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/0700/B(U)-96, REVISION 4

REVALIDATION OF UNITED KINGDOM COMPETENT AUTHORITY CERTIFICATE GB/3746A/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[1] and the United States of America[2].

1. Package Identification - Model 3746A.

2. Package Description and Authorized Radioactive Contents - as described in United Kingdom Certificate of Competent Authority GB/3746A/B(U)-96, Issue 4 (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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[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.

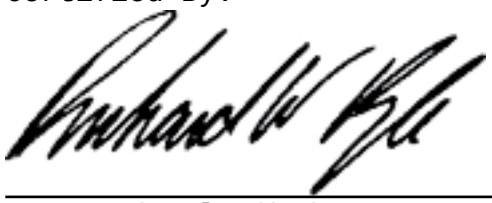
d. Records of Quality Assurance activities required by Paragraph 310 of the IAEA regulations[1] shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under 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/0700/B(U)-96 in addition to other required markings and labeling.

5. Expiration Date - This certificate expires on February 28, 2018.

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 January 25, 2013 petition by QSA Global, Inc., Burlington, MA, and in consideration of other information on file in this Office.

Certified By:



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

Feb 26 2013
(DATE)

Revision 4 - Issued to revalidate United Kingdom Certificate of Approval No. GB/3746A/B(U)-96, Issue 4.

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

THIS IS TO CERTIFY that, for the purposes of the Regulations of the International Atomic Energy Agency:

- **The Competent Authority of Great Britain in respect of inland surface transport, being the Secretary of State for Energy and Climate Change;**
- **The Competent Authority of the United Kingdom of Great Britain and Northern Ireland in respect of sea transport, being the Secretary of State for Transport;**
- **The Competent Authority of the United Kingdom of Great Britain and Northern Ireland in respect of air transport, being the Civil Aviation Authority; and**
- **The Competent Authority of Northern Ireland in respect of road transport, being the Department of the Environment (Northern Ireland)**

approve the package design as specified in section 1 of this certificate, as applied for by QSA Global Inc. (see section 6)

as Type B(U)

by road and rail in Great Britain; road in Northern Ireland; air; sea

Packaging identification: 3746A

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, the quality assurance programme(s) associated with the package or in any of the facts stated in the application for approval, this certificate will cease to have effect unless the Health and Safety Executive (Office for Nuclear Regulation) is notified of the alteration and the Health and Safety Executive (Office for Nuclear Regulation) confirms, on behalf of the relevant Competent Authority, the certificate notwithstanding the alteration.

Expiry Date: This certificate is valid until the end of February 2018 (see section 6)

COMPETENT AUTHORITY IDENTIFICATION MARK:

Type B(U)

GB/3746A/B(U)-96

G Sallit 22 Jan 2013

SIGNATURE DATE OF ISSUE

George Sallit, Deputy Chief Inspector
Health and Safety Executive (Office for Nuclear Regulation)
4N.2 Redgrave Court
Merton Road
Bootle
Merseyside L20 7HS

on behalf of the Secretary of State for Energy and Climate Change; the Secretary of State for Transport; the Civil Aviation Authority and the Department of the Environment for Northern Ireland

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.

Serial No. 2012/457585

REGULATIONS GOVERNING THE TRANSPORT OF RADIOACTIVE MATERIALS

INTERNATIONAL

International Atomic Energy Agency (IAEA)
TS-R-1 Regulations for the Safe Transport of Radioactive Materials 2009 Edition.

International Maritime Organisation (IMO)
International Maritime Dangerous Goods (IMDG) Code Amendment 35-10.

International Civil Aviation Organisation (ICAO)
Technical Instructions for the Safe Transport of Dangerous Goods by Air 2011-2012 Edition.

United Nations Economic Commission for Europe (UNECE)
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) 2011 Edition (to end June 2013) or European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) 2013 Edition.

Intergovernmental Organisation for International Carriage by Rail (OTIF)
Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) 2011 Edition (to end June 2013) or Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) 2013 Edition.

UNITED KINGDOM

ROAD
GREAT BRITAIN ONLY.
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009, SI 2009 No 1348 as amended by the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011, SI 2011 No 1885.

NORTHERN IRELAND ONLY.
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (Northern Ireland) 2010, SR 2010 No 160.

RAIL
GREAT BRITAIN ONLY.
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009, SI 2009 No 1348 as amended by the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011, SI 2011 No 1885.

SEA
British registered ships. All other ships whilst in United Kingdom territorial waters. The Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997, SI 1997 No 2367; Merchant Shipping Notice No MSN 1828 M, "The Carriage of Dangerous Goods and Marine Pollutants in Packaged Form - Amendment 35-10 to the International Maritime Dangerous Goods (IMDG) Code".

AIR
The Air Navigation Order 2009, SI 2009 No 3015. The Air Navigation (Dangerous Goods) Regulations 2002, SI 2002 No 2786. The Air Navigation (Dangerous Goods) (Amendment) (No. 2) Regulations 2011, SI 2011 No 1454.

