



Watts Bar Nuclear Plant (WBN)
Pre-Submittal Meeting for License Amendment Request
Revised Offsite Electrical Power Sources

September 12, 2019

Agenda

- Opening Remarks
- Background
- WBN Units 1 and 2 Electrical Offsite Power Design
- License Amendment Request (LAR) Approach
- Proposed Technical Specification (TS) Change
- Design Changes
- Schedule Milestones
- Closing Remarks

Opening Remarks

- The purpose of this meeting is to discuss a proposed license amendment for WBN Units 1 and 2
- TVA is requesting a license amendment to remove the TS requirement to surveil the automatic transfer from a unit service station transformer (USST) to Common Service Station Transformer (CSST) A or B at the unit board
- The LAR will align the TS with the WBN Units 1 and 2 design change that will no longer allow the use of USSTs powering the safety-related shutdown boards with automatic transfer to CSST A or B

Background

- TVA submitted an LAR requesting approval of CSST A and B as qualified offsite power sources on August 1, 2013 (ML13220A103)
- On September 29, 2015, the NRC approved the use of CSST A or B as qualified offsite circuits in two configurations – either with CSST A or B manually aligned to the associated 6.9 kilovolt (kV) shutdown boards from the unit boards, or with the 6.9 kV shutdown boards powered from the USSTs with automatic transfer capability to CSST A or B at the unit boards (ML15225A094)
- During a component design basis inspection (CDBI) in August 2016, the NRC requested information regarding the CSST A and B alignments as qualified offsite power sources (NRC Inspection Report 05000390, 391/2016011, ML16285A217)
- During the inspection, it was determined that the automatic transfer from USST to CSST offsite power alignment may not meet General Design Criterion (GDC) 17 requirements under all conditions

Background

- Specifically, it was determined that if an offsite circuit was aligned with the USST powering a 6.9 kV shutdown board, with automatic transfer to CSST A or B at the unit boards, the transfer may not occur in time to preclude a voltage drop to below the point where the associated diesel generator would startup and load onto the 6.9 kV shutdown board
- NRC Inspection Report 05000390/2019013 and 05000391/2019013 dated August 19, 2019 issued an apparent violation related to this issue (ML19231A179)
- Therefore, TVA is requesting a license amendment to remove the TS requirement to surveil the automatic transfer from a USST to CSST A or B when the associated unit board requires normal and alternate power supplies, (i.e., TS Surveillance Requirement (SR) 3.8.1.22)

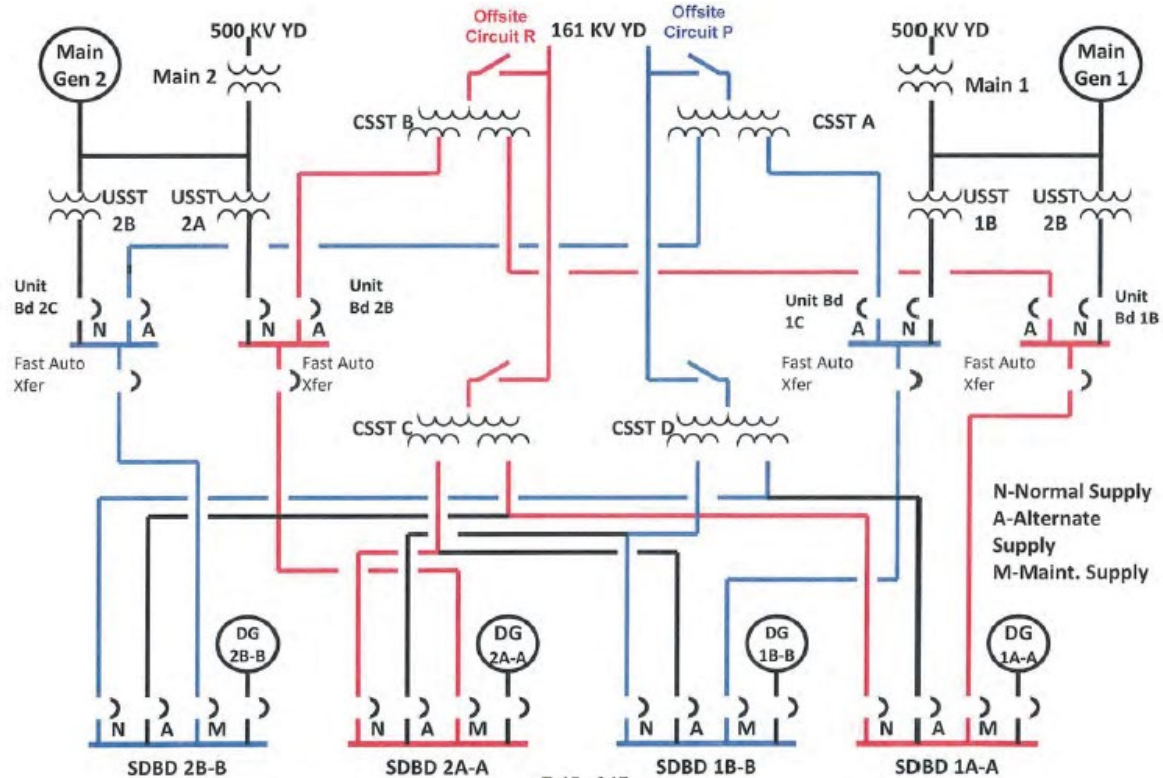
WBN Units 1 and 2 Offsite Electrical Power Design

