

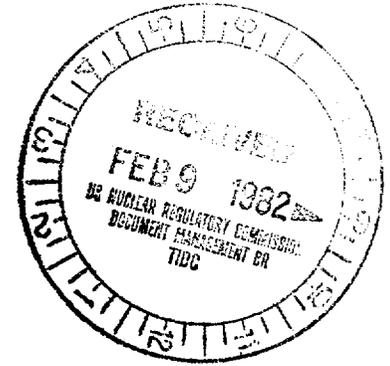
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Docket No. 50-313



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

Dear Mr. Cavanaugh:

The Commission has issued the enclosed Amendment No. 62 to Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit No. 1. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated January 30, 1981, as supplemented September 22, 1981.

The amendment modifies the ANO-1 TSs to add operating requirements, limiting conditions for operation, and surveillance requirements for the Reactor Building Cooling Units and to add chlorination requirements for the service water system.

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

Sincerely,

ORIGINAL SIGNED BY  
JOHN F. STOLZ

CP  
1

John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing

Enclosures:

- 1. Amendment No. 62 to DPR-51
- 2. Safety Evaluation
- 3. Notice

cc w/enclosures:  
See next page

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*Planned for*

*No legal objection subject to note Bldf*

OFFICE	ORB#4:DL RIngram	ORB#4:DL GVissing	C-ORB#4:DL JStolz	AD-OR/DL Novak	OELD Jones		
SURNAME	RIngram	GVissing	JStolz	Novak	Jones		
DATE	1/29/82	1/29/82:cb	1/27/82	1/27/82	1/28/82		

Arkansas Power & Light Company

cc w/enclosure(s):

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cc w/enclosure(s) & incoming dtd.:  
1/30/81 & 9/22/81

Director, Bureau of Environmental  
Health Services  
4815 West Markham Street  
Little Rock, Arkansas 72201



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

ARKANSAS POWER & LIGHT COMPANY

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 62  
License No. DPR-51

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Arkansas Power and Light Company (the licensee) dated January 30, 1981, as supplemented September 22, 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.

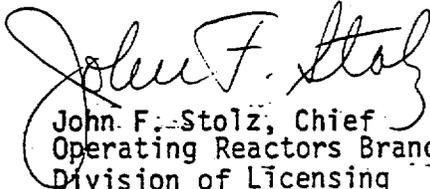
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-51 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 62, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION



John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 2, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 62

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

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.

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38a

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systems which will not remove more than one train of each system from service. Maintenance shall not be performed on components which would make the affected system train inoperable for more than 24 consecutive hours. Prior to initiating maintenance on any component of a train in any system, the redundant component of that system shall be demonstrated to be operable within 24 hours prior to the maintenance.

3.3.6 If the conditions of Specifications 3.3.1, 3.3.2, 3.3.3, 3.3.4 and 3.3.5 cannot be met except as noted in 3.3.7 below, reactor shutdown shall be initiated and the reactor shall be in hot shutdown condition within 36 hours, and, if not corrected, in cold shutdown condition within an additional 72 hours.

3.3.7 Exceptions to 3.3.6 shall be as follows:

- (A) If the conditions of Specification 3.3.1(F) cannot be met, reactor operation is permissible only during the succeeding seven days unless such components are sooner made operable, provided that during such seven days the other BWST level instrument channel shall be operable.
- (B) If the conditions of Specification 3.3.3(D) cannot be met, reactor operation is permissible only during the succeeding seven days unless such components are sooner made operable, provided that during such seven days the other CFT instrument channel (pressure or level) shall be operable.
- (C) If the conditions of Specification 3.3.4(A) cannot be met because one group of the required reactor building emergency cooling units is inoperable but both reactor building spray systems are operable, restore the inoperable group of cooling units to operable status within 7 days or be in at least hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.
- (D) If the conditions of Specification 3.3.4(A) cannot be met because two groups of the required reactor building emergency cooling units are inoperable but both reactor building spray systems are operable, restore at least one group of cooling units to operable status within 72 hours or be in at least hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours. Restore both above required groups of cooling units to operable status within 7 days of initial loss or be in at least hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.

- (E) If the conditions of Specification 3.3.4(A) cannot be met because one group of the required reactor building emergency cooling units are inoperable and one reactor building spray system is inoperable, restore the inoperable spray system to operable status within 72 hours or be in at least hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours. Restore the inoperable group of reactor building emergency cooling units to operable status within 7 days of initial loss or be in at least hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.
- (F) If the conditions of Specification 3.3.4(A) cannot be met because any cooling unit of the required groups is inoperable because its associated fan is inoperable, verify that the operable cooling unit in that group has a service water flow rate  $\geq 1200$  gpm through its cooling coils or restore the inoperable cooling unit to operable status within 7 days or be in at least hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.

#### Bases

The requirements of Specification 3.3.1 assure that below 350°F, adequate long term core cooling is provided. Two low pressure injection pumps are specified. However, only one is necessary to supply emergency coolant to the reactor in the event of a loss-of-coolant accident.

