

November 6, 2008

Ralph A. Butler, PE
Director, Research Reactor
University of Missouri
1513 Research Park Drive
Columbia, MO 65211

SUBJECT: AUTHORIZATION FOR LIMITED SHIPMENTS IN THE MODEL NO. BMI-1 PACKAGE, CERTIFICATE OF COMPLIANCE NO. 5957

Dear Mr. Butler:

As requested by your application dated September 15, 2008, as supplemented by DOE's endorsement dated September 29, 2008, and your email dated November 6, 2008, and pursuant to 10 CFR Part 71, Certificate of Compliance No. 5957 for the Model No. BMI-1 package is amended to authorize the following limited shipments, subject to the conditions listed below.

1. The container is constructed in accordance with Framatome Cogema Fuels Drawing Nos. 1273422, Rev. 0; 1273423, Rev. 0; 1273424, Rev. 0; 1273425, Rev. 0; 1273426, Rev. 0; and 1273427, Rev. 0.
2. Contents
 - (a) Type and form of material

Intact irradiated MTR- or BRR-type fuel assemblies containing not more than 200 grams U-235 per assembly prior to irradiation. Uranium may be enriched to a maximum 93.5 w/o in the U-235 isotope. Active fuel length shall be approximately 25 inches. Or, other contents as allowed by Certificate of Compliance No. 5957.
 - (b) Maximum quantity of material per package

As specified in Certificate of Compliance No. 5957.
3. Shipment must be by truck and dedicated trailer specifically designed for shipment of BMI-1, as exclusive use shipment.
4. All shipments will be to U.S. Department of Energy (DOE) Savannah River Site as part of the DOE's Research Reactor Infrastructure Program.
5. Special package inspections are required before each use of BMI-1. Replacement of sealing gaskets prior to each shipment are required, rather than every twelve months. A comprehensive inspection of all sealing gasket seating surfaces is required prior to each shipment.

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6. Authorization is for a maximum of three shipments, and expires October 1, 2009.

All other conditions of Certificate of Compliance No. 5957 remain the same.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Eric J. Benner, Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-5957
TAC No. L24265

Enclosure: Safety Evaluation Report

cc w/encl: J. Shuler, Department of Energy
R. Boyle, Department of Transportation

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SAFETY EVALUATION REPORT
DOCKET NO. 71-5957
MODEL NO. BMI-1 PACKAGE
UNIVERSITY OF MISSOURI RESEARCH REACTOR

SUMMARY

By application dated September 15, 2008, as supplemented by DOE's endorsement dated September 29, 2008, and a University of Missouri Research Reactor (MURR) email dated November 6, 2008, MURR requested authorization to use Model No. BMI-1 package beyond the package authorization expiration date of October 1, 2008.

Based on the statements and representations in the application and DOE's endorsement, staff agrees that the extension of use of the package, with the additional conditions stated below, meets the requirements of 10 CFR Part 71.

BACKGROUND

NRC amended the regulations in 10 CFR Part 71, effective October 1, 2004, to be compatible with the 1996 edition of the International Atomic Energy Agency (IAEA), "Regulations for the Safe Transport of Radioactive Material" (TS-R-1, as amended in 2000). As a result, certain transportation packages that are compatible to the IAEA 1967 edition will no longer be authorized for use under the 10 CFR Part 71 general license after October 1, 2008.

EVALUATION

By application dated September 15, 2008, MURR requested authorization to use the Model No. BMI-1 package beyond the package authorization expiration date of October 1, 2008. MURR submitted supplemental information by email dated November 6, 2008. MURR provided the information as described in U.S. Nuclear Regulatory Commission, Regulatory Issue Summary 2008-18, "Information on Requests for Extending Use of Expiring Transportation Packages."

- (1) Package Information. Intact irradiated MTR- or BRR-type fuel assemblies containing not more than 200 grams U-235 per assembly prior to irradiation. Uranium may be enriched to a maximum 93.5 w/o in the U-235 isotope. Active fuel length shall be approximately 25 inches. Or, other contents as allowed by Certificate of Compliance No. 5957. Maximum quantity of material per package is as specified in Certificate of Compliance No. 5957.
- (2) Identification of Shipment. MURR requested three shipments to be made prior to October 1, 2009. The shipment will be from the MURR to the U.S. Department of Energy (DOE) Savannah River Site as part of the DOE's Research Reactor Infrastructure Program. The shipping mode is by truck and dedicated trailer specifically designed for shipment of BMI-1, as exclusive use shipment.

- (3) Reasons for Requesting Extended Use. The MURR application states that extended use of the package is needed since the design and fabrication of a replacement package has not yet been completed. MURR expects to have a replacement package available in 2009.
- (4) Safety Justification for Continued Use and Proposed Compensatory Measures. MURR proposed specific compensatory measures to assure that shipments would have equivalent safety: These include special package inspections required before use of BMI-1; sealing gaskets will be replaced prior to the shipment; sealing gasket seating surfaces will be inspected prior to the shipment.
- (5) A Plan and Schedule to Acquire Replacement Packages or Complete Necessary Shipments. On February 22, 2008, the contract was awarded to AREVA Federal Services to design and fabricate a replacement package. The design team met with the NRC on May 7, 2008. The Safety Analysis Report for the replacement package is planned to be submitted to NRC in December 2008. MURR expects to have a replacement package available in 2009.

CONDITIONS

Based on the statements and representations in the application, as supplemented, authorization is given for the transport of Type B quantities of radioactive material by MURR using Model No. BMI-1 package with the following conditions:

1. The cask is constructed in accordance with the following Battelle Memorial Institute (BMI) Drawing Nos.: 43-6704-0001, Rev. B; and 41-4409-0003, Rev. B.
2. Contents
 - (a) Type and form of material

Intact irradiated MTR- or BRR-type fuel assemblies containing not more than 200 grams U-235 per assembly prior to irradiation. Uranium may be enriched to a maximum 93.5 w/o in the U-235 isotope. Active fuel length shall be approximately 25 inches. Or, other contents as allowed by Certificate of Compliance No. 5957.
 - (b) Maximum quantity of material per package

As specified in Certificate of Compliance No. 5957.
3. Shipment must be by truck and dedicated trailer specifically designed for shipment of BMI-1, as exclusive use shipment.
4. All shipments will be to U.S. Department of Energy (DOE) Savannah River Site as part of the DOE's Research Reactor Infrastructure Program.
5. Special package inspections are required before each use of BMI-1. Replacement of sealing gaskets prior to each shipment are required, rather than every twelve months. A comprehensive inspection of all sealing gasket seating surfaces is required prior to each shipment.

6. Authorization is for a maximum of three shipments, and expires October 1, 2009.

All other conditions of Certificate of Compliance No. 5957 remain the same.

CONCLUSIONS

Based on the statements and representations in the MURR application dated September 15, 2008, as supplemented by DOE's endorsement dated September 29, 2008, and a MURR email dated November 6, 2008, the staff agrees that the use by MURR of the Model No. BMI-1 package meets the requirements of 10 CFR Part 71, subject to the conditions listed above.

Issued on November 6, 2008.