

January 29, 2004

Mr. Roy A. Anderson
President & Chief Nuclear Officer
PSEG Nuclear, LLC - X04
Post Office Box 236
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SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2, ISSUANCE OF
AMENDMENTS RE: RADIOACTIVE EFFLUENTS - EXPLOSIVE GAS MIXTURE
(TAC NOS. MB9510 AND MB9511)

Dear Mr. Anderson:

The Commission has issued the enclosed Amendment Nos. 261 and 243 to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Nuclear Generating Station (Salem), Unit Nos. 1 and 2. These amendments consist of changes to the Salem Technical Specifications (TSs) in response to your application dated June 6, 2003.

These amendments revise the Salem TSs to: (1) add a footnote to TS 3/4.11.2.5 to clarify the applicability of the Limiting Condition for Operation while the system is removed from service for maintenance; (2) revise Surveillance Requirement 4.11.2.5 to delete the reference to hydrogen concentration; and (3) revise the corresponding TS Bases.

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/

Robert J. Fretz, 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. 261 to
License No. DPR-70
2. Amendment No. 243 to
License No. DPR-75
3. Safety Evaluation

cc w/encls: See next page

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ACCESSION NUMBER: ML04

* SE input provided by memo.

OFFICE	PDI-2/PM	PDI-2/LA	SPSB/SC*	OGC	PDI-2/SC(A)
NAME	RFretz	CRaynor	DSolorio	SUttal	DRoberts
DATE	01/07/04	01/08/04	12/22/03	01/25/04	01/28/04

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. 261
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 June 6, 2003, 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. 261, 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 Roberts, Acting 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: January 29, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 261

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

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 11-15
B 3/4 11-6

Insert Pages

3/4 11-15
B 3/4 11-6

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. 243
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 June 6, 2003, 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. 243, 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 Roberts, Acting 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: January 29, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 243

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

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 11-15
B 3/4 11-6

Insert Pages

3/4 11-15
B 3/4 11-6

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NOS. 261 AND 243 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 June 6, 2003, PSEG Nuclear, LLC (PSEG or the licensee) submitted a request for changes to the Salem Nuclear Generating Station, Unit Nos. 1 and 2 (Salem), Technical Specifications (TSs). The requested changes would revise TS 3/4.11.2.5, "Radioactive Effluents - Explosive Gas Mixture," as follows:

- Add a footnote to TS Limiting Condition for Operation (LCO) 3.11.2.5:
 - * Not applicable to portions of the Waste Gas System removed from service for maintenance provided that the portions removed for maintenance are isolated and purged of hydrogen to less than 4% by volume.
- Revise Surveillance Requirement (SR) 4.11.2.5 to delete the reference to hydrogen concentration, which is not limited by the LCO.
- Revise the corresponding TS Bases contained on page B 3/4 11-6.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criterion (GDC) 3 states that structures, systems, and components (SSCs) important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions. This GDC requires that, if the potential for an explosive mixture of hydrogen and oxygen exists, then the gaseous radioactive waste system (GRS) must be designed to withstand the effects of such an explosion, or be provided with dual instrumentation and design features to annunciate and prevent the buildup of potentially explosive mixtures, respectively. Meeting the requirements of GDC 3 provides the assurance

that the GRS is protected from the effects of an explosive mixture of hydrogen and oxygen, and that the safety functions of other SSCs will not be compromised.

Appendix A of 10 CFR Part 50, GDC 60 states that: [s]ufficient holdup capacity shall be provided for retention of gaseous and liquid effluents containing radioactive materials, particularly where unfavorable site environmental conditions can be expected to impose unusual operational limitations upon the release of such effluents to the environment.

Standard Review Plan (SRP) Section 11.3, "Gaseous Waste Management System," states in subsection II.B.6:

If the potential for an explosive mixture of hydrogen and oxygen exists, the GRS portion of the gaseous waste management systems should either be designed to withstand the effects of a hydrogen explosion, or be provided with dual gas analyzers with automatic control functions to preclude the formation or buildup of explosive mixtures... For systems not designed to withstand a hydrogen explosion, dual gas analyzers (with dual being defined as two independent gas analyzers continuously operating and providing two independent measurements verifying that hydrogen and/or oxygen are not present in potentially explosive concentrations) with automatic control functions are required to preclude the formation or buildup of explosive hydrogen/oxygen mixtures.

