GB/2727A/B(U) (Rev.1)

**CERTIFICATE OF APPROVAL OF PACKAGE DESIGN   
FOR THE CARRIAGE OF RADIOACTIVE MATERIAL**

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 Office for Nuclear Regulation;
* 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 Agriculture, Environment and Rural Affairs - Northern Ireland

approve the package design specified in Section 1 of this certificate, as submitted for approval by SXSUBSEA Ltd (see Section ‎5)

as: Type B(U)

by: Road, Rail, Sea and Air.

Packaging identification: Nautilus MK VI

Packages manufactured to this design meet the requirements of the regulations and codes on pages 3 and 4, 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 management system(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 Competent Authority is notified of the alteration and the Competent Authority confirms the certificate notwithstanding the alteration.

Expiry Date: This certificate cancels all previous revisions and is valid until the end of January 2029 (see Section ‎5).

COMPETENT AUTHORITY IDENTIFICATION MARK: GB/2727A/B(U)

Signature: Date of Issue: 1 February 2024

Office for Nuclear Regulation

Redgrave Court, Merton Road

Bootle, Merseyside

L20 7HS

on behalf of the Office for Nuclear Regulation; the Secretary of State for Transport; the Civil Aviation Authority; and the Department of Agriculture, Environment and Rural Affairs - 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.***

**REGULATIONS GOVERNING THE TRANSPORT OF RADIOACTIVE MATERIALS**

**INTERNATIONAL**

International Atomic Energy Agency (IAEA)

SSR-6 Regulations for the Safe Transport of Radioactive Material 2018 Edition

United Nations Economic Commission for Europe (UNECE)

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) 2023 Edition

Intergovernmental Organisation for International Carriage by Rail (OTIF)

Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) 2023 Edition

International Maritime Organization (IMO)

International Maritime Dangerous Goods (IMDG) Code 2022 Edition incorporating Amendment 41-22

International Civil Aviation Organization (ICAO)

Technical Instructions for the Safe Transport of Dangerous Goods by Air 2023-2024 Edition

**UNITED KINGDOM**

***ROAD***

GREAT BRITAIN ONLY:

The Energy Act 2013 (2013 c. 32); The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348); The Energy Act 2013 (Office for Nuclear Regulation) (Consequential Amendments, Transitional Provisions and Savings) Order 2014 (SI 2014 No. 469)

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 Energy Act 2013 (2013 c. 32); The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348); The Energy Act 2013 (Office for Nuclear Regulation) (Consequential Amendments, Transitional Provisions and Savings) Order 2014 (SI 2014 No. 469)

***SEA***

British registered ships and all other ships whilst in United Kingdom territorial waters:

The Merchant Shipping Act 1995 (1995 c. 21); The Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No. 2367); Merchant Shipping Notice MSN 1914 (M) The carriage of dangerous goods and marine pollutants: Amendments to international standards

***AIR***

The Air Navigation Order 2016 (SI 2016 No. 765); The Air Navigation (Dangerous Goods) Regulations 2002 (SI 2002 No.2786)

1. DESIGN SPECIFICATION
   1. Package Design
      * 1. The package design specification shall be in accordance with SXSUBSEA Ltd. Nautilus MK VI Package Design Safety Report, R-14-186-033 Rev 1, dated 26 June 2023, and modifications to the package design approved by the authorities named on page 1 of this certificate under the established modifications procedure.
   2. Design Drawings
      * 1. The design is specified in the following drawings.

|  |  |  |  |
| --- | --- | --- | --- |
| **Design No.** | **Title (number of components)** | **Drawing / Drawing List** | **Issue** |
| 2727A | Outer - Stainless Steel Drum Assembly (1) | JB171/010 | C |
| 2727A | Intermediate - Cork Insert (1) | CS0006015 | 2 |
| 2727A | Inner - Nautilus MK VI Projector Assembly (1) | CS0006A | 10 |

* 1. Package Description and Materials of Manufacture
     + 1. The packaging consists of a drum and a projector. The stainless steel drum is lined with cork, machined to fit around the Nautilus MK VI projector, and closed with a clamp band. The projector is a cylindrical stainless steel fabrication, enclosing three interlocking depleted uranium components which form the radiation shield. See Appendix 1 for package illustration.
  2. Package Dimension and Weights
     + 1. Nominal dimensions: 378 mm diameter x 503 mm height
       2. Maximum authorised gross weight: 44 kg
  3. Authorised Contents
     + 1. Authorised radioactive contents:

1. Physical and chemical form - less than 1 g of solid metal;
2. Activities - a maximum of 12.2 TBq of iridium-192; and
3. Competent authority approved special form radioactive material with physical dimensions bounded by USA/0392/S-96 (Model 875).

Restriction on Contents

* + - 1. The maximum heat load shall not exceed 2.6 W.
  1. Containment System
     + 1. The containment system is the special form capsule.

1. use of package
   1. Information Provided in Safety Report on Use of Packaging
      * 1. The packaging shall be used and handled in accordance with SXSUBSEA Ltd. Standard Operating Procedure, Nautilus MK VI Package Operating & Maintenance Manual, SOP 073 Rev 4, dated 23 February 2023.
        2. The packaging shall be maintained in accordance with SXSUBSEA Ltd. Standard Operating Procedure, Nautilus MK VI Package Operating & Maintenance Manual, SOP 073 Rev 4, dated 23 February 2023.
   2. Actions Prior to Shipment
      * 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 certificate and instructions on the use of the packaging.
   3. Emergency Arrangements
      * 1. Before shipment takes place, adequate emergency arrangements must be made, copies of which shall be supplied to the GB Competent Authority on demand.
        2. Within Great Britain, if the consignor’s own, or other approved emergency plans, cannot be initiated for any reason, then the police shall be informed immediately.
2. management systems
   * + 1. The management system(s) assessed as adequate in relation to this design by the authorities named on page 1 of this certificate, at the date of issue, are as specified in SXSUBSEA Ltd. Nautilus MK VI Package Design Safety Report, R-14-186-033 Rev 1, dated 26 June 2023 referred to in Section 1 above, and comprise the following:

* QM001 Management System Manual Rev 7.
  + - 1. No alteration may be made to any management system confirmed as adequate in relation to this design, unless:
         1. the authorities named on page 1 of this certificate have confirmed the amended management system is adequate prior to implementation or use; or
         2. the alteration falls within the agreed change control procedures set out in the management system(s).
      2. Other management systems for design, testing, manufacture, documentation, use, maintenance, inspection, transport and in-transit storage operations may be used providing they comply with international, national or other standards for management systems agreed as acceptable by the authorities named on page 1 of this certificate.

1. ADMINISTRATIVE INFORMATION
   1. Packaging Serial Numbers
      * 1. For the purpose of compliance with ADR / RID, the owner of the packaging shall be responsible for informing ONR of the serial number of each packaging manufactured to this design.
2. CERTIFICATE STATUS
   1. Design approval issued to:

SXSUBSEA Ltd.

119 Western Avenue

Woodley

Berkshire

RG5 3BL

United Kingdom

|  |  |  |  |
| --- | --- | --- | --- |
| **Issue / Revision Number** | **Date of Issue** | **Date of Expiry** | **Reason for Revision** |
| 17 | 29 March 2011 | 31 March 2014 | Approval to previous versions of the regulations. |
| 0 | 16 January 2019 | 31 January 2024 | Full package review and approval. |
| 1 | 1 February 2024 | 31 January 2029 | Renewal and update of documentation. |

Appendix 1 – package illustration

