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

CNL-15-123

July 15, 2015

10 CFR 2.201
10 CFR 50.9(b)

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: **Updated Reply to Notice of Violation; EA-11-252; and Follow-up to 10 CFR 50.9, "Completeness and accuracy of information," Notification**

References:

1. Letter from NRC to TVA, "Browns Ferry Nuclear Plant - NRC Inspection Procedure 95003 Supplemental Inspection Report 05000259/2011011, 05000260/2011011, and 05000296/2011011 (Part 1)," dated November 17, 2011 (ML113210602)

2. Letter from TVA to NRC, "Response to an Apparent Violation in Inspection Report 05000259/2011011, 05000260/2011011, 05000296/2011011; EA-11-252," dated December 19, 2011 (ML11362A379)

3. Letter from NRC to TVA, "Browns Ferry Nuclear Plant - Notice of Violation NRC Inspection Report 05000259/2012010, 05000260/2012010, and 05000296/2012010," dated January 23, 2012 (ML12024A499)

4. Letter from TVA to NRC, "Reply to Notice of Violation; EA-11-252," dated February 22, 2012 (ML12054A688)

5. Letter from TVA to NRC, "Updated Reply to Notice of Violation; EA-11-252; and Follow-up to 10 CFR 50.9, 'Completeness and accuracy of information,' Notification," dated September 28, 2012 (ML12277A248)

6. Letter from TVA to NRC, "Updated Reply to Notice of Violation; EA-11-252; and Follow-up to 10 CFR 50.9, 'Completeness and accuracy of information,' Notification," dated March 1, 2013 (ML13067A400)

7. Letter from TVA to NRC, "Updated Reply to Notice of Violation; EA-11-252; and Follow-up to 10 CFR 50.9, 'Completeness and accuracy of information,' Notification," dated August 30, 2013 (ML13268A421)

8. 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 (ML14015A403)

9. Letter from TVA to NRC, "Browns Ferry Nuclear Plant, Units 1, 2, and 3 - Withdrawal of Proposed Technical Specification Change to Revise the Leakage Rate Through MSIVs - TS-485," dated May 29, 2015 (ML15159B009)

10. Letter from NRC to TVA, "Browns Ferry Nuclear Plant, Unit Nos. 1, 2, and 3 - Withdrawal of an Amendment Request (TAC Nos. MF3124, MF3125, and MF3126)," dated June 16, 2015 (ML15161A344)

In accordance with the NRC letter dated November 17, 2011 (Reference 1), Tennessee Valley Authority (TVA) submitted a response to Apparent Violation EA-11-252 (Reference 2) on December 19, 2011. Subsequently, the NRC issued Notice of Violation EA-11-252 on January 23, 2012 (Reference 3). The TVA response to this notice of violation was provided on February 22, 2012 (Reference 4).

In Reference 5, TVA provided an update to Reference 4 regarding the Reply to Notice of Violation EA-11-252 (Enclosure 1). TVA also provided information regarding an extent of condition review result that identified a 10 CFR 50.9, "Completeness and accuracy of information," non-conforming condition (Enclosure 2) related to the Alternate Leakage (ALT) pathway dose analysis calculation.

In Reference 6, TVA documented the completion of the extent of condition reviews, revised the discussion of the ALT pathways non-conformance, and identified an additional non-conforming condition related to the Generic Letter 89-10 Program (Enclosure 3). In Reference 7, TVA provided an update to the schedule for completion of corrective actions for resolving the non-conforming conditions previously discussed in Enclosures 2 and 3 of Reference 6.

In Reference 8, TVA submitted license amendment request (LAR) TS-485 to resolve the ALT pathways non-conforming condition by proposing to make the primary ALT pathway become the secondary pathway and the secondary pathway become the credited primary ALT pathway. In Reference 9, TVA withdrew LAR TS-485 and committed to revising the Reply to Notice of Violation; EA-11-252 (Reference 7) regarding the ALT pathways by July 15, 2015. NRC acknowledged the LAR withdrawal in Reference 10.

The purpose of this letter is to provide the required revision to the Reply to Notice of Violation response in Reference 7. Enclosures 1 and 3 are unchanged from Reference 7. Enclosure 2 was updated to provide the proposed details of facility modifications and a schedule for when the Browns Ferry Nuclear facility will be in conformance with its current licensing basis dose calculations.

