



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 183 AND 164 TO

FACILITY OPERATING LICENSE NOS. NPF-4 AND NPF-7

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

NORTH ANNA POWER STATION, UNITS NO. 1 AND NO. 2

DOCKET NOS. 50-338 AND 50-339

1.0 INTRODUCTION:

By letter dated October 4, 1993, the Virginia Electric and Power Company (the licensee) proposed changes to the Technical Specifications (TS) for the North Anna Power Station, Units No. 1 and No. 2 (NA-1&2). The proposed changes would allow the use of ZIRLO material for fuel cladding for NA-1&2. The Westinghouse ZIRLO fuel was described in the topical report WCAP-12610 "VANTAGE+ Fuel Assembly Reference Core Report," and was approved by the staff for irradiation up to 60,000 MWd/MTU rod average burnup. Two demonstration or lead test assemblies of ZIRLO-clad fuel have successfully completed two cycles of operation in the North Anna Unit 1 core. The licensee will reload the cores at the next scheduled refueling outages for NA-1&2 with a full region of ZIRLO fuel assemblies. The staff's evaluation is presented below.

2.0 DISCUSSION:

The NRC staff approved the ZIRLO fuel design in a Safety Evaluation dated July 1, 1991, for the Westinghouse topical report WCAP-12610 "VANTAGE+ Fuel Assembly Reference Core Report." The NRC staff also approved Loss-of-Coolant Accident (LOCA) methodologies in a Safety Evaluation dated October 9, 1991, for the Westinghouse topical reports WCAP-12610, Appendix F, "LOCA NOTRUMP Evaluation Model: ZIRLO Modifications," and Appendix G, "LOCA Plant Specific Accident Evaluation."

3.0 TECHNICAL SPECIFICATION CHANGES:

The licensee has proposed to revise Section 5.3.1 of the TS as follows:

The reactor core shall contain 157 fuel assemblies with each fuel assembly containing 264 fuel rods clad with Zircaloy-4 or ZIRLO. Each fuel rod shall have a nominal active fuel length of 144 inches and contain a maximum total weight of 1780 grams uranium. The initial core loading shall have a maximum enrichment of 3.2 weight percent U-235.

Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 4.3 weight percent U-235.

4.0 EVALUATION:

Based on the staff evaluations, as delineated above, the staff finds the proposed changes to the NA-1&2 TS to allow the use of ZIRLO material for fuel cladding to be acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Virginia State official was notified of the proposed issuance of the amendment. The State official had no comment.

6.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding (58 FR 57859). Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: May 26, 1994