



1101 Market Street, Chattanooga, Tennessee 37402

CNL-21-075

September 8, 2021

10 CFR 50.90

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

Watts Bar Nuclear Plant Unit 1
Facility Operating License No. NPF-90
NRC Docket No. 50-390

Subject: **Response to Request for Additional Information Regarding Expedited Application to Modify Watts Bar Nuclear Plant, Unit 1 Technical Specification 3.7.12, "Auxiliary Building Gas Treatment System," for One-Time Exception to Permit Opening of the Auxiliary Building Secondary Containment Enclosure As Needed to Support the Watts Bar Nuclear Plant, Unit 2 Replacement Steam Generator Outage (WBN-TS-20-023) (EPID L-2021-LLA-0035)**

- References:
1. TVA letter to NRC, CNL-21-015, "Expedited Application to Modify Watts Bar Nuclear Plant, Unit 1 Technical Specification 3.7.12, 'Auxiliary Building Gas Treatment System,' for One-Time Exception to Permit Opening of the Auxiliary Building Secondary Containment Enclosure As Needed to Support the Watts Bar Nuclear Plant, Unit 2 Replacement Steam Generator Outage (WBN-TS-20-023)," dated March 3, 2021 (ML21062A267)
 2. NRC Electronic Mail to TVA, "Request for Additional Information Regarding TVA's Request to Revise the Watts Bar Nuclear Plant, Unit 1 Technical Specifications Related to Continuous Opening of the Auxiliary Building Secondary Containment Enclosure Boundary (EPID L-2021-LLA-0035)," dated August 9, 2021 (ML21221A260)

In Reference 1, Tennessee Valley Authority (TVA) submitted a request for an amendment to Facility Operating License No. NPF-90 for the Watts Bar Nuclear Plant (WBN) Unit 1. The proposed change modified the existing Note in the Limiting Condition for Operation (LCO) for WBN Unit 1 Technical Specification (TS) 3.7.12, "Auxiliary Building Gas Treatment System (ABGTS)," to allow the Auxiliary Building Secondary Containment Enclosure (ABSCE) boundary to be opened, at specific controlled access points, on a continuous basis during the WBN Unit 2 Cycle 4 refueling outage (U2R4) when the WBN Unit 2 replacement steam generators (RSG) are scheduled to be installed.

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In Reference 2, the Nuclear Regulatory Commission (NRC) issued a request for additional information (RAI) and requested TVA respond by September 8, 2021. The enclosure to this letter provides the response to the RAI.

This letter does not change the no significant hazards considerations or the environmental considerations contained in Reference 1. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and the enclosure to the Tennessee Department of Environment and Conservation.

There are no new regulatory commitments associated with this submittal. If you have any questions about this proposed change, please contact Kimberly D. Hulvey, Senior Manager, Fleet Licensing, at (423) 751-3275.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 8th day of September 2021.

Respectfully,



James Barstow
Vice President, Nuclear Regulatory Affairs and Support Services

Enclosure:

Response to NRC Request for Additional Information

cc (Enclosure):

NRC Regional Administrator – Region II
NRC Project Manager – Watts Bar Nuclear Plant
NRC Senior Resident Inspector – Watts Bar Nuclear Plant
Director, Division of Radiological Health – Tennessee State Department of
Environment and Conservation

Enclosure

Response to NRC Request for Additional Information

NRC introduction

SCBP

By letter dated March 3, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21062A267), Tennessee Valley Authority (TVA) submitted a license amendment request (LAR) for Watts Bar Nuclear Plant (Watts Bar or WBN), Unit 1. The proposed amendment would modify the existing Note associated with the Limiting Condition for Operation (LCO) for Unit 1 Technical Specification (TS) 3.7.12, "Auxiliary Building Gas Treatment System (ABGTS)," to allow the auxiliary building secondary containment enclosure (ABSCE) boundary to be opened, at specific controlled access points, on a continuous basis during the Watts Bar, Unit 2, Cycle 4 refueling outage (U2R4) when the Unit 2 replacement steam generators (RSGs) are scheduled to be installed.

The ABSCE boundary is shared between Units 1 and 2. Because Unit 1 will be operating during U2R4, continuous opening of the ABSCE boundary during the U2R4 replacement activities would require Watts Bar, Unit 1, to enter the LCO for TS 3.7.12. Therefore, TVA is proposing a one-time exception to LCO Note for the duration of U2R4 that would allow breaches of the ABSCE boundary on a continuous basis under administrative controls that will ensure that the ABSCE can be closed consistent with the safety analysis.

Section 15.5.3 of the Watts Bar Dual-Unit Updated Final Safety Analysis Report (UFSAR) contains the analysis of the environmental consequences of a postulated loss-of-coolant accident (ADAMS Accession No. ML20323A316). This analysis assumes that activity leaking to the auxiliary building (AB) is directly released to the environment for the first 4 minutes, after which it is then released through the ABGTS system filter.

The LAR stated that detailed procedural controls exist to ensure the ABSCE can be closed consistent with the safety analysis and that the controls ensure the breach opening can be closed within 2 minutes of notification from the main control room (MCR), which allows sufficient time to be able to draw down the ABSCE to -0.25 inch water gauge within 4 minutes consistent with the safety analysis in Section 15.5.3 of the UFSAR.

SCP B RAI 1

LAR Section 3.2.2, "Unit 2 RSG Outage Activities," states:

In a typical outage, the Unit 2 containment is considered part of the ABSCE when the Unit 2 Upper and Lower Containment Personnel Air Locks and the Unit 2 Equipment Hatch are open, and therefore these openings are not considered breaches of the ABSCE. However, during the RSG Outage, temporary openings in the Unit 2 shield building concrete dome and steel containment vessel will be created in order to remove the existing SGs and install the RSGs. These temporary openings cannot be closed within the required time frame to remain consistent with the safety analysis. Thus, once these openings are created, the ABSCE boundary will be moved to exclude the Unit 2 containment. Therefore, these two Air Locks and the Equipment Hatch will be considered breaches of the ABSCE when the temporary openings in the shield building dome are created.

Regarding the statement that the Unit 2 containment is part of Unit 1 ABSCE when the containment personnel air locks and the equipment hatch are open during a Unit 2 outage:

Enclosure

- a. *Clarify if the containment personnel air locks and equipment hatch openings are administratively controlled throughout the period when the airlocks and hatch are open or only during the period when the temporary openings through the shield building concrete dome and steel containment vessel exist.*
- b. *Confirm ABGTS drawdown tests include the containment volume as part of ABSCE boundary to support the statement that outage unit (Unit 2) containment is considered part of the ABSCE of the operating unit (Unit 1).*

TVA Response

- a. As noted in Section 3.2.2 of the LAR, the following breaches of the ABSCE boundary are planned to be opened on a continuous basis during the Unit 2 RSG Outage:
 - Unit 2 Upper Containment Personnel Air Lock Access (Plant Door A157)
 - Unit 2 Lower Containment Personnel Air Lock Access (Plant Door A77)
 - Unit 2 Containment Equipment Hatch (Room 757.0-A15, also known as the shield building equipment hatch sleeve)
 - Auxiliary Building General Supply Fan 737' Elevation Room A12 Access and Backup (Plant Doors A132/A133).

TVA will post dedicated personnel at Plant Doors A132/A133) once those doors are breached. Doors A157 and A77 become ABSCE boundary breaches only when their allowable breach margin is exceeded. Plant Doors A157 and A77 and the containment equipment hatch are breached shortly after WBN Unit 2 enters Mode 5, but do not create an ABSCE opening until they exceed the breach allowable margin when cutting the holes in the Shield Building dome. The above breaches will be posted with trained dedicated personnel prior to exceeding the allowable breach margin.

- b. TVA confirms that ABGTS drawdown testing included the WBN Unit 2 containment volume as part of the ABSCE boundary. This supports the statement that the outage unit (WBN Unit 2) containment is considered part of the ABSCE of the operating unit (WBN Unit 1).

SCP B RAI 2

Regarding the Unit 2 Containment Equipment Hatch (Room 757.0-A15, also known as the shield building equipment hatch sleeve), the LAR states: "This access is intended to be used principally by workers and equipment for access to primary containment areas. During the RSG Outage, this hatch will be secured as needed by a temporary ABSCE door (WBN-0-DOOR-410-R003) capable of being closed within two minutes."

The closure of ABSCE breaches by administrative controls are accomplished by permanent equipment (e.g., doors, airlocks) that are part of the ABGTS drawdown tests, except for a temporary ABSCE door that would take the place of the equipment hatch. Provide information (including test acceptance criteria) regarding the temporary door and its leak tightness to show that its impact, if any, on the capability of ABGTS to draw down ABSCE to the required negative pressure within the acceptable time is minimal and acceptable.

TVA Response

During the WBN Unit 2 Cycle 4a mid-cycle outage, scheduled for mid-September 2021, preliminary testing of the temporary fabric door will be performed to provide confidence that leakage through the door and associated door hardware and seals is minimal.

During the WBN Unit 2 Cycle 4 refueling outage (U2R4), prior to creating the temporary openings in the Unit 2 containment for replacement of steam generators, testing will be performed of the ABSCE boundary with the fabric door installed to secure the equipment hatch. This test will confirm that the total ABSCE leakage with the fabric door as part of the boundary is less than allowed by the WBN Unit 1 and 2 TS SR 3.7.12.4.

The acceptance criteria for the temporary fabric door, in order to demonstrate that the ABSCE can be drawn down to the required negative pressure within the acceptable time, are the same as for any other breach opening. Specifically, as noted in Reference 1, "The ABSCE boundary must be able to be restored within four minutes (including the time for restoration of the ABSCE boundary and drawdown) in accordance with UFSAR Section 15.5.3." This was reiterated in Section 3.1 of Reference 2. Furthermore, as noted in References 1 and 2, the breach opening must be demonstrated it can be closed within two minutes of notification from the MCR. This allows sufficient time to be able to drawdown the ABSCE to -0.25 inches water gauge (WG) within four minutes consistent with the WBN UFSAR.

References

1. TVA letter to NRC, CNL-17-044, "Response to Request for Additional Information Related to License Amendment Request to Revise Technical Specification 3.7.12, Auxiliary Building Gas Treatment System (ABGTS), for Watts Bar Nuclear Plant, Units 1 and 2 (CAC Nos. MF8526 and MF8527)," dated May 5, 2017 (ML17125A244)
2. NRC letter to TVA, "Watts Bar Nuclear Plant, Units 1 and 2- Issuance of Amendments Regarding Auxiliary Building Gas Treatment System (CAC Nos. MF8526 AND MF8527)," dated October 17, 2017 (ML17236A057)

IOLB

In the LAR, TVA cited the U.S. Nuclear Regulatory Commission's (NRC) letter to TVA, "Watts Bar Nuclear Plant, Units 1 and 2 - Issuance of Amendments Regarding Auxiliary Building Gas Treatment System (CAC Nos. MF8526 and MF8527)," dated October 17, 2017 (ADAMS Accession No. ML17236A057) as a precedent. TVA stated that the change proposed in the current LAR, to allow continuous opening of the ABSCE boundary under administrative controls to ensure the ABSCE can be closed consistent with the safety analysis, is similar to the approved SE dated October 17, 2017. The exception is that the precedent was for the intermittent opening of the ABSCE boundary as opposed to the continuous opening for the current LAR.

To inform the SE, dated October 17, 2017, TVA provided a supplement dated May 5, 2017 (ADAMS Accession No. ML17125A244). In that supplement, TVA stated that in accordance with TVA procedure TI-65, "Breaching the Containment Annulus, ABSCE, or MCRHZ [main control room habitability zone] Pressure Boundaries," the following administrative controls are used for ABSCE breaches in excess of the total allowable breach area:

- *The breach opening can be closed at all times within 2 minutes of notification from the MCR. This allows sufficient time to be able to drawdown the ABSCE to -0.25 in. WG within 4 minutes.*

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- *Individuals performing the administrative actions are stationed at both the breach location and in the MCR with clear communications established.*
- *Means to restore the breach, if required, are staged (e.g., blind flanges, foam penetrations, fabric roll-up doors).*
- *Non-routine ABSCE boundary breaches require that a mock-up/walk-through demonstration be performed prior to the entry to ensure that the breach can be restored within two minutes.*
- *Attachment 5 to TI-65 ensures that the administrative controls are in place prior to opening the breach and requires a senior reactor operator approval to commence work.*

In Section 3.2.1, "ABSCE Operability to Support Unit 1 Operation during the RSG Outage," of the current LAR, TVA stated:

For the continuous openings of the ABSCE boundary to support the WBN Unit 2 RSG project, the same proceduralized controls reviewed by NRC in Reference 1 [SE dated October 17, 2017] will remain in effect. Therefore, the ability to ensure the ABSCE can be closed consistent with the safety analysis during the RSG Outage is assured.

The NRC staff requests the following information to ensure that differences between the cited precedent and the current LAR are non-material and would not prevent operators from completing actions needed to close the breaches.

IOLB RAI 1

Confirm that each of the designated individuals (1 person at each breach for a total of 4, at any given time) stationed at their respective breach does not have incidental duties that could delay them from performing the administrative action to close the breach within the 2 minutes of notification from the MCR.

TVA Response

TVA confirms that each of the designated individuals (one person at each breach for a total of four, at any given time) stationed at their respective breach will not have incidental duties that could delay them from performing the administrative action to close the breach within the two minutes of notification from the MCR.

IOLB RAI 2

In the supplement dated May 5, 2017, TVA stated the following:

In accordance with TVA procedure TI-65, "Breaching the Containment Annulus, ABSCE, or MCRHZ Pressure Boundaries," a breach tracking permit (BTP) is used to control any planned breach entries of the ABSCE boundary. Additionally, ABSCE boundary breaches are logged and tracked using a breach permit tracking log. This log includes the breach open area (BOA), the start and stop times for the breach, and the BTP number.

Confirm that the methods for tracking intermittent openings is the same for continuous openings.

TVA Response

TVA confirms that the methods for tracking intermittent openings are the same as for continuous openings.