



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

August 27, 2014

Mr. Timothy S. Rausch
Senior Vice President and Chief Nuclear Officer
PPL Susquehanna, LLC
769 Salem Boulevard
Berwick, PA 18603-0467

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 – REQUEST
FOR ADDITIONAL INFORMATION RE: LICENSE AMENDMENT REQUEST TO
CHANGE THE LOW-PRESSURE SAFETY LIMIT (TAC NOS. MF0410 AND
MF0411)

Dear Mr. Rausch:

By letter dated December 19, 2012, PPL Susquehanna, LLC (PPL), submitted a License Amendment Request (LAR) for review and approval of a revision to the Susquehanna Steam Electric Station (SSES), Units 1 and 2, Technical Specifications (TS). Specifically, PPL requested a change to TS Section 2.1.1, "Reactor Core SLs [Safety Limits]," to reflect a lower reactor steam dome pressure for Reactor Core SLs 2.1.1.1 and 2.1.1.2. PPL stated that the revision became necessary as a result of the General Electric (GE) Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21 Communication, SC05-03, "Potential to Exceed Low Pressure Technical Specification Safety Limit," submitted by letter dated March 29, 2005. To complete its review, the Nuclear Regulatory Commission staff requests responses to the enclosed questions.

The draft questions were sent to Mr. Richard McIntosh, of your staff, to ensure that the questions were understandable, the regulatory basis for the questions was clear, and to determine if the information was previously docketed. On August 27, 2014, Mr. McIntosh agreed that you would provide a response within 30 days of the date of this letter.

If you have any questions regarding this matter, please contact me at 301-415-4090.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey A. Whited".

Jeffrey A. Whited, Project Manager
Plant Licensing Branch 1-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 & 50-388

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION
OFFICE OF NUCLEAR REACTOR REGULATION
LICENSE AMENDMENT REQUEST FOR TECHNICAL SPECIFICATION
CHANGES TO LOW-PRESSURE SAFETY LIMIT
PPL SUSQUEHANNA, LLC
ALLEGHENY ELECTRIC COOPERATIVE, INC.
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2
DOCKET NOS. 50-387 AND 50-388

By letter dated December 19, 2012,¹ PPL Susquehanna, LLC (PPL), submitted a License Amendment Request (LAR) for review and approval of a revision to the Susquehanna Steam Electric Station (SSES), Units 1 and 2, Technical Specification (TS). Specifically, PPL requested a change to TS Section 2.1.1, "Reactor Core SLs [Safety Limits]," to reflect a lower reactor steam dome pressure for Reactor Core SLs 2.1.1.1 and 2.1.1.2. PPL stated that the revision became necessary as a result of the General Electric (GE) Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21 Communication, SC05-03, "Potential to Exceed Low Pressure Technical Specification Safety Limit," submitted by letter dated March 29, 2005.² To complete its review, the Nuclear Regulatory Commission staff requests a response to the questions below.

RAI-01: Siemens Power Corporation B (SPCB), AREVA NP Inc.'s (AREVA) critical power correlation for boiling-water reactors is applicable to AREVA (formerly SPCB) ATRIUM-9B and ATRIUM-10 fuel designs. TS Section 4.2.1, "Fuel Assemblies," states, in part, that:

. . . A limited number of lead use assemblies that have not completed representative testing may be placed in nonlimiting core regions.

Provide the fuel type(s) that will be used in SSES, Units 1 and 2, cores for the term of this amendment.

RAI-02: Discuss how operating SSES, Units 1 and 2, with a core with mixed fuel design would impact analyses associated with the LAR. Address, in particular, the scenario where the critical power correlations for the different fuel types have different lower bound pressure ranges.

RAI-03: TS 2.1.1.2 specifies the SL on the minimum critical power ratio (MCPR). The proposed change in TS 2.1.1.2 expands the range of applicability of the SL on the MCPR to a lower pressure. Discuss the impact of the proposed change in TS 2.1.1.2

¹ Agencywide Documents Access and Management System (ADAMS) Accession No. ML12355A351.

² ADAMS Accession No. ML050950428.

Enclosure

on the determination of the MCPR core operating limits (Specification 3.2.2) in the core operating limit report as specified in TS Section 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)."

- RAI-04: The proposed change in TS 2.1.1.2 expands the range of applicability of the SL on the MCPR to a lower pressure. The proposed TS change would require determination of the CPR with the reactor at steam dome pressure ≥ 557 psig and core flow ≥ 10 million lbm/hr.
- Discuss if there is any reduction in the margin of safety because of the expanded range of applicability of the SL on the MCPR.
 - Provide the MCPRs, as determined by the SPCB correlation, at steam dome pressures of 785 psig and 557 psig for SSES, Units 1 and 2, respectively, when the reactor is at 23% of rated thermal power (RTP) and a core flow of 10 million lbm/hr.
 - Provide the corresponding mass flux in lbm/hr-ft² for the lowest assembly flow at 23% of RTP and a core flow of 10 million lbm/hr.
- RAI-05: SC05-03 presented a typical PRFO [pressure regulator failure open] response for a low pressure isolation setpoint – analytical limit of 720 psig. The LAR noted that for SSES, Units 1 and 2, the nominal and allowable trip setpoints for the Main Steam Line Pressure – Low are 861 psig and 841 psig, respectively.
- Discuss the applicability of the generic transient analysis in SC05-03 to SSES, Units 1 and 2.
 - Discuss expected differences, if any, in the SSES, Units 1 and 2, plant response as compared to the generic transient analysis in SC05-03.

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/RA/

Jeffrey A. Whited, Project Manager
Plant Licensing Branch 1-2
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