

April 30, 1990

Docket No. 50-368

Mr. Neil S. Carns  
Vice President, Nuclear  
Arkansas Power and Light Company  
P. O. Box 551  
Little Rock, Arkansas 72203

Dear Mr. Carns:

SUBJECT: ISSUANCE OF AMENDMENT NO. 104 TO FACILITY OPERATING LICENSE  
NO. NPF-6 - ARKANSAS NUCLEAR ONE, UNIT NO. 2 (TAC NO. 75924)

The Commission has issued the enclosed Amendment No.104 to Facility Operating License No. NPF-6 for the Arkansas Nuclear One, Unit No. 2 (ANO-2). This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated December 15, 1989.

The amendment will modify the Arkansas Nuclear One, Unit 2 Technical Specifications (TS) Surveillance Requirement (SR) 4.9.8.1 to reflect a reduction in the minimum Shutdown Cooling (SDC) loop flow from 3000 gpm to 2000 gpm. This modification is in response to Generic Letter 88-17, "Loss of Decay Heat Removal."

A copy of our related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

/s/  
Chester Poslusny, Jr., Project Manager  
Project Directorate IV  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No.104 to NPF-6
- 2. Safety Evaluation

cc w/enclosures:

See next page

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555  
April 30, 1990

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Arkansas Power and Light Company  
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Sincerely,

A handwritten signature in cursive script that reads "Chester Poslusny, Jr.".

Chester Poslusny, Jr., Project Manager  
Project Directorate IV  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No.104 to NPF-6
2. Safety Evaluation

cc w/enclosures:  
See next page

Mr. Neil S. Carns  
Arkansas Power & Light Company

Arkansas Nuclear One, Unit 2

cc:

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

ARKANSAS POWER AND LIGHT COMPANY

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.104  
License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Arkansas Power and Light Company (the licensee) dated December 15, 1989, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-6 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 104, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*F. J. Hebdon* /for

Frederick J. Hebdon, Director  
Project Directorate IV  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 30, 1990

ATTACHMENT TO LICENSE AMENDMENT NO.104

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Revise the following page of the Appendix "A" Technical Specifications with the attached page. The revised page is identified by Amendment number and contains a vertical line indicating the area of change. The corresponding overleaf page is also provided to maintain document completeness.

REMOVE PAGE

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INSERT PAGE

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REFUELING OPERATIONS

SHUTDOWN COOLING AND COOLANT CIRCULATION

SHUTDOWN COOLING - ONE LOOP

LIMITING CONDITION FOR OPERATION

---

3.9.8.1 At least one shutdown cooling loop shall be in operation.

APPLICABILITY: MODE 6.

ACTION:

- a. With less than one shutdown cooling loop in operation, except as provided in b. below, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.
- b. The shutdown cooling loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS.
- c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

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4.9.8.1 A shutdown cooling loop shall be determined to be in operation and circulating reactor coolant at a flow rate of  $\geq 2000$  gpm at least once per 24 hours.

REFUELING OPERATIONS

SHUTDOWN COOLING - TWO LOOPS

LIMITING CONDITION FOR OPERATION

---

3.9:8.2 Two independent shutdown cooling loops shall be OPERABLE.\*

APPLICABILITY: MODE 6 when the water level above the top of the irradiated fuel assemblies seated within the reactor pressure vessel is less than 23 feet.

ACTION:

- a. With less than the required shutdown cooling loops OPERABLE, immediately initiate corrective action to return the loops to OPERABLE status as soon as possible.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

---

4.9.8.2 The required shutdown cooling loops shall be determined OPERABLE per Specification 4.0.5.

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\* The normal or emergency power source may be inoperable for each shutdown cooling loop.





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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 104 TO

FACILITY OPERATING LICENSE NO. NPF-6

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT NO. 2

DOCKET NO. 50-368

INTRODUCTION

By letter dated December 15, 1989, Arkansas Power and Light Company (the licensee) requested amendments to the Technical Specifications (TSs) appended to Facility Operating License No. NPF-6 for Arkansas Nuclear One, Unit 2 (ANO-2). The proposed amendment would reduce the minimum shutdown cooling (SDC) loop flow from 3000 gpm to 2000 gpm during Mode 6 operation to provide a greater margin to SDC suction line vortexing during operation with lowered RCS levels. Vortexing can lead to SDC system air entrainment and pump cavitation and subsequent loss of decay heat removal.

EVALUATION

Reduction of the minimum SDC loop flow from 3000 gpm to 2000 gpm will provide a greater margin against vortexing and preclude an inadvertent loss of decay heat removal due to air entrainment and cavitation of the SDC pumps when operating with lowered RCS levels. The licensee has performed a SDC system RCS level vortexing test and has verified that 2000 gpm was acceptable with a minimum of 10" RCS level (above the bottom of the hot leg). Procedurally, a minimum RCS level of 19" is required for SDC operation. The licensee has also evaluated the long term minimum flow requirements for the SDC pump. It was determined that 2000 gpm was adequate flow to prevent abnormal pump wear.

As the time after plant shutdown increases, decay heat decreases, and the decay heat removal requirements of the SDC system are reduced. The proposed minimum SDC loop flow rate of 2000 gpm will provide sufficient flow rate to maintain RCS temperature less than or equal to 140°F. In addition, the proposed 2000 gpm minimum flow will provide adequate RCS mixing to prevent boron stratification, and the flow rate does not impact the results of the ANO-2 Safety Analysis Report (SAR) RCS Boron Dilution Accident Analysis (Section 15.1.4.2.2.2).

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### ENVIRONMENTAL CONSIDERATION

The amendment involves a change in a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. 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 exposures. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Section 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 amendment.

### CONCLUSION

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

Date: April 30, 1990

Principal Contributor: A. E. Almond