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

Respectfully,

J. W. Shea
Vice President, Nuclear Licensing

Enclosures:

1. Updated Reply to Notice of Violation; EA-11-252
2. Follow-up to 10 CFR 50.9, "Completeness and accuracy of information," Notification - Alternate Leakage Treatment
3. Follow-up to 10 CFR 50.9, "Completeness and accuracy of information," Notification - Generic Letter 89-10 Program

cc (Enclosures):

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

ENCLOSURE 1

Tennessee Valley Authority

Browns Ferry Nuclear Plant, Units 1, 2, and 3

Updated Reply to Notice of Violation; EA-11-252

Restatement of Violation

10 CFR 50.9 requires, in part, that information provided to the Commission by an applicant for a license or by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects.

Contrary to the above, on January 6, 1997, and May 5, 2004, TVA provided information to the Commission that was not complete and accurate in all material respects, related to NRC Generic Letter 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance" testing program. Specifically, in a letter dated January 6, 1997, TVA responded to a prior NRC question and stated that "Closure of valves FCV-74-52 and FCV-74-66 is not required by plant procedures to operate the RHR system in the suppression pool cooling mode. Therefore, these valves have no 'redundant' safety function and will not be included in the GL 89-10 program." This information was inaccurate because the FCV-74-52 and FCV-74-66 valves do have a safety function to shut to operate the RHR system in the suppression pool cooling mode as described in EOI Appendix-17A, "RHR System Operation Suppression Pool Cooling," and should therefore have been included in Browns Ferry's GL 89-10 MOV monitoring program.

Additionally, TVA also provided incomplete and inaccurate information in a letter to the NRC dated May 5, 2004. This letter referenced 18 valves, including FCV-74-52 and FCV-74-66, "that are not in the GL 89-10 program, since the valves are normally in their safety position." This letter stated that "TVA's review and documentation of the design basis for the operation of each Unit 1 MOV within the scope of the GL 89-10 program, the methods for determining and adjusting its switch settings, testing, surveillance, and maintenance are the same as with the Units 2 and 3 program."

This information was material to the NRC because it was used, in part, as the basis for determining that valves FCV-74-52 and FCV-74-66 did not meet the conditions necessary that would require them to be in Browns Ferry's GL 89-10 MOV monitoring program.

Background

TVA incorrectly determined that flow control valves FCV-74-52 and FCV-74-66 were "passive" based on operating in their safety position during normal alignment. Additionally, TVA failed to identify that FCV-74-52 and FCV-74-66 are required to be closed to enable Residual Heat Removal (RHR) to operate to the suppression pool cooling mode, per Emergency Operating Instruction (EOI) Appendix-17A.

By letter dated January 6, 1997, TVA responded to the NRC inspector follow-up item 50-260, 296/95-19-01 regarding the reduced scope of motor-operated valves (MOVs) in the NRC Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," program for the Browns Ferry Nuclear Plant (BFN), Units 2 and 3. This letter stated in part that "Closure of valves FCV-74-52 and FCV-74-66 is not required by plant procedures to operate the RHR system in the suppression pool cooling mode. . ." As a result, FCV-74-52 and FCV-74-66 were removed from the GL 89-10 program in 1997, in accordance with Supplement 1 to GL 89-10.

As identified during the root cause analysis conducted to address the issues associated with the failure of FCV-74-66 in the BFN, Unit 1, TVA discovered that the statement "Closure of valves FCV-74-52 and FCV-74-66 is not required by plant procedures to operate the RHR system in the suppression pool cooling mode. . ." was inaccurate. Specifically, the revision of the EOI, Appendix-17A that was in place in January 1997, included a step to verify that the FCV-74-52 or FCV-74-66 valve was closed as part of performing the steps to place the RHR system in the suppression pool cooling mode. As required by 10 CFR 50.9(b), TVA provided written notification to the NRC by letter dated October 20, 2011, acknowledging the inaccuracy of its January 6, 1997 letter. Additionally, TVA provided written notification to the NRC by letter dated December 19, 2011, acknowledging the inaccuracy of its May 5, 2004, letter.

With respect to FCV-74-52 and FCV-74-66 and the GL 89-10 program, TVA will implement the following actions.

- Add 1, 2, 3 - FCV-74-52 and 1, 2, 3 - FCV-74-66 to the GL 89-10 program.

- Develop or revise an existing procedure to specifically provide the criteria for determining GL 89-10 program scope, including active/passive classification.

Reason for the Violation

The reasons for this violation of 10 CFR 50.9, "Completeness and accuracy of information," are as follows.

- TVA failed to apply adequate technical rigor to the review process for regulatory submittals. The responsible licensing engineer was requested by a reviewer of the January 1997 submittal to verify the statement regarding closure of valves FCV-74-52 and FCV-74-66. Verification was done through verbal confirmation from Engineering without documentation supporting the conclusion.

- The TVA procedures did not contain sufficient details governing the verification process for regulatory submittals. The TVA procedures in place at the time of the 1997 letter only provided guidance on acceptable methods of verification. In addition, the procedure stated that method of verification remained at the discretion of the technical lead; not the responsible licensing engineer.

- The TVA personnel assigned to the BFN, Unit 1, restart licensing failed to follow procedures governing the verification process for regulatory submittals. The information provided in the May 5, 2004, letter related to the BFN, Unit 1, was verified to the extent required to ensure the BFN, Unit 1, valves were described in a manner equivalent to the BFN, Units 2 and 3, valves. As stated in the 2004 letter, the basis for excluding the BFN, Unit 1, valves from the GL 89-10 program was the same as the BFN, Units 2 and 3, valves.

Corrective Steps That Have Been Taken and Results Achieved

As stated above, TVA provided written notification to the NRC by letter dated October 20, 2011, acknowledging the inaccuracy of its January 6, 1997 letter, in accordance with 10 CFR 50.9(b). Additionally, TVA provided written notification to the NRC by letter dated December 19, 2011, acknowledging the inaccuracy of its May 5, 2004, letter.

Procedural requirements in the TVA procedure BP-213, "Managing TVA's Interface with NRC," governing the verification of information contained in NRC submittals were enhanced in 2002. These enhancements, which included the following, are contained in the current revision of BP-213:

- Designating oversight responsibility for the submittal verification process to Licensing.
- Specifying which NRC submittals require verification.
- Describing which types of statements in NRC submittals require verification.
- Providing detailed requirements for verification packages.

With respect to the failure of the BFN, Unit 1, restart licensing personnel to follow the procedure governing the verification process for regulatory submittals (i.e. BP-213), procedure use and adherence has since been reinforced as one of the TVA's fundamental human performance tools. Management expectations regarding procedure use and adherence are communicated regularly through the TVA Nuclear corporate and site communications and are further reinforced through the TVA's Nuclear Fleet Focus Handbook.

Extent of Condition

Misapplication of the criteria for determination of active/passive function of 1-FCV-74-66 resulted in inappropriate classification and removal from the GL 89-10 program. This contributed to the untimely identification of the valve failure. This misapplication of the criteria also resulted in providing the NRC inaccurate information in associated correspondence and submittals used by the NRC in making the decision to approve the exclusion of the FCV-74-52 and FCV-74-66 valves from the BFN GL 89-10 program. As a result, the extent of condition is considered to include submittals to the NRC that included information describing the results of the TVA's application of criteria for defining the scope of regulatory programs.

To address this extent of condition, the following actions have been taken.

For the following regulatory programs, applicable information submitted to the NRC in other BFN GL 89-10 submittals, other BFN, Unit 1, restart submittals, and other BFN, Units 2 and 3, submittals related to these regulatory programs, starting from time of program development, were identified.

- Air Operated Valve Program
- Aging Management Program
- Breaker Testing and Maintenance Program
- Buried Cable Program
- Buried Piping/Groundwater Protection Program

- Equipment Qualification Program
- Flow Accelerated Corrosion Program
- Inservice Inspection Program
- Inservice Testing Program
- Instrument Setpoint Program
- Maintenance Rule Program
- Motor Operated Valve Program
- Primary Containment Leakage Rate Testing Program
- Seismic Monitoring Instrumentation Program
- Equipment Seismic Qualification Program
- Snubber Program
- Pump Program
- Motor Program
- Heat Exchangers Program
- Chillers Program
- Probabilistic Risk Assessment Program
- Appendix R Program
- Reactor Vessel Internals Program

Using guidance derived from the TVA procedure BP-213, each of the NRC submittals identified for these regulatory programs were reviewed to validate that the information associated with the program scope provided to the NRC was complete and accurate as required by 10 CFR 50.9. Any information that could not be validated as complete and accurate was documented in the TVA Corrective Action Program (CAP).

In accordance with procedure NPG-SPP-03.5, "Regulatory Reporting Requirements," the information documented in the TVA CAP that could not be validated was reviewed and evaluated to determine if the condition was reportable in accordance with 10 CFR 50.9.

The TVA notified the NRC in accordance with 10 CFR 50.9(b) for identified conditions that met the reporting requirements delineated in 10 CFR 50.9.

On September 4, 2012, as a result of the ongoing extent of condition reviews at the time, the TVA determined that information previously provided to the NRC in certain BFN license amendment requests and associated responses to the NRC requests for additional information regarding Alternate Leakage Treatment was incomplete. As required by 10 CFR 50.9(b), a notification was made within two working days, i.e., on September 6, 2012, to the NRC Region II office via a telephone call. As requested during that telephone call, the TVA provided a follow-up to that notification as part of this updated reply to the notice of violation. The requested information is provided in Enclosure 2.

On January 29, 2013, as a result of the completed extent of condition reviews, the TVA determined that information previously provided to the NRC in certain BFN submittals regarding the GL 89-10 program was incomplete and inaccurate. As required by 10 CFR 50.9(b), a notification was made within two working days, i.e., on January 31, 2013, to the NRC Region II office via a telephone call between K. J. Polson, BFN Site Vice President, with other TVA representatives and F. D. Brown, NRC Region II (acting on behalf of V. M. McCree, NRC Region II Administrator). As requested during that telephone call, the TVA is providing a follow-up to that notification as part of this letter. The requested information is provided in Enclosure 3.

Corrective Steps That Will Be Taken

All identified corrective actions to avoid future violations have been implemented.

The extent of condition reviews and the required NRC notifications were completed by February 1, 2013.

Date When Full Compliance Will Be Achieved

For the 10 CFR 50.9 violation described in EA-11-252, the TVA achieved full compliance with the October 20, 2011, and December 19, 2011, NRC notification letters.

ENCLOSURE 2

Tennessee Valley Authority

Browns Ferry Nuclear Plant, Units 1, 2, and 3

Follow-up to 10 CFR 50.9, "Completeness and accuracy of information," Notification - Alternate Leakage Treatment

Follow-up to 10 CFR 50.9, "Completeness and accuracy of information," Notification - Alternate Leakage Treatment

On September 4, 2012, as part of the ongoing extent of condition reviews for corrective actions for the Notice of Violation EA-11-252, Tennessee Valley Authority (TVA) determined that information previously provided to the NRC in certain Browns Ferry Nuclear Plant (BFN) license amendment requests and associated responses to the NRC requests for additional information was incomplete. As required by 10 CFR 50.9(b), a notification was made within two working days, i.e., on September 6, 2012, to the NRC Region II office via a telephone call between K. J. Polson, BFN Site Vice President, with other TVA representatives and NRC Region II representatives F. D. Brown (acting on behalf of V. M. McCree, NRC Region II Administrator) and E. F. Guthrie. As requested during that telephone call, TVA is providing this follow-up to that notification.

Alternate Leakage Treatment (ALT) was credited by TVA for BFN in NRC submittals to increase Main Steam Isolation Valve (MSIV) leakage acceptance criteria and to allow use of Alternative Source Term (AST). The submittals containing information that have been determined to be incomplete are as follows.

- The MSIV leakage acceptance criteria increase submittals for BFN, Units 2 and 3, dated September 28, 1999 (Reference 2), and February 4, 2000 (Reference 3).

- The MSIV leakage acceptance criteria increase submittal for BFN, Unit 1, dated July 9, 2004 (Reference 4).

- The AST submittal for BFN, Units 1, 2, and 3, dated August 24, 2004 (Reference 5).

The NRC Safety Evaluation Report (SER) for NEDC-31858P, Revision 2, "BWROG Report for Increasing MSIV Leakage Rate Limits and Elimination of Leakage Control Systems," dated March 3, 1999 (Reference 1), required the following to be addressed.

> *"In parallel to the plant-specific reviews conducted in the past, the staff determined that all licensees referencing the generic report should provide assurance for the reliability of the entire ALT pathway, including all of its boundary valves. The licensees should also provide assurance that valves required to open the ALT path to the condenser are provided with highly reliable power sources, and that a secondary path to the condenser with orifice flow exists. In addition, valves which are required to open the ALT path to the condenser are to be included in the plant's Inservice Testing (IST) program."*

The TVA submittals dated September 28, 1999 (Reference 2), and July 9, 2004 (Reference 4), addressed compliance with NEDC-31858P and the associated SER (Reference 1) and stated that valves in each of the four drain lines from the main steam lines (flow control valves (FCVs) -1-168, -1-169, -1-170, and -1-171) are normally open motor operated valves which would remain open on loss of offsite power. However, these submittals should have also described that if any MSIV is closed and turbine speed is greater than 1700 revolutions per minute (rpm), these valves close and will reopen after turbine speed drops below 1700 rpm. As a result, these TVA submittals failed to address the following.

- Reliability of power sources for these valves. Valves FCVs-1-168, -1-169, -1-170, and -1-171 are powered from non-safety related motor operated valve boards that do not have emergency diesel generator (EDG) back-up power supplies.

- Reliability of valve logic to reopen the valves to establish the ALT pathway.

- The need to include these valves in the IST Program. These valves were not included in the IST Program, even though they close upon MSIV closure and are required to reopen.

The TVA submittals dated September 28, 1999 (Reference 2), and July 9, 2004 (Reference 4), stated that two valves in the piping line downstream of the four main steam line drain lines prior to the condenser (FCV-1-58 and FCV-1-59) are normally closed valves which would require operator action to align the ALT path to the condenser. These TVA submittals also stated that these two valves are powered from essential power buses with EDG back-up and to further ensure valve reliability, these valves would be included in the IST program and periodically stroke tested. One of these valves (FCV-1-59) has a 4-inch bypass containing no valves or orifices. Therefore, there is not a concern associated with FCV-1-59 with respect to ALT pathway availability. The TVA submittals dated July 9, 2004 (Reference 4), and August 24, 2004 (Reference 5), also stated that these valves (FCV-1-58 and FCV-1-59) are designed to be available during and after a Loss of Coolant Accident (LOCA) event concurrent with loss of offsite power. However, these submittals should have also described that the reactor motor operated valve board that powers FCV-1-58 is not qualified for the post-LOCA environment, e.g., temperature, and is also required to be manually loaded onto the associated EDG. As a result, the TVA submittals failed to adequately address the reliability of the power source for FCV-1-58 after a LOCA.

The TVA submittals dated September 28, 1999 (Reference 2), February 4, 2000 (Reference 3), July 9, 2004 (Reference 4), and August 24, 2004 (Reference 5), indicate that a secondary orificed contingency path is provided in the unlikely event of a failure of the normally closed valve without the 4-inch bypass line (FCV-1-58) in the piping line downstream of the four main steam line drain lines prior to the condenser. For BFN, the secondary ALT pathway consists of orificed bypass lines around each of the four drain lines (FCVs-1-168, -1-169, -1-170, and -1-171) from the main steam lines through an open valve (FCV-1-57) in the piping line downstream of the four main steam line drain lines and then through an orificed bypass line around a normally closed valve (FCV-1-58) and finally through a non-orificed 4-inch bypass line around another closed valve (FCV-1-59) to the condenser. These TVA submittals also stated that with the 0.1875 inch orificed path around FCV-1-58, it is calculated that the majority of MSIV leakage would still be directed to the condenser with a smaller remainder through the closed Main Steam Stop and Control Valves to the high pressure turbine. However, no TVA calculation supporting the statement regarding the 0.1875 inch orifice was located.

TVA determined that this condition was reportable to the NRC in accordance with 10 CFR 50.9(b) on September 4, 2012, and the notification was made to the NRC Region II office within two working days on September 6, 2012.

This condition has been included in the TVA Corrective Action Program. The causal evaluation has been completed for the ALT pathway condition and has determined that the causes of the condition associated with the previous 10 CFR 50.9 violation are similar to the causes of this condition. The causes of the condition associated with the previous 10 CFR 50.9 violation are failure to apply adequate technical rigor to the review process for regulatory submittals, procedures did not contain sufficient details governing the verification process for regulatory

submittals, and failure of BFN, Unit 1, restart licensing personnel to follow procedures governing the verification process for regulatory submittals. The causal evaluation for the ALT pathway condition determined the causes of the condition are procedures did not provide specific guidance to ensure adequate technical rigor in the preparation and verification of design change documents used as input into the License Amendment Requests and procedures did not provide enough guidance to ensure that source documents for License Amendment Requests are adequately validated. Since the causes of this condition are similar to the causes associated with the previous 10 CFR 50.9 violation, this condition represents an additional example.

The causal evaluation also identified corrective actions and corrective actions to prevent recurrence. These corrective actions and corrective actions to prevent recurrence are being implemented in accordance with the TVA Corrective Action Program.

The identified issues with the ALT pathway are being treated as a non-conforming/degraded condition. A Functional Evaluation has been performed that relies on the secondary ALT pathway. While no TVA calculation supporting statement regarding the 0.1875 inch orifice was located as previously discussed, it has been determined that actual leakage flow area through the Main Steam Stop and Control Valves, based on actual BFN Main Steam Stop and Control Valve testing performed each refueling outage, is less than assumed in the BFN LOCA dose analysis of record. With this decrease, the existing BFN LOCA dose analysis of record remains bounding.

Consistent with NRC guidance for resolving non-conforming/degraded conditions, final corrective actions for this condition will involve modification of the facility to restore the plant to be consistent with the conditions as described in the referenced licensing submittals.

The proposed facility modifications are as follows.

1. The main steam line (MSL) drain valves FCV-1-168, -1-169, -1-170, and -1-171 will either be replaced with fail-open Air Operated Valves (AOVs) with the same valve open control logic for turbine speed < 1700 rpm or the motor operated valve (MOV) breakers will be locked in the Open position or these drain valves will be removed. Thus, an open 2" flow path will be assured.
2. MOV FCV-1-58 will be replaced with a fail-open flow control valve. A second valve will be added in a parallel line around FCV-1-58 to avoid single point vulnerability (SPV) in the event that offsite power is not lost during the LOCA.
3. TVA will ensure, by design output, that FCV-1-57 is open and that the motive power is removed when the Unit is in Modes 1, 2 or 3, and prior to entry into Mode 3 from Mode 4.

Date when Full Compliance Will be Achieved

The current target schedule for modifying each of the BFN units is during the following outages:

Unit 2: U2R19 March 2017
Unit 3: U3R18 March 2018
Unit 1: U1R12 November 2018

However, it is early in the design phase, which may affect TVA's ability to implement the modifications on BFN Unit 2 during the U2R19 outage. If that were to occur, the modifications to BFN Unit 2 would be implemented during the next scheduled outage (U2R20).

The existing compensatory measures are as follows:

1. BFN is using the ALT secondary flow path as the ALT primary flow path.
2. The total allowable MSIV leakage rate has been decreased from the current Technical Specification value of 150 standard cubic feet per hour (scfh) to the 85 scfh value that support meeting dose requirements in association with action item 1.
3. A revised dose analysis was performed that includes the changes made to the application of ALT described in items 1 and 2, above.

Therefore, if the above target schedule is maintained, full compliance will be achieved following the U1R12 outage scheduled for November 2018, but no later than following the U2R20 outage scheduled for March 2019.

Follow-up to 10 CFR 50.9, "Completeness and accuracy of information," Notification - Alternate Leakage Treatment

References

1. NRC letter to General Electric, "Safety Evaluation Report of GE Topical Report, NEDC-31858P, Revision 2, BWROG Report for Increasing MSIV Leakage Limits and Elimination of Leakage Control Systems, September 1993," dated March 3, 1999

2. TVA letter to NRC, "Browns Ferry Nuclear Plant - Units 2 and 3 - Technical Specification (TS) Change 399 - Increasing Main Steam Isolation Valve (MSIV) Leakage Rate Limits and Exemption from 10 CFR 50, Appendix J," dated September 28, 1999

3. TVA letter to NRC, "Browns Ferry Nuclear Plant - Units 2 and 3 - Response to Request for Additional Information Regarding Technical Specification (TS) Change 399 - Increased Main Steam Isolation Valve (MSIV) Leakage Rate Limits and Exemption from 10 CFR 50, Appendix J - Revised TS Pages for MSIV Leakage Limits," dated February 4, 2000

4. TVA letter to NRC, "Browns Ferry Nuclear Plant Unit 1 - Technical Specification (TS) Change 436 - Increased Main Steam Isolation Valve (MSIV) Leakage Rate Limits and Exemption from 10 CFR 50, Appendix J," dated July 9, 2004

5. TVA letter to NRC, "Browns Ferry Nuclear Plant - Units 1, 2, and 3 - Supplemental Information Associated with Response to Request for Additional Information (RAI) Related to Technical Specification (TS) Change No. TS-405 - Alternative Source Term (AST)," dated August 24, 2004

ENCLOSURE 3

Tennessee Valley Authority

Browns Ferry Nuclear Plant, Units 1, 2, and 3

Follow-up to 10 CFR 50.9, "Completeness and accuracy of information," Notification - Generic Letter 89-10 Program

Follow-up to 10 CFR 50.9, "Completeness and accuracy of information," Notification - Generic Letter 89-10 Program

On January 29, 2013, as a result of the completed extent of condition reviews for corrective actions for the Notice of Violation EA-11-252, the Tennessee Valley Authority (TVA) determined that information previously provided to the NRC in certain Browns Ferry Nuclear Plant (BFN) submittals regarding the Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," program was incomplete and inaccurate. As required by 10 CFR 50.9(b), a notification was made within two working days, i.e., on January 31, 2013, to the NRC Region II office via a telephone call between K. J. Polson, BFN Site Vice President, with other TVA representatives and F. D. Brown, NRC Region II (acting on behalf of V. M. McCree, NRC Region II Administrator). As requested during that telephone call, the TVA is providing a follow-up to that notification.

In previous submittals to the NRC, the TVA provided information regarding the scope of Motor-Operated Valves (MOVs) to be included in the BFN Generic Letter 89-10 program. The submittals containing information that has been determined to be incomplete and inaccurate are as follows.

- The submittal providing the response to an Inspector Follow-up Item which requested reevaluation of the safety function of certain MOVs removed from, or not included, in the GL 89-10 program for BFN, Units 2 and 3, dated January 6, 1997 (Reference 1).

- The submittal providing the updated response to GL 89-10 and Supplement 1 through 7 for the BFN, Unit 1, dated May 5, 2004 (Reference 2). This submittal stated that the "TVA's review and documentation of the design basis for the operation of each Unit 1 MOV within the scope of the Generic Letter 89-10 program, the valves included in the program, the methods for determining and adjusting switch settings, testing, surveillance, and maintenance are the same as with the Units 2 and 3 program." This submittal also referenced the January 6, 1997, letter (Reference 1) from the TVA to the NRC. As such, it has been determined that the inaccurate information included in the Reference 1 letter also applied to the BFN, Unit 1.

The TVA submittal dated January 6, 1997 (Reference 1), stated, for the Residual Heat Removal (RHR) Loops I and II Low Pressure Coolant Injection valves (flow control valve (FCV)-74-52 and FCV-74-66), that these valves were not required by plant procedures to be closed to operate the RHR System in the Suppression Pool Cooling mode. However, plant procedures do require these valves to be closed to operate the RHR System in the Suppression Pool Cooling mode. This issue was previously reported to the NRC in accordance with 10 CFR 50.9(b), on September 22, 2011, for the BFN, Units 2 and 3, and on December 19, 2011, for the BFN, Unit 1. Follow-up written reports (References 3 and 4, respectively) associated with these notifications were submitted by the TVA to the NRC on October 20, 2011, and December 19, 2011.

The TVA submittal dated January 6, 1997 (Reference 1), stated, for the RHR Pump Suction valves from the torus (FCVs-74-01, -74-12, -74-24, and -74-35), that these valves are in their safety position, i.e., open, except during operability stroke time testing. The submittal also indicated that when these valves are not in their safety position, the associated system/train would be declared inoperable. However, the submittal should have also described that these valves are required to be closed to operate the RHR System in the

Shutdown Cooling mode. As a result, the TVA submittal failed to adequately address the function and position of these valves in other modes of RHR System operation.

The TVA submittal dated January 6, 1997 (Reference 1), did not address the RHR Pump Suction valves from the shutdown cooling line (FCVs -74-02, -74-13, -74-25, and -74-36). These valves are normally in their safety position (i.e., closed). However, these valves are required to be opened to operate the RHR System in the Shutdown Cooling mode. As a result, the TVA submittal failed to address the function and position of these valves in other modes of the RHR System operation and the need for inclusion of these valves in the GL 89-10 program.

The TVA submittal dated January 6, 1997 (Reference 1), stated the BFN GL 89-10 scope would be revised to include those MOVs required for Reactor Core Isolation Cooling (RCIC) System operation. However, the following RCIC System valves were excluded from the GL 89-10 program in the Reference 1 letter.

- RCIC Suction Valves from Torus (FCVs -71-17 and -71-18)
- RCIC Suction Valve from Condensate Storage Tank (FCV-71-19)

As a result, the submittal failed to address that these valves are required to support the RCIC System operation as described in the BFN Updated Final Safety Analysis Report Section 4.7, Reactor Core Isolation Cooling System, and the BFN Technical Specifications Bases B 3.5.3, RCIC System.

The TVA determined that this condition was reportable to the NRC in accordance with 10 CFR 50.9(b) on January 29, 2013, and the notification was made to the NRC Region II office within two working days, on January 31, 2013.

This condition has been included in the TVA Corrective Action Program. Operability Determinations/Functional Evaluations have been performed for each of the valves included in this condition. The causes of this condition are the same as the causes associated with the previous 10 CFR 50.9 violation, i.e., failure to apply adequate technical rigor to the review process for regulatory submittals, procedures did not contain sufficient details governing the verification process for regulatory submittals, and failure of the BFN, Unit 1, restart licensing personnel to follow procedures governing the verification process for regulatory submittals. Since the causes of this condition are the same as the causes associated with the previous 10 CFR 50.9 violation, this condition represents an additional example.

The condition is being treated as non-conforming condition. Corrective actions are underway to resolve this non-conforming condition. These valves have been added to the BFN GL 89-10 program. The MOVs discussed above are now in full compliance GL 89-10 program requirements with the exception of 1-FCV-74-01, 1-FCV-74-02, 1-FCV-71-19, 2-FCV-71-19, and 3-FCV-71-19. The remaining MOVs will be in full compliance according to the following schedule:

- Valves 1-FCV-74-01, 1-FCV-74-02, 1-FCV-71-19 will be in full compliance with GL 89-10 program requirements by the end of the BFN, Unit 1, fall 2014 refueling outage.
- Valve 2-FCV-71-19 will be in full compliance with GL 89-10 program requirements by the end of the BFN, Unit 2, spring 2015 refueling outage.
- Valve 3-FCV-71-19 will be in full compliance with GL 89-10 program requirements by the end of the BFN, Unit 3, spring 2014 refueling outage.

These schedule changes were previously provide via Reference 5, below.

References

1. TVA letter to NRC, "Browns Ferry Nuclear Plant (BFN) - Units 2 and 3 - Generic Letter (GL) 89-10, Safety-Related Motor-Operated Valve (MOV) Testing and Surveillance, NRC Inspector Followup Item (IFI) 50-260, 296/95-19-01, Response to Request for Reevaluation Regarding Reduced Scope of MOVs," dated January 6, 1997

2. TVA letter to NRC, "Browns Ferry Nuclear Plant (BFN) Unit 1 - Generic Letter 89-10 and Supplements 1 to 7, Safety-Related Motor-Operated Valve (MOV) Testing and Surveillance," dated May 5, 2004

3. TVA letter to NRC, "Follow-up Letter to 10 CFR 50.9, 'Completeness and accuracy of information,' Notification," dated October 20, 2011

4. TVA letter to NRC, "Revision to Follow-up Letter to 10 CFR 50.9, 'Completeness and accuracy of information,' Notification," dated December 19, 2011

5. TVA letter to NRC, "Revision to Commitment Summary associated with Generic Letter 89-10, Safety-related Motor-operated Valve Program Requirements," dated April 26, 2013