U.S. Department
of Transportation
Pipeline and
Hazardous Materials
Safety Administration

COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE FISSILE

RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/9239/AF, REVISION 19

East Building, PHH-23
1200 New Jersey Avenue Southeast
Washington, D.C. 20590

This certifies that the radioactive material package design described has been certified by the Competent Authority of the United States as meeting the regulatory requirements for a Type AF packaging for fissile radioactive material as prescribed in the regulations of the International Atomic Energy Agency[1] and the United States of America[2].

1. Package Identification - MCC-3, MCC-4 and MCC-5.

2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9239, Revision 19 (attached).

3. Criticality - The minimum criticality safety index is 0.4. The maximum number of packages per conveyance is determined in accordance with Table X of the IAEA regulations cited in this certificate.

4. General Conditions -

   a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation. The user shall prepare the package for shipment in accordance with the documentation and applicable regulations.

   b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Division of Engineering and Research,(PHH-20),Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.

   c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.

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[1] "Regulations for the Safe Transport of Radioactive Materials, 2012 Edition, No. SSR-6", published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

[2] Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

5. Marking and Labeling - The package shall bear the marking USA/9239/AF in addition to other required markings and labeling.

6. Expiration Date - This certificate expires on March 31, 2022. Revision 18 of this certificate may be used until March 31, 2017.

This certificate is issued in accordance with paragraphs 816 and 820 of the IAEA Regulations and Section 173.471 and 173.472 of Title 49 of the Code of Federal Regulations, in response to the October 19, 2016 petition by Westinghouse Electric Company LLC, Hopkins, SC, and in consideration of other information on file in this Office.

Certified By:

for William Schoonover
Acting Associate Administrator for Hazardous Materials Safety

OCT 2 6 2016
(DATE)

Revision 19 - Issued to endorse U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9239, Revision 19.

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES

a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE		PAGES
9239	19	71-9239	USA/9239/AF	1	OF	5

2. PREAMBLE

a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."

b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

a. ISSUED TO *(Name and Address)*

Westinghouse Electric Company, LLC
Columbia Fuel Fabrication Facility
5801 Bluff Road
Hopkins, SC 29061

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Westinghouse Electric Company, LLC, application, Revision No. 13, dated October 28, 2011, as supplemented.

CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

(1) Model Nos.: MCC-3, MCC-4, and MCC-5

(2) Description

The MCC packages are shipping containers for unirradiated uranium oxide fuel assemblies. The packagings consist of a steel fuel element cradle assembly equipped with a strongback and an adjustable fuel element clamping assembly. The cradle assembly is shock mounted to a 13-gauge carbon steel outer container by shear mounts. The MCC-3 container is closed with thirty ½-inch T-bolts. The MCC-4 and MCC-5 containers are closed with fifty ½-inch T-bolts.

The MCC-3 and MCC-4 containers are permanently equipped with vertical Gd_2O_3 neutron absorber plates that are mounted on the center wall of the strongback. Additional horizontal Gd_2O_3 neutron absorber plates, mounted on the underside of the strongback, are required for the contents as specified.

The MCC-5 container is permanently equipped with both the vertical and horizontal Gd_20_3 neutron absorber plates. Additional vee-shaped, guided Gd_20_3 neutron absorber plates are required for the contents as specified.

Approximate dimensions of the MCC-3 packaging are 44½ inches O.D. by 194½ inches long. The gross weight of the packaging and contents is 7,544 pounds. The maximum weight of the contents is 3,300 pounds.

5. (a) (2) Packaging (continued)

Approximate dimensions of the MCC-4 packaging are 44½ inches O.D. by 226 inches long. The gross weight of the packaging and contents is 10,533 pounds. The maximum weight of the contents is 3,870 pounds.

Approximate dimensions of the MCC-5 packaging are 44½ inches O.D. by 226 inches long. The gross weight of the packaging and contents is 10,533 pounds. The maximum weight of the contents is 3,700 pounds.

(3) Drawings

The MCC-3 packaging is constructed in accordance with Westinghouse Electric Corporation Drawing No. MCCL301, Sheets 1, 2, 3, and 4, Rev. 6.

The MCC-4 packaging is constructed in accordance with Westinghouse Electric Corporation Drawing No. MCCL401, Sheets 1, 2, 3, 4, and 5, Rev. 9.

The MCC-5 packaging is constructed in accordance with Westinghouse Electric Corporation Drawing No. MCCL501, Sheets 1 through 10, Rev. 6.

(b) Contents

(1) Type and form of material

Unirradiated PWR uranium dioxide fuel assemblies with a maximum uranium-235 enrichment of 5.0 weight percent with the following exceptions: 15x15 BW fuel assemblies have a maximum enrichment of 4.65 wt%, and VVER-1000 fuel assemblies have a maximum enrichment of 4.80 wt%.

