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

East Building, PHH-23
1200 New Jersey Avenue Southeast
Washington, D.C. 20590

COMPETENT AUTHORITY CERTIFICATION FOR A TYPE B(U)F FISSILE RADIOACTIVE MATERIALS PACKAGE DESIGN CERTIFICATE USA/0452/B(U)F-96, REVISION 13

REVALIDATION OF JAPANESE COMPETENT AUTHORITY CERTIFICATE J/119/B(U)F-96

This certifies that the radioactive material 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 Agency[1] and the United States of America[2].

1. Package Identification - JRF-90Y-950K.

2. Package Description and Authorized Radioactive Contents - as described in Japan Certificate of Competent Authority J/119/B(U)F-96, Revision 1 (attached).

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

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[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/0452/B(U)F-96, REVISION 13

d. Records of Quality Assurance activities required by Paragraph 310 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. 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.

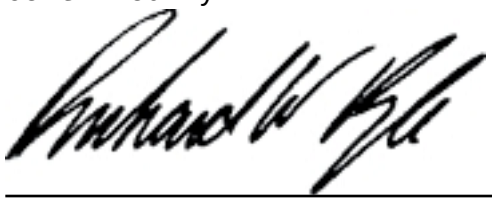
b. The package is not to be transported by air.

6. Marking and Labeling - The package shall bear the marking USA/0452/B(U)F-96 in addition to other required markings and labeling.

7. Expiration Date - This certificate expires on August 20, 2017.

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 February 08, 2013 petition by Transport Logistics International, Fulton, MD, and in consideration of other information on file in this Office.

Certified By:



Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

Mar 04 2013
(DATE)

Revision 13 - issued to endorse Japanese Certificate of Competent Authority No. J/119/B(U)F-96 (Rev. 1), dated September 6, 2012.

IDENTIFICATION MARK
J/119/B(U)F-96 (Rev. 1)

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
3-2-2 KASUMIGASEKI, 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 (including Safety Analysis Report for J/119/B(U)F-96(Rev.1)) by Japan Atomic Energy Agency on July 31,2012, that the package design described herein satisfies the design requirements of type B(U) fissile package, specified in the 2009 Edition of the Regulations for the Safe Transport of Radioactive Material (International Atomic Energy Agency, Safety Standards Series No. TS-R-1) 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/119/B(U)F-96 (Rev. 1)

September 6, 2012 — 中矢隆夫 Nakaya Takao

Date — for Tsuchiya Sadayuki

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

1. The Competent Authority Identification Mark : J/119/B(U)F-96 (Rev. 1)

2. Name of Package : JRF-90Y-950K

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

4. Specification of Package
   (1) Materials of Packaging : See the attached Table-1
   (2) Total Weight of Packaging : 860 kg or less
   (3) Outer Dimensions of Packaging
      (i) Outer Diameter : Approximately 840 mm
      (ii) Height : Approximately 1800 mm
   (4) Total Weight of Package : 950 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-2, Table-3

6. Description of Containment System

   Containment system consists of the main body and the inner lid made of the stainless steel. Silicone rubber is used for contact surface of lid.

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 spaces of inner packaging.
   (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

   No application. (This package is Type B(U))

9. Assumed Ambient Conditions

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

(ii) Insolation Data : Table XIII 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.

a) Visual Appearance Inspection b) Pressure Durability Inspection

c) Maintenance of O-ring Used for Containment System

d) Leakage Rate Measurement Inspection e) Subcriticality Inspection

(3) Action prior to Shipment

The following inspections should be performed prior to shipment.

(i) Visual Appearance Inspection (ii) Lifting Inspection

(iii) Weight Measurement Inspection (iv) Surface Contamination Measurement Inspection

(v) Radiation Dose Rate Inspection (vi) Subcriticality Inspection

(vii) Contents Specification Check Inspection (viii) Leakage Rate 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 move, roll down or fall down from the loading position during transport.

