

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
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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

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| a. ISSUED TO (<i>Name and Address</i>)
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. |
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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 Gd₂O₃ neutron absorber plates that are mounted on the center wall of the strongback. Additional horizontal Gd₂O₃ 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 Gd₂O₃ neutron absorber plates. Additional vee-shaped, guided Gd₂O₃ 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.

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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%.

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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 Gd₂O₃ 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.

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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 Gd₂O₃ 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 Gd₂O₃ loading and coating specifications, and acceptance testing of the neutron absorber plates shall be in accordance with the "Gd₂O₃ Neutron Absorber Plates Specifications," Appendix 1-7, Rev. 12, of the application, as supplemented. The minimum Gd₂O₃ coating areal density on the vertical and horizontal neutron absorber plates shall be 0.054 g-Gd₂O₃/cm². The minimum Gd₂O₃ coating areal density on guided neutron absorber plates shall be 0.027 g-Gd₂O₃/cm².
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.

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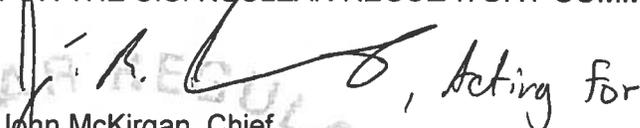
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REFERENCES

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


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

Date: October 7, 2016





UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION REPORT
Docket No. 71-9239
Model Nos. MCC-3, MCC-4, and MCC-5
Certificate of Compliance No. 9239
Revision No. 19

SUMMARY

By application dated August 9, 2016, Westinghouse Electric Company LLC (Westinghouse or the applicant) submitted a renewal request for Certificate of Compliance (CoC) No. 9239 for the Model Nos. MCC-3, MCC-4, and MCC-5 packages. The certificate holder did not request any changes to the package design, operating procedures, acceptance tests, nor maintenance program for the package.

EVALUATION

By letter dated August 9, 2016, Westinghouse requested renewal of CoC No. 9239 for the Model Nos. MCC-3, MCC-4, and MCC-5 packages. There are no changes to the package design that are not already consolidated in the application and authorized in the Revision No. 18 certificate. The certificate has been renewed for an additional five year term expiring on March 31, 2022.

CONDITIONS

The following conditions were changed in the CoC:

Item No. 3(b) has been revised to indicate that the consolidated application was submitted on October 28, 2011.

Condition No. 14 was revised to remove authorization for continued use of Revision No. 17 of the CoC due to its expiration on April 30, 2014. Condition No. 14 now authorizes use of Revision No. 18 of the CoC until March 31, 2017.

Condition No. 15 was revised to extend the expiration date an additional 5 years beyond the approval date to March 31, 2022.

The references section was revised to add the renewal request dated August 9, 2016.

CONCLUSION

Based on the statements and representations contained in the application 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. The certificate has been renewed for an additional five year term expiring on March 31, 2022.

Issued with Certificate of Compliance No. 9239,
Revision No. 19, on October 7, 2016.