



**Department of Energy**  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

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70-3091

96-TWR-020

Mr. Carl Paperiello, Director  
Office of Nuclear Materials Safety  
and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Paperiello:

**CLASSIFICATION OF HANFORD LOW-ACTIVITY TANK WASTE FRACTION**

- References:
1. Letter from A. J. Rizzo, RL, to Robert M. Bernero, NRC, (No Subject Given) dated March 6, 1989.
  2. NRC letter from Robert M. Bernero, to A. J. Rizzo, RL, (No Subject Given) dated September 26, 1989.
  3. Federal Register, Volume 58, 12342 dated March 4, 1993.
  4. NRC letter from Robert M. Bernero, to Jill Lytle, HQ, (No Subject Given) dated March 2, 1993.

The purpose of this letter is to request your agreement that the Hanford tank waste planned for disposal on-site is incidental waste (i.e., not High-Level Waste [HLW]) that would not be subject to Nuclear Regulatory Commission (NRC) licensing authority.

**BACKGROUND**

Reference 1 requested NRC's concurrence on classification and disposal of Double-Shell Tank (DST) Waste in grout facilities as Low Level Waste (LLW) instead of HLW, therefore, not requiring NRC licensing authority. Reference 2 provided NRC's agreement that the criteria used by the U.S. Department of Energy (DOE) to classify the Hanford DST wastes, planned for disposal by grouting in near surface vaults as LLW were appropriate; and therefore the grout facility for disposal of this waste would not be subject to NRC licensing authority. In 1990, the States of Washington and Oregon filed a petition for a formal rulemaking which was denied in 1993 (Reference 3). The NRC informed DOE of the petition denial, restated the NRC criteria for determining non HLW, and noted that DOE must communicate with the NRC if any waste may be subject to NRC licensing (Reference 4).

Single-Shell Tank (SST) waste was not included in the previous agreement as its disposition had not then been decided. DOE recently issued a Tank Waste Remediation System Final Environmental Impact Statement with the preferred alternative to dispose of the SST waste in the same manner as the DST waste. A Record of Decision is expected shortly. The plan for treating (processing) and immobilizing the DST waste has also changed since 1989;

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therefore, this request seeks NRC's agreement on DOE's proposed waste classification of the low-activity fraction from both the SST and DST waste.

It does not request agreement on classification of any residual waste that may remain in the tanks following waste retrieval. That waste will be addressed in a future request.

#### DISCUSSION

DOE plans to divide the Hanford tank waste into two fractions, a HLW fraction that will be disposed off-site in a NRC licensed geologic repository and a low-activity waste fraction that will be disposed on-site as LLW. This low-activity fraction will be processed (radionuclides removed), immobilized, and disposed in a manner that meets the NRC's criteria for determining it to be incidental waste. Those criteria (as listed in Reference 4) are:

"DOE will assure that the waste: (1) has been processed (or will be further processed) to remove key radionuclides to the maximum extent that is technically and economically practical; (2) will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low level waste as set out in 10 CFR Part 61; and (3) will be managed, pursuant to the Atomic Energy Act, so that safety requirements comparable to the performance objectives set out in 10 CFR Part 61 are satisfied".

DOE has completed an evaluation of its plans for processing and immobilizing the low-activity waste fraction against the NRC criteria and believes the information in "Technical Basis for Classification of Low-Activity Waste Fraction from Hanford Site Tanks, WHC-SD-WM-TI-699, Rev. 2," dated September 18, 1996, (Attachment) demonstrates that this waste is not HLW subject to NRC licensing authority.

As DOE is planning to privatize tank waste treatment and immobilization, the selection of processes to remove radionuclides from the waste fraction destined to be low-activity waste will be by private companies who will also own and operate the facilities. These facilities will be built on Federal land at Hanford. The radionuclide removal processes have not yet been selected but the processes considered and evaluated in the attachment are believed to be typical of those that will be used; and therefore the determination of technically and economically practical is reasonable. This determination results in less radioactivity remaining in the low-activity fraction from all 177 tanks (i.e., greater separation) than remained from just the 28 DSTs in the 1989 determination. This comparison is shown in Table 5-3 of the Attachment.

The low-activity waste fraction will be incorporated in a solid physical form and will not exceed the applicable concentration limits for Class C LLW as set out in 10 Code of Federal Regulations (CFR) Part 61. The baseline is a vitrified waste form although other waste forms would be acceptable if they

Mr. Carl Paperiello  
96-TWR-020

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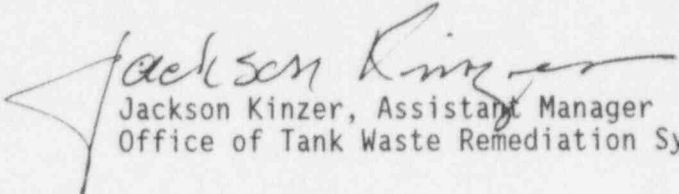
meet the same performance requirements. The radionuclide concentrations in the final waste form are well below class C limits as shown in Table 5-2 of the Attachment.

The waste will be disposed on the Hanford Site and managed so that safety requirements comparable to the performance objectives set out in 10 CFR Part 61 are satisfied. DOE requirements for LLW disposal are in DOE Order 5820.2A and are comparable to 10 CFR Part 61. A performance assessment of the waste disposal site is required by DOE Order 5820.2A and an interim one has been completed (Hanford Low-Level Tank Waste Interim Performance Assessment, WHC-EP-0884, dated September 1996) which indicates 10 CFR Part 61 requirements will be met. The compliance time period used in our interim performance assessment is 10,000 years and we assume this period will continue to be a requirement. The low activity waste will be disposed (in a retrievable manner) on the 200 Area Plateau, and as an additional measure of safety, DOE expects to maintain institutional control of this area for the foreseeable future.

Members of our staffs met earlier this year to discuss the classification of the Hanford tank waste. Your agreement is now requested that the low-activity tank waste fraction planned for disposal on the Hanford Site is not HLW subject to NRC licensing. We would appreciate receiving your agreement by April 1997.

If you have questions or need additional information, please contact me on (509) 376-7591 or Don Wodrich of my staff on (509) 376-6550.

Sincerely,

  
Jackson Kinzer, Assistant Manager  
Office of Tank Waste Remediation System

TWR:DDW

Attachment

cc: w/attach:  
S. Dahl, Ecology  
R. Stanley, Ecology  
L. Hall, LMHC  
R. Murkowski, LMHC  
C. Peterson, NHC  
R. Weller, NRC