



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE AF
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/9217/AF, REVISION 17

East Building, PHH-23
1200 New Jersey Ave., SE
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 radioactive material as prescribed in the regulations of the International Atomic Energy Agency¹ and the United States of America².

1. Package Identification - ANF-250.
2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9217, Revision 19 (attached).
3. Criticality - The minimum criticality safety index is as identified in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9217, Revision 19 (attached). 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.
 - d. Records of management system activities required by Paragraph 306 of the IAEA regulations shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipment under this certificate shall satisfy the applicable requirements of Subpart H of 10 CFR 71.

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.

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5. Marking and Labeling - The package shall bear the marking USA/9217/AF in addition to other required markings and labeling.
6. Expiration Date - This certificate expires on June 30, 2020. On January 31, 2018, this certificate supersedes, in its entirety, all previous revisions of USA/9217/AF.

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 February 23, 2017 petition by TN Americas LLC, Columbia, MD and in consideration of other information on file in this Office.

Certified by:



William Schoonover

Associate Administrator for Hazardous Materials Safety

FEB 28 2017

(DATE)

Revision 17 - Issued to endorse U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9217, Revision 19.

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

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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*)
TN Americas LLC
7135 Minstrel Way, Suite 300
Columbia, MD 21045
- b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION
Siemens Power Corporation application
dated January 26, 2000, 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.: ANF-250
- (2) Description

A uranium oxide powder/pellet shipping container. The packaging consists of a 16-gauge steel inner vessel, approximately 11-1/2 inches ID by 57 inches long, with a bolted and gasketed top flange closure and steel welded bottom plate. The inner vessel is centered and supported in a 22-1/2-inch ID by 68-3/8-inch long, 16-gauge steel drum by twelve 1/4-inch diameter spring steel rods welded to the inner vessel at the top and the bottom of the vessel. A 3/8-inch thick steel flange and a 16-gauge inner band position and support the top of the inner vessel within the outer container. The annulus between the inner vessel and outer container is filled with vermiculite.

The inner vessel is closed by six 1/2-inch square shank studs with hex head nuts at each end. The outer container is closed with a 12-gauge locking ring with drop forged lugs and a 5/8-inch diameter bolt and lock nut. A "half circle" ("U") type closure ring is used. A product container insert is positioned within the inner vessel.

The maximum gross weight of the packaging and contents is 616 pounds.

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5.(a) (3) Drawings

- (i) The ANF-250 shipping container is constructed in accordance with Siemens Power Corporation Drawing No. EMF-306,175, Rev. 16.
- (ii) The pellet shipping suit case is constructed in accordance with Siemens Power Corporation Drawing No. EMF-304,306, Rev. 8.
- (iii) The powder and pellet product container inserts are constructed in accordance with Siemens Power Corporation Drawing No. EMF-306,176, Rev. 6, Sheets 1 and 2.

(b) Contents

(1) Type and form of material

- (i) Dry uranium oxide powder enriched to a maximum 5.0 w/o in the U-235 isotope with or without burnable absorbers.
- (ii) Dry uranium oxide pellets enriched to a maximum 5.0 w/o in the U-235 isotope with or without burnable absorbers.
- (iii) Dry uranium oxide pellet scrap enriched to a maximum 5.0 w/o in the U-235 isotope with or without burnable absorbers.
- (iv) Uranium oxide pellets enriched to a maximum of 1 w/o in the U-235 isotope with or without burnable absorbers.
- (v) Uranium oxide pellet scrap enriched to a maximum of 1 w/o in the U-235 isotope with or without burnable absorbers.
- (vi) Uranium oxide powder enriched to a maximum of 1 w/o in the U-235 isotope with or without burnable absorbers.

(2) Maximum quantity of material per package

Not to exceed 310 pounds and:

- (i) For the contents described in 5(b)(1)(i):

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5.(b)(2)(i) (continued)

The contents not to exceed the following:

Maximum Enrichment (wt% U-235)	Maximum Uranium Mass (kg U)	Maximum U-235 Mass (kg U-235)
3.4	62.4	2.12
3.8	41.0	1.56
4.6	31.2	1.44
5.0	27.7	1.38

Not to exceed a maximum mass of 1149 g H, considering all sources of hydrogenous material within the inner vessel. The contents must be contained in product container described in 5(a)(3)(iii).

(ii) For the contents described in 5(b)(1)(ii):

The total contents not to exceed 120 kg U, with the U-235 content not to exceed 6 kg. Not to exceed a maximum mass of 1149 g H, including a maximum mass of 600 g polyethylene, considering all sources of hydrogenous material within the inner vessel. The contents must be contained in product container described in 5(a)(3)(ii).

(iii) For the contents described in 5(b)(1)(iii):

The total contents not to exceed 61.7 kg U, with the U-235 content not to exceed 3.08 kg. Not to exceed a maximum mass of 1149 g H, including a maximum mass of 600 g polyethylene, considering all sources of hydrogenous material within the inner vessel. The contents must be contained in product container described in 5(a)(3)(ii).

(iv) For the contents described in 5(b)(1)(iv):

The total contents not to exceed 120 kg U, with the U-235 content not to exceed 1.2 kg. The contents must be contained in product container described in 5(a)(3)(ii).

(v) For the contents described in 5(b)(1)(v):

The total contents not to exceed 120 kg U, with the U-235 content not to exceed 1.2 kg. The contents must be contained in product container described in 5(a)(3)(ii).

(vi) For the contents described in 5(b)(1)(vi):

The total contents not to exceed 120 kg U, with the U-235 content not to exceed 1.2 kg. The contents must be contained in product container described in 5(a)(3)(iii).

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5.(c) Criticality Safety Index

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

For contents described in 5(b)(1)(i) and limited in 5(b)(2)(i): 1.8

For contents described in 5(b)(1)(ii) and 5(b)(1)(iii), and limited in 5(b)(2)(ii) and 5(b)(2)(iii): 0.9

For contents described in 5(b)(1)(iv), 5(b)(1)(v) and 5(b)(1)(vi), and limited in 5(b)(2)(iv), 5(b)(2)(v) and 5(b)(2)(vi): 0.4

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

- a. The package must be prepared for shipment and operated in accordance with the Operating Procedures in Chapter 7 of the application.
- b. The packaging must meet the Acceptance Tests and Maintenance Program in Chapter 8 of the application.

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

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

9. Revision No. 18 of this certificate may be used until January 31, 2018.

10. Expiration date: June 30, 2020.

**CERTIFICATE OF COMPLIANCE
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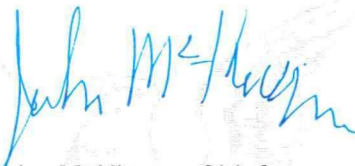
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REFERENCES

Siemens Power Corporation application dated January 26, 2000.

Supplements dated: January 31, June 6, June 15 and September 29, 2000; February 6 and August 21, 2001; December 16, 2004; November 25, 2009; December 21, 2009; December 23, 2009; April 8, 2010; January 27, 2014; May 19, 2015; and November 18, 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:

1/30/17



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/9217/AF-85, Revision 17

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