



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 FISSILE  
RADIOACTIVE MATERIALS PACKAGE DESIGN  
CERTIFICATE USA/0828/AF-96, REVISION 0**

**REVALIDATION OF JAPANESE COMPETENT AUTHORITY  
CERTIFICATE J/2027/AF-96**

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<sup>1</sup> and the United States of America<sup>2</sup>. 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 - RAJ-IIIS.
2. Package Description and Authorized Radioactive Contents - as described in Japanese Certificate of Competent Authority J/2027/AF-96, dated April 12, 2019 (attached).
3. Criticality - The minimum criticality safety index is 0.25. 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

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<sup>1</sup> "Regulations for the Safe Transport of Radioactive Material, 2012 Edition, No. SSR-6" published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

<sup>2</sup> Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

**CERTIFICATE USA/0828/AF-96, REVISION 0**

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<sup>1</sup> 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 is not authorized.
- b. Lid lifting fixtures must be rendered incapable of being used for package lifting and tie-down during transport.
- c. Package closure bolts must be adequately secured and torqued to prevent loosening during transport. Minimum and maximum torque values should be included in package operating procedures.

6. Marking and Labeling - The package shall bear the marking USA/0828/AF-96 in addition to other required markings and labeling.

7. Expiration Date - This certificate expires on March 27, 2024.

**CERTIFICATE USA/0828/AF-96, REVISION 0**


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 June 19, 2019 petition by Transport Logistics International (DAHER - TLI), Fulton, MD, and in consideration of other information on file in this Office.

Certified By:

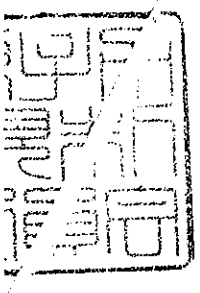


October 05, 2020

(DATE)

 William Schoonover  
Associate Administrator for Hazardous  
Materials Safety

Revision 0 - Issued to revalidate Japanese Certificate of Approval  
No. J/2027/AF-96, dated April 12, 2019.



IDENTIFICATION MARK  
J/2027/AF-96

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 Global Nuclear Fuel-Japan Co., that the package design described herein complies with the design requirements for a package containing Non Irradiated Nuclear Fuel Rod (Uranium Dioxide), specified in the 2012 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/2027/AF-96

2019.4.12  
Date

K. Hasegawa  
Kiyomitsu Hasegawa

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/ 2027 /AF-96

2. Name of Package : Type RAJ-IIIS

3. Type of Package : Type A Fissile Package

4. Specification of Package

- |                                   |   |
|-----------------------------------|---|
| (1) Main Material of Packaging    | : See the attached Table-1                  |
| (2) Total Weight of Packaging     | : Approximately 920kg                       |
| (3) Outer Dimensions of Packaging |   |
| (i) Length                        | : Approximately 507cm                       |
| (ii) Width                        | : Approximately 73cm                        |
| (iii) Height                      | : Approximately 74cm                        |
| (4) Total Weight of Package       | : 1,490kg or less                           |
| (5) Illustration of Package       | : See the attached Figure (Bird's-eye view) |

Refer to the following drawings for more details.

Title: Fig. (A)C-3 Structure of Outer Container (RAJ-IIIS)

Title: Fig. (A)C-2 Structure of Inner Container (RAJ-IIIS)

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

6. Description of Containment System

There are no component parts as the containment system in this packaging,  
and the containment boundary consists of cladding tube and end plugs of fuel rod.

7. For Package containing Fissile Materials

- |                                      |                  |
|--------------------------------------|------------------|
| (1) Restrictions on Package          |                  |
| (i) Restriction Number "N"           | : 200            |
| (ii) Array of Package                | : No Restriction |
| (iii) Criticality Safety Index (CSI) | : 0.25           |

(2) Description of Confinement System

No equipment corresponds to confinement system for criticality.

(3) Assumptions of Leakage of Water into Package

The criticality calculation takes the event of water leaking into packaging into account.

