

United States Nuclear Regulatory Commission
Office of Public Affairs
Washington, DC 20555
Phone 301-415-8200 Fax 301-415-2234
Internet:opa@nrc.gov

No. 97-070

FOR IMMEDIATE RELEASE
(Thursday, May 8, 1997)

NRC CONSIDERS CHANGES TO REGULATIONS
FOR TRANSPORTATION OF HIGH-LEVEL WASTE CONTAINING PLUTONIUM

The Nuclear Regulatory Commission is considering amending its regulations to allow high-level radioactive waste containing plutonium to be transported without a double containment inside its shipping cask if it has been imbedded in glass. The proposed action responds to a petition from the Department of Energy.

A 1974 NRC regulation requires that if licensees ship more than 20 curies of plutonium, the packages used for the shipment must provide double containment inside the shipping cask. This requirement is waived if the plutonium is in reactor fuel elements, metal or metal alloys, or another type of solid material that the Commission determines should be exempt from the double-containment requirement. The primary purpose for requiring double containment was to ensure that any plutonium that could be inhaled (such as plutonium oxide powder) will not leak into the atmosphere during normal conditions of transportation or during accidents. But the NRC staff believes that double containment is unnecessary for radioactive waste containing plutonium that has been "vitrified" into a glass form because it is essentially incapable of being inhaled.

When the existing rule was published, the NRC anticipated that a large number of shipments of plutonium nitrate liquids or plutonium oxide powder could result from spent fuel reprocessing. However, the anticipated large number of shipments has not occurred, because commercial reprocessing is currently not taking place in this country for policy and economic reasons.

The Department of Energy (DOE) petitioned the NRC in November 1993 to amend the regulations and specifically exempt canisters containing plutonium-bearing vitrified high-level waste from the requirement to have double containment.

DOE indicated that it plans to ship high-level radioactive waste containing plutonium from three storage locations in Aiken, South Carolina; Hanford, Washington; and West Valley, New York. The shipments would go to a geologic repository that DOE is responsible for

developing for the deep-underground disposal of high-level radioactive waste and spent fuel.

The high-level waste currently exists mostly in the form of liquid and sludge resulting from the reprocessing of defense reactor fuels. Although this reprocessing is aimed at removing plutonium from the spent fuel, some remains in the waste product. DOE plans to solidify the liquid and sludge material into a borosilicate glass form in which the high-level waste is dispersed and immobilized. The glass would then be placed into stainless steel canisters for storage and transport to the geologic repository.

Under NRC's proposed regulation, the canisters would have to meet NRC criteria for disposal of radioactive waste and would have to be placed for shipment into heavy casks certified by the NRC. The shipping casks are anticipated to be similar in design and robustness, and would provide a comparable level of protection, to shipping casks for spent nuclear fuel. In addition, tests described in a DOE technical justification accompanying its petition show that the canisters containing the vitrified high-level waste would be comparable to the cladding surrounding spent fuel from reactors (which does not require double containment).

DOE estimates that there will be 3,500 shipments of vitrified high-level waste by 2030. The shipments would not start until a high-level repository, or an interim storage facility, becomes available. At the present time there is no such facility.

Interested persons are invited to submit comments on the proposed rule by July 22 (75 days after publication of a Federal Register notice on this subject on May 8). The comments should be mailed to the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, or submitted electronically as described in the Federal Register notice.

###