



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

ENERGY OPERATIONS INC.

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 140
License No. DPR-51

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (the licensee) dated August 8, 1990, as supplemented by letters dated August 23, October 25, November 5, November 7, and November 14 (2 letters), 1990, 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 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, paragraph 2.c.(1) of Facility Operating License No. DPR-51 is hereby amended to read as follows:

(1) Maximum Power Level

EOL is authorized to operate the facility at steady state reactor core power levels not in excess of 2568 megawatts thermal.

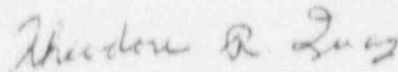
3. Additionally, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.c.(2) of Facility Operating License No. DPR-51 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 140, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Theodore R. Quay, Director
Project Directorate IV-1
Division of Reactor Projects III, IV, and V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 5, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 140

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Revise the following page of the Operating License and 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.

REMOVE PAGES

3 (License)

18a

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INSERT PAGES

3 (License)

18a

36

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- (5) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components;
 - (6) EOI, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- c. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
- (1) Maximum Power Level
EOI is authorized to operate the facility at steady state reactor core power levels not in excess of 2568 megawatts thermal.
 - (2) Technical Specifications
The Technical Specifications contained in Appendix A, as revised through Amendment No. 12 are hereby incorporated in the license. EOI shall operate the facility in accordance with the Technical Specifications.
 - (3) AF&L* may proceed with and is required to complete the modifications identified in Paragraphs 3.1 through 3.19 of the NRC's Fire Protection Safety Evaluation (SE) on the facility dated August 22, 1978 and supplements thereto. These modifications shall be completed as specified in Table 3.1 of the Safety Evaluation Report or supplements thereto. In addition, the licensee may proceed with and is required to complete the modifications identified in Supplement 1 to the Fire Protection Safety Evaluation Report, and any future supplements. These modifications shall be completed by the dates identified in the supplement.

*The original licensee authorized to possess, use, and operate the facility was AP&L. Consequently, certain historical references to AP&L remain in the license conditions.

- 3.1.2.7 Prior to reaching fifteen effective full power years of operation, Figures 3.1.2-1, 3.1.2-2 and 3.1.2-3 shall be updated for the next service period in accordance with 10CFR50, Appendix G, Section V.B. The service period shall be of sufficient duration to permit the scheduled evaluation of a portion of the surveillance data scheduled in accordance with Specification 4.2.7. The highest predicted adjusted reference temperature of all the beltline region materials shall be used to determine the adjusted reference temperature at the end of the service period. The basis for this prediction shall be submitted for NRC staff review in accordance with Specification 3.1.2.8. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.
- 3.1.2.8 The updated proposed technical specifications referred to in 3.1.2.7 shall be submitted for NRC review at least 90 days prior to the end of the service period. Appropriate additional NRC review time shall be allowed for proposed technical specifications submitted in accordance with 10 CFR Part 50, Appendix G, Section V.C.
- 3.1.2.9 With the exception of ASME Section XI testing and when the core flood tank is depressurized, during a plant cooldown the core flood tank discharge valves shall be closed and the circuit breakers for the motor operators opened before depressurizing the reactor coolant system below 600 psig.
- 3.1.2.10 With the exception of ASME Section XI testing, fill and vent of the reactor coolant system, emergency RCS makeup and to allow maintenance of the valves, when the reactor coolant temperature is less than 280°F, the High Pressure Injection motor operated valves shall be closed with their opening control circuits for the motor operators disabled.
- 3.1.2.11 The plant shall not be operated in a water solid condition when the RCS pressure boundary is intact except as allowed by Emergency Operating Procedures and during System Hydrotest.

3.3 EMERGENCY CORE COOLING, REACTOR BUILDING COOLING AND REACTOR BUILDING SPRAY SYSTEMS

Applicability

Applies to the emergency core cooling, reactor building cooling and reactor building spray systems.

Objectivity

To define the conditions necessary to assure immediate availability of the emergency core cooling, reactor building cooling and reactor building spray systems.

Specification

- 3.3.1 The following equipment shall be operable whenever containment integrity is established as required by Specification 3.6.1:
- (A) One reactor building spray pump and its associated spray nozzle header.
 - (B) One reactor building cooling fan and its associated cooling unit.
 - (C) Two out of three service water pumps shall be operable, powered from independent essential buses, to provide redundant and independent flow paths.
 - (D) Two engineered safety feature actuated low pressure injection pumps shall be operable.
 - (E) Both low pressure injection coolers and their cooling water supplies shall be operable.
 - (F) Two BWST level instrument channels shall be operable.
 - (G) The borated water storage tank shall contain a level of 40.2 ± 1.8 ft. ($387,400 \pm 17,300$ gallons) of water having a concentration of 2470 ± 200 ppm boron at a temperature not less than 40F. The manual valve on the discharge line from the borated water storage tank shall be locked open.
 - (H) The four reactor building emergency sump isolation valves to the LPI system shall be either manually or remote-manually operable.

370,100 gallons of borated water are supplied for emergency core cooling and reactor building spray in the event of a loss-of-coolant accident. This amount fulfills requirements for emergency core cooling. Approximately 16,000 gallons of borated water are required to reach cold shutdown. The original nominal borated water storage tank capacity of 380,000 gallons is based on refueling volume requirements. Heaters maintain the borated water supply at a temperature to prevent crystallization and local freezing of the boric acid. The boron concentration is set at a value that will maintain the core at least 1 percent $\Delta k/k$ subcritical at 70°F without any control rods in the core. The concentration for 1% $\Delta k/k$ subcriticality is 1609 ppm boron in the core, while the minimum value specified in the borated water storage tank is 2270 ppm boron.

Specification 3.3.2 assures that above 350°F two high pressure injection pumps are also available to provide injection water as the energy of the reactor coolant system is increased.

Specification 3.3.3 assures that above 800 psig both core flooding tanks are operational. Since their design pressure is 600 ± 25 psig, they are not brought into the operational state until 800 psig to prevent spurious injection of borated water. Both core flooding tanks are specified as a single core flood tank has insufficient inventory to reflood the core.⁽¹⁾

Specification 3.3.4 assures that prior to going critical the redundant reactor building cooling unit and spray are operational.

The spray system utilizes common suction lines with the low pressure injection system. If a single train of equipment is removed from either system, the other train must be assured to be operable in each system.

When the reactor is critical, maintenance is allowed per Specification 3.3.5. Operability of the specified components shall be based on the results of testing as required by Technical Specification 4.5. The maintenance period of up to 24 hours is acceptable if the operability of equipment redundant to that removed from service is demonstrated within 24 hours prior to removal. Exceptions to Specification 3.3.6 permit continued operation for seven days if one of two BWST level instrument channels is operable or if either the pressure or level instrument channel in the CFT instrument channel is operable.

In the event that the need for emergency core cooling should occur, functioning of one train (one high pressure injection pump, one low pressure injection pump, and both core flooding tanks) will protect the core and in the event of a main coolant loop severance, limit the peak clad temperature to less than 2300°F and the metal-water reaction to that representing less than 1 percent of the clad.

The service water system consists of two independent but interconnected, full capacity, 100% redundant systems, to ensure continuous heat removal.⁽⁴⁾

One service water pump is required for normal operation. The normal operating requirements are greater than the emergency requirements following a loss-of-coolant accident.