11. Issue Date and Expiry Date

(i) Issue Date : Aug. 21, 2012

(ii) Expiry Date : Aug. 20, 2017

12. Note

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

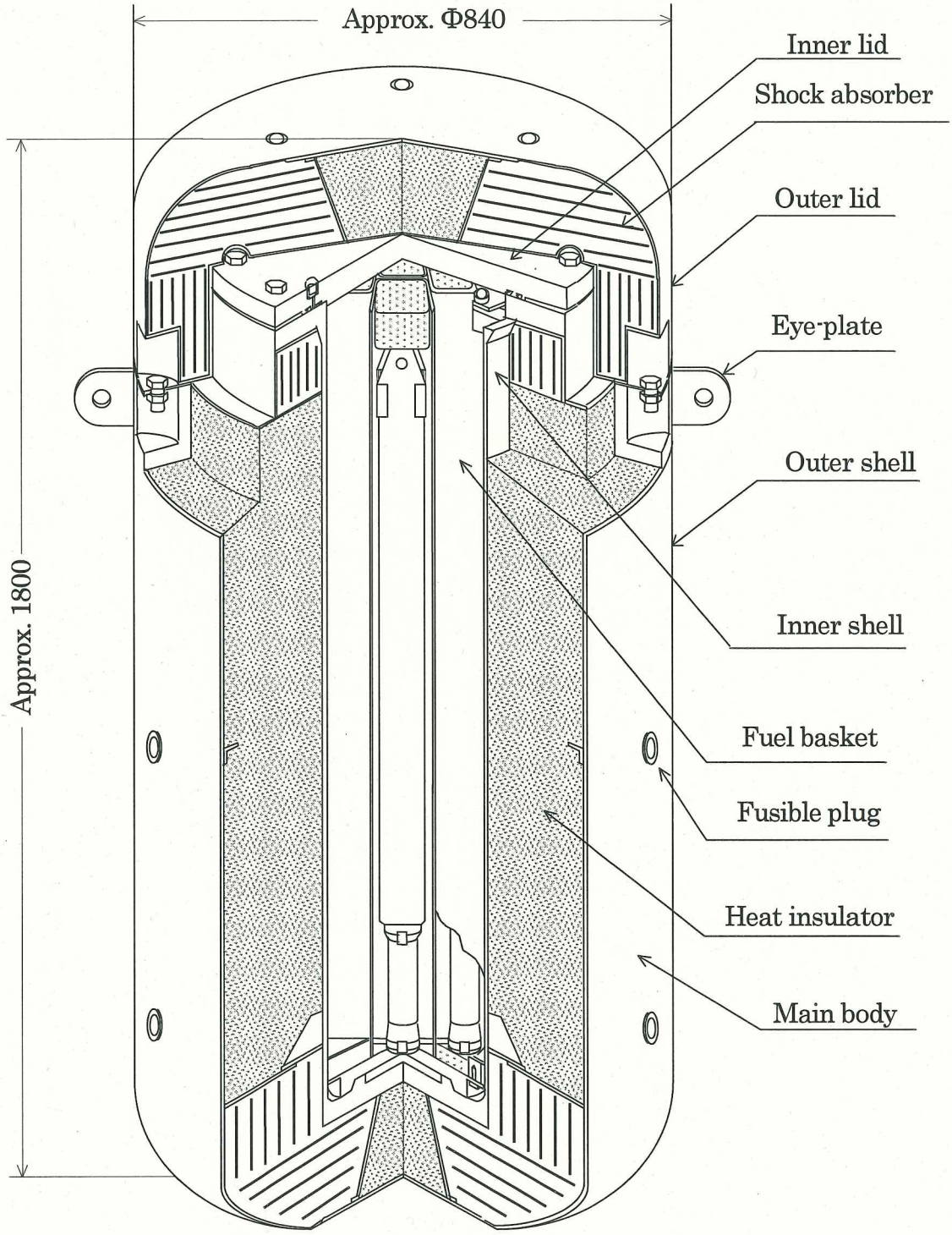


Figure-1 Illustration of Package

Table-1 Materials of Packaging

Part		Material
Main Body	Outer shell	Stainless steel
	Inner shell	Stainless steel
	Eye Plate	Stainless steel
	Boss	Stainless steel
	Heat insulator	Hard polyurethane foam
	Shock absorber	Balsa wood
	O-ring	Silicone rubber
	Fusible plug	Solder, Stainless steel
	Gasket	Ethylene propylene rubber
Inner Lid	Inner Lid	Stainless steel
Fuel basket	Rectangular pipe	Stainless steel
	Upper flange	Stainless steel
	Lower flange	Stainless steel
	Cushion rubber	Silicon rubber
Outer Lid	Outer cover plate	Stainless steel
	Inner cover plate	Stainless steel
	Heat insulator	Hard polyurethane foam
	Shock absorber	Balsa wood
	Fusible plug	Solder, Stainless steel

Table-2 Specification of contents(Fresh Fuel Element)

Fuel Basket Type		Box							
Type	Reactor	JRR－3		JRR－4			JMTR		
	Fuel Element	JRR－3 Standard	JRR－3 Follower	JRR－4 B	JRR－4 L	JRR－4	JMTR Standard		JMTR Follower
Gross Weight of Contents (kg-U/Package)		24.81 or less	15.86 or less	1.83 or less	11.77 or less	10.75 or less	7.28 or less	21.74 or less	14.33 or less
Total Activity of Contents (GBq/ Package)		29.8 or less							
Physical State	Materials of Nuclear Fuel	Uranium Silicon Aluminum Dispersion Alloy		Uranium Aluminum Alloy	Uranium Aluminum Dispersion Alloy	Uranium Silicon Aluminum Dispersion Alloy	Uranium Aluminum Dispersion Alloy	Uranium Silicon Aluminum Dispersion Alloy	
