



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)  
RADIOACTIVE MATERIALS PACKAGE DESIGN  
CERTIFICATE USA/0125/B(U)-96, REVISION 16**

**REVALIDATION OF CANADIAN COMPETENT AUTHORITY  
CERTIFICATE CDN/2037/B(U)-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<sup>1</sup> and the United States of America<sup>2</sup>.

1. Package Identification - F-327/F-247 Transport Package, Serial Nos. 1 to 8, 10, 12 and up.
2. Package Description and Authorized Radioactive Contents - as described in Canada Certificate of Competent Authority CDN/2037/B(U)-96, 14 (attached).
3. 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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<sup>1</sup> "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.

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

**CERTIFICATE USA/0125/B(U)-96, REVISION 16**

- d. Records of Quality Assurance activities required by Paragraph 310 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.
4. Marking and Labeling - The package shall bear the marking USA/0125/B(U)-96 in addition to other required markings and labeling.
5. Expiration Date - This certificate expires on May 31, 2016.

This certificate is issued in accordance with paragraph 808 of the IAEA Regulations and Section 173.473 of Title 49 of the Code of Federal Regulations, in response to the March 07, 2012 petition by Nordion (Canada) Inc., Ottawa, Ontario, and in consideration of other information on file in this Office.

Certified By:



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

**Mar 15 2012**  
(DATE)

Revision 16 - Issued to revalidate Canadian Certificate for Transport Package Design CDN/2037/B(U)-96, Revision 14, which extends the expiration date.



Canadian Certificate No. <b>CDN/2037/B(U)-96 (Rev. 14)</b>	Issue Date <b>Feb-23-2012</b>	Expiry Date <b>May-31-2016</b>	CNSC File <b>30-A2-207-0</b>
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## Certificate for Transport Package Design

The transport package design identified below is certified by the Canadian Nuclear Safety Commission pursuant to paragraph 21(1)(h) of the *Nuclear Safety and Control Act* and Section 7 of the *Packaging and Transport of Nuclear Substances Regulations*, and to the 1996 Edition (Revised) of the *IAEA Regulations for the Safe Transport of Radioactive Material*.

### REGISTRATION OF USE OF PACKAGES

All users of this authorization shall register their identity in writing with the Canadian Nuclear Safety Commission prior to the first use of this authorization and shall certify that they possess the instructions necessary for preparation of the package for shipment.

### PACKAGE IDENTIFICATION

Designer: **Nordion (Canada) Inc.**  
Make/Model: **F-327/F-247 Transport Package, Serial Nos. 1 to 8, 10, 12 and up**  
Mode of Transport: **Air, Sea, Road, Rail**

### IDENTIFICATION MARK

The package shall bear the competent authority identification mark "**CDN/2037/B(U) - 96**".

### PACKAGE DESCRIPTION

The F-327/F-247 package, as shown on MDS Drawing No. F624701-001 (Rev. B) and as further described in Nordion Document No. IS/DS 2013 F245/F247 (1), consists of a depleted uranium-shielded, stainless steel-encased F-247 shielding vessel centered and supported within an F-327 overpack consisting of a removable head type steel drum and wooden filler inserts for thermal and impact protection.

The F-247 shielding vessel contains an F-242 stainless steel leakproof insert. The containment system is either the sealed sources or the leakproof insert.

An illustration of the package is shown on attached Drawing No. F-327/F-247 (Issue 2).

Any modification to the package design must be submitted to the Canadian Nuclear Safety Commission for approval prior to implementation.



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The configuration of the package is as follows:

Shape: <b>Drum</b>	Shielding: <b>Stainless Steel</b>
Mass: <b>113 kg</b>	Outer Casing: <b>n/a</b>
Length: <b>n/a</b>	Height: <b>521 mm</b>
Width: <b>n/a</b>	Diameter: <b>490 mm</b>

### AUTHORIZED RADIOACTIVE CONTENTS

The F-327/F-247 is authorized to contain the following radionuclides within an F-242 insert with a maximum activity of:

- 3300 GBq (89 Ci) of Iodine 131 in solid or aqueous NaOH solution or aqueous NaOH with up to 0.2M Na<sub>2</sub>SO<sub>4</sub>;
- 37 TBq (1000 Ci) of Iridium 192 in the form of solid pellets;
- 110 TBq (2970 Ci) of Iridium 192 in the form of solid pellets contained within special form capsules;  
or
- 25 TBq (675 Ci) of Molybdenum 99 or Technetium 99m in solid or aqueous NaOH solution or aqueous NaOH with up to 1M NH<sub>4</sub>NO<sub>3</sub> and up to 0.4% NaOCl.

### QUALITY ASSURANCE

Quality assurance for the design, manufacture, testing, documentation, use, maintenance and inspection of the package shall be in accordance with:

- Nordion document entitled "MDS Nordion No. IS/DS 2013 F245/F247 (1) Design, Manufacturing and Operating Specification for the F-327/F-245 and F-327/F-247 Transport Packages"
- Nordion document entitled "MDS Nordion Sealed Source Quality Plan No. IN/QA 0562 A000 (4)\*"
- Nordion document entitled "MDS Nordion Radioactive Material Transport Package Quality Plan No. IN/QA 0224 Z000 (7)\*"
- Packaging and Transport of Nuclear Substances Regulations



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- IAEA Regulations
- \* or latest current revision

### **SHIPMENT**

The preparation for shipment of the package shall be in accordance with:

- Nordion document entitled "MDS Nordion Document No. IS/DS 2013 F245/F247 (1)Design, Manufacturing and Operating Specification for the F-327/F-245 and F-327/F-247 Transport Packages"
- Packaging and Transport of Nuclear Substances Regulations
- IAEA Regulations

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.

