U.S. Department
of Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

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

**COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE B(U)F FISSILE
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/0401/B(U)F-96, REVISION 12**

**REVALIDATION OF JAPANESE COMPETENT AUTHORITY
CERTIFICATE J/111/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 - JMS-87Y-18.5T.

2. Package Description and Authorized Radioactive Contents - as described in Japan Certificate of Competent Authority J/111/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.

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. In accordance with the attached Japanese Certificate of Competent Authority, the package is not to be transported by air.

b. Maximum decay heat per package is 1.5 kilowatts.

c. Known or suspected failed fuel assemblies and fuel with cladding defects greater than pin holes and hairline cracks are not authorized.

d. Neutron poison plates in the fuel basket must be constructed in accordance with JAERI document entitled "JMS-87Y-18.5T Package Information" dated June 11, 2003.

e. 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.

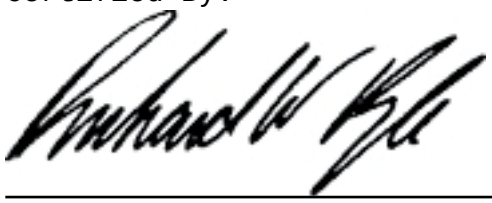
6. Marking and Labeling - The package shall bear the marking USA/0401/B(U)F-96 in addition to other required markings and labeling.

7. Expiration Date - This certificate expires on January 25, 2014.

CERTIFICATE USA/0401/B(U)F-96, REVISION 12

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 March 10, 2009 petition by Secured Transport Services, Sugar Hill, GA, and in consideration of other information on file in this Office.

Certified By:



Robert A. Richard
Deputy Associate Administrator for Hazardous Materials Safety

Mar 23 2009
(DATE)

Revision 12 - issued to endorse Japanese Certificate of Competent Authority No. J/111/B(U)F-96 (Rev.1) dated February 20, 2009.

IDENTIFICATION MARK
J/111/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/111/B(U)F-96(Rev.1)) by Japan Atomic Energy Agency on January 16, 2009, that the package design described herein satisfies the design requirements of type B(U) fissile package, specified in the 2005 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/111/B(U)F-96(Rev.1)

February. 20. 2009
Date

for Kunimi Yoshida
Shinichiro Izumi

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/111/B(U)F-96(Rev.1)

2. Name of Package : JMS-87Y-18.5T

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 : 18440 kg or less
   (3) Outside Dimensions of Packaging
      (i) Outer Diameter : Approximately 1.9 m
      (ii) Height : Approximately 2.0 m
   (4) Total Weight of Package : 18440 kg or less
   (5) Illustration of Package : See the attached Figure 1

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

6. Description of Containment System

Containment system consists of the body, the lid, the vent valve and the drain valve made of the stainless steel.

Silicone rubber is used for contact surface of lid, 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 spaces of inner packaging.

   (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

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

9. Assumed Ambient Condition

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

(ii) Insolation Data : Table XI 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) Inspection 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) Leakage Rate Measurement Inspection
d) Maintenance of O-ring, Valve, etc. Used for Containment System
e) Shielding Inspection
f) Subcriticality Inspection
g) Heat Transfer Inspection
h) Lifting 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) Surface Temperature Inspection
(ix) Leakage Rate Measurement Inspection
(x) Pressure 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 : Jan. 26, 2009

(ii) Expiry Date : Jan. 25, 2014

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.

