



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 26 TO FACILITY OPERATING LICENSE NO. DPR-51

ARKANSAS POWER & LIGHT COMPANY

ARKANSAS NUCLEAR ONE - UNIT 1

DOCKET NO. 50-313

INTRODUCTION

By its letter, dated June 3, 1977, the Arkansas Power & Light Company (AP&L) requested an emergency change to the Technical Specifications for Arkansas Nuclear One - Unit No. 1 (ANO-1). The proposed change would allow operation of ANO-1 for a limited period of time with one (1) of the four reactor building emergency cooling fans being out-of-service. This request, necessitated by the failure of one such fan, was granted, during the evening of June 3, 1977, by the NRC for a period of seven days so that the associated repairs may be made while the plant continues in operation. The bases for granting the request were: (1) the specifications as written were more stringent than need be, since the ANO-1 Final Safety Analysis Report (FSAR) demonstrated that only one (1) spray pump and two (2) cooler fans were needed for satisfactory pressure reduction; and (2) the latest regulatory guidance, in the form of Standard Technical Specifications, allows a certain period of time for continued plant operation during which certain safety-related equipment (including spray pumps and fan coolers) may be out-of-service.

On June 7, 1977, prior to our preparation and formal issuance of the conforming change to the Technical Specifications, the licensee notified the staff by letter that a suitably-qualified replacement motor for the failed fan cooler could not be located in either the United States or Europe. Therefore, AP&L has requested that an additional change to the Technical Specifications be made to authorize continued operation for an indefinite period with one fan cooler out-of-service.

We required an analysis in support of this additional request and specified that AP&L assume post-Loss-of-Coolant Accident (LOCA) failure-to-start of one diesel generator system, resulting in the loss of one spray system and two fan coolers, additional to the already out-of-service fan cooler. In this degraded condition, with only one spray system and one fan cooler in operation, containment integrity and pressure reduction had to be achieved satisfactorily.

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This Safety Evaluation addresses the present action as well as the separate action of June 3, 1977.

DISCUSSION AND EVALUATION

The Reactor Building Cooling System (RBCS), in conjunction with the Reactor Building Spray System (RBSS), constitute the active systems for heat removal from the primary containment in the event of a loss-of-coolant accident (LOCA). Following the postulated LOCA, the primary containment pressure and temperature will rise as a result of the mass and energy released to the containment atmosphere from the primary system. As the rate of mass and energy release decays, the pressure rise in the containment is terminated by the effects of energy absorption in the containment structures. Subsequently, the RBCS fan coolers and RBSS sprays are activated to reduce the containment pressure and limit the release of fission products to the environment.

In the Final Safety Analysis Report (FSAR) for ANO-1, the analyses of the design basis LOCA indicated that reactor building cooling and long-term pressure reduction could be satisfactorily accomplished either by all four RBCS fan coolers or by both RBSS spray trains. A combination of one RBSS spray train and two RBCS fan coolers was also shown to be satisfactory. The staff reviewed these analyses and found them to be acceptable as reported in the staff's Safety Evaluation Report for ANO-1, dated June 6, 1973.

AP&L has reanalyzed the design basis LOCA, assuming that only one RBSS spray train and one RBCS fan cooler are available for containment heat removal, while maintaining all of the other conservative assumptions previously made in the FSAR analyses. The results of this reanalysis demonstrate that satisfactory reactor building cooling and long-term pressure reduction can be accomplished with the combination of one RBSS spray train and one RBCS fan cooler. That is, the resultant pressure reduction rate satisfies the staff's acceptance criterion of a two-fold pressure reduction within 24 hours. Consequently, AP&L has submitted a proposed change to the Technical Specifications which will assure the availability of at least one RBSS spray train and one RBCS fan cooler in the event of a LOCA. We have reviewed the results of the licensee's reanalysis, and find that the combination of at least one RBSS spray train and one RBCS fan cooler for heat removal following the postulated LOCA will provide the required amount of containment cooling. Since the consequences of an accident are not increased beyond those already identified in the FSAR and since the proposed change to the Technical Specifications will not increase the probability of an accident, we conclude that the proposed change to the Technical Specifications 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.

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CONCLUSIONS

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.

Date: JUN 9 1977



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By telecopy dated June 3, 1977, Arkansas Power and Light Company (AP&L) documented the failure of one (1) reactor building emergency cooling fan (of four) at Arkansas Nuclear One - Unit 1 (ANO-1). Present ANO-1 Technical Specifications would require initiation of reactor shutdown and establishment of hot shutdown conditions within 36 hours and, if the situation is not corrected, establishment of cold shutdown conditions within an additional 72 hours.

AP&L believes, and we concur, that the present ANO-1 Technical Specifications are too stringent in this regard. The ANO-1 FSAR analysis of post-Loss of Coolant Accident (LOCA) reactor building cooling and long-term pressure reduction shows that such cooling and pressure reduction may be accomplished by four cooling units, by two spray units, or by a combination of two cooling units and one spray unit. Because this is the case, we can agree with AP&L that the loss of one fan unit for a 7 day period does not present a significant hazards consideration. In addition, such reduction in fan capacity, and reduction in spray capacity for limited periods of time for repair, are presently allowed by Standard Technical Specifications.

Because the proposed change will not increase the chance of an accident and will not significantly increase the consequences of an accident, and is in accordance with the latest regulatory guidance, we have concluded that the change is acceptable.

Original signed by

A handwritten signature in cursive script that reads "Richard P. Snaider".

Richard P. Snaider, Project Manager
Operating Reactors Branch #2
Division of Operating Reactors

DATE: June 3, 1977