

Docket No. 50-313

NOV 22 1974

Arkansas Power & Light Company  
ATTN: Mr. J. D. Phillips  
Senior Vice President  
Sixth & Pine Streets  
Pine Bluff, Arkansas 71601

Gentlemen:

The Commission has issued the enclosed Amendment No. 1, to Facility License No. DPR-51 for the Arkansas Nuclear One, Unit 1 Plant. This amendment includes Change No. 1 to the Technical Specifications, and is in response to your request dated November 20, 1974.

This amendment incorporates in the Arkansas Nuclear One, Unit 1 Technical Specifications the revised requirements for monitoring the temperature differential across the Arkansas Nuclear One, Unit 1 condenser.

Copies of the related Environmental Evaluation and the Federal Register Notice are also enclosed.

Sincerely,



D. L. Ziemann, Chief  
Operating Reactors Branch No. 2  
Directorate of Licensing

Enclosures:

- 1. Amendment No. 1
- 2. Environmental Evaluation
- 3. Federal Register Notice

cc: Horace Jewell, Esq.  
House, Holms & Jewell  
1550 Tower Building  
Little Rock, Arkansas 72201

Mr. E. F. Wilson, Director  
Bureau of Environmental Health Svcs.  
4815 West Markham Street  
Little Rock, Arkansas 72201



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cc: Mr. Charles Hembree  
 Environmental Protection Agency  
 1600 Patterson Street, Suite 1100  
 Dallas, Texas 75201

Honorable Wayne Nordin  
 Acting Judge of Pope County  
 Pope County Courthouse  
 Russellville, Arkansas 72801

Mr. Neill Thomasson  
 Environmental Protection Agency  
 Office of Radiation Programs  
 Room 647A, East Tower-WSM  
 401 M Street, S.W.  
 Washington, D. C. 20460

bcc: H. J. McAlduff, ORO  
 J. R. Buchanan, ORNL  
 T. B. Abernathy, DTIE

Distribution:  
 Docket File (ENVIRON)  
 AEC PDR  
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 BJYoungblood, L:EP-3  
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 EP-3 Reading File

OFFICE >	L:EP-3	L:EP-3	L:EP-3	ORC	L:ORB-2	L:ORB-2
SURNAME >	GWilliams:AGC FJMiraglia	BJYoungblood	DRMuller		FAnderson	DLZiemann
DATE >	11/21/74	11/21/74	11/21/74	11/21/74	11/22/74	11/22/74

ARKANSAS POWER AND LIGHT COMPANY

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 1  
License No. DPR-51

1. The Atomic Energy Commission (the Commission) having found that:
  - A. The application for amendment by Arkansas Power & Light Company (the licensee) dated November 20, 1974, 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. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.c.(2) of Facility License No. DPR-51 is hereby amended to read as follows:

"(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications as revised by Change No. 1."

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3. This license amendment is effective as of the date of its issuance.

FOR THE ATOMIC ENERGY COMMISSION

*signed by*  
*ROBERT A. PURPLE*

*for* Karl R. Goller, Assistant Director  
for Operating Reactors  
Directorate of Licensing

Attachment:  
Change No. 1 to  
Technical Specifications

Date of Issuance: NOV 22 1974

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ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NO. DPR-51

CHANGE NO. 1 TO TECHNICAL SPECIFICATIONS

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT 1

DOCKET NO. 50-313

Revise Appendix B as follows:

Remove pages 2-1 and 2-2 and insert the attached revised pages bearing the same numbers. The changed areas on the revised pages are shown by marginal lines.

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ARKANSAS POWER AND LIGHT COMPANY

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 1  
License No. DPR-51

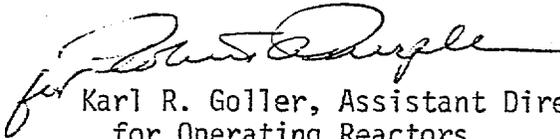
1. The Atomic Energy Commission (the Commission) having found that:
  - A. The application for amendment by Arkansas Power & Light Company (the licensee) dated November 20, 1974, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.c.(2) of Facility License No. DPR-51 is hereby amended to read as follows:

"(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications as revised by Change No. 1."

3. This license amendment is effective as of the date of its issuance.

FOR THE ATOMIC ENERGY COMMISSION

  
for Karl R. Goller, Assistant Director  
for Operating Reactors  
Directorate of Licensing

Attachment:  
Change No. 1 to  
Technical Specifications

Date of Issuance: NOV 22 1974

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NO. DPR-51

CHANGE NO. 1 TO TECHNICAL SPECIFICATIONS

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT 1

DOCKET NO. 50-313

Revise Appendix B as follows:

Remove pages 2-1 and 2-2 and insert the attached revised pages bearing the same numbers. The changed areas on the revised pages are shown by marginal lines.

2.0 LIMITING CONDITIONS FOR OPERATION2.1 Thermal2.1.1 Maximum  $\Delta T$  Across CondenserObjective

To limit thermal stress to the aquatic ecosystem by limiting the maximum  $\Delta T$  across the condenser during operation.

Specification:

- a. The maximum differential temperature across the condenser shall not exceed 15°F during normal operation with all four circulating water pumps in operation.
- b. If one or two circulating water pumps are out of service at any given time the maximum condenser  $\Delta T$  shall not exceed 30°F; and Specification 2.1.2 of this Appendix shall be met.

Monitoring Requirement

The temperature differential across the condenser shall be monitored every hour utilizing the computer output of the condenser inlet and outlet temperature measurements. The range of these measurements shall be 0-150°F and their accuracy shall be  $\pm 0.5\%$ .

If the plant computer is inoperable and until the condenser outlet temperature sensor is relocated in the discharge canal, the condenser  $\Delta T$  shall be monitored at least once each shift when the plant is operating at steady state power levels. The condenser  $\Delta T$  shall be measured within two (2) hours after a change in power level has been stabilized and at least once each shift thereafter. The condenser  $\Delta T$  shall be determined using measurements at the condenser inlet and in the discharge canal.

Bases

Maximum  $\Delta T$ 's of 15°F with 4 circulating water pumps operating ( $\sim 1700$  cfs flow) and 30°F with 2 circulating water pumps operating will insure that the limits of the applicable water quality criteria will not be exceeded. The difference in temperature readings of the RTD's at the inlet and outlet of the condensers provides the  $\Delta T$  across the condensers.

Specification 2.1.1.b allows maintenance to be performed on circulating water pumps when the Dardanelle Reservoir ambient temperature is such that Specification 2.1.2 will not be exceeded. Hydraulic model studies have shown that a 30°F  $\Delta T$  at 850 cfs circulating waterflow will not result in adverse changes in the Dardanelle Reservoir isotherms when

compared to the isotherms resulting from a 15°F ΔT at 1700 cfs except on the surface of the discharge embayment.

### 2.1.2 Maximum Discharge Temperature

#### Objective

To limit thermal stress to the aquatic ecosystem by limiting the plant's maximum discharge water temperature.

#### Specification

The condenser discharge water temperature shall not exceed 105°F for more than two consecutive hours. If the water temperature exceeds 105°F for two hours an investigation of the situation will be undertaken and corrective action shall be taken to maintain the discharge water temperature at 105°F or less. One such corrective action would be a reduction in the plant power level unless there is an emergency need for the lost power. This emergency need would exist when a reduction in power would mean cutting off firm customers. If monitoring (see below) indicates that the temperature at the mouth of the discharge embayment is  $\leq 105^\circ\text{F}$ , the plant load will not be reduced.

#### Monitoring Requirements

Condenser discharge water temperature shall be monitored every hour utilizing the average of the computer output of the condenser discharge RTD readings. The RTD's have a 0-150°F range and an accuracy of  $\pm 0.5\%$ .

If the plant computer is inoperable and until the condenser outlet temperature sensor is relocated in the discharge canal, the condenser discharge temperature shall be measured at least once each shift. If the condenser inlet temperature exceeds 85°F with all four circulating water pumps running or 70°F with less than four circulating water pumps running, the condenser outlet temperature shall be monitored every two (2) hours.

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If the condenser discharge water temperature exceeds 105°F, plant personnel will be dispatched to the mouth of the discharge embayment to monitor the exit temperature from the embayment. Monitoring of the embayment will continue every two hours as long as the condenser outlet temperature remains at 105°F.

#### Bases

The 105°F maximum discharge water temperature limit is set to assure that the Dardanelle Reservoir temperature does not exceed

ENVIRONMENTAL EVALUATION BY THE DIRECTORATE OF LICENSING

SUPPORTING AMENDMENT NO. 1 TO DPR-51

(CHANGE NO. 1 TO THE TECHNICAL SPECIFICATIONS)

ARKANSAS POWER & LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT 1

DOCKET NO. 50-313

Introduction

By letter dated November 20, 1974, Arkansas Power & Light Company (AP&L) proposed interim monitoring requirements for Environmental Technical Specifications 2.1.1 and 2.1.2.

Discussion and Evaluation

Environmental Technical Specification (ETS) 2.1.1 limits the maximum differential temperature ( $\Delta T$ ) across the Arkansas Nuclear One-Unit 1 condenser to 15°F during normal operation with all four circulating water pumps in operation. The  $\Delta T$  is to be measured at the condenser inlet and outlet every hour utilizing the computer output or every two hours utilizing the condenser temperature recorder when the computer is inoperable. ETS 2.1.2 limits the maximum discharge temperature to 105°F. The condenser discharge is to be measured every hour utilizing the computer output or every two hours utilizing the condenser temperature recorder when the computer is inoperable.

The  $\Delta T$  measured at 75% Full Power (FP) was 18-20°F using the computer and the condenser temperature recorder. However, when the outlet temperature was measured at the end of the discharge canal (before mixing with lake water) it was found to be only 6-7°F higher than the inlet. Thus, it appears that the outlet temperature detector, which is located in the discharge pipe just outside the condenser water box is not measuring the true average condenser outlet temperature. The assumed cause of this is thermal stratification of the water in the water box.

To alleviate the problem, AP&L plans to relocate the condenser outlet temperature detector in the discharge canal, but prior to mixing with the lake water. This will provide an accurate indication of the condenser  $\Delta T$  to the computer and the condenser temperature recorder.

Since the condenser outlet temperature sensor is not measuring true temperature, AP&L has been monitoring the temperature of the condenser outlet to the discharge canal manually every two hours to comply with the requirements of ETS 2.1.1 and 2.1.2.

AP&L has proposed the following monitoring of condenser outlet temperature as an interim measure:

1. With the plant operating at steady state power levels, the condenser  $\Delta T$  will be monitored once each shift using measurements at the condenser inlet and near the end of the discharge flume.
2. At each power plateau reached in the Power Escalation Sequence the condenser  $\Delta T$  will be measured within two (2) hours after the power level has stabilized.
3. If the condenser inlet temperature exceeds 85°F with all four circulating water pumps running or 70°F with less than four circulating water pumps running, the condenser outlet temperature will be monitored every two (2) hours to assure that ETS 2.1.2 on maximum outlet temperature is met.

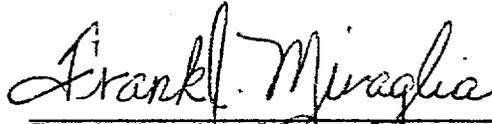
It is our view that the proposed monitoring restores the capability to provide for adequate monitoring of the condenser  $\Delta T$  and is adequate to assure compliance with State Water Quality Standards and will provide for adequate protection of the environment.

AP&L will prepare a revision to the Environmental Technical Specifications to reflect the new temperature sensor location in the discharge canal and which will be implemented upon completion of the installation of the sensor in its new location.

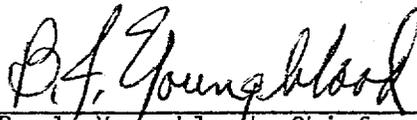
### Conclusions

Based on the above discussion and evaluation, we have concluded that the proposed Change No. 1 to Technical Specifications as modified by the staff for incorporation into the Facility Operating License No. DPR-51 as Amendment No. 1, Change No. 1 is approved for environmental considerations. Since no safety related systems are affected by this change, we conclude that the Change No. 1 does not involve significant hazards considerations. We have also concluded that there is reasonable assurance: (1) that activities

authorized by this amendment can be conducted without endangering the health and safety of the public; and (2) that such activities will be conducted in compliance with the Commission's regulations.



Frank J. Miraglia, Project Manager  
Environmental Projects Branch 3  
Directorate of Licensing



B. J. Youngblood, Chief  
Environmental Projects Branch 3  
Directorate of Licensing

Date: NOV 22 1974

UNITED STATES ATOMIC ENERGY COMMISSION

DOCKET NO. 50-313

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT 1

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

Notice is hereby given that the U. S. Atomic Energy Commission (the Commission) has issued Amendment No. 1 to Facility Operating License No. DPR-51, issued to the Arkansas Power and Light Company, which revised Technical Specifications for operation of the Arkansas Nuclear One, Unit 1, located on a peninsula on the northern shores of Lake Dardanelle, in Pope County, 2 miles southeast of the village of London and 5 miles northwest of the city of Russellville in Arkansas. The amendment is effective as of its date of issuance.

The amendment permits monitoring the temperature differential across the plant condenser once each shift rather than every two hours when the plant is at steady state power levels. The temperature differential across the condenser will be measured within two hours after a change in power level has stabilized. The amendment requires monitoring of condenser outlet temperature every two hours if condenser inlet exceeds 85°F with four circulating water pumps running or 70°F with three circulating pumps running.

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

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regulations in 10 CFR Chapter I, which are set forth in the license amendment.

For further details with respect to this action, see (1) the application for amendment dated November 20, 1974, and (2) the Commission's related Environmental Evaluation. <sup>Amendment</sup> ~~Both~~ <sup>all</sup> of these items are available for public inspection at the Commission's Public Document Room, 11717 H Street, N. W., Washington, D. C. and at the Arkansas Polytechnic College, Russellville, Arkansas. <sup>and (3)</sup>

A copy of item (2) may be obtained upon request addressed to the U. S. Atomic Energy Commission, Washington, D. C. 20545, Attention: Deputy Director for Reactor Projects, Directorate of Licensing.

Dated at Bethesda, Maryland, this            day of November 1974.

FOR THE ATOMIC ENERGY COMMISSION

D. L. Ziemann, Chief  
Operating Reactors Branch No. 2  
Directorate of Licensing

*Retyped in OLB-2 for second & third paragraphs. RD 11/22*

OFFICE	L:EP-3	L:EP-3	L:ADDP	OGC	L:OR	L:OR
SURNAME	FW [unclear] / gw	B Youngblood	DR Muller	[unclear]	Anderson	DL Ziemann
DATE	11/21/74	11/21/74	11/21/74	11/21/74	11/22/74	11/22/74