U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

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

COMPETENT AUTHORITY CERTIFICATION FOR A TYPE B(U)F FISSILE RADIOACTIVE MATERIALS PACKAGE DESIGN CERTIFICATE USA/9196/B(U)F-96, REVISION 34

The Competent Authority of the United States certifies that the radioactive material package design described in this certificate satisfies the regulatory requirements for a Type B(U)F package for fissile material as prescribed in the regulations of the International Atomic Energy Agency[1] and the United States of America[2].

1. Package Identification - Model No. UX-30.

2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9196, Revision 30 (attached).

3. Criticality - The minimum criticality safety index is 5.0 for the 30B cylinder; 0.0 for the 30C cylinder. The maximum number of packages per conveyance is determined in accordance with Table 11 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 Engineering and Research, (PHH-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.

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[1] "Regulations for the Safe Transport of Radioactive Material, 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.

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. This certificate provides no relief from the limitations for transportation of plutonium by air in the United States as cited in the regulations of the U.S. Nuclear Regulatory Commission 10 CFR 71.88.

e. Records of Management System activities required by Paragraph 306 of the IAEA regulations[1] 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. Contents that do not satisfy the definition of fissile material or that satisfy one of the fissile exceptions found in the IAEA regulations cited by this certificate may be transported as RADIOACTIVE MATERIALS, URANIUM HEXAFLUORIDE non-fissile or fissile excepted (UN 2978) under the provisions of this certificate. A criticality safety index is not applicable for these shipments and a separate H(U) or H(M) certificate is not required.

b. Prior to each shipment, the stainless steel components of the packaging, which include the ball-lock pins, must be visually inspected. Packagings in which stainless steel components show pitting, corrosion, cracking or pinholes are not authorized for transport.

c. Transport by air is not authorized.

6. Marking and Labeling - The package shall bear the marking USA/9196/B(U)F-96 in addition to other required markings and labeling.

7. Expiration Date - This certificate expires on December 31, 2024. Previous editions which have not reached their expiration date may continue to be used.

CERTIFICATE USA/9196/B(U)F-96, REVISION 34

This certificate is issued in accordance with paragraph(s) 810 and 816 of the IAEA Regulations and Section 173.471 and 173.472 of Title 49 of the Code of Federal Regulations, in response to the November 7, 2018 petition by TN Americas LLC, Columbia, MD, and in consideration of other information on file in this Office.

Certified By:

for William Schoonover
Associate Administrator for Hazardous
Materials Safety

December 03, 2018
(DATE)

Revision 34 - Issued to correct reference to IAEA SSR-6 table of CSI limits and to endorse U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9196, Revision 30.

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES

1 a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE		PAGES
9196	30	71-9196	USA/9196/B(U)F-96	1	OF	4

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

Columbiana Hi Tech, LLC, application dated October 24, 2018.

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.: UX-30

(2) Description

Overpack for 30-inch uranium hexafluoride (UF_6) cylinders. The overpack is a right circular cylinder constructed of two stainless steel shells with the volume between the shells filled with 6-inch thick foam (7.8 - 9.8 PCF). A stepped and gasketed horizontal joint permits the top half of the overpack to be removed from the base. The package "halves" are secured with ten indexed, cross-locking "ball lock" pins. The overpack is 43.5" in diameter by 96" long. The maximum gross weight of the package is 8270 lbs.

Two types of 30 inch uranium hexafluoride cylinders may be carried in the UX-30 overpack. These are (1) an ANSI N14.1 Standard 30B cylinder, or (2) an ANSI N14.1 Standard 30C cylinder.

The ANSI N14.1 Standard 30C cylinder is essentially a 30B cylinder equipped with a Valve Protective Cover (VPC) that bolts over and protects the cylinder valve during transport. The VPC is a special design feature that provides additional assurance against the inleakage of water to the containment system and is an enclosure that retains any leakage.

(a) Packaging (continued)

(3) Drawings

The Model No. UX-30 packaging is fabricated in accordance with Energy*Solutions* Drawing No. C-110-B-57922-0001, sheets 1 through 3, Rev. 4.

(b) Contents

(1) Type and form of material

A. Unirradiated uranium, in the form of UF_6, with a U-235 mass percentage not to exceed 5 weight percent.

B. Reprocessed uranium, in the form of UF_6, with a U-235 mass percentage not to exceed 5 weight percent. The fission product gamma activity shall not exceed 4.4×10^5 MeV Bq/kgU. The alpha activity from neptunium and plutonium shall be less than 3.3×10^3 Bq/kgU.

(2) Maximum quantity of material per package

5,020 pounds UF_6 contained in an ANSI Standard N14.1 30B or 30C cylinder.
The maximum H/U atomic ratio for the UF_6 is 0.088.
The total activity in the package may not exceed 10^5 A_2.

(c) Criticality Safety Index (CSI)

Criticality safety index for the UX-30 overpack containing a standard ANSI N14.1 30B cylinder	5.0
Criticality safety index for the UX-30 overpack containing a standard ANSI N14.1 30C cylinder	0.0

Criticality safety index for the UX-30 overpack is not applicable to non-fissile or fissile-excepted contents.

6. The ANSI standard 30B, 30-inch diameter UF_6 cylinder, must be fabricated, inspected, tested and maintained in accordance with a) American National Standard N14.1-2012 or an earlier version of ANSI N14.1 in effect at the time of fabrication or b) American National Standard N14.1-2012 or an earlier version of ANSI N14.1 in effect at the time of fabrication and ISO 7195:2005 or an earlier version of ISO 7195 in effect at the time of fabrication. Cylinders must be fabricated in accordance with Section VIII, Division I, of the ASME (American Society of Mechanical Engineers) Boiler and Pressure Vessel Code and be ASME Code stamped.

7. The ANSI N14.1 Standard 30C cylinder (new or retrofitted cylinders) must be fabricated, inspected, tested, and maintained in accordance with ANSI N14.1-2012 or earlier version of ANSI N14.1 at the time of fabrication.

8. When the optional 4 lid lifting clips are used instead of the top lugs, the top lid (cover) must be lifted with a spreader bar (saddle).

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

   (a) Prior to each shipment, the weather/dust seal gasket between the upper and lower shells must be inspected and must be replaced if inspection shows excessive wear or any defects to the gasket.

   (b) Each packaging must meet the Acceptance Tests and Maintenance Program of Chapter 8 of the application.

   (c) The package shall be prepared for shipment and operated in accordance with the Operating Procedures of Chapter 7 of the application.

   (d) Prior to each shipment, the stainless steel components of the packaging, which include the ball-lock pins, must be visually inspected. Packagings in which stainless steel components show pitting, corrosion, cracking, or pinholes are not authorized for transport.

10. The 30-inch diameter UF_6 cylinder valve and plug threads may be tinned with ASTM B32, alloy 50A or Sn50 solder material, or a mixture of alloy 50A or Sn50 with alloy 40A or Sn40A material, provided the mixture has a minimum tin content of 45 percent.

11. Transport by air is not authorized.

12. Packagings must be marked with Package Identification Number USA/9196/B(U)F-96.

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. 29 of this certificate may be used until December 31, 2019.

15. Expiration date: December 31, 2024.

REFERENCES

Columbiana Hi Tech Application dated: October 24, 2018.

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: 11/2/18

U.S. Department of
Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

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

CERTIFICATE NUMBER: USA/9196/B(U)F-96

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