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

U.S. Department of Transportation

Pipeline and Hazardous Materials Safety Administration

COMPETENT AUTHORITY CERTIFICATION FOR A TYPE FISSILE RADIOACTIVE MATERIALS PACKAGE DESIGN CERTIFICATE USA/0833/AF, REVISION 2

REVALIDATION OF JAPANESE COMPETENT AUTHORITY CERTIFICATE J/2009/AF

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 AF package as prescribed in the regulations of the International Atomic Energy Agency[1] and the United States of America[2] The package design is approved for use within the United States for import and export shipments made in accordance with applicable international and domestic transport regulations.

1. Package Identification - GP-01.

2. Package Description and Authorized Radioactive Contents - as described in Japanese Certificate of Competent Authority J/2009/AF, dated August 24, 2022 (attached).

3. Criticality - The minimum criticality safety index is 0.0. 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

[1] "Regulations for the Safe Transport of Radioactive Material, 2018 Edition, No. SSR-6 (Rev. 1)" published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

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

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[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. Transport by air of the Model No. GP-01 is not authorized.

b. When packaging is stored outdoors, appropriate measures should be taken, avoiding the direct exposure to the weather including environments that can initiate corrosion of the package's components.

c. Safety analysis report does not support revalidation for more than five-year term. Expiration date aligns with this finding.

6. Marking and Labeling - The package shall bear the marking USA/0833/AF in addition to other required markings and labeling.

7. Expiration Date - This certificate expires on July 4, 2029. Previous editions which have not reached their expiration date may continue to be used.

CERTIFICATE USA/0833/AF, REVISION 2

This certificate is issued in accordance with paragraph(s) 816 of the IAEA Regulations and Section 173.472 and 173.473 of Title 49 of the Code of Federal Regulations, in response to the January 24, 2023 petition by TN Americas LLC, Columbia, MD, and in consideration of other information on file in this Office.

Certified By:

July 03, 2024
(DATE)

for William Schoonover
Associate Administrator for Hazardous Materials Safety

Revision 2 - Issued to revalidate, for a five-year term, Japanese Certificate of Competent Authority J/2009/AF dated August 24, 2022.

IDENTIFICATION MARK
J/2009/AF

COMPETENT AUTHORITY
OF
JAPAN

CERTIFICATE FOR APPROVAL OF PACKAGE DESIGN FOR THE TRANSPORT OF RADIOACTIVE MATERIALS

ISSUED BY

NUCLEAR REGULATION AUTHORITY
1-9-9, ROPPONGI MINATO-KU
TOKYO, JAPAN

CERTIFICATE FOR APPROVAL OF PACKAGE DESIGN
FOR THE TRANSPORT OF RADIOACTIVE MATERIALS

This is to certify, in response to the application by Nuclear Fuel Industries, Ltd., that the package design described herein complies with the design requirements for a package containing Uranium oxide (UO_2, UO_3 and U_3O_8) or Uranium oxides mixed with gadolinia, specified in the 2018 Edition of the Regulations for the Safe Transport of Radioactive Material (International Atomic Energy Agency, Safety Standards Series No.SSR-6) and the Japanese rules based on the Act on Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.

This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be transported.

COMPETENT AUTHORITY
IDENTIFICATION MARK: J/2009/AF

Aug / 24 / 2022
Date

K. Hasegawa
Hasegawa Kiyomitsu

Director, Division of Licensing for
Nuclear Fuel Facilities

Secretariat of Nuclear Regulation Authority
Competent Authority of JAPAN
for Package Design Approval

1. The Competent Authority Identification Mark : J/2009/AF

2. Name of Package : GP-01

3. Type of Package : Type A Fissile package

4. Specification of Package

(1) Materials of Packaging : See the attached Table-1

(2) Total Weight of Packaging : 730kg or less

(3) Outer Dimensions of Packaging

(i)Length : Approximately 1140 mm

(ii)Width : Approximately 830 mm

(iii)Height : Approximately 1060 mm

(4) Total Weight of Package : 1300kg or less

(5) Illustration of Package : See the attached Figure (Bird's-eye view)

5. Specification of Radioactive Contents : See the attached Table-2

6. Description of Containment System

The inner receptacle which is the containment boundary of this package consists of the body, the lid and the O-ring. The O-ring is made of silicon rubber.

