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Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-14-037

April 4, 2014

10 CFR 50.4

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

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: **Response to NRC Request for Additional Information Regarding Proposed Technical Specification Change to Revise the Leakage Rate Through Main Steam Isolation Valves -TS-485 (TAC NOS. MF3124, MF3125, and MF3126)**

References:
1. Letter from TVA to NRC, "Browns Ferry Nuclear Plant, Units 1, 2, and 3 - Proposed Technical Specification Change To Revise The Leakage Rate Through MSIVs–TS-485," dated November 22, 2013 (ADAMS Accession No. ML14015A403)

2. Letter from NRC to TVA, "Browns Ferry Nuclear Plant, Units 1, 2, and 3 – Request for Additional Information Regarding Proposed Technical Specification Change to Revise the Leakage Rate Through Main Steam Isolation Valves–TS-485 (TAC NOS. MF3124, MF3125, AND MF3126)," dated February 28, 2014 (ADAMS Accession No. ML14051A726)

By letter dated November 22, 2013 (Reference 1), the Tennessee Valley Authority (TVA) submitted a license amendment request (LAR) for Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3, to revise the individual and total leakage rate through the main steam isolation valves (MSIVs).

By letter dated February 28, 2014, the Nuclear Regulatory Commission (NRC) transmitted a request for additional information (RAI) (Reference 2). The due date for the response was March 21, 2014. By telecom with Ms. Farideh Saba, NRR Project Manager for BFN, the due date for the response was extended to April 4, 2014. The Enclosure to this letter provides TVA's response to the NRC RAIs.

There are no new regulatory commitments contained in this submittal. Please address any questions regarding this submittal to Mr. Edward D. Schrull at (423) 751-3850.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 4th day of April 2014.

Respectfully,

J. W. Shea
Vice President, Nuclear Licensing

Enclosure:

Response to NRC Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation Request for Additional Information

cc (Enclosures):
NRC Regional Administrator – Region II
NRC Senior Resident Inspector – Browns Ferry Nuclear Plant
NRC Project Manager - Browns Ferry Nuclear Plant

ENCLOSURE

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION:
PROPOSED TECHNICAL SPECIFICATION CHANGE TO REVISE THE LEAKAGE RATE THROUGH MAIN STEAM ISOLATION VALVES- TS-485
(TAC NOS. MF3124, MF3125, and MF3126)

BACKGROUND

The primary and secondary Alternate Leakage Treatment pathway share a common passive valve, FCV-1-57, which is normally open with power removed. This represents a single point failure for both systems.

BFN Units 1, 2, and 3 Inservice Testing (IST) Program is currently operating in its fourth interval with the Code of Record of American Society of Mechanical Engineers, Operating and Maintenance Code, 2004 Edition through 2006 Addenda. The BFN IST program has determined that the FCV-1-57 valve is a passive, Category B type valve due to the fact that it is normally open with power removed during normal operation.

The FCV-1-57 is a motor-operated valve that fails as is. The IST program requirement for a passive Category B valve is position indication verification per section ISTC-3700, which states "Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated. Where practicable, this local observation should be supplemented by other indications, such as use of flowmeters or other suitable instrumentation to verify obturator position. These observations need not be concurrent. Where local observation is not possible, other indications shall be used for valve operation."

NRC RAI No. 1

Please explain how BFN is meeting the requirement of ISTC-3700 for valve FCV-1-57.

TVA Response

The BFN IST Program (Reference 1) treats valves 1/2/3-FCV-1-57 as Category B – Passive and requires a Remote Position Indication (RPI) test for these valves on a two-year frequency. BFN plant procedures (1/2/3-SR-3.3.3.1.4(A)), Verification of Remote Position Indicators for Main Steam System Valves (Reference 2), implement the IST Program RPI test requirement for these valves. The valve test frequency stated in these procedures is 24 months. The general test procedure acceptance criteria for RPI states, "Acceptance criteria for remote position indication is satisfied when local observation of actual valve position is verified to agree with the position indicating lights at the handswitch or panel as specified in the applicable appendix. Local observation of actual valve position may be performed using valve stem travel, valve mounted limit switch status, or other means which

accurately reflects actual valve position." The Units 2 and 3 procedures (Reference 2) contain the same information for their respective valves.

Therefore, BFN meets the ISTC-3700 requirements for valve FCV-1-57 for all three BFN units.

Note:
The Background section of this RAI states that "the BFN IST program has determined that the FCV-1-57 is a passive, Category B type valve due to the fact that it is normally open with power removed during normal operation."

Although the IST Program considers FCV-1-57 to be a passive component, the IST Program does not state that power is removed during normal operations. The power removal during normal operation is addressed by a TVA commitment in the proposed Technical Specification change (Reference 1 of the cover letter). The proposed commitment states that prior to implementation, BFN Units 1, 2, and 3 will revise procedures to verify power will be removed from valve FCV-1-57 after the valve has been verified in the open position.

NRC RAI No. 2

Please explain how valve stem and disc integrity of valve FCV-1-57 is being monitored and maintained.

TVA Response

Valve FCV-1-57 is a Category B – Passive valve that is within the scope of the BFN IST Program. The sole ASME OM Code requirement applicable to this valve is ISTC-3700, Position Verification Testing. The response to RAI No. 1 describes how BFN meets the ISTC-3700 requirements.

The plant design does not provide any readily available means to provide conclusive supplemental verification of valve disc position such as change in flow, pressure or temperature during any plant evolutions or normal operations. The only method available to identify disc position would require radiography or ultrasonic examination. Therefore, BFN does not employ any supplemental verification of valve disc position for FCV-1-57.

FCV-1-57 is a 3-inch "Y" globe valve. During normal operation, there is little steam flow through this normally open valve due to a 0.1875" orifice around the downstream normally closed valve.

However, the general issue associated with verification of valve stem and disc integrity is described in a paper presented by the NRC to the IST Owner's Group and ASME Code Committee Meeting on December 9-13, 2013 (Reference 3). The pertinent excerpt from this paper is provided below.

> "At the December 2011 ASME OM meeting, the ISTA/ISTC subgroup formed a task group to address several code change recommendations. The ISTA/ISTC subgroup members issued the proposed changes for review and ballot in the fall of 2012.

Comments from this ballot were incorporated into a proposed change to the ASME OM, but this change was disapproved by OM SG ISTA/ISTC ballot in June 2013. Comments received on this ballot were incorporated and the item is now out for full committee ballot. The results from this ballot will be assessed by the EPNB staff to determine the need for any further regulatory guidance.

Closure of this item is being carried in the top ten priority list for NRC/ASME interactions."

TVA continues to have an active role in the ASME OM code committee developing the methodology for addressing the issue concerning stem and disc integrity.

References

1 Browns Ferry Nuclear Plant, Unit 0 Technical Instruction, "0-TI-362 Inservice Testing Program," Revision 43.

2 Browns Ferry Nuclear Plant Unit 1/2/3 Surveillance Procedure, 1-SR-3.3.3.1.4(A), "Verification of Remote Position Indicators for Main Steam System Valves," Revision 0002, October 23, 2012; 2-SR-3.3.3.1.4(A), "Verification of Remote Position Indicators for Main Steam System Valves," Revision 0009, February 8, 2013; and 3-SR-3.3.3.1.4(A), "Verification of Remote Position Indicators for Main Steam System Valves," Revision 0010, November 21, 2012.

3 Paper from NRC to OM Code Committee, "Status of NRC Activities of Potential Interest To OM Main Committee," December 2013. [ADAMs Accession No. ML13339A413]