



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/0228/B(U), REVISION 7**

REVALIDATION OF UNITED KINGDOM COMPETENT AUTHORITY CERTIFICATE GB/1934A/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 Agency¹ and the United States of America².

1. Package Identification - U.K. Design No. 1934A.
2. Packaging Description and Authorized Radioactive Contents - as described in United Kingdom Certificate of Competent Authority GB/1934A/B(U), Issue 9 (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/0228/B(U) in addition to other required markings and labeling.
5. Expiration Date - This certificate expires on October 31, 2004.

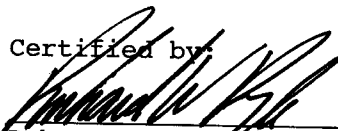
1 "Safety Series No. 6, Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition, as amended," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

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

CERTIFICATE USA/0228/B(U), REVISION 7

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 October 30, 2001 submitted by AEA Technology, Burlington, MA, and in consideration of other information on file in this Office.

Certified by:



Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

NOV 28 2001

(DATE)

Revision 7 - issued to endorse United Kingdom Certificate of Approval No. GB/1934A/B(U), Issue 9, and to extend the expiration date.



Reference (GB/1934A/B(U))
Issue 9
Page 1 of 8 Pages

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

1. **THIS IS TO CERTIFY** that the Secretary of State for Transport, Local Government 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 by Amersham plc, Amersham, Bucks.

as Type B(U) (see paragraph 8)

for the transport of encapsulated gamma sources

by all modes of transport

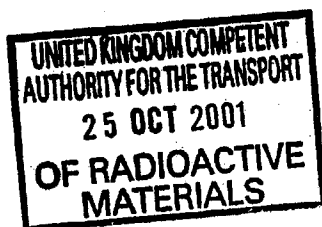
Packages manufactured to this design meet the requirements of the regulations and codes on page 2, relevant to the mode of transport, subject to the following general condition and to the conditions in the succeeding pages of this certificate.

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 October 2004.

COMPETENT AUTHORITY IDENTIFICATION MARK:

GB/1934A/B(U)



Transport Radiological Adviser
Department for Transport, Local
Government and the Regions
Great Minster House
76 Marsham Street
London SW1P 4DR

*On behalf of the Secretary of State
for Transport, Local Government
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 1999 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 2001).

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 2001).

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 1755(M/I), "The Carriage of Dangerous Goods and Marine Pollutants in Packaged Form - Amendment 30-00 to IMDG Code".

PORT: UK ONLY.

AIR

UK ONLY. The Air Navigation Order 2001 SI No 1562: 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 for Transport, Local Government 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	1934	One
2	Intermediate	0905	One
3	Inner	IAEA Special Form Capsule (see paragraph 13C)	(One or more

The containment system comprises item No. 3.

Package Design Details

Design No.	Title	Drawing List	Issue
1934	Insulated steel canister)	
0905	Steel clad lead pot only) ORC 21:1685	B
-	Optional Insert Blank)	
SFC	Any IAEA Special Form Capsule	-	-

The package design specification shall be in accordance with "Application for Type B A Approval - Package Design No. 1934A" dated 27 July 1979.

3. PERMITTED CONTENTS

Encapsulated Cobalt 60 or Iridium 192, in the form of solid metal discs or pellets, or Caesium 137 in the form of powder pressed into pellets in IAEA Special Form Capsules.

4. RESTRICTIONS ON CONTENTS

- a) Any single radionuclide in (c) below, limited to the quantity shown.
- b) More than one radionuclide listed in (c) below, limited such that the sum of the proportionate amounts of each radionuclide present with respect to the quantities shown, does not exceed one.
- c) The permitted contents shall not exceed 14.8 TBq of Cobalt 60, or 592 TBq of Iridium 192, or 740 TBq of Caesium 137.

- d) The permitted heat output shall not exceed 6 watts for Cobalt 60, or 96 watts for either Iridium 192 or Caesium 137.

5. INSTRUCTIONS ON USE OF THE PACKAGE

- a. When a single source is carried it shall be located in the source cavity in such a way as to prevent gross movement during both normal and accident conditions of transport.
- b. When more than one source is carried they shall be located in the source cavity in such a way as to prevent them impacting on each other during both normal and accident conditions of transport.
- c. Inspection and maintenance shall be carried out in accordance with Quality Control Procedure QCP 002 Issue 7 General maintenance procedure for reusable containers.
- d. Handling and operating instructions for the package shall be supplied to the consignee prior to despatch.

6. ACTION PRIOR TO DESPATCH

- a. The package shall be handled and packed in accordance with:

HPI 05 Issue A - Handling and Packing Instructions for Large Standard Lead Pots (Nos 0901, 0903, 0905 and 0907).

HPI 02 Issue B - Handling and Packing Instructions for Lead Pot into Canister.

- b. All nuts and bolts shall be checked for tightness.
- c. All locking wires and security seals shall be checked and replaced as necessary.

