



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

400 Seventh Street, S.W.
Washington, D.C. 20590

COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE B(U) F FISSILE
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/0742/B(U)F-96, REVISION 0

REVALIDATION OF JAPANESE COMPETENT AUTHORITY CERTIFICATE J/167/B(U)F-96

This certifies that the radioactive materials package design described is hereby approved for use within the United States for import and export shipments only. Shipments must be made in accordance with the applicable regulations of the International Atomic Energy Agency¹ and United States of America².

1. Package Identification - JRF-90Y-950K.
2. Package Description and Authorized Contents - as described in Japanese Certificate of Approval No. J/167/B(U)F-96 dated November 18, 2005 (attached).
3. Criticality - The minimum criticality safety index is 0.0. There is no limit on the number of packages per conveyance.
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.
 - d. Records of Quality Assurance activities required by Paragraph 209 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 and consignees in the United States exporting or importing shipments under this certificate shall satisfy the requirements of Subpart H of 10 CFR 71.
 - e. 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.

¹ "Regulations for the Safe Transport of Radioactive Materials, 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/0742/B(U)F-96, REVISION 0

5. Special Conditions -

a. For shipments which enter into or transit the United States, all international approvals and revalidations, including Approval of Packaging and Confirmation of Packaging certificates issued by the government of Japan, shall be issued prior to the commencement of transport.

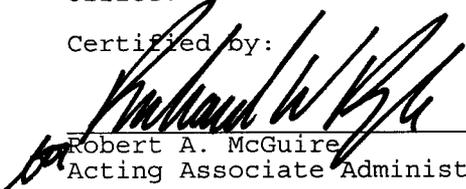
b. The package is not approved for air transport.

6. Marking and Labeling - The package shall bear the marking USA/0742/B(U)F-96 in addition to other required markings and labeling.

8. Expiration Date - This certificate expires on July 20, 2008.

This certificate is issued in accordance with paragraph 814 of the IAEA Regulations and Section 173.472 and 173.473 of Title 49 of the Code of Federal Regulations, in response to the December 08, 2005 petition by Edlow International Company, Washington, DC and in consideration of other information on file in this Office.

Certified by:



Robert A. McGuire
Acting Associate Administrator for Hazardous Materials Safety

MAY 12 2006

(DATE)

Revision 0 - New certificate issued to revalidate Japanese Certificate of Approval No. J/167/B(U)F-96 dated November 18, 2005.

IDENTIFICATION MARK

J/167/B(U)F-96

**COMPETENT AUTHORITY
OF
JAPAN**

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

ISSUED BY MINISTRY OF EDUCATION, CULTURE,
SPORTS, SCIENCE AND TECHNOLOGY
2-5-1 MARUNOUCHI, CHIYODA-KU, TOKYO, JAPAN

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

This is to certify, in response to the application by National University Corporation Tokyo Institute of Technology on April 15, 2005, that the package design described herein satisfies the design requirements of type B(U)F specified in "Regulations for the Safe Transport of Radioactive Material (International Atomic Energy Agency, Safety Series No.TS-R-1 1996 Edition(As Amended 2003))" and the Japanese rules based on the Law on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.

COMPETENT AUTHORITY

IDENTIFICATION MARK: J/167/B (U) F-96

November 18, 2005
Date for

Tsuyoshi Maruyama
Tsuyoshi Maruyama

Director General,
Science and Technology Policy Bureau,
Ministry of Education, Culture,
Sports, Science and Technology.
Competent Authority of Japan for
Package Designs of Radioactive Materials

1. NAME OF PACKAGE : JRF-90Y-950K
(IDENTIFICATION MARK: J/167/B (U) F-96)
2. SPECIFICATION OF CONTENTS
- (1) Description of Contents
- 1) Physical State : See Table 1
 - 2) Uranium-235 Enrichment : See Table 1
- (2) Qualitative Restrictions on Contents
- 1) Gross Weight of Uranium : See Table 1
 - 2) Gross Weight of Contents : See Table 1
 - 3) Total Activity of Contents : See Table 1
 - 4) Burn up Rate : See Table 1
 - 5) Total Heat Generation Rate : See Table 1
 - 6) Cooling Time : See Table 1
 - 7) Number of Fuel Elements : See Table 1
3. SPECIFICATION OF PACKAGE
- (1) Total Weight of Package : 950 kg or less
- (2) Outside Dimension of Packaging
- 1) Diameter : Approx. 840 mm
 - 2) Height : Approx. 1,800 mm
- (3) Materials of Packaging
- 1) Main body : Stainless Steel, Balsa Wood
 - 2) Outer Lid : Stainless Steel
 - 3) Inner Lid : Stainless Steel
 - 4) Fuel Basket : Stainless Steel
- (4) Package Illustration : See Figure. 1
4. RESTRICTIONS ON TRANSPORT
- 1) Number of Packages : No restriction
 - 2) Package Arrangement : No restriction
 - 3) Criticality Safety Index : 0

