



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)
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/0477/B(U)-85, REVISION 6**

**REVALIDATION OF CANADIAN COMPETENT AUTHORITY
CERTIFICATE CDN/2069/B(U)-85**

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 Agency¹ and the United States of America².

1. Package Identification - MDS Nordion Inc. Gammacell 1000 and 3000, (Shipping Models in the 20WC-5 Overpack, Serial Numbers 1 to 6 inclusive).
2. Package Description and Authorized Radioactive Contents - as described in Canada Certificate of Competent Authority CDN/2069/B(U)-85, Revision 7 (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.

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.

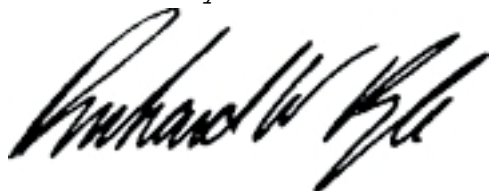
² Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

CERTIFICATE USA/0477/B(U)-85, REVISION 6

- d. Records of Quality Assurance activities required by Paragraph 310 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 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/0477/B(U)-85 in addition to other required markings and labeling.
5. Expiration Date - This certificate expires on September 30, 2008.

This certificate is issued in accordance with paragraph 817 of the IAEA Regulations and Section 173.473 of Title 49 of the Code of Federal Regulations, in response to the March 28, 2007 petition by MDS Nordion, Ottawa, Ontario, and in consideration of other information on file in this Office.

Certified By:



Bob Richard
Deputy Associate Administrator for Hazardous Materials Safety

Apr 12 2007
(DATE)

Revision 6 - Issued to revalidate Canadian Certificate of Competent Authority No. CDN/2069/B(U)-85, Revision 7, through September 30, 2008.



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|--|----------------------------------|-----------------------------------|---------------------------------|
| Canadian Certificate No. CDN/2069/B(U)-85 (Rev. 7) | Issue Date Mar-28-2007 | Expiry Date Mar-31-2011 | CNSC File 30-A2-217-0 |
|--|----------------------------------|-----------------------------------|---------------------------------|

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 1985 Edition (As Amended 1990) 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: **MDS Nordion**
Make/Model: **Gammacell 1000 and 3000, (Shipping Models in the 20WC-5 Overpack, Serial Nos. 1 to 6 inclusive).**
Mode of Transport: **Air, Sea, Road, Rail**

IDENTIFICATION MARK

The package shall bear the competent authority identification mark "**CDN/2069/B(U) - 85**".

PACKAGE DESCRIPTION

The Gammacell 1000 and the Gammacell 3000 packages, as described on MDS Nordion Drawing Nos. C102210-001, (Issue Z) and C103210-001, (Issue M) respectively, consist of an upright inner cylindrical steel jacket filled with lead, 457 mm in diameter by 610 mm high. Two steel finned crush shields are fitted on either end of the jacket which is placed inside a steel drum mounted on a steel plate. The inner cylindrical steel jacket is wrapped in kaowool which is retained in position by a wire mesh. Lifting cables are attached to the jacket of the inner cylinder through openings in the top cover of the drum. The whole assembly is placed inside a 20WC-5 wooden overpack as described on Pacific Nuclear Drawing No. 2075-101 (Rev. 0), (MDS Nordion Drawing No. C103210-017, Sheet 1 (Issue E); Sheet 2 (Issue E); Sheet 3 (Issue D) and Sheet 4 (Issue D)). The containment system consists of the capsule assemblies and the inner cylinder.

An illustration of the package is shown on attached MDS Nordion Drawing No. GC-1000/3000-20WC-5 (85), (Rev. 3).



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The configuration of the package is as follows:

| | |
|------------------------|----------------------------|
| Shape: Cylinder | Shielding: Lead |
| Mass: 1814 kg | Outer Casing: Steel |
| Length: n/a | Height: 1637 mm |
| Width: n/a | Diameter: 1130 mm |

AUTHORIZED RADIOACTIVE CONTENTS

This package is authorized to contain not more than 113 TBq (3050 Ci) of Cesium 137 and Cesium 134 with the Cesium 134 not to exceed 1% of the Cesium 137 in the form of Cesium chloride loose powder or compressed powder pellets contained within the Isomedix ISO-1000, ORNL RAMCO 50, MDS Nordion C-1000, C-1001, C-3000 or C-3001 double walled stainless steel capsule or the MDS Nordion C-378 stainless steel capsule.

