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10 CFR 50 Appendix E

LR-N17-0002
LAR S17-01
LAR H17-01

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Salem Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-70 and DPR-75
NRC Docket Nos. 50-272 and 50-311

Hope Creek Generating Station
Renewed Facility Operating License No. NPF-57
NRC Docket No. 50-354

- References:
- 1) NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated November 2012
 - 2) Letter dated March 28, 2013, from M. Thaggard, USNRC, to S. Perkins-Grew, NEI, "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 99-01, Revision 6, Dated November, 2012 (TAC No. D92368)"
 - 3) NRC Regulatory Issue Summary (RIS) 2005-02, Revision 1, "Clarifying the Process for Making Emergency Plan Changes," dated April 19, 2011

Subject: **Request to Adopt Emergency Action Level Scheme Pursuant to NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors"**

Pursuant to 10 CFR 50.90, PSEG Nuclear LLC (PSEG) requests an amendment to the renewed facility operating licenses listed above. This license amendment request (LAR) proposes to revise the emergency action level (EAL) scheme in use at Salem Generating Station (SGS) and Hope Creek Generating Station (HCGS). Currently, the EAL scheme used at SGS and HCGS is based on the guidance provided in NEI 99-01 Revision 5. This LAR proposes that SGS and HCGS adopt the Nuclear Energy Institute's (NEI) revised Emergency Action Level (EAL) scheme described in NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors" (Reference 1). NEI 99-01 was endorsed by the Nuclear Regulatory Commission (NRC) as documented in Reference 2.

10 CFR 50, Appendix E, Section IV.B.2 states that "a licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change." Regulatory Issue Summary (RIS) 2005-02, Revision 1 (Reference 3) also states "a revision to an entire EAL scheme, from NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," to another NRC-endorsed EAL scheme, must be submitted for prior NRC approval as specified in Section IV.B. of Appendix E to 10 CFR Part 50." Reference 2 also reminded licensees that when they seek to change their EAL scheme to apply the guidance in NEI 99-01, they must adhere to the requirements of 10 CFR 50, Appendix E, Section IV.B.2.

The proposed change involves a change from one EAL scheme to another; therefore, PSEG is submitting this LAR consistent with the requirements of Parts 50.90 and 50.4, as well as those of Appendix E, Section IV. B.2, Part 50 of Title 10 of the Code of Federal Regulations.

PSEG has determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92, "Issuance of amendment." The basis for this determination is included in Attachment 1. Pursuant to 10 CFR 51.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," Section (b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment.

The Plant Operations Review Committee has reviewed and approved this amendment application. In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," PSEG is notifying the States of New Jersey and Delaware of this LAR by transmitting a copy of this letter and its attachments to the designated State Official.

PSEG has verified, that for any EAL that is dependent on installed instrumentation, that the EAL initiating value is within the range and accuracy of the installed instrumentation.

Emergency Preparedness representatives in the States of New Jersey (NJ Bureau of Nuclear Engineering - NJBNE) and Delaware (Delaware Emergency Management Agency - DEMA) have reviewed and are in agreement with the proposed EAL changes.

PSEG requests approval of this license amendment request (LAR) in accordance with standard NRC approval process and schedule. PSEG requests the license amendments be made effective upon NRC issuance, to be implemented within 180 days from the NRC approval of the license amendment to permit program changes and training.

Hope Creek Attachments:

Attachment 2 provides the HCGS EAL Technical Bases (strike-out version).

Attachment 3 provides the HCGS EAL Technical Bases (clean version). The Technical Bases document provides an explanation and rationale for each EAL included in the HCGS EAL Upgrade Project.

Attachment 4 provides the HCGS EAL Comparison Matrix, which provides a line-by-line comparison of the EALs contained in NEI 99-01, Revision 6, to the HCGS EALs.

Attachment 5 provides HCGS EAL supporting documentation.

Attachment 6 provides the HCGS EAL Wall Charts.

Salem Attachments:

Attachment 7 provides the SGS EAL Technical Bases (strike-out version).

Attachment 8 provides the SGS EAL Technical Bases (clean version). The Technical Bases document provides an explanation and rationale for each EAL included in the SGS EAL Upgrade Project.

Attachment 9 provides the SGS EAL Comparison Matrix, which provides a line-by-line comparison of the EALs contained in NEI 99-01, Revision 6, to the proposed SGS EALs.

Attachment 10 provides SGS EAL supporting documentation.

Attachment 11 provides the SGS EAL Wall Charts.

This letter contains no new commitments and no revisions to existing commitments.

