



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 48 TO FACILITY OPERATING LICENSE NO. NPF-8

ALABAMA POWER COMPANY

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NO. 2

DOCKET NO. 50-364

Introduction

In a letter from F. L. Clayton Jr. to S. A. Varga dated February 10, 1984, the licensee proposed changes to the Joseph M. Farley Nuclear Plant, Unit 2 (Farley 2) Technical Specifications. These changes included a revised withdrawal schedule for the reactor vessel surveillance capsule and a reduction in the effective period for the reactor vessel pressure-temperature limits from 5 (five) effective full power years (EFPY) to 4.3 EFPY. The licensee indicates that the proposed changes to the withdrawal schedule were required to conform to the requirements in Appendix H, 10 CFR 50, which became effective on July 26, 1983 (48 FR 24008 dated May 31, 1983). The changes to the pressure-temperature limits were considered administrative in nature, since they reduce the effective period for the curves to account for instrument error. To support these changes the licensee had submitted in a letter from F. L. Clayton to S. A. Varga dated November 10, 1983 the Westinghouse WCAP-10425, entitled "Analysis of Capsule U from the Alabama Power Company Joseph M. Farley Unit 2 Reactor Vessel Radiation Surveillance Program."

Our evaluation and discussion of the licensee's proposals follow.

Evaluation and Discussion

Appendix H, 10 CFR 50 contains the regulatory requirements for a reactor vessel materials surveillance program. Appendix H requires that the proposed withdrawal schedule be approved prior to implementation and references ASTM E 185-82, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels." For the Farley 2 reactor vessel, ASTM E 185-82 recommends that there be a minimum of (5) five capsules and that these capsules be withdrawn when the neutron fluence received by and capsules corresponds to the amount identified in Table I of ASTM E 185-82. This table recommends that the capsules be withdrawn at various neutron fluences throughout the plant's life and that the fifth (last) capsule be withdrawn at a neutron fluence not less than once or greater than twice the peak end-of-life (EOL) vessel fluence.

The measured and calculated end-of-life peak neutron fluence at the inside vessel surface reported in WCAP-10425 were 5.30×10^{19} and 6.47×10^{19} (>1MEV) n/cm^2 respectively. The Farley reactor vessel surveillance program contains (6) six capsules. Five capsules are to be withdrawn and one is to remain as a standby capsule. By letter dated June 18, 1984 the licensee provided the estimated neutron fluence to be received by each capsule at the proposed withdrawal schedule. We have compared the expected neutron fluence to be received by each capsule to that recommended by ASTM E 185-82 and conclude that the proposed capsule withdrawal schedule meets the intent of ASTM E 185-82. Hence, we consider the proposed withdrawal schedule Table 4.4-5 of the Farley 2 Technical Specification, acceptable.

However, this conclusion is based on the licensee continuing the current operating method (high leakage, 12 month cores) for the remainder of the life of the Farley 2 reactor vessel. If the fuel cycle changes to low leakage cores, the withdrawal schedule may require revisions in order to comply with the schedule recommended in ASTM E 185-82.

Safety Summary

Based on our review, as discussed herein, we conclude that the Capsule U test results confirm that the method used to predict radiation damage to the Farley 2 reactor vessel beltline materials is conservative, that the capsule withdrawal schedule in Table 4.4-5 is acceptable, and that the pressure temperature curves in Figures 3.4-2 and 3.4-3 may be utilized until completion of the fourth fuel cycle. If the licensee decides to change the fuel cycle from high leakage, 12 month core to low leakage core, the licensee may need to re-evaluate the capsule withdrawal schedule to determine whether it still conforms to that recommended in ASTM E-185-82.

Environmental Consideration

The amendment involves a change in an inspection or surveillance requirement for a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves 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 this amendment involves no significant hazards consideration and there has been no public comment on

such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 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 this amendment.

Conclusion

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: January 22, 1985

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