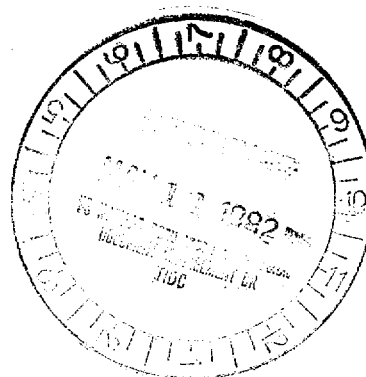


MAY 6 1982

Docket No. 50-368

Mr. William Cavanaugh, III
Senior Vice President, Energy
Supply Department
Arkansas Power & Light Company
P. O. Box 551
Little Rock, Arkansas 72203



Dear Mr. Cavanaugh:

SUBJECT: STEAM GENERATOR SECONDARY WATER CHEMISTRY MONITORING
PROGRAM

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 30 to Facility Operating License No. NPF-6 for the Arkansas Power and Light Company for the Arkansas Nuclear One, Unit 2 (ANO-2) plant. The amendment consists of changes to the operating license and to the Technical Specifications in response to your request dated June 10, 1981.

The amendment incorporates a requirement for a program to monitor secondary water chemistry conditions into the body of the license and deletes the requirement to specify secondary water chemistry limits in the Technical Specifications.

During our review of your proposed amendment we found that certain modifications were necessary to meet our requirements. Your staff has agreed to these modifications and they have been incorporated in this amendment.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original signed by

Robert E. Martin, Project Manager
Operating Reactors Branch #3
Division of Licensing

Enclosures:

1. Amendment No. 30 to NPF-6
2. Safety Evaluation
3. Notice of Issuance

*See next page for concurrence and distribution

OFFICE: cc w/enclosures:

SURNAME: See next page

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PDR ADDCK 05000368
PDR

OFFICIAL RECORD COPY

USGPO: 1981-335-960

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Robert E. Martin, Project Manager
Operating Reactors Branch #3
Division of Licensing

Enclosures:

1. Amendment No. to NPF-6
2. Safety Evaluation
3. Notice of Issuance

cc w/enclosures:
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AMENDMENT

See memo dated 4/24/82.

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NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

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Docket No. 50-368

Docketing and Service Section
Office of the Secretary of the Commission

SUBJECT: ARKANSAS POWER AND LIGHT COMPANY, Arkansas Nuclear One, Unit
No. 2

Two signed originals of the Federal Register Notice identified below are enclosed for your transmittal to the Office of the Federal Register for publication. Additional conformed copies (12) of the Notice are enclosed for your use.

- ☐ Notice of Receipt of Application for Construction Permit(s) and Operating License(s).
- ☐ Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for Submission of Views on Antitrust Matters.
- ☐ Notice of Availability of Applicant's Environmental Report.
- ☐ Notice of Proposed Issuance of Amendment to Facility Operating License.
- ☐ Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.
- ☐ Notice of Availability of NRC Draft/Final Environmental Statement.
- ☐ Notice of Limited Work Authorization.
- ☐ Notice of Availability of Safety Evaluation Report.
- ☐ Notice of Issuance of Construction Permit(s).
- ☐ Notice of Issuance of Facility Operating License(s) or Amendment(s).
- ☒ Other: Amendment No. 30

Referenced documents have been provided PDR.

Division of Licensing
Office of Nuclear Reactor Regulation

Enclosure:
As Stated

OFFICE	ORB#3:DL					
SURNAME	PMKreutzer/pn					
DATE	5/6/82					

Arkansas Power & Light Company

cc:

Mr. John Marshall
Manager, Licensing
Arkansas Power & Light Company
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Little Rock, Arkansas 72203

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Regional Administrator
Nuclear Regulatory Commission, Region IV
Office of Executive Director for Operations
611 Ryan Plaza Drive, Suite 1000
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Mr. W. Johnson
U.S. NRC
P. O. Box 2090
Russellville, Arkansas 72801

U.S. Environmental Protection Agency
Region VI Office
ATTN: Regional Radiation
Representative
1201 Elm Street
Dallas, Texas 75270

cc w/enclosure(s) and incoming
dated: 6/10/81

S. L. Smith, Operations Officer
Arkansas Nuclear Planning &
Response Program
P. O. Box 1749
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. 30
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 10, 1981, 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, 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 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; by revising paragraph 2.C.(2) and by adding Paragraph 2.C.(3)(p) to Facility Operating License No. NPF-6 to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 30, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

