U.S. Department of Transportation

Pipeline and Hazardous Materials Safety Administration

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

COMPETENT AUTHORITY CERTIFICATION FOR A TYPE B(U) RADIOACTIVE MATERIALS PACKAGE DESIGN CERTIFICATE USA/9215/B(U), REVISION 15

The Competent Authority of the United States certifies that the radioactive material package design described in this certificate satisfies the regulatory requirements for a Type B(U) package as prescribed in the regulations of the International Atomic Energy Agency[1] and the United States of America[2] The package design is approved for use within the United States for import and export shipments made in accordance with applicable international and domestic transport regulations.

1. Package Identification - NPI-20WC-6 MkII.

2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9215, Revision 16 (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 Engineering and Research, (PHH-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.

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[1] "Regulations for the Safe Transport of Radioactive Material, 2012 Edition, No. SSR-6" 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/9215/B(U), REVISION 15

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.

d. Records of Management System activities required by Paragraph 306 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. Special Condition - This package is approved as meeting the requirements of the 1973 Edition of the IAEA regulations. Fabrication of new packagings is not authorized. The package design has not been evaluated against the requirements of the 2018 Edition of the IAEA regulations.

5. Marking and Labeling - The package shall bear the marking USA/9215/B(U) in addition to other required markings and labeling.

6. Expiration Date - This certificate expires on May 31, 2023. Previous editions which have not reached their expiration date may continue to be used.

This certificate is issued in accordance with paragraph(s) 810 and 820 of the IAEA Regulations and Section 173.471 of Title 49 of the Code of Federal Regulations, in response to the July 6, 2020 petition by Neutron Products, Inc., Dickerson, MD, and in consideration of other information on file in this Office.

Certified By:

for William Schoonover
Associate Administrator for Hazardous Materials Safety

July 24, 2020
(DATE)

Revision 15 - Issued to endorse U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9215, Revision 16.

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE		PAGES
9215	16	71-9215	USA/9215/B(U)	1	OF	5

2. PREAMBLE

a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."

b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

a. ISSUED TO *(Name and Address)*

Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson, MD 20842

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Neutron Products, Inc., application dated May 1, 2018, as supplemented.

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

(1) Model No.: NPI-20WC-6 MkII

(2) Description

A steel encased, lead shielded cask contained within a wooden overpack with a steel outer shell. The cask is 24 inches in diameter with a 3/8-inch thick steel spherical shell and a cavity formed by an 8-1/4-inch ID by 3/16-inch thick steel tube. Positive closure of the shielded cask is accomplished by bolted end covers at each end of the cavity. The overpack outer diameter, including the flanges which secures the lid to the body and the tie downs brackets, is approximately 55 inches in diameter. The overpack height, including the lid lifting eye and the base support structure, is approximately 59 inches. The maximum package gross weight is 6,000 pounds.

(3) Drawings

The Model No. NPI-20WC-6 MkII packaging is constructed in accordance with Neutron Products, Inc., Drawing Nos. 240116, Rev. J; and 240122, Sheet 1 of 2, Rev. H, Sheet 2 of 2, Rev. H.

(b) Contents

(1) Type and form of material

(i) Cobalt-60 as sealed sources which meet the requirements of special form radioactive material.

(ii) Cesium-137 as sealed sources which meet the requirements of special form radioactive material.

(2) Maximum quantity of material per package

(i) For contents described in 5(b)(1)(i) contained within drum assembly shown as Item 5 on Neutron Products, Inc., Drawing No. 240122, Sheet 1 of 2, Rev. H:

(a) Maximum decay heat not to exceed 240 watts.

(b) Maximum activity not to exceed 15,000 curies provided all the following conditions are met:

At least 6 inches of full-diameter, axial shielding between the source and each shipping/transfer cask (S/TC) cover. Stainless steel, lead, or tungsten alloy may be used for 2 inches of shielding nearest the S/TC covers, with the remaining axial shielding provided by tungsten alloy.

The source is centered within the drawer cavity

The source is of uniform activity.

(c) For configurations that do not meet all the conditions in 5(b)(2)(i)(b), the contents shall be shown to meet the requirements in 10 CFR 71.47(b) in accordance with Procedure R-2014G.

