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November 9, 1992

TS-SQN-92-15

10 CFR 50.90

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

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket Nos. 50-327
50-328

SEQUOYAH NUCLEAR PLANT (SQN) - REQUEST FOR WAIVER OF COMPLIANCE FOR
LIMITING CONDITION FOR OPERATION (LCO) 3.3.2.1 - EMERGENCY TECHNICAL
SPECIFICATION CHANGE 92-15 - MAINTENANCE ACTIVITY ON MAIN FEEDWATER
REGULATING VALVE

Reference: NRC letter to TVA dated October 30, 1992, "Temporary Waiver
of Compliance - Sequoyah Unit 1"

This letter serves to document TVA's request for, and NRC approval of, a
waiver of compliance for Unit 1 LCO 3.3.2.1 to support maintenance
activities on the Loop 2 main feedwater regulating valve 1-FCV-3-48 while
operating in Mode 1 at approximately 15 percent power. This request for
waiver is similar to the reference shown above and is required as a
result of the overly conservative constraints of the current TSs.
Accompanying this waiver request is an emergency permanent license
amendment request that, if granted, would preclude the potential for unit
shutdown while allowing for appropriate long-term capability to perform
necessary feedwater valve maintenance and/or testing and to prevent
additional waivers. TVA requested a waiver of the feedwater isolation
actuation logic provision relative to the isolation response times
applying to the main feedwater regulating valves until NRC staff approval
of the enclosed emergency TS change request.

Feedwater isolation capability intended by the technical specification
(TS) will be ensured during these maintenance and/or testing activities
by maintaining the associated manual isolation valve 1-3-541 (and its
associated bypass valve 1-3-545) tagged in the closed position.

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Feedwater flow will be provided through the Loop 2 bypass regulating valve 1-FCV-3-48A. TS LCO 3.3.2.1, governing Engineered Safety Feature Actuation System Instrumentation, through Tables 3.3-3 and 3.3-5, requires automatic isolation within defined response times utilizing the air-operated feedwater regulating valves. Necessary maintenance and testing of valve 1-FCV-3-48 will result in the inability to ensure isolation of this valve (when opened during the activities) within those specified times utilizing any channel or train inputs. Only the end device, air-operated regulating valve will be affected by these activities. The feedwater isolation (FWI) actuation instrumentation and logic channels, including input to other protective actions, are unaffected.

In accordance with 10 CFR 50.90, we are enclosing a requested amendment to Licenses DPR-77 and DPR-79 to change the TSs of SQN Units 1 and 2. The proposed change will add the provision to allow isolation of the feedwater flow path associated with FWI air-operated valves to satisfy the response time requirement for FWI. The proposed TS change is identified in Enclosure 2. The justification for the proposed TS change is provided in Enclosure 3. A proposed determination of no significant hazards consideration performed pursuant to 10 CFR 50.92 is provided in Enclosure 4. This request has been reviewed and approved by the Plant Operations Review Committee. The detailed justification for the waiver of compliance is provided in Enclosure 1.

These provisions are proposed to prevent unit shutdown to perform valve maintenance when the FWI safety function can be otherwise fully satisfied. NRC has approved two waivers of compliance because of this TS problem. This change will eliminate the need for future waivers to perform maintenance or testing on these valves. TVA requests emergency processing of this TS change request to prevent unnecessary challenges to plant safety systems resulting from unit shutdown.

This change request is being reviewed by TVA's Nuclear Safety Review Board (NSRB) in parallel with NRC review. Any changes resulting from the NSRB review will be provided to NRC in a timely manner.

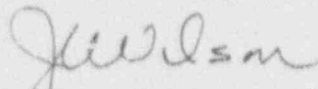
NRC approval of the waiver of compliance for LCO 3.3.2.1 was provided verbally to TVA by G. C. Lainus, Assistant Director, Region II Reactors at 4:12 p.m. Eastern standard time on November 9, 1992.

TVA is additionally evaluating the viability of incorporating more extensive NUREG-1431 TS provisions as a long-term enhancement. It is expected that any further changes resulting from that evaluation would be submitted to NRC following the currently scheduled May 1993 SQN NSRB meeting.

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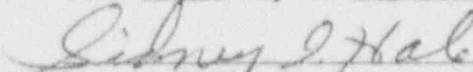
If you have any questions concerning this issue, please contact
J. D. Smith at (615) 843-6672.

Sincerely,



J. L. Wilson

Sworn to and subscribed before me
this 9 day of Nov 1992



Notary Public

MY COMMISSION EXPIRES APRIL 9, 1995

My Commission Expires _____

Enclosures

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ENCLOSURE 1

JUSTIFICATION FOR WAIVER OF COMPLIANCE FOR LIMITING CONDITION FOR OPERATION (LCO) 3.3.2.1

BACKGROUND

Following the Unit 1 power escalation after the turbine/reactor trip on October 26, 1992, the unit operators observed indications that the Loop 2 main feedwater regulating valve 1-FCV-3-48 and its control loop were not responding properly. Troubleshooting activities were initially commenced on November 4, 1992, with the reactor at approximately 60 percent power, when the operator noted minor oscillations in the Loop 2 steam generator (S/G) level. Instrument Maintenance was dispatched to the valve and a minor adjustment was made to the volume booster. While no effect was observed from this adjustment, the oscillations subsequently stopped.

