground-water monitoring waiver and supporting documentation by Nov. 1, 1984.**

1. LANL publications cited in the waiver need to be provided. **LANL has provided this information.**
2. When basic data or research is used to form conclusions, that data, or a summary of that research, needs to be referenced and provided. This applies in particular to tests used to determine transmissivity, hydraulic conductivity, permeability, moisture content, and so forth. In particular, more information is needed regarding derivation of permeabilities in the tuff. Was fracturing in the tuff accounted for in deriving these permeabilities?
3. Discussion of the potential for infiltration is inadequate. There are four months during which average precipitation exceeds evaporation. A reasonable worst-case situation in regard to recharge from spring melt or rain events needs to be considered.  
  
Such a scenario might use data from the highest precipitation years in the last 600 years (based on tree-ring data) or might use statistical techniques for determining the probable maximum precipitation year or years. A worst-case scenario would assume no run-off since disturbed soils probably retain essentially all incident precipitation. Reasonable values for potential evapotranspiration can be calculated by various methods in the literature. The water balance should be done on a monthly basis. References relevant to infiltration calculations will be sent by EID under separate cover.
4. How much liquid has been disposed of at each site during the entire period of operations? Provide records to substantiate this. What types of liquids have been disposed of at each area? **Is information available concerning the efficacy of sorption processes in attenuating solvent and other liquid- and vapor-phase pollutant migration?**

5. Is vapor-phase transport of solvents significant? The extent to which this process occurs needs to be addressed.

6. Vadose monitoring is needed to confirm hypotheses as to contaminant migration. **The EID is favorably disposed towards the idea of a system incorporating neutron-probe access holes and soil vapor monitoring. A specific proposal describing the construction of such a system, proposed locations for installation, and supporting documentation as to the ability of this system to**



effectively monitor soil moisture and soil vapors, must be submitted. The EID recommends a minimum of one neutron probe hole and one vadose-zone vapor monitoring hole at each location that significant quantities of free liquids have been disposed of in the past, with a minimum of five neutron probe holes and five vadose-zone vapor holes per disposal area (L and G).

7. Detailed hydrologic cross-sections need to be prepared for the area. The wells/drill holes used to prepare these cross-sections need to be shown on a location map. The fence diagram and location maps submitted on Sept. 26, 1984 partially satisfy this requirement. Lithologic logs of wells PM-2, PM-3, and PM-4 must be provided for better geologic detail.

8. Show all wells in the area on a location map with township and range indicated. LANL has provided this information.

9. More detail on the locations of and controls on perched water zones needs to be provided. Are perched zones associated solely with stream channels? Are they also present in the basalt of the Chino Mesa or other formations?

10. Discuss any possible structural geologic features (e.g. faulting) in the vicinity of the hazardous waste landfills which might affect containment transport. What efforts have been made to map these features? What effect would such features, if present, have on contaminant transport?

11. The ground-water monitoring waiver application should go into sufficient detail that a reviewer using only the waiver and its supporting documentation can make a scientifically sound determination as to the potential for contaminant transport to ground water. The Lawrence Livermore National Laboratory publication, An Evaluation of the Hydrology and Ground-water Chemistry Associated with Landfills at LLNL's Site 300, is an example of the level of effort needed in the ground-water monitoring waiver. See, in particular, their discussion of the unsaturated zone.

Inquiries Since June, Continued

surface impoundments of Area L. If LANL cannot make these certifications, further submittals will be necessary.

On Sept. 26, LANL agreed to supply EID with answers to the above inquiries on Nov. 1, 1984.

At the Sept. 26 meeting, the EID requested a copy of the report entitled History and Environmental Setting of LASL Near-Surface Land Disposal Facilities for Radioactive Waste, LA-6848MS, by Margaret Ann Rogers. LANL agreed to supply this to EID. The EID now requires that this report be sent by Nov. 1, 1984.

In addition to the above inquiries, LANL must provide to EID, in writing, the results of any sampling and/or analyses done at the surface impoundments of Area L. This information must be provided to the EID by Nov. 1, 1984.

## ATTACHMENT 2

This Attachment contains certification forms; these are necessary as described in Attachment 1, under Inquiries. Certification must be made for both the owner and the operator by the Part A signatories.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The following list of facilities did not engage in treatment, storage, or disposal activities involving hazardous waste after November 19, 1980, which would be subject to a Hazardous Waste Management Permit required by Section 74-4-4.2 of the New Mexico Hazardous Waste Management Act, NMSA, 1978.

Facility ID #: \_\_\_\_\_

\_\_\_\_\_ \*

(signature)

\_\_\_\_\_

(title)

\_\_\_\_\_

(date)

\* This certification must be signed in accordance with the requirements of Section 302 of the New Mexico Hazardous Waste Management Regulations.

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