NRC FORM 618
(8-2000)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE		PAGES
9975	1	71-9975	USA/9975/B(M)F-96	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

a. ISSUED TO *(Name and Address)*

U.S. Department of Energy
Washington DC, 20585

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Safety Analysis Report Model 9975, Revision 1, dated April 2014, 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.: 9975

(2) Description

The packaging consists of a drum assembly, insulating and impact absorbing material, a lead shield assembly, the secondary containment vessel (SCV), and the primary containment vessel (PCV) which contains the radioactive contents within the inner and outer stainless steel seal-welded 3013 containers.

The drum and the lid are fabricated from 18-gauge Type 304L stainless steel. The drum lid, recessed below the top surface of the closure flange, is secured by twenty four ½-inch bolts. The drum is vented by four ½-inch diameter vent holes, approximately 90° apart and 1 inch below the drum flange, covered with fusible plastic plugs that melt in a fire, allowing venting to prevent rupture of the drum.

A thermal blanket, placed between the top insulation subassembly and the drum closure lid for additional thermal protection, serves also as packing to reduce axial movements of the components in the drum.

The lead of the shielding body is ASTM B-749 or B29 and machined, after casting, to a nominal thickness of ½-inch. The lid of the shielding body is ½-inch thick ASTM B-209 1100 aluminum and attaches to the shielding body with four screws.

5.(a)(2) Description (Continued)

The nested PCV and SCV, which provide the packaging double containment system, are loaded into the shielding body of the packaging, and are fabricated from a Schedule 40, seamless, Type 304L stainless steel pipe. The PCV and SCV are closed by a 3/4-inch thick cone-seal plug and nut assembly that holds the O-ring that forms the containment boundary at the open ends of the vessels. The containment boundary for the vessel is formed by the containment vessel body, the cone-seal plug, the outer O-ring and the leak-test port plug. The PCV has an internal volume of approximately 313 cubic inches, a usable inside cavity approximately 15 inches deep, and a minimum diameter of 5 inches. The assembled SCV has an internal volume of approximately 604 cubic inches, a usable cavity approximately 21.5 inches deep with a minimum diameter of 6 inches.

Aluminum honeycomb impact absorbers are used in the SCV to reduce the impact loads transmitted between the containment vessels. An aluminum spacer is installed in the bottom of the PCV to provide a flat surface for the 3013 container.

The maximum weights (lb) are listed below:

Maximum Value	Empty Packaging	374
Maximum Value	Contents	44.4
Maximum Value	Package [(i)]	404

(i)Due to the variability of the empty packaging weight, the weight of the contents may have to be limited so that the package maximum weight does not exceed 404 lb.

(3) Drawings

The packaging is constructed and assembled in accordance with the following drawings:

DWG No. R-R2-G-00078, Rev. 0, 9975 Shipping Package Drum with Flange Closure Assembly.

DWG No. R-R2-G-00083, Rev. 0, 9975 Shipping Package Insulation Assembly, Subassemblies and Details.

DWG No. R-R2-G-00079, Rev. 0, 9975 Shipping Package Shielding.

DWG No. R-R2-G-00080, Rev. 0, 9975 Drum with Flange Closure Subassembly and Details.

DWG No. R-R2-G-00081, Rev. 0, 9975 Shipping Package Primary and Secondary Containment Vessels Subassemblies.

5(a)(3) Drawings (Continued)

DWG No. R-R3-G-00063, Rev. 0, 9975 Shipping Package Containment Vessel Weldments.

DWG No. R-R3-G-00064, Rev. 0, 9975 Shipping Package Air Shield Weldment.

DWG No. R-R4-G-00102, Rev. 0, 9975 Shipping Primary (PCV) and Secondary (SCV) Containment Vessel Details.

DWG No. R-R4-G-00103, Rev. 0, 9975 Shipping Package PCV Sleeve and 3013 Top Spacer Details.

DWG No. R-R2-G-00082, Rev. 0, 9975 Packaging Alternate 3013 Spacer Components Details

DWG No. R-R2-G-00107, Rev. 0, Model 9975 Plug and Gland Nut.

5.(b) Contents

(1) Type and form of material: plutonium and uranium oxides, as a solid form.

(2) Maximum quantity of material per package

(i) Maximum decay heat: 19 watts.

(ii) Maximum mass of content: 5 kg.

(iii) Maximum mass of packaged contents: 20.1kg (44.4 lb)

(iv) Plutonium and uranium mass shall not be less than 30 weight percent of the total content mass.

(3) Liquid contents are prohibited.

(4) Contents shall be stabilized and packaged in accordance with DOE Standard, “Stabilization, Packaging and Storage of Plutonium-Bearing Materials,” DOE-STD-3013, March 2012.

(5) Actinides, fission products, decay products, and neutron activation products are permitted as long as their concentrations are less than 1,000 ppm each.

(6) The moisture content of the oxide shall be less than 0.5 weight percent of the total content mass.

5(c) Criticality Safety Index: 0

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

(a) The package must be prepared for shipment and operated in accordance with the Operating Procedures of Chapter No. 7 of the application, and

(b) Each packaging must meet the Acceptance Tests and Maintenance Program of Chapter No. 8 of the application.

7. Packages previously marked “USA/9975/B(M)F-96 (DOE)” must meet the requirements of this certificate. The “DOE” marking on the nameplate shall be covered, while maintaining nameplate legibility, for the duration of the shipment under this certificate.

8. Transport of fissile material by air is not authorized.

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

10. Expiration date: October 31, 2024.

REFERENCES

Safety Analysis Report Model 9975, S-SAR-G-00001, Rev. 1, dated April 2014.

Supplement dated September 16, 2014.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

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

Date: August 13, 2019