(4) Special Features in Criticality Assessment

The criticality calculation is evaluated upon assumption that the whole portion of outer and inner container is in immersion condition by water except fuel rods as the containment boundary under the normal conditions and accident conditions in transport.

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°C ~ 38°C
- (ii) Insolation Data : Table 12 of IAEA Regulation (No.SSR-6).

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, 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) Subcriticality Inspection

(3) Actions prior to Shipment

The following inspections should be performed prior to shipment.

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

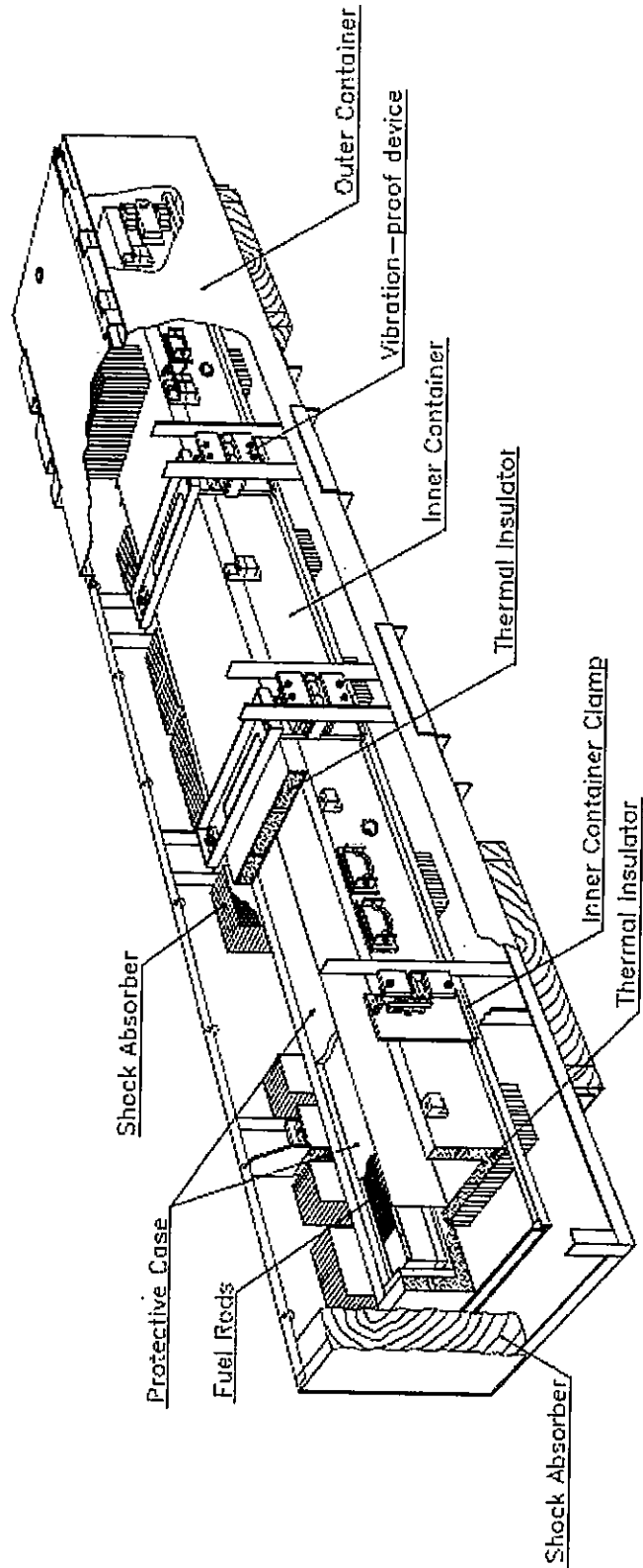
(4) Precautions for Loading of package for Shipment

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

- (1) Issue Date : March 28, 2019
- (2) Expiry Date : March 27, 2024





Attached Figure Overall View of Type RAJ-IIIS Package

Attached Table-1 Description of Main Materials in Packaging Assembly

	Portion of Packaging Assembly	Materials and so on
Inner Container	Outer Shell	Stainless Steel (SUS 304; ASTM 304/304L)
	Inner wall	
	Thermal Insulator	Alumina Silicate
	Gaskets	Natural Rubber
Outer Container	Outer Shell	Stainless Steel (SUS 304; ASTM 304/304L)
	Angle	
	Shock Absorber	Balsa and Paper Honeycomb
	Gaskets	Natural Rubber

Attached Table-2 Description of Nuclear Fuel Materials and so on.

Description	Non Irradiated Nuclear Fuel Rod (Uranium Dioxide)	
Property	Solid (Pellet)	
Weight	Contents	Maximum 570 kg Protective Case [Maximum 130 pieces of 90400.46.00.000 non Irradiated Nuclear Fuel Rods are installed by one Protective Case] Maximum 2 units of Protective Cases are installed by one packaging
	UO <sub>2</sub>	Maximum 216 kg
	U	Maximum 191 kg
Activity	Total Activity	Maximum 26 GBq
	<sup>232</sup> U	Maximum 1.58×10 <sup>-2</sup> GBq
	<sup>234</sup> U	Maximum 2.21×10 <sup>1</sup> GBq
	<sup>235</sup> U	Maximum 7.64×10 <sup>-1</sup> GBq
	<sup>236</sup> U	Maximum 1.15×10 <sup>-1</sup> GBq
<sup>238</sup> U	Maximum 2.26×10 <sup>0</sup> GBq	
Enrichment	Maximum 5.0 wt%	
Burn up Rate	Not Applicable	
Total Heat Generation Rate		
Cooling Time		
Impurity Specification of Enriched Uranium	<sup>232</sup> U	≤ 0.0001 μg/gU
	<sup>234</sup> U	≤ 10,000 μg/g <sup>235</sup> U
	<sup>236</sup> U	≤ 250 μg/gU

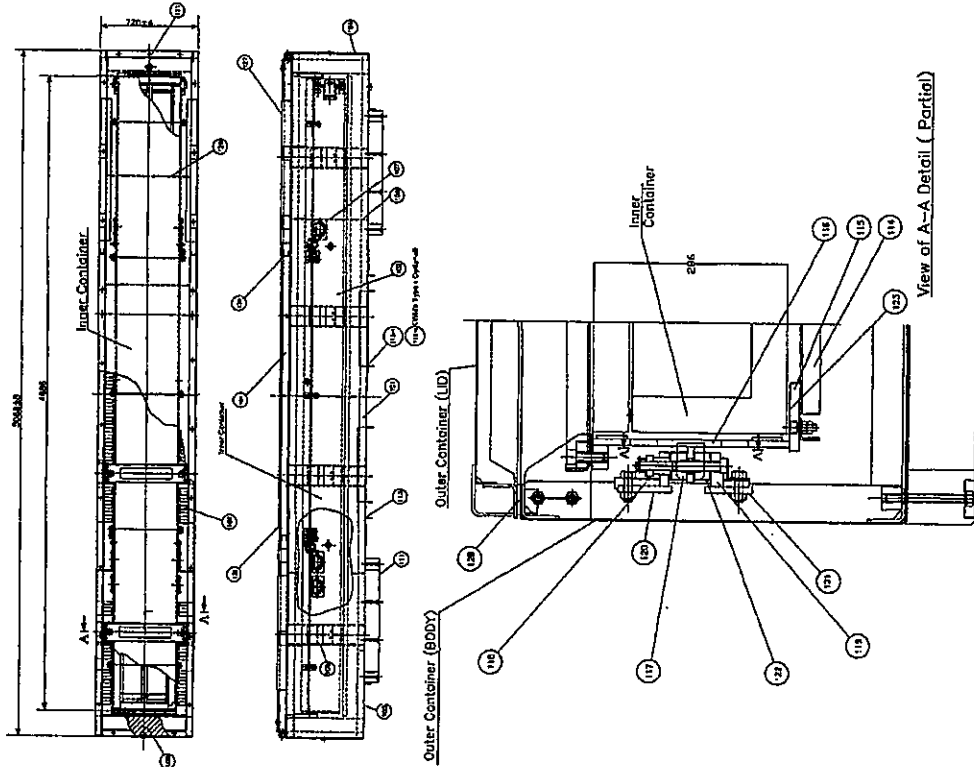


Fig. (A)C-3 Structure of Outer Container (RAJ-IIS)

