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10 CFR 50.4

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

Browns Ferry Nuclear Plant, Unit 2
Renewed Facility Operating License No. DPR-52
NRC Docket No. 50-260

Subject: **Browns Ferry Nuclear Plant (BFN) – Special Report 260/2020-001 for Inoperable Oscillating Power Range Monitor (OPRM) Instrumentation**

In accordance with Technical Specification (TS) 5.6.7, OPRM Report, this letter provides notification of inoperable OPRM instrumentation. Due to the inoperability of BFN Unit 2 OPRM instrumentation channels during the implementation of the Maximum Extended Load Line Limit Analysis Plus (MELLLA+) License Amendment, TS 3.3.1.1, Reactor Protection System (RPS) Instrumentation, Condition I was entered and associated Required Action I.3 of TS 3.3.1.1 was taken to immediately initiate action to submit an OPRM report in accordance with TS 5.6.7.

BACKGROUND INFORMATION:

On April 27, 2020, the MELLLA+ License Amendment was implemented for BFN Unit 2. At that time BFN Unit 2 was in Mode 1, Power Operation. One of the changes approved by the NRC in the MELLLA+ License Amendment was the use of the Detect and Suppress Solution – Confirmation Density (DSS-CD) thermal-hydraulic stability solution, instead of the previous approved Option III thermal-hydraulic stability solution. At the time of implementation, the BFN Unit 2 OPRMs were configured for compliance with the Option III thermal-hydraulic stability solution. For compliance with DSS-CD thermal-hydraulic stability solution, the settings of the OPRMs are required to be updated and the confirmation density algorithm of the DSS-CD placed in service. As a result, all channels of the OPRM Upscale Function were declared inoperable when the MELLLA+ License Amendment was implemented and the applicable Required Actions of TS 3.3.1.1 were taken.

TS Table 3.3.1.1-1, Function 2.f, requires three of the four OPRM Upscale channels to be Operable. With one or more required OPRM Upscale channels inoperable, TS 3.3.1.1 Required Action A.1 requires the inoperable channels to be placed in trip within 12 hours. With all four of

the OPRM Upscale channels inoperable, the associated RPS trip capability is not maintained and TS 3.3.1.1 Required Action C.1 requires restoration of RPS trip capability to be restored within 1 hour. If a Required Action and associated Completion Time is not met, TS 3.3.1.1 Required Action D.1 requires entry into the Condition referenced in Table 3.3.1.1-1 for the channel. For channels associated with Function 2.f, Table 3.3.1.1-1 references Condition I. TS 3.3.1.1 Condition I includes Required Actions to immediately initiate action to implement Manual Backup Stability Protection Regions (Required Action I.1), within 12 hours implement the Automated Backup Stability Protection Scram Region (Required Action I.2), and immediately initiate action to submit an OPRM report in accordance with TS 5.6.7 (Required Action I.3).

Action was initiated, on April 27, 2020, to submit the OPRM report in accordance with TS 5.6.7. TS 5.6.7 requires a report to be submitted to NRC within the following 90 days. The OPRM report is required to outline the preplanned means to provide backup stability protection, the cause of the inoperability and the plans and schedule for restoring the required instrumentation channels to Operable status.

CAUSE OF THE INOPERABILITY:

The cause of the inoperability of the OPRM Upscale channels was a preplanned evolution to implement the BFN Unit 2 MELLLA+ License Amendment with the unit in Mode 1 above 18% rated thermal power (i.e., the condition of Applicability for the OPRM Upscale channels configured for the DSS-CD thermal-hydraulic stability solution). On April 27, 2020, when the BFN Unit 2 MELLLA+ License Amendment was implemented, the OPRM Upscale channels were configured for the Option III thermal-hydraulic stability solution. Upon implementing the BFN Unit 2 MELLLA+ License Amendment, the OPRM Upscale channels were declared inoperable.

PREPLANNED MEANS OF BACKUP STABILITY PROTECTION:

Upon declaring the OPRM Upscale channels inoperable, the following preplanned means of backup stability protection were implemented.

- Operations personnel immediately initiated action to implement the Manual Backup Stability Protection Regions in accordance with TS 3.3.1.1 Required Action I.1. Operations personnel were required to immediately verify unit operation was outside of Manual Backup Stability Protection Regions, i.e., Region 1 (Scram) and Region 2 (Controlled Entry) of the power/flow map. In addition, Operations personnel were required by procedures to monitor for thermal-hydraulic oscillations if unit operation was within 10% of the rated core flow or power of Region 2 of the power/flow map. Operations personnel were also required by procedures to re-perform the verifications each time core flow was lowered by 10% or reactor power was raised by 5%, when flow was below 75% of rated core flow and power was above 18% rated thermal power.
- In accordance with TS 3.3.1.1 Required Action I.2, within 12 hours, the Automated Backup Stability Protection Scram Region was implemented. To implement the Automated Backup Stability Protection Scram Region, Maintenance personnel implemented the modified Average Power Range Monitor (APRM) Flow Biased Simulated Thermal Power – High

Scram setpoints specified in the Core Operating Limits Report for the Automated Backup Stability Protection Scram Region.

PLANS AND SCHEDULE FOR RESTORING THE REQUIRED INSTRUMENTATION CHANNELS:

On May 12, 2020, upon completion of OPRM setting updates and certain MELLLA+ testing, the confirmation density algorithm of the DSS-CD was placed in service and the OPRM Upscale channels were declared Operable.

There are no new regulatory commitments associated with this submittal. If there are any questions or if additional information is needed, please contact J. L. Paul, Nuclear Site Licensing Manager, at (256) 729-2636.

Respectfully,

A handwritten signature in black ink, appearing to be 'S. M. Bono', with a stylized, flowing script.

S. M. Bono
Site Vice President

cc:

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Browns Ferry Nuclear Plant