If you have any questions or require additional information, please contact Mr. Paul Duke at (856) 339-1466.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 2/10/17
(Date)

Sincerely,



David J. Mannai
Senior Director Regulatory Operations

- Attachment 1 - Evaluation of Proposed Change
- Attachment 2 - HCGS EAL Technical Bases (strike-out version)
- Attachment 3 - HCGS EAL Technical Bases (clean version).
- Attachment 4 - HCGS EAL Comparison Matrix
- Attachment 5 - HCGS EAL supporting documentation
- Attachment 6 - HCGS EAL Wall Charts
- Attachment 7 - SGS EAL Technical Bases (strike-out version)
- Attachment 8 - SGS EAL Technical Bases (clean version)
- Attachment 9 - SGS EAL Comparison Matrix
- Attachment 10 - SGS EAL supporting documentation
- Attachment 11 - SGS EAL Wall Charts

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Attachment 1

Evaluation of Proposed Changes

**License Amendment Request to Adopt Emergency Action Level Schemes
Pursuant to NEI 99-01, Revision 6, "Development of Emergency Action Levels
For Non-Passive Reactors"**

Evaluation of Proposed Changes

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1.0 DESCRIPTION

PSEG Nuclear (PSEG) requests a change to the emergency action level (EAL) scheme used at Hope Creek Generating Station (HCGS) and Salem Generating Station (SGS).

2.0 PROPOSED CHANGES

The currently approved EAL scheme is based on NEI 99-01 Revision 5, "Development of Emergency Action Levels for Non-Passive Reactors." The proposed change would allow HCGS and SGS to adopt an EAL scheme which is based on the guidance established in Nuclear Energy Institute's (NEI) 99-01, Revision 6 (Reference 7.1). NEI 99-01, Revision 6 has been endorsed by the Nuclear Regulatory Commission (NRC) (Reference 7.2). This proposed change requires NRC approval prior to implementation.

3.0 BACKGROUND

EALs are the plant-specific indications, conditions or instrument readings that are utilized to classify emergency conditions defined in the PSEG Nuclear Emergency Plan. In 1992, the NRC endorsed NUMARC/NESP-007, "Methodology for Development of Emergency Action Levels," as an alternative to NUREG-0654 EAL guidance. NEI 99-01 (NUMARC/NESP-007) Revisions 4 and 5 were subsequently issued for industry implementation. Enhancements over earlier revisions included:

- Consolidating the system malfunction initiating conditions and example emergency action levels which address conditions that may be postulated to occur during plant shutdown conditions.
- Adding initiating conditions and example emergency action levels that fully address conditions that may be postulated to occur at permanently Defueled Stations and Independent Spent Fuel Storage Installations (ISFSIs).
- Simplifying the fission product barrier EAL threshold for a Site Area Emergency.

Subsequently, Revision 6 of NEI 99-01 was issued which incorporates resolutions to numerous implementation issues including the NRC EAL frequently-asked questions (FAQs). Using NEI 99-01 Revision 6, PSEG conducted an EAL implementation upgrade project that produced the EALs discussed herein.

The marked-up and clean copies of the EAL Technical Bases Document (included as Attachments 2 and 3 (HCGS) and Attachments 6 and 7 (SGS) of this submittal) provide an explanation and rationale for each EAL included in the PSEG EAL Upgrade Project for HCGS and SGS. The marked-up copy provides the changes from the NEI 99-01, Revision 6 template to include the necessary plant-specific information.

The HCGS and SGS NEI 99-01, Revision 6 EAL Comparison Matrices (included as Attachments 4 (HCGS) and 8 (SGS) provide a line-by-line comparison between the Initiating Conditions (ICs), Mode Applicability, and EALs in NEI 99-01, Revision 6, and the proposed HCGS and SGS ICs, Mode Applicability, and EALs. This document provides a means of assessing HCGS and SGS differences and deviations from the NRC-endorsed guidance given in NEI 99-01, Revision 6.

Discussion of HCGS and SGS EAL bases and lists of source document references are given in the EAL Technical Bases Documents. It is therefore advisable to reference the EAL Technical Bases Document for background information while using the HCGS and SGS NEI 99-01 Revision 6, EAL Comparison Matrices.

Proposed calculations EP-HC-325-236, Revision 0, "Hope Creek EAL Rad Set-Point Calculation Document" and EP-SA-325-237, Revision 0 "Salem EAL Rad Set-Point Calculation Document" provide technical details specific to the derivation of the gaseous and liquid radiological effluent EAL values developed in accordance with the guidance in NEI 99-01, Revision 6. The Alert, Site Area Emergency (SAE) and General Emergency (GE) gaseous thresholds are derived from the Emergency Dose Calculation Program dose assessment model with assumptions and inputs from the HCGS and SGS Updated Final Safety Analysis Reports (UFSAR). The Unusual Event (UE) gaseous and liquid thresholds are derived from the HCGS and SGS Offsite Dose Calculation Manuals (ODCM) setpoint calculations with assumptions and inputs from the ODCM.

