



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 23, 2009

Vice President, Operations
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72802

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE:
TECHNICAL SPECIFICATION CHANGE TO DELETE LOW PRESSURIZER
LEVEL LIMIT (TAC NO. ME0845)

Dear Sir or Madam:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 241 to Renewed Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit No. 1 (ANO-1). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 10, 2009.

The amendment would delete the minimum pressurizer water level requirement in TS 3.4.9, "Pressurizer," and eliminate the verification of the minimum level requirement in Surveillance Requirement 3.4.9.1. This change is consistent with NUREG-1430, Revision 3, "Standard Technical Specifications, Babcock and Wilcox Plants."

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink, appearing to read "N. Kaly Kalyanam", followed by a horizontal line and the word "for" written in a cursive script.

N. Kaly Kalyanam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-313

Enclosures:

1. Amendment No. 241 to DPR-51
2. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 241
Renewed License No. DPR-51

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (EOI, the licensee), dated March 10, 2009, 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.

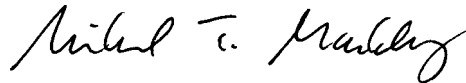
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.c.(2) of Renewed Facility Operating License No. DPR-51 is hereby amended to read as follows:

- (2) Technical Specifications

- The Technical Specifications contained in Appendix A, as revised through Amendment No. 241, are hereby incorporated in the renewed license. EOI shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. DPR-51
and Technical Specifications

Date of Issuance: December 23, 2009

ATTACHMENT TO LICENSE AMENDMENT NO. 241

RENEWED FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Replace the following pages of the Renewed Facility Operating License No. DPR-51 and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Operating License

REMOVE

3

INSERT

3

Technical Specifications

REMOVE

3.4.9-1

3.4.9-2

INSERT

3.4.9-1

3.4.9-2

- (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 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 renewed 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. 241, are hereby incorporated in the renewed license. EOI shall operate the facility in accordance with the Technical Specifications.

(3) Safety Analysis Report

The licensee's SAR supplement submitted pursuant to 10 CFR 54.21(d), as revised on March 14, 2001, describes certain future inspection activities to be completed before the period of extended operation. The licensee shall complete these activities no later than May 20, 2014.

(4) Physical Protection

EOI shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans, including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Arkansas Nuclear One Physical Security Plan, Training and Qualifications Plan, and Safeguards Contingency Plan," as submitted on May 4, 2006.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

- a. Pressurizer water level \leq 320 inches; and
- b. A minimum of 126 kW of Engineered Safeguards (ES) bus powered pressurizer heaters OPERABLE.

-----NOTE-----
 OPERABILITY requirements on pressurizer heaters do not apply in
 MODE 4.

APPLICABILITY: MODES 1, 2, and 3,
 MODE 4 with RCS temperature $>$ 262°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limits.	A.1 Restore level to within limits.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4 with RCS temperature \leq 262°F.	6 hours 24 hours
C. Capacity of ES bus powered pressurizer heaters less than limit.	C.1 Restore pressurizer heater capacity.	72 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level \leq 320 inches.	12 hours
SR 3.4.9.2	Verify capacity of ES bus powered pressurizer heaters \geq 126 kW.	18 months



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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 241 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-51

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT NO. 1

DOCKET NO. 50-313

1.0 INTRODUCTION

By application dated March 10, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML090690819), Entergy Operations, Inc. (the licensee), requested changes to the Technical Specifications (TSs) for Arkansas Nuclear One, Unit No. 1 (ANO-1).

The proposed changes would delete the minimum pressurizer water level requirement in TS 3.4.9, "Pressurizer," and eliminate the verification of the minimum level requirement in Surveillance Requirement (SR) 3.4.9.1.

Current TS Limiting Condition for Operation (LCO) 3.4.9 states:

LCO 3.4.9 The pressurizer shall be OPERABLE with:

- a. Pressurizer water level \geq 45 inches and \leq 320 inches; and

The licensee proposes to delete the minimum level requirement. Revised TS LCO 3.4.9 would state:

LCO 3.4.9 The pressurizer shall be OPERABLE with:

- a. Pressurizer water level \leq 320 inches; and

Current TS Surveillance Requirement (SR) 3.4.9.1 states:

SR 3.4.9.1 Verify pressurizer water level \geq 45 inches and \leq 320 inches.

The licensee proposes to eliminate the verification of the minimum level requirement in the SR. Revised SR 3.4.9.1 would state:

SR 3.4.9.1 Verify pressurizer water level \leq 320 inches.

The licensee proposed changes to be consistent with NUREG-1430, Revision 3, "Standard Technical Specifications, Babcock and Wilcox [B&W] Plants" (STS), published June 2004. The proposed changes are also consistent with all other operating B&W plants with the exception of Three Mile Island Unit 1.