On November 5, 1992, with the unit operating at approximately 100 percent power, Operations noted a decreasing water level in S/G No. 2 with feed-flow falling below steam flow. Upon noting the decreasing level, the main feedwater regulating valve on Loop 2 was placed in the manual position. Levels were eventually controlled with the main feedwater regulating valve in manual and the bypass regulating valve open in automatic. Further investigations on valve 1-FCV-3-48 have noted that air leakage at the bottom of the actuator spring case is noticeable. Conversations with the valve manufacturer's representative have confirmed that an air leak caused by a degraded O-ring between the shaft and bushing as the most likely cause of the observed control problems.

S/G level is currently being maintained with the main regulating valve in (fixed position) manual with the bypass valve controlling in automatic. The current major concern is with the ability of the unit to withstand a secondary side transient, even with operator action, or further degradation of the existing condition. The identified condition of the valves does not affect ability to quickly close upon receipt of a feedwater isolation (FWI) signal.

The planned maintenance activities for the main regulating valve include evaluating and/or replacing the inner O-ring(s), volume booster, and air regulator. In addition, recalibration will be required along with the requisite postmaintenance response time testing. Provided that no unanticipated problems occur, the estimated duration of the activity is approximately 16 hours. The replacement of the inner O-rings on valve 1-FCV-3-48 and other related valve work may affect the valve's response time. Thus, this activity will require the valve to be declared inoperable in a mode in which it is required to be operable.

During the conduct of the maintenance activities, the associated manual isolation valve 1-3-541 and its bypass will be tagged in the closed position. This will maintain the Loop 2 main feedwater regulating valve in an isolated configuration throughout the maintenance activity, satisfying the intent of the LCO 3.3.2.1 feedwater isolation requirements. Reactor power will be reduced to approximately 15 percent. While at this power level, the feedwater bypass valve is capable of supplying adequate feedwater flow to the S/G.

Both the feedwater isolation and bypass regulating valve will be fully functional during this maintenance activity. Note that while the current condition is isolated to valve 1-FCV-3-48, similar future activities could occur on other feedwater regulating or bypass valves that would necessitate applying similar constraints.

Since the manual upstream valve 1-3-541 will be closed during necessary maintenance and testing activities, TVA has determined that operating in deviation from the LCO requirements associated with response time for closure of the feedwater regulating valves (Table 3.3-5, Items 2.c, 3.c, 6.c, and 8.b) would not place the plant in an unsafe condition. The event leading to this situation was unforeseen; continued Unit 1 operation in Mode 1 would not present a safety reduction; and timeliness of such NRC action is necessary to prevent the imposition of an unnecessary plant shutdown. The situation resulting in this request is temporary and will be corrected. However, a permanent license amendment, including generic provisions, consistent with those provided by the intent of the recently approved NUREG-1431 is being proposed to NRC to provide continuing long-term capability to conduct necessary feedwater valve maintenance and/or testing. Accordingly, TVA has concluded that a request for a 10 CFR 50.103 waiver of compliance is warranted until NRC approval of the requested emergency TS change. The detailed basis for the determination that operating in deviation of the LCO requirements would not place the plant in an unsafe condition is provided as follows.

SAFETY ANALYSIS

The feedwater system is a TVA Class B safety system from the S/Gs (reference the Updated Final Safety Analysis Report [UFSAR] Figure 10.4.7-2) back through the motor-operated isolation valves (FCVs-3-33, -47, -87, and -100) including the check valves (3-508, -509, -510, and -511). This portion of the feedwater system is an integral part of the auxiliary feedwater system. Auxiliary feedwater capabilities will be unaffected by the subject activities. Located upstream of the isolation valve and check valve are the feedwater regulating valves (FCVs-3-35, -48, -90, and -103) and the bypass regulating valves (FCVs-3-35A, -48A, -90A, and -103A). The regulating and bypass valves are located in that portion of the feedwater system that is TVA Class H, and are provided with individual manual isolation valves immediately upstream.

The feedwater isolation signal is part of the engineered safety features actuation system and serves to limit the core energy release in the case of a steamline break, to limit the magnitude of the reactor coolant system cooldown, and to prevent or mitigate the effect of excessive cooldown. This isolation, accompanied by a reactor trip, is accomplished by closure of redundant valves in the piping to each SG. The feedwater regulating valves (FCVs-3-35, -48, -90, and -103) close in a nominal 6.5 seconds after receipt of a feedwater isolation signal. The feedwater isolation response time, which includes the closure time and all electronic delays of the feedwater regulating valves and bypass regulating valves (FCVs-3-35A, -48A, -90A, and -103A), is less than

8 seconds. The signal to initiate closure of the feedwater regulating valves is available from both Train A and B power. The Class 2 motor-operated feedwater isolation valves are designed to close within 7.5 seconds from receipt of the isolation signal. The isolation valves for S/Gs 1 and 3 are powered from Train A and S/Gs 2 and 4 are powered from Train B. The feedwater bypass regulating valves associated with S/Gs 1 and 3 are powered from Train B, while those associated with S/Gs 2 and 4 are powered from Train A and are response time tested to ensure closure within the same timeframe as the main feedwater regulating valves.

The feedwater isolation valves are 16-inch, TVA Class B, motor-operated gate valves. The feedwater regulating valves are 16-inch, air-to-open spring-to-close, fail-closed control valves. The associated solenoid valves are connected to redundant trains of 1E power. The feedwater bypass regulating valves serve as an isolation valve when they are in service. These valves have the same design requirements as the regulating valves and are served by 1E power. The manual isolation valve 1-3-541 is a 16-inch gate valve and is frequently used as a hold-order boundary for maintenance activities during refueling outages.

Complete isolation of main feedwater to all S/Gs occurs upon receipt of any of the following isolation signals from the reactor protection system:

- a. High-high S/G level in any S/G
- b. Safety injection signal
- c. Reactor trip coincident with low reactor coolant T_{avg}

In addition, the valves will remain in the closed position if the reactor protection signals are reset; however, each valve can be opened or closed manually after the reactor protection system isolation signals are reset.

The assumptions utilized in the determination of the isolation time for accident analysis purposes are:

1. SQN is an ice condenser plant that by design reduces peak pressures in the containment, both in magnitude and duration.
2. The unisolatable volume of the feedwater system between the regulating valves and the steam generators is no more than 104 cubic feet, which is less than the maximum volume of 150 cubic feet recommended by Westinghouse Electric Corporation.
3. The main feedwater pumps are tripped on a feedwater isolation signal.

The feedwater regulating valves are the primary mechanism for feedwater isolation assumed in the loss of coolant accident (LOCA) and non-LOCA analyses. Closure of the feedwater isolation valves is considered a backup mechanism for isolation in the analyses to the regulating valves in conjunction with the tripping of the main feedwater pumps.

The ability to utilize the manual isolation valve to perform the isolation function to allow maintenance on the regulating (and bypass) valves is considered acceptable. The closure of the manual valve (1-3-541) just upstream of the Loop 2 main feedwater regulating valve provides an acceptable alternative for meeting the intent of LCO 3.3.2.1 during the waived period. The open feedwater isolation valve and controlling bypass regulating valve will remain fully operational during this activity and their isolation time is unaffected.

TVA REQUEST FOR WAIVER OF COMPLIANCE

TVA requests a waiver of compliance for LCO 3.3.2.1, Table 3.3-3, Items 1.b and 5.b, regarding the automatic actuation logic for feedwater isolation function as applied to the main feedwater regulating valves as required by Table 3.3-5, Items 2.c, 3.c, 6.c, and 8.b. LCO 3.3.2.1 requires the feedwater isolation function to be operable in operating modes. The planned maintenance activities will require the Loop 2 regulating valve to be declared inoperable while in the applicable modes, deviating from the LCO requirement to maintain the automatic and manual isolation capability of this valve within the response times provided in Table 3.3-5.

TVA requested a waiver of the feedwater isolation actuation logic provision relative to the isolation response times applying to the main feedwater regulating valves pending staff approval of the proposed emergency TS change. Feedwater isolation capability intended by the technical specification (TS) will be ensured during these activities by maintaining associated manual isolation valve 1-3-541 (and its associated bypass line 1-3-545) in the closed position. TS LCO 3.3.2.1, governing Engineered Safety Feature Actuation System Instrumentation, through Tables 3.3-3 and 3.3-5, requires automatic isolation within defined response times utilizing the air-operated feedwater regulating valves. Necessary maintenance and testing of valve 1-FCV-3-48 will result in the inability to ensure isolation of this valve (when opened during the activities) within those specified times utilizing any channel or train inputs.

Only the end device, air-operated regulating valve will be affected by this activity. The feedwater isolation actuation instrumentation and logic channels, including input to other protective actions, are unaffected. The actuation system instrumentation TS is conservatively applied to the subject situation involving the actuation end device (regulating valve).

The requested waiver was determined to have no safety significance because the intended isolation capability of the feedwater system will be maintained by the closed manual isolation valve and operable FWI and bypass regulating valve for the duration of the subject activity. Accordingly, the requested waiver cannot result in an increase in the

probability or consequences of a previously evaluated accident, cannot create the possibility of a new accident, and cannot reduce the margin of safety. Therefore, the action does not involve a significant hazards consideration. Similarly, the waiver does not involve an unreviewed environmental question because it does not increase any adverse environmental impacts, change effluents or power levels, or result in unreviewed environmental matters.