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Serial: BSEP 18-0035

10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

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
Response to Request for Additional Information Regarding Request for License
Amendment Regarding Core Flow Operating Range Expansion

References:

1. Letter from William R. Gideon (Duke Energy) to the U.S. Nuclear Regulatory Commission Document Control Desk, *Request for License Amendment Regarding Core Flow Operating Range Expansion*, dated September 6, 2016, ADAMS Accession Number ML16257A410
2. NRR E-mail Capture, *Brunswick Unit 1 and Unit 2 Request for Additional Information Related to Human Factors in the MELLLA+ LAR (CACs MF8864 and MF8865)*, dated March 8, 2018, ADAMS Accession Number ML18067A103.

Ladies and Gentlemen:

By letter dated September 6, 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 expand the core power-flow operating range (i.e., Maximum Extended Load Line Limit Analysis Plus (MELLLA+)).

On March 8, 2018, by electronic mail (i.e., Reference 2), the NRC provided a request for additional information (RAI) regarding the LAR. The enclosure to this letter provides Duke Energy's response to the RAI.

No new regulatory commitments are contained in this letter.

Please refer any questions regarding this submittal to Mr. Lee Grzeck, Manager - Regulatory Affairs, at (910) 832-2487.

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on March 29, 2018.

Sincerely,



William R. Gideon

SBY/sby

Enclosure:

Response to Request for Additional Information

cc:

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Response to Request for Additional Information

By letter dated September 6, 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 expand the core power-flow operating range (i.e., Maximum Extended Load Line Limit Analysis Plus (MELLLA+)).

On March 8, 2018, by electronic mail, the NRC provided a request for additional information (RAI) regarding the LAR. Duke Energy's response to the RAI is provided below.

Request for Additional Information – APHB RAI-1

The licensee states in Section 10.6 of the LAR:

Consistent with the requirements for the plant-specific analysis as described in the M+LTR, the operator training program and plant simulator will be evaluated to determine the specific changes required. Simulator changes and fidelity validation will be performed in accordance with applicable American National Standards Institute (ANSI) standards currently being used at the training simulator.

The NRC staff typically uses ANSI/ANS 3.5-2009, "Nuclear Power Plant Simulators for Use in Operator Training" as a review tool for training program development.

- a. Please specify the ANSI standard(s) that the licensee proposes to use at the training simulator.
- b. If ANSI/ANS 3.5-2009 is not the standard the licensee proposes for the license amendment, briefly explain whether this standard is appropriate.

Duke Energy Response – APHB RAI-1

- a. BSEP simulator changes and fidelity validation will be performed in accordance with ANSI/ANS 3.5-2009.
- b. See Response to "a" above.

Request for Additional Information – APHB RAI-2

The licensee states in Enclosure 6, Section 10.5.3, "Operator Response" to the LAR (ADAMS Accession No. ML16257A411) that there are no new operator actions and there is no significant reduction in the time for operator actions. In the same section, the licensee states that a "new operator action to require initiation of lowering RPV [reactor pressure vessel] water level within 120 seconds to mitigate ATWS [Anticipated Transient Without Scram] instability events is judged not to impact the PRA."

- a. Clarify if there are any time-critical operator actions that will be added, deleted, or changed to support the proposed license amendment, including the reduction in time available to complete the action(s).
- b. If there is reduction in time available for operators to complete the action, justify and provide the process used to validate that all necessary operator actions can be reliably completed within the available time.

Duke Energy Response – APHB RAI-2

- a. There are no new operator actions required for MELLLA+ to be implemented at BSEP. The operator actions in response to an ATWS with MELLLA+ remain consistent with the current operator actions without MELLLA+.

The MELLLA+ operating domain expansion changes the dynamics for ATWS instability events, which increases the importance of the level reduction operator mitigation action during an ATWS. For this reason, with the implementation of MELLLA+ at BSEP, the operator action to initiate lowering Reactor Pressure Vessel (RPV) water level within 120 seconds will be classified as a Time Critical Operator Action (TCOA).

As stated above, this action is consistent with the current Emergency Operating Procedure (EOP)/ATWS response procedures and current Operator training. The current revision of plant procedure 00I-37.5, *ATWS Procedure Basis Document*, prescribes the 120-second time requirement for operators to initiate lowering RPV water level to mitigate ATWS instability events. Therefore, this is not a new action, but will be classified as a TCOA to support the MELLLA+ design basis.

- b. There is no reduction in time available for operators to initiate lowering RPV water level to mitigate ATWS instability events. The 120-second time requirement that will be tracked as a TCOA with the implementation of MELLLA+ is consistent with current requirements without MELLLA+; the difference being, with the implementation of MELLLA+, the time requirement will be classified and managed as a TCOA in accordance with plant procedure 0AP-064, *Time Critical Operator Actions*.