

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1. 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

a. ISSUED TO (*Name and Address*)

U.S. Department of Energy  
Division of Naval Reactors  
Washington, DC 20585

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Safety Analysis Report for 235R001 Shipping Container  
dated August 11, 1970, as supplemented.

## 4. 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 No.: 235R001

(2) Description

The 235R001 shipping container structure is horizontal, having an oblong cross section and is fabricated from 0.104-inch thick carbon sheet steel. The container is 313 inches long and has a maximum weight of 4,640 pounds, empty. The oblong cross section dimensions are approximately 35.5 inches high by 33.0 inches wide. The container was originally designed to ship unirradiated fuel modules of the AIG/A4W type. Subsequently, the container has been adapted to ship standard size or partial S8G fuel modules by use of a special frame assembly and cradle clamps, S3G-3 refueling modules using cell support assemblies, rodded or unrodded DIG fuel modules, and rodded or unrodded D2W fuel cells. The loaded container maximum weight is 12,200 pounds.

(3) Drawings

The packaging is constructed in accordance with Container Research Corporation Drawing Nos. 235R001, Rev. C, 235R004, Rev. C, and 235R005, Rev. 0, and Westinghouse Electric Corporation Drawing Nos. 973D425, Rev. 1, 903E693, Rev. 3, Sheet 1, 2 and 3 of 3, and 947J076, Rev. 0.

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5.(b) Contents

(1) Type and form of material

Unirradiated fuel assemblies of the following types:

- (i) A1G reactor cell without upper mechanism and with control rod, leadscrew and shipping fixture installed on rodded type modules.
- (ii) Standard size S8G reactor cluster with regular or substitute support adapters and regular control rods. If only one cell is shipped per container, a dummy load shall be installed for balance.
- (iii) Partial size S8G reactor cluster with regular or substitute support adapters and regular control rods. If only one cell is shipped per container, a dummy load shall be installed for balance.
- (iv) S3G-3 refueling cells, with a maximum of one 0-1 reactor cell assembly per container.
- (v) D1G fuel module, rodded.
- (vi) D1G removable fuel assembly (RFA), unrodded.
- (vii) A1G fuel cluster, fueled end only of full A1G reactor cell, rodded. Shipping poison rods are installed and are constructed in accordance with Westinghouse Electric Corporation Drawing Nos. 928E011, Rev. E, or 1588E41, Sheet 1, Rev. J, and Sheet 2, Rev. C.
- (viii) D2W side or central fuel cells with control rod and control rod holddown device.
- (ix) D2W corner fuel cells, without shear blocks, unrodded.
- (x) D2W side or central fuel cell and shear block with control rod inserted in rodded fuel cell.
- (xi) D2W corner fuel cell, with shear block, unrodded.

(2) Maximum quantity of material per package

- (i) One fuel assembly as described in 5(b)(1)(i), 5(b)(1)(x), or 5(b)(1)(xi).
- (ii) Two fuel assemblies as described in 5(b)(1)(ii), 5(b)(1)(iii), 5(b)(1)(iv), 5(b)(1)(v), 5(b)(1)(vii), 5(b)(1)(viii), 5(b)(1)(ix).
- (iii) Four fuel assemblies as described in 5(b)(1)(vi).

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## 5.(c) Criticality Safety Index

Minimum transport index to be shown on label for nuclear criticality control:

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|-----|--|------|
| (1) | For the contents described in 5(b)(1)(vii), 5(b)(1)(viii), 5(b)(1)(ix), and limited in 5(b)(2)(ii):  | 50.0 |
| (2) | For contents described in 5(b)(1)(i), 5(b)(1)(ii), 5(b)(1)(iii), 5(b)(1)(iv), 5(b)(1)(v), 5(b)(1)(vi), 5(b)(1)(x), and 5(b)(1)(xi) and limited in 5(b)(2)(i), 5(b)(2)(ii), and 5(b)(2)(iii): | 25.0 |

6. Expiration date: April 30, 2010.

REFERENCES

Safety Analysis Report for 235R001 Shipping Container, WAPD-OP(R)RD-357 dated August 11, 1970.

Supplements: Knolls Atomic Power Laboratory letter A1G 25-159, dated October 2, 1970. Bettis Atomic Power Laboratory letters WAPD-OP(R)RD-444, dated October 9, 1970; WAPD-OP(R)RD-476, dated October 26, 1970; and WAPD-OP(R)RD-488, dated October 30, 1970. Knolls Atomic Power Laboratory letters AIG 25-181, dated April 9, 1971; and A1G 25-191, dated May 11, 1971. Bettis Atomic Power Laboratory letters WAPD-OP(R)C-94, dated May 16, 1972; WAPD-OP(R)C-199, dated December 13, 1972; and WAPD-OP(R)C-229, dated March 6, 1973. Naval Reactors letters G#5078, dated January 26, 1976; G#5776, dated September 8, 1977; G#5905, dated January 23, 1978; G#5923, dated February 22, 1978; G#6095, dated August 17, 1978; G#6208, dated March 8, 1979; G#6373, dated September 4, 1979; G#6813, dated October 17, 1980; G#C85-0467, dated July 17, 1985; G#C88-8112, dated October 18, 1988; G#90-03655, dated August 10, 1990; G#92-03560, dated June 15, 1992; G#96-03371, dated March 15, 1996; G#C97-03444 dated April 8, 1997; G#C99-03514, dated June 1, 1999; G#C99-03688, dated December 30, 1999; G#C02-0750, dated April 8, 2002; G#C03-00273, dated January 24, 2003; and G#C03-01695, dated July 14, 2003.

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

Date: March 25, 2005