



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20565

ENTERGY OPERATIONS INC.

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 159
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 November 7, 1991, as supplemented March 19, 1992, 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, 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. 159, 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



John T. Larkins, Director
Project Directorate IV-1
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 14, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 159

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

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.

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1.10.8 Member(s) of the Public

Member(s) of the Public shall include all persons who are not occupationally associated with the plant. This category does not include employees of the utility, its contractors or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational or other purposes not associated with the plant.

1.10.9 Exclusion Area

The exclusion area is that area surrounding AND within a minimum radius of .65 miles of the reactor buildings and controlled to the extent necessary by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials.

1.10.10 Unrestricted Area

An unrestricted area shall be any area beyond the exclusion area boundary.

1.11 CORE OPERATING LIMITS REPORT

The CORE OPERATING LIMITS REPORT is the AND-1 specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Technical Specification 6.12.3. Plant operation within these operating limits is addressed in individual specifications.

6. If a control rod in the regulating or axial power shaping groups is declared inoperable per Specification 4.7.1.2 operation above 60 percent of the thermal power allowable for the reactor coolant pump combination may continue provided the rods in the group are positioned such that the rod that was declared inoperable is contained within allowable group average position limits of Specification 4.7.1.2 and the withdrawal limits of Specification 3.5.2.5.3.

3.5.2.3 The worth of single inserted control rods during criticality are limited by the restrictions of Specification 3.1.3.5 and the Control Rod Position Limits defined in Specification 3.5.2.5.

3.5.2.4 Quadrant Power Tilt:

1. Except for physics tests, if quadrant power tilt exceeds the tilt limit set in the CORE OPERATING LIMITS REPORT, reduce power so as not to exceed the allowable power level for the existing reactor coolant pump combination less at least 2% for each 1% tilt in excess of the tilt limit.
2. Within a period of 4 hours, the quadrant power tilt shall be reduced to less than the tilt limit except for physics tests, or the following adjustments in setpoints and limits shall be made:
 - a. The protection system maximum allowable setpoints (Figure 2.3-2) shall be reduced 2% in power for each 1% tilt in excess of the tilt limit.
 - b. The control rod group and APSR withdrawal limits shall be reduced 2% in power for each 1% tilt in excess of the tilt limit.
 - c. The reactor power imbalance setpoints shall be reduced 2% in power for each 1% tilt in excess of the tilt limit.
3. If quadrant power tilt is in excess of 25%, except for physics tests or diagnostic testing, the reactor will be placed in the hot shutdown condition. Diagnostic testing during power operation with a quadrant power tilt is permitted provided the thermal power allowable for the reactor coolant pump combination is restricted as stated in 3.5.2.4.1 above.
4. Quadrant power tilt shall be monitored on a minimum frequency of once every two hours during power operation above 15% of rated power.

3. Except for physics tests or exercising control rods, the control rod position setpoints are specified in the CORE OPERATING LIMITS REPORT for 4, 3, and 2 pump operation. If the applicable control rod position setpoints are exceeded, corrective measures shall be taken immediately to achieve an acceptable control rod position. Acceptable control rod positions shall be attained within 4 hours.
4. Except for physics tests or exercising axial power shaping rods (APSRs), the limits for APSR position are specified in the CORE OPERATING LIMITS REPORT.

With the APSRs outside the specified limit provided in the CORE OPERATING LIMITS REPORT, corrective measures shall be taken immediately to achieve the correct position. Acceptable APSR positions shall be attained within 4 hours.

3.5.2.6 Reactor Power Imbalance:

1. Reactor power imbalance shall be monitored on a frequency not to exceed 2 hours during power operation above 40% rated power.
2. Except for physics tests, reactor power imbalance shall be maintained within the envelope defined by the CORE OPERATING LIMITS REPORT.
3. If the reactor power imbalance is not within the envelope defined by the CORE OPERATING LIMITS REPORT, corrective measures shall be taken to achieve an acceptable reactor power imbalance.
4. If an acceptable reactor power imbalance is not achieved within 4 hours, reactor power shall be reduced until reactor power imbalance setpoints are met.

