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Project M-32

U.S. Department of Energy, Idaho Operations  
ATTN: Dr. William H. Hannum, Director  
West Valley Demonstration Project Office  
P.O. Box 191  
West Valley, New York 14171

Gentlemen:

We have reviewed the document, "WVDP Long-Term Radioactive Waste Management Plan," dated July 1983, submitted to us for our review and comment on July 27, 1983. Our perspective for our review included the consideration of our previous comments to you on related topics in my letter, dated May 16, 1983, and in our comments on the Department's Final Environmental Impact Statement, Long-Term Management of Liquid High Level Radioactive Wastes Stored at the Western New York Nuclear Service Center, West Valley, June 1982. Our detailed comments are provided in the enclosure to this letter.

A. Thomas Clark, Jr.  
NRC West Valley Project Manager  
Advanced Fuel and Spent Fuel  
Licensing Branch  
Division of Fuel Cycle and  
Material Safety, NMSS

Enclosure: As stated

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PDR PROJ  
M-32 PDR

OFFICE	FCAF	FCAF					
SURNAME	ATClark:flb	LCRouse					
DATE	74205 8/27/83	8/31/83					

COMMENTS ON THE  
WVDP LONG-TERM RADIOACTIVE WASTE MANAGEMENT PLAN,  
JULY 1983

General Comments

The plan should provide more information on the characteristics of the wastes that will be buried in the facility disposal area. We appreciate that the high-level waste solidification process has not been developed to the point where the details of each waste stream are known. It would nevertheless be useful if estimates would be made of the radiological, chemical and physical characteristics of the wastes destined for onsite disposal. We are particularly interested in the total radioactivity, isotopic composition and TRU content of materials to be buried. One of our principal interests in the Plan is information it provides on the final disposition of these wastes, their susceptibility to transport, and their general public health impact. If the provision of this information is not one of the purposes of the Plan, it should be so indicated on page 2 and we should be informed as to how this information will be provided.

The Plan indicates on page 109 that you intend to comply with applicable portions of 10 CFR 61, "Licensing Requirements for Land Disposal of Radioactive Waste." We believe that at least some portions of the following clauses of Part 61 apply to the WVDP: 61.12, 61.13, 61.14, 61.23, 61.24, 61.29, 61.41, 61.42, 61.43, 61.44, 61.51, 61.52, 61.53, 61.55, 61.56, 61.58, 61.59, 61.63, and 61.80. The first six of these are from Subpart B, on licenses, and should be construed as applicable only with respect to the technical issues covered in these parts, not with respect to the formal requirements of the licensing process itself. We believe that section 61.29, on post-closure observation and maintenance, is particularly important in this case.

Detailed Comments

1. Section 2.1, Current Waste Generation

Table 2-1 states that  $29 \times 10^6$  L of waste water were processed in the LLWTF in 1982. In section 2.1.1 the statement is made that the average measured activity of the waste water was  $1.01 \times 10^{-4}$  uCi/mL. The product of these two values, representing the total activity of the waste processed in the LLWTF in 1982, is 2.9 Ci. The 1983 sludge and resin activities listed in Table 2-3 are much lower than this, totaling only 0.32 Ci. Why is this difference so large? Is only 11 percent of the activity being removed from the water?

2. Section 2.1.2, Solid Waste Generation

Table 2-3 gives beta activities for several types of currently generated wastes. Can it be assumed that essentially all of this activity is due to Sr-90 and Cs-137? In what ratio are these two isotopes present in the various types of waste? How were the radioactivity estimates obtained and what is their accuracy? Questions such as these should be answered for all of the wastes destined for onsite disposal.

3. Section 2.2.2, Pre-solidification Decontamination Waste Streams and Section 2.2.4, Post-solidification Decontamination Waste Streams

Will any specific disposal restrictions be placed on decontamination solution wastes containing chelating agents? If so, these should be described in the report.

What special provisions will be made for ensuring that the solidified decontamination solutions will meet the product quality criteria imposed? We suggest these testing programs should be described.

Do the estimates volumes of decontamination solutions listed in Table 2-4 apply to the entire facility or only the parts for which decontamination plans have been prepared?

How will the post-solidification decontamination solutions be processed and disposed of? The same questions applies to the pre-solidification decontamination solutions unless these are combined with HLW and vitrified. Have you considered the possible effect of some of the decontamination chemicals on radionuclide transport in the disposal area?

4. Section 2.2.3, Vitrification Waste Streams

The WVNS report on the analysis of the 8D-2 supernate states that the calculated average out-of-reactor time for the HLW was 14.4 years as of September 24, 1982. This would mean that the out-of-reactor time in 1987 would be 18 or 19 years, not 17 as stated on p.27.

5. Section 4.2.1.2 (p.70), Other Radioactive Wastes

Which waste streams are expected to be pyrophoric and what treatments are being proposed for these wastes?

6. Section 4.2.1.2 (p.72), Other Radioactive Waste

Why is all the water being removed from sludges and evaporator bottoms if it is only to be added later in the cement solidification process?

7. Sections 51.1.1, LLWTF and 10.1.2, Compliance with DOE Order 5820 and 10 CFR 61

The sludge packaging process described in these sections indicates that a substantial fraction of free water is present in the sludge drums. You may want to consider a packaging process that would solidify the entire drum contents, particularly if LLWTF process improvements increase the concentration of radionuclides in the sludges and resins.

8. Section 6.1, Low-level Waste

You indicate in this section that radioactivity estimates for the wastes are currently based on dose rate measurements and no changes are anticipated in these procedures. Can you describe how the correlation between dose rate and radioactivity was obtained and estimate its accuracy?

9. Section 9.1 (p.97), Low-level Waste

Do you actually intend to conduct measurements for all of the isotopes listed in Table 9-1 even though several of them are not likely to be present in significant quantities? We would prefer that the Plan identify the important isotopes present in the materials to be buried and limit the discussion to those.

10. Section 9.1 (pp. 101-102), Low-level Waste

Have you considered the effect on waste migration of the various excavation schemes on pp. 101 and 102? Is it possible that the facility disposal area will not be large enough to accommodate all of the WVDP wastes regardless of which excavation option is selected? If the facility disposal area is not large enough, how much additional space might be necessary and where would it most likely be located?