5. SPECIAL FEATURES ASSUMED IN THE CRITICALITY ASSESSMENT

: Not applicable

No special features, because the subcriticality calculation is evaluated upon the assumption that the inner shell is in immersion condition by water under the normal conditions and the accident conditions in transport.

6. RESTRICTIONS ON THE MODES OF TRANSPORT

It is not confirmed that the design of package satisfies the additional requirements for packages transported by air.

7. INSTRUCTIONS ON USE AND MAINTENANCE OF PACKAGING

The packaging shall be handled with care in accordance with the operating manual. In order to ensure the integrity of packaging, the following inspection shall be performed at least once a year (In case frequency of transport exceeds 10 times a year, the inspections shall be done at least once per every 10 times.).

- (1) Visual Appearance Inspection
- (2) Pressure Durability Inspection
- (3) Maintenance of O-ring Used for Containment System
- (4) Leakage Rate Measurement Inspection
- (5) Subcriticality Inspection

8. ACTION PRIOR TO SHIPMENT

Each package shall be inspected for the following items prior to each shipment.

- (1) Visual Appearance Inspection
- (2) Lifting Inspection
- (3) Weight Measurement Inspection
- (4) Surface Contamination Measurement Inspection
- (5) Radiation Dose Rate Measurement Inspection
- (6) Subcriticality Inspection
- (7) Contents Specification Check Inspection
- (8) Leakage Rate Measurement Inspection

9. PRECAUTIONS FOR LOADING OF PACKAGES FOR TRANSPORT

Loading of the packages shall be performed such that the package will not move, roll down or fall down during transport.