QUALITY ASSURANCE

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

- MDS Nordion Document No. IN/QA 0224 Z000 (6)*, Radioactive Material Transport Package Quality Plan
- MDS Nordion Document No. IN/OP 0019 Z000 (12)*, Radioactive Material Transport Packaging Inspection and Maintenance Procedure
- Canadian Packaging and Transport of Nuclear Substances Regulations
- IAEA Regulations
- * or latest current revision

SHIPMENT

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

- MDS Nordion Document No. IN/PP 0288 GC1000 (8), "Preparation for Shipment of Gammacell 1000



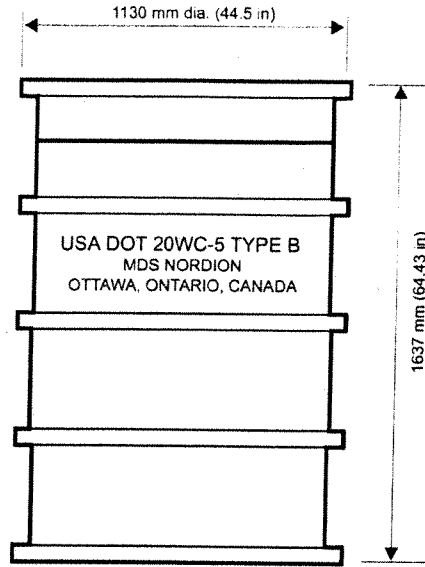
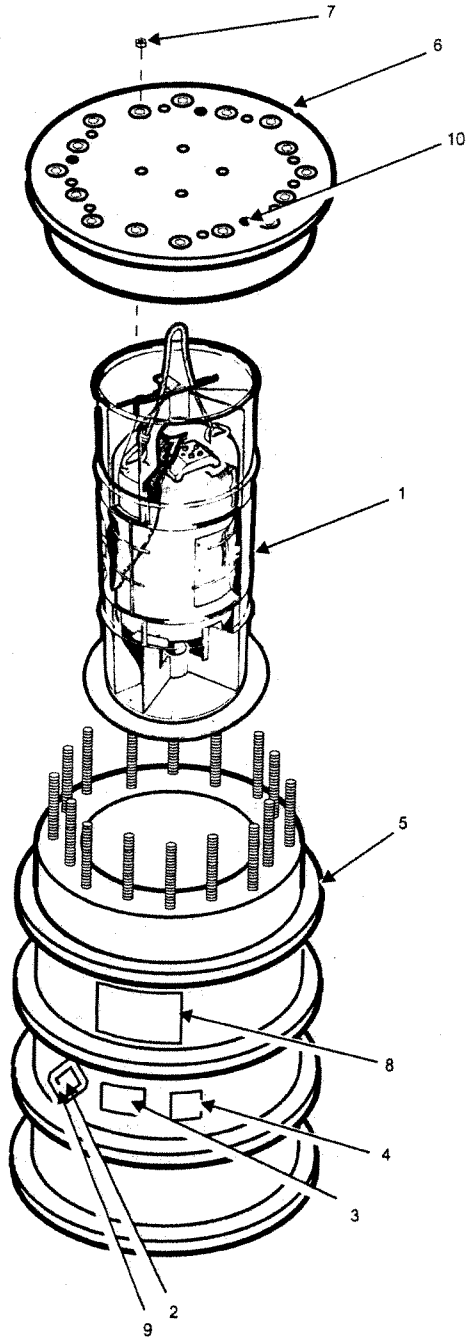
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Radioactive Materiel Package in the 20WC-5 Overpack"

- MDS Nordion Document No. IN/PP 0287 GC3000 (8), "Preparation for Shipment of the Gammacell 3000 Radioactive Materiel Package in the 20WC-5 Overpack"
- Canadian Packaging and Transport of Nuclear Substances Regulations
- IAEA Regulations

This certificate does not relieve the shipper from any requirement of the government of any country through or into which the package will be transported.

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



Parts List

1. GC-1000/3000 packaging (see note 7) without steel skid assembly
2. Category label (2)
3. Identification plate (2)
4. "Caution Radioactive" plate (2)
5. Overpack body
6. Overpack lid
7. Nut, 5/8 - 18 steel (16)
8. Labelling plate #1 (2)
9. Labelling plate #2 (2)
10. 3/8 in. threaded inserts (3) + plugs (3)
11. UN Number Label (2), one next to each Category Label

Notes

1. CNSC Certificate CDN/2069/B(U)-85
2. Conforms to IAEA Type B(U) requirements
3. Overpack cavity size: 724 mm dia. x 1219 mm high (28.5 in. x 48.0 in.)
4. Total weight: 1814 kg (4000 lb.)
5. Projected floor loading: 1809 kg/m² (370 lb/ft²)
6. Drum overpack reference drawings:
GC-1000 package: C102210-001
GC-3000 package: C103210-001
7. Preparation for shipment procedures:
GC-1000: IN/PP 0288 GC1000
GC-3000: IN/PP 0287 GC3000
8. For GC-1000/3000 (1985) Transport Package Serial Numbers 1 to 6 inclusive

16 MAR 2007

MDS Nordion

447 March Road, Ottawa, ON K2K 1X8 Canada
Tel: (613) 592-2790 · Fax: (613) 592-6937

TITLE **GC-1000/3000 Transport Package
(to IAEA 1985 Transport Regulations)
in 20WC-5 Overpack**

REF. IN/SS 6026 GC1/3000-20WC-5(85)
C103210-017 REVISED Mar. 07 CF-595

DATE May 1993

No. **GC-1000/3000-
20WC-5 (85)**

ISSUE

DRAWN CHECKED APPROVED

[Signatures] BW KG SM BM

SHEET 1 OF 1

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CERTIFICATE NUMBER: USA/0477/B(U)-85, Revision 6

ORIGINAL REGISTRANT(S):

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CANADA