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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 33 TO FACILITY OPERATING LICENSE NO. DPR-51

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT NO. 1

DOCKET NO. 50-313

Introduction

By letter dated March 14, 1978, Arkansas Power and Light Company (AP&L or the licensee) requested amendment to Facility Operating License No. DPR-51. The amendment would modify the Technical Specifications for Arkansas Nuclear One - Unit 1 (ANO-1) to increase the volume requirements and to modify the concentration requirements of the boric acid addition tank.

Background

The current Technical Specifications require at least the equivalent of 47 inches (550 cu. ft.) of 8700 parts per million (ppm) boric acid solution in the boric acid addition tank whenever the reactor primary coolant temperature is above 200°F. Recent investigation and analysis revealed that the volume requirement is insufficient to assure a 1% delta k/k shutdown margin for all zero power temperature conditions above cold shutdown at the worst time in core life with a stuck control rod assembly and after xenon decay.

Discussion and Evaluation

The proposed change would change the boric acid addition tank volume and concentration requirement to be dependent upon average reactor coolant temperature. The proposed change would 1) increase the required volume of boric acid solution at 8700 ppm when the reactor would be in the hot shutdown condition, and 2) provide sufficient quantity of boric acid to assure a 1% delta k/k shutdown margin at the worst time of core life with a stuck control rod assembly and after xenon decay at all temperatures above cold shutdown. The proposed modification would also provide an alternate or smaller volume versus average reactor coolant temperature requirement of the boric acid addition tank with boric acid solution concentration of 12,000 ppm. This specification would also assure a 1% shutdown margin above 200°F. For both proposed requirements the boric acid solution would be required to be maintained at a temperature at least 10°F above the crystallization temperature. The proposed change in format for the boric acid volume requirements of the boric acid addition tank would reduce the volume requirements over the present requirements when the reactor coolant would be at temperatures less than the temperature of the hot shutdown condition. This would allow less delay during plant cooldown to make up the boric

acid batches to the boric acid addition tank. It would maintain at least a 1% shutdown margin above 200°F, which is acceptable.

Based on the above considerations, we find the proposed change would resolve the deficiency in the current Technical Specifications, would not result in a decrease in the safety margin and is acceptable.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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: July 6, 1978