Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-20-011

June 16, 2020

10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Sequoyah Nuclear Plant, Units 1 and 2
Renewed Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Subject: **Application to Modify the Sequoyah Nuclear Plant Units 1 and 2 Technical Specification 3.3.3-1 "Post Accident Monitoring Instrumentation," (SQN-TS-2020-02)**

Reference: NRC Letter to TVA, "Sequoyah Nuclear Plant, Unit 2 - Issuance of Exigent Amendment No. 338 Re: Technical Specification Change – Reactor Vessel Level Instrument Inoperable (EPID L-2019-LLA-0149)," dated July 18, 2019 (ML19196A221)

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.90, "Application for amendment of license, construction permit, or early site permit," Tennessee Valley Authority (TVA) is submitting for Nuclear Regulatory Commission (NRC) approval, a request for an amendment to Renewed Facility Operating License (RFOL) Nos. DPR-77 and DPR-79 for the Sequoyah Nuclear Plant (SQN), Units 1 and 2. This proposed license amendment revises Technical Specification (TS) Table 3.3.3-1, "Post Accident Monitoring Instrumentation," with respect to the required actions and completion times for Functions 15 a, b, and c, "Reactor Vessel Level Instrumentation." The proposed license amendment also deletes obsolete requirements in the SQN Unit 2 TS and RFOL from the referenced letter. These proposed changes revise the required actions and completion times for Functions 15 a, b, and c to be consistent with those contained in NUREG-1431, Standard Technical Specifications, Westinghouse Plants, Revision 4.

The enclosure to this letter provides a description of the proposed changes, a technical evaluation of the proposed changes, a regulatory evaluation, and a no significant hazards and environmental considerations. Attachment 1 to the enclosure provides the existing SQN Unit 1 and 2 TS pages (and Unit 2 RFOL) marked-up to show the proposed changes. Attachment 2 to the enclosure provides the proposed SQN Unit 1 and 2 TS pages (and Unit 2 RFOL) retyped to show the changes incorporated. Attachment 3 provides a markup of the SQN Unit 1 and 2 TS Bases. Changes to the existing TS Bases are provided for information only and will be implemented under the TS Bases Control Program.

TVA requests approval of the proposed license amendment by one year from the date of this letter, with the amendment being implemented within 30 days.

TVA determined that there are no significant hazards consideration associated with the proposed change and that the TS change qualifies for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosure to the Tennessee State Department of Environment and Conservation.

There are no new regulatory commitments associated with this submittal. Please address any questions regarding this request to Gordon R. Williams, Senior Manager, Fleet Licensing (Acting), at (423) 751-2687.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 16th day of June 2020.

Respectfully,

James Barstow
Vice President, Nuclear Regulatory Affairs & Support Services

Enclosure:

Evaluation of the Proposed Change

cc (Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Sequoyah Nuclear Plant
NRC Project Manager – Sequoyah Nuclear Plant
Director, Division of Radiological Health - Tennessee State Department of Environment and Conservation

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT, UNIT 1 and 2

EVALUATION OF PROPOSED CHANGE

Subject: **Application to Modify the Sequoyah Nuclear Plant Units 1 and 2 Technical Specification 3.3.3-1 "Post Accident Monitoring Instrumentation," (SQN-TS-2020-02)**

Contents

ATTACHMENTS
1. Proposed TS and RFOL Changes (Mark-Ups) for SQN Unit 1 and 2
2. Proposed TS and RFOL Changes (Final Typed) for SQN Unit 1 and 2
3. Proposed TS Bases Changes (Mark-Ups) for SQN Unit 1 and 2

1.0 SUMMARY DESCRIPTION

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.90, "Application for amendment of license, construction permit, or early site permit," Tennessee Valley Authority (TVA) is requesting an amendment to the Sequoyah Nuclear Plant (SQN), Units 1 and 2 Technical Specifications (TS), and the SQN Unit 2 Renewed Facility Operating License (RFOL). The proposed license amendment request (LAR) submits a change to SQN Units 1 and 2 TS Table 3.3.3-1, Function 15, "Reactor Vessel Level Instrumentation" for Nuclear Regulatory Commission (NRC) approval. The proposed LAR changes the Condition referenced from Required Action G.1 column from "H" to "I." This will permit the establishment of alternate means of verifying post-accident core cooling with two channels inoperable, rather than requiring a plant shutdown. Additionally, this proposed change deletes the changes previously made in exigent Amendment 338 for SQN Unit 2 (Reference 1), which are now obsolete.

