

March 2, 2005

Mr. Norman A. Kent
Westinghouse Electric Company
P.O. Drawer R
Columbia, SC 29250

SUBJECT: AUTHORIZATION FOR SHIPMENT IN THE MODEL NO. MCC-5 PACKAGE

Dear Mr. Kent:

As requested by your application dated January 5, 2005, and pursuant to 10 CFR Part 71, Certificate of Compliance No. 9239 for the Model No. MCC-3, MCC-4, and MCC-5 packages is amended to authorize contents as follows:

Contents

Type and form of material

Unirradiated VVER-1000 type fuel assemblies as described in Certificate of Compliance No. 9239, with the following additional provisions:

The fuel pins may have annular pellet zones, with a maximum length of 10.0 inches (25.4 cm), at the top and bottom of the fuel rods. The annular pellet inner diameter shall be 0.155 inches nominal (0.3937 cm).

Maximum quantity of material per package

Two fuel assemblies

The following additional conditions apply to shipment of contents described above:

The contents must be transported in the Model No. MCC-5 package.

All other conditions of Certificate of Compliance No. 9239 shall remain the same.

This authorization is for a one-time shipment of six fuel assemblies.

N. Kent

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This authorization shall expire on August 31, 2005.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

John D. Monninger, Chief
Licensing Section
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9239
TAC No. L23798

Enclosure: Safety Evaluation Report

cc: R. Boyle, Department of Transportation

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N. Kent

-2-

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Docket No. 71-9239

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cc: R. Boyle, Department of Transportation

SAFETY EVALUATION REPORT
Docket No. 71-9239
Model No. MCC-3, MCC-4, and MCC-5 Packages
Certificate of Compliance No. 9239

SUMMARY

By application dated January 5, 2005, Westinghouse Electric Company requested an amendment to Certificate of Compliance No. 9239, for the Model No. MCC-3, MCC-4, and MCC-5 packages. Westinghouse requested a one-time authorization to ship six unirradiated VVER-1000 fuel assemblies with annular pellet blankets in the Model No. MCC-5 package.

Certificate of Compliance No. 9239 has been amended by letter to authorize the shipment of these fuel assemblies. Based on the statements and representations in the application, the staff agrees that the changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

EVALUATION

The applicant requested a one-time shipment of six unirradiated VVER-1000 fuel assemblies with annular blankets. VVER-1000 fuel assemblies are authorized for transport as listed in the Certificate of Compliance. However, these six VVER-1000 fuel assemblies have an annular pellet blanket zone on the top and bottom of the fuel assemblies. The blanket zone is a maximum of 10 inches in length. The applicant stated that all other parameters of these VVER-1000 fuel assemblies are as described in the Certificate of Compliance, including the parameters listed in Table 1-4.3, Rev. 10, and Westinghouse Drawing No. 67481E15, Rev. 3, of the application.

The applicant evaluated the VVER-1000 assemblies with annular axial blankets using the same most reactive model used for the previously approved standard VVER-1000 assemblies. The code input from Table 17 of Appendix 6-2 of the package application was modified to include the annular blankets, as well as to run on a more current version of the criticality code used for the analysis. For this analysis, the applicant used the CSAS25 sequence of the SCALE 4.4 code package, with KENO V.a and the 238-group cross-section set. The most reactive configuration of the MCC-5 containing VVER-1000 assemblies with annular blankets results in a k_{eff} of 0.9383, including code bias and uncertainty. The results of the analysis are bounded by the results for the previously approved standard VVER-1000 assemblies, which resulted in a k_{eff} of 0.9460, including code bias and uncertainty.

The results of the analysis for the fuel with the annular blanket is considered conservative for a number of reasons. First, the analysis assumed a fuel and blanket enrichment of 4.8 weight percent U-235, but the actual fuel enrichment is 3.8 weight percent and the blanket enrichment is less than 3.0 weight percent. Second, the analysis considered an infinite array of packages, each with two fuel assemblies, whereas the actual number of fuel assemblies to be shipped is six.

The applicant has shown and the staff agrees that the MCC-5 package, containing VVER-1000 assemblies as described in the Certificate of Compliance and including up to 10 inches of annular pellets at the assembly top and bottom, meets the criticality safety requirements of 10 CFR 71.

CONDITIONS

The authorization is limited to the following contents and additional conditions:

Contents

Type and form of material

Unirradiated VVER-1000 type fuel assemblies as described in Certificate of Compliance No. 9239, with the following additional provisions:

The fuel pins may have annular pellet zones, with a maximum length of 10.0 inches (25.4 cm), at the top and bottom of the fuel rods. The annular pellet inner diameter shall be 0.155 inches nominal (0.3937 cm).

Maximum quantity of material per package

Two fuel assemblies

The following additional conditions apply to shipment of contents described above:

The contents must be transported in the Model No. MCC-5 package.

All other conditions of Certificate of Compliance No. 9239 shall remain the same.

This authorization is for a one-time shipment of six fuel assemblies.

This authorization shall expire on August 31, 2005.

CONCLUSION

Certificate of Compliance No. 9239 has been amended by letter to authorize shipment of the VVER-1000 fuel assemblies described above. The authorization expires August 31, 2005. Based on the statements and representations in the application, and with the conditions listed above, the staff agrees that this change does not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued on March 2, 2005.