



Watts Bar Nuclear Plant (WBN)

Pre-Submittal Meeting for Non-Voluntary License Amendment Request (LAR) to Correct Unbalanced Voltage Relay Instrumentation Values

October 10, 2019



Agenda

- Opening Remarks
- Background
- Correct Instrument Values
- Proposed Technical Specification (TS) Change
- Corrective Actions
- Schedule Milestones
- Closing Remarks

Opening Remarks

- On 8/27/19, NRC approved a TVA fleet license amendment (ML18277 A 110) to add a new level of protection regarding "unbalanced voltage" to the Browns Ferry, Sequoyah, and WBN TS for the loss of power instrumentation. This license amendment has a required implementation date of no later than 12/25/19.
- Following issuance of this license amendment, as part of the implementation phase, TVA discovered three incorrect instrument values on WBN Units 1 and 2 TS Table 3.3.5-1, Function 5, associated with the 6.9 kV Emergency Bus Undervoltage (Unbalanced Voltage).
- Implementation of the license amendments for WBN (i.e., Amendments 128/31) with the incorrect values would result in a non-conservative TS.
- TVA is requesting an expedited non-voluntary LAR to revise the incorrect instrument values and to avoid delaying implementation of Amendments 128/31.

Background

- TVA submitted a fleet LAR to add a new level of protection regarding "unbalanced voltage" on 11/17/2017 (ML17324A349) and a revision to the LAR on 11/19/2018 (ML18324A609)
- NRC approved the LAR on 8/27/19 (ML18277A110) (WBN License Amendments 128/31) with a 120-day implementation date (no later than 12/25/19).
- Following receipt of the license amendments, during the implementation process, TVA determined that the following instrument values in WBN Units 1 and 2 TS Table 3.3.5-1, Function 5, were incorrect:
 - Time for the High Trip Setpoint
 - Voltage for the Lo Allowable Value
 - Time for the High Allowable Value

Correct Instrument Values

Function 5 Parameter	Value as Approved by NRC	Correct Value
Trip Setpoint (High)	3.95 second (sec)	3.45 sec
Allowable Value (AV) Lo	≤ 3.35 volts (V)	$\leq 3.30V$
AV High	4.0 sec	3.50 sec

- The correct values are supported by the TVA undervoltage relay (UVR) calculation that was in effect at the time the LAR was submitted.
- The LAR will contain information to demonstrate how the correct values were obtained.
- If the license amendment was implemented as approved by NRC, the trip setpoint (High) would exceed the actual AV (High).
 - This would make the channel immediately inoperable

Proposed Technical Specification Change

WBN Unit 1

LOP DG Start Instrumentation
3.3.5

Table 3.3.5-1 (page 2 of 2)
LOP DG Start Instrumentation

FUNCTION	REQUIRED CHANNELS PER BUS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT	ALLOWABLE VALUE
5. 6.9 kV Emergency Bus Undervoltage (Unbalanced Voltage)	3	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3	1.30 V at 2.95 sec (Permissive Alarm) 2.96 V at 9.95 sec (Lo) 18.13 V at 3.95 sec (High)	≤ 1.5 V at 3 sec (Permissive Alarm) ≤ 3.35 V at 10 sec (Lo) ≤ 20.0 V at 4 sec (High)

3.30

3.45

3.50

Proposed Technical Specification Change

WBN Unit 2

Table 3.3.5-1 (page 1 of 1)
LOP DG Start Instrumentation

FUNCTION	REQUIRED CHANNELS PER BUS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT	ALLOWABLE VALUE
1. 6.9 kV Emergency Bus Undervoltage (Loss of Voltage)				
a. Bus Undervoltage	3	SR 3.3.5.1 SR 3.3.5.2	≥ 5994 V and ≤ 6006 V	≥ 5967.6 V
b. Time Delay	2	SR 3.3.5.3	≥ 0.73 sec and ≤ 0.77 sec	≥ 0.58 sec and ≤ 0.94 sec
2. 6.9 kV Emergency Bus Undervoltage (Degraded Voltage)				
a. Bus Undervoltage	3	SR 3.3.5.1 SR 3.3.5.2	≥ 6593.4 V and ≤ 6606.6 V	≥ 6570 V
b. Time Delay	2	SR 3.3.5.3	≥ 9.73 sec and ≤ 10.27 sec	≥ 9.42 sec and ≤ 10.49 sec
3. Diesel Generator Start	2	SR 3.3.5.1 SR 3.3.5.2	≥ 4733.4 V and ≤ 4926.6 V with an internal time delay of ≥ 0.46 sec and ≤ 0.54 sec	≥ 2295.6 V with an internal time delay of 0.56 sec at zero volts
4. Load Shed	4	SR 3.3.5.1 SR 3.3.5.2	≥ 4733.4 V and ≤ 4926.6 V with an internal time delay of ≥ 2.79 sec and ≤ 3.21 sec	≥ 2295.6 V with an internal time delay of ≤ 3.3 sec at zero volts.
5. 6.9 kV Emergency Bus Undervoltage (Unbalanced Voltage)	3	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3	1.30 V at 2.95 sec (Permissive Alarm) 2.96 V at 9.95 sec (Lo) 18.13 V at 3.05 sec (High)	≤ 1.5 V at 3 sec (Permissive Alarm) ≤ 3.36 V at 10 sec (Lo) ≤ 20.0 V at 4 sec (High)

Watts Bar - Unit 2

3.3-53

Amendment 31



Corrective Actions

- TVA has entered this issue into our corrective action program (CAP) .
- Initial investigation appears to be that the incorrect values were due to transcription errors.
- TVA reviewed the other instrument values in the LAR for all three sites and determined they are correct as approved by the NRC.
- Corrective Actions to prevent recurrence will be evaluated as part of the CAP.



Schedule Milestones

- October 10, 2019 - LAR Pre-Submittal Telecon with NRC
- October 18, 2019 - LAR Submittal with a requested NRC expedited approval date
- December 13, 2019 - NRC Approval of LAR (Requested)
- December 25, 2019 - End date for implementation of the LAR

Closing Remarks

- The proposed expedited LAR will avoid the implementation of a nonconservative TS
- The proposed LAR will allow the WBN proposed TS changes to be implemented concurrent with WBN License Amendments 128/31.
- TVA has performed an extent of condition review and determined that the other instrument setpoint values are correct.
- TVA is requesting an expedited LAR license amendment to revise the incorrect instrument values.

