



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20565

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 13 TO FACILITY LICENSE NO. DPR-51

ARKANSAS POWER & LIGHT COMPANY

ARKANSAS NUCLEAR ONE - UNIT NO. 1

DOCKET NO. 50-313

INTRODUCTION

By letter dated March 3, 1976, Arkansas Power & Light Company (AP&L) requested changes to the Technical Specifications appended to Facility License No. DPR-51 for the Arkansas Nuclear One - Unit No. 1 facility. The proposed changes involve revision of the limiting conditions for operation and surveillance requirements for the facility emergency pond (Specification 3.11 and 4.13). This safety evaluation considers the proposed technical specifications and the correction of a reference error in Specification 4.4.1.3.

DISCUSSION

The existing limiting conditions for operation for the emergency pond require a pond depth "equal to or greater than elevation 344 feet 0 inches, corresponding to a 3-foot pond depth." The corresponding surveillance requirements require a daily check of the pond elevation and annual soundings of the pond bottom to determine that an adequate volume of water is available for cooling. By letter dated September 18, 1975, AP&L reported an occurrence in which the annual soundings revealed that a pond elevation of 344 feet 0 inches corresponded to a pond depth of less than 3 feet as the result of bottom swelling.

The licensee's March 3, 1976 letter requested a change to the emergency pond limiting conditions for operation (LCO) to require only the 3 feet minimum depth. In addition, the proposed LCO would permit a maximum pond temperature of 105°F. Also, provisions are made in the Specification to place the plant in cold shutdown within 36 hours if the pond level and temperature requirements are not met. A corresponding surveillance requirement would require daily measurements of pond depth and pond temperature (temperature from June 1 through September 30 only). The annual pond sounding specification would be retained.

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AP&L has proposed these specifications to eliminate possible confusion arising from the wording of the existing Specifications 3.11 and 4.13 and to assure that sufficient pond cooling water is available when needed.

EVALUATION

We have evaluated the licensee's proposed changes to Technical Specifications 3.11 and 4.13 related to the emergency cooling pond. The salient safety aspects of this review involve (1) the proposed method to assure and verify the availability of sufficient water in the pond and (2) the calculation of the maximum allowable pond ambient water temperature that would meet the cooling requirements during the design basis accident (DBA).

Because of pond bottom swelling encountered at the facility, the minimum pond depth (3 feet) specified in the ANO-1 Final Safety Analysis Report (FSAR) may not be available if the pond surface is at the existing technical specification limit of 344' 0". In lieu of changing this elevation limit each time a change in pond bottom elevation is identified, the licensee proposed measuring the average pond depth to assure a sufficient quantity of water is available. The annual measurement of pond water volume by sounding techniques would be retained as a backup to the proposed daily depth measurement. We have concluded that these provisions would assure that a sufficient quantity of pond water would be available when needed.

AP&L also proposes to revise the specifications to allow a maximum ambient water temperature in the pond (that is, the water temperature that the pond would attain without any heat input from ANO-1) of 105°F in lieu of the 94°F specified in the ANO-1 FSAR. The licensee performed a transient heat analysis of the pond using the calculational model developed for ANO-Unit 2 to assure that the return water temperature to the service water system would not exceed 120°F, the maximum allowable. Pertinent information used in the analysis were: initial pond depths of 3, 4 and 5 feet, service water flow of 5250 gpm (one service water loop) or 10,500 gpm (two service water loops), pond surface area of 14 acres, DBA heat load for Unit 1 only, and maximum allowable return water temperature of 120°F. We performed an independent analysis of the response of the pond to the above conditions and concluded that for Unit 1 only the water temperature would not exceed 120°F under severe (summer) meteorological conditions. We therefore conclude that the maximum allowable ambient pond water temperature of 105°F is acceptable.

The proposed LCO requiring the plant to be placed in the cold shutdown conditions within 36 hours if the pond depth and/or pond temperature limits cannot be met is consistent with NRC requirements for emergency cooling ponds.

On the basis of the above considerations, we conclude that the proposed Specifications 3.11 and 4.13 would assure that sufficient plant cooling would be available for ANO-1 in the event of a DBA. The proposed Specifications 3.11 and 4.13 are therefore acceptable.

We note, however, that the maximum allowable return temperature to the service water system for ANO-Unit 2 (presently in the operating license review stage) is 129.6°F. An independent analysis of the emergency cooling pond when both units are operating indicates that the maximum water temperature will be significantly in excess of 120°F, even with an ambient water temperature of 94°F. This disparity of maximum allowable return water temperatures should be resolved prior to ANO-Unit 2 operation.

Specification 4.4.1.3 references Specification 4.3.1.1 and 4.3.1.2 which do not exist. These references should be corrected to Specifications 4.4.1.1 and 4.4.1.2. This change has been discussed with the licensee's staff and they agree with the change.

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 statement, negative declaration or 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 changes do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the changes do 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.

Date: August 16, 1976