February 15, 2012

Ms. Tanya N. Sloma
Licensing, Compliance, and Package Technology
Westinghouse Electric Company, LLC
Columbia Fuel Site
P.O. Drawer R
Columbia, SC 29250

SUBJECT: CERTIFICATE OF COMPLIANCE NO. 9239 FOR THE MODEL NOS. MCC-3, MCC-4, AND MCC-5 PACKAGES

Dear Ms. Sloma:

As requested by your letter dated October 28, 2011, enclosed is Certificate of Compliance No. 9239, Revision No. 17, for the Model Nos. MCC-3, MCC-4, and MCC-5 packages. Changes made to the enclosed certificate are indicated by vertical lines in the margin. The staff's Safety Evaluation Report is also enclosed.

The approval constitutes authority to use the packages for shipment of radioactive material and for the packages to be shipped in accordance with the provisions of 49 CFR 173.471. Registered users of the packages under the general license provisions of 10 CFR 71.17 or 49 CFR 173.471 have been provided a copy of this certificate.

If you have any questions regarding this certificate, please contact Pierre Saverot of my staff at (301) 492-3408.

Sincerely,

/RA/

Christine Lipa, Acting Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9239
TAC Nos. L24600, L24601

Enclosures:
1. Certificate of Compliance No. 9239, Rev. No. 17
2. Safety Evaluation Report

cc w/encls: R. Boyle, Department of Transportation
J. Shuler, Department of Energy
Registered Users

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(Closes TAC Nos. L24600 , L 24601)

G:SFST\Part 71 Casework\71-9239.r17.letter&ser.doc, and 71-9239.r17.doc
ADAMS Package No.: ML12047A071

OFC:	SFST	E	SFST	E	SFST		SFST		SFST		SFST	
NAME:	P. Saverot		JPiotter		ABarto		JSolis		MRahimi		DPstrak	
DATE:	02/01/2012		02/07/2012		02/06/2012		02/06/2012		2/13/12		2/7/12	
OFC	SFST		SFST		SFST							
NAME	MSampson		MDeBose		CLipa							
DATE	2/8/12		02/06/2012		2/15/12							

SAFETY EVALUATION REPORT
Docket No. 71-9239
Model Nos. MCC-3, MCC-4, and MCC-5
Certificate of Compliance No. 9239
Revision No. 17

SUMMARY

By application dated October 28, 2011, Westinghouse Electric Company LLC (Westinghouse or the applicant) requested renewal of Certificate of Compliance (CoC) No. 9239 for the Model Nos. MCC-3, MCC-4, and MCC-5 packages and provided a consolidated application as specified in 10 CFR 71.38(c). Westinghouse requested the evaluation of deviations from design values for the VVER-1000 fuel assembly type and a change to a mid-grid design in the VVER-1000 fuel assembly for a particular customer plant.

NRC staff reviewed the application using the guidance in NUREG-1609, "Standard Review Plan for Transportation Packages for Radioactive Material." Based on the statements and representation in the application, and the conditions listed below, the staff concludes that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71. The certificate has been renewed for a five year term.

EVALUATION

By letter dated October 28, 2011, Westinghouse submitted a consolidated application to support the renewal of CoC No. 9239 for the Model Nos. MCC-3, MCC-4, and MCC-5 packages. The consolidated application incorporates all changes previously incorporated by reference in the existing certificate from previous supplements to the original application, i.e., supplements dated September 25 and November 29, 2006; January 24, 2007; October 28, December 10, and December 30, 2009.

1.0 Structural Evaluation

Staff reviewed changes in the nominal values of VVER fuel parameters, and changes to the VVER 1000 fuel assembly mid-grid design dimensions. Cited dimensional corrections to fuel assembly subcomponents are of minimal consequence to the structural evaluation of these packages. As there were no changes indicated for the structural evaluation, nor were any revision pages offered for that section, staff finds that the previous safety evaluations for these packages are still valid.

