



UNITED STATES
ATOMIC ENERGY COMMISSION
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Files (Docket No. 50-219)

THRU: B. J. Schemel, Chief, ORB #1, L

EVALUATION OF CYCLE 3 RELOAD FOR OYSTER CREEK REGARDING LOADING ONLY

Introduction

By letter dated January 18, 1973, Jersey Central Power & Light Company (JCPL) submitted Facility Change Request No. 4 in support of their proposed loading of 148 fuel assemblies, designated Type IIIB, manufactured by EXXON Nuclear Corporation. By letter dated February 22, 1973, JCPL submitted Supplement No. 1 to Facility Change Request No. 4 in which they described modifications to the fuel assembly design, designating the modified assembly Type IIIE. These assemblies are to be loaded in the second scheduled reload of the Oyster Creek reactor for Cycle 3 operation. The first scheduled reload took place in spring of 1972 in which 132 Type II fuel assemblies (GE) and four Type III fuel assemblies (EXXON) were loaded for Cycle 2 operation. In the fall outage of 1971, when the poison curtains were removed, 24 Type II fuel assemblies (GE) were loaded in the periphery of the core to replace defective fuel. The original GE fuel in the core is designated Type I.

Evaluation

The pertinent safety considerations for the loading of the 148 Type IIIE fuel assemblies are:

1. The acceptability of the mechanical design and integrity of the new assemblies.
2. The acceptability of the minimum shutdown margin resulting from the reload of this fuel.

In regards to the first consideration, the Type IIIE fuel is identical in external dimensions and configuration to the Type III fuel which was evaluated and approved for use in the Oyster Creek reactor core on May 18, 1972, in our approval of Facility Change Request No. 3. Minor internal mechanical differences consist of:

1. The center spacer capture rod which was made up of segments containing enriched W_2 fuel has been replaced with a spacer capture rod filled with solid Zr Zircaloy-2.
2. Nineteen centrally located rods have had their initial theoretical density increased from 93.5 percent to 94.5 percent.

3. The same nineteen centrally located rods have had their fuel pellet diameters increased 1 to 3 mils, thus reducing the diametral gap between fuel pellet and cladding from 11 mils to 8 mils.

These changes have been made to offset possible densification effects and to reduce the calculated peak clad temperature attained during a postulated loss of coolant accident. These changes have no effect on the mechanical strength or integrity of the fuel assembly and therefore no new considerations are necessary for authorization to load these assemblies. The effects of these changes in regard to operating and accident considerations will be evaluated prior to granting authorization to operate with the Cycle 3 reload.

The minimum shutdown margin for the core completely reloaded as described in the Facility Change Request No. 4 and Supplement No. 1 with the most reactive control rod fully withdrawn is 1.63 percent delta k/k. This amount provides a very large margin to the technical specification requirement of 0.25 percent.

Our evaluation of the acceptability of the reload core for operation has not been completed. We are awaiting information which was requested by our letter dated April 3, 1973.

Conclusions

Based on the above considerations, we conclude that loading of the Type III-E fuel as described does not present significant hazards considerations not described or implicit in the Safety Analysis Report and that there is reasonable assurance that the health and safety of the public will not be endangered by the loading of the Cycle 3 core.

However, operation with the Cycle 3 core will not be authorized until further information in response to our April 3, 1973 letter is provided by the licensee.

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