Ports List

Part No.	Name	Material	Size
101	Body Angle	Stainless Steel	L 50 x 50 x 41
102	Body Outside Plate-1	Stainless Steel	21
103	Body Outside Plate-2	Stainless Steel	21
104	Body End Side Plate	Stainless Steel	21
105	Support Plate	Stainless Steel	31
106	Body End Side Strip	Stainless Steel	31
107	Body End Side Strip	Stainless Steel	31
108	Body End Side Strip	Stainless Steel	31
109	Body End Side Strip	Stainless Steel	31
110	Body End Side Strip	Stainless Steel	31
111	Body End Side Strip	Stainless Steel	31
112-1	Body End Side Strip	Stainless Steel	21 x 408 x 31
112-2	Body End Side Strip	Stainless Steel	210 x 232 x 31
113	Body End Side Strip	Stainless Steel	L 50 x 50 x 41
114	Body End Side Strip	Stainless Steel	L 50 x 50 x 41
115	Body End Side Strip	Stainless Steel	L 50 x 50 x 41
116	Body End Side Strip	Stainless Steel	125
117	Body End Side Strip	Stainless Steel	105
118	Body End Side Strip	Stainless Steel	51
119	Body End Side Strip	Stainless Steel	125
120	Body End Side Strip	Stainless Steel	101
121	Body End Side Strip	Stainless Steel	151
122	Body End Side Strip	Stainless Steel	151
123	Body End Side Strip	Stainless Steel	151
124	Body End Side Strip	Stainless Steel	151
125	Body End Side Strip	Stainless Steel	151
126	Body End Side Strip	Stainless Steel	151
127	Body End Side Strip	Stainless Steel	151
128	Body End Side Strip	Stainless Steel	151
129	Body End Side Strip	Stainless Steel	151
130	Body End Side Strip	Stainless Steel	151
131	Body End Side Strip	Stainless Steel	151
132	Body End Side Strip	Stainless Steel	151
133	Body End Side Strip	Stainless Steel	151
134	Body End Side Strip	Stainless Steel	151
135	Body End Side Strip	Stainless Steel	151
136	Body End Side Strip	Stainless Steel	151
137	Body End Side Strip	Stainless Steel	151
138	Body End Side Strip	Stainless Steel	151
139	Body End Side Strip	Stainless Steel	151
140	Body End Side Strip	Stainless Steel	151
141	Body End Side Strip	Stainless Steel	151
142	Body End Side Strip	Stainless Steel	151
143	Body End Side Strip	Stainless Steel	151
144	Body End Side Strip	Stainless Steel	151
145	Body End Side Strip	Stainless Steel	151
146	Body End Side Strip	Stainless Steel	151
147	Body End Side Strip	Stainless Steel	151
148	Body End Side Strip	Stainless Steel	151
149	Body End Side Strip	Stainless Steel	151
150	Body End Side Strip	Stainless Steel	151
151	Body End Side Strip	Stainless Steel	151
152	Body End Side Strip	Stainless Steel	151
153	Body End Side Strip	Stainless Steel	151
154	Body End Side Strip	Stainless Steel	151