3.5.2.7 The control rod drive patch panels shall be locked at all times with limited access to be authorized by the Superintendent.

Bases

The reactor power imbalance envelope defined in the CORE OPERATING LIMITS REPORT is based on LOCA analyses which have defined the maximum linear heat rate (see CORE OPERATING LIMITS REPORT), such that the maximum cladding temperature will not exceed the Final Acceptance Criteria. Corrective measures will be taken immediately should the indicated quadrant power tilt, control rod position, or reactor power imbalance be outside their specified boundaries. Operation in a situation that would cause the Final Acceptance Criteria to be approached should a LOCA occur is highly improbable because all of the power distribution parameters (quadrant power tilt, rod position, and reactor power imbalance) must be at their limits while

The quadrant power tilt limits set forth in the CORE OPERATING LIMITS REPORT have been established within the thermal analysis design base using the definition of quadrant power tilt given in Technical Specifications, Section 1.G. These limits in conjunction with the control rod position setpoints in the CORE OPERATING LIMITS REPORT, ensure that design peak heat rate criteria are not exceeded during normal operation when including the effects of potential fuel densification.

The quadrant power tilt limits and reactor power imbalance setpoints in the CORE OPERATING LIMITS REPORT, apply when using the plant computer to monitor the limits. The 2-hour frequency for monitoring these quantities will provide adequate surveillance when the computer is out of service. Additional uncertainty is applied to the limits when other monitoring methods are used.

During the physics testing program, the high flux trip setpoints are administratively set as follows to ensure that an additional safety margin is provided.

<u>Test Power</u>	<u>Trip Setpoint, %</u>
0	<5
15	50
40	50
50	60
75	85
>75	105.5

REFERENCES

- (1) FSAR, Section 3.2.2.1.2
- (2) FSAR, Section 14.2.2.2

6.12.3 CORE OPERATING LIMITS REPORT

6.12.3.1 The core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT prior to each reload cycle or prior to any remaining part of a reload cycle.

6.12.3.2 The analytical methods used to determine the core operating limits addressed by the individual Technical Specification shall be those previously reviewed and approved by the NRC for use at ANO-1, specifically:

1. Babcock & Wilcox Topical Report BAW-10122A Rev. 1, "Normal Operating Controls," May 1984.
2. Babcock & Wilcox Topical Report BAW-10116-A "Assembly Calculations and Fitted Nuclear Data," May 1977.
3. Babcock & Wilcox Topical Report BAW-10117P-A, "Babcock & Wilcox Version of PDQ User's Manual," January 1977.
4. Babcock & Wilcox Topical Report BAW-10118A, "Core Calculational Techniques and Procedures," December 1979.
5. Babcock & Wilcox Topical Report BAW-10124A, "FLAME 3-A Three-Dimensional Nodal Code for Calculating Core Reactivity and Power Distributions," August 1976.
6. Babcock & Wilcox Topical Report BAW-10125A, "Verification of Three-Dimensional FLAME Code," August 1976.
7. Babcock & Wilcox Topical Report BAW-10119P-A, "Power Peaking Nuclear Reliability Factors," February 1979.
8. Babcock & Wilcox, Topical Report BAW-10103A, Rev. 3, "ECCS Analysis of B&W's 177-FA Lowered Loop NSS," July 1977.
9. Babcock & Wilcox, Topical Report BAW-10162P-A, "TACOS Fuel Pin Thermal Analysis Computer Code," November 1989.
10. Babcock & Wilcox, Report BAW-1915PA, "Bounding Analytical Assessment of NUREG-0630 Models on LOCA kW/ft Limits With Use of FLECSET," November 1988.
11. Babcock & Wilcox, Topical Report BAW-10104PA Revision 5, "B&W ECCS Evaluation Model," November 1988.

6.12.3.3 The core operating limits shall be determined so that all applicable limits (e.g. fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

6.12.3.4 The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance for each reload cycle to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector.