

May 31, 2006

Mr. William Levis
Senior Vice President & Chief Nuclear Officer
PSEG Nuclear LLC - N09
Post Office Box 236
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2, ISSUANCE
OF AMENDMENTS RE: EMERGENCY CORE COOLING SYSTEM
REQUIREMENTS WHEN TAVG < 350 °F (TAC NOS. MC5909 and MC5910)

Dear Mr. Levis:

The Commission has issued the enclosed Amendment Nos. 273 and 254 to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Nuclear Generating Station, Unit Nos. 1 and 2, respectively. These amendments consist of changes to the Technical Specifications in response to your application dated February 10, 2005, as supplemented by letters dated July 14, 2005, and October 20, 2005.

The amendments modify Surveillance Requirement 4.5.3.2 b to allow safety injection and charging pumps to run in a recirculation flow path, provided that two independent means are used to prevent injection into the reactor coolant system injection.

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

Sincerely,

/RA/

Stewart N. Bailey, Senior Project Manager
Plant Licensing Branch 1-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosures:

1. Amendment No. 273 to License No. DPR-70
2. Amendment No. 254 to License No. DPR-75
3. Safety Evaluation

cc w/encls: See next page

May 31, 2006

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Senior Vice President & Chief Nuclear Officer
PSEG Nuclear LLC-X04
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Hancocks Bridge, NJ 08038

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* concurrence by memo

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DATE	5/10/06	5/25/06	12/19/2005	5/16/06	5/25/06	5/30/06

Official Record Copy

Salem Nuclear Generating Station, Unit Nos. 1 and 2

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PSEG NUCLEAR LLC

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-272

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 273
License No. DPR-70

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by PSEG Nuclear LLC, acting on behalf of itself and Exelon Generation Company, LLC (the licensees), dated February 10, 2005, as supplemented by letters dated July 14, 2005, and October 20, 2005, 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 Title 10 of the *Code of Federal Regulations* (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 set forth in 10 CFR Chapter I;
 - 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-70 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 273, 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 its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Darrell J. Roberts, Chief
Plant Licensing Branch 1-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: May 31, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 273

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Replace the following page of Facility Operating License No. DPR-70 with the attached revised page as indicated. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page

4

Insert Page

4

Replace the following pages of Appendix A, Technical Specifications, with the attached revised pages as indicated. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

3/4 5-6a

B3/4 5-1

Insert Pages

3/4 5-6a

B3/4 5-1

PSEG NUCLEAR LLC

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-311

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 254
License No. DPR-75

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by PSEG Nuclear LLC, acting on behalf of itself and Exelon Generation Company, LLC (the licensees), dated February 10, 2005, as supplemented by letters dated July 14, 2005, and October 20, 2005, 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 Title 10 of the *Code of Federal Regulations* (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 set forth in 10 CFR Chapter I;
 - 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-75 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 254, 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 its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Darrell J. Roberts, Chief
Plant Licensing Branch 1-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: May 31, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 254

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Replace the following page of the Facility Operating License No. DPR-75 with the attached revised page as indicated. The revised pages is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page

4

Insert Page

4

Replace the following pages of the Appendix A, Technical Specifications, with the attached revised pages as indicated. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

3/4 5-8

B3/4 5-2

Insert Pages

3/4 5-8

B3/4 5-2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NOS. 273 AND 254 TO FACILITY OPERATING
LICENSE NOS. DPR-70 AND DPR-75
PSEG NUCLEAR LLC
EXELON GENERATION COMPANY, LLC
SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-272 AND 50-311

1.0 INTRODUCTION

By letter dated February 10, 2005 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML050530196), as supplemented by letters dated July 14, 2005 (ADAMS Accession No. ML052080207), and October 20, 2005 (ADAMS Accession No. ML052970208), PSEG Nuclear LLC (the licensee) submitted a request to amend the operating licenses for Salem Nuclear Generating Station, Unit Nos. 1 and 2 (Salem). The amendment would change the Technical Specifications (TSs) to modify Surveillance Requirement (SR) 4.5.3.2 b to allow safety injection and charging pumps to run in a recirculation flow path, provided that two independent means of preventing reactor coolant system (RCS) injection are utilized. The SR is a part of the low-temperature overpressure (LTOP) protection at Salem, and applies in Operational Mode (Mode, as defined in TS Table 1.1) 4 when the RCS cold leg temperature is less than 312 °F, and in Modes 5 and 6 when the head is on the reactor vessel. This change would allow the licensee to use an inoperable pump for activities such as testing and filling accumulators. Changes are also being made to the TS Bases that identify ways to satisfy the two independent means of preventing RCS injection.