Procedure HC.EP-EP.ZZ-0205, Revision 5, "TSC – Post Accident Core Damage Assessment" and Calculation DS1.6-0098, Revision 0, "Verification of Emergency Action Levels for Event Classification" provide technical details specific to the derivation of the fission product barrier containment high range radiation monitor readings. The containment potential failure and fuel clad failure fission product barrier thresholds are derived from the station's core damage assessment procedures, which are based on the General Electric Document, NEDC-33045P, Methods of Estimating Core Damage in BWRs, July 2001, for HCGS, and WCAP-14696-A, Westinghouse Owners Group, Core Damage Assessment Guidance, Rev. 1, November 1999, for SGS, with assumptions and inputs from the HCGS and SGS UFSARs and other guidance documents. The HCGS reactor coolant system (RCS) failure fission product barrier threshold is derived from assumptions and inputs from the HCGS UFSAR, station engineering calculations and other guidance documents. The SGS reactor coolant system (RCS) failure fission product barrier threshold is derived from assumptions and inputs from the SGS UFSAR, station engineering calculations and other guidance documents.

4.0 TECHNICAL ANALYSIS

The proposed change to the HCGS and SGS EALs is to transition from the current EAL scheme based on NEI 99-01 Revision 5, to a new EAL scheme based on NEI 99-01, Revision 6. These changes affect the HCGS and SGS Radiological Emergency Response Plan, but otherwise do not alter requirements of the operating license or the Technical Specifications. These changes do not alter any of the assumptions used in the safety analyses, nor do they cause any safety system parameters to exceed their acceptance limits. The change to the new EAL scheme does not require changes to the plant design. Therefore, the proposed changes have no adverse effect on plant safety.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

10 CFR 50.47(b)(4) requires the emergency plan to meet the following standard:

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and

State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

10 CFR 50 Appendix E, Section IV, "Content of Emergency Plans," item B, "Assessment Actions," states:

1. The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. By June 20, 2012, for nuclear power reactor licensees, these action levels must include hostile action that may adversely affect the nuclear power plant. The initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC. Thereafter, emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis.
2. A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change. Licensees shall follow the change process in 10 CFR 50.54(q) for all other emergency action level changes.

The NRC endorsement letter of NEI 99-01, Revision 6, states:

Please note that this is considered a significant change to the EAL scheme development methodology and licensees seeking to use this guidance in the development of their EAL scheme must adhere to the requirements of 10 CFR Part 50, Appendix E, Section IV.B.2.

10 CFR 50.90 requires licensees to file each request for NRC approval of the proposed license amendments with the NRC as specified in 10 CFR 50.4.

5.2 No Significant Hazards Consideration Determination

PSEG Nuclear (PSEG) is proposing a change to the emergency action level (EAL) scheme used at Hope Creek Generating Station (HCGS) and Salem Generating Station (SGS). The change would allow PSEG to adopt the EAL scheme based on Nuclear Energy Institute (NEI) 99-01, Revision 6.

PSEG has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed changes to the HCGS and SGS EALs do not impact the physical function of plant structures, systems or components (SSC) or the manner in which SSCs perform their design function. The proposed changes neither adversely affect accident initiators or precursors, nor alter design assumptions. The proposed changes do not alter or prevent the ability of SSCs to perform their intended function to mitigate the consequences of an initiating event within assumed acceptance limits. No operating procedures or administrative controls that function to prevent or mitigate accidents are affected by the proposed changes. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed changes do not involve a physical alteration of the plant (i.e., no new or different types of equipment will be installed or removed) or a change in the method of plant operation. The proposed changes will not introduce failure modes that could result in a new accident, and the changes do not alter assumptions made in the safety analysis. The proposed changes to the HCGS and SGS EALs are not initiators of any accidents. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No

Margin of safety is associated with the ability of the fission product barriers (i.e., fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed changes do not impact operation of the plant or its response to transients or accidents. The changes do not affect the Technical Specifications or the operating license. The proposed changes do not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed changes. Additionally, the proposed changes will not relax any criteria used to establish safety limits and will not relax any safety system settings. The safety analysis acceptance criteria are not affected by these changes. The proposed changes will not result in plant operation in a configuration outside the design basis. The proposed changes do not adversely affect systems that respond to safely shut down the plant and to maintain the plant in a safe shutdown condition. The emergency plan will continue to activate an emergency response commensurate with the extent of degradation of plant safety.

Based on the above, PSEG concludes that the proposed changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

5.3 Conclusion

In conclusion, based on the considerations discussed above, (1) there is a 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 NRC'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.

6.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment would change requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 because the amendment approves an acceptable EAL scheme which is required for operation of the facility. PSEG has evaluated the proposed change and has determined that the change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

- 7.1 NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated November 2012
- 7.2 Letter dated March 28, 2013, from M. Thaggard, USNRC, to S. Perkins-Grew, NEI, "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 99-01, Revision 6, Dated November, 2012 (TAC No. D92368)"
- 7.3 NRC Regulatory Issue Summary (RIS) 2005-02, Revision 1, "Clarifying the Process for Making Emergency Plan Changes," dated April 19, 2011