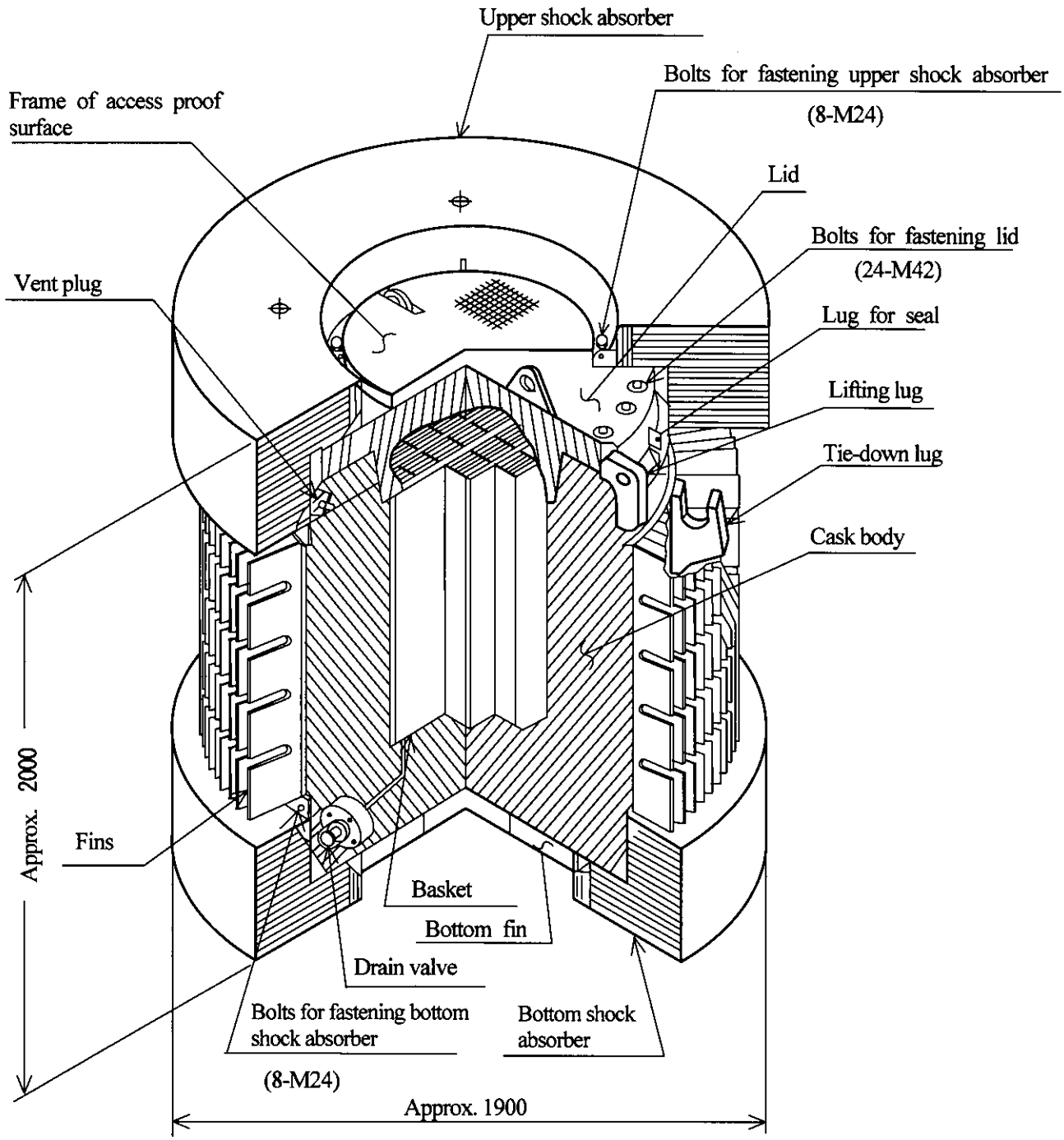


Figure 1 Illustration of JMS-87Y-18.5T Package (Unit : mm)

