

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
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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* (10 CFR), 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 inner diameter 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.

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(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.

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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 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 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.

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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 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 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.

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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. Expiration date: May 31, 2028.

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; April 21, 2023.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



Signed by Diaz-Sanabria, Yoira
on 05/30/23

Yoira K. Diaz-Sanabria, Chief
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Date: May 30, 2023



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION REPORT

Docket No. 71-9215
Model No. NPI-20WC-6 MkII
Certificate of Compliance No. 9215
Revision No. 17

SUMMARY

By application dated April 21, 2023, Neutron Products (the applicant) submitted a renewal request for Certificate of Compliance No. 9215 for the Model No. NPI-20WC-6 MkII package. The certificate holder did not request any changes to the package design, operating procedures, acceptance tests, nor maintenance program for the package. The certificate has been renewed for a five-year term.

CONCLUSION

By application dated April 21, 2023, Neutron Products requested renewal of Certificate of Compliance No. 9215 for the Model No. NPI-20WC-6 MkII package. The applicant requested neither changes to the package design nor authorized contents. The staff reviewed the documents referenced in the certificate and determined that the documentation was available and complete. The staff also reviewed the operating and maintenance procedures for the package and found them to be adequate.

Staff replaced "ID" with "inner diameter" in Condition No. 5.(a)(2), removed duplicative definitions of the acronym "S/TC" from Condition Nos. 5.(b)(2)(ii)(b), 5.(b)(2)(iii)(b), 5.(b)(2)(iv)(b) and 5.(b)(2)(iv)(b) and made other editorial changes. Staff deleted Condition No. 12 because the previous certificate of compliance cannot be used beyond the May 31, 2023 expiration date. The staff renumbered the previous Condition No. 13 to Condition No. 12, and updated the expiration date identified in the certificate. Staff also revised the certificate of compliance to update the revision number, to remove unnecessary change bars and make formatting changes.

The certificate has been renewed for a five-year term that expires on May 31, 2028. This change does not affect the ability of the package to meet the requirements of Title 10 of the *Code of Federal Regulations* Part 71.

Issued with Certificate of Compliance No. 9215, Revision No. 17.