R3/D2#68

August 6, 1996

Mr. I. C. Rickard
Combustion Engineering, Inc.
2000 Day Hill Road
PO Box 500
Windsor, CT 06095-0500

07000036

Dear Mr. Rickard:

As requested by your application dated July 9, 1996, enclosed is Certificate of Compliance No. 6078, Revision No. 22, for the Model No. 927A1 and 927C1 packages. This certificate supersedes, in its entirety, Certificate of Compliance No. 6078, Revision No. 21, dated March 26, 1996.

Changes made to the enclosed certificate are indicated by vertical lines in the margin.

Those on the attached list have been registered as users of the packages under the general license provisions of 10 CFR §71.12 or 49 CFR §173.471.

The approval constitutes authority to use the packages for shipment of radioactive material and for the packages to be shipped in accordance with the provisions of 49 CFR §173.471.

Sincerely,
Original /s/ by CJH for:

William D. Travers, Director
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Docket No.: 71-6078

Enclosures: 1. Certificate of Compliance No. 6078, Rev. No. 22
2. Approval Record

cc w/encl: J. K. O'Steen, Department of Transportation
Registered Users

Distribution: PUBLIC Docket File 71-6078 NMSS r/f SFPO r/f
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CJHaughney,NMSS/SFPO
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DATE	8/ 1 /96		8/ 1 /96		8/ 1 /96		8/ 2 /96		8/ 6 /96	

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NRC FORM 618
(3-96)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. PACKAGE IDENTIFICATION NUMBER	d. PAGE NUMBER	e. TOTAL NUMBER PAGES
6078	22	USA/6078/AF	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)*

Combustion Engineering, Inc.
2000 Day Hill Road
Windsor, CT 06095-0500

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:

Combustion Engineering, Inc. application dated July 9, 1996.

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. E-5022-8051, Sheets 1 through 4, Rev. 0.

(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.

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) Transport Index for Criticality Control

Minimum transport index to be shown on label for nuclear criticality control: 15.7

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.

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. Fabrication of additional packagings is not authorized.

9. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.

10. Expiration date: October 31, 2000.

REFERENCES

Combustion Engineering, Inc. application dated July 9, 1996.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles J. Haughney

for William D. Travers, Director
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Date: August 6, 1996

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. 22

By application dated July 9, 1996, Combustion Engineering, Inc. requested an amendment to Certificate of Compliance No. 6078, for the Model No. 927A1 and 927C1 packages. Combustion Engineering provided a consolidated application and revised packaging drawings.

The revised packaging drawings were submitted to correct some minor errors in previous drawings. The errors in the previous drawings were: (1) the existing bolt hole patterns in the strongback assembly were omitted, and (2) the size of a component of the fuel assembly upper and lower end fitting support bracket was incorrectly given as 2x2 inch tubular steel, when the actual part is 2x4 inches.

These errors were first reported to the NRC by Combustion Engineering by letter dated May 15, 1996. Combustion Engineering did not use the package for fuel shipments after the drawing errors were found.

Other minor changes were made to the drawings to more correctly show actual packaging configurations. These changes were minor in nature and do not affect the structural performance of the package.

In addition, the applicant provided a consolidated application for the package. Editorial corrections were made, and references to the out-dated Fissile Class system were deleted.

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

Charles J. Haughney

for William D. Travers, Director
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Date August 6, 1996