

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9250	13	71-9250	USA/9250/B(U)F-85	1	OF 4

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

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| a. ISSUED TO ( <i>Name and Address</i> )<br>BWXT Nuclear Operations Group, Inc.<br>P.O. Box 785<br>Lynchburg, VA 24505 | b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION<br>BWXT Nuclear Operations Group, Inc. application dated<br>March 4, 2016. |
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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.: 5X22
- (2) Description

A shipping container for unirradiated uranium of any enrichment. The outer packaging is a 16-gauge steel drum, approximately 22-1/2 inches in diameter and 34-3/4 inches high, with a heavy-duty clamp ring and forged lugs. The inner vessel (containment vessel) is a Schedule 40S stainless steel pipe with a welded bottom cap and a top weldneck flange. The inner vessel lid is a blind flange which is bolted to the weldneck flange with eight hex-head bolts. The closure includes double silicone O-ring seals and a leak-test port. The dimensions of the inner vessel are approximately 5 inches ID by 22 inches high. The inner vessel is centered within the outer drum by fiberboard and supported by plywood disks. The maximum weight of the package, including contents, is 300 pounds.

(3) Drawings

The packaging is constructed in accordance with BWX Technologies, Inc., Drawing Nos. 1220276 E, Rev. 6, and 1220277 E, Rev. 10

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5.(b) Contents

Type and form of material, maximum quantity of material per package, and Criticality Safety Index.

The weight of the contents, including secondary containers, inserts, and other materials in the inner vessel, shall not exceed 50 pounds.

- (1) Unirradiated uranium as solid compounds or alloys which do not decompose at temperatures up to 250 degrees Fahrenheit, and uranium oxides as powder or pellets. The uranium may be of any enrichment. Carbide compounds are not authorized. The maximum H/U must consider all sources of moderation in the inner vessel.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	3	9.0	2.0
U-235	3	1.6	0.5
U-235	20	4.0	2.0
U-233	20	0.5	1.8

- (2) Unirradiated solid uranyl nitrate in the form of uranyl nitrate dihydrate crystals, which may have small amounts of uranyl trihydrate crystals interspersed. The uranyl nitrate crystals shall have a uranium content that is from 52.5 to 56.0 percent by weight. The uranyl nitrate shall be packaged in Teflon primary containers that will not melt at temperatures up to 94 degrees Celsius. The uranium may be of any enrichment. The maximum H/U must consider all sources of moderation in the inner vessel.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	3	9.0	2.0
U-235	3	1.6	0.5
U-235	20	4.0	2.0
U-233	20	0.5	1.8

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5.(b) Contents (continued)

- (3) Unirradiated uranium as solid metal. The uranium may be of any enrichment. The maximum H/U must consider all sources of moderation in the inner vessel.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	3	9.0	2.5
U-235	3	1.6	0.5
U-235	20	4.0	2.0
U-233	20	0.5	1.8

- (4) Unirradiated uranium as solid metal. The uranium may be of any enrichment. The packaging must include a solid aluminum disk insert positioned in the inner vessel, as shown on BWX Technologies, Inc., Drawing No. 1220277 E, Rev. 10 (Part No. 6). The maximum H/U must consider all sources of moderation in the inner vessel.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	3	9.0	2.0

- (5) Unirradiated liquid uranyl nitrate solution in sealed glass containers or screw top plastic vials, each within one or more additional plastic vials with taped lids, and within a sealed product can or polyethylene bottle containing a sufficient amount of vermiculite to absorb twice the liquid contents present. The uranium may be of any enrichment. The quantity of uranyl nitrate shall not exceed 1000 mL of solution.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	N/A	0.4	0.4

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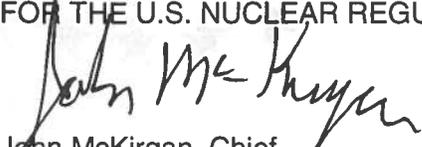
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6. The vent holes on the outer steel drum shall be capped or taped closed during transport and storage to preclude entry of rain water into the packaging.
7. In addition to the requirements of Subpart G of 10 CFR Part 71:
  - (a) Each package shall be operated and prepared for shipment in accordance with Chapter 7 of the application.
  - (b) Each package shall be acceptance tested and maintained in accordance with Chapter 8 of the application.
8. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
9. The package is subject to the provisions of 10 CFR 71.19(c), which requires that all fabrication of this packaging must have been completed by December 31, 2006.
10. Transport by air of fissile material is not authorized.
11. Revision No. 12 of this certificate may be used until June 30, 2017.
12. Expiration date: October 31, 2019.

REFERENCES

BWXT Nuclear Operations Group, Inc., application dated March 4, 2016.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

  
John McKirgan, Chief  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Date:

6/16/16



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

**SAFETY EVALUATION REPORT**  
**Docket No. 71-9250**  
**Model No. 5X22**  
**Certificate of Compliance No. 9250**  
**Revision No. 13**

## **SUMMARY**

By letter dated March 4, 2016 BWXT, Nuclear Operations Group, Inc. requested an amendment to Certificate of Compliance No. 9250, for the Model No. 5X22 transportation package. The letter requested name changes to the subject certificate of compliance due to a recent company name change. The certificate has been updated to Revision No. 13 to reflect the changes.

## **EVALUATION**

The purpose of the amendment was to change the name of the entity the certificate of compliance is issued to from "Babcock and Wilcox Nuclear Operations Group, Inc." to the new name "BWXT Nuclear Operations Group, Inc." BWXT also submitted a copy of the consolidated Safety Analysis Report for Packaging (SARP) for the Model No. 5X22. Revisions to the SARP included company name changes and two corrections noted in the March 4, 2016 letter.

These changes do not affect the ability of the package to meet 10 CFR Part 71 requirements.

## **CONDITIONS**

The following changes have been made to the certificate of compliance:

Section 3.a. of the certificate of compliance has been revised to reflect the new name of the certificate holder and applicant, "BWXT Nuclear Operations Group, Inc." as requested.

Section 5(a)(3) has been revised to reflect the current revision numbers of Drawing Nos. 1220276 E, Rev. 6, and 1220277 E, Rev. 10. The drawings were changed to reflect the new name of the certificate holder and applicant, "BWXT Technologies, Inc."

Section 5.(b)(4) has been revised to reflect the new name of the certificate holder and applicant, "BWXT Technologies, Inc."

"As supplemented" was removed from Section 7.(a)

Condition 11 now allows use of Revision No. 12 of the certificate until June 30, 2017.

The References section has been updated to include the name change request.

## **CONCLUSION**

Based on the statements and representations in the amendment request, the staff finds that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9250, Revision No. 13, on June 16, 2016.