Table-1 Materials of Packaging

Part		Material
Body	Body and bottom	Stainless steel
	Fin	Stainless steel
	Lifting lug	Stainless steel
	Tie down lug	Stainless steel
Vent plug	Body of vent plug	Stainless steel
	O-ring	Silicon rubber
	Cover of vent plug	Stainless steel
	Bolts for fastening cover plate	Stainless steel
Drain Valve	Valve body	Stainless steel
	Valve head and bellows	Stainless steel
	O-ring	Silicon rubber
	Sheet gasket	Silicon rubber
	Plugs	Stainless steel
	Fastening bolts for drain valve	Stainless steel
	Cover of drain valve	Stainless steel
	Bolts for fastening cover of drain valve	Stainless steel
Lid	Lid plate	Stainless steel
	O-ring	Silicon rubber
	Lifting lug of lid	Stainless steel
Upper and bottom shock absorber	Cover plating material	Stainless steel
	Frame of access proof surface	Stainless steel
	Fusible plug	Stainless steel Lead alloy
	Bolts for fastening	Stainless steel
	Bottom fin	Stainless steel
	Absorber	Wood (Fir-plywood)
Basket	Frame	Stainless steel
	Neutron absorber	Boral plate
	Parting plate	Stainless steel
	Dividing plate	Stainless steel

Table-2 Specification of contents(1/2)

Type		Reactor	JMTR		JMTR		JMTR			
		Spent Fuel Elements	High Enriched Uranium Fuels (HEU)		Medium Enriched Uranium Fuels (MEU)		Low Enriched Uranium Fuels (LEU)			
			JMTR Standard Fuel Elements (HEU)	JMTR Fuel Followers (HEU)	JMTR Standard Fuel Elements (MEU)	JMTR Fuel Followers (MEU)	JMTR Standard Fuel Elements (LEU)	JMTR Fuel Followers (LEU)		
Number of Spent Fuel Elements (element/package)			Less than or equal to 30		Less than or equal to 30		Less than or equal to 30			
^{235}U Initial Enrichment (wt%)			Less than or equal to 93.3		Less than or equal to 46.0		Less than or equal to 19.95			
Initial Gross Weight of ^{235}U (g/element)			Less than or equal to 284.3	Less than or equal to 198.4	Less than or equal to 315.6	Less than or equal to 208.7	Less than or equal to 450	Less than or equal to 302		
Initial Gross Weight of U (g/element)			Less than or equal to 307	Less than or equal to 214	Less than or equal to 719	Less than or equal to 475	Less than or equal to 2338	Less than or equal to 1569		
Material	Fuel Core		Uranium-Aluminum Alloy		Uranium-Aluminum Dispersion Alloy		Uranium-Silicon-Aluminum Dispersion Alloy			
	Cladding		Aluminum Alloy		Aluminum Alloy		Aluminum Alloy			
	Side Plate		Aluminum Alloy		Aluminum Alloy		Aluminum Alloy			
Burn-up (%)			Less than or equal to 40		Less than or equal to 40		Less than or equal to 50	Less than or equal to 60	Less than or equal to 50	Less than or equal to 60
Cooling Time (days)			More than or equal to 360		More than or equal to 360		More than or equal to 420	More than or equal to 540	More than or equal to 420	More than or equal to 540
Total Activity of Contents (TBq/30 elements)			1.65×10^4	1.16×10^4	1.78×10^4	1.18×10^4	2.43×10^4	2.12×10^4	1.63×10^4	1.43×10^4
Total Heat Generation Rate (kW/30 elements)			1.83	1.29	1.98	1.32	2.80	2.40	1.88	1.61

Table-2 Specification of contents(2/2)

