UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 2, 2015

Mr. Robert Braun
President and Chief Nuclear Officer
PSEG Nuclear LLC – N09
P.O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION RE: LICENSE AMENDMENT REQUEST REGARDING REPLACEMENT OF SOURCE RANGE AND INTERMEDIATE RANGE NEUTRON MONITORING SYSTEMS (CAC NOS. MF6065 AND MF6066)

Dear Mr. Braun:

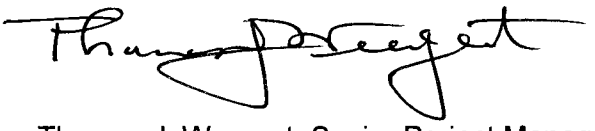
By letter dated April 3, 2015,[1] PSEG Nuclear LLC (the licensee) submitted a license amendment request to revise Technical Specification 3/4.3.1, "Reactor Trip System Instrumentation," to support planned plant modifications to replace the existing source range and intermediate range nuclear instrumentation with the Thermo Scientific Neutron Flux Monitoring Systems. The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the application and the June 2, 2015,[2] supplemental information submitted by the licensee during the acceptance review. The supplemental information provided the basis for detailed review.

During this detailed review, the NRC staff identified additional information that is needed to complete its review of the submittals. The specific questions are found in the enclosed request for additional information. The draft questions were sent by electronic transmission on October 6, 2015, to Mr. Paul Duke. The draft questions were sent to ensure that they were understandable, the regulatory basis was clear, and to determine if the information was previously docketed. On October 22, 2015, Mr. Brian Thomas of your staff indicated that the licensee will submit a response within 30 days of the date of this letter.

[1] Agencywide Documents Access and Management System (ADAMS) Accession No. ML15068A359.
[2] ADAMS Accession No. ML15153A193.

If you have any questions, please contact me at 301-415-4037 or Thomas.Wengert@nrc.gov.

Sincerely,



Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosure:
Request for Additional Information

cc w/enclosure: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

REGARDING

PSEG NUCLEAR LLC

SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2

DOCKET NOS. 50-272 AND 50-311

By letter dated April 3, 2015,[1] PSEG Nuclear LLC (the licensee) submitted a license amendment request to revise Technical Specification (TS) 3/4.3.1, "Reactor Trip System Instrumentation," to support planned plant modifications to replace the existing source range (SR) and intermediate range (IR) nuclear instrumentation with the Thermo Scientific Neutron Flux Monitoring Systems. The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the application and the June 2, 2015,[2] supplemental information submitted by the licensee during the acceptance review. The supplemental information provided the basis for detailed review. The NRC staff identified additional information that is needed, as described below, to complete its review of the submittals. The requested information is applicable only to new or replacement items.

Instrumentation and Controls Branch (EICB)-Request for Additional Information (RAI)-1

In its response to the NRC's request for supplemental information dated June 2, 2015, the licensee explained that the Nuclear Instrumentation System source, intermediate range detectors, and associated cables inside the containment were evaluated for applicability of Title 10 of the *Code of Federal Regulations* Part 50.49 criteria and were exempted from the Salem Nuclear Generating Station equipment qualification program requirements. Since the equipment is located inside the containment, it should be qualified for normal and abnormal conditions inside the containment for its qualified life, so that the equipment can continue to meet its safety functions as required by General Design Criterion (GDC) 4.

Please provide the qualification documentation that shows how the equipment meets the environmental conditions for its qualified life. If this information is not available, please specify when the information will be available for staff review. If a summary report is provided, it should explain the test requirements based on plant specifications and provide the test results. If the equipment inside the containment has been previously qualified and is not being changed or replaced in the subject amendment request, state that in the response.

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[1] Agencywide Documents Access and Management System (ADAMS) Accession No. ML15093A291.
[2] ADAMS Accession No. ML15153A193.

Enclosure

EICB-RAI-2

Please provide the documentation to confirm that all new and replacement equipment will perform their safety functions during and after an earthquake, as required by GDC 4. The equipment must be qualified to the seismic response spectra based on the location of the equipment and any amplification caused by the test equipment elevation. State the basis (e.g., Institute of Electrical and Electronics Engineers standard) and a summary of the test results.

EICB-RAI-3

With regard to the electromagnetic interference/radio frequency interference (EMI/RFI) susceptibility for the equipment in mild environment (the source range (SR) and intermediate range (IR) monitors), the licensee stated in its June 2, 2015, letter that the qualification and analysis were conducted in accordance with Electric Power Research Institute Topical Report-102323, Revision 2, "Guidelines for Electromagnetic Interference Testing in Power Plants."

Please provide a summary of the qualification requirements and the tests performed to confirm that the equipment is not susceptible to EMI/RFI. The summary should include sufficient description for the NRC staff to determine the adequacy of the test program and its results. As an alternative, the licensee may provide the test requirements specifications and the test reports.

EICB-RAI-4

With respect to the embedded software or embedded electronic components with software, the licensee's June 2, 2015, letter stated, in part:

> The power to the SDMM [shutdown margin monitor] assembly is via a fuse in the SDMM that provides the isolation between the SDMM and the power source associated with the Source Range (SR) Monitor. The circuit isolation between SDMM and SR is provided by two relays. The SDMM provides ±12v to LEDs [light emitting diodes] for local indication of the status of the instrument power and does not interface with any other components. The SR signal processor provides a pulse signal to the SDMM through an isolation device in the SR channels. ...

Please confirm that the fuse supplying power to the SDMM is properly coordinated with the upstream power supply breaker or fuse. Also, describe the type of signals processed through the isolation device. Is the circuit isolation achieved by coil to contact or fiber optic isolation or some form of isolation? Further, describe the type of isolation device used for sending the SR pulse signal to the SDMM.

EICB-RAI-5

In response to the accident analysis impact, the licensee referenced Section 15.2 of the Updated Final Safety Analysis Report (UFSAR) in its letter dated June 2, 2015, and provided the accident analysis table to go with this section. Item 15.2.4 in this table addresses uncontrolled boron dilution accident and reactor trip initiators. The reactor trip for this event is credited by an operator action based upon audible count rate. A note at the end of table states:

> *For the uncontrolled boron dilution event, UFSAR Section 15.2.4 notes that the operator has prompt and definite indication of any boron dilution from the audible count rate instrumentation. The Source Range and Intermediate Range upgrades do not affect the audible count rate instrumentation. The UFSAR also states that high count rate is alarmed in the reactor containment and the Control Room. The UFSAR does not provide for a High Count Rate alarm setpoint.

Please clarify the source of audible count rate, since it is stated that the audible count rate is not affected by the SR and IR changes. What is the current setpoint for high count rate alarm? Also, provide the rationale for selecting the current setpoint (no calculation is required to be provided). Please confirm that the audible count rate and the high count rate alarm will continue to be provided after the implementation of the license amendment.

If you have any questions, please contact me at 301-415-4037 or Thomas.Wengert@nrc.gov.

Sincerely,

/RA/

Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosure:
Request for Additional Information

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ADAMS Accession No.: ML15287A141 *by memorandum

OFFICE	LPL1-2/PM	LPL1-2/LA	DE/EICB/BC*	LPL1-2/BC	LPL1-2/PM
NAME	TWengert	LRonewicz	MWaters	DBroaddus	TWengert
DATE	10/23/15	10/15/15	9/18/15	10/30/15	11/02/15

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