- WBN uses two immediate access 161 kV circuits providing offsite power through two power circuit breakers connecting with separate sections of the main bus in the Watts Bar Hydro Plant (WBH) switchyard
- Each 161 kV line terminates at a pair of 161 - 6.9 kV CSSTs (A and D, and B and C, respectively)
- The CSSTs and buses are connected and arranged to provide two physically independent offsite power circuits to the onsite (Class 1 E) distribution system
- Each of the four 6.9 kV shutdown boards normal and alternate connection to the offsite power circuits is via CSST C or D through the 6.9 kV shutdown boards normal or alternate supply breakers
- Each of the four 6.9 kV shutdown boards maintenance connection to the offsite power circuits is via CSST A or B through the 6.9 kV shutdown boards maintenance supply breakers

WBN Units 1 and 2 Offsite Electrical Power Design

- Transfers from the normal source to the alternate source may be manual or automatic. Transfers from the alternate source to the normal source are manual only. Transfers to or from the maintenance source are manual only
- Automatic transfers from the normal power source to the alternate power source are initiated by any transformer or line failure relays
- For a loss of power from either CSST C or D not due to a fault in the CSST, or loss of power from either CSST A or B, the affected 6.9 kV shutdown board loads will be disconnected from offsite power and sequentially loaded onto their respective diesel generator (DG)
- When all 6.9 kV shutdown boards are aligned to their normal source, or all 6.9 kV shutdown boards are aligned to their alternate source, the automatic transfer to the alternate source is not required to comply with GDC 17

WBN Units 1 and 2 Offsite Electrical Power Design



License Amendment Approach

- A previously mentioned, the NRC approved CSST A or B for use as a qualified offsite circuit in two configurations
- Use of CSST A or B when manually aligned to the a 6.9 kV shutdown board from the associated unit board remains a viable option
- As stated in the NRC's safety evaluation of the license amendment (ML15225A094), the NRC staff agreed that successful completion of SR 3.8.1.1 and SR 3.8.1.8 would verify the operability of the manual transfer capability of an offsite circuit from CSST C or D to CSST A or B, given the new definition of 'alternate,' which includes the use of CSST A or B as a GDC 17 source during maintenance of CSST C or D
- The information provided to the NRC to support a determination that the manual alignment of CSST A or B as a qualified offsite power source meets the requirements of GDCs 17 and 18 is unchanged and remains valid

License Amendment Approach

- Therefore, the only TS change needed is to remove the requirement to verify the automatic transfer from the USST to CSST A or B, as this feature is no longer relied on for operability of an offsite circuit
- Currently, with the controls in place to preclude this alignment and the allowances of SR 3.8.1.22, Note 2, performance of this SR is not required
- TVA is not requesting a change to the ability to use CSST A or B as a qualified offsite circuit when manually aligned to the associated 6.9 kV shutdown board

Proposed Technical Specification Change

Unit 1 – SR 3.8.1.22

<p>SR 3.8.1.22</p>	<p>NOTES</p> <p>1. For the 1B and 1C Unit Boards, this Surveillance shall not normally be performed in MODE 1 or 2. However, this surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.</p> <p>2. Transfer capability is only required to be met for 6.0 kV unit boards that require normal and alternate power supplies.</p> <hr/> <p>Verify automatic transfer of each 6.0 kV Unit Board 1B, 1C, 2B, and 2C power supply from the normal power supply to the alternate power supply.</p>	<p>18 months</p>
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Proposed Technical Specification Change

Unit 2 – SR 3.8.1.22

SR 3.8.1.22	<p style="text-align: center;">NOTES</p> <p>1. For the 2B and 2C Unit Boards, this Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.</p> <p>2. Transfer capability is only required to be met for 6.9kV Unit Boards that require normal and alternate power supplies.</p> <hr/> <p>Verify automatic transfer of each 6.9kV Unit Board 1B, 1C, 2B and 2C power supply from the normal power supply to the alternate power supply.</p>	
		18 months

Design Changes

- A design change package is being finalized which will remove the offsite circuit alignment of 6.9 kV shutdown boards powered from the USSTs with automatic transfer capability to CSST A or B at the unit boards

Schedule Milestones

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

Closing Remarks

- With the completion of the design change that removes the capability to power an offsite circuit from the USSTs with the automatic transfer to CSST A or B at the unit boards, SR 3.8.1.22 is no longer required to verify the operability of the automatic transfer at the unit boards
- TVA is requesting approval for deletion of SR 3.8.1.22 from the WBN Unit 1 and Unit 2 TS
- LAR submittal is planned for November 2019