Type		Reactor	JRR-3		JMTR			
		Spent Fuel Elements	Low Enriched Uranium Fuels (LEU)		Mixed-loading of MEU and LEU*			
			JRR-3 Standard-type Fuel Elements (LEU)	JRR-3 Follower-type Fuel Elements (LEU)	JMTR Standard Fuel Elements (MEU)	JMTR Fuel Followers (MEU)	JMTR Standard Fuel Elements (LEU)	JMTR Fuel Followers (LEU)
Number of Spent Fuel Elements (element/package)			Less than or equal to 30		Less than or equal to 30			
^{235}U Initial Enrichment (wt%)			Less than or equal to 19.95		Less than or equal to 46.0		Less than or equal to 19.95	
Initial Gross Weight of ^{235}U (g/element)			Less than or equal to 315	Less than or equal to 205	Less than or equal to 315.6	Less than or equal to 208.7	Less than or equal to 450	Less than or equal to 302
Initial Gross Weight of U (g/element)			Less than or equal to 1612	Less than or equal to 1049	Less than or equal to 719	Less than or equal to 475	Less than or equal to 2338	Less than or equal to 1569
Material	Fuel Core		Uranium-Aluminum Dispersion Alloy		Uranium-Aluminum Dispersion Alloy		Uranium-Silicon-Aluminum Dispersion Alloy	
	Cladding		Aluminum Alloy		Aluminum Alloy		Aluminum Alloy	
	Side Plate		Aluminum Alloy		Aluminum Alloy		Aluminum Alloy	
Burn-up (%)			Less than or equal to 50		Less than or equal to 40		Less than or equal to 50	Less than or equal to 60
Cooling Time (days)			More than or equal to 360		More than or equal to 360		More than or equal to 420	More than or equal to 540
Total Activity of Contents (TBq/30 elements)			1.76×10^4	1.11×10^4	1.78×10^4	1.18×10^4	2.43×10^4	2.12×10^4
Total Heat Generation Rate (kW/30 elements)			1.94	1.23	1.98	1.32	2.80	2.40

Type		Reactor	JMTR	
		Spent Fuel Elements	Mixed-loading of MEU and LEU*	
			JMTR Standard Fuel Elements (LEU)	JMTR Fuel Followers (LEU)
Number of Spent Fuel Elements (element/package)			Less than or equal to 30	
^{235}U Initial Enrichment (wt%)			Less than or equal to 19.95	
Initial Gross Weight of ^{235}U (g/element)			Less than or equal to 450	Less than or equal to 302
Initial Gross Weight of U (g/element)			Less than or equal to 2338	Less than or equal to 1569
Material	Fuel Core		Uranium-Silicon-Aluminum Dispersion Alloy	
	Cladding		Aluminum Alloy	
	Side Plate		Aluminum Alloy	
Burn-up (%)			Less than or equal to 50	Less than or equal to 60
Cooling Time (days)			More than or equal to 420	More than or equal to 540
Total Activity of Contents (TBq/30 elements)			2.43×10^4	2.12×10^4
Total Heat Generation Rate (kW/30 elements)			2.80	2.40

Type		Reactor	JMTR	
		Spent Fuel Elements	Mixed-loading of MEU and LEU*	
			JMTR Standard Fuel Elements (LEU)	JMTR Fuel Followers (LEU)
Number of Spent Fuel Elements (element/package)			Less than or equal to 30	
^{235}U Initial Enrichment (wt%)			Less than or equal to 19.95	
Initial Gross Weight of ^{235}U (g/element)			Less than or equal to 450	Less than or equal to 302
Initial Gross Weight of U (g/element)			Less than or equal to 2338	Less than or equal to 1569
Material	Fuel Core		Uranium-Silicon-Aluminum Dispersion Alloy	
	Cladding		Aluminum Alloy	
	Side Plate		Aluminum Alloy	
Burn-up (%)			Less than or equal to 50	Less than or equal to 60
Cooling Time (days)			More than or equal to 420	More than or equal to 540
Total Activity of Contents (TBq/30 elements)			1.63×10^4	1.43×10^4
Total Heat Generation Rate (kW/30 elements)			1.88	1.61

* Among the case of loading all kinds of uranium fuels, containing 30 JMTR standard fuel elements (LEU) is considered the most limiting case in terms of critical analysis. Therefore, mixed loading of medium enriched uranium fuels (MEU) and low enriched uranium fuels (LEU) does not exceed the requirements for 30 JMTR fuel elements (LEU).

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

CERTIFICATE NUMBER: USA/0401/B(U)F-96, Revision 12

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