October 17, 1989

:t No. 50-368

Mr. T. Gene Campbell
Vice President, Nuclear
Arkansas Power and Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Dear Mr. Campbell:

SUBJECT: ISSUANCE OF AMENDMENT NO. 101 TO FACILITY OPERATING LICENSE NO. NPF-6 - ARKANSAS NUCLEAR ONE, UNIT NO. 2 (TAC NO. 73442)

The Commission has issued the enclosed Amendment No. 101 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 in response to your application dated June 13, 1989.

The amendment deletes Section 4.3.1.1.4 of the Technical Specifications (TS) which contains the surveillance requirements for the existing Core Protection Calculator (CPC) isolation equipment. Modifications being made to the CPC hardware make this existing TS requirement no longer appropriate.

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. 101 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

October 17, 1989

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Office of Nuclear Reactor Regulation

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See next page

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Honorable Joe W. Phillips
County Judge of Pope County
Pope County Courthouse
Russellville, Arkansas 72801

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. 101
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 June 13, 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.

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. 101 , 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

Douglas V. Pickett 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: October 17, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 101

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

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

REMOVE PAGES	INSERT PAGES
3/4 3-1	3/4 3-1
3/4 3-1a	3/4 3-1a

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR PROTECTIVE INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1.1 As a minimum, the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Table 3.3-2.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1.1 Each reactor protective instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1.

4.3.1.1.2 The logic for the bypasses shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total bypass function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

4.3.1.1.4 Deleted.

4.3.1.1.5 The Core Protection Calculator System shall be determined OPERABLE at least once per 12 hours by verifying that less than three auto restarts have occurred on each calculator during the past 12 hours.

4.3.1.1.6 The Core Protection Calculator System shall be subjected to a CHANNEL FUNCTIONAL TEST to verify OPERABILITY within 12 hours of receipt of a valid High CPC Room Temperature alarm.

TABLE 3.3-1

REACTOR PROTECTIVE INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2 sets of 2	1 set of 2	2 sets of 2	1, 2 and *	1
2. Linear Power Level - High	4	2	3	1, 2	2#
3. Logarithmic Power Level-High					
a. Startup and Operating	4	2(a)(d)	3	2 and *	2#
b. Shutdown	4	0	2	3, 4, 5	3
4. Pressurizer Pressure - High	4	2	3	1, 2	2#
5. Pressurizer Pressure - Low	4	2(b)	3	1, 2 and *	2#
6. Containment Pressure - High	4	2	3	1, 2	2#
7. Steam Generator Pressure - Low	4/SG	2/SG	3/SG	1, 2 and *	2#
8. Steam Generator Level - Low	4/SG	2/SG	3/SG	1, 2	2#
9. Local Power Density - High	4	2(c)(d)	3	1, 2	2#

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO.101 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 June 13, 1989, Arkansas Power and Light Company (AP&L or the licensee) requested an amendment to the Technical Specifications (TS) appended to Facility Operating License No. NPF-6 for Arkansas Nuclear One, Unit 2 (ANO-2). The proposed amendment would delete TS Section 4.3.1.1.4. This TS only contains the surveillance requirements for the existing Core Protection Calculator (CPC) isolation equipment.

EVALUATION

Arkansas Power and Light (AP&L) is presently in the process of replacing part of the hardware in the ANO-2 Core Protection Calculator System. This effort is scheduled for completion during the current 2R7 refueling outage, which began on September 25, 1989. A portion of the hardware upgrade includes new fiber-optics devices to provide interchannel isolation for the CPC/Core Element Assembly Calculator (CEAC) data links and the control element assembly (CEA) position isolation amplifiers. The use of fiber-optics equipment for data transmission offers superior isolation capabilities compared to the existing system, which uses conductive wiring and optical isolators to achieve the required channel isolation.

This fiber-optic cable which will be installed at ANO-2 transmits digital information using light instead of electric current and is a unique isolator which possesses inherent characteristics that eliminate ground loops and common ground shifts in electronic circuits and provides complete electrical ground isolation between transmitter and receiver. Fiber-optic cables present no fire hazards when their fibers are damaged. In addition no local secondary damages can occur because fiber optics neither produce sparks nor dissipate heat.

The construction of the fiber-optic cable is such that the cable contains no electrically conductive material. The relative permittivity (dielectric constant) of a material is a measure of the material's isolation capability. The dielectric constant of a material is referenced relative to free space (a vacuum) and is a dimensionless number. Dry air possesses a dielectric constant of 1.00059. Glass possesses a dielectric constant in the range of 4.0 to 7.0 depending upon the specific type. The higher the dielectric constant, the

greater the isolation that is provided. Thus, fiber-optic cables have an isolation capability that is 4 to 7 times greater than dry air. The voltage breakdown rating of a typical fiber-optic cable is on the order of 250 KV per meter.

A fault at either end of the data link might destroy the modem but will not propagate over the fiber-optic cable. For example, one of the tests that must be performed to qualify an isolator is the application of the maximum credible fault (voltage, current) to the output of the device to verify that the fault does not propagate or degrade the input (Class 1E) side. This postulated failure does not affect fiber-optic cable, and as stated above, the optical fibers are totally dielectric (i.e., the electrical energy resulting from the fault will not propagate through the optical fiber). Another characteristic of the optical fiber cable is its nonsusceptibility to the coupling of cross-talk and electromagnetic interference (EMI).

Technical Specification 4.3.1.1.4 only contains the surveillance requirements for the specific isolation equipment in the existing CPCS hardware. Testing of the new devices in accordance with the existing TS is neither necessary nor practical, as the new equipment uses non-conducting fiber-optics cable as described above. The existing TS will no longer be appropriate upon completion of the CPCS upgrade and, therefore, the staff approves the request to remove these requirements.

ENVIRONMENTAL CONSIDERATION

The amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20, and changes to 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: October 17, 1989

Principal Contributor: C. Poslusny