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
5797	23	71-5797	USA/5797/B(U)F	1	OF 3

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, D.C. 20585

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Safety Analysis Report for Packaging the ORNL HFIR Unirradiated Fuel Element Shipping Container, ORNL/TM-11656, Rev. 11, dated July 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.: Inner HFIR Unirradiated Fuel Element Shipping Container, and Outer HFIR Unirradiated Fuel Element Shipping Container

(2) Description

Packaging for unirradiated fissile radioactive material as fuel elements for the High Flux Isotope Reactor (HFIR). The containers are right circular cylinders with an 11-gauge carbon steel shell. The lid is attached to the container with sixteen 3/8-16x1-inch steel bolts. The steel shell is filled with stacked fir plywood rings. The plywood rings form a central cavity which is lined with 1-inch thick polyethylene foam.

The packaging for the inner HFIR fuel element has overall dimension of 25 inches OD by 45 inches high, a 10-7/8-inch diameter by 30-1/4-inch deep cavity, and a 660 pound gross weight.

The packaging for the outer HFIR fuel element has overall dimensions of 31.5 inches OD by 45.75 inches high, a 17-3/8-inch diameter by 31-1/8-inch deep cavity, and a 1,050 pound gross weight.

(3) Drawings

(i) The packaging for the inner HFIR fuel is constructed in accordance with Oak Ridge National Laboratory Drawing Nos. M-20978-EL-003E, Rev. G, and M-20978-EL-008E, Rev. D.

5. (a) (3) Drawings (continued)

(ii) The packaging for the outer HFIR fuel is constructed in accordance with Oak Ridge National Laboratory Drawing Nos. M-20978-EL-002E, Rev. F, and M-20978-EL-008E, Rev. D.

(b) Contents

(1) Type and form of material

Uranium as U_3O_8-Al cermet, enriched up to 95% in the U-235 isotope, and each fuel plate clad in aluminum, 10-mils thick. Only intact assemblies comprised of whole fuel plates with no known or suspected cladding defects are authorized, and:

(i) For the packaging described in 5(a)(3)(i), the contents are described in the Oak Ridge National Laboratory Drawing No.: M11524-OH-106, Rev. 5.

(ii) For the packaging described in 5(a)(3)(ii) the contents are described in the Oak Ridge National Laboratory Drawing No.: M11524-OH-107, Rev. 5.

(2) Maximum quantity of material per package

(i) For the contents described in 5(b)(1)(i) not more than 2.63 kg of U-235.

(ii) For the contents described in 5(b)(1)(ii) not more than 6.88 kg of U-235.

(c) Criticality Safety Index 0.4

6. The lid lifting attachments must be blocked as shown on Oak Ridge National Laboratory Drawing No. M-20978-EL-009E, Rev. 2, to prevent inadvertent use of the attachments during transport.

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

(a) Each package shall be maintained in accordance with the Maintenance Program in Chapter 8 of the application, as supplemented; and

(b) Each package shall be operated and prepared for shipment in accordance with the Operating Procedures in Chapter 7 of the application, as supplemented.

8. Use of packagings fabricated after December 31, 1976, is not authorized.

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

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

11. Revision 22 of this certificate may be used until October 31, 2023.

12. Expiration date: October 31, 2027.

REFERENCES

Safety Analysis Report for Packaging the ORNL HFIR Unirradiated Fuel Element Shipping Container, ORNL/TM-11656, Volumes 1 and 2, Revision 11, dated July 2018

Supplement: Safety Analysis Report for Packaging the ORNL HFIR Unirradiated Fuel Element Shipping Container, ORNL/TM-11656, Volumes 1 and 2, Revision 12 (page-changes), dated May 2020

Supplement: Safety Analysis Report for Packaging the ORNL HFIR Unirradiated Fuel Element Shipping Container, ORNL/TM-11656, Volumes 1 and 2, Revision 13 (page-changes), dated September 2020

Supplement: Safety Analysis Report For Packaging: The ORNL HFIR Unirradiated Fuel Element Shipping Container, ORNL/TM-11656 (ORNL/TM-V11656/V1 and V2, Rev. 14, change-pages, dated June 2022)

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Yoira K. Diaz-Sanabria Signed by Diaz-Sanabria, Yoira on 10/03/22

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

Date: October 3, 2022