



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

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

Browns Ferry Nuclear Plant, Unit 3
Facility Operating License No. DPR-68
NRC Docket No. 50-296

Subject: **Boiling Water Reactor Vessel Internals Project (BWRVIP) - Notification of Deviation from BWRVIP-138, Revision 1-A, Updated Jet Pump Beam Inspection and Flaw Evaluation Guidelines**

Reference: Letter from Boiling Water Reactor Vessel and Internals Project (BWRVIP) to the Nuclear Regulator Commission dated October 30, 1997, "BWRVIP Utility Commitments to the BWRVIP"

The Tennessee Valley Authority (TVA) is providing notification that the Browns Ferry Nuclear Plant (BFN) Unit 3 will not fully implement the subject guidance of BWRVIP-138, Revision 1-A, "Updated Jet Pump Beam Inspection and Flaw Evaluation Guidelines." In accordance with the referenced BWRVIP letter dated October 30, 1997, BWR licensees that are part of the Boiling Water Reactor Vessel and Internals Project (BWRVIP) are required to provide timely notification to the NRC of a decision, by a licensee, to not fully implement the applicable BWRVIP product.

A deviation disposition (DD) has been prepared, reviewed, and approved in accordance with BWRVIP-94NP, Revision 3, "BWR Vessel and Internals Project Program Implementation Guide," and TVA internal procedures. This DD provides assurance that there are no safety implications or reliability concerns with the deviation.

The BFN Unit 3 deviation concerns one item. BFN Unit 3 is not meeting the inspection coverage requirement for a ultrasonic testing (UT) examination of the BB-1 inspection region on holddown beams for Jet Pumps 2 and 13 stipulated by Section 4.3.1 of BWRVIP-138, Revision 1-A.

During Unit 3 Refueling Outage 18 (U3R18) in Spring 2018 the Jet Pump (JP) Holddown Beams were examined using a contact matrix phased array probe. Jet Pumps 2 and 13 had a lack of contact with Probe #1 from one side for the BB-1 examination region. The reason for this lack of contact appears to be that the beam trunnion radius (which is what the probes fit up against) prevented the search unit from making good contact for these two beams only (100%

coverage was obtained for the other 18 beams examined). Full contact was achieved on three of the four examination points for the BB-1 examination for Jet Pumps 2 and 13. However, because of this lack of contact the examination did not meet the required BWRVIP inspection coverage criteria for the JP beam BB-1 region. Thus, the one-sided examination interrogated the BB-1 region and the examination was considered a limited "best effort" examination (50% inspection coverage obtained for both beams). No relevant indications were noted.

Assurance is provided that jet pump beams 2 and 13 will perform their intended design function and are acceptable for continued operation through the next three fuel cycles (U3C19, U3C20, and U3C21) based on the following:

1. The UT examination performed during U3R18 met the intent of BWRVIP-138.
2. The holddown beams are fabricated from Alloy X-750, high temperature annealed and aged, and have improved resistance to intergranular stress corrosion cracking (IGSCC).
3. The beam life for a Group 2 beam is 40 years. Unit 3 beams for Jet Pumps 1 through 18 are Group 2 and have been in operation for 24 years (beams for Jet Pumps 19 and 20 are Group 3 and were installed during U3R18 in Spring 2018). At the next scheduled inspection the beams for Jet Pumps 2 and 13 will have been installed for 29 years which leaves significant margin to reach the 40 year beam life. Also hydrogen water chemistry (HWC) conditions significantly increases this value. Although BFN has elected not to take credit for HWC, BFN Unit 3 holddown beams are mitigated against the effects of IGSCC as Unit 3 began NMCA (Traditional NobleChem) in 2000 and OLNC (On-Line NobleChem) in 2010.

Although Unit 3 is mitigated against the effects of IGSCC as a result of HWC and OLNC BFN will re-inspect the BB-1 region of the jet pump beam in accordance with the inspection requirements for normal water chemistry (6-year interval) which is more conservative than the inspection requirements for HWC (12-year interval). The Unit 3 jet pump holddown beams BB-1 region will be re-examined during U3R21 (Spring of 2024) at which time the necessary tooling modifications will be in place to allow 100% examination coverage of Jet Pumps beams 2 and 13.

This deviation will remain in place for the next three BFN Unit 3 two-year fuel cycles (Cycle 19 - Spring 2018 to Spring 2020, Cycle 20 - Spring 2020 to Spring 2022, and Cycle 21 - Spring 2022 to Spring 2024). This notification is being transmitted for information only. TVA is not requesting any specific action from the NRC.

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There are no new regulatory commitments in this letter. If you have any questions, please contact J. L. Paul, Nuclear Site Licensing Manager, at (256) 729-2636.

Respectfully,



D. L. Hughes
Vice President

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