2.C.(3)(p) Secondary Water Chemistry Monitoring

The licensee shall implement a secondary water chemistry monitoring program using the overall plant administrative procedure "Steam Generator Water Chemistry Monitoring, Unit II", to minimize steam generator tube degradation. The program shall be defined in specific plant procedures and shall include:

1. Identification of sampling schedule for the critical parameters and control points for these parameters;
 2. Identification of the procedures used to measure the values of the critical parameters;
 3. Identification of process sampling points;
 4. Procedure for the recording and management of data;
 5. Procedures defining corrective actions for off control point chemistry conditions; and
 6. A procedure identifying the authority responsible for the interpretation of the data, and the sequence and timing of administrative events required to initiate corrective action.
3. This license amendment is effective within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the
Technical Specifications

Date of Issuance: May 6, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 30

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

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

Remove Pages

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3/4 7-12
3/4 7-13
B 3/4 7-3

Insert Pages

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B 3/4 7-3

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These pages intentionally left
blank. Section 3.7.1.6 deleted
by issuance of Amendment No.

PLANT SYSTEMS

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

LIMITING CONDITION FOR OPERATION

3.7.2.1 The temperatures of both the primary and secondary coolants in the steam generators shall be $> 90^{\circ}\text{F}$ when the pressure of either coolant in the steam generator is > 275 psig.

APPLICABILITY: At all times.

ACTION:

With the requirements of the above specification not satisfied:

- a. Reduce the steam generator pressure of the applicable side to ≤ 275 psig within 30 minutes, and
- b. Perform an engineering evaluation to determine the effect of the overpressurization on the structural integrity of the steam generator. Determine that the steam generator remains acceptable for continued operation prior to increasing its temperatures above 200°F .

SURVEILLANCE REQUIREMENTS

4.7.2.1 The pressure in each side of the steam generators shall be determined to be < 275 psig at least once per hour when the temperature of either the primary or secondary coolant is $< 90^{\circ}\text{F}$.

PLANT SYSTEMS

BASES

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line and a concurrent loss of offsite electrical power. These values are consistent with the assumptions used in the accident analyses.

3/4.7.1.5 MAIN STEAM ISOLATION VALVES

The OPERABILITY of the main steam isolation valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the main steam isolation valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

PLANT SYSTEMS

BASES

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations to 90°F and 275 psig are based on a steam generator RT_{NDT} of 30°F and are sufficient to prevent brittle fracture.

3/4.7.3 SERVICE WATER SYSTEM

The OPERABILITY of the service water system ensures that sufficient cooling capacity is available for continued operation of equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident analyses.

3/4.7.4 EMERGENCY COOLING POND

The limitations on the emergency cooling pond level and temperature ensure that sufficient cooling capacity is available to either 1) provide normal cooldown of the facility, or 2) to mitigate the effects of accident conditions within acceptable limits.

The limitations on minimum water level and maximum temperature are based on providing a 30 day cooling water supply to safety related equipment without exceeding their design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants", March 1974.

3/4.7.5 FLOOD PROTECTION

The limitation on flood protection ensures that facility protective actions will be taken in the event of flood conditions.

3/4.7.6 CONTROL ROOM EMERGENCY AIR CONDITIONING/AIR FILTRATION SYSTEM

The OPERABILITY of the control room emergency air conditioning/air filtration system ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 30 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 10, 1981, the licensee requested an amendment to the Facility Operating License to include a licensing condition for the implementation of a secondary water chemistry program. The licensee's request was in response to our letter dated August 2, 1979.

In late 1975, we incorporated provisions into the Standard Technical Specifications (STS) that required limiting conditions for operation and surveillance requirements for secondary water chemistry parameters. The Technical Specifications for all pressurized water reactor plants that have been issued an operating license since 1974 contain either these provisions or a requirement to establish these provisions after baseline chemistry conditions have been determined. The intent of the provisions was to provide added assurance that the operators of newly licensed plants would properly monitor and control secondary water chemistry to limit corrosion of steam generator tubes and the tube support plates.

In a number of instances the Technical Specifications have significantly restricted the operational flexibility of some plants with little or no benefit with regard to limiting degradation of steam generator tubes and the tube support plates. Based on this experience and the knowledge gained in recent years, we have concluded that Technical Specification limits are not the most effective way of assuring that steam generator degradation will be minimized.