5. (b) (1) Contents (continued)

The fuel assemblies shall meet the specifications given in Westinghouse Drawing No. 6481E15, Rev. 6, and in the following tables of Appendix 1-5 of the application:

Table 1-5.1, Rev. 13	Fuel Assembly Parameters 14x14 Type Fuel Assemblies†
Table 1-5.2, Rev. 13	Fuel Assembly Parameters 15x15 Type Fuel Assemblies‡
Table 1-5.3, Rev. 13	Fuel Assembly Parameters 16x16 Type Fuel Assemblies**
Table 1-5.4, Rev. 13	Fuel Assembly Parameters 17x17 Type Fuel Assemblies**
Table 1-5.5, Rev. 13	Fuel Assembly Parameters VVER-1000 Type Fuel Assembly***

** 16x16 CE fuel assemblies and the 17x17 W-STD/XL fuel assemblies shall be shipped only in the Model No. MCC-4 package.

*** VVER-1000 fuel assemblies shall be shipped only in the Model No. MCC-5 package.

† 14x14 Type fuel assemblies' annular pellet zone length is not restricted and may exceed 6-inches.

‡ 15x15 (Type B) OFA fuel assemblies may be modified by replacing seven fuel rods in locations O10 through O15 and N15 with solid stainless steel.

(2) Maximum quantity of material per package

Two (2) fuel assemblies

(c) Criticality Safety Index 0.4

6. (a) For shipments of 14x14, 15x15, 16x16, and 17x17 OFA fuel assemblies with U-235 enrichments of over 4.65 wt% and up to 5.0 wt%, horizontal Gd_2O_3 neutron absorber plates shall be positioned underneath each assembly. The horizontal absorber plates shall be placed horizontally on the underside of the strongback, as specified in the respective drawings in Condition 5(a)(3) for the MCC-3 and MCC-4 models.

6. (b) For shipments of 17x17 STANDARD lattice fuel assemblies (17x17 STD and 17x17 XL) with U-235 enrichments of over 4.85 wt% and up to 5.0 wt%, horizontal Gd_2O_3 neutron absorber plates shall be positioned underneath each assembly. The horizontal absorber plates shall be placed horizontally on the underside of the strongback, as specified in the respective drawings in Condition 5(a)(3) for the MCC-3 and MCC-4 models.

7. Shipments of VVER-1000 fuel assemblies are authorized with U-235 enrichments up to 4.80 wt%.

8. Each fuel assembly must be unsheathed or must be enclosed in an unsealed plastic sheath which may not extend beyond the ends of the fuel assembly. The ends of the sheath may not be folded or taped in any manner that would prevent flow of liquids into or out of the sheathed fuel assembly.

9. The dimensions, minimum Gd_2O_3 loading and coating specifications, and acceptance testing of the neutron absorber plates shall be in accordance with the "Gd_2O_3 Neutron Absorber Plates Specifications," Appendix 1-7, Rev. 12, of the application, as supplemented. The minimum Gd_2O_3 coating areal density on the vertical and horizontal neutron absorber plates shall be 0.054 g-Gd_2O_3/cm^2. The minimum Gd_2O_3 coating areal density on guided neutron absorber plates shall be 0.027 g-Gd_2O_3/cm^2.

10. In addition to the requirements of Subpart G of 10 CFR Part 71:

    (a) Each package shall be prepared for shipment and operated in accordance with the "Routine Shipping Container Utilization Summary Operating Procedures," in Chapter 7 of the application; and

    (b) Each package shall be tested and maintained in accordance with the "Acceptance Tests, Maintenance Program, and Recertification Program," in Chapter 8 of the application, and as specified in the respective drawings in Condition 5(a)(3) for the MCC-3, MCC-4, and MCC-5 models.

11. Transport by air of fissile material is not authorized.

12. Fabrication of new packagings is not authorized.

13. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

14. Revision No. 18 of this certificate may be used until March 31, 2017.

15. Expiration date: March 31, 2022.

REFERENCES

Westinghouse Electric Company, LLC, "Application For Approval of Packaging Of Fissile Radioactive Material (MCC Shipping Containers)", Revision No. 13, dated October 2011.

Supplement dated March 28, 2013, Revision No. 14, and August 9, 2016.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

, Acting for

John McKirgan, Chief
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Date: October 7, 2016

U.S. Department
of Transportation

East Building, PHH-23
1200 New Jersey Avenue SE
Washington, D.C. 20590

**Pipeline and
Hazardous Materials
Safety Administration**

CERTIFICATE NUMBER: USA/9239/AF-85, Revision 19

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Tanya Sloma
Licensing, Compliance and Package Technology
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