7. For package containing Fissile Materials

(1) Restrictions on Package

(i)Restriction Number "N" : No restriction

(ii)Array of Package : No restriction

(iii)Criticality Safety Index (CSI) : 0

(2) Description of Confinement System

Confinement system consists of the inner receptacle which maintains the fuel pellets contained in the package.

(3) Assumptions of Leakage of Water into Package

The criticality analysis of this package is carried out on the assumption that the fuel zone is immersed in water under normal conditions and under accident conditions.

(4) Special Features in Criticality Assessment

There is no special device.

8. For Type B(M) Packages, a statement regarding prescriptions of Type B(U) Package that do not apply to this Package

Not applicable.

9. Assumed Ambient Conditions

(i)Ambient Temperature Range : −40℃～38℃

(ii)Insolation Data : Table12 of IAEA Regulation

10. Handling, Inspection and Maintenance

(1) Handling Instructions

(i) Package should be handled carefully in accordance with the schedule and procedures established properly taking all possible safety measures.

(ii) Package should be handled using appropriate lifting devices such as forklift or crane.

(iii) When packaging is stored outdoors, appropriate measures should be taken, avoiding the direct exposure to the weather.

(2) Inspections and Maintenance of Packaging

The following inspections should be performed not less than once a year (once for every ten times in a case where the packaging is used not less than ten times a year) and defect of packaging should be repaired, if any, in order to maintain the integrity of packaging.

(i) Visual inspection

(ii) Subcriticality inspection

(iii) Lifting inspection

(iv) Maintenance of valves and gaskets of containment system

(3) Actions prior to Shipment

The following inspections should be performed prior to shipment.

(i) Visual Inspection
(ii) Contents Inspection
(iii) Surface Contamination Inspection
(iv) Dose Rate Inspection
(v) Subcriticality Inspection
(vi) Weight Inspection
(vii) Lifting Inspection

(4) Precautions for Loading of Package for Shipment

Package should be securely loaded to the conveyance at the designated tie-down portion of the packaging so as not to move, roll down or fall down from the loading position during transport.

11. Issue Date and Expiry Date

(i)Issue Date : August 1, 2022
(ii)Expiry Date : July 31, 2102

However, if this certificate no longer meets the technical standards (limited to those related to the design of package) due to a revision of the regulations*1,2, this certificate will be expired.

*1 The NRA Ordinance on off-Site Transportation of Nuclear Fuel Materials, etc.
Issuance: Order of the Prime Minister's Office No. 57 of December 28, 1978