Consequently, we have determined that, in lieu of specifying limiting conditions in the Technical Specifications, a more effective approach would be to institute a license condition that required the implementation of a secondary water chemistry monitoring and control program containing appropriate procedures and administrative controls. The required program and procedures are to be developed by the licensee with input from their reactor vendor or other consultants to account for site and plant-specific factors that affect chemistry conditions in the steam generators. In our opinion, plant operation following such procedures would provide assurance that licensees would devote proper attention to controlling secondary water chemistry, while also providing the needed flexibility to allow them to deal more effectively with an off-normal condition that might arise.

By letter dated August 2, 1979, we requested that the licensee propose a secondary water chemistry program which would be referenced in a condition to the license. In the letter we concluded that such a license condition in conjunction with existing Technical Specifications on steam generator tube leakage and inservice inspection, would provide the most practical and comprehensive

means of assuring that steam generator tube integrity would be maintained. The licensee initially responded September 20, 1979. On June 10, 1981, the licensee amended that response with an application for amendment of the license to include a requirement for a secondary water chemistry monitoring program in lieu of the current Technical Specification limiting conditions for operation and surveillance requirements for secondary water chemistry parameters. On April 5, 1982, the licensee provided their Overall Plant Administrative Procedure (1000.43, Rev. 0) titled "Steam Generator Water Chemistry Monitoring Unit II."

EVALUATION

We evaluated the licensee's program using the guidance provided in our August 2, 1979 request. This guidance stated that to inhibit steam generator degradation, the secondary water chemistry monitoring program should include:

1. Identification of a sampling schedule for the critical parameters and of control points for these parameters;
2. Identification of the procedures used to measure the value of the critical parameters;
3. Identification of process sampling points;
4. Procedure for the recording and management of data;
5. Procedures defining corrective actions for off-control point chemistry conditions; and
6. A procedure identifying (1) the authority responsible for the interpretation of the data and (2) the sequence and timing of administrative events required to initiate corrective action.

The proposed procedure is consistent with the secondary water chemistry guidelines of the NSSS vendor and the EPRI-PWR Steam Generator Owners Group. It includes a clearly defined chain of authority and responsibility for analysis, interpretation and corrective actions for secondary water chemistry control. Specific water chemistry limits are defined for the condensate, feedwater and steam generators with sampling point locations and sampling schedules. These limits cover varying plant conditions, including wet layup, startup, hot standby and power operations. Procedures are provided which define corrective actions needed to be taken based on the severity of out-of-specification conditions. The corrective actions include progressively stringent actions including power reductions and ultimately plant shutdown if chemistry conditions are not returned to normal within pre-defined time frames. To help to determine trends, plots of the various chemistry parameters are maintained by the plant chemistry staff and historical records are retained for future reference. Specific analytical chemistry procedures are referenced for each parameter which is monitored.

CONCLUSION

Based on the above evaluation, we conclude that the licensee's Unit 2 secondary water chemistry monitoring program:

- a) meets the guidance in our August 2, 1979 letter to the licensee;
- b) is consistent with the secondary water chemistry guidelines of the NSSS vendor and the EPRI-PWR Steam Generator Owners Group;
- c) is capable of reducing the probability of abnormal leakage in the reactor coolant pressure boundary by inhibiting steam generator corrosion and tube degradation and thus meets the requirements of General Design Criteria 14,

and thus the proposed amendment is acceptable. The amendment has been implemented by the inclusion of condition 2.C.3.P in the body of the license and the deletion of Section 3/4 7.1.6 from the Technical Specifications.

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.

Date: May 6, 1982

Principal Contributors:
H. Conrad
C. McCracken

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-368ARKANSAS POWER AND LIGHT COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 30 to Facility Operating License No. NPF-6 issued to Arkansas Power and Light Company (the licensee), which revised the Technical Specifications for operation of Arkansas Nuclear One, Unit No. 2, located in Pope County, Arkansas. The secondary water chemistry monitoring conditions become effective within thirty days from the date of issuance.

The amendment incorporates the requirements for a program to monitor secondary steam generator water chemistry conditions into the body of the license and deletes a requirement to specify secondary water chemistry limits from the Technical Specification.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.


- 2 -

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR Section §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated June 10, 1981, (2) Amendment No. 30 to Facility Operating License No. NPF-6, and (3) the Commission's related Safety Evaluation. These items are available for public inspection at the Commission's Public Document Room at 1717 H Street, N.W., Washington, D.C. 20555 and at the Arkansas Tech University, Russellville, Arkansas 72801. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 6th day of May, 1982.

FOR THE NUCLEAR REGULATORY COMMISSION


Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing