Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379-2000

February 13, 1998

TVA-SQN-TS-97-07 10 CFR 50.90

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

Gentlemen:

In the Matter of) Docket Nos. 50-327
Tennessee Valley Authority) 50-328

SEQUOYAH NUCLEAR PLANT (SQN) - UNITS 1 AND 2 - TECHNICAL SPECIFICATION (TS) CHANGE NO 97-07, "REVISION OF MAIN STEAM ISOLATION VALVE REQUIREMENTS"

In accordance with the provisions of 10 CFR 50.4 and 50.90, TVA is submitting a request for an amendment to SQN's Licenses DPR-77 and 79 to change the TSs for Units 1 and 2. The proposed change will revise the TS requirements for main steam isolation valves (MSIVs). TVA will incorporate MSIV requirements consistent with the Standard TS (NUREG-1431) in the proposed revision. TVA also adds testing requirements for the MSIVs that ensure the valves close on an actual or simulated automatic actuation signal. NRC approval of the proposed TS change request will complete one of two TS amendments identified by the Generic Letter 96-01 reviews.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the change is exempt from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). The SQN Plant Operations Review Committee and the SQN Nuclear Safety Review Board have reviewed this proposed change and determined that operation of SQN Units 1 and 2, in accordance with the

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proposed change, will not endanger the health and safety of the public. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter to the Tennessee State Department of Public Health.

Enclosure 1 to this letter provides the description and evaluation of the proposed change. This includes TVA's determination that the proposed change does not involve a significant hazards consideration, and is exempt from environmental review. Enclosure 2 contains copies of the appropriate TS pages from Units 1 and 2 marked-up to show the proposed change. Enclosure 3 forwards the revised TS pages for Units 1 and 2, which incorporate the proposed change.

TVA requests that the revised TS be made effective within 45 days of NRC approval. If you have any questions about this change, please telephone me at (423) 843-7170 or J. D. Smith at (423) 843-6672.

Sincerely,

Pedro Salas
Licensing and Industry Affairs Manager

Subscribed and sworn to before me
on this 13th day of February

Peggy M. Billingsley
Notary Public

My Commission Expires Oct 21, 1998

Enclosures
cc: See page 3

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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 and 2
DOCKET NOS 327 AND 328

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE TS 97-07
DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGE

I. DESCRIPTION OF THE PROPOSED CHANGE

TVA proposes a change to the current requirements for the main steam isolation valve [illegible] that will provide consistency with the standard (NUREG-1431). TVA will change the following ite

1. Revision of the Limiting Condition for Operation (LCO) statement to require four MSIVs instead of each MSIV;

2. Removal of the option to close the MSIV for the Mode 1 action;

3. Revision of the action for Mode 1 to only require shutdown to Mode 2;

4. Revision of the Modes 2 and 3 actions to allow one or more MSIVs to be inoperable;

5. Revision of the "a" item of the Modes 2 and 3 actions to provide the option to return the MSIV to operable status and addition of the time interval required for this item;

6. Addition of a new item to the actions for Modes 2 and 3 that will require the verification that the inoperable MSIV is closed once every seven days;

7. Addition of a new item to the actions for Modes 2 and 3 that allows separate entry into the actions for each MSIV; and

8. Addition of a new surveillance to verify closure of each MSIV on an actual or simulated automatic actuation signal once every 18 months.

II. REASON FOR THE PROPOSED CHANGE

TVA proposes the above described changes to provide consistency with NUREG-1431 and to provide a surveillance requirement that will ensure the main steam isolation function is adequately tested. Specific reasons for each of the above described changes are provided as follows:

1. Revision of the LCO statement from "each" to "four" provides consistency with NUREG-1431 and other specifications and clarifies the LCO scope. This change provides consistency with NUREG-1431.

2. In Mode 1, the closure of an MSIV is not practical because of the adverse effect on unit operation. Therefore, the action provision to close the valve has been eliminated. This change provides consistency with NUREG-1431.

3. When an MSIV can not be returned to operable status in Mode 1, a shutdown below Mode 2 is not necessary. Actions for Mode 2 provide other options for continued operation without requiring a shutdown to lower modes. This change provides consistency with NUREG-1431.

4. The provision to allow one or more MSIVs to be inoperable in Modes 2 and 3 provide flexibility for continued operation when appropriate actions are taken to maintain safety functions. Immediate shutdown in accordance with TS 3.0.3 is not reasonable with more than one MSIV inoperable and the appropriate actions satisfied. This change provides consistency with NUREG-1431.

5. In addition to the option to close the MSIV in Modes 2 and 3, this change provides for the return of the valve to operable status. Placing the valve in an operable condition without depending on action requirements is more desirable than isolating the path or initiating a shutdown to lower modes. A time interval has been added to ensure the establishment of the safety function within a reasonable time regardless of the method used. This change provides consistency with NUREG-1431.

6. The addition of the seven-day verification provides confidence that the MSIV is closed and that the safety function is maintained. This provision supports the potential to be in this condition for a prolonged period of time. This change provides consistency with NUREG-1431.

7. The provision for separate entry into the Modes 2 and 3 actions for each MSIV clarifies the acceptability for multiple valves to be inoperable provided appropriate actions are taken. It also clarifies the application of the action times such that each MSIV is treated individually for meeting the requirements of this action. This change provides consistency with NUREG-1431.

8. The addition of the actuation test is provided to ensure the entire main steam isolation function is properly tested. SQN reviews for Generic Letter 96-01 identified the lack of a TS requirement to test the end device for this function. This addition resolves this concern by requiring a test that verifies the MSIVs will close when an actuation signal from the solid state protection system is generated. This change provides consistency with NUREG-1431.

III. SAFETY ANALYSIS

The MSIVs are 32-inch globe valves that utilize air to open and spring to close. The MSIVs are provided to protect the plant during breaks in the steam line upstream and downstream of the valves and steam generator (S/G) tube rupture events. The closure of the MSIVs ensures that no more than one S/G will blowdown for the steam-line break events. This closure will minimize the positive reactivity effects of the reactor coolant system cooldown resulting from the blowdown and limit the pressure rise in containment for ruptures inside the containment structure. For S/G tube rupture events, the MSIVs serve to limit the total amount of primary coolant leakage by isolating the damaged S/G after pressure is reduced below shell side design pressure. The isolation of the steam line for this event does not require a fast operating MSIV. The MSIVs are capable of closing within the required actuation times assumed in the accident analysis.

TVA proposes these changes to the SQN TSs to provide consistency with NUREG-1431 requirements. These changes will not alter the design or operating characteristics of the main steam isolation function. Some changes will enhance the requirements that ensure the MSIVs are operable by adding requirements for verifications that the valves are closed every seven days when inoperable and a new surveillance that provides end-device testing to verify the actuation capability. Changes to the allowed action times for inoperable MSIVs in Modes 2 and 3 could result in longer periods of time when the valves are not fully functional. The remaining changes do not reduce the effectiveness of the MSIV operability requirements, but do

provide reasonable provisions consistent with the design of the MSIVs. Specific justifications for the impact of each of the changes described above is as follows:

1. The LCO statement change to four MSIVs does not change the intent or application of TS requirements. There is no adverse impact to nuclear safety as a result of this change.

2. The removal of the option to close the MSIV in Mode 1 does not reduce safety. The current action for an inoperable MSIV in Mode 1 provides for continued operation provided the valve is restored to operable status or closed. Closure of an MSIV in Mode 1 could initiate severe S/G level problems that may result in a reactor trip. This result is more likely at higher power levels, but could also result at low power levels and unnecessarily challenge safety systems. The proposed requirement to reduce power to Mode 2 or lower, where the MSIVs can be safely closed, will provide adequate actions to establish the safety function of the valves in a reasonable length of time. There is no adverse impact to nuclear safety as a result of this change.

3. The current SQN requirement for an inoperable MSIV in Mode 1, that can not be restored to operable status within four hours, is a shutdown to Mode 3 in six hours and Mode 4 in the following six hours. This action is not reasonable when indefinite operation in Modes 2 and 3 is allowed by this specification. The proposed requirement to shutdown to Mode 2 will provide the appropriate actions to continue shutdown to lower modes or establish conditions that ensure the safety function of the MSIVs. Therefore, the current requirement is overly restrictive and requires the shutdown of the unit to an operating condition that may not be necessary. There is no adverse impact to nuclear safety as a result of this change.

4. The allowance to have one or more MSIVs inoperable in Modes 2 and 3 is acceptable based on the proposed actions to allow continued operation in these modes. These actions ensure that the safety function of the MSIVs are established or requires a shutdown to Mode 4 where the MSIV safety function is not assumed in the accident analysis. If an MSIV continues to remain inoperable in Modes 2 and 3, the required actions will close and periodically verify that the valve is closed. In the closed position, the MSIV satisfies the safety function to isolate steam flow. If these actions are maintained for more than one MSIV, there will be no

reduction in safety. There is no adverse impact to nuclear safety as a result of this change.

5. The current SDC requirements for inoperable MSIVs in Modes 2 and 3 only provide actions to maintain the valves closed. This was based on the expectation that inoperable MSIVs would be closed when these modes were entered and did not specifically address valves becoming inoperable in these modes. The proposed changes to the Mode 1 actions provide a more appropriate action that would require entry into Mode 2 with the inoperable valves open. Therefore, this change will provide the option to continue efforts to return the valve to operable status or to close the valve.

   The addition of a four-hour time limit to establish operability or close the MSIV is provided because the valve may be open when entering this condition or become inoperable in these modes. This time ensures the establishment of the safety function in a reasonable length of time considering the low probability of an accident occurring during this time period that would require closure of the MSIVs. This time limit, coupled with the Mode 1 action times, could allow an MSIV to remain inoperable for up to 14 hours prior to being closed. This time interval is within the potential 16-hour period that could result with the current requirements where an inoperable MSIV in Mode 1 could remain open while making the transition to Mode 4. The proposed change could result in a 26-hour period of time that an inoperable MSIV can be open from Mode 1 to Mode 4. This increase in time is acceptable based on the additional provisions to close or return the MSIV to operable status and the value of limiting shutdown activities when safety functions can be established in higher operating modes.

   There is not a significant impact to nuclear safety as a result of this change.

6. The addition of this new action periodically verifies that the inoperable MSIVs are closed. This change ensures that inadvertent actions that could disable the safety function of the MSIVs do not go undetected for extended periods of time. This change enhances nuclear safety by providing additional verifications that ensure appropriate actions are in place for inoperable MSIVs. There is no adverse impact to nuclear safety as a result of this change.

7. The addition of the action for Modes 2 and 3 that allows separate entry for each MSIV is a clarification of the current practice at SQN. This type of action, where more than one component can be in the action, is treated this way unless specifically indicated otherwise. This addition to the specification does not change this philosophy for the general application of the SQN TSs. The addition is proposed for clarification and for consistency with NUREG-1431. There is no adverse impact to nuclear safety as a result of this change.

8. The new surveillance to verify the closure of the MSIVs on an actual or simulated automatic actuation signal provides additional assurance that the safety function of the valves is operable. Current requirements fail to ensure that the end device can be actuated from the solid state protection system. This addition will implement the necessary tests that properly ensure the operability of the MSIVs and meet the expectations of NRC's Generic Letter 96-01. This surveillance has a 18 month frequency to provide for testing in lower modes during refueling outages. In these modes, this specification does not apply and operating conditions are such that this testing will not unnecessarily challenge unit systems. This change is an enhancement of the current SQN surveillance requirements and nuclear safety is improved as a result of this change.

IV. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

TVA has concluded that operation of SQN Units 1 and 2, in accordance with the proposed change to the TSs, does not involve a significant hazards consideration. TVA's conclusion is based on its evaluation, in accordance with 10 CFR 50.91(a)(1), of the three standards set forth in 10 CFR 50.92(c).

A. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes provide enhancements and clarifications of the requirements for inoperable MSIVs and periodic testing provisions. These changes do not alter the safety functions of the MSIVs or the operating practices that govern their application to plant conditions. The actions for Modes 2 and 3 are revised such that a longer time could occur before an inoperable MSIV is closed or the unit is placed in a mode that does not apply. However, this increase will

not significantly impact the ability of the valves to mitigate an accident or affect the accident generation possibility. This is based on the low probability of an accident occurring that would require closure of the MSIVs and reasonable time intervals to transition to lower modes based on operating experience to reach the required modes in an orderly manner without challenging unit systems.

The MSIVs provide accident mitigation functions, but do not contribute to accident generation. The MSIV functions have not been altered by the proposed changes. Therefore, the proposed changes will not increase the probability of a previously evaluated accident. Based on the above discussions, the proposed changes will not significantly increase the consequences of an accident and in some instances they will enhance the safety functions.

B. **The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

The primary function of the MSIVs is to support accident mitigation and are not a significant contributor to events that could generate accidents. The main impact that could result from an inoperable MSIV is an inadvertent closure that results in a unit trip. This event is bounded by the accidents that are currently evaluated for SQN. Since the proposed change does not alter MSIV functions and the new surveillance will be performed in modes that will not challenge unit systems, the possibility of a new or different kind of accident is not created.

C. **The proposed amendment does not involve a significant reduction in a margin of safety.**

The proposed changes clarify and enhance the current SQN requirements for the MSIVs with one exception. This exception is the completion time added to the Modes 2 and 3 action that could be a negative impact to the margin of safety. This change could allow the MSIV safety function to be inoperable for a longer period of time. The overall effect of the proposed changes considering the additional end-device testing, periodic verification of inoperable MSIV closure, and removal of the action to allow MSIV closure in Mode 1, is considered a positive impact to the margin of safety. Therefore, there is not a significant reduction in the margin of safety.

V. ENVIRONMENTAL IMPACT CONSIDERATION

The proposed change does not involve a significant hazards consideration, a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or a significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.