

June 24, 2003

Mr. Roy A. Anderson
President & Chief Nuclear Officer
PSEG Nuclear, LLC - X04
Post Office Box 236
Hancocks Bridge, NJ 08036

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 -
EXEMPTION FROM THE REQUIREMENTS OF 10 CFR PART 50, APPENDIX R,
SECTIONS III.G.3 AND III.L.3, FOR FIRE AREAS 1(2)-FA-AB-64B,
1(2)-FA-AB-84B, AND 1(2)-FA-AB-84C (TAC NOS. MB5052 AND MB5053)

Dear Mr. Anderson:

The U.S. Nuclear Regulatory Commission (NRC or the Commission) has approved the enclosed exemption from specific requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix R, Sections III.G.3 and III.L.3, for the Salem Nuclear Generating Station (Salem), Unit No. 1. This action is in response to your letter dated May 1, 2002, as supplemented on August 15, 2002. The August 15, 2002, letter submitted information in response to an NRC staff request for additional information dated June 20, 2002.

Although the May 1 and August 15, 2002, letters had also requested a similar exemption for fire areas at Salem, Unit No. 2, the Commission is not granting an exemption from 10 CFR Part 50, Appendix R requirements with respect to this unit. Because Appendix R does not directly apply to Salem, Unit No. 2, fire protection requirements for this unit are defined in License Condition 2.C.(10) to Facility Operating License DPR-75. In light of the License Condition's provisions, the NRC staff did review PSEG Nuclear, LLC's (PSEG's) request to determine whether or not the changes for Salem, Unit No. 2, would adversely affect the unit's ability to achieve and maintain safe shutdown in the event of a fire. Based on its review, the NRC staff determined that the proposed reclassification of fire areas to alternative shutdown areas would result in an adverse effect. This determination was based on the reclassified areas not meeting a recognized code, standard, or alternative approved by the NRC, and was not a determination of whether or not the requested changes would afford adequate protection or provide reasonable assurance of safe shutdown. In order to revise the approved fire protection program and re-designate the Salem, Unit No. 2, fire areas as alternate shutdown areas, PSEG would need to submit a license amendment request. A proposed change to the Salem, Unit No. 2, standard fire protection license condition would be reviewed by the NRC, and the NRC staff's conclusions would subsequently be documented in a safety evaluation.

R. Anderson

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A copy of the exemption has been forwarded to the Office of the Federal Register for publication.

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

Enclosure: Exemption

cc w/enclosure: See next page

R. Anderson

- 2 -

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cc w/enclosure: See next page

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* SE/Exemption input provided by
memorandum dated May 5, 2003

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Unit Nos. 1 and 2

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
PSEG NUCLEAR, LLC
SALEM NUCLEAR GENERATING STATION, UNIT NO. 1
DOCKET NO. 50-272
EXEMPTION

1.0 BACKGROUND

PSEG Nuclear, LLC (PSEG or the licensee) is the holder of Facility Operating License No. DPR-70 which authorizes operation of the Salem Nuclear Generating Station (Salem), Unit No. 1. The license provides, among other things, that the facility is subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (NRC, the Commission) now or hereafter in effect.

The facility consists of a pressurized-water reactor located in Salem County in the State of New Jersey.

2.0 REQUEST/ACTION

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.48 requires that all nuclear power plants licensed to operate prior to January 1, 1979, have a fire protection plan that satisfies 10 CFR Part 50, Appendix A, General Design Criterion (GDC) No. 3, "Fire Protection." Appendix R to 10 CFR Part 50, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," hereinafter referred to as "Appendix R," establishes fire protection requirements to satisfy GDC 3. Furthermore, 10 CFR 50.48(b)

specifically requires that all nuclear power plants licensed to operate prior to January 1, 1979, implement fire protection features described in Appendix R, Section III.G.

Appendix R requires that, if a licensee cannot meet the separation criteria delineated in Section III.G.2, and if redundant trains of safe shutdown cables or equipment are in the same fire area, the licensee must implement the alternative shutdown requirements of Section III.G.3. Section III.G.3 requires that plants have a shutdown capability independent of the area where redundant trains are located, and further requires that the area with redundant trains have an automatic fire detection and fixed fire suppression system. In addition, a Federal court decision¹ has held that, if a licensee implements the requirements of Section III.G.3, the licensee must also comply with Section III.L of Appendix R. Section III.L requires that the licensee assume that offsite power is lost for a fire in a fire area crediting Section III.G.3 alternative shutdown.

Salem, Unit No. 1, began power operations prior to January 1, 1979. Therefore, the technical requirements of Appendix R, including Sections III.G and III.L, are directly applicable to Salem, Unit No. 1.