The July 14, 2005, and October 20, 2005, letters provided clarifying information that did not change the initial proposed no significant hazards consideration determination (70 FR 19116).

2.0 REGULATORY EVALUATION

The Nuclear Regulatory Commission's (NRC or the Commission) regulatory requirements related to the content of the TSs are set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36, "Technical Specifications." This regulation requires that the TSs include items in five specific categories. These categories include: (1) safety limits, limiting safety system settings and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls. Additionally, Criterion 2 of 10 CFR 50.36(c)(2)(ii) requires an LCO to be established for 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.

SR 4.5.3.2.b is intended to provide over-pressure protection to the RCS during low temperature conditions. The bases for the LTOP protection are found in 10 CFR Part 50 as follows:

Appendix G, "Fracture Toughness Requirements," specifies fracture toughness requirements for ferritic materials in pressure-retaining components of the RCS to provide adequate margins of safety during any condition of normal operation, including anticipated operational occurrences and system hydrostatic tests, to which the pressure boundary may be subjected over its service lifetime.

Criterion 15 of Appendix A, "General Design Criteria for Nuclear Power Plants," requires that the RCS 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.

3.0 TECHNICAL EVALUATION

The TSs include provisions to ensure LTOP protection at Salem. TS 3/4.4.9, "Pressure/Temperature Limits Reactor Coolant System," requires, in part, that RCS pressure is maintained low at low temperatures and is increased only as temperature is increased. This TS ensures that the pressure and temperature limits of 10 CFR 50, Appendix G, are not violated, and that the integrity of the reactor coolant pressure boundary (RCPB) is not compromised.

At LTOP conditions, the reactor vessel is generally the limiting RCPB component, because it is less tough at low temperatures than at normal operating temperature. The potential for vessel over pressurization is most acute when the RCS is water solid, a condition that occurs only during shutdown. When the RCS is water solid, a pressure fluctuation can occur more quickly than an operator can react to in order to relieve the condition. If the pressure and temperature limits of the reactor vessel are exceeded, brittle cracking of the reactor vessel could occur.

LTOP conditions are avoided by having a minimum coolant input capability and having adequate pressure relief capacity. SR 4.3.5.2 controls discharge from the safety injection pumps - - one aspect of ensuring a minimum coolant input capability. The other aspect of ensuring a minimum coolant input capability is control of the accumulator discharge. In its letter dated July 14, 2005, the licensee discussed the other LTOP protection requirements in the Salem TSs and compared them to the requirements in the Standard Technical Specifications (STSs) found in NUREG-1431, "Standard Technical Specifications for Westinghouse Plants," Revision 3. The proposed change does not impact the other LTOP requirements for Salem. Further, the licensee stated that the accumulators would be isolated when RCS pressure is less than 1000 psig during normal shutdowns, and that this meets the intent of the STSs of preventing accumulator injection when accumulator pressure is greater than RCS pressure. Therefore, the licensee demonstrated that the requested change does not affect control of accumulator discharge or the ability to provide adequate pressure relief capacity.

The licensee's request will modify the means by which the safety injection pump discharge is controlled. Currently, the licensee is required to remove electrical power from the inoperable pumps, except when one of the inoperable pumps is run in a recirculation flow path for testing purposes. The intent of the TS is to limit the capability to inject coolant into the RCS when LTOP is a concern. The amendment will reword the testing exception to allow the inoperable pump to be run in a recirculation flow path provided there are two independent means of preventing injection to the RCS. Utilizing two independent means of preventing RCS injection is an acceptable equivalent to removing electrical power from the pumps and is consistent with the STSSs.

The licensee proposed to specify in the TS Bases the acceptable combinations of actions that would provide two independent means of preventing injection to the RCS. The acceptable combinations are two closed manual isolation valves in series, one manual isolation valve closed and locked, or one closed motor-operated valve with its motor operator de-energized and the control fuses removed. Removing the control fuses prevents the valve from changing position (e.g., opening) if the motor operator is re-energized.

Based on the above evaluations, the NRC staff determined that the licensee's request to revise SR 4.5.3.2b provides reasonable assurance that LTOP conditions will be avoided. Therefore, the NRC staff has determined that the proposed change is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State official was notified of the proposed issuance of the amendments. As stated in a letter dated May 2, 2005, the State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (70 FR 19116). Accordingly, the amendments meet 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 amendments.

6.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: K. Wood
S. Bailey

Date: May 31, 2006