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U.S. Nuclear Regulatory Commission
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Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Renewed Facility Operating License Nos. DPR-71 and DPR-62
Docket Nos. 50-325 and 50-324
Clarification of Responses for Requests for Additional Information
License Amendment Request for Adoption of Technical Specifications Task
Force (TSTF) Traveler TSTF-423, Revision 1, "Technical Specifications End
States, NEDC-32988-A"

References:

1. Letter from William R. Gideon (Duke Energy) to U.S. Nuclear Regulatory Commission, *License Amendment Request for Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-423, Revision 1, "Technical Specifications End States, NEDC 32988-A"*, dated September 28, 2016, ADAMS Accession Number ML16287A415
2. NRR E-mail Capture - *Brunswick Unit 1 and Unit 2 - Request for Additional Information Related to LAR to Modify the TS Requirements for End States Associated with the Implementation of the Approved TSTF Traveler TSTF-423-A (MF8466 and MF 8467)*, dated February 3, 2017, ADAMS Accession Number ML17037A002
3. Letter from William R. Gideon (Duke Energy) to U.S. Nuclear Regulatory Commission, *Response to Request for Additional Information, License Amendment Request for Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-423, Revision 1, "Technical Specifications End States, NEDC-32988-A,"* dated March 25, 2017, ADAMS Accession Number ML17086A006

Ladies and Gentlemen:

By letter dated September 28, 2016 (i.e., Reference 1), Duke Energy Progress, LLC, (Duke Energy) submitted a license amendment request (LAR) for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. The proposed amendment would modify the Technical Specifications (TSs) to risk-informed requirements regarding selected Required Action end states by incorporating the Boiling Water Reactor (BWR) Owners' Group (BWROG) approved Topical Report NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required Action End States for BWR Plants." Additionally, the proposed amendment would modify the TS Required Actions with a Note prohibiting the use of Limiting Condition for Operation (LCO) 3.0.4.a when entering the preferred end state (i.e., Mode 3) on reactor startup.

On February 3, 2017 (i.e., Reference 2), by electronic mail, the NRC provided a request for additional information (RAI) regarding the LAR. Duke Energy responded to the RAI on March 25, 2017 (i.e., Reference 3). The RAI response was discussed, by telephone, with the NRC on April 27, 2017. During this call, it was agreed that clarifying information would be provided to supplement Duke Energy's response to NRC RAI 2. The clarifying information is provided in the Enclosure of this letter.

This document contains no regulatory commitments.

Please refer any questions regarding this submittal to Mr. Lee Grzeck, Manager – Regulatory Affairs, at (910) 457-2487.

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on May 24, 2017.

Sincerely,



William R. Gideon

MAT/mat

Enclosure:

Clarifying Information Regarding Response to Request for Additional Information

cc (with Enclosure):

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Clarifying Information Regarding Response to Request for Additional Information

By letter dated September 28, 2016, Duke Energy Progress, LLC, (Duke Energy) submitted a license amendment request (LAR) for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. The proposed amendment would modify the Technical Specifications (TSs) to risk-informed requirements regarding selected Required Action end states by incorporating the Boiling Water Reactor (BWR) Owners' Group (BWROG) approved Topical Report NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required Action End States for BWR Plants." Additionally, the proposed amendment would modify the TS Required Actions with a Note prohibiting the use of Limiting Condition for Operation (LCO) 3.0.4.a when entering the preferred end state (i.e., Mode 3) on reactor startup. On February 3, 2017, by electronic mail, the NRC provided a request for additional information (RAI) regarding the LAR. Duke Energy responded to the RAI on March 25, 2017.

The RAI response was discussed, by telephone, with the NRC on April 27, 2017. During this call, it was agreed that clarifying information would be provided to supplement Duke Energy's response to NRC RAI 2. The clarifying information is provided below.

NRC RAI 2

Please provide Emergency Core Cooling Systems (ECCS) analysis and containment analysis and results to verify acceptable ECCS performance, containment integrity, Environmental Equipment Qualification (EEQ), and containment heat removal for a design basis Loss of Coolant Accident (LOCA) in Mode 3 when one LPCI pump and one CS pump are concurrently inoperable in this mode.

Clarification of BSEP Response to NRC RAI 2:

NUREG-1433, "Standard Technical Specifications General Electric BWR/4 Plants," Revision 4, Volume 2, "Bases," states that the Core Spray (CS) System is composed of two independent subsystems. Each subsystem consists of a motor driven pump, a spray sparger above the core, and piping and valves to transfer water from the suppression pool to the sparger. It also states that Low Pressure Coolant Injection (LPCI) is an operating mode of the Residual Heat Removal (RHR) System. There are two LPCI subsystems, each consisting of two motor driven pumps and required piping and valves to transfer water from the suppression pool to the Reactor Pressure Vessel (RPV) via the corresponding recirculation loop.

TSTF-423 approved elimination of proceeding to Mode 4 for NUREG-1433 Condition A of TS 3.5.1.

- A. One low pressure ECCS injection/spray subsystem inoperable.

OR

One LPCI pump in both LPCI subsystems inoperable.

Therefore, NUREG-1433 is applicable to one LPCI pump inoperable, two LPCI pumps in a single subsystem inoperable, one LPCI pump in each subsystem inoperable (i.e., two pumps total), or one CS pump inoperable. The maximum level of degradation is two of six low

pressure ECCS pumps. In each of these circumstances, it was deemed acceptable to remain in Mode 3 per approval of TSTF-423.

Approval of the changes to NUREG-1433, TS 3.5.1 was based on Topical Report NEDC-32988-A. The justification for the changes states:

A comparative PSA evaluation of the core damage risks of operation in the current end state versus the proposed Mode 3 end state was performed. The results indicate that the core damage risks while operating in the proposed Mode 3 (assuming the individual failure conditions) are lower or comparable to the current end state. Going to Mode 4 for the specified inoperable conditions would cause loss of both high pressure steam injection systems (HPCI and RCIC), loss of the feedwater/condensate system, and require activating the RHR Shutdown Cooling System. In addition, maintaining the reactor steam dome pressure above 150 psig preserves the availability of the high pressure systems. It is concluded that, based on these lower or equivalent calculated risks, staying in Mode 3 to restore systems back to service is the preferred end state rather than going to Mode 4 or a mode where reactor pressure is ≤ 150 psig.

The BSEP TS Bases are identical to the NUREG-1433 Bases with respect to CS and LPCI configuration. Additionally, BSEP TS 3.5.1 Condition A is the same as NUREG-1433, TS 3.5.1 Condition A.

BSEP TS 3.5.1 Condition B does not exist in NUREG-1433, TS 3.5.1. BSEP Condition B states:

B. One LPCI pump inoperable.

AND

One core spray (CS) subsystem inoperable.

The proposed BSEP markup eliminates proceeding to Mode 4 for Condition B of TS 3.5.1. Having one LPCI and one CS pump inoperable represents a maximum level of degradation of two of six low pressure ECCS pumps; consistent with that allowed in Condition A. As such, the BSEP justification for the change to BSEP TS 3.5.1 Condition B is that the justification provided in Topical Report NEDC-32988-A for a maximum level of degradation of two of six low pressure ECCS pumps (i.e., a total of two LPCI pumps) provided in TS 3.5.1 Condition A is also applicable to a maximum level of degradation of two of six low pressure ECCS pumps (i.e., one LPCI pump and one CS pump) provided in TS 3.5.1 Condition B. The mitigation capability of having one LPCI pump and one CS pump inoperable is not significantly different than having two LPCI pumps inoperable. Duke Energy's March 25, 2017, response to NRC RAI 2 demonstrates that BSEP is analyzed for concurrent inoperability of one CS and one LPCI pump. The BSEP LOCA analysis demonstrates that the consequences of a LOCA with one CS and one LPCI pump inoperable are mitigated to within acceptable regulatory limits. The BSEP LOCA analysis is performed at 102 percent of Rated Thermal Power (RTP) and fully bounds a hypothetical Mode 3 LOCA. Additionally, BSEP has committed to follow the guidance established in TSTF-IG-05-02, Revision 2, "Implementation Guidance for TSTF-423, Revision 1, 'Technical Specifications End States, NEDC-32988-A.'" Therefore, entry into Mode 3 from either Condition A or Condition B will be limited to no more than seven days.