5.(b)(2) Contents (Continued)

(ii) For contents described in 5(b)(1)(i) contained within drum assembly shown as Item 4 on Neutron Products, Inc., Drawing No. 240122, Sheet 2 of 2, Rev. H:

(a) Maximum decay heat not to exceed 150 watts.

(b) Maximum activity not to exceed 9,500 curies provided all the following conditions are met:

At least 5 inches of full-diameter, axial shielding between the source and each shipping/transfer cask (S/TC) cover. Stainless steel, lead, or tungsten alloy may be used for 2 inches of shielding nearest the S/TC covers, with the remaining axial shielding provided by tungsten alloy.

The source is centered within the drawer cavity.

The source is of uniform activity.

(c) For configurations that do not meet all the conditions in 5(b)(2)(ii)(b), the contents shall be shown to meet the requirements in 10 CFR 71.47(b) in accordance with Procedure R-2014G.

(iii) For contents described in 5(b)(1)(i) contained within drum assembly shown as Item 2 on Neutron Products, Inc., Drawing No. 240122, Sheet 2 of 2, Rev. H:

(a) Maximum decay heat not to exceed 100 watts.

(b) Maximum activity not to exceed 6,000 curies provided all the following conditions are met:

At least 5 inches of full-diameter, axial shielding between the source and each shipping/transfer cask (S/TC) cover. Stainless steel, lead, or tungsten alloy may be used for 2 inches of shielding nearest the S/TC covers, with the remaining axial shielding provided by tungsten alloy.

The source is centered within the drawer cavity.

The source is of uniform activity.

(c) For configurations that do not meet all the conditions in 5(b)(2)(iii)(b), the contents shall be shown to meet the requirements in 10 CFR 71.47(b) in accordance with Procedure R-2014G.

5.(b)(2) Contents (Continued)

(iv) For contents described in 5(b)(1)(ii):

(a) Maximum decay heat not to exceed 97 watts.

(b) Maximum activity not to exceed 20,600 curies provided all the following conditions are met:

At least 2 inches of full-diameter, axial shielding between the source and each shipping/transfer cask (S/TC) cover provided by lead or tungsten alloy.

The source is of uniform activity.

(c) Maximum activity not to exceed 4,000 curies provided all the following conditions are met:

At least 1 inch of full-diameter, axial shielding between the source and each shipping/transfer cask (S/TC) cover provided by lead or tungsten alloy.

The center of the source is not shifted axially more than 2 inches from the center of the drawer.

The source is of uniform activity.

(d) For configurations that do not meet all the conditions in 5(b)(2)(iv)(b) or 5(b)(2)(iv)(c), the contents shall be shown to meet the requirements in 10 CFR 71.47(b) in accordance with Procedure R-2014G.

6. In addition to the requirements of Subpart G of 10 CFR Part 71:

(a) The package must be maintained in accordance with Maintenance and Storage Procedure for USA/9215/B(U) Package, R-2019G.

(b) The package shall be prepared for shipment and operated in accordance with Unloading and Loading Procedure for USA/9215/B(U) Package, R-2014G.

7. The contents must be secured in the drum assembly by steel, lead, and/or tungsten alloy plugs and spacers so as to restrict movement in any direction to less than 0.25 inch. A minimum of 1-inch axial spacing between the source and each S/TC cover shall be maintained by steel, lead, and/or tungsten alloy plugs and/or spacers. Inert components integral to the source assembly/holder may also be used to maintain this spacing.

8. The gross weight of the package must not exceed 6,000 pounds, and the inner shield cask shall be snug-fitting within the wooden overpack.

9. Contents described in 5(b)(1)(i) and 5(b)(1)(ii) may not be shipped together in the same package.

10. Fabrication of new packagings is not authorized.

11. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

12. Revision No. 15 of this certificate may be used until December 31, 2020.

13. Expiration date: May 31, 2023.

REFERENCES

Neutron Products, Incorporated, application dated May 7, 2018, supplemented by letter dated August 27, 2018, April 5, July 26, September 4, and November 11, 2019.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Daniel I. Doyle, Acting Chief
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Date: 12/20/2019

U.S. Department of
Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

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

CERTIFICATE NUMBER: USA/9215/B(U)

ORIGINAL REGISTRANT(S):

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