1. PACKAGE DESIGN SPECIFICATION

The package design specification shall be in accordance with High Technology Sources Limited Package Design Safety Report reference RS 0137 Issue 2 dated 19 October 2012, approved by the authority named on page 1 of this certificate under the established modifications procedure.

1.1. Specification of Packaging

Design No.	Title (number of components)	Drawing / Drawing List	Issue
3746A	General Arrangement	JB132/000	B
	Drawing list	RS0136	2
3746	Outer / Steel Drum Assembly	JB132/010	B
P500	Inner / Lead Pot Body (one)	JB132/021	B
P505	Inner/ Steel Pot Lid (one)	JB132/026	B
Approved IAEA SF Capsule	Various	As valid	As valid

1.2. Permitted contents

1.2.1. Metallic iridium or selenium intermetallic alloy encapsulated as approved and valid IAEA Special Form capsule material.

1.2.2. The maximum activity of iridium-192 in the package is limited to 7.4 TBq, while that for selenium-75 is limited to 12.0 TBq.

1.2.3. Maximum heat load is limited to 2.78 W generating surface heat flux of 5.6 W/m^2.

1.2.4. When any combination of the radionuclides referred in 1.2.2 is to be carried; they shall be limited such that the sum of the proportionate amounts of each radionuclide present with respect to the quantities shown does not exceed one.

1.3. Package Dimensions and Weights

1.3.1. Nominal Dimensions: 325 mm diameter x 405 mm height (see section 5 for package illustration).

1.3.2. Maximum authorised gross weight: 54.0 kg.

2. USE OF PACKAGE

2.1 Use of packaging

2.1.1 The packaging shall be used, handled and maintained in accordance with the requirements of HPI 133 Issue 2 dated 19 October 2012.

2.2 Actions prior to shipment

2.2.1 Administrative controls shall ensure that the contents are in accordance with section 1 of this certificate, and that the consignor and consignee hold a copy of the instructions on the use of the packaging.
2.2.2 The package is not required to reach thermal equilibrium prior to shipment.

2.3 Emergency Arrangements

2.3.1 Before shipment takes place, the consignor shall have drawn up suitable emergency plans, copies of which shall be supplied to the GB Competent Authority on demand.
2.3.2 If the consignor's own, or other approved emergency plans cannot be initiated, for any reason, then the police shall be informed immediately and requested to call NAIR (National Arrangements for Incidents involving Radioactivity).

2.4 Ambient temperature range for package design

2.4.1 -40°C to +38°C
2.4.2 -40°C to +55°C for air

2.5 Statement of Compliance with IAEA TS-R-1 paragraphs 637, 653, 654 and 657-664

2.5.1 All the requirements in paragraphs 637, 653, 654 and 657-664 are complied with.

3. QUALITY ASSURANCE

3.1 The quality assurance programmes assessed as adequate in relation to this design by the authority named on page 1 of this certificate, at the date of issue, as specified in RS 0137 Issue 2 dated 19 October 2012 and comprise the following:

3.1.1 HTSL Quality manual ref; QCP1011 Issue 4; and
3.1.2 QSA Global Quality programme QSM-1; and
3.1.3 any other quality assurance programmes for design, testing manufacture, documentation, use, maintenance, inspection, transport and in-transit storage operations providing they comply with national or international standards for quality assurance agreed as acceptable by the authority named on page 1 of this certificate.

3.2 Any quality assurance programme(s) not made available for assessment by the authority named on page 1 of this certificate prior to the date of issue of this certificate and applicable to any stage of design, testing, manufacture, documentation, use, maintenance, inspection, transport and in-transit storage operations, must, prior to their implementation or use, be submitted to and confirmed as adequate by the authority named on page 1 of this certificate.

3.3 No alteration may be made to any quality assurance programme(s) confirmed as adequate in relation to this design, unless:

3.3.1 the authority named on page 1 has confirmed the amended QA programme is adequate prior to implementation or use; or

3.3.2 the alteration falls within the agreed change control procedures set out in the programme(s).

4. ADMINISTRATIVE INFORMATION

4.1 Other related certificates (alternative radioactive contents)

4.1.1 This certificate forms the base approval of this design. The only other related UK certificate using the 3746 outer is shown below:

Certificate Number	Expiry Date
GB/3746B/B(U)-96 Issue 3	28 February 2018

The list in 4.1.1 was complete at the time of compilation of this design approval certificate.

