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Subject: RAIs - Susquehanna TSTF-542 (L-2017-LLA-0306)
Date: Monday, January 22, 2018 4:16:00 PM
Attachments: [RAI Susquehanna TSTF_542.pdf](#)

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 –
REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE
AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATIONS TO
ADOPT TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER TSTF-
542, REVISION 2, "REACTOR PRESSURE VESSEL WATER INVENTORY
CONTROL" (CAC NOS. MG0269 AND MG0270; EPID L-2017-LLA-0306)

By letter dated September 20, 2017 Agencywide Documents Access and Management System (ADAMS) Accession No. ML17265A434, Susquehanna Nuclear, LLC (the licensee) submitted a license amendment request for Susquehanna Steam Electric Station, Units 1 and 2. The proposed amendment request would replace existing Technical Specification (TS) requirements related to "operations with a potential for draining the reactor vessel" with new requirements on reactor pressure vessel (RPV) water inventory control to protect Safety Limit 2.1.1.3. Safety Limit 2.1.1.3 requires RPV water level to be greater than the top of active irradiated fuel. The proposed changes are based on Technical Specification Task Force (TSTF) Traveler TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control," dated December 20, 2016 (ADAMS Accession No. ML16343B008).

The U.S. Nuclear Regulatory Commission staff has reviewed the licensee's submittal and determined that additional information is required in order to complete the review. The requested additional information is attached. The draft questions were sent to Ms. Melisa Krick of your staff to ensure that they were understandable, the regulatory basis for the questions was clear, and to determine if the information was previously docketed. Please respond within 30 days.

If you have any questions, please contact me at (301) 415-1387 or Tanya.Hood@nrc.gov.

Thank you,

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REQUEST FOR ADDITIONAL INFORMATION
OFFICE OF NUCLEAR REACTOR REGULATION
LICENSE AMENDMENT REQUEST REGARDING
TSTF-542, REVISION 2,
"REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL"
SUSQUEHANNA NUCLEAR, LLC
ALLEGHENY ELECTRIC COOPERATIVE, INC.
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2
DOCKET NOS. 50-387 AND 50-388

By letter dated September 20, 2017,¹ Susquehanna Nuclear, LLC (the licensee) submitted a license amendment request (LAR) for Susquehanna Steam Electric Station, Units 1 and 2 (SSES). The proposed amendment request would replace existing Technical Specification (TS) requirements related to "operations with a potential for draining the reactor vessel" with new requirements on reactor pressure vessel (RPV) water inventory control to protect Safety Limit 2.1.1.3. Safety Limit 2.1.1.3 requires RPV water level to be greater than the top of active irradiated fuel. The proposed changes are based on Technical Specification Task Force (TSTF) Traveler TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control," dated December 20, 2016.

The U.S. Nuclear Regulatory Commission staff has reviewed the information submitted by the licensee and determined that additional information is required to complete its review. The specific request for additional information is addressed below.

In Enclosure 1 of the LAR, page 3 of 8, the licensee proposed the following variation:

- 2.2.4.** STS [Standard Technical Specifications] Table 3.3.5.1-1, Function 1.d, "Core Spray Pump Discharge Flow - Low (Bypass)," and Function 2.g, "Low Pressure Coolant Injection Pump - Discharge Flow - Low (Bypass)," are not included in the Susquehanna TSs. These functions are not required to ensure manual initiation of CS [core spray] and LPCI [Low Pressure Coolant Injection] and are therefore not included in TS 3.3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control," Table 3.3.5.2-1.

TSTF-542 moves the CS and LPCI bypass requirements from STS Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation," to new STS Table 3.3.5.2-1, "RPV Water Inventory

¹ Agencywide Documents Access and Management System (ADAMS) Accession No. ML17265A434.

Control Instrumentation." In particular, Section 3.3.4.2 of the TSTF-542 technical evaluation describes the purpose of the STS requirement:

The minimum flow instruments are provided to protect the associated low pressure ECCS [Emergency Core Cooling System] pump from overheating when the pump is operating and the associated injection valve is not fully open. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump.

As per the requirements contained in TSTF-542, successful RPV water inventory control is based, in part, on the capability of an operable ECCS pump to inject water as needed to make up the inventory. Sections 6.2.4.3.6.1 and 6.2.4.3.6.2 of the SSES Final Safety Analysis Report describe this protective function of the SSES minimum flow rate instruments to signal automatically opening or closing the valves in the minimum flow bypass lines for the low pressure residual heat removal and CS pumps. Furthermore, the presence or absence of a requirement in a current TS is not in and of itself justification for the proposed TS.

Since the licensee has omitted the equivalent of the TSTF-542 instrumentation requirements for both CS and LPCI Pump Discharge Flow-Low (Bypass) from the proposed TSs, please describe how there is reasonable assurance that a required SSES ECCS pump will operate as expected (e.g., the bypass line will not lessen expected discharge flow, and said pump will not overheat when the associated injection valve is not fully open).