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

August 17, 2022

Mr. Kevin Cimorelli
Site Vice President
Susquehanna Nuclear, LLC
769 Salem Boulevard
NUCSB3
Berwick, PA 18603-0467

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 – SUMMARY OF REGULATORY AUDIT IN SUPPORT OF LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATIONS FOR REACTOR STEAM DOME PRESSURE – LOW INSTRUMENTATION FUNCTION ALLOWABLE VALUES (EPID L-2021-LLA-0184)

Dear Mr. Cimorelli:

By letter PLA-7950 dated April 8, 2021 (Agencywide Documents Access and Management system Accession No. ML21098A206), as supplemented by letter PLA-7979 dated December 16, 2021 (ML21350A265), Susquehanna Nuclear, LLC (the licensee) submitted a license amendment request (LAR) for Susquehanna Steam Electric Station, Units 1 and 2.[1] The licensee requested to revise the technical specifications for the emergency core cooling system instrumentation.

The U.S. Nuclear Regulatory Commission (NRC) staff conducted a virtual audit to support its review of the LAR. The NRC staff audited various licensee documents and interviewed licensee staff. The NRC staff issued its audit plan on March 4, 2022 (ML22056A012).

Enclosure 1 of this audit summary lists the individuals that participated in the audit. Enclosure 2 lists the NRC staff's audit questions and documents the NRC audit activities.

The NRC staff conducted the audit using virtual meetings and an internet-based portal provided by the licensee. Using the licensee's portal, the NRC staff reviewed documents (e.g., calculations and reports) related to the LAR but not available on the Susquehanna dockets. During the audit, the staff also met virtually with the licensee on March 24, 2022. The staff used this meeting to confirm its understanding of the LAR, discuss the documents in the portal, and decide whether the NRC staff identified any information that needed to be submitted on the docket to complete the NRC staff's safety evaluation.

During the audit, the staff identified information it needed on the docket to support its review. After the audit discussions, the NRC sent the licensee a request for additional information on April 21, 2022 (ML22111A313). The licensee responded to this request on May 23, 2022 (PLA-8005, ML22144A003). The NRC staff is reviewing the licensee's supplement to decide if the NRC needs any additional information to complete its review of the licensee's request.

[1] Renewed Facility Operating License Nos. NPF-14 and NPF-22, respectively

The NRC's licensing project manager informed licensee staff by telephone on June 30, 2022, that the NRC staff had completed its audit. There were no open items resulting from the audit.

If you have any questions, please contact me at (301) 415-0489 or by email to Audrey.Klett@nrc.gov.

Sincerely,

/RA/

Audrey L. Klett, Senior Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosures:
1. List of Audit Participants
2. List of Audit Questions and Audited Documents

cc: Listserv

List of Audit Participants

U.S. Nuclear Regulatory Commission Staff
Breach, Michael (NRR[1]/DEX[2]/EMIB[3])
Klett, Audrey (NRR/DORL[4]/LPL1[5])
Stattel, Richard (NRR/DEX/EICB[6])
Sun, Summer (NRR/DSS[7]/SNSB[8])
Vu, Hang (NRR/DEX/EICB)
West, Khadijah (NRR/DSS/STSB[9])
Wong, Yuken (NRR/DEX/EMIB)

Licensee[10] Staff
Barnes, Jay
Brown, Katie
Jurek, Shane
Krick, Melissa
Vazquies, Ronald

[1] Office of Nuclear Reactor Regulation
[2] Division of Engineering and External Hazards
[3] Mechanical Engineering and Inservice Testing Branch
[4] Division of Operating Reactor Licensing
[5] Plant Licensing Branch 1
[6] Instrumentation and Controls Branch
[7] Division of Safety Systems
[8] Nuclear Systems Performance Branch
[9] Technical Specifications Branch
[10] Susquehanna Nuclear, LLC

List of Audit Questions and Documents Reviewed

The U.S. Nuclear Regulatory Commission (NRC) staff requested the following information during its audit to support its review of the license amendment request (Agencywide Documents Access and Management System Accession No. ML21279A026) for the Susquehanna Steam Electric Station (Susquehanna), Units 1 and 2.

1. The proposed upper analytical limit (UAL) [1] of 445 pounds per square inch gauge (psig) would leave margins of 5 pounds per square inch (psi) to the design pressure of 450 psig for the low pressure piping of the low pressure coolant injection (LPCI) system, and 55 psi to the design pressure of 500 psig for the core spray (CS) system. The location where the reactor steam dome pressure (RSDP) measurement is taken and the locations where the pressure isolation valves (PIVs) are installed in the LPCI and CS systems may be at different elevations, which may result in pressure differences caused by the effects of the elevation differences between the measured RSDP pressure and the coolant pressures for the LPCI and core spray systems where the PIVs are located. The UAL is intended to protect against over-pressurization. However, the proposed pressure differences may decrease the margin to the design pressures to be smaller than the margin of 5 psi and 55 psi for the LCPI and core spray systems, respectively.

   The NRC staff would like to discuss, during an audit call with the licensee, the elevation effects on the subject pressure differences. The staff requests the licensee to provide information in the audit portal that demonstrates that the proposed margins of 5 psi and 55 psi are sufficient to bound the margin deceases resulting from elevation-induced pressure differences for the LPCI and core spray discussed above.

2. The licensee's calculation(s) supporting the proposed technical specification (TS) allowable values for the emergency core cooling systems (ECCS) instrumentation, core spray and LPCI RSDP – low instrumentation functions 1.c, 1.d, 2.c, and 2.d, in TS Table 3.3.5.1-1. The calculation(s) should include: (1) the relay setting design basis, (2) the uncertainties associated with these settings, (3) the expected drift between surveillances, (4) measurement and test equipment uncertainties, (5) and the as-found and as-left tolerance acceptance values to be applied during TS surveillances. Alternatively, the licensee may provide a full setpoint uncertainty calculation.

The NRC staff reviewed, in a sampling manner, the following licensee calculations during its audit.

- EC-080-1006, "Core Spray RHR/LPCI [Residual Heat Removal/Low Pressure Coolant Injection] Reactor Low Pressure Permissive Pressure Switch Setpoint" Revision 3 (for Unit 1), dated December 16, 2021
- EC-080-1007, "Core Spray RHR/LPCI Reactor Low Pressure Permissive Pressure Switch Setpoint" Revision 4 (for Unit 2), dated December 16, 2021

[1] The staff corrected its use of the UAL initialism from "upper allowable value" to refer to "upper analytical limit." After the audit meeting held on March 24, 2022, the NRC revised this question to state: In its license amendment request, the licensee proposed to increase the upper analytical limit (UAL) from the current value of 440 psig to 445 psig. The NRC staff requests the licensee to describe how it calculated the proposed UAL of 445 psig and justify the acceptability of the proposed UAL.

In reviewing the calculations, the NRC staff was able to identify how elevation effects of instrument sensing lines was factored into the RSDP instrument calculations and how each of the five factors (listed in audit question No. 2) was addressed in the RSDP instrument calculations. This information will be considered in the safety evaluation which will determine acceptability of the revised setpoints.

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