Watts Bar Nuclear Plant (WBN)

Application to Modify WBN Unit 1 and Unit 2 Technical Specification (TS) 3.6.15, “Shield Building"

September 11, 2019

Agenda

Opening Remarks
Background
Proposed Technical Specification (TS) Changes
Basis for Proposed TS Changes
Regulatory Precedent
Schedule Milestones
Closing Remarks

Opening Remarks

- The proposed license amendment request (LAR) revises WBN Unit 1 and 2 TS 3.6.15 Condition B and SR 3.6.15.1 to:
  - Resolve a non-conservatism in the Note to TS 3.6.15 Condition B (see Background Section)
  - Resolve NRC concerns regarding the Note to TS 3.6.15 Condition B during the acceptance review for the previous submittal of this LAR (see Background Section)
  - Revise the Shield Building annulus pressure to be consistent with the WBN dual-unit updated final safety analysis report (UFSAR)
- The current TS 3.6.15 Condition B is unique to WBN
- Proposed TS changes will align the Conditions in WBN TS 3.6.15 with the Westinghouse Standard TS (STS)

Background

- In Nuclear Regulatory Commission (NRC) Integrated Inspection Report 05000390/2016001, 05000391/2016001 (ML16098A323), NRC identified a non-conservatism in the current Note to WBN Units 1 and 2 TS 3.6.15, Condition B (i.e., “Annulus pressure requirement is not applicable during venting operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration”)
- On 3/6/2017, Tennessee Valley Authority (TVA) submitted a non-voluntary LAR to revise the Note in TS 3.6.15 Condition B to address the nonconservatism (ML17065A301)
  - Proposed LAR relocated the Note to Surveillance Requirement (SR) 3.6.15.1 and revised the Note to clarified that it applied to all three activities
- During the acceptance review of the above LAR, NRC issued a draft request for supplemental information (ML17170A172) questioning the current licensing basis for the one-hour duration in the Note and requesting TVA to provide administrative controls and analyses to support the one-hour duration in the TS 3.6.15 Condition B Note

Background (continued)

- Specifically, in ML17170A172, NRC stated:
  - "The proposed LCO note to Surveillance Requirement 3.6.15, described above, does not appear to be consistent with the environmental consequences of a LOCA licensing basis for WBN, which assumes the Shield Building boundary is established with a negative 0.25 inch water gauge internal pressure within 114 seconds after the occurrence of a LOCA."
  - "Therefore, for the proposed change to allow Surveillance Requirement 3.6.15.1 not to be met for 1 hour during ventilating and required annulus entries the NRC staff requests TVA to provide the following:
    - A proposed change to TS 3.6.15 that is consistent with the NRC-approved design basis as reflected in the UFSAR Section 15.5.3, 'Environmental Consequences of a LOCA' analysis, or
    - Explain how the dose reference values of 10 CFR 100 and the dose criterion of GDC 19 of 10 CFR 50 Appendix A are met using the proposed administrative controls. Provide the results of this analysis, the inputs, assumptions, methodology and technical basis for the analysis, and,
    - Explain what administrative controls will be used to ensure that the integrity of the pressure boundaries can be restored so that the LOCA analysis results meet the dose reference values in 10 CFR 100 and the dose criterion in GDC 19, and in what document(s) they are located."

Background (continued)

- TVA determined that it was not possible to supplement the LAR within the required timeframe of the NRC acceptance review. Therefore, on 5/10/17, TVA withdrew the LAR (ML17131A206)

- NRC acknowledged this withdrawal on 6/22/17 (ML17111A701), but stated that if TVA resubmits this request, then TVA still needs to address the issues that were documented by the NRC in ML17170A172

Proposed TS Changes

- In order to address the NRC concerns in ML16098A323, ML17170A172, and ML17111A701, TVA is proposing the following WBN Unit 1 and 2 TS and SR changes:
  - TS 3.6.15 Condition B is deleted including the expired footnotes in WBN Units 1 TS 3.6.15
  - TS 3.6.15 Condition C is renumbered as Condition B
  - The annulus negative pressure requirement in SR 3.6.15.1 is revised from -5 inches (in.) water gauge (wg) to -1 in. wg
  - Corresponding changes are made to the WBN Unit 1 and 2 TS Bases

Proposed Changes to WBN Unit 1 and 2 TS 3.6.15

3.6 CONTAINMENT SYSTEMS

3.6.15 Shield Building

LCO 3.6.15 The Shield Building shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield Building inoperable.	A.1 Restore Shield Building to OPERABLE status.	24 hours
~~B. NOTE Annulus pressure requirement is not applicable during venting operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration or while Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building dome is open until annulus pressure is restored.*~~ ~~Annulus pressure not within limits.~~	~~B.1 Restore annulus pressure within limits.~~	~~8 hours~~
~~C~~B. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

~~*1. The combined opening time of Penetrations 1-EQH-271-0010 or 1-EQH-271-0011 is limited to a total time of five hours a day, six days a week during Cycle 7 operation.~~
~~2. Penetrations 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building Dome may not be opened if in Action Conditions LCO 3.6.9A or 3.8.1B.~~
~~3. Upon opening Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building Dome, both EGTS control loops shall be placed in the A-Auto Stand-by position and returned to normal position following closure of penetration.~~

Proposed Changes to WBN Unit 1 and 2 TS 3.6.15

3.6 CONTAINMENT SYSTEMS

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LCO 3.6.15 The shield building shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield building inoperable.	A.1 Restore shield building to OPERABLE status.	24 hours
~~B. ----------NOTE---------- Annulus pressure requirement is not applicable during ventilating operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration. ---------- Annulus pressure not within limits.~~	~~B.1 Restore annulus pressure within limits.~~	~~8 hours~~
~~C.~~B. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

Proposed Changes to WBN Unit 1 and 2 SR 3.6.15.1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.15.1	Verify annulus negative pressure is equal to or more negative than ~~-5~~ -1 inches water gauge with respect to the atmosphere.	12 hours
SR 3.6.15.2	Verify the door in each access opening is closed, except when the access opening is being used for normal transient entry and exit.	31 days
SR 3.6.15.3	Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the Shield Building.	During shutdown for SR 3.6.1.1 Type A tests
SR 3.6.15.4	Verify each Emergency Gas Treatment System train with final flow ≥ 3600 and ≤ 4400 cfm produces an annulus pressure equal to or more negative than -0.61 inch water gauge at elevation 783 with respect to the atmosphere and with an inleakage of ≤ 250 cfm.	18 months on a STAGGERED TEST BASIS

Proposed Changes to WBN Unit 1 and 2 SR 3.6.15.1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.15.1	Verify annulus negative pressure is equal to or more negative than -51 inches water gauge with respect to the atmosphere.	12 hours
SR 3.6.15.2	Verify the door in each access opening is closed, except when the access opening is being used for normal transient entry and exit.	31 days
SR 3.6.15.3	Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the Shield Building.	During shutdown for SR 3.6.1.1 Type A tests
SR 3.6.15.4	Verify each Emergency Gas Treatment System train with final flow ≥ 3600 cfm and ≤ 4400 cfm produces an annulus pressure equal to or more negative than - 0.61 inch water gauge at elevation 783 with respect to the atmosphere and with an inleakage of ≤ 250 cfm.	18 months on a STAGGERED TEST BASIS

Basis for Proposed Change to SR 3.6.15.1

- The annulus pressure in the STS SR 3.6.8.1 is bracketed (i.e., plant specific).
- Current value has not changed since initial licensing of WBN Units 1 and 2
  - Current value was based on the value assumed in the original analysis (-5 in. wg)
- Current analysis documented in UFSAR Section 15.5.3 conservatively assumes the annulus is at atmospheric conditions at event initiation
- Therefore, the proposed value of -1 in. wg is bounded by the current analysis in UFSAR Section 15.5.3 which demonstrates that the radiological consequences of a large break loss-of-coolant accident (LBLOCA) does not exceed the 10 CFR Part 100 and 10 CFR Part 50 Appendix A General Design Criterion (GDC) 19 regulatory limits
  - The proposed change also resolves NRC concerns regarding consistency with the licensing basis

Basis for Proposed Changes to TS 3.6.15 Condition B

Background

- Current Condition B to TS 3.6.15 was initially associated with the EGTS (TS 3.6.5) when TVA issued the proposed draft TS for WBN Unit 1 based on the Restructured Standard Technical Specifications (RSTS) (ML073520334 and ML073610028)
- Subsequently, on August 27, 1992, TVA revised and updated the draft TS to be in accordance with the latest draft of NUREG-1431, Revision 0. EGTS TS 3.6.5 was renumbered as TS 3.6.9, but still included Condition B (ML073600872 and ML073200281)
- On April 2, 1993 (ML073230276), the NRC transmitted the proof and review version of the WBN Unit 1 TS for TVA's review and comment. The Condition B that was previously in TS 3.6.9, "Emergency Gas Treatment (EGTS)," was deleted and moved to TS 3.6.15, "Shield Building." There was no explanation for the revisions
- WBN Unit 1 operating license (OL) was issued on February 7, 1996 (ML073460319) included the Condition B for TS 3.6.15. The WBN Unit 2 OL was issued on October 22, 2015 (ML15251A587) and mirrored the WBN Unit 1 TS
- Current TS 3.6.15 Condition B is unique to WBN and is not consistent with the Westinghouse STS

Basis for Proposed Changes to TS 3.6.15 Condition B

- Change to SR 3.6.15.1 allows for the deletion of the Note in Condition B
  - Activities won't result in Annulus pressure exceeding -1 in. wg
  - Resolves the non-conservative TS
  - Resolves NRC concern with administrative controls
- Current TS 3.6.15 Condition B is unique to WBN and is not consistent with the Westinghouse STS (3.6.8)
  - Verifying the Annulus pressure (SR 3.6.15.1) is consistent with the STS (SR 3.6.8.1)
  - Therefore, Annulus pressure is a part of Shield Building (SB) Operability
- Inclusion of a Condition specific to Annulus pressure implies significant impact to the safety function as compared to all other aspects of SB integrity
- Current analysis assumption of atmospheric conditions demonstrates Annulus pressure will no longer be a significant impact to the safety function if not met

Regulatory Precedent

- The proposed changes are consistent with the Westinghouse STS in NUREG-1431, Revision 4

- There are no other applicable regulatory precedents regarding the changes proposed in this LAR

Planned Schedule Milestones

- September 11, 2019 – LAR Pre-Submittal Meeting with NRC
- Mid-October 2019 – LAR Submittal – Request NRC Approval within 12 Months of Submittal
- November 2019 – Telecon or meeting to discuss any NRC questions
- October 2020 – NRC Approval of LAR (Requested)

Closing Remarks

- Proposed LAR resolves NRC concerns regarding TS 3.6.15, Condition B
- Proposed LAR is supported by the current accident analysis in the UFSAR
- The proposed changes are consistent with the Westinghouse STS in NUREG-1431, Revision 4
- LAR submittal is planned for mid-October 2019


TVA