7. STOWAGE CONDITIONS

- a) Where the contents are Cobalt 60 or are less than 165.6 TBq of Ir 192 or less than 2216 TBq of Cs 137 no conditions are specified.
- b) Where the contents are more than 165.6 TBq but less than 552 TBq of Ir 192, or more than 216 TBq but less than 720 TBq of Cs 137, the package shall be stowed such that:-
- (i) There is clearance on all vertical sides of the package of not less than half its height or not less than 10 centimetres whichever is greater;
- (ii) Cargo immediately adjacent to a package does not overhang any part of its or the clear space provided by (i) above;
- (iii) Cargo immediately adjacent to a package does not overtop it by more than half its height;

- (iv) When stowed below deck no part of a package or any of the immediately adjacent cargo is within 30 centimetres of the deckhead;
 - (v) A passage of at least 30 centimetres depth, and at least as wide as a package and the clear space provided by (i) above, taken together is left clear between the packages, or the space immediately above them, and the ventilation system inlets and outlets or the open air if stowed on deck.
 - (vi) When transported such that a package is exposed to the elements eg on deck, adequate drainage must be provided to ensure that heat dissipation from the package is not adversely affected.
- c) Where the contents exceed 720 TBq of Cs 137 or 552 TBq of Ir 192 then the package shall be stowed above the level of the adjacent cargo.

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; and

(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

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.

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) Sea

In the event of an emergency the procedure set out in the 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 (As Amended 1990) 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. In all cases where item 3 specified in paragraph 2 of this certificate constitutes Special Form material, the consignor shall be in possession of a valid Competent Authority Certificate of approval in accordance with the provisions of the 1985 Edition (AS Amended 1990) IAEA Regulations.

D. Stowage Conditions

The Consignor shall notify the carrier and/or the ship's master, or the persons responsible for loading the ship, of the stowage conditions in accordance with paragraph 7 of this certificate.

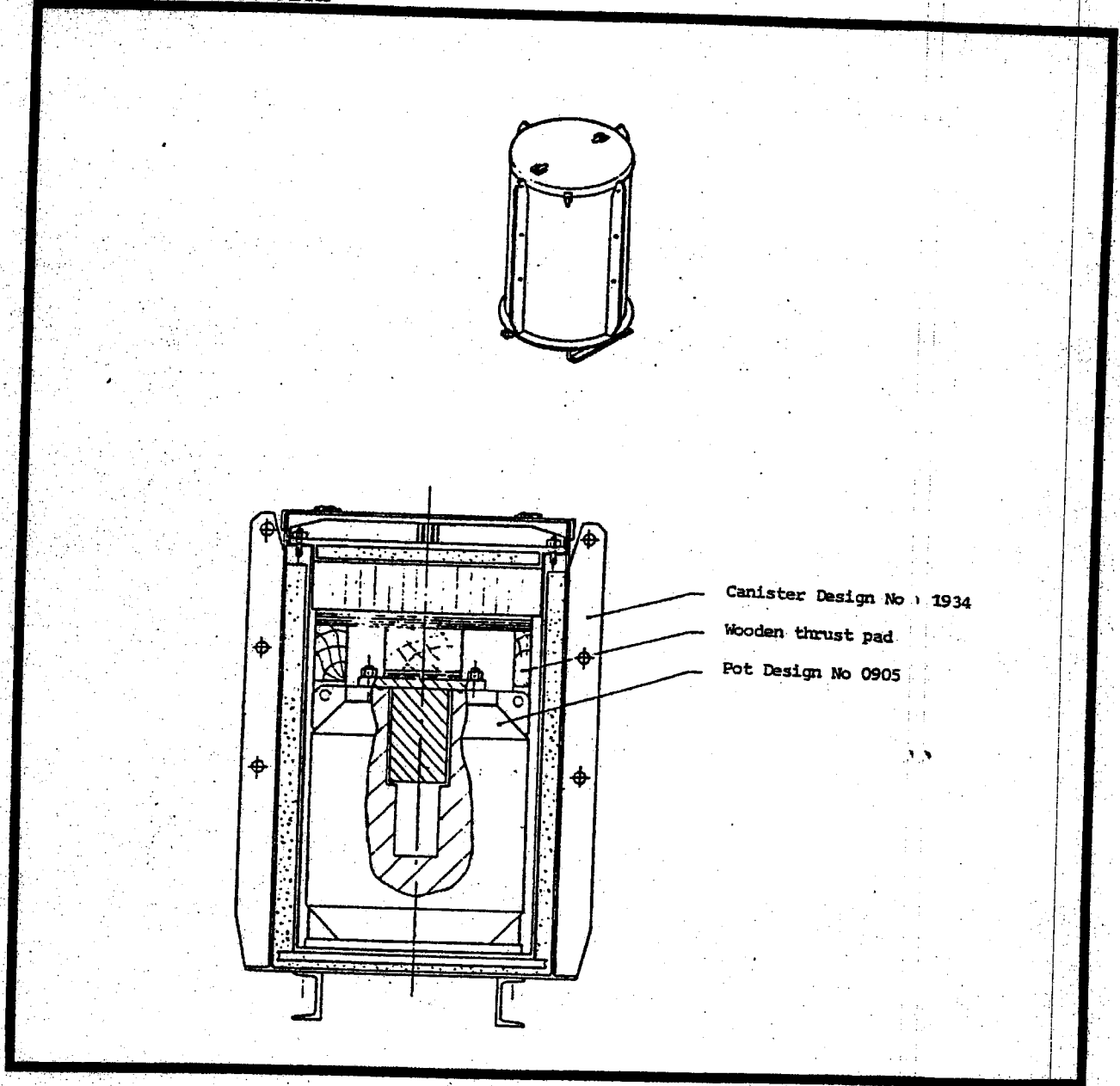
E. Serial Numbers

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: An Insulated steel cylinder containing a steel clad lead pot.

Dimensions: 0.7 m diameter x 0.83 m high

Gross Weight: 813 kg