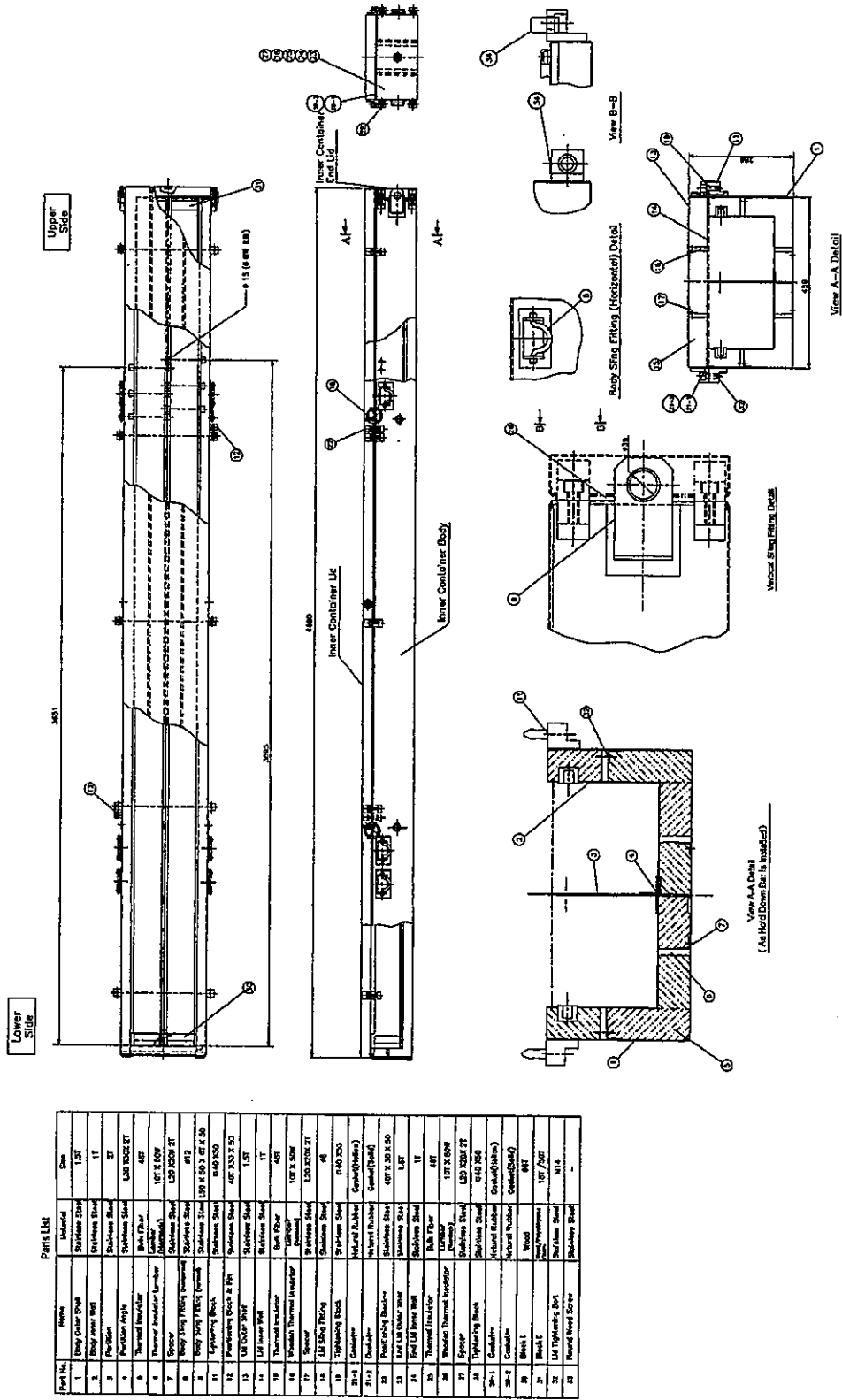


Fig. (A)C-2 Structure of Inner Container (RAJ-IIIS)



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**CERTIFICATE NUMBER:** USA/0828/AF-96

**ORIGINAL REGISTRANT(S) :**

Transport Logistics International (DAHER - TLI)  
8161 Maple Lawn Boulevard  
Suite 480  
Fulton, MD, 20759  
USA