



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

**COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE FISSILE
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/9294/AF-96, REVISION 10**

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 Agency¹ and the United States of America².

1. Package Identification - Global Nuclear Fuels Model No. NPC.
2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9294, Revision 8 (attached).
3. Criticality - The minimum criticality safety index is 0.7. 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 Office of Hazardous Materials Technology, (PHH-23), 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.

¹ "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

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

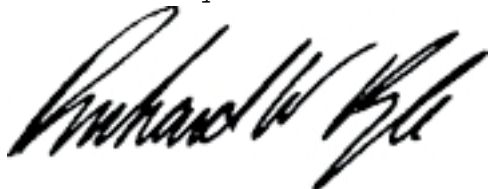
CERTIFICATE USA/9294/AF-96, REVISION 10

- d. Records of Quality Assurance activities required by Paragraph 310 of the IAEA regulations¹ 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 shipments under this certificate shall satisfy the applicable requirements of Subpart H of 10 CFR 71.
5. Special Conditions -
- a. The package must be prepared for shipment and operated in accordance with the Operating Procedures found in Chapter 7 of the safety analysis report, as supplemented. Within each inner containment canister assembly (ICCA), the contents and secondary packaging (i.e. dunnage) must provide a snug fit. The payload may be enclosed in plastic receptacles (e.g. bags, bottles, etc.). For payloads in plastic bottles, empty bottles may be used to minimize movement of the bottles within the ICCA.
 - b. Each packaging must be acceptance tested and maintained in accordance with the Acceptance Tests and Maintenance Program in Chapter 8 of the safety analysis report.
 - c. Transport by air is not authorized.
6. Marking and Labeling - The package shall bear the marking USA/9294/AF-96 in addition to other required markings and labeling.
7. Expiration Date - This certificate expires on November 30, 2020. On November 30, 2015, this certificate supersedes all previous revisions of USA/9294/AF-96.

CERTIFICATE USA/9294/AF-96, REVISION 10


This certificate is issued in accordance with paragraph 814 of the IAEA Regulations and Section 173.471 and 173.472 of Title 49 of the Code of Federal Regulations, in response to the April 13, 2014 petition by Global Nuclear Fuels - Americas, Wilmington, NC, and in consideration of other information on file in this Office.

Certified By:



May 29 2015

(DATE)

 Dr. Magdy El-Sibaie

Associate Administrator for Hazardous Materials Safety

Revision 10 - Issued to endorse U.S. Nuclear Regulatory Commission
Certificate of Compliance No. 9294, Revision 8.

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9294	8	71-9294	USA/9294/AF-96	1 OF	3

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*)

Global Nuclear Fuel - Americas, LLC
P.O. Box 780
Wilmington, NC 28402

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Global Nuclear Fuel - Americas, LLC, application dated
February 12, 2015.

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.: NPC
- (2) Description

A cubic stainless steel and foam outer packaging with nine cylindrical containment vessels for the transport of type A quantities of low-enriched uranium oxide powder, pellets, and compounds of uranium as defined in 5(b). The overall package dimensions are approximately 45 inches wide, 45 inches deep, and 44 inches high.

The outer packaging consists of a 10-gage stainless steel outer shell with a ceramic fiber board liner and rigid polyurethane foam filler. The foam filler has a three-by-three array of vertical cylindrical cutouts that accommodate stainless steel sleeves for placement of the containment vessels. The outer packaging is equipped with a top cover that is secured to the outer packaging body by a combination of 16 closure cap screws and four closure strips secured by 24 bolts.

The containment vessel is a maximum 8.515 inches in inner diameter and approximately 32 inches in overall length. The containment vessel is constructed of 18-gage stainless steel, surrounded by a cadmium sheet and polyethylene wrap within a 24-gage stainless steel jacket. The containment vessel is closed by a 16-gage closure lid, a silicone rubber gasket, and a band clamp assembly, which is composed of a 0.063-inch thick strap and retainer, a T-bolt, and a nut.