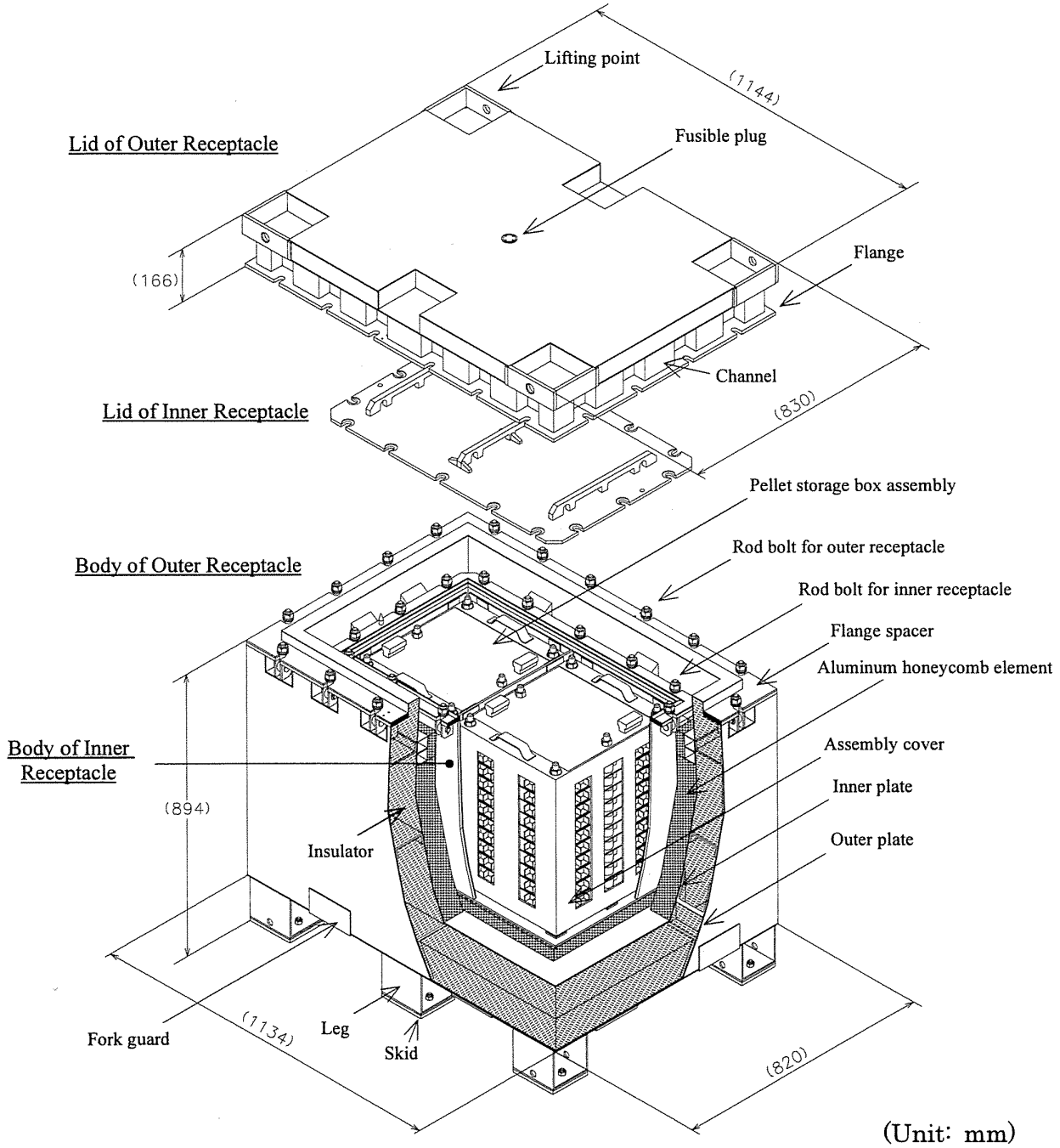
*2 The Notification on Technical Details for Off-Site Transportation of Nuclear Fuel Materials, etc.
Issuance: The Public Notice of the Science and Technology Agency No. 5, an extra of November 28, 1990

Table 1. Material of Packaging

Component	Material
Outer receptacle	Stainless Steel
Inner receptacle	Stainless Steel
Heat insulating material	Ceramic Fiber
Neutron absorber	Borated stainless steel
Shock absorber	Aluminum honeycomb
Rod bolt	Chrome molybdenum steel
Nut	Stainless Steel

Table 2. Description of Nuclear Fuel Materials and so on

Description	Uranium oxide(UO_2, UO_3 and U_3O_8) or Uranium oxides mixed with gadolinia	
Physical State	Solid (Pellet)	
Weight	2 units of pellet storage box assembly(Type A) : 264kg or less 2 units of pellet storage box assembly(Type B) : 200kg or less Type A and Type B are not combined in one package	
Activity	Total	3.75×10^{10} Bq or less
	^{232}U	1.34×10^{8} Bq or less
	^{234}U	2.70×10^{10} Bq or less
	^{235}U	1.87×10^{9} Bq or less
	^{236}U	1.40×10^{8} Bq or less
	^{238}U	8.26×10^{9} Bq or less
	^{99}Tc	1.46×10^{6} Bq or less
Enrichment	5.0wt% or less	
Burn up Rate	Not Applicable	
Total Heat Generation Rate		
Cooling Time		
Impurity Specification of Enriched Uranium	^{232}U	$\leqq$0.0001 μg/gU
	^{234}U	$\leqq10\times10^{3}$ μg/g^{235}U
	^{236}U	$\leqq$250 μg/gU
	^{99}Tc	$\leqq$0.01 μg/gU
	If the ^{236}U measurement result is less than 125 μg/gU, measurements of ^{232}U and ^{99}Tc are not required.	



(Unit: mm)

General View of Type GP-01 Package

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/0833/AF-96

ORIGINAL REGISTRANT(S):

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