2.0 DETAILED DESCRIPTION

2.1 PROPOSED TECHNICAL SPECIFICATION CHANGE AND LICENSE CONDITION

The proposed change revises TS 3.3.3, Table 3.3.3-1, Function 15 a, b, and c for SQN Units 1 and 2 as follows.

- Changes the Condition referenced from Required Action G.1 from "H" (Be in Mode 3 in 6 hours AND Be in Mode 4 in 12 hours) to "I" (Initiate action in accordance with Specification 5.6.5).

For SQN Unit 2 only, the following changes are proposed.

- Delete Note (g) from TS Table 3.3.3-1 Function 15.c.
- Delete License Condition (26) from the RFOL.

Attachment 1 to this enclosure provides the existing SQN Units 1 and 2 TS pages (and Unit 2 RFOL) marked up to show the proposed changes. Attachment 2 provides the re-typed TS and RFOL pages reflecting the proposed changes. Attachment 3 provides a markup of the Unit 1 and 2 TS Bases for information only. Changes to the existing TS Bases are implemented under the TS Bases Control Program.

2.2 CONDITION INTENDED TO RESOLVE

On July 14, 2019, TVA submitted an exigent one-time LAR to avoid an unwarranted SQN Unit 2 shutdown due to having two inoperable channels of the Reactor Vessel Level Instrumentation System (RVLIS) – Upper Range. This exigent request was approved by the NRC in Reference 1. Although Operability of these two channels has been restored, this LAR is designed to preclude unwarranted future plant shutdowns due to potential RVLIS channel inoperabilities. This will make SQN

consistent with similar TS requirements in NUREG-1431, Revision 4, Standard Technical Specifications (STS).[1]

2.3 JUSTIFICATION FOR THE CHANGE

STS 3.3.3 (Post Accident Monitoring (PAM) Instrumentation), Condition C requires that with one or more Functions with two required channels inoperable, one channel must be restored to Operable status within seven days; otherwise the Condition referenced in Table 3.3.3-1 is entered immediately, per Required Action D.1. STS Table 3.3.3-1 Function 6, “Reactor Vessel Water Level,” states that Condition F applies under Required Action D.1. Required Action F.1 of Condition F states to initiate action in accordance with Specification 5.6.5 (immediately)

STS 5.6.5 in turn requires

> When a report is required by Condition B or F of LCO 3.3.[3], "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

The purpose of a shutdown Action is to provide an acceptable limit on operation in the Applicable Modes when required equipment is inoperable. The proposed change extends the operating allowance for the RVLIS Function provided the required report is sent to the NRC. This is accomplished by changing the Table 3.3.3-1 Condition Referenced from Required Action G.1 for the RVLIS Functions from “H” to “I” (which correlates to STS 3.3.3, Conditions E and F, respectively). The proposed change is consistent with the industry standard operating limits in the STS for this equipment. The change is acceptable because it takes into consideration the relatively low likelihood of an event that would require the use of the RVLIS Function, the availability of alternate means to obtain the information, and the fact that the indication is passive and does not provide any automatic protective actions. In addition, the proposed change reduces the potential for a unit transient (i.e., reduces risk) introduced by a plant shutdown and restart due solely to inoperable indicating instruments that provide no automatic protective features. In the case of the RVLIS Function, where the operating time may be extended beyond the seven days, the additional requirement to file a report with the NRC must be met. The required report must outline the pre-planned alternate method of monitoring the Function, the cause of the inoperability, and the plans and schedule for restoring the inoperable channel(s) of the Function to Operable status. The additional NRC reporting requirement associated with extending the operating time beyond seven days for the RVLIS Function assures that adequate regulatory control is maintained.