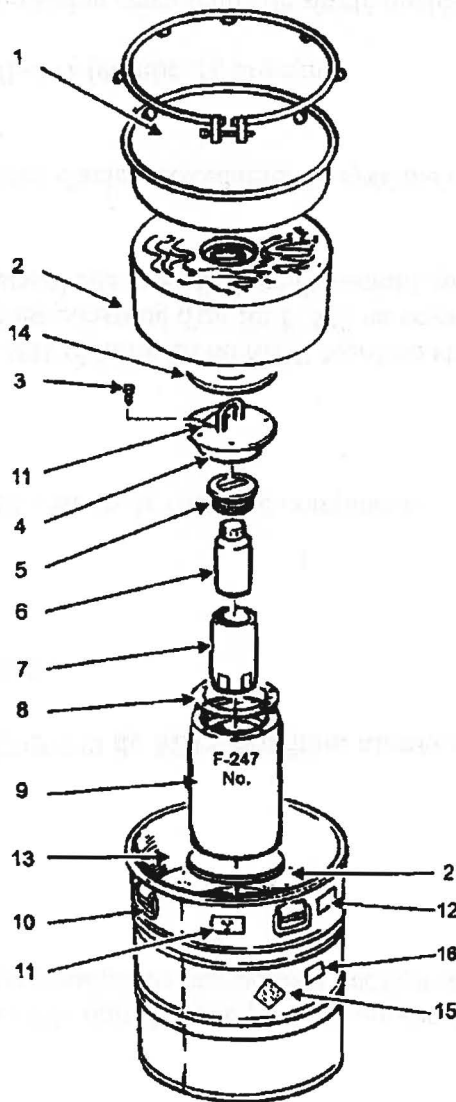
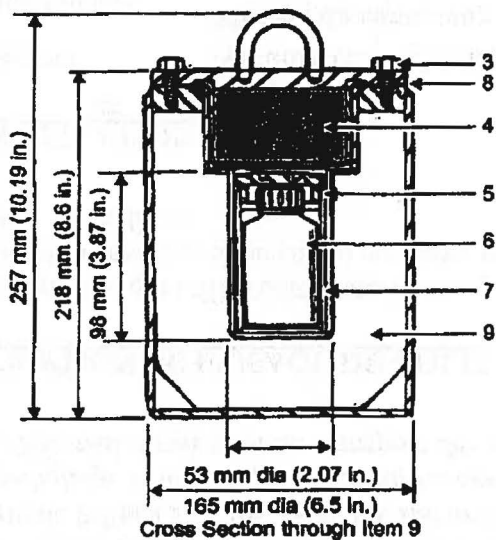
S. Faille  
Designated Officer pursuant to paragraph 37(2)(a)  
of the Nuclear Safety and Control Act

**Parts List**

1. Wire seal and locking bolt
2. Wooden impact/shielded liner
3. 3/8 - 16 x 7/8 in. long hex head stainless steel screws (4)
4. Depleted uranium shielding plug
5. F-242 leakproof insert cap with 'O'-ring seal
6. 80 mL (2 oz) polyethylene bottle with radioactive material
7. F-242 leakproof insert body
8. Neoprene gasket
9. Depleted uranium shielding vessel
10. Steel drum 489 mm dia. x 521 mm high (19.25 in. x 20.5 in.)
11. Radiation caution plate (3); two on opposite sides of overpack, and one on top of shielded plug
12. Shipping container identification label (2); on two opposite sides
13. Lead plate 159 mm dia (6 1/4 in.) x 6 mm (1/4 in.) thick (see Note 7)
14. Lead ring 159 mm O.D. x 60 mm I.D. x 6 mm thick (6 1/4 x 2 3/8 x 1/4 in.) (see Note 7)
15. Radioactive category labels (2)
16. UN number labels (2)

**Notes**

1. Approximate total weight: 113 kg (249 lb)
2. Project floor load: 618 kg/m<sup>2</sup> (127 lb/ft<sup>2</sup>)
3. Weight of depleted uranium shielding vessel: 81 kg (135 lb)
4. Depleted uranium shielding: 44 mm (1.75 in) thick, encapsulated in stainless steel
5. Meets IAEA Type B(U) requirements
6. CNSC Certificate CDN/2037/B(U)-98
7. Items 13 and 14 are fixed to the lower and upper wooden liners respectively.



**MDS Nordion**

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TITLE

**F-327/F-247 Transport Packaging**

REF. IS/SS 1996 F327/F247  
 F124701001/F132701001

REVISED Mar 04

DCN 04-0125-01-0-01

DATE Jan 04

No.

**F-327/F-247**

ISSUE

**2**

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DRAWN [Signature] CHECKED [Signature] APPROVED [Signature]  
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SHEET 1 OF 1



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East Building, PHH-23  
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Washington, D.C. 20590

**Pipeline and  
Hazardous Materials  
Safety Administration**

**CERTIFICATE NUMBER:** USA/0125/B(U)-96, Revision 16

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