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9294	8	71-9294	USA/9294/AF-96	2 OF	3

The gross weight of the package (packaging and contents) is 1,302 kg (2,870 pounds). The maximum weight of the contents is 540 kg (1,190 pounds).

5.(a) (3) Drawings

The packaging is fabricated and assembled in accordance with the following Global Nuclear Fuel - Americas, LLC, Drawing Nos.:

177D4970, Sheet 1, Revision 1

177D4970, Sheet 2, Revision 0

177D4970, Sheet 3, Revision 0

177D4970, Sheet 4, Revision 0

177D4970, Sheet 5, Revision 0

177D4970, Sheet 6, Revision 0

177D4970, Sheet 7, Revision 0

177D4970, Sheet 8, Revision 1

SK105E4037, Sheet 2, Revision 1

(b) Contents

Type, Form, and Maximum Quantity of Material Per Package

Material Forms ¹ (≤5.00 wt.% U-235)	Particle Size Restriction: Minimum OD (Inches)	Maximum Loading per ICCA (kgs)		Maximum Loading per NPC (kgs)	
		Net ⁴	Uranium	Net ⁴	Uranium
Homogenous Uranium Oxide/Compounds ²	N/A	60.0	52.89	540.0	476.1
Heterogenous UO ₂ Pellets (BWR)	0.342	60.0	40.54	540.0	364.8
Heterogenous UO ₂ Pellets(PWR)	0.300	60.0	40.54	540.0	364.8
Heterogenous Uranium Compounds ³	Unrestricted particle size	60.0	40.54	540.0	364.8

¹ No solutions or liquids are authorized and there shall be no free liquid present. The Material Form within any NPC must be the same.

² Homogenous compounds limited to UO₂, U₃O₈, UO_x, x>2, dried calcium-containing sludges, UO₂(NO₃)₂ · 6H₂O, and uranium oxide bearing ash.

³ Heterogenous compounds limited to UO₂, U₃O₈, and UO_x, x>2.

⁴ Maximum content weight of any Inner Containment Canister Assemblies (ICCA) including plastic or secondary packaging (i.e., dunnage). Materials with a hydrogen atom density greater than that of water are limited to a mass of 3.7 kg per ICCA.

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5.(c) Criticality Safety Index

0.7

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, as supplemented. Within each ICCA, the contents and secondary packaging (i.e., dunnage) must provide a snug fit. The payload may be enclosed in plastic receptacles (e.g., bags, bottles, etc.). For payloads in plastic bottles, empty bottles may be used to minimize movement of the bottles within the ICCA.
- (b) Each packaging must be acceptance tested and maintained in accordance with 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. 6 of this certificate may be used until November 30, 2015.
- 10. Expiration date: November 30, 2020.

REFERENCES

Global Nuclear Fuel - Americas, LLC, application dated February 12, 2015.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



Michele Sampson, Chief
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Date: May 22, 2015



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/9294/AF-96, Revision 10

ORIGINAL REGISTRANT(S):

Mr. Scott Murray
Manager, Facility Licensing
Global Nuclear Fuels - Americas
3901 Castle Hayne Road
Mail Code K-84
Wilmington, 28401
USA

Mr. Phillip Ollis
Global Nuclear Fuels - Americas
3901 Castle Hayne Road
Mail Code K-84
Wilmington, 28401
USA

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5.

(a) Packaging

(1) Model No.: NPC

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The outer packaging consists of a 10-gage stainless steel outer shell with a ceramic fiber board liner and rigid polyurethane foam filler. The foam filler has a three-by-three array of vertical cylindrical cutouts that accommodate stainless steel sleeves for placement of the containment vessels. The outer packaging is equipped with a top cover that is secured to the outer packaging body by a combination of 16 closure cap screws and four closure strips secured by 24 bolts.

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

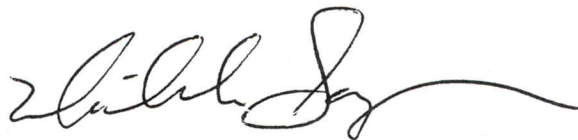
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Date: May 22, 2015