Regarding the one-time changes resulting from Reference 1, the two RVLIS Upper Range channels have been restored to operability, and the Cycle 23 time limitations of Table 3.3.3-1 Note (g) and RFOL Condition (26) have expired. Therefore, deletion of these previous changes is administrative in nature.

[1] License Amendment 334 and 327 approved the conversion of the SQN Unit 1 and 2 custom technical specifications (CTS) to the improved STS (ML15238B460). For the RVLIS functions, TVA elected at that time to retain the CTS required actions rather than pursue a less restrictive change.

3.0 TECHNICAL EVALUATION

3.1 SYSTEM DESCRIPTION

SQN has two channels for each of the three RVLIS Functions which are required to be operable by TS 3.3.3. RVLIS uses differential pressure (d/p) transmitters to measure reactor vessel level or relative void content of the reactor coolant system (RCS), and includes automatic compensation for potential temperature variations of the sensing lines. Each channel is independent/redundant. Essential information is displayed in the main control room (MCR) for use by Operations. Figure 1 shows a simplified diagram of RVLIS.

The RVLIS channels measure the pressure difference from the bottom of the reactor vessel to the hot legs and from the hot legs to the top of the vessel. These transmitters have three different ranges to cover differing level ranges and plant conditions as follows.

- Reactor Vessel Dynamic Range (Function 15a) — Provides indication from 0% to 120%. This range measures the reactor core and internals pressure drop for any combination of operating reactor coolant pumps (RCPs) and provides indication of the relative RCS void content (based on the density of the circulating reactor coolant). This instrument monitors coolant conditions during forced flow conditions.
- Reactor Vessel Lower Range (Function 15b) — Provides indication from 0% to 70%. This range provides an indication of reactor vessel level from the bottom of the reactor to the center of the hot legs. This indication is only used in the Emergency Operating Procedures (EOPs) when the RCPs are stopped.
- Reactor Vessel Upper Range (Function 15c) — Provides indication from 64% to 104%. This range provides an indication of reactor vessel level from the center of the hot leg pipes to the top of the reactor vessel head. This indication is only used in the EOPs when the RCPs are stopped.

RVLIS is a Category 1, Type B PAM variable. Unlike PAM Type A variables, Type B variables are not used by the MCR staff to perform manual actions required for safety systems to accomplish their functions for design basis events. As such, RVLIS is not credited in any of the SQN Updated Final Safety Analysis Report (UFSAR) Chapter 15 safety analyses.

The following safety functions are performed by RVLIS.

- Indicate the formation of voiding in the RCS during forced flow conditions. The Dynamic Range channels perform this function.

- Monitor the adequacy of core cooling based on reactor vessel water level with the RCPs stopped. The Lower Range channels perform this function.

- Indicate the presence and measure the size of a steam void or non-condensable gas bubble in the reactor vessel during natural circulation conditions in the RCS. The Upper Range channels perform this function.

3.2 OTHER PAM INSTRUMENTATION AVAILABLE

As discussed in Section 2.3 to this enclosure, one of the critical distinctions between entering Condition I versus H is the availability of alternate means of monitoring the inoperable PAM instrument Function. In the event that one or more of the three RVLIS Functions were inoperable, other TS 3.3.3 PAM instrumentation can be utilized to provide diverse information for verifying adequate inventory for core cooling exists.

Core Exit Thermocouples (CETs) – CETs are provided to verify that the core is being adequately cooled, verify that RCS remains subcooled, and for monitoring the potential for fuel clad breach. The channels provide indication over a range of 0°F to 2300°F.

RCS Subcooling Margin Monitor - RCS subcooling instrumentation is provided for Safety Injection termination or re-initiation and maintenance of subcooling during depressurization. The channels provide indication over a range of 200°F subcooled to 35°F superheat.

Pressurizer Level (Wide Range) - Pressurizer Level (Wide Range) is provided to monitor RCS inventory to confirm that the plant is in a safe shutdown condition.

3.3 SAFETY ASSESSMENT

The following sections describe the specific roles each RVLIS Function plays during design basis plant events and conditions related to Radiological Emergency Plan (REP) classification, and what specific alternate means of monitoring can be employed with a loss of the RVLIS Function.

3.3.1 RVLIS Dynamic Range

The RVLIS Dynamic Range measures the reactor core and internals pressure drop compared to a single-phase pressure drop, which provides an approximate indication of void content or density of the circulating fluid. The following events credit RVLIS Dynamic Range.

1. Degraded Core Cooling - RVLIS Dynamic Range is used in the emergency operating procedures (EOPs) to distinguish between degraded core cooling and saturated core cooling (if RCS subcooling is < 40°F and at least one

RCP is running). If RVLIS Dynamic Range is less than the applicable value, a degraded core cooling condition is diagnosed.

2. Shutdown Loss-of-Coolant Accident (LOCA) - If any RCP is running, RVLIS Dynamic Range is used to monitor RCS inventory and to determine if emergency core cooling system (ECCS) flow is adequate.

3. Pressurized Thermal Shock - If any RCP is running, RVLIS Dynamic Range is used to monitor RCS inventory and to determine if ECCS can be terminated, and Cold Leg Accumulators isolated.

Alternate Means of Monitoring

The following alternative means of monitoring are available for the events described above:

1. Degraded Core Cooling - If RVLIS Dynamic Range is not available, CETs provide a valid indication for a temperature rise if core cooling is degraded. Additionally, stopping RCPs when RCS subcooling is < 40°F following a reactor trip would allow use of RVLIS Lower Range to monitor core cooling.

2. Shutdown LOCA - If RVLIS Dynamic Range is not available, the RCPs could be pre-emptively stopped, to allow use of RVLIS Upper and Lower Ranges to monitor RCS inventory. Pressurizer Level indication in conjunction with adequate RCS Subcooling Margin instrumentation would be an acceptable alternative.

3. Pressurized Thermal Shock - If RVLIS Dynamic Range is not available, the RCPs could be pre-emptively stopped to allow use of RVLIS Upper and Lower Ranges to monitor RCS inventory. Also, Pressurizer Level in conjunction with adequate RCS Subcooling Margin instrumentation could be used as an alternative method.

3.3.2 RVLIS Lower Range

RVLIS Lower Range provides an indication of reactor vessel level from the bottom of the reactor vessel to the hot legs when no RCPs are running. The following events credit RVLIS Lower Range:

1. Inadequate Core Cooling - A RVLIS Lower Range level of ≤ 42% with no RCPs running is an indication of the approach to inadequate core cooling credited in the EOPs. This is not expected for any accidents within the SQN design basis, but it is used for emergency classification in the REP for assessing a potential loss of fuel clad barrier and containment barrier. This corresponds to a point 3.5 feet above the bottom of the core with zero void fraction including allowances for instrument uncertainties.

2. Design Basis Accident LOCA - Unexpected variations in RVLIS Lower Range indication is one of the key indications for diagnosing a long-term degraded core cooling condition following a large break LOCA. Westinghouse analyses

indicate that certain break locations could produce long-term degraded cooling due to inadequate venting of steam produced in the core.

3. Shutdown LOCA - If no RCP is running, RVLIS Lower Range is used to monitor RCS inventory, and to determine if ECCS flow is adequate.

4. Pressurized Thermal Shock - If no RCP is running, RVLIS Lower Range is used to monitor RCS inventory and to determine if ECCS can be terminated, and Cold Leg Accumulators isolated.

Alternate Means of Monitoring

The following alternative means of monitoring are available for the events described above.

1. Inadequate Core Cooling - With a complete loss of the RVLIS Lower Range function, CET indication can be used for EOP decision-making. The Dynamic Range instruments can be used if the RCPs can be re-started.

2. Design Basis Accident LOCA - CET indications rising unexpectedly several hours after a LOCA is an alternate indication which could diagnose a long-term degraded cooling condition and be used to initiate mitigating actions.

3. Shutdown LOCA - If RCPs are stopped and RVLIS Lower Range indication is not available, RVLIS Upper Range can provide an alternate indication. Pressurizer Level indication in conjunction with RCS Subcooling Margin instrumentation also provides an acceptable alternative.

4. Pressurized Thermal Shock - If RVLIS Lower Range is not available, the RCPs could be started to allow use of RVLIS Dynamic Range to monitor RCS inventory. If the RCPs cannot be restarted, RVLIS Upper Range indication could be used if RCS level were increased sufficiently. Alternatively, Pressurizer Level indication in conjunction with adequate RCS Subcooling Margin instrumentation could be used as an alternate indication.

3.3.3 RVLIS Upper Range

RVLIS Upper Range provides a measurement of reactor vessel level above the center of the hot leg pipes that is functional only when the RCP in the loop with the hot leg connection is not operating. The following events/conditions credit RVLIS Upper Range.

1. Natural Circulation Cooldown – Detection of significant upper head voiding via the RVLIS Upper Range instrumentation is used in the EOPs to alert the operators to raise RCS pressure, if possible, to collapse the voids and continue the natural circulation cooldown.

2. RCP Restart - RVLIS Upper Range monitors for the presence of steam voids in the reactor vessel head prior to restarting an RCP, alerting operators to

take actions to mitigate the effects of void collapse (namely establishing a high pressurizer level and greater subcooling).

Alternate Means of Monitoring

With RVLIS Upper Range level channels unavailable, the following alternate methods are available to provide for determination of core cooling.

1. Natural Circulation Cooldown – Unexpected changes in Pressurizer Level indication is an alternative way to diagnose void presence. SQN also has a proceduralized means to perform a natural circulation cooldown with a steam void in the reactor vessel that does not rely on RVLIS Upper Range.

2. RCP Restart - With both trains of RVLIS Upper Level instrumentation inoperable, unexpected changes in Pressurizer Level indication are an alternative way to diagnose void presence.

4.0 REGULATORY EVALUATION

4.1 APPLICABLE REGULATORY REQUIREMENTS/CRITERIA

NUREG-0737, II.F.2 – Instrumentation for detection of inadequate core cooling

Licensees shall provide a description of any additional instrumentation or controls (primary or backup) proposed for the plant to supplement existing instrumentation (including primary coolant saturation monitors) in order to provide an unambiguous, easy-to-interpret indication of inadequate core cooling (ICC). A description of the functional design requirements for the system shall also be included. A description of the procedures to be used with the proposed equipment, the analysis used in developing these procedures, and a schedule for installing the equipment shall be provided.

4.1.1 General Design Criteria

The General Design Criteria (GDC) contained in Appendix A of 10 CFR 50 establish minimum requirements for the principal design criteria for water-cooled nuclear power plants. Conformance with the GDC is described in Section 3.1.2 of the SQN dual-unit UFSAR.

The relevant GDC are described below.

Criterion 13 - Instrumentation and Control

Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.

4.2 PRECEDENT

The most recent precedent is for the previously described exigent License Amendment (Amendment 338) issued to SQN Unit 2 on July 18, 2019 (Reference 1). The Safety Evaluation to that amendment acknowledged the availability of alternate means to verify adequate reactor water inventory. The Safety Evaluation additionally stated:

> Moreover, the NRC staff also compared the guidance for TS format and content in NUREG-1431 to the Sequoyah Unit 2 TSs to inform this evaluation. The NRC staff noted that for a similar situation, NUREG-1431 would require immediate initiation of action in accordance with the plant's Post-Accident Monitoring Report but would allow continued plant operation.

Approval of this LAR would promote consistency with the STS.

An additional precedent was with the Beaver Valley conversion to Improved STS (License Amendments 278 and 161 for Unit 1 and 2, respectively) on February 21, 2007 (Reference 2). In this precedent, the Reactor Vessel Water Level PAM Function was similarly extended from a Required Action for plant shutdown to submitting the 14-day report to the NRC. Core exit temperatures and subcooling indications were accepted as alternate indication methods.

4.3 SIGNIFICANT HAZARDS CONSIDERATION

Tennessee Valley Authority (TVA) proposes to revise the Sequoyah Nuclear Plant (SQN) Technical Specifications (TS) 3.3.3, Table 3.3.3-1, Functions 15.a, 15.b, and 15.c (Reactor Vessel Level Instrumentation, Dynamic Range, Lower Range, and Upper Range, respectively) to reference Condition I versus Condition H. In this manner, an inoperable Reactor Vessel Level Instrumentation System (RVLIS) Function would result in submitting a report to the Nuclear Regulatory Commission (NRC) per TS 5.6.5, rather than compelling a plant shutdown.

Additionally, this License Amendment Request proposes to delete obsolete changes from SQN Unit 2 Exigent Amendment 338 (Reference 1). Reference 1 authorized plant operation during Cycle 23 with the RVLIS Upper Range Function inoperable, and established a License Condition that specified compensatory measures to be taken during that time. The RVLIS Upper Range Function has been restored to operability, and the time limitation of Cycle 23 has expired; therefore, there is no need to retain these provisions.

TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below.

1. *Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?*

   Response: No.

The proposed TS change would permit continued plant operation with any of the RVLIS Functions inoperable, but with alternate methods available for ensuring adequate post-accident reactor water inventory. RVLIS provides indication only that assists with operator decision-making during plant events. Loss of RVLIS indication is also not an accident initiator. With the RVLIS inoperable, operators are able to use alternate methods to take appropriate action to mitigate the consequences of an accident. Additionally, in situations where there is a potential for a void to form and the reactor coolant pumps (RCPs) are not operating, procedures provide for the establishment of natural circulation if it is not already occurring. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. *Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?*

   Response: No.

   RVLIS provides indication only that assists with operator decision-making during plant events. The proposed TS change would permit continued plant operation with any of the RVLIS Functions inoperable, but with alternate methods available for ensuring adequate post-accident reactor water inventory. No new operating conditions or modes are created by this proposed change. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. *Does the proposed change involve a significant reduction in a margin of safety?*

   Response: No.

   The proposed TS change would permit continued plant operation with any of the RVLIS Functions inoperable, but with alternate methods available for ensuring adequate post-accident reactor water inventory. RVLIS provides indication only and does not challenge safety systems' operations. Alternate methods are available to provide indication of adequate core cooling and other indications remain available to identify void formations. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, TVA concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

4.4 CONCLUSIONS

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

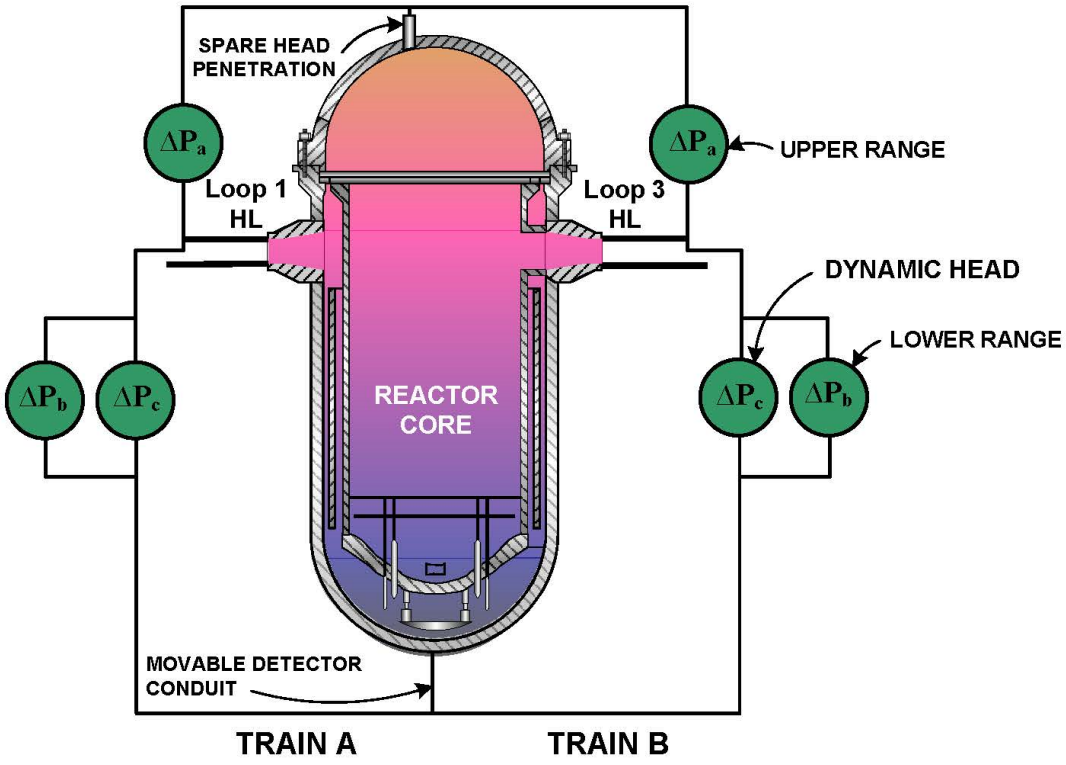
A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. NRC Letter to TVA, “Sequoyah Nuclear Plant, Unit 2 - Issuance of Exigent Amendment No. 338 Re: Technical Specification Change – Reactor Vessel Level Instrument Inoperable (EPID L-2019-LLA-0149),” dated July 18, 2019 (ML19196A221)

2. NRC Letter to FirstEnergy Nuclear Operating Company, “Beaver Valley Power Station, Unit Nos. 1 and 2 - Issuance of Amendment Re: The Conversion to the Improved Technical Specifications With Beyond-Scope Issues (TAC Nos. MC6285, MC6286, MC6579 - MC6612, MC6614 - MC6626, and MC6783 - MC6792),” dated February 21, 2007 (ML070160593)

Figure 1 – Simplified RVLIS System Layout



ATTACHMENT 1

Proposed TS and RFOL Changes (Mark-Ups) for SQN Units 1 and 2

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION G.1
15.	Reactor Vessel Level Instrumentation		
	a. Dynamic Range	2	~~H~~ I
	b. Lower Range	2	~~H~~ I
	c. Upper Range	2	~~H~~ I
16.	Containment Area Radiation Monitors		
	a. Upper Compartment	1	I
	b. Lower Compartment	1	I
17.	Neutron Flux		
	a. Source Range	2[(c)]	H
	b. Intermediate Range	2	H
18.	ERCW to AFW Valve Position		
	a. Motor Driven Pumps	2[(d)]	H
	b. Turbine Driven Pump	2[(d)]	H
19.	Containment Isolation Valve Position	2 per penetration flowpath[(e)(f)]	H

(c) Source Range outputs may be disabled above the P-6 (Block of Source Range Reactor Trip) setpoint.

(d) A channel consists of two valve position indicators associated with the in-series valves in a single suction line.

(e) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(f) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION G.1
15.	Reactor Vessel Level Instrumentation		
	a. Dynamic Range	2	~~H~~ I
	b. Lower Range	2	~~H~~ I
	c. Upper Range	2~~(g)~~	~~H~~ I
16.	Containment Area Radiation Monitors		
	a. Upper Compartment	1	I
	b. Lower Compartment	1	I
17.	Neutron Flux		
	a. Source Range	2(c)	H
	b. Intermediate Range	2	H
18.	ERCW to AFW Valve Position		
	a. Motor Driven Pumps	2(d)	H
	b. Turbine Driven Pump	2(d)	H
19.	Containment Isolation Valve Position	2 per penetration flowpath(e)(f)	H

(c) Source Range outputs may be disabled above the P-6 (Block of Source Range Reactor Trip) setpoint.

(d) A channel consists of two valve position indicators associated with the in-series valves in a single suction line.

(e) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(f) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

~~(g) The Upper Range Reactor Vessel Level Instrumentation is not required to be operable for the remainder of Cycle 23. If SQN Unit 2 enters Mode 5 prior to the Unit 2 Cycle 23 refueling outage, TVA will further validate the cause of the inoperability of the Upper Range Reactor Vessel Level Instrumentation and the Upper Range Reactor Vessel Level Instrumentation will be restored to OPERABLE status prior to plant startup.~~

~~Regardless of the above action, the Upper Range Reactor Vessel Level Instrumentation will be restored to OPERABLE status no later than the end of the Unit 2 Cycle 23 refueling outage.~~

ATTACHMENT 2

Proposed TS and RFOL Changes (Final Typed) for SQN Units 1 and 2

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION G.1
15.	Reactor Vessel Level Instrumentation		
	a. Dynamic Range	2	I
	b. Lower Range	2	I
	c. Upper Range	2	I
16.	Containment Area Radiation Monitors		
	a. Upper Compartment	1	I
	b. Lower Compartment	1	I
17.	Neutron Flux		
	a. Source Range	2[(c)]	H
	b. Intermediate Range	2	H
18.	ERCW to AFW Valve Position		
	a. Motor Driven Pumps	2[(d)]	H
	b. Turbine Driven Pump	2[(d)]	H
19.	Containment Isolation Valve Position	2 per penetration flowpath[(e)(f)]	H

(c) Source Range outputs may be disabled above the P-6 (Block of Source Range Reactor Trip) setpoint.

(d) A channel consists of two valve position indicators associated with the in-series valves in a single suction line.

(e) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(f) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION G.1
15.	Reactor Vessel Level Instrumentation		
	a. Dynamic Range	2	I
	b. Lower Range	2	I
	c. Upper Range	2	I
16.	Containment Area Radiation Monitors		
	a. Upper Compartment	1	I
	b. Lower Compartment	1	I
17.	Neutron Flux		
	a. Source Range	2[(c)]	H
	b. Intermediate Range	2	H
18.	ERCW to AFW Valve Position		
	a. Motor Driven Pumps	2[(d)]	H
	b. Turbine Driven Pump	2[(d)]	H
19.	Containment Isolation Valve Position	2 per penetration flowpath[(e)(f)]	H

(c) Source Range outputs may be disabled above the P-6 (Block of Source Range Reactor Trip) setpoint.

(d) A channel consists of two valve position indicators associated with the in-series valves in a single suction line.

(e) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(f) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

ATTACHMENT 3

Proposed TS Bases Changes (Mark-Ups) for SQN Units 1 and 2

BASES

ACTIONS (continued)

Alternate means of performing Reactor Vessel Level Instrumentation functions are also available.

I.1

Condition F requires initiation of alternate means of monitoring Containment Area Radiation. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. If these alternate means are used, the Required Action is not to shut down the unit but rather to follow the directions of Specification 5.6.5, in the Administrative Controls section of the TS. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM instrumentation Function in Table 3.3.3-1.

SR 3.3.3.1

Performance of the CHANNEL CHECK ensures that a gross instrumentation failure has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The high radiation instrumentation should be compared to similar unit instruments located throughout the unit.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including isolation, indication, and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

As specified in the SR, a CHANNEL CHECK is only required for those channels that are normally energized.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS (continued)

Alternate means of performing Reactor Vessel Level Instrumentation functions are also available.

I.1

Condition F requires initiation of alternate means of monitoring Containment Area Radiation. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. If these alternate means are used, the Required Action is not to shut down the unit but rather to follow the directions of Specification 5.6.5, in the Administrative Controls section of the TS. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM instrumentation Function in Table 3.3.3-1.

SR 3.3.3.1

Performance of the CHANNEL CHECK ensures that a gross instrumentation failure has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The high radiation instrumentation should be compared to similar unit instruments located throughout the unit.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including isolation, indication, and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

As specified in the SR, a CHANNEL CHECK is only required for those channels that are normally energized.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.