

July 11, 2003

Mr. James J. Szenasi
National Security Department
National Nuclear Security Administration
Service Center
P.O. Box 5400
Albuquerque, NM 87185-5400

SUBJECT: RESPONSE TO MAY 22, 2003, LETTER

Dear Mr. Szenasi:

I am responding to your letter dated May 22, 2003, regarding safety issues with radioactive materials transport packages that use bolted-ring closures. Your letter described reports of tests for these packages that resulted in partial or complete separation of the lid from the package under drop test conditions. We appreciate you providing this information directly to us.

We first became aware of the potential safety problem with bolted-ring closures (i.e., drum packages) in 2000. At that time, the information provided informally to us concerned physical tests of a package undergoing Department of Energy (DOE) certification. The package was subjected to a normal condition drop test, followed by a 9-meter drop at a shallow impact angle. The lid completely separated from the drum body due to the 9-meter drop. This failure was unexpected, and the cause was unknown.

As a result of this information, we evaluated NRC-certified packages with closure designs similar to the package that had experienced lid separation. We contracted with Lawrence Livermore National Laboratory to perform physical tests for a package design that was considered representative of a family of NRC-certified packages used for the transport of Type A quantities of fissile material. The tests were documented in the report "Drop Test Results for the Combustion Engineering Model No. ABB-2901 Fuel Pellet Shipping Package," which was referenced in your letter. As a result of the tests, we advised certificate holders for packages of similar design of the possible closure failure. These certificate holders have developed and tested retention clamps that are used to ensure that the lid cannot separate from the drum body under drop test conditions. NRC certificates of compliance for these packages will authorize transportation only with the retention clamps installed.

In our evaluation, we considered the risk associated with continued transport of packages with bolted-ring closures. For NRC-approved Type A fissile packages, the failure of a significant number of packages in a single shipment would be necessary to cause a potential safety problem from a criticality or radioactivity release standpoint. Most NRC-approved Type B drum packages are overpacks for radiographic exposure devices that would not release radioactivity even if the drum lid separated under the 9-meter drop test condition. More recently, we have initiated a broader review of NRC-certified drum-type packages with bolted-ring closures. This review includes consideration of the need for any generic communication with certificate holders for essentially all drum-type package designs. The information provided in your letter will be included in those continuing considerations.

Regarding the Department of Transportation (DOT) Specification 6M and 6L packages: as you are aware, these packages are authorized for transport by DOT regulations (49 CFR 173.416 and 173.417). NRC licensees are authorized to use these packages under the general license in 10 CFR 71.14. Early information regarding the drum failures was discussed with DOT staff. During our preliminary activities associated with drum testing, we kept DOT staff informed of the test results. As part of the on-going generic review mentioned above, we will work with DOT staff to assess the safety of these package designs. It is our understanding that the primary user of these packages, particularly for the transport of Type B quantities of fissile material, is DOE. In that regard, we are forwarding a copy of this letter, as well as your letter of May 22, 2003, to Ms. Patrice Bubar and Ms. Sandra Johnson in DOE's Office of Environmental Management.

Again, thank you for your letter advising us of these safety issues.

Sincerely,

/RA/ MVF for

Martin J. Virgilio, Director
Office of Nuclear Material Safety
and Safeguards

cc: S. Johnson, Department of Energy
P. Bubar, Department of Energy
R. Boyle, Department of Transportation

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cc: S. Johnson, Department of Energy
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