The post-accident reactor building cooling and long-term pressure reduction may be accomplished by four cooling units, by two spray units or by a combination of one cooling unit and one spray unit. Post-accident iodine removal may be accomplished by one of the two spray system strings. The specified requirements assure that the required post-accident components are available for both reactor building cooling and iodine removal. Specification 3.3.1 assures that the required equipment is operational.

The borated water storage tank is used for three purposes:

- (A) As a supply of borated water for accident conditions.
- (B) As an alternate supply of borated water for reaching cold shutdown. (2)
- (C) As a supply of borated water for flooding the fuel transfer canal during refueling operation. (3)

## 4.5.2 Reactor Building Cooling Systems

### Applicability

Applies to testing of the reactor building cooling systems.

### Objective

To verify that the reactor building cooling systems are operable.

### Specification

#### 4.5.2.1 System Tests

##### 4.5.2.1.1 Reactor Building Spray System

- (a) Once every 18 months, a system test shall be conducted to demonstrate proper operation of the system. A test signal will be applied to demonstrate actuation of the reactor building spray system (except for reactor building inlet valves to prevent water entering nozzles).
- (b) Station compressed air or smoke will be introduced into the spray headers to verify the availability of the headers and spray nozzles at least every five years.
- (c) The test will be considered satisfactory if visual observation and control board indication verifies that all components have responded to the actuation signal properly.

##### 4.5.2.1.2 Reactor Building Cooling System

- (a) At least once per 14 days, each reactor building cooling group shall be tested to demonstrate proper operation of the system. The test shall be performed in accordance with the procedure summarized below:
  - (1) Verifying a service water flow rate of  $\geq 1200$  gpm to each group of cooling units.
  - (2) Chlorinating the service water during the surveillance in 4.5.2.1.2.a.1 above, whenever service water temperature is between 60F and 80F.
- (b) At least once per 31 days, each reactor building cooling group shall be tested to demonstrate proper operation of the system. The test shall be performed in accordance with the procedure summarized below:
  - (1) Starting (unless already operating) each operational cooling unit from the control room.

- (2) Verifying that each operational cooling unit operates for at least 15 minutes.
- (c) Once every 18 months, a system test shall be conducted to demonstrate proper operation of the system. The test shall be performed in accordance with the procedure summarized below:
- (1) A test signal will be applied to actuate the reactor building cooling operation.
  - (2) Verification of the engineered safety features function of the service water system which supplies the reactor building coolers shall be made to demonstrate operability of the coolers.
  - (3) The test will be considered satisfactory if control board indication verifies that all components have responded to the actuation signal properly.

#### 4.5.2.2 Component Tests

##### 4.5.2.2.1 Pumps

At intervals not to exceed 3 months the reactor building spray pumps shall be started and operated to verify proper operation. Acceptable performance will be indicated if the pump starts, operates for fifteen minutes, and the discharge pressure and flow are within  $\pm 10\%$  of a point on the pump head curve.

##### 4.5.2.2.2 Valves

At intervals not to exceed three months each engineered safety features valve in the reactor building spray and reactor building cooling system and each engineered safety features valve associated with reactor building cooling in the service water system shall be tested to verify that it is operable.

#### Bases

The reactor building cooling system and the reactor building spray system are redundant to each other in providing post-accident cooling of the reactor building atmosphere to prevent the building pressure from exceeding the design pressure. As a result of this redundancy in cooling capability, the allowable out of service time requirements for the reactor building cooling system have been appropriately adjusted. However, the allowable out of service time requirements for the reactor building spray system have been maintained consistent with that assigned other inoperable engineered safeguard equipment since the reactor building spray system also provides a mechanism for removing iodine from the reactor building atmosphere.

Service water chlorination is performed during reactor building cooler surveillance to prevent buildup of Asian clams in the coolers when service water is pumped through the cooling coils. This is performed when service water temperature is between 60F and 80F since in this water temperature range Asian clams can spawn and produce larva which could pass through service water system strainers.

The delivery capability of one reactor building spray pump at a time can be tested by opening the valve in the line from the borated water storage tank, opening the corresponding valve in the test line, and starting the corresponding pump. Pump discharge pressure and flow indication demonstrate performance.

With the pumps shut down and the borated water storage tank outlet closed, the reactor building spray injection valves can each be opened and closed by operator action. With the reactor building spray inlet valves closed, low pressure air or smoke can be blown through the test connections of the reactor building spray nozzles to demonstrate that the flow paths are open.

The equipment, piping, valves, and instrumentation of the reactor building cooling system are arranged so that they can be visually inspected. The cooling units and associated piping are located outside the secondary concrete shield. Personnel can enter the reactor building during power operations to inspect and maintain this equipment. The service water piping and valves outside the reactor building are inspectable at all times. Operational tests and inspections will be performed prior to initial startup.

Two service water pumps are normally operating. At least once per month operation of one pump is shifted to the third pump, so testing will be unnecessary.

The reactor building fans are normally operating, so testing is unnecessary.

