



U.S. Department
of Transportation
**Research and
Special Programs
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

**COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE B(U)
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/0302/B(U), REVISION 8**

REVALIDATION OF UNITED KINGDOM COMPETENT AUTHORITY CERTIFICATE GB/0666AW/B(U)

This certifies that the radioactive materials package design described below 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 and the United States of America.

1. Package Identification - U.K. Design No. 0666AW.
2. Packaging Description and Authorized Radioactive Contents - as described in United Kingdom Certificate of Competent Authority GB/0666AW/B(U), Issue 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 in accordance with the endorsed certificate.
 - b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology, (DHM-23), Research and Special Programs 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.
4. Marking and Labeling - The package shall bear the marking USA/0302/B(U) in addition to other required markings and labeling.
5. Expiration Date - This certificate expires on December 31, 2003.

1 "Safety Series No. 6, Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition, as amended," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

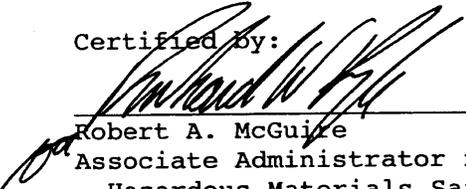
2 Title 49, Code of Federal Regulations, Parts 100 - 199, United States of America.

CERTIFICATE USA/0302/B(U), REVISION 8

This certificate is issued in accordance with paragraph 806 of the IAEA Regulations and Section 173.473 of Title 49 of the Code of Federal Regulations, in response to the petition and information dated January 11, 2001 submitted by AEA Technology, Burlington, MA, and in consideration of other information on file in this Office.

Certified By:

FEB - 1 2001



Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

(DATE)

Revision 8 - Issued to incorporate U.K. Certificate of Competent Authority GB/0666AW/B(U), Issue 14, and to extend the expiration date.



Reference GB/0666AW/B(U)

Issue 14

Page 1 of 9 Pages

Certificate of Approval of Package Design for the Carriage of Radioactive Materials

1. **THIS IS TO CERTIFY** that the Secretary of State for the Environment, Transport and the Regions, being, for the purposes of the Regulations of the International Atomic Energy Agency, the Competent Authority of Great Britain in respect of inland surface transport and of the United Kingdom of Great Britain and Northern Ireland in respect of sea and air transport and the Department of the Environment for Northern Ireland being the Competent Authority of Northern Ireland in respect of inland surface transport, have approved the package design as described in paragraphs 2-4 of this certificate as submitted, for approval, by Nycomed Amersham plc, Amersham, Bucks

as Type B(U) (see paragraph 8)

for the transport of non-leachable solids or liquids in stainless steel pot

by all modes of transport (see paragraphs 4c) and 10B)

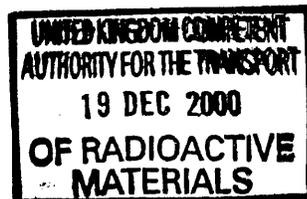
Packages manufactured to this design meet the requirements of the regulations and codes on page 2, relevant to the mode of transport, subject to the following general condition and to the conditions in the succeeding pages of this certificate.

In the event of any alteration in the composition of the package, the package design or in any of the facts stated in the application for approval, this certificate will cease to have effect unless the Competent Authority is notified of the alteration and the Competent Authority confirms the certificate notwithstanding the alteration.

This Certificate Cancels all Previous Issues and is valid till 31 December 2003.

COMPETENT AUTHORITY IDENTIFICATION MARK:

GB/0666AW/B(U)



Transport Radiological Adviser
Department of the Environment,
Transport and the Regions
Great Minster House
76 Marsham Street
London SW1P 4DR

*On behalf of the Secretary of State
for the Environment, Transport
and the Regions and the Department of
the Environment for Northern Ireland*

REGULATIONS AND CODES OF PRACTICE GOVERNING THE TRANSPORT OF RADIOACTIVE MATERIALS

INTERNATIONAL

International Atomic Energy Agency (IAEA) Safety Series No 6 Regulations for the Safe Transport of Radioactive Materials 1985 Edition (As Amended 1990).

International Maritime Organisation (IMO). International Maritime Dangerous Goods Code – Class 7 Radioactive Substances.

