



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

APPROVAL RECORD

Model No. 927A1 and 927C1 Packages
Certificate of Compliance No. 6078
Revision No. 20

By application dated August 14, 1995, Combustion Engineering, Inc., (CE) requested renewal of Certificate of Compliance No. 6078. No changes to the package design were requested and no changes have been made to the package since the last amendment dated December 22, 1994. Sections on operating procedures, acceptance tests and maintenance programs were reviewed and found to be adequate.

The certificate has been conditioned to require that the package be prepared for shipment, operated and maintained in accordance with the procedures in the May 25, 1990, application and the associated supplements referenced in the Certificate of Compliance. The applicant has expressed its intention to submit a completely revised application within one month in order to expand current shipping capabilities. This revised application will also serve as a consolidated application due to the large number of supplements referenced in the Certificate of Compliance.

The Certificate of Compliance has been renewed for a five year period which expires October 31, 2000.

Cass R. Chappell

Cass R. Chappell, Section Leader
Package Certification Section
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

SEP 13 1995

Date: _____

S-28

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES**

U.S. NUCLEAR REGULATORY COMMISSION

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. PACKAGE IDENTIFICATION NUMBER	d. PAGE NUMBER	e. TOTAL NUMBER PAGES
6078	20	USA/6078/B()F	1	3

2. PREAMBLE

- a. This certificate is issued to certify that the 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)

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:

Combustion Engineering, Inc.
1000 Prospect Hill Road
Windsor, CT 06095-0500

Combustion Engineering application dated
May 25, 1990, as supplemented

c. DOCKET NUMBER

71-6078

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 Nos.: 927A1 and 927C1
- (2) Description

A steel fuel bundle shipping container consisting of a strongback and fuel bundle clamping assembly, shock mounted to a steel outer container. The fuel bundles are separated by 3/16" thick, high-carbon steel segmented separator blocks permanently attached to the strongback. The segmented separator blocks are 6" x 8" and are installed (welded) in segments to form a continuous block for the entire active length of the fuel assembly. The Model No. 927A1 package is approximately 43" in diameter by 189" long with an approximate gross weight of 6,700 lbs. The Model No. 927C1 package is approximately 43" in diameter by 216" long with an approximate gross weight of 7,300 lbs.

(3) Drawing

The Model Nos. 927A1 and 927C1 containers are constructed in accordance with Combustion Engineering, Inc. Drawing No. NFM-E-4108, Sheets 1 through 4, Rev. 11.

(b) Contents

(1) Type and form of material

- (i) Model No. 927A1: unirradiated fuel bundles consisting of 0.38" diameter uranium dioxide fuel pellets clad in 0.028" thick zircaloy tubes in a 14 x 14 square array with a 0.58" pitch. Each fuel bundle consists of a maximum of 176 fuel rods with a maximum 5.0 w/o enrichment in the U-235 isotope, and contains not more than 19.6 kg U-235.

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5.(b) (1) Contents (Continued)

- (ii) Model No. 927A1: unirradiated fuel bundles consisting of 0.381" diameter uranium dioxide fuel pellets clad in 0.026" thick zircaloy tubes in a 14 x 14 square array with a 0.58" pitch. Each fuel bundle consists of a maximum of 176 fuel rods with a maximum 4.76 w/o enrichment in the U-235 isotope, and contains not more than 19.6 kg U-235.
- (iii) Model No. 927A1: unirradiated fuel bundles consisting of 0.33" diameter uranium dioxide fuel pellets clad in 0.025" thick zircaloy tubes in a 16 x 16 square array with a 0.506" pitch. Each fuel bundle consists of a maximum of 236 fuel rods with a maximum 5.0 w/o enrichment in the U-235 isotope, and contains not more than 20.76 kg U-235.
- (iv) Model No. 927A1: unirradiated fuel bundles consisting of 0.31" diameter uranium dioxide fuel pellets clad in 0.024" thick zircaloy tubes in a 16 x 16 square array with a 0.472" pitch. Each fuel bundle consists of a maximum of 231 fuel rods with a maximum 5.0 w/o enrichment in the U-235 isotope, and contains not more than 11.68 kg U-235.
- (v) Model No. 927C1: unirradiated fuel bundles consisting of 0.33" diameter uranium dioxide pellets clad in 0.025" thick zircaloy tubes in a 16 x 16 square array with a 0.506" pitch. Each fuel bundle consists of a maximum of 236 fuel rods with a maximum 5.0 w/o enrichment in the U-235 isotope, and contains not more than 22.77 kg U-235.
- (vi) Model No. 927C1: unirradiated fuel bundles consisting of 0.324" diameter uranium dioxide fuel pellets clad in 0.0235" thick zircaloy tubes in a 17 x 17 square array with a 0.501" pitch. Each fuel bundle consists of 264 fuel rods with a maximum 3.6 w/o enrichment in the U-235 isotope, and contains not more than 16.43 kg U-235.

(2) Maximum quantity of material per package

Model No. 927A1: Two fuel bundles weighing not more than 1400 lbs. each.

Model No. 927C1: Two fuel bundles weighing not more than 1506 lbs. each.

(c) Fissile Class

III

Maximum number of packages per shipment

Eight (8)

- 6. Each fuel assembly shall be unsheathed or shall be enclosed in an unsealed, polyethylene sheath which will not extend beyond the ends of the fuel assembly. The ends of the sheath shall not be folded or taped in any manner that would prevent flow of liquids into or out of the sheathed fuel assembly.

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7. In addition to the requirements of Subpart G of 10 CFR Part 71:
 - (a) The package shall be prepared for shipment and operated in accordance with the Operating Procedures of Chapter 7 of the application, as supplemented.
 - (b) The packaging must be maintained in accordance with the Maintenance Program of Chapter 8 of the application, as supplemented.
8. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.
9. Expiration date: October 3, 2000

REFERENCES

Combustion Engineering, Inc. application dated May 25, 1990.

Supplements dated: September 12, 1990; September 20, and October 7, 1991; October 13, October 27, November 20, and December 10, 1992; June 28, 1993; September 1, 1994, and August 14, 1995.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Cass R. Chappell
 Cass R. Chappell, Section Leader
 Package Certification Section
 Spent Fuel Project Office
 Office of Nuclear Material Safety
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