#### Reference

FSAR, Section 6



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 62 TO

FACILITY OPERATING LICENSE NO. DPR-51

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT NO. 1

DOCKET NO. 50-313

Introduction

By letter dated January 30, 1981, supplemented by letter dated September 22, 1981, Arkansas Power and Light Company (AP&L or the licensee) proposed changes to the Technical Specifications (TSs) appended to Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit No. 1 (ANO-1). The proposed amendment would provide limited conditions for operation and operational and surveillance requirements for the Reactor Building Cooling Units (RBCUs) and would provide chlorination requirements for the service water system.

Background

As a result of discovering an inadequate service water flow to the RBCUs for ANO-2 due to an intrusion of Asian Clams, *corbicula* sp., the licensee inspected and discovered a similar situation existed for ANO-1.

The Asian Clam is a bivalve mollusc found abundantly in the warm, fresh waters of the United States. The Asian Clam is monoecious (bi-sexual), incubatory and precocious in reaching sexual maturity. This hardy clam reproduces prolifically when water temperatures range from 62 to 75 degrees Fahrenheit.

Larvae discharged from adult clams are about 1/50 of an inch in diameter and are passively carried by water movement. Stagnant, or low flow areas provide suitable conditions for the larvae to grow into valved clams. Valved larvae are greater than 1/32 inch in size and grow to mature adult clams (1.2 inches in size) in approximately 36 to 42 months.

At ANO-1, service water suction is taken from Lake Dardanelle and is strained before entering the plant. Differential pressure measurements are checked on the intake screens once per shift to prevent buildup of adult clams.

The current TSs only require a surveillance test of the ANO-1 RBCUs once every 18 months, and the test does not require a verification of a flow requirement. Apparently, during the previous surveillance test of the RBCUs the Asian Clam larvae present in the service water were pumped with the water into the RBCUs. Upon completion of the surveillance test, some water was left stagnant in the RBCUs. The larvae present matured into

valved clams inside the heat exchanger tubes, affixing themselves to the tube walls, and thus causing flow blockage in the cooling units. Significant effort was expended in cleaning the cooling units and placing them back into service.

We discussed the problem with the licensee's staff at a meeting of October 22, 1980. During this meeting, the licensee committed to implement a 14-day surveillance of flow and chlorination of service water through the coolers and a 31-day system operational surveillance until a TS could be implemented similar to the ANO-2 TS requirements.

The proposed amendment would implement operational and surveillance requirements for the RBCUs and chlorination requirements of the service water system consistent with the requirements for ANO-2.\*

The amendment also would modify the TSs to provide for limiting conditions for plant operation in the event (1) one or two groups of RBCUs are inoperable, or (2) one group of RBCUs is inoperable and one reactor building spray system is inoperable, or (3) any cooling unit of the required groups is inoperable because its associated fan is inoperable. Consistent with the Final Safety Analysis Report, this would assure operability of minimum equipment sufficient to provide heat removal capability during reactor operation to maintain reactor building pressure following an accident below the design value at all times.

#### Evaluation

As stated above, the proposed TSs provide for limiting conditions for operation which would assure operability of minimum equipment sufficient to provide heat removal capability during reactor operation to be able to maintain accident reactor pressure below the design value at all times.

In addition, the augmented surveillance of flow with chlorination will assure mortality for non-valved larvae in the service water system and the detection of valved larvae or other flow clogging mechanisms before rendering the RBCUs inoperable.

Although the proposed TS change only deals with the problem of clams in the containment cooling units, they have been observed to exist in other portions of the service water system. However, the potential for clams blocking flow in other portions of the service water piping system is not considered as great because clams tend to grow best in stagnant or low flow conditions. The containment cooling units provided this stagnant volume of service water. In any event, the plant operators have been alerted to watch for tell-tale signs of clam buildup throughout the plant's service water system.

The proposed TSs do not reduce the margin of safety, and therefore, we find the proposed TSs acceptable.

\* Letter dated October 9, 1980, Robert A. Clark (DL/NRR/NRC) to William Cavanaugh, III (AP&L).

### 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.

Dated: February 2, 1982

The following NRC staff personnel have contributed to this Safety Evaluation: Guy Vissing.

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-313ARKANSAS POWER & LIGHT COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 62 to Facility Operating License No. DPR-51, issued to Arkansas Power and Light Company (the licensee), which revised the Technical Specifications (TSs) for operation of Arkansas Nuclear One, Unit 1 (ANO-1) located in Pope County, Arkansas. The amendment is effective as of the date of issuance.

The amendment modifies the ANO-1 TSs to add operating requirements, limiting conditions for operation, and surveillance requirements for the Reactor Building Cooling Units and to add chlorination requirements for the service water system.

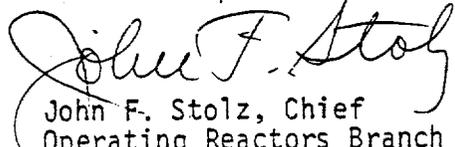
The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter 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.

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

For further details with respect to this action, see (1) the licensee's application dated January 30, 1981, as supplemented by letter dated September 22, 1981, (2) Amendment No. 62 to License No. DPR-51, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Arkansas Tech University, Russellville, Arkansas. 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 2nd day of February 1982.

FOR THE NUCLEAR REGULATORY COMMISSION

  
John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing