Sequoyah Nuclear Plant

Pre-Submittal Conference for Proposed License Amendment Request Regarding a Revision to the Sequoyah Nuclear Plant Fuel Handling Accident Analysis, Deletion of Technical Specification 3.9.4 "Containment Penetrations," and Modification of Technical Specification 3.3.6 "Containment Ventilation Isolation Instrumentation"

July 16, 2024

TVA TENNESSEE VALLEY AUTHORITY

Agenda

- Introduction
- Reason for the Proposed Changes
- Proposed Changes to Technical Specifications 3.9.4 and 3.3.6
- Technical Evaluation
- Regulatory Precedent
- Schedule for Submittal

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.

- Approval is requested for three related items.

    - Deletion of Technical Specification (TS) 3.9.4, “Containment Penetrations.”

    - Revision of TS 3.3.6 “Containment Ventilation Isolation Instrumentation” to delete CONDITION B and SPECIFIED CONDITION (a) in Table 3.3.6-1.

    - A revised Fuel Handling Accident (FHA) dose analysis.

Reason for the Proposed Changes

- The basis for TS 3.9.4, for TS 3.3.6 CONDITION B, and for SPECIFIED CONDITION (a) in Table 3.3.6-1 was a requirement for containment penetration closure during movement of irradiated fuel assemblies within containment to ensure that a release of fission product radioactivity within containment would be restricted to within regulatory limits.
  - Containment closure = all potential escape paths are closed or capable of being closed.
  - This requirement was based on the previous FHA dose analysis.

- The new FHA dose analysis does not credit containment penetration closure.

- Note that SQN TS 3.9.8 remains in place to define the minimum decay time before fuel movement begins, consistent with the FHA dose analysis.

- Deletion of the TS requirement for containment penetration closure during movement of irradiated fuel assemblies will facilitate a more efficient refueling outage schedule. For example, this will aid in the use of ice-making equipment that is being upgraded to support compliance with TS 3.6.12 “Ice Bed.”

Proposed Change to SQN Technical Specification 3.9.4

3.9 REFUELING OPERATIONS

3.9.4 ~~Containment Penetrations~~ Deleted

~~LCO 3.9.4~~ ~~The containment penetrations shall be in the following status:~~

~~a. The equipment hatch is closed and held in place by four bolts;~~

~~b. One door in each air lock is capable of being closed; and~~

~~c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere is either:~~

~~1. Closed by a manual or automatic isolation valve, blind flange, or equivalent; or~~

~~2. Capable of being closed by an OPERABLE automatic Containment Ventilation Isolation valve.~~

~~NOTE~~
~~Penetration flow path(s) providing direct access from the containment atmosphere that transverse and terminate in the Auxiliary Building Secondary Containment Enclosure may be unisolated under administrative controls.~~

~~APPLICABILITY:~~ ~~3.9.4.a. Containment Building Equipment Hatch - During movement of recently irradiated fuel assemblies within containment.~~
~~3.9.4.b. and c. Containment Building Airlock Doors and Penetrations - During movement of irradiated fuel assemblies within containment.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. Containment equipment hatch not in required status during movement of recently irradiated fuel assemblies.~~	~~A.1 Suspend movement of recently irradiated fuel assemblies within containment.~~	~~Immediately~~
~~B. One or more containment penetrations not in required status during movement of irradiated fuel assemblies.~~	~~B.1 Suspend movement of irradiated fuel assemblies within containment.~~	~~Immediately~~

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Proposed Change to SQN Technical Specification 3.9.4 (continued)

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.9.4.1~~	~~Verify each required containment penetration is in the required status.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.9.4.2~~	~~NOTE~~ ~~Not required to be met for containment ventilation isolation valve(s) in penetrations closed to comply with LCO 3.9.4.c.1.~~	
	~~Verify each required containment ventilation isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~

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Proposed Change to SQN Technical Specification 3.3.6

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. NOTE Only applicable during movement of irradiated fuel assemblies within containment.	B.1 Place and maintain containment purge supply and exhaust valves in closed position.	Immediately
	OR	
One or more Functions with one or more manual or automatic actuation trains inoperable. OR One required radiation monitoring channel inoperable.	B.2 Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment purge supply and exhaust isolation valves made inoperable by isolation instrumentation.	Immediately

Deleted

Proposed Change to SQN Technical Specification 3.3.6 (continued)

Table 3.3.6-1 (page 1 of 1)
Containment Ventilation Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1,2,3,4~~, (a)~~	2	SR 3.3.6.6	NA
2. Automatic Actuation				NA
a. Logic	1,2,3,4	2 trains	SR 3.3.6.2	NA
b. Relays	1,2,3,4~~, (a)~~	2 trains	SR 3.3.6.3 SR 3.3.6.5	NA
3. Containment Purge Air Radiation Monitor	1,2,3,4	1	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7 SR 3.3.6.8	≤ 8.5 x 10^{-3} µCi/cc
	~~(a)~~	~~2~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.4~~ ~~SR 3.3.6.7~~	~~≤ 8.5 x 10^{-3} µCi/cc~~
4. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

~~(a)~~ ~~During movement of irradiated fuel assemblies within containment.~~

Technical Evaluation

FHA Dose Analysis

- Original selective implementation of alternate source term (AST) methodology for the FHA was the last time the analysis was submitted (NRC Safety Evaluation dated October 28, 2003 - ML033030206)
- Revised analysis utilizes RG 1.183 R0 consistent with original approval
- A table comparing FHA input parameters in the new analysis to the 2003 analysis will be provided

Technical Evaluation (continued)

FHA Dose Analysis (continued)

- All inputs and assumptions from 2003 analysis remain the same except as follows:
    - Decay time revised from 100 hrs to 70 hrs
    - X/Qs were updated
        - Determined using PAVAN and ARCON96
        - Updated MET data from 1970's to 2004-2013
        - Consistent with RG 1.145, RG 1.194, and RIS 2006-04
        - Release point parameters will be provided
    - Removed TPBARs from source term

Regulatory Precedent

- TVA submitted a license amendment request for Watts Bar Nuclear Plant, Unit 1, to delete TS 3.9.4, "Containment Penetrations," and to modify TS 3.3.6 "Containment Vent Isolation Instrumentation," to eliminate the requirements for containment penetration closure during movement of irradiated fuel assemblies within containment, as part of selective implementation of AST for the FHA (Letter from TVA to NRC, *Watts Bar Nuclear Plant Unit 1 - Application to Allow Selective Implementation of Alternate Source Term to Analyze the Dose Consequences Associated with Fuel Handling Accidents (WBN-TS-11-19)*, dated June 13, 2012 [ML12171A317]).
- The NRC approved that request in a letter from the NRC to TVA, *Issuance of Amendment to Allow Selective Implementation of Alternate Source Term to Analyze the Dose Consequences Associated with Fuel-Handling Accidents*, dated June 19, 2013 [ML13141A564].
- The scope of that precedent is the same as the scope of this request.

Schedule for Submittal

- July 16, 2024 – Pre-submittal teleconference with NRC
- August 30, 2024 – Submit LAR to NRC
- Request NRC approval by September 2025


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