

September 9, 2005

Mr. William Levis  
Senior Vice President & Chief Nuclear Officer  
PSEG Nuclear LLC-X04  
Post Office Box 236  
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 – ISSUANCE  
OF AMENDMENTS TO EXTEND THE INSPECTION INTERVAL FOR  
REACTOR COOLANT PUMP FLYWHEELS (TAC NOS. MC4734 AND MC4735)

Dear Mr. Levis:

The Commission has issued the enclosed Amendment Nos. 265 and 247 to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Nuclear Generating Station, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated September 27, 2004, as supplemented by letter dated August 2, 2005.

The amendments revise the TSs to increase the inspection interval for the reactor coolant pump flywheels to 20 years. A notice of availability for this TS improvement using the Consolidated Line Item Improvement Process was published in the *Federal Register* on October 22, 2003 (68 FR 60422).

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, Sr. Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosures: 1. Amendment No. 265 to  
License No. DPR-70  
2. Amendment No. 247 to  
License No. DPR-75  
3. Safety Evaluation

cc w/encls: See next page

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NAME	WReckley	SBailey	CRaynor	DRoberts
DATE	5/20/05	8/26/05	8/26/05	9/08/05

OFFICIAL RECORD COPY

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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. 265  
License No. DPR-70

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by PSEG Nuclear LLC and Exelon Generation Company, LLC (the licensees) dated September 27, 2004, as supplemented by letter dated August 2, 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. 265, 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, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: September 9, 2005

ATTACHMENT TO LICENSE AMENDMENT NO. 265

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Replace the following page of the Appendix A, Technical Specifications, 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  
3/4 4-33

Insert Page  
3/4 4-33

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. 247  
License No. DPR-75

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by PSEG Nuclear LLC and Exelon Generation Company, LLC (the licensees) dated September 27, 2004, as supplemented by letter dated August 2, 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. 247, 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, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: September 9, 2005



ATTACHMENT TO LICENSE AMENDMENT NO. 247

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Replace the following page of the Appendix A, Technical Specifications, 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

3/4 4-33

Insert Page

3/4 4-33

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 265 AND 247 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 September 27, 2004, (Agencywide Documents and Management System (ADAMS) Accession No. ML042790502), PSEG Nuclear, LLC (the licensee) submitted a request for changes to the Salem Nuclear Generating Station (Salem), Unit Nos. 1 and 2, Technical Specifications (TSs). The requested changes would revise the surveillance requirements (SRs) associated with the structural integrity TSs (TS 3/4.4.10 for Salem Unit No. 1 and TS 3/4.4.11 for Salem Unit No. 2) by extending the allowable inspection interval for the reactor coolant pump (RCP) flywheels to 20 years. These changes are based on Technical Specification Task Force (TSTF) change traveler TSTF-421 (Revision 0) that has been approved generically for the Westinghouse Standard Technical Specifications, NUREG-1431. A notice announcing the availability of this proposed TS change using the consolidated line item improvement process was published in the *Federal Register* on October 22, 2003 (68 FR 60422). By letter dated August 2, 2005 (ADAMS Accession No. ML052210493), the licensee supplemented the application to more clearly follow the wording in TSTF-421. This supplement did not impact the original no significant hazards consideration.

2.0 REGULATORY EVALUATION

The function of the RCP in the reactor coolant system (RCS) of a pressurized water reactor plant is to maintain an adequate cooling flow rate by circulating a large volume of primary coolant water at high temperature and pressure through the RCS. Following an assumed loss of power to the RCP motor, the flywheel, in conjunction with the impeller and motor assembly, provides sufficient rotational inertia to assure adequate primary coolant flow during RCP coastdown, thus resulting in adequate core cooling. A concern regarding the overspeed of the RCP and its potential for failure led to the issuance of Regulatory Guide (RG) 1.14, "Reactor Coolant Pump Flywheel Integrity," Revision 1, dated August 1975. RG 1.14 describes a method acceptable to the Nuclear Regulatory Commission (NRC or the Commission) staff of addressing concerns related to RCP vibration and the possible effects of missiles that might result from the failure of the RCP flywheel. The need to protect components important to safety

from such missiles are included in General Design Criterion 4, "Environmental and Dynamic Effects Design Basis," of Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Licensing of Production and Utilization Facilities," which is applicable to plants that obtained their construction permits after May 21, 1971.

Specific requirements to have an RCP Flywheel Inspection Program consistent with RG 1.14 or previously-issued relaxations from the RG are included in the Administrative Controls Section of the TSs. The purpose of the testing and inspection programs defined in the TSs is to ensure that the probability of a flywheel failure is sufficiently small such that additional safety features are not needed to protect against a flywheel failure. The RG provides criteria in terms of critical speeds that could result in the failure of an RCP flywheel during normal or accident conditions. In addition to the guidance in RG 1.14, the NRC has more recently issued RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," which provides guidance and criteria for evaluating proposed changes that use risk-informed justifications.

A proposed justification for extending the RCP flywheel inspections from a 10-year inspection interval to an interval not to exceed 20 years was provided by the Westinghouse Owners Group (WOG) in topical report WCAP-15666, "Extension of Reactor Coolant Pump Motor Flywheel Examination," transmitted by letter dated August 24, 2001. The topical report addressed the proposed extension for all domestic WOG plants. The NRC accepted the topical report for referencing in license applications by letter and Safety Evaluation (SE) dated May 5, 2003 (ADAMS Accession No. ML031250595). The licensee has not adopted a previously-approved generic change to the TSs that provided an alternate inspection of the flywheel and extended the inspection interval to 10 years. The licensee proposes, in these amendments, to increase the inspection interval to 20 years.

### 3.0 TECHNICAL EVALUATION

The justification for the proposed change was provided in WCAP-15666, which the staff accepted for referencing in license applications by letter and SE dated May 5, 2003. The topical report addresses the three critical speeds defined in RG 1.14: (a) the critical speed for ductile failure, (b) the critical speed for non-ductile failure, and (c) the critical speed for excessive deformation of the flywheel. The staff found that the topical report adequately addressed these issues and demonstrated that acceptance criteria, for normal and accident conditions defined in RG 1.14, would continue to be met for all domestic WOG plants following an extension of the inspection interval. The topical report also provided a risk assessment for extending the RCP flywheel inspection interval. The staff's review, documented in the SE for the topical report, determined that the analysis methods and risk estimates are acceptable when compared to the guidance in RG 1.174.

Previously accepted generic changes (alternate inspections to RG 1.14 and inspection intervals of 10 years) had not been incorporated into the Salem TSs. The technical basis of the change, as described in the NRC-approved topical report WCAP-15666, remains valid for the licensee's proposal to adopt the 20-year inspection interval. The licensee has maintained the inspection methods consistent with RG 1.14 currently in their TSs and is proposing to adopt only the increased inspection interval.

In conclusion, the staff finds that the regulatory positions in RG 1.14 concerning the three

critical speeds are satisfied, and that the evaluation indicating that critical crack sizes are not expected to be attained during a 20-year inspection interval is reasonable and acceptable. The potential for failure of the RCP flywheel is, and will continue to be, negligible during normal and accident conditions. The change is, therefore, 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. 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 and changes SRs. 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 15945; March 29, 2005). 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: W. Reckley

Date: September 9, 2005