International Civil Aviation Organisation (ICAO). Technical Instructions for the Safe Transport of Dangerous Goods by Air.

ROAD

GREAT BRITAIN ONLY. The Radioactive Material (Road Transport)(Great Britain) Regulations 1996 SI No 1350: The Ionising Radiations Regulations 1999 SI No 3232: and Approved Code of Practice.

NORTHERN IRELAND ONLY. The Radioactive Substances (Carriage by Road) Regulations (Northern Ireland) 1983 SR 1983 No 344: The Radioactive Substances (Carriage by Road)(Amendment) Regulations (Northern Ireland) 1986 SR 1986 No 61.

EUROPE ONLY. European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), Class 7.(ed 1999).

RAIL

GREAT BRITAIN ONLY. The Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations (RAMRail) 1996 (SI 1996 No 2090): Approved Requirements for the packaging, labelling and carriage of radioactive material by rail 1996 Edition. The Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations (CDGCPL) 1996 (SI 1996 No 2092). The Carriage of Dangerous Goods (Amendment) Regulations 1999 (SI 1999 No 303).

EUROPE ONLY. Convention concerning the International carriage by rail (COTIF), Appendix B, Uniform Rules concerning the International Carriage of Goods by Rail (CIM), Annex 1, Regulations concerning the International carriage of dangerous goods by rail (RID), Class 7.(ed 1999).

SEA

British registered ships. All other ships whilst in United Kingdom territorial waters. The Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 SI No 2367: Merchant Shipping Notice No M 1620, "The Carriage of Dangerous Goods and Marine Pollutants in Packaged Form on Ships".

PORT: UK ONLY.

AIR

UK ONLY. The Air Navigation (No 2) Order 1995 SI No 1970: The Air Navigation (Dangerous Goods) Regulations 1994 SI No 3187 and Amendments 1996 SI No 3100 and 1998 SI No 2536. International Civil Aviation Organisation (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air.

NOTES

1. Attention is drawn to the labelling and marking requirements of Section IV of the 1985 Edition of the IAEA Regulations, one provision of which is that the outside of each package shall be clearly and durably marked with the Competent Authority's Package Design Identification Mark.

2. Any questions relating to this Certificate should be addressed to:--
The Transport Radiological Adviser,
Department of the Environment, Transport and the Regions,
Great Minster House
76 Marsham Street, London SW1P 4DR.
Telephone 020 7944 5795.
Fax 020 7944 2187.

3. This Certificate does not relieve the consignor from compliance with any requirements of this Government or any other Government of any country through or into which the package may be transported.

2. SPECIFICATION OF PACKAGING

Item No.	Packaging	Design Number	Quantity per Assembly
1	Outer	0666	One
2	Packing	Cork Sleeve & Spacers	Three Units
3	Intermediate	3055	One
4	Inner	1384-W6, or 1408-Q1, or 1384-W1, or none fitted	One One Six -

The containment system comprises item No. 3.

Package Design Details

Design No.	Title	Drawing List	Issue
0666	Galvanised Steel Drum)	
3055	Stainless Steel containment pot)	
1384	W type lead pots)	
1408	Q1 lead container)	
) PGM 915	1
) dated	
) 9-2-95	

The package design specification shall be in accordance with Nycomed Amersham plc's document WD 24-BU 0666AW - Revision 4, Application for Approval of Package Design No 0666AW dated 5 September 1985, telex Winfield/Martin, ref 11723A dated 24 June 1986, Mod 0666AW/1 dated 7/9/93, Mod 0666AW/2 dated 1/10/93, and the relevant parts of PGM 902, Issue 1, dated 30 January 1995.

3. PERMITTED CONTENTS

Non-leachable solids as ceramics, metal alloy or powder or liquid as a salt solution in a sealed innermost container.