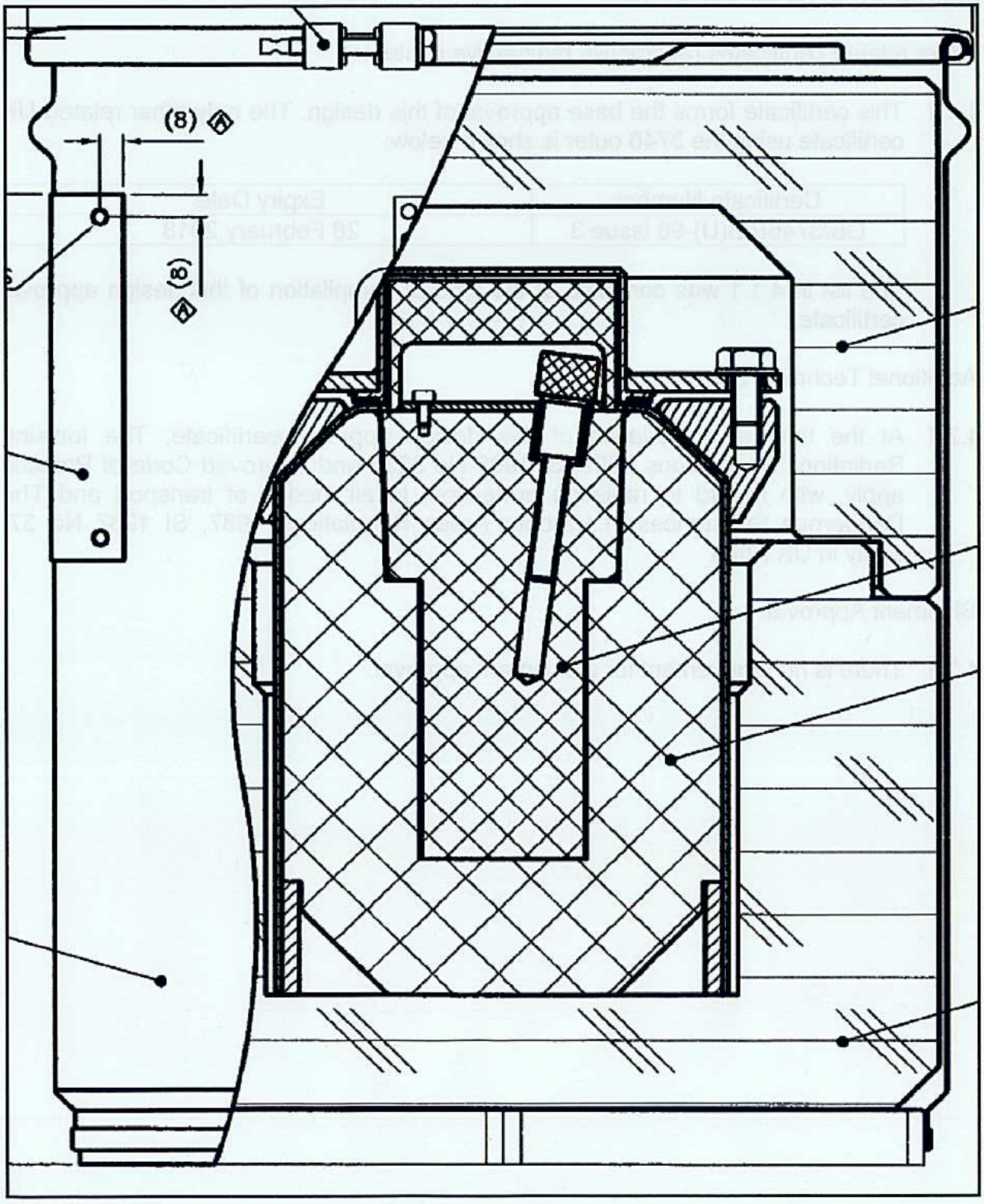
4.2 Additional Technical Data / Information

4.2.1 At the time of compilation of this design approval certificate, The Ionising Radiations Regulations 1999, SI 1999 No 3232 and Approved Code of Practice apply, with regard to radiation protection, to all modes of transport and The Dangerous Substances in Harbour Areas Regulations 1987, SI 1987 No 37, apply in UK Ports

4.3 Shipment Approval

4.3.1 There is no requirement for a shipment approval.

5. PACKAGE ILLUSTRATION



Serial No. 2012/457585

6. CERTIFICATE STATUS

Design Approval issued to:-

QSA Global Inc.
40, North Avenue,
Burlington, MA 01803
USA

Issue No.	Date of Issue	Date of Expiry	Reason for Revision
1	10 September 2004	30 September 2007	First issue under new regulations
2	24 September 2004	30 September 2007	Correction to specification of package
3	14 February 2008	28 February 2013	Change of ownership and renewal
4	See date on page 1	28 February 2018	Renewal

U.S. Department
of Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

**East Building, PHH-23
1200 New Jersey Avenue SE
Washington, D.C. 20590**

CERTIFICATE NUMBER: USA/0700/B(U)-96, Revision 4

ORIGINAL REGISTRANT(S):

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Product Licensing Specialist
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Burlington, MA 01803

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Director, Regulatory Affairs and QA
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Burlington, MA 01803

Mr. Michael Fuller
Regulatory Compliance Associate
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