ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-92-07)

LIST OF AFFECTED PAGES

Unit 1

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Unit 2

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TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

| FUNCTIONAL UNIT | TRIP SETPOINT | ALLOWABLE VALUES | |
|---|---|---|---|
| 1. Manual Reactor Trip | Not Applicable | Not Applicable | |
| 2. Power Range, Neutron Flux | Low Setpoint - ≤ 25% of RATED THERMAL POWER | Low Setpoint - ≤ 27.4% of RATED THERMAL POWER | R145 |
| | High Setpoint - ≤ 109% of RATED THERMAL POWER | High Setpoint - ≤ 111.4% of RATED THERMAL POWER | R145 |
| 3. Power Range, Neutron Flux, High Positive Rate | ≤ 5% of RATED THERMAL POWER with a time constant ≥ 2 second | ≤ 6.3% of RATED THERMAL POWER with a time constant ≥ 2 second | |
| 4. Power Range, Neutron Flux, High Negative Rate | ≤ 5% of RATED THERMAL POWER with a time constant ≥ 2 second | ≤ 6.3% of RATED THERMAL POWER with a time constant ≥ 2 second | |
| 5. Intermediate Range, Neutron Flux | ≤ 25% of RATED THERMAL POWER | ≤ 30% of RATED THERMAL POWER | |
| 6. Source Range, Neutron Flux | ≤ $10^5$ counts per second | ≤ 1.3 x $10^5$ counts per second | |
| 7. Overtemperature ΔT | See Note 1 | See Note 3 | |
| 8. Overpower ΔT | See Note 2 | See Note 4 | |
| 9. Pressurizer Pressure--Low | ≥ 1970 psig | ≥ 1964.8 psig | |
| 10. Pressurizer Pressure--High | ≤ 2385 psig | ≤ 2390.2 psig | R145 |
| 11. Pressurizer Water Level--High | ≤ 92% of instrument span | ≤ 92.7% of instrument span | |
| 12. Loss of Flow | ≥ 90% of design flow per loop* | ≥ ~~89.4%~~ 89.6% of design flow per loop* | |

*Design flow is 91,400 gpm per loop.

SEQUOYAH - UNIT 1

2-5

Amendment No. 44, 141

MAY 16 1990

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

| FUNCTIONAL UNIT | TRIP SETPOINT | ALLOWABLE VALUES | |
|---|---|---|---|
| 1. Manual Reactor Trip | Not Applicable | Not Applicable | |
| 2. Power Range, Neutron Flux | Low Setpoint - ≤ 25% of RATED THERMAL POWER | Low Setpoint - ≤ 27.4% of RATED THERMAL POWER | R132 |
| | High Setpoint - ≤ 109% of RATED THERMAL POWER | High Setpoint - ≤ 111.4% of RATED THERMAL POWER | R132 |
| 3. Power Range, Neutron Flux, High Positive Rate | ≤ 5% of RATED THERMAL POWER with a time constant ≥ 2 seconds | ≤ 6.3% of RATED THERMAL POWER with a time constant ≥ 2 seconds | R36 |
| 4. Power Range, Neutron Flux, High Negative Rate | ≤ 5% of RATED THERMAL POWER with a time constant ≥ 2 seconds | ≤ 6.3% of RATED THERMAL POWER with a time constant ≥ 2 seconds | R36 |
| 5. Intermediate Range, Neutron Flux | ≤ 25% of RATED THERMAL POWER | ≤ 30% of RATED THERMAL POWER | |
| 6. Source Range, Neutron Flux | ≤ $10^5$ counts per second | ≤ 1.3 x $10^5$ counts per second | |
| 7. Overtemperature ΔT | See Note 1 | See Note 3 | |
| 8. Overpower ΔT | See Note 2 | See Note 4 | |
| 9. Pressurizer Pressure--Low | ≥ 1970 psig | ≥ 1964.8 psig | R132 |
| 10. Pressurizer Pressure--High | ≤ 2385 psig | ≤ 2390.2 psig | |
| 11. Pressurizer Water Level--High | ≤ 92% of instrument span | ≤ 92.7% of instrument span | |
| 12. Loss of Flow | ≥ 90% of design flow per loop* | ≥ ~~89.4%~~ 89.6% of design flow per loop* | |

*Design flow is 91,400 gpm per loop.



OCT 31 1990

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-92-07)

DESCRIPTION AND JUSTIFICATION FOR
REACTOR COOLANT SYSTEM (RCS)
LOSS OF FLOW REACTOR TRIP SETPOINT ALLOWABLE VALUE INCREASE

Description of Change

TVA proposes to modify the Sequoyah Nuclear Plant (SQN) Units 1 and 2 technical specifications (TSs) to revise the allowable value for the reactor coolant system (RCS) loss of flow reactor trip setpoint from greater than or equal to 89.4 percent to greater than or equal to 89.6 percent. This change affects Functional Unit 12 in TS Table 2.2-1.

Reason for Change

This change is necessary to update the SQN TSs to the latest revision of the Westinghouse Electric Corporation setpoint methodology for SQN (Westinghouse Commercial Atomic Power (WCAP) 11239, Revision 6). This WCAP revised the allowable value based on an evaluation of SQN's use of RCS elbow tap differential pressures to determine RCS flow because temperature streaming has invalidated the use of primary to secondary calorimetrics. This evaluation is documented in Westinghouse Letter TVA-91-349, dated November 6, 1991. The reason for this increase from greater than or equal to 89.4 percent to greater than or equal to 89.6 percent is because of the effect of additional uncertainties in the use of elbow taps on the allowances provided for the loss of flow reactor trip setpoint. No other functions were affected such that the analysis would not support their existing TS values.

Justification for Change

The RCS loss of flow reactor trip protects the core from departure from nucleate boiling. The flow is sensed by three elbow taps in each RCS loop that indicate the status of RCS flow. The basic function of the elbow taps is to provide information as to whether or not a reduction in RCS flow has occurred. Detection of low flow by two of the three comparators for a loop would indicate a low flow in that loop. This reactor trip is blocked below Permissive P-7 (10 percent reactor power) to allow for unit start-up. One loop detecting a low flow condition is required to trip the reactor above Permissive P-8 (35 percent reactor power) and two loops are required between Permissives P-7 and P-8.

The previous evaluations of the allowances for the loss of flow reactor trip normalized the uncertainties associated with RCS elbow tap calibration, pressure effects and temperature effects to a value of 0.0 percent flow span based on the use of primary to secondary calorimetrics. The impact of RCS hot and cold leg temperature streaming has resulted in inability to use the calorimetrics to accurately calculate the RCS flow. Therefore, the normalization of the elbow tap uncertainties can no longer be applied and Westinghouse has included a $\pm$0.3 percent flow span allowance for each of the items discussed above. This increase in the allowances has resulted in an increase in the channel statistical allowance from 2.3 percent span to 2.5 percent span. This correlates to the increase in the loss of flow reactor trip setpoint allowable value from greater than or equal to 89.4 percent to greater than or equal to 89.6 percent when applied to the Westinghouse setpoint methodology. The setpoint value was not impacted by this increase in the allowances.

This change in the allowable value is in the conservative direction and provides the requirements to maintain instrumentation in the proper configuration to support the assumptions used in SQN's accident analysis. No other changes are required for the loss of flow reactor trip setpoint or any other safety-related functions as a result of the elbow tap measurement of RCS flow. This change does not adversely affect nuclear safety, but does provide a conservative increase in the RCS loss of flow reactor trip setpoint allowable value to be consistent with the SQN accident analysis.

SQN's present method for calibrating the loss of flow reactor trip setpoint utilizes actual RCS flow measurements during initial unit start-up to determine the greater than or equal to 90 percent trip setpoint and the greater than or equal to 89.4 percent allowable value. This RCS flow value is at least 3.5 percent greater than design flow as required by SQN TS 3.2.5. Since the TS trip and allowable value setpoints are based on design flow, SQN's calibration method has a built-in 3.5 percent conservative margin plus any additional flow above the TS limit measured during the initial unit start-up. Therefore, the actual trip setpoint is presently set at greater than or equal to 93.5 percent and the allowable value at greater than or equal to 92.9 percent of design flow plus any flow that was measured above the TS 3.2.5 requirement. This extra conservatism ensures that this 0.2 percent increase in the allowable value to greater than or equal to 89.6 percent has not created an operability or nuclear safety concern based on SQN's present calibration of this function and therefore this change to the SQN TSs can be pursued on a normal processing basis.

Environmental Impact Evaluation

The proposed change request does not involve an unreviewed environmental question because operation of SQN Units 1 and 2 in accordance with this change would not:

1. Result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Statement (FES) as modified by the staff's testimony to the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or decisions of the Atomic Safety and Licensing Board.

2. Result in a significant change in effluents or power levels.

3. Result in matters not previously reviewed in the licensing basis for SQN that may have a significant environmental impact.

Enclosure 3

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-92-07)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

## Significant Hazards Evaluation

TVA has evaluated the proposed technical specification (TS) change and has determined that it does not represent a significant hazards consideration based on criteria established in 10 CFR 50.92(c). Operation of Sequoyah Nuclear Plant (SQN) in accordance with the proposed amendment will not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   This change to increase the reactor coolant system (RCS) loss of flow reactor trip allowable value from greater than or equal to 89.4 percent to greater than or equal to 89.6 percent does not alter the functions of any safety-related equipment. The change implements a more conservative allowable value that is consistent with the latest assumptions for SQN's accident analysis. This new value provides for reactor trip initiation consistent with SQN's previous analysis with the additional consideration of RCS flow measurement uncertainties for elbow taps without the normalization from a primary to secondary calorimetric. Therefore, accident mitigation functions remain consistent with the analysis and there is not an increase in the consequences of an accident. Likewise, the increase in this allowable value will not increase the probability of an accident because this function provides accident mitigation actions and is not considered the source of any accident.

2. Create the possibility of a new or different kind of accident from any previously analyzed.

   As discussed above, the RCS loss of flow reactor trip function provides an accident mitigation function and is not an initiator of any accident. Therefore, the increase in the allowable value for this function will not create a new or different kind of accident previously analyzed, but does implement a more conservative value that is consistent with the accident analysis.

3. Involve a significant reduction in a margin of safety.

   This change implements a conservative increase in the loss of flow allowable value to maintain the margin of safety. This increase is being implemented to offset the potential decrease in margin created by using the elbow taps to determine RCS flow. Therefore, this change does not reduce any margin of safety and provides conservative values that will maintain the margin of safety within the SQN accident analysis assumptions.