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Mr. A. J. Rizzo
Assistant Manager for Operations
U.S. Department of Energy
Richland Operations Office
P.O. Box 550
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Dear Mr. Rizzo:

We have reviewed your letter dated March 6, 1989 concerning the classification and disposal of the Hanford double-shell tank waste. Your letter and supporting information assert that the double-shell tank waste planned for disposal by grouting in near-surface vaults is not high-level waste (HLW), and that U.S. Nuclear Regulatory Commission (NRC) licensing is not required. Your letter requests NRC concurrence in this position.

As you know, our staffs have met on several occasions over the past year in an effort to determine which of the Hanford tank wastes are properly classified as HLW. We consider that the applicable definition of HLW, for purposes of classifying the Hanford tank wastes, is that set forth in 10 CFR Part 50, Appendix F. Specifically, HLW is defined as "those aqueous wastes resulting from the operation of the first cycle solvent extraction system or equivalent, and the concentrated waste from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuels."

The rulemaking record for Appendix F specifically recognizes a number of "incidental," non-HLW waste streams associated with reprocessing plant operations. These include cladding hulls, ion exchange media, sludges, and miscellaneous trash generated during reprocessing operations. Not mentioned, however, are wastes resulting from further processing of HLW (e.g., volume reduction) or removing non-radioactive materials that were added to the HLW for improved processing and/or storage (e.g., the addition of alkaline material to neutralize acidic HLW). At West Valley and the Savannah River Plant, NRC has agreed that such wastes are not HLW. At Hanford, the question of waste classification (and NRC licensing authority) has been complicated by the mixing of waste from various sources over the past 45 years. This mixing has changed the original characteristics of the wastes and has resulted, in some cases, in the mixing of HLW and low-level waste (LLW). Consequently, it is now difficult to directly differentiate between HLW and LLW, using the source-based definition of Appendix F.

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Mr. A. J. Rizzo

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Note → In earlier meetings of our staffs, criteria were suggested for determining when such wastes should be classified as "incidental" wastes rather than as HLW, and these criteria were documented in our letter of November 29, 1988. Your March 6, 1989 letter records U.S. Department of Energy's (DOE's) application of these criteria. Specifically, your letter proposes that the bulk of the key radionuclides (i.e., strontium, cesium and transuranics) would be separated for disposal in a geologic repository, so that only three to five percent of the original inventories of those radionuclides would be disposed by grouting in near-surface vaults. Your letter also states that the concentration of radionuclides in the grout will be comparable to Class C LLW as defined by 10 CFR Part 61 for cesium and transuranics, and to Class A or B for the remainder. Finally, your letter evaluates the practicability and cost-effectiveness of additional radionuclide removal. An additional separation process, beyond those originally contemplated, was found to be cost-effective for removal of an additional six million curies of cesium. This step would further reduce the total activity disposed in the grout facility to two to three percent of the inventory of HLW that originally entered the tanks. DOE is now proposing to perform this additional radionuclide removal to improve the isolation of HLW. The NRC agrees that the criteria used by DOE for classification of the grout feed as LLW are appropriate. Therefore, the grout facility for the disposal of the double-shell tank waste would not be subject to our licensing authority.

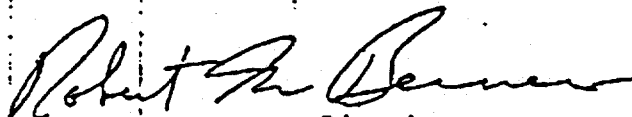
Your letter indicates that the radionuclide inventory is an estimate based on existing computer models, rather than actual analyses of tank waste. Given the uncertainty in the actual radionuclide inventory, we endorse your plans to sample and analyze the grout feeds before disposal in an effort to control the final composition of the grout feed. If in the course of conducting this sampling program, you find that the inventories of key radionuclides entering the grout facility are significantly higher than you now estimate, you should notify us so that the classification of the waste can be reconsidered. The NRC requests that DOE periodically submit summaries of the analytical results of all the samples to NRC and other affected parties in a timely manner.

Note → Our position on the double-shell tank waste should not be interpreted to reflect a decision on disposal of single-shell tank waste or to establish a precedent in any other context. We intend to defer judgment on the classification of single-shell tank waste until after DOE has completed its program of characterizing this waste. We anticipate that final documentation will be issued for public comment before a decision is made on the disposal of single-shell tank waste.

Mr. A. J. Rizzo

If you should have any questions or comments about this letter, please contact me or Dr. Michael J. Bell, Chief, Regulatory Branch, of my staff at (301) 492-0560.

Sincerely,



Robert M. Bernero, Director
Office of Nuclear Material Safety
and Safeguards

cc: Terry Husseman
WA Department of Ecology
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