



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

December 4, 2017

Mr. William R. Gideon
Site Vice President
Brunswick Steam Electric Plant
8470 River Rd., SE (M/C BNP001)
Southport, NC 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – REQUEST FOR ADDITIONAL INFORMATION RELATED TO LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATIONS TO ADOPT TSTF-542, REVISION 2, “REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL” (CAC NOS. MF9905 AND MF9906; EPID L-2017-LLA-0242)

Dear Mr. Gideon:

By application dated June 29, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17180A538), Duke Energy Progress, Inc. (Duke Energy or the licensee) requested changes to the technical specifications (TSs) for Brunswick Steam Electric Plant (Brunswick), Units 1 and 2. Duke Energy requested to revise Brunswick, Units 1 and 2, TSs to adopt Technical Specifications Task Force (TSTF) Traveler TSTF-542, “Reactor Pressure Vessel Water Inventory Control,” Revision 2. TSTF-542, Revision 2, was approved by the U.S. Nuclear Regulatory Commission (NRC) on December 20, 2016 (ADAMS Accession No. ML16343B008). The proposed amendments would replace existing TS requirements related to “operations that have the potential for draining the reactor vessel” with new requirements on reactor pressure vessel water inventory control to protect Safety Limit 2.1.1.3.

The NRC staff reviewed the licensee’s submittal and determined that additional information is needed. On November 1, 2017, the NRC staff forwarded, by e-mail, a draft request for additional information to Duke Energy. On November 9, 2017, Duke Energy staff informed the NRC staff that a clarification conference was not needed. Also, the NRC staff agreed with the Duke Energy staff’s request to respond to the request for additional information by January 8, 2018.

If you have any questions, please contact me at 301-415-1447 or Farideh.Saba@nrc.gov.

Sincerely,

A handwritten signature in black ink that reads "Farideh E. Saba".

Farideh E. Saba, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-325 and 50-324

Enclosure:
Request for Additional Information

cc w/Enclosure: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

RE: LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATIONS TO

ADOPT TSTF-542, REVISION 2

DUKE ENERGY PROGRESS, LLC

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

By letter dated June 29, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17180A538), Duke Energy Progress, LLC (the licensee) requested to adopt Technical Specifications Task Force (TSTF) Traveler TSTF-542, "Reactor Pressure Vessel Water Inventory Control," Revision 2, which would change the technical specifications (TSs) for Brunswick Steam Electric Plant, Units 1 and 2 (Brunswick or BSEP). TSTF-542, Revision 2, was approved by the U.S. Nuclear Regulatory Commission (NRC) on December 20, 2016 (ADAMS Accession No. ML16343B008).

Brunswick TS Section 2.0, "Safety Limits (SLS)," 2.1.1.3 states, "Reactor vessel water level shall be greater than the top of active irradiated fuel." Safety Limit 2.1.1.3 is maintained through the TS limiting condition for operation (LCO), applicability, actions, and notes. The Brunswick TSs require certain safety systems to be operable during "operations with a potential for draining the reactor vessel."

The proposed changes would replace existing TS requirements associated with operations with a potential for draining the reactor vessels with revised TSs providing an alternative requirement for reactor pressure vessel (RPV) water inventory control. These alternative requirements would comply with Safety Limit 2.1.1.3. The NRC staff has reviewed the proposed amendments and finds that additional information is needed to complete its review.

BSEP-RAI-1

TSTF-542, Revision 2, Surveillance Requirement (SR) 3.5.2.8 states: "Verify the required ECCS [emergency core cooling system] injection/spray subsystem actuates on a manual initiation signal." In Section 2.2, "Variations," of Enclosure 1 to the license amendment request (LAR), the licensee provided the following variation and justification, in part:

STS [Standard Technical Specifications] Table 3.3.5.1-1, Function 1.e, and 2.h, "Manual Initiation," for the Core Spray (CS) System and Low Pressure Coolant Injection (LPCI) System are not included in the BSEP TSs. Therefore, manual initiation functions for LPCI and CS are not being included in TS 3.3.5.3, Table 3.3.5.3-1. As a result of this design, proposed BSEP SR 3.5.2.8 is modified from the STS SR 3.5.2.8 to verification that the required ECCS injection/spray subsystem can be manually operated versus verifying that the subsystem actuates on a manual initiation signal.

The licensee further stated in its LAR that:

Since the LPCI and CS subsystems can be placed in service using manual means in a short period of time (i.e., within the timeframes assumed in the development of TSTF-542), using controls and indications that are readily available in the Main Control Room, manual operation of the required subsystem would be an equivalent alternative to system initiation via manual initiation logic.

However, it is not clear what type of manual operation is available or being used in the main control room that can provide actuation of the ECCS injection/spray subsystems.