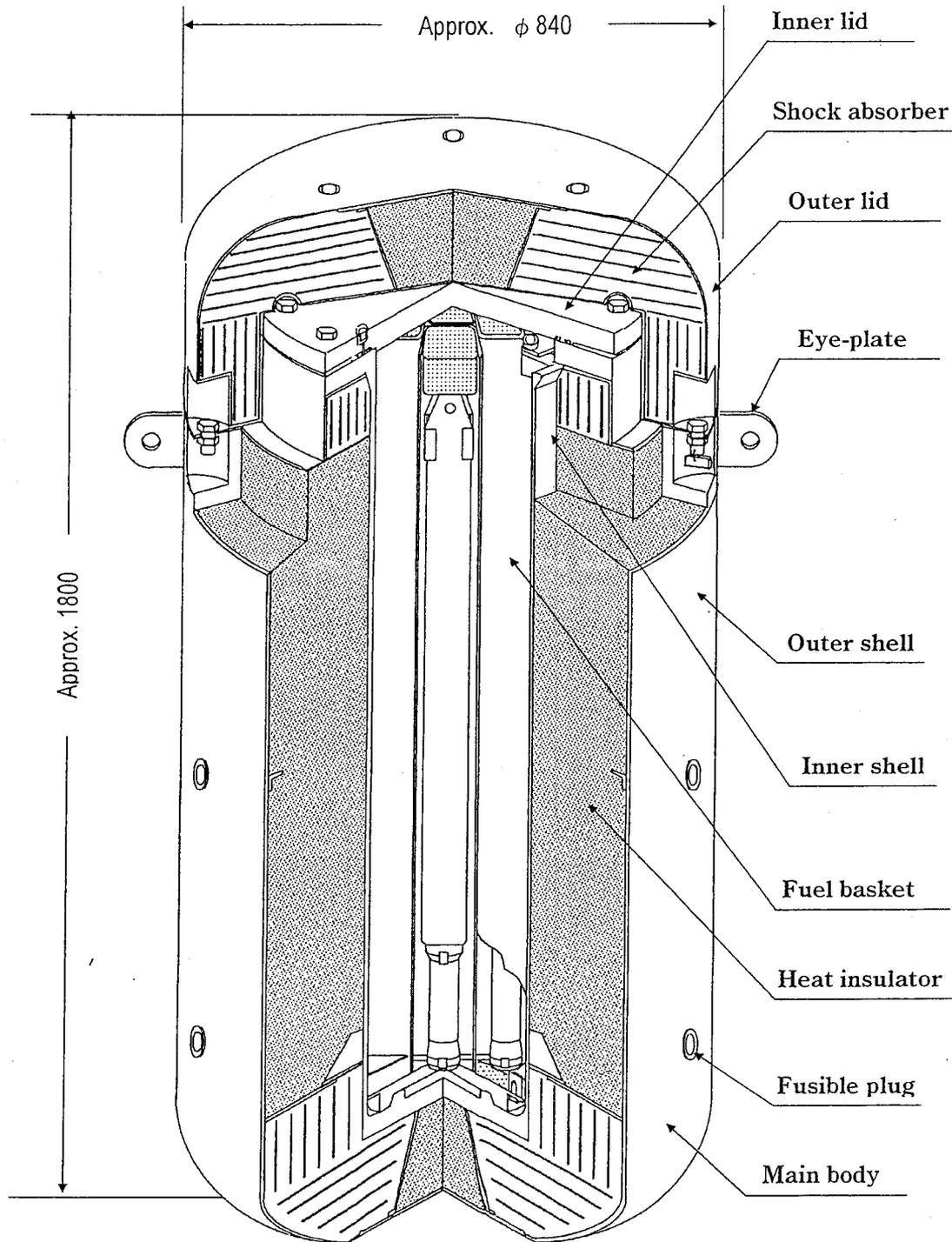
10. THE ISSUE DATE AND AN EXPIRY DATE OF CERTIFICATE

(1) ISSUE DATE: July 21, 2005

(2) EXPIRY DATE: July 20, 2008

11. NOTE

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.



Unit: mm

Fig.1 Package Illustration

Table 1 Specification of Contents

Item	Fuel type		Type 1-1 (Fresh fuel)		Type 1-2 (Equivalent of fresh fuel)	Type 2 (Lowly irradiated fuel)		
	LEU fuel	MEU fuel	HEU fuel	HEU fuel	LEU fuel	MEU fuel	HEU fuel	
Kind	Uranium-Silicon Aluminum dispersion alloy or Uranium-Aluminum dispersion alloy	Uranium-Aluminum dispersion alloy	Uranium-Aluminum alloy	Uranium-Aluminum alloy	Uranium-Aluminum alloy	Uranium-Aluminum dispersion alloy	Uranium-Aluminum alloy	
Gross Weight of Uranium (kg-U/Package)	24.81 or less	7.28 or less	1.83 or less	1.83 or less	8.20 or less	7.21 or less	3.18 or less	
Gross Weight of Contents(kg/Element)	9.2 or less	7.6 or less	6.3 or less	6.3 or less	9.1 or less	8.3 or less	8.3 or less	
Total Activity of Contents (GBq/ Package)	29.8 or less		29.8 or less		17.3 or less		17.3 or less	
Main nuclide (GBq / Package)	²³⁴ U : 28.6 or less ²³⁵ U : 0.38 or less ²³⁶ U : 0.59 or less ²³⁸ U : 0.24 or less		²³⁴ U : 16.2 or less ²³⁵ U : 0.25 or less ²³⁶ U : 0.29 or less ²³⁸ U : 0.05 or less		The other nuclide : 0.52 or less		The other nuclide : 0.52 or less	
physical state	Solid							
U-235 Enrichment (wt%)	19.95 or less	46 or less	93.3 or less	93.3 or less	19.90 or less	46.0 or less	90.0 or less	
Burnup (%)	-		-		-		1.76 × 10 ⁻⁵ or less	7.23 × 10 ⁻⁵ or less
Total Heat Generation (W/Package)	-		-		-		3.29 × 10 ⁻⁵ or less	4.30 × 10 ⁻⁵ or less
Cooling Time (Day)	-		-		-		1460 or more	5475 or more
Number of Fuel Elements (Element/Package)	10 or less							