4. RESTRICTIONS ON CONTENTS

a) Any of the radionuclides as listed in paragraph b) below, or mixtures of these radionuclides such that the sum of the proportions of the activities does not exceed one. Liquids and solids shall be packed separately.

b)

(a) For solid contents	(b) For liquid contents
Up to 7.41 TBq of Ac-227, or* Up to 7.41 TBq of Ac-227/Be, or* Up to 4.81 TBq of Am-241, or* Up to 4.81 TBq of Am-241/Be, or* Up to 111 GBq of Am-243, or Up to 11.1 GBq of Cm-242, or Up to 925 GBq of Cm-244, or Up to 1.11 TBq of Pb-210, or Up to 2.59 GBq of Np-237, or Up to 14.8 GBq of Pa-231, or Up to 296 TBq of Pm-147, or Up to 4.81 TBq of Po-210, or Up to 1.11 TBq of Pu-238, or Up to 1.11 TBq of Pu-238/Be, or Up to 34.4 GBq of Pu-239, or Up to 34.4 GBq of Pu-239/Be, or Up to 111 GBq of Pu-240, or Up to 1.11 TBq of Pu-241, or Up to 4.625 GBq of Ra-226, or Up to 7.5 TBq of Sm-151, or Up to 1.11 TBq of Sr-90, or Up to 3.7 GBq of Th-228, or Up to 7.4 GBq of Th-230, or Up to 5.18 GBq of U-233, or Up to 1.184 MBq of U-235.	Up to 111 GBq of Am-241, or Up to 111 GBq of Am-243, or Up to 11.1 GBq of Cm-242, or Up to 103.6 GBq of Cm-244, or Up to 1.11 TBq of Pb-210, or Up to 2.59 GBq of Np-237, or Up to 14.8 GBq of Pa-231, or Up to 9.25 TBq of Pm-147, or Up to 111 GBq of Po-210, or Up to 111 GBq of Pu-238, or Up to 34.4 GBq of Pu-239, or Up to 111 GBq of Pu-240, or Up to 129.5 GBq of Pu-241, or Up to 4.625 GBq of Ra-226, or Up to 555 GBq of Sr-90, or Up to 3.7 GBq of Th-228, or Up to 7.4 GBq of Th-230, or Up to 5.18 GBq of U-233, or Up to 1.184 MBq of U-235.

*c) Air Transport only: With effect from 1 July 2001 the maximum permitted activity for Am 241 and Am 241/Be shall be restricted to 3.0 TBq and for Ac-227 and Ac-227/Be it shall be restricted to 270 GBq.

5. CRITICALITY

The contents are exempt from the fissile material requirements of Section VI of the 1973 IAEA Regulations under the terms of paragraph 601(a).

6. INSTRUCTIONS ON THE USE OF THE PACKAGE

- a. Inspection and maintenance of the containment pot, Design 3055, shall be carried out in accordance with the Amersham International plc Quality Control Procedure QCP 021 Issue 5: Integrity Checks on Containment Pot Design No 3055, Drawing No A22310.
- b. Inspection and maintenance of the outer container shall be carried out in accordance with Amersham International's Quality Control Procedures for Transport Containers:-

QCP002 Issue 10 General Maintenance Procedures for Reusable containers.
- c. Handling and packaging instructions for the package (HPI 27 Issue F) shall be provided to the consignee.

7. ACTION PRIOR TO DESPATCH

- a. The Package shall be handled, packed and leak tested in accordance with:

HPI 27 Issue F - Handling and Packing Instructions for Package Design No 0666AW.
- b. All nuts and bolts shall be checked for tightness.
- c. All locking wires and security seals shall be checked and replaced as necessary.

8. GRANDFATHERING PROVISIONS

Packages to this design may continue to be used subject to multilateral approval in accordance with the requirements of paragraph 714 of the 1985 Edition of the IAEA Regulations for the Safe Transport of Radioactive Material (SS6). No Supplementary Operational Controls are required.

9. QUALITY ASSURANCE

- a) Quality Assurance (QA) programmes applicable to this Design are;
 - (i) Nycomed Amersham plc "Transport Safety Arrangements":
 - (ii) All other Quality Assurance programmes associated with the manufacture, modification, use, maintenance and transport of this package not invoked or associated with (i). These must comply with National and International Standards for Quality Assurance which are acceptable to the United Kingdom Competent Authority (or other appropriate National Competent Authorities when international package movements occur outside the jurisdiction of the UK Competent Authority).
- b) Failure to comply with any of the provisions of sub-paragraphs (a)(i) and (ii) above may render this certificate invalid.

10. RESTRICTIONS ON SHIPMENT

A) Road in GB If, for any reason, the vehicle is subject to a speed restriction of less than 20 mph the carrier shall instruct the driver of the vehicle that before crossing any automatic half-barrier railway crossing, he shall notify the railway signaller of his intention to cross and await the signaller's instructions.

B) All modes of transport

If the package surface radiation level exceeds 2 mSv/hr the package shall be transported as EXCLUSIVE USE under the following conditions:

(i) Road and Rail

- (a) The vehicle must be equipped with an enclosure which, during normal transport, prevents access of unauthorised persons to the interior of the enclosure.
- (b) The package must be secured so that their position within the vehicle remains fixed during normal transport.
- (c) There must be no loading or unloading operations between the beginning and the end of the shipment.

(ii) Sea

Such packages carried in or on a road or rail vehicle may be transported by a sea going vessel provided that they remain in or on the load vehicle during the voyage.

(iii) Air

Such packages shall not be transported by air under the terms of this approval.

11. LABELLING, MARKING AND PLACARDING

Labelling and marking of packages and the placarding of vehicles shall be in accordance with the regulations listed on page 2 of this approval certificate.

12. EMERGENCY ARRANGEMENTS

a) Road/Rail, Ports and Airports in GB

RADSAFE member

In the event of an emergency the procedures set out in RADSAFE, the nuclear industry's emergency plan, shall apply.

The police shall be informed that RADSAFE has been initiated.

Non RADSAFE member

Before shipment takes place suitable emergency plans shall have been drawn up by the consignor copies of which shall be supplied to the UK Competent Authority on demand. In the event of an emergency these emergency plans shall be initiated and the police informed.

If RADSAFE or the consignor's emergency plans cannot be initiated, for any reason, then the police shall be informed immediately and requested to call the local NAIR (National Arrangements for Incidents involving Radioactive material) establishment.

b) Rail in GB (non-RADSAFE member)

The procedure to be followed should an emergency occur is set out in British Railways publication BR 30054 "Working Manual for Rail Staff, Part 3, Handling and Conveyance of Dangerous Goods" (Pink Pages). NAIR procedures shall apply.

c) Sea

In the event of an emergency the procedure set out in Section 9 of Class 7 of IMDG Code, quoted on page 2 of this approval certificate, shall apply.

13. ADMINISTRATIVE ARRANGEMENTS

A. The Consignor shall be responsible for fulfilling the conditions set out in any Competent Authorities' certificates of approval associated with the shipment of this package and for compliance with the administrative requirements of paragraphs 446-459 of the 1985 Edition of the IAEA Regulations.

B. Competent Authority Approval Certificates

Copies of Competent Authority certificates of approval associated with the shipment of this package must be available at places of loading, unloading and transshipment.

C. Notification of Despatch.

In the event of the activity of the contents exceeding 1000 TBq or 3×10^3 A₁ or A₂ (as appropriate), whichever is the lower, the following notification procedure shall apply:

(i) Before the shipment the consignor shall give prior notice, at least 48 hours, to the following:

- (a) The Transport Radiological Adviser
Department of the Environment, Transport and the Regions
Great Minster House
76 Marsham Street
LONDON SW1P 4DR

Telephone: 020 7944 5795 Fax 020 7944 2187.

- (b) The Competent Authorities of those countries concerned with the shipment. These authorities will normally require to be notified at least 7 days in advance.
 - (c) The consignee.
 - (d) The port/airport authority concerned (as appropriate).
 - (e) All other persons specified as notifiable in the relevant regulations.
- (ii) The information passed to the addressees above shall include the following:
- (a) sufficient information to enable the identification of the package, including all applicable certificate numbers and identification marks;
 - (b) details of the journey and timings;
 - (c) the name and nationality of the vessel/the flight number (delete as appropriate).