- (a) Clarify whether the Brunswick design includes a pushbutton(s) or hand switch(s) for actuation of the ECCS subsystems.
- (b) Provide additional details and justification that support the use of the proposed alternative that includes manually aligning CS and LPCI components for injection and the associated timing of these actions.

BSEP-RAI-2

In the proposed new Brunswick TS 3.3.5.3 (Brunswick TS page 3.3-48b of Enclosures 2 and 3 of the license amendment request), the note below "SURVEILLANCE REQUIREMENTS" is entitled "NOTES." Since there is only one note, the title should state "NOTE." Revise this TS page accordingly, or provide an explanation.

BSEP-RAI-3

The allowable value (AV) in the current TS Table 3.3.5.1-1, Function 1.a (Core Spray System – Reactor Steam Dome Pressure - Low) and Function 2.a (Low Pressure Coolant Injection System – Reactor Steam Dome Pressure - Low) are ≥ 402 pounds per square inch gauge (psig) and ≤ 425 psig. This is consistent with STS Table 3.3.5.1-1 with an AV range of [≥ 390 psig and ≤ 500 psig]. In TSTF-542, these functions are moved to STS Table 3.3.5.2-1 with an upper-end AV of [≤ 500 psig]. Also, TSTF-542, Revision 2 (page 41), states:

- In LCO 3.3.5.2A, the Allowable Value is revised to eliminate the low pressure limit and to retain the high pressure limit. The RPV is well below the lower limit in Modes 4 and 5, so the low pressure limit is not needed.

However, in the proposed Brunswick Table 3.3.5.3-1 (page 3.3-48c), Function 1.a and Function 2.a, AVs are ≥ 402 psig, which is the lower limit for Brunswick. Revise the proposed changes to be consistent with TSTF-542, Revision 2, or provide a technical justification for this variation.

BSEP-RAI-4

The licensee stated in Section 2.2, "Variations," of Enclosure 1 to the LAR, in part, the following variation and justification:

STS Table 3.3.5.1-1, Function 1.d, "Core Spray Pump Discharge Flow - Low," and Function 2.g, "Low Pressure Coolant Injection Pump - Discharge Flow - Low," are not included in the BSEP TSs. Also, STS Table 3.3.5.1-1,

Function 1.e, and 2.h, "Manual Initiation," for the Core Spray (CS) System and Low Pressure Coolant Injection (LPCI) System are not included in the BSEP TSs. Therefore, they are not being included in TS 3.3.5.3, "Reactor Pressure Vessel (RPV) Water Inventory Control," Table 3.3.5.3-1. As a result of this design, BSEP TS 3.3.5.3 does not contain a Condition equivalent to STS 3.3.5.2, Condition D.

Furthermore, TSTF-542, Revision 2, relocates the CS and LPCI pump discharge flow-low requirements from STS Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation," to revised STS Table 3.3.5.2-1, "RPV Water Inventory Control Instrumentation." In particular, Section 3.3.4.2 of the TSTF-542, Revision 2, describes the purpose of the STS requirement:

The minimum flow instruments are provided to protect the associated low pressure ECCS 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.

The presence or absence of a requirement in a current TS is not in and of itself justification for the deviation from the TSTF-542, Revision 2.

Provide technical justifications (i.e., a discussion of the differences) for not including the equivalent of CS and LPCI pump discharge flow-low functions as described in TSTF-542, STS Table 3.3.5.2-1, in the proposed Brunswick TS Table 3.3.5.3-1, or revise the proposed changes to include the functions along with a variation describing the technical justification for proposing to add the requirements to the Brunswick TSs.

BSEP-RAI-5

Proposed TS 3.5.2, Required Action E.1 (BSEP TS page 3.5-10), states:

Initiate action to restore Drain Time to ≥ 36 hours.

Since "Drain Time" is a proposed defined term in BSEP TS 1.1, "Definitions," it should be capitalized, consistent with the Brunswick convention for defined terms throughout TSs. Revise the proposed change for consistency or provide a justification for this variation.

BSEP-RAI-6

The licensee proposed on Brunswick TS page 3.5-12 of Enclosures 2 and 3 to the LAR deletion of SR 3.5.2.7 that is associated with the ECCS response time for each required ECCS injection/spray subsystem. This is a plant-specific change since it is not included in TSTF-542, Revision 2. Provide technical justifications that support deletion of SR 3.5.2.7.

BSEP-RAI-7

Proposed Brunswick TS 3.3.5.3, Condition D, states (Brunswick TS page 3.3.48b):

Required Action and associated Completion Time of Condition C or D not met.

This appears to be an editorial error since Condition D should not state "or D". Correct this error or provide justification that "Condition C or D" is correct under the proposed Condition D.

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