Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37384-2000

March 5, 2004

TVA-SQN-TS-03-05 10 CFR 50.90

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

Gentlemen:

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

SEQUOYAH NUCLEAR PLANT (SQN) - UNITS