By letter dated May, 1, 2002, as supplemented on August 15, 2002, PSEG requested an exemption from Appendix R, Section III.G.3, fixed suppression requirements for Fire Areas 1(2)-FA-AB-64B (Reactor Plant Auxiliary Building, 64' Elevation) and 1(2)-FA-AB-84C (11 and 21 Component Cooling Water (CCW) System pump and heat exchanger areas, 84' Elevation). In addition, the licensee requested an exemption from Appendix R, Section III.L.3, loss of offsite power requirements for Fire Areas 1(2)-FA-AB-64B and 1(2)-FA-AB-84B (Reactor Plant Auxiliary Equipment Area, 84' Elevation).

¹ *Connecticut Light and Power, et al., v. NRC*, 673 F2d. 525 (D.C. Cir. 1982)

On July 20, 1989, the Commission granted an exemption from the technical requirements of Appendix R, Section III.G.2, to the extent that Fire Areas 1(2)-FA-AB-64B and 1(2)-FA-AB-84B are not protected by automatic fire suppression systems. However, because these areas are being reclassified as alternate shutdown (Section III.G.3) fire areas, this exemption supercedes the specific exemptions granted on July 20, 1989, for Fire Areas 1-FA-AB-64B and 1-FA-AB-84B.

3.0 DISCUSSION

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 50 when: (1) the exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security; and (2) when special circumstances are present. Special circumstances exist if the application of the technical requirements of 10 CFR Part 50, is not necessary to achieve the underlying purpose of the regulation. The underlying purpose of Sections III.G.3 and III.L.3 of Appendix R to 10 CFR Part 50 is to provide reasonable assurance that at least one means of achieving and maintaining safe shutdown conditions will remain available during, and after, any postulated fire.

Fire Area 1-FA-AB-64B

PSEG requested an exemption from the fixed suppression requirement of Appendix R, Section III.G.3, and the loss of offsite power requirement of Appendix R, Section III.L for Fire Area 1-FA-AB-64B. This area contains waste gas compressors, waste gas tanks, storage tank recirculation pumps, a laundry pump, a chemical drain tank pump, and holdup tanks and pumps.

Fire Area 1-FA-AB-64B is made up of multiple rooms that are separated by reinforced concrete barriers. Each room contains either a single component or groups of similar components. The area boundaries are also constructed of reinforced concrete. In-situ combustibles in the fire area consist of lubricating oil in pumps and motors, paper, electrical cabinet internals, and cable insulation. A fire detection system is installed throughout the area except in the Holdup Tank Rooms, No. 1 Pump Waste Monitor Hold-up Tank Pump Room, the Waste Evaporator Feed Pump Room, and in unused space.

Manual fire alarm stations are provided in the area, and, along with the fire detection system, annunciate in the Control Room. Manual fire suppression capability is provided in the form of portable fire extinguishers and manual hose stations. As previously stated, the Commission granted an exemption for the lack of a fixed suppression system on July 20, 1989.

Technical Evaluation for Fire Area 1-FA-AB-64B

Fire Area 1-FA-AB-64B credits alternative shutdown capability to ensure post-fire safe shutdown. Therefore, because the area does not have a fixed suppression system and offsite power is necessary to accomplish safe shutdown, the licensee does not meet the technical requirements of 10 CFR Part 50, Appendix R, Sections III.G.3 and III.L.3.

In its letter dated May 1, 2002, PSEG stated that a fire in this area has the potential to result in a loss of the emergency diesel generators (EDGs). However, the fire area contains no cables or equipment that could cause the station to lose offsite power. Therefore, offsite power would not be adversely affected by a fire, and would be available to support safe shutdown activities. Alternative shutdown capability, independent of the fire area, is provided to ensure post-fire safe shutdown. Based on its review, the NRC staff agrees that the licensee would be able to accomplish required safe shutdown activities for a fire in this fire area using offsite power.

The fire area also has a low in-situ combustible loading with few potential ignition sources. Areas containing significant amounts of combustible materials also have a detection system to warn plant operators in the event of a fire. If a fire were to ignite in this area, the low combustible loadings, the inherent protection offered by the concrete wall construction, and the limited propagation pathways, would restrict the size of the fire. Fire detectors in the area would alarm, and the site fire brigade would be able to extinguish the fire using manual equipment. The NRC staff agrees that an automatic fire suppression system is not necessary to control a fire with the configuration of this fire area. Control Room operators would be able to promptly detect a fire, and the station fire brigade would rapidly respond and extinguish a fire in this area.

Therefore, the NRC staff concludes that the lack of fire suppression specified in Section III.G.3, and the capability to accommodate a loss of offsite power required by Section III.L.3, in Fire Area 1-FA-AB-64B does not present an undue risk to the public health and safety, and is not necessary to achieve the underlying purpose of Sections III.G.3 and III.L.3 of Appendix R to 10 CFR Part 50.

Fire Area 1-FA-AB-84B

The licensee requested an exemption from the loss of offsite power requirement of Section III.L.3 of Appendix R. The fire area contains pumps, heat exchangers, tanks and control centers for the chemical and volume control, CCW, safety injection, containment spray, auxiliary feedwater, waste disposal, and spent pool cooling systems.