The staff utilized these design and regulatory criteria, standards and precedents to evaluate the proposed change.

3.0 TECHNICAL EVALUATION

3.1 Addition of Footnote to TS LCO 3.11.2.5

The waste gas system (WGS) at Salem was not designed to withstand a hydrogen explosion. Therefore, the WGS must be equipped with dual instrumentation, and be designed to announce an alarm that will alert plant operators to take the necessary actions to prevent the buildup of a potentially explosive mixture. The purpose of TS 3/4.11.2.5 is to prevent an explosive combination of hydrogen and oxygen that could result in an uncontrolled radiological release to the environment. LCO 3.11.2.5 states that "[t]he concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume", and this LCO is applicable "at all times."

In its June 6, 2003, application, the licensee stated that this LCO could imply that the TS limits are applicable to WGS components that have been removed from service. Therefore, a verbatim interpretation of the current TS would appear to prohibit venting of the WGS to conduct maintenance on the system. In addition, PSEG stated that SR 4.11.2.5 implies that a hydrogen monitor is required to be operable by TS Table 3.3-13. Table 3.3-13 does not specify an operable hydrogen monitor.

Therefore, the licensee proposed to add a footnote to TS LCO 3.11.2.5 stating that the LCO is not applicable to portions of the WGS removed from service for maintenance provided that the portions removed for maintenance are isolated from sources of hydrogen and purged of hydrogen to less than 4% by volume. Because the TS still requires the licensee to maintain

hydrogen concentration below its lower flammability limit of 4% (by volume) by eliminating sources of hydrogen and purging portions of the WGS that are isolated for maintenance, the possibility of creating an explosive mixture of hydrogen and oxygen is prevented. Therefore, the U.S. Nuclear Regulatory Commission (NRC or Commission) staff finds that the addition of the proposed footnote is acceptable.

3.2 Changes to SR 4.11.2.5

PSEG also proposed to delete the reference to hydrogen in SR 4.11.2.5. This SR currently states that “[t]he concentrations of hydrogen and oxygen in the waste holdup system shall be determined to be within [LCO 3.11.2.5] limits...” TS LCO 3.11.2.5 makes no mention of hydrogen concentration, thus the NRC staff concurs with the licensee that this inconsistency with the TSs can cause confusion. Also, TS Table 3.3-13 requires that the oxygen monitor be operable, and does not require that a hydrogen monitor be operable. SRP Section 11.3, states that “systems designed to operate above 4% hydrogen, should be analyzed for oxygen.” Because Salem’s WGS was designed to operate with a hydrogen concentration of 4% and higher, the oxygen monitor is required to be operable. However, deleting the reference to hydrogen in SR 4.11.2.5 does not change the requirement that the concentration of oxygen shall be determined to be within limits by continuously monitoring the waste gases in the WGS. Therefore, because the possibility of creating an explosive mixture of hydrogen and oxygen is prevented, the NRC staff finds that the proposed changes to SR 4.11.2.5 are acceptable.

3.3 Applicable TS Bases Pages

The licensee proposed changes to the TS Bases pages for Salem to reflect the changes to LCO 3.11.2.5 and SR 4.11.2.5. The NRC staff confirmed that the changes to the TS Bases are consistent with the licensee’s proposed TSs.

3.4 NRC Staff’s Conclusion

Based on its review, the NRC staff has determined that there is adequate protection to prevent the occurrence of an explosion or to withstand the effects of an explosion in accordance with GDC 3 and 60 of Appendix A to 10 CFR Part 50. Therefore, the NRC staff finds the proposed changes to the Salem TSs are 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 (68 FR 46246). 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 Contributors: R. Hernandez

Date: January 29, 2004