	Clad	Aluminum Alloy							
	Side Plate, etc.	Aluminum Alloy							
	Burnable Absorber	Cadmium Wire		—				Cadmium Wire	
U-235 Enrichment (wt%)		19.95 or less		93.3 or less	19.95 or less		46.0 or less	19.95 or less	
Burnup (%)		0 (Fresh Fuel)							
Total Heat Generation (W/Package)		0 (Fresh Fuel)							
Cooling Time (Day)		0 (Fresh Fuel)							
Gross Weight of Contents (kg/Element)		9.2	6.0	6.3	7.9	6.5	7.6	8.4	5.8
Number of Fuel Elements (Element/Package)		10 or less							

Table-3 Specification of contents(Low Irradiated Fuel Element)

Fuel Basket Type		Box						
Type	Reactor	JMTRC						
	Fuel Element	JMTRC Standard	JMTRC Special		JMTRC Follower	JMTRC Standard	JMTRC Special	JMTRC Follower
Gross Weight of Contents (kg-U/Package)		3.18 or less			2.22 or less	7.21 or less	6.50 or less	4.78 or less
Total Activity of Contents (GBq/ Package)		17.3 or less						
Physical State	Materials of Nuclear Fuel	Uranium Aluminum Alloy				Uranium Aluminum Dispersion Alloy		
	Clad	Aluminum Alloy						
	Side Plate, etc.	Aluminum Alloy						
U-235 Enrichment (wt%)		90.0 or less				46.0 or less		
Burnup (%)		7.23×10^{-5} or less				1.76×10^{-5} or less		
Total Heat Generation (W/Package)		4.30×10^{-5} or less						
Cooling Time (Day)		5475 or more				1460 or more		
Gross Weight of Contents (kg/Element)		6.3	8.0	4.6	8.3	4.1	6.7	8.3	4.4
Number of Fuel Elements (Element/Package)		10 or less						

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1200 New Jersey Avenue SE
Washington, D.C. 20590**

CERTIFICATE NUMBER: USA/0452/B(U)F-96, Revision 13

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