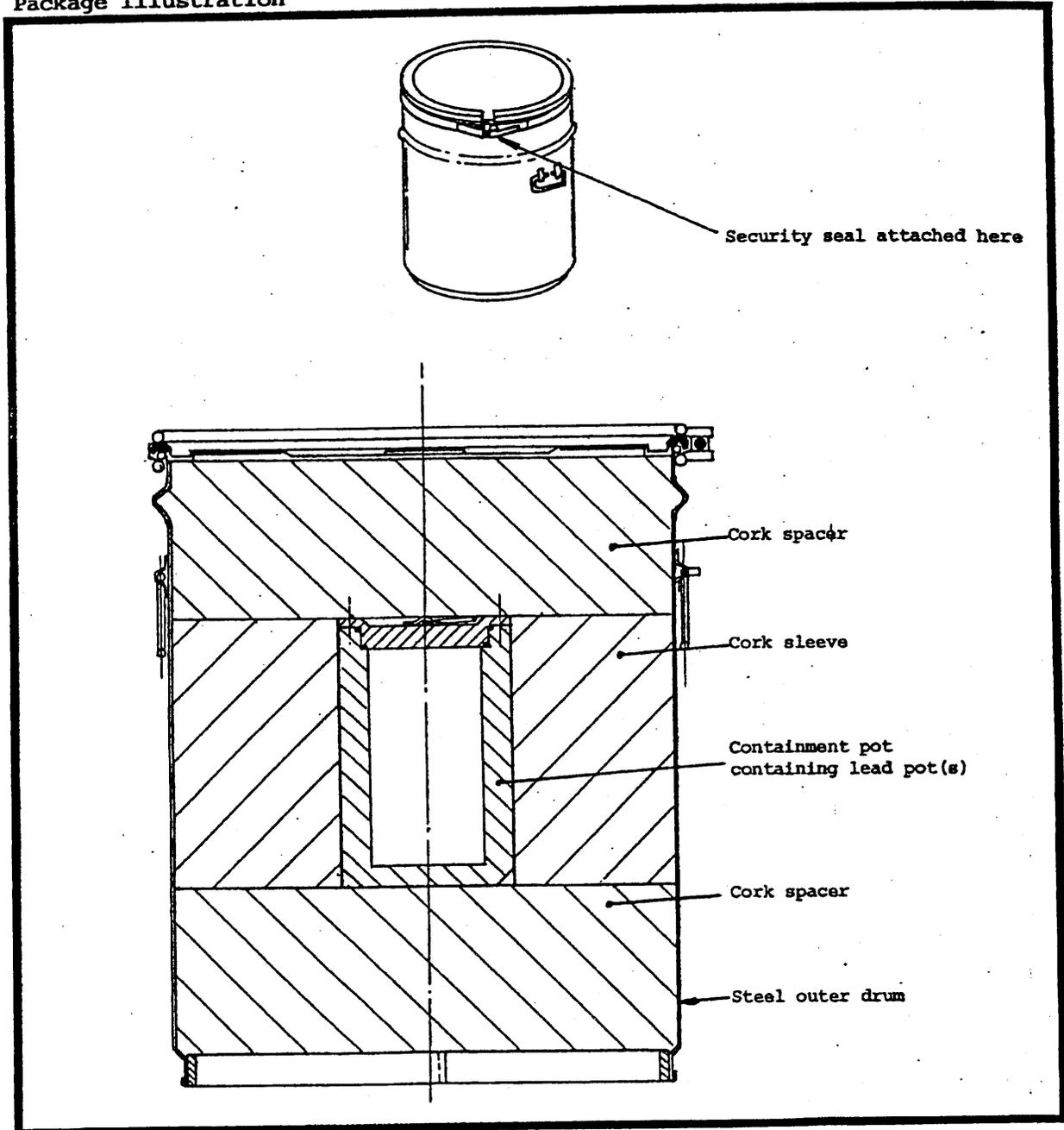
D. Serial Numbers

The Competent Authority must be informed by the owner or operator, of the serial numbers applied to all packages covered by this Certificate.

14. RENEWAL OF CERTIFICATES

If the period of validity is required to be extended, application shall be made at least six weeks in advance of expiry.

Package Illustration



Description of Package, Dimensions and Weights

Packaging: Steel drum with cork spacers containing a stainless steel pot.

Dimensions: 327 mm diameter x 403 mm high

Gross Weight: 20.4 kg