2.0 REGULATORY EVALUATION

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The TSs ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The U.S. Nuclear Regulatory Commission's (NRC's) regulatory requirements related to the content of the TSs are contained in Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, "Technical specifications," which requires that the TSs include items in the following specific categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) LCOs; (3) SRs; (4) design features; and (5) administrative controls. The regulations in 10 CFR 50.36(c)(2)(ii)(C) specify that a TS LCO must be established for a "structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier." The regulations in 10 CFR 50.36(c)(3) specify that SRs are "requirements related to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

The NRC staff reviewed the proposed changes for compliance with 10 CFR 50.36 and agreement with the precedent as established in NUREG-1430, "Standard Technical Specifications, Babcock and Wilcox Plants." In general, licensees cannot justify TS changes solely on the basis of adopting the Standard Technical Specification (STS) model. Licensees may revise the TSs to adopt the improved STS format and content, provided that a plant-specific review supports a finding of continued adequate safety because: (1) the change is editorial, administrative, or provides clarification (i.e., no requirements are materially altered); (2) the change is more restrictive than the licensee's current requirement; or (3) the change is less restrictive than the licensee's current requirement, but nonetheless still affords adequate assurance of safety when judged against current regulatory standards.

In its letter dated March 10, 2009, the licensee identified the following applicable General Design Criteria (GDC) in 10 CFR 50, Appendix A:

- GDC 10, "Reactor design." The reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

- GDC 13, "Instrumentation and control." Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.
- GDC 15, "Reactor coolant system design." The reactor coolant system and associated auxiliary, control, and protection systems shall be designed with sufficient margin to assure that the design conditions of the reactor coolant pressure boundary are not exceeded during any condition of normal operation, including anticipated operational occurrences.
- GDC 20, "Protection system functions." The protection system shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.
- GDC 23, "Protection system failure modes." The protection system shall be designed to fail into a safe state or into a state demonstrated to be acceptable on some other defined basis if conditions such as disconnection of the system, loss of energy (e.g., electric power, instrument air), or postulated adverse environments (e.g., extreme heat or cold, fire, pressure, steam, water, and radiation) are experienced.
- GDC 24, "Separation of protection and control systems." The protection system shall be separated from control systems to the extent that failure of any single control system component or channel, or failure or removal from service of any single protection system component or channel which is common to the control and protection systems leaves intact a system satisfying all reliability, redundancy, and independence requirements of the protection system. Interconnection of the protection and control systems shall be limited so as to assure that safety is not significantly impaired.

This amendment was evaluated pursuant to 10 CFR 50.36(c)(ii)(2) which sets forth four criteria to be used in determining whether an LCO is required to be included in TSs, which include:

- Criterion 1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

- Criterion 2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
- Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
- Criterion 4. A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

In general, the licensee proposes to make changes consistent with NUREG-1430, Revision 3.

3.0 TECHNICAL EVALUATION

The amendment proposes to delete the low pressurizer level limit from the ANO-1 TSs. The pressurizer serves as a pressure regulator for the reactor coolant system (RCS). The presence of a steam bubble in the pressurizer allows for control of pressure by creating more steam or condensing steam with either heaters or sprays. The level in the pressurizer affects the pressure of the system by squeezing or expanding the steam bubble. The level can be controlled by letdown and makeup out of and into the RCS. In order to maintain a steam bubble and control or pressure, the pressurizer must contain the steam bubble and, therefore, a maximum level is necessary. A minimum level is not required to prevent or to mitigate an accident. Maintaining a minimum level is used for normal operation.

A minimum level is not necessary to prevent or mitigate an accident. Automatic control systems strive to maintain pressurizer level at a predetermined setpoint. Operators are guided to check that the automatic control systems are working properly when the pressurizer level is found to be outside of the control band and guidance is also provided for taking manual actions to restore level to its setpoint. If a level cannot be restored, plant operators would trip the reactor manually.

The NRC staff concluded that the deletion of the low pressurizer level limit from TSs does not trigger any of the four screening criteria specified in 10 CFR 50.36 because the low level limit is:

- Not an installed instrumentation used to detect and indicate a significant abnormal degradation of the reactor coolant pressure boundary.
- Not a process variable, design feature, or operating restriction that is an initial condition of a design-basis accident or transient analysis.
- Not a structure, system, or component (SSC) that is part of the primary success path and which functions or actuates to mitigate a design-basis accident or transient.

- Not an SSC which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The NRC staff concluded that the changes are consistent with NUREG-1430, Revision 3.

4.0 SUMMARY

Based on the above, the NRC staff concludes that the deletion of the low pressurizer level limit from the TSs does not trigger any of the four screening criteria specified in 10 CFR 50.36, and that ANO-1 will continue to meet GDCs 10, 13, 15, 20, 23, and 24 of Appendix A to 10 CFR Part 50. In addition, the staff concludes that the licensee has provided adequate justification to support the requested changes and reasonable assurance that ANO-1 will be able to comply with the regulatory requirements and, therefore, meets 10 CFR 50.36. Therefore, the NRC staff concludes that the proposed TS changes are acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arkansas State official was notified of the proposed issuance of the amendment. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on April 21, 2009 (74 FR 18254). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: J. Miller

Date: December 23, 2009

December 23, 2009

Vice President, Operations
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72802

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE:
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A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,
/RA by Nicholas J. DiFrancesco for/

N. Kaly Kalyanam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-313

Enclosures:

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* Staff SE with minor editorial changes

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