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/0208/B(U)F, REVISION 14

REVALIDATION OF JAPANESE COMPETENT AUTHORITY CERTIFICATE J/2045/B(U)F

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 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 - JRC-80Y-20T.

2. Package Description and Authorized Radioactive Contents - as described in Japanese Certificate of Competent Authority J/2045/B(U)F dated October 19, 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, Revision 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. 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. Package is not authorized for transport by air.

6. Marking and Labeling - The package shall bear the marking USA/0208/B(U)F in addition to other required markings and labeling.

7. Expiration Date - This certificate expires on August 31, 2030. Previous editions which have not reached their expiration date may continue to be used.

CERTIFICATE USA/0208/B(U)F, REVISION 14

This certificate is issued in accordance with paragraph(s) 810 and 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 March 3, 2023 petition by Edlow International Company, Washington, DC, and in consideration of other information on file in this Office.

Certified By:

William Quade
Acting Associate Administrator for
Hazardous Materials Safety

August 11, 2025
(DATE)

Revision 14 - Issued to revalidate Japanese Certificate of Approval No. J/2045/B(U)F dated October 19, 2022.

原規規発第 22101911 号
令和 4 年 10 月 19 日

国立研究開発法人日本原子力研究開発機構
理事長　小口　正範　殿

原子力規制委員会

核燃料輸送物設計承認英文証明書について

核燃料物質等の工場又は事業所の外における運搬に係る核燃料輸送物設計承認及び容器承認等に関する申請手続ガイド（令和 2 年 2 月 26 日付け原規規発第 2002264 号）2.4.に基づき、令和 4 年 10 月 13 日付け令 04 原機(科研)016 をもって申請のあった標記の件について、添付のとおり証明します。

IDENTIFICATION MARK
J/2045/B(U)F

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 Japan Atomic Energy Agency, that the package design described herein complies with the design requirements for a package containing Standard silicide type Spent fuel, Follower silicide type Spent Fuel and MNU type Spent Fuel, 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/2045/B(U)F

Oct. / 19 / 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/2045/B(U)F

2. Name of Package : JRC-80Y-20T

3. Type of Package : Type B(U) package for fissile material

4. Specification of Package
   (1) Materials of Packaging
      (i) Body and Lid : Stainless steel
      (ii) Basket : Stainless steel, Boron Carbide
      (iii) Fin(Heat dissipation and shock absorbing) : Stainless steel
   (2) Total Weight of Packaging : 22.8×10^3 kg or less
   (3) Outer Dimensions of Packaging
      (i) Outer Diameter : Approximately 1.9 m
      (ii) Height : Approximately 2.1 m
   (4) Total Weight of Package : 23.2×10^3 kg or less
   (5) Illustration of Package : See the attached Figure-1(Bird's-eye view)

5. Specification of Radioactive Contents : See the attached Table-1

6. Description of Containment System
   Containment system consists of body, lid, vent valve, and drain valve made of stainless steel. Silicone rubber is used for contact surface of the lid, the valves, and valve seat.

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 basket which maintains the fuel elements contained in the package.
   (3) Assumptions of Leakage of Water into Package
   It is assumed in criticality analysis that water will leak into void space of inner shell.
   (4) Special Features in Criticality Assessment
   Not applicable

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

Not applicable (This package is Type B(U))

9. Assumed Ambient Conditions

(i) Ambient Temperature Range : −40°C~38°C

(ii) Insolation Data : Table 12 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 and the crane.

(iii) When packaging is stored outdoors, it should be covered with an appropriate waterproof sheet, avoiding the situation where it is placed directly on the ground.

(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) Leak Inspection

(iii) Lifting Inspection

(iv) Subcriticality Inspection

(v) Heat Transfer Inspection

(vi) Shielding Inspection

(3) Actions prior to Shipment

The following inspections should be performed prior to shipment.

(i) Visual Inspection

(ii) Lifting Inspection

(iii) Weight Measurement Inspection

(iv) Surface Contamination Measurement Inspection

(v) Radiation Dose Rate Measurement Inspection

(vi) Subcriticality Inspection

(vii) Contents Inspection

(viii) Surface Temperature Measurement Inspection

(ix) Leak Inspection

(x) Package Internal Pressure Measurement 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 : Sep 21, 2022

(ii) Expiry Date : Sep 20, 2092

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. (Ministerial ordinance issued by the Prime Minister's Office No. 57 of 1978)

[*2] The Notification on Technical Details for Off-Site Transportation of Nuclear Fuel Materials, etc.(Notice issued by Science and Technology Agency No. 5 of 1990)

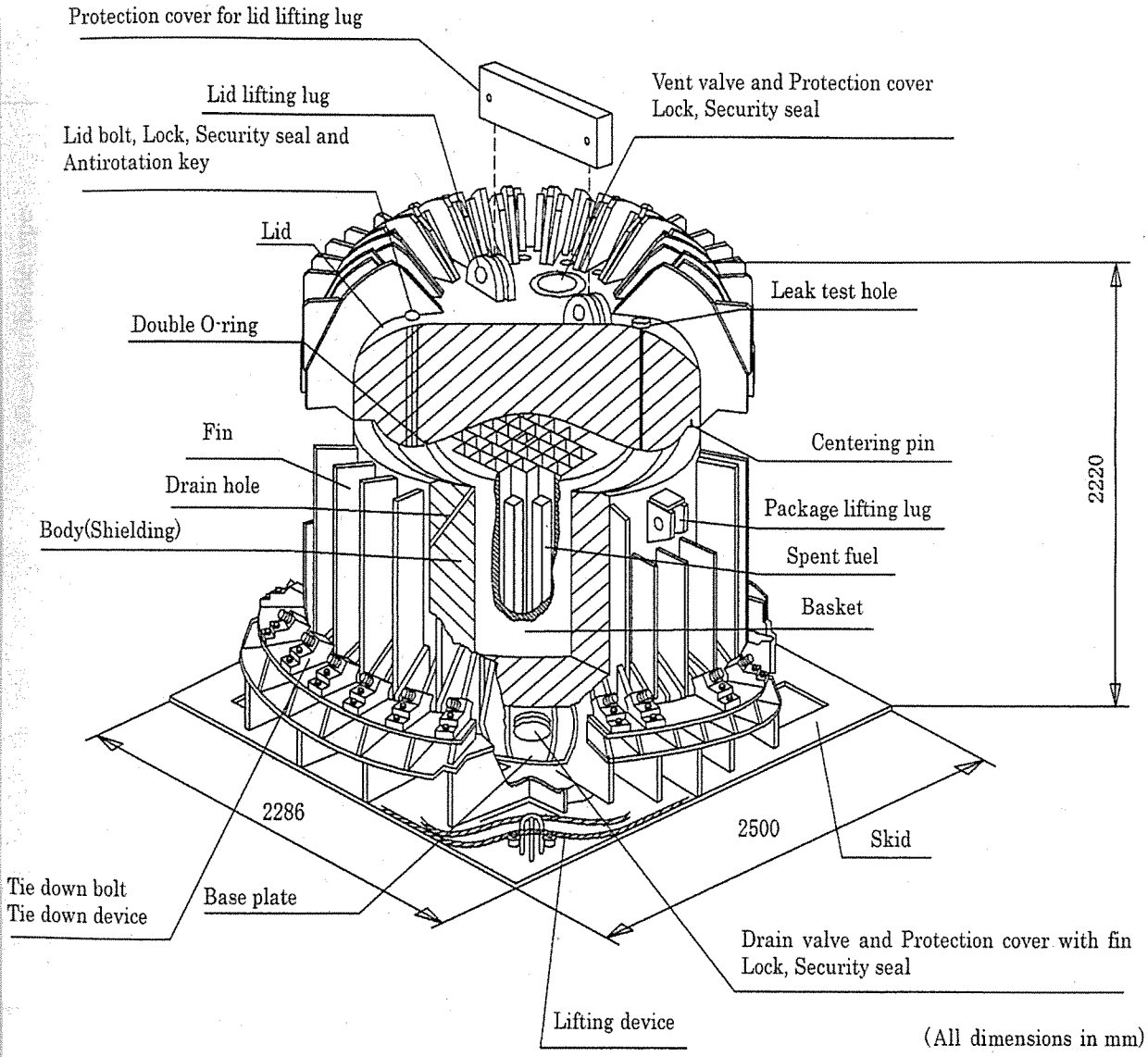

Figure-1 Illustration of JRC-80Y-20T Package

Table- 1 Specification of Radioactive Contents

Fuel Element		Standard silicide type Spent fuel	Follower silicide type Spent Fuel	MNU type Spent Fuel
Number of fuel elements(piece)		40 or less	40 or less	160 or less
Initial enrichment(%) [1]		20 or less	20 or less	0.72
Physical State		Solid		
Material of nuclear fuel		Uranium silicon aluminum dispersion type alloy	Uranium silicon aluminum dispersion type alloy	Metallic natural uranium
U weight(kg/package) [1]		99.24 or less	63.44 or less	1,360 or less
Total mass of 235U(g/piece) [1]		485 or less	310 or less	61.2 or less
Total mass of U(g/piece) [1]		2,481 or less	1,586 or less	8,500 or less
Burnup(%) [2]		60 or less	60 or less	23 or less
Cooling time(day)		600 or more	600 or more	2,190 or more
Decay heat(W/package)		2.24×10^{3} or less	1.43×10^{3} or less	7.24×10^{1} or less
Activity of Contents	Total activity (Bq/package)	2.09×10^{16} or less	1.33×10^{16} or less	9.33×10^{14} or less
	Quantities of major radionuclides (Bq/package)	Ce-144 6.01×10^{15} Pm-147 1.84×10^{15} Cs-137 1.10×10^{15} Sr-90 1.06×10^{15} Y -90 1.06×10^{15}	Ce-144 3.84×10^{15} Pm-147 1.17×10^{15} Cs-137 6.98×10^{14} Sr-90 6.76×10^{14} Y -90 6.76×10^{14}	Cs-137 1.79×10^{14} Pm-147 1.57×10^{14} Sr-90 1.53×10^{14} Y -90 1.53×10^{14} Ce-144 2.24×10^{13}

Note. The fuel elements of Standard silicide type and Follower silicide type can be contained together (except MNU type fuel elements).
The absorbed dose rate to air at a position 1 m away from the surface of the package is 1 Gy/h or more.

1) The value in the nuclear specification shows an upper value which contains fabrication tolerance.

2) Burn up (%) = ((All depletion weight of ^{235}U) ÷ (Initial weight of ^{235}U))×100

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/0208/B(U)F-96

ORIGINAL REGISTRANT(S):

Edlow International Company
1666 Connecticut Ave, N.W.
Suite 201
Washington, DC, 20009
USA

Department of Energy
U.S. Department of Energy
1000 Independence Ave, SW
EM-60
Washington, DC, 20585
USA

Orano TLI
8161 Maple Lawn Boulevard
Suite 480
Fulton, MD, 20759
USA

Japan Atomic Energy Agency
Funaishikawa 76
Tokai-mura
Naka-gun, Ibaraki Prf, 319-1184
JAPAN

TN Americas LLC
Orano TN
7160 Riverwood Drive
Suite 200
Columbia, MD, 21046
USA