2.0 Thermal Evaluation

2.1 Review Objectives

The objective of the review is to verify that the thermal performance of the package has been adequately evaluated for the tests specified under normal conditions of transport (NCT) and hypothetical accident conditions (HAC) and that the package design satisfies the thermal requirements of 10 CFR Part 71. This case was also reviewed to determine whether the

package fulfills the acceptance criteria listed in Section 3 of NUREG-1609, "Standard Review Plan for Transportation Packages for Radioactive Material," as well as associated Interim Staff Guidance (ISG) documents.

2.2 Evaluation

Changes not previously reviewed include deviations from design values for the VVER-1000 fuel assembly type. These changes include four deviations: diameter and thickness of the guide thimble tube ("GT Diameter" and "GT Thickness") and diameter and thickness of the instrument tube ("IT Diameter" and "IT Thickness"). In addition, a change to a mid-grid design in the VVER-1000 fuel assembly for a particular customer plant resulted in a change to two dimensions noted in Figure 1 of the application. The applicant noted that the MCC container is limited to use for transporting unirradiated, low enriched uranium, nuclear reactor core assemblies. Therefore, thermal engineering design of the packaging is not necessary. The fuel rods, that contain the radioactive material, are designed to withstand temperatures of 1204°C (2200°F) without substantial damage, i.e., well in excess of 10 CFR 71.73 HAC conditions resulting in thermal conditions of at least 800°C (1475°F) for a period of 30 minutes.

The staff reviewed the applicant's approach to address the thermal evaluation and finds it acceptable because the MCC package is used to transport unirradiated fuel during normal conditions of transportation and fuel rods that can withstand fire temperatures much higher than required by the regulations. Also, the staff agrees that the deviations from the VVER-1000 fuel assembly nominal design values have no impact on the package thermal performance.

2.3 Evaluation Findings

Based on review of the statements and representations in the application, the staff concludes that the thermal design has been adequately described and evaluated, and that the thermal performance of the package meets the thermal requirements of 10 CFR Part 71.

3.0 Criticality Evaluation

The applicant revised the criticality safety analysis for the Model Nos. MCC-3, MCC-4, and MCC-5 packages to reflect changes in the VVER-1000 type fuel assembly dimensions. The VVER-1000 assembly guide thimble tube and instrument tube dimensions, listed in Table 1-5-5 of Appendix 1-5 of the application, were found to deviate from design dimensions of the assembly. The guide thimble and instrument tube diameters were revised from 0.4740 inches to 0.4960 inches, and the tube thicknesses were revised from 0.0160 inches to 0.0315 inches. Additionally, the applicant modified Westinghouse Drawing No. 6481E15 to indicate variation in some of the nominal external dimensions of the VVER-1000 fuel assembly mid-grid design.

The applicant evaluated these changes for their potential effect on the criticality analysis in Chapter 6 of the application, and determined that there was a negligible effect on the conclusions for the VVER-1000 contents. Staff agrees with the applicant that these changes would tend to either decrease system reactivity, or otherwise result in negligible changes in k_{eff}.

Therefore, the applicant has shown and the staff agrees that the Model Nos. MCC-3, MCC-4, and MCC-5 packages, with the changes identified above, will continue to meet the criticality safety requirements of 10 CFR Part 71.

CONDITIONS

The CoC includes the following condition(s) of approval:

Item No. 3(b) has been revised to incorporate the consolidated application dated October 2011.

Condition No. 5(b)(1) was revised to incorporate the new Westinghouse Drawing No. 6481E15, Rev. 6, and the current revision of Table 1-5.1, i.e., Rev. 13.

Condition No. 14 was revised to authorize use of Revision No. 15 of the CoC until March 31, 2013. The current US DOT Certificate still references the NRC CoC No. 15.

Condition No. 15 was revised to indicate the new expiration date of the certificate.

The October 2011 consolidated application supersedes all previous revisions of the application and was included in the References section.

CONCLUSION

The certificate has been renewed for a five year term which expires on March 31, 2017. Based on the statements and representations contained in the application, as supplemented, and the conditions listed above, the staff concludes that the design of the Model Nos. MCC-3, MCC-4, and MCC-5 packages has been adequately described and evaluated. The staff concludes that the changes indicated do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9239, Revision No. 17,
on February 15, 2012.