

September 14, 2000

The Honorable Pete V. Domenici  
United States Senate  
Washington, D.C. 20510-3101

Dear Senator Domenici:

I am responding to your letter of July 24, 2000, in which you requested our evaluation of shipping containers used to transport transuranic wastes. Your request addresses the statutory requirement in the Waste Isolation Pilot Plant (WIPP) Land Withdrawal Act of 1987 that all wastes transported to WIPP must be in containers certified by the U.S. Nuclear Regulatory Commission (NRC).

By way of background, NRC has, to date, certified two transportation packages for shipments to WIPP: the TRUPACT-II and the RH-TRU 72-B packages. The U.S. Department of Energy (DOE) also has requested approval of a third design, the HalfPACT, which is currently under NRC review. The TRUPACT-II previously was evaluated for highway shipments and we are currently reviewing a DOE request for shipment by rail. When approved, all designs will be suitable for shipment by highway and rail. A brief description of these packages is provided in the enclosure.

You specifically requested our evaluation of the ATMX railcar system authorized for use by the U.S. Department of Transportation (DOT), in particular how it compares with the TRUPACT-II package. NRC has not reviewed the design of the ATMX railcar. DOE's use of the railcar has been authorized by a DOT exemption and is limited to the transport of no more than ten railcar loads of transuranic wastes from the DOE facility in Miamisburg, Ohio, to a facility other than WIPP. DOT's exemption was based on an evaluation using a risk analysis and not the hypothetical accident conditions specified in 10 CFR Part 71 (NRC's transportation regulations). We have not evaluated the risk analysis underlying DOT's exemption of the ATMX railcar. Moreover, DOT is not required to consult with NRC when it issues an exemption to its transportation requirements.

If NRC were to receive an application to use the ATMX railcar to transport transuranic wastes to WIPP, the staff would perform a technical review of the safety analysis, including any risk assessment information, that is submitted with the application. NRC approval of the use of the ATMX railcar for such shipments would be based on technical, safety, and risk analyses to assess whether the ATMX railcar provides reasonable assurance for protecting the public health and safety.

Our response to your specific requests for information follow:

**How does the protection to the public afforded by the DOT-certified ATMX railcar compare to the protection from the NRC-certified TRUPACT-II?**

We are unable to directly compare the levels of protection between the ATMX railcar and the TRUPACT-II because of our limited knowledge of the design of the railcar and

the supporting risk assessment. The TRUPACT-II design meets the package performance standards in NRC and international transportation regulations. The package provides double containment of the radioactive material and was demonstrated to be leak-tight under normal and hypothetical accident conditions [9 meter (30 foot) drop, puncture, fire, and immersion tests]. The use of the ATMX railcar has been authorized by DOT exemption using a risk analysis and not the hypothetical accident conditions. Although we are unable to judge the comparative levels of protection, based on what we do know about the railcar, NRC approval of the railcar would require an exemption from current NRC package performance standards.

- **Can you compare the certification process for an ATMX container to that of the TRUPACT[-II] container?**

NRC has certified the TRUPACT-II as meeting all package performance standards in 10 CFR Part 71. The package performance was demonstrated by a rigorous full-scale test program, which included the hypothetical accident test sequence. The technical information for the package is compiled in a Safety Analysis Report. NRC staff performed an independent technical review and documented its findings in a Safety Evaluation Report. The staff has inspected the fabrication of TRUPACT-II packagings and determined that DOE's quality assurance program was properly implemented and meets NRC requirements. As noted previously, the ATMX railcar was authorized by DOT using a risk analysis and did not include the hypothetical accident test sequence required under Part 71. Although this analysis may result in a comparable demonstration that health and safety is protected, NRC has not formally reviewed it .

- **From the NRC perspective, would you advise that utilization of this additional container be enabled?**

Because DOT's authorization process for the ATMX railcar differed from the approach NRC uses to certify transportation packages and because we do not have detailed information on the risk analysis reviewed by DOT or on the ATMX design, we are not in a position to comment on the advisability of using the ATMX railcar for shipments of waste to WIPP.

If I can be of further assistance, please contact me.

Sincerely,

**/RA/**

Richard A. Meserve

Enclosure: "Summary of Packages for Transportation to WIPP"

## SUMMARY OF PACKAGES FOR TRANSPORTATION TO WIPP

### **TRUPACT-II**

Design. The TRUPACT-II package is designed for transport of contact-handled transuranic waste materials. These are plutonium-contaminated defense wastes that do not have high levels of penetrating radiation. The package consists of two concentric thin-walled stainless steel containment vessels, with an outer stainless steel shell filled with rigid polyurethane foam. The foam-filled shell provides impact and thermal protection of the containment vessels. The package is cylindrical with a domed lid and is transported vertically. The overall dimensions of the package are 239 centimeters (94 inches) in diameter and 310 centimeters (122 inches) in height. The package weighs 8730 kilograms (19,250 pounds), including a maximum payload of 3300 kilograms (7265 pounds). Three TRUPACT-II containers are transported together on a specially designed flat-bed trailer.

Certification. The U.S. Nuclear Regulatory Commission certified the TRUPACT-II design as meeting the package performance standards in 10 CFR Part 71 on August 30, 1989 (Certificate of Compliance No. 9218). The Certificate has been amended several times and has been renewed twice. A fleet of TRUPACT-II packages is being used for shipments to the Waste Isolation Pilot Plant and for shipments between U.S. Department of Energy facilities. The NRC staff is currently reviewing an amendment request for authorization for additional contents and for shipment by rail.

### **RH-TRU 72-B**

Design. The package is designed to transport remote-handled transuranic wastes (i.e., materials that have high levels of penetrating radiation). The outer cask body is constructed of thick-walled stainless steel and incorporates lead gamma shielding. A thin-walled inner vessel contains the waste material packaged in secondary containers. The top and bottom ends of the package are fitted with rigid foam-filled impact limiters, for impact protection. The package is transported in the horizontal position, and the overall package dimensions are 193 centimeters (76 inches) in diameter and 478 centimeters (188 inches) in length. The package weighs 20,410 kilograms (45,000 pounds), including a maximum payload of 3630 kilograms (8000 pounds).

Certification. The package was certified on March 3, 2000 (Certificate of Compliance No. 9212). Packagings of this design have not yet been fabricated.

### **HalfPACT**

Design. The HalfPACT is similar in design to the TRUPACT-II, but is shorter, and accommodates a smaller, but heavier, payload. The overall dimensions of the HalfPACT are 239 centimeters (94 inches) in diameter and 234 centimeters (92 inches) in height. The package weighs 8210 kilograms (18,100 pounds), including a maximum payload of 3450 kilograms (7600 pounds).

Certification. The application for certification of the HalfPACT package is currently under NRC review (Docket No. 71-9279).