Fire Area 1-FA-AB-84B consists of multiple rooms separated by reinforced concrete barriers. Each room contains either a single component or groups of similar components. In-situ combustibles in the area consist of lubricating oil in pumps and motors, flammable

liquids stored in cabinets, and cable insulation. The area contains few ignition sources and few paths for fire propagation.

As previously stated, the Commission granted an exemption for the partial fire detection system on July 20, 1989. Fire suppression is provided for the auxiliary feedwater pumps by automatically actuated pre-action sprinkler systems. Fire suppression is provided for the charging pump area by a wet pipe sprinkler system.

Technical Evaluation of Fire Area 1-FA-AB-84B

The licensee does not meet the technical requirements of 10 CFR Part 50, Appendix R, in that Fire Area 1-FA-AB-84B credits alternative shutdown capability, and offsite power is required to accomplish safe shutdown.

Although a fire in this area has the potential to result in a loss of power from the EDGs to the 4160 Volt vital buses, the fire area contains no cables or equipment that could cause the station to also lose offsite power. Consequently, offsite power would not be adversely affected by a fire, and would, thus, be available to support safe shutdown activities in lieu of the EDGs. Alternative shutdown capability, independent of the fire area, is provided through the Chemical and Volume Control System cross-tie from the opposite unit to ensure post-fire safe shutdown. Based on its review, the staff agrees that the licensee would be able to accomplish required safe shutdown activities for a fire in this fire area using offsite power.

Therefore, because the licensee would still be able to achieve safe shutdown, the NRC staff concludes that the lack of capability to accommodate a loss of offsite power required by Section III.L.3, in Fire Area 1-FA-AB-84B does not present an undue risk to the public health and safety, and is not necessary to achieve the underlying purpose of Section III.L.3 of Appendix R to 10 CFR Part 50.

Fire Area 1-FA-AB-84C

The licensee requested an exemption from the fixed suppression requirement of Section III.G.3 of Appendix R for Fire Area 1-FA-AB-84C. This area contains the CCW Pump and Heat Exchanger.

The fire area boundaries are constructed of reinforced concrete. The area has a low combustible material loading, consisting of lubricating oil for the CCW pump and motor and cable insulation. The area contains few fixed ignition sources.

An area-wide fire detection system is installed in the area. A manual fire alarm station is provided in the corridor outside the room. Both systems alarm in the Control Room. Manual fire suppression capability is provided by portable fire extinguishers and manual hose stations located in the corridor outside of the fire area. A fire in this area could affect several systems required for redundant safe shutdown. Therefore, alternative shutdown capability, independent of the fire area, is provided to ensure post-fire safe shutdown.

Technical Evaluation of Fire Area 1-FA-AB-84C

The licensee does not meet the technical requirements of 10 CFR Part 50, Appendix R, Section III.G.3, in that Fire Area 1(2)-FA-AB-84C credits alternative shutdown capability and does not have a fixed fire suppression system.

The fire area boundaries consist of reinforced concrete. Alternative shutdown capability exists independent of the fire area to ensure that the plant can be safely shutdown for a fire in this area. The low combustible loadings, principally electrical cable insulation, would result in a fire of limited size with slow growth characteristics. In the event of a fire in the area, the fire detectors would alarm and the fire brigade would extinguish the fire using manual equipment. The NRC staff agrees that an automatic fire suppression system is not necessary to control a

fire in this configuration in this fire area. Control Room operators could detect a fire, and the station fire brigade would rapidly respond and extinguish a fire in this area.

Therefore, based on its review, the NRC staff concludes that the lack of fixed fire suppression specified in Appendix R, Section III.G.3, in Fire Area 1-FA-AB-84C does not present an undue risk to the public health and safety, and is not necessary to achieve the underlying purpose of the rule.

NRC Staff's Conclusion

The staff examined the licensee's rationale to support the exemption requests and concludes that the fire protection measures implemented in Fire Areas 1-FA-AB-64B, 1-FA-AB-84B, and 1-FA-AB-84C provide reasonable assurance that at least one means of achieving and maintaining safe shutdown conditions will remain available during and after any postulated fire.

Therefore, the NRC staff concludes that, pursuant to 10 CFR 50.12(a)(2)(ii), there are special circumstances present, in that the application of Sections III.G.2. and III.L.3 of 10 CFR Part 50, Appendix R, is not necessary in order to achieve the underlying purpose of those regulatory provisions.

4.0 CONCLUSION

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants PSEG Nuclear, LLC an exemption from 10 CFR, Part 50, Appendix R, Section III.G.3, fixed suppression requirements for Fire Areas

1-FA-AB-64B and 1-FA-AB-84C; and 10 CFR, Part 50, Appendix R, Section III.L.3, loss of offsite power requirements for Fire Areas 1-FA-AB-64B and 1-FA-AB-84B for Salem, Unit No. 1.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment (68 FR 22742).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 24 day of June 2003.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John A. Zwolinski, Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation