Sequoyah Nuclear Plant

Pre-Submittal Conference for Proposed License Amendment Request Regarding the Change to the Sequoyah Nuclear Plant Technical Specifications 3.8.1 “AC Sources – Operating” and 3.8.2 “AC Sources – Shutdown”

February 8, 2024

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Introduction

- Tennessee Valley Authority (TVA) is submitting a license amendment request (LAR) for Renewed Facility Operating License Nos. DPR-77 and DPR-79 for Sequoyah Nuclear Plant (SQN), Units 1 and 2,
  - to revise Technical Specification (TS) 3.8.1, “AC Sources – Operating,” to delete Surveillance Requirement (SR) 3.8.1.8, and
  - to revise TS 3.8.2 “AC Sources – Shutdown,” to delete the reference to SR 3.8.1.8

- This proposed license amendment would delete the requirement for verifying the automatic and manual transfer of the power supply to each 6.9 kilovolt (kV) Unit Board from the normal supply to the alternate supply.

System Design and Operation

- SQN Unit 1 is connected into the 500-kV transmission system and Unit 2 is connected into the 161-kV transmission system. Preferred electric power to the safety related load groups is supplied by two physically and electrically independent circuits from the Sequoyah 161-kV or 500-kV switchyard through separate transformers to the onsite electrical distribution system.

- The intent of General Design Criterion (GDC) 17 has been implemented in the design of SQN's offsite (preferred) power system by providing two physically and functionally independent circuits for energizing safety related load groups. These two independent circuits consist of various equipment including main bank transformers (MBTs), unit station service transformers (USSTs) and common station service transformers (CSSTs).

- Under normal configuration, upon a trip of a main generator, the associated main generator circuit breaker (GCB) opens and offsite (preferred) power is supplied from the 161-kV switchyard (for Unit 2) or from the 500-kV switchyard (for Unit 1) through the USSTs to the safety related load groups.

Background of the Existing Surveillance Requirement

- In May 2012, to support plant operations with the planned installation of new GCBs in the isolated phase bus between the main generator and main bank transformer, along with planned replacements of the USSTs, TVA submitted a LAR to add the surveillance now described in SR 3.8.1.8. This surveillance requirement currently states “verify automatic and manual transfer of the power supply to each 6.9 kV Unit Board from the normal supply to the alternate supply.” [ML12146A385]

- In October 2012, NRC approved the May 2012 LAR. [ML12286A078]

- TVA then installed and connected the safety system to the new GCBs and replaced the USSTs in 2012 (Unit 2) and in 2013 (Unit 1).

- Note that the surveillance added to the SQN TS was originally designated as SR 4.8.1.1.1b. It was renumbered in 2015 as SR 3.8.1.8 during the SQN Improved Technical Specifications project.

Reconsideration of the Existing Surveillance Requirement

- As a result of a non-cited violation (NCV) received in 2019 [ML19115A223], TVA reviewed the present (post-modification) system design and determined that the power supply transfers verified in SR 3.8.1.8 are not required to maintain connections to offsite power during an accident.

- TVA now proposes to remove the surveillance requirement described in SQN SR 3.8.1.8.

Reason for the Proposed Change

- NCV Evaluation

  During a Design Bases Assurance Inspection (DBAI) in 2019, an NRC inspector communicated that the existing SR 3.8.1.8 required an analysis of a bus transfer simulating a GCB failure during an accident. Upon further review, it was determined that there was no supporting analysis for this scenario. This was documented by NRC as a NCV. [ML19115A223].

  During the resolution of this NCV, TVA determined that GCB operation can be credited during accident conditions. The operation of the GCB serves to connect a preferred power circuit through the USSTs. Therefore, SR 3.8.1.8 should be removed, as no automatic or manual transfer from the USSTs to the CSSTs is required during accident conditions.

- Offsite Power Configurations

  By retaining an automatic transfer from the USSTs to CSSTs as a requirement for operability, several possible offsite power configurations that comply with GDC 17 cannot be utilized.

Proposed Change to SQN Technical Specification 3.8.1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	~~NOTES~~ ~~1. For the 1A, 1B, 1C, and 1D 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.~~ ~~2. Transfer capability is only required to be met for 6.9 kV Unit Boards that require normal and alternate power supplies.~~ ~~Verify automatic and manual transfer of the power supply to each 6.9 kV Unit Board from the normal supply to the alternate supply.~~ Not used.	~~In accordance with the Surveillance Frequency Control Program~~

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Proposed Change to SQN Technical Specification 3.8.2

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.2.1	----------NOTE---------- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, and SR 3.8.1.13 through SR 3.8.1.17. ----------	
	For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources - Operating," except ~~SR 3.8.1.8,~~ SR 3.8.1.12, SR 3.8.1.18, and SR 3.8.1.19, are applicable.	In accordance with applicable SRs

Technical Evaluation

- Generator Circuit Breakers (GCBs): The NRC safety evaluation [ML12286A078] for the May 2012 LAR concluded that the GCBs now installed at SQN qualify as an immediate access offsite power circuit in accordance with GDC 17. The GCBs open on a main generator trip, thus isolating the main generator from the USSTs, which enables these transformers to be energized from the electrical power grid. In this scenario, the main bank transformers function as step down transformers, supplying electrical power from the grid to the USSTs and the connected electrical loads. The power supply transfers that are verified in SR 3.8.1.8 are not required in this scenario.

- Compliance with GDC 17 without SR 3.8.1.8: The offsite electrical power source for SQN consists of two physically independent circuits. The availability of these two physically independent circuits does not require the power supply transfers verified in SR 3.8.1.8.

Technical Evaluation (continued)

- 10 CFR 50.36(c)(3) describes surveillance requirements as
  "relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operations will be met."

  The verifications in SR 3.8.1.8 are not required to meet any of these items.

- Plant-Specific Confirmatory Analysis: An evaluation has been performed to assess the risk impact of removing SR 3.8.1.8 from the Unit 1 and Unit 2 SQN TS. The change in risk for removal of SR 3.8.1.8 was found to have a negligible impact to the Probabilistic Risk Assessment (PRA) model.

- Thus, the proposal to delete the surveillance described in SQN SR 3.8.1.8 is supported.

Regulatory Precedent

- The following Westinghouse-designed nuclear power plants do not have an SR for verifying transfer of AC power sources from the normal offsite circuit to an alternate offsite circuit.
  - Callaway
  - Ginna
  - Point Beach 1 and 2
  - Prairie Island 1 and 2
  - Surry 1 and 2
  - Summer
  - Vogtle 1 and 2
  - Wolf Creek

Schedule for Submittal

- February 8, 2024 – Pre-submittal teleconference with NRC
- March 28, 2024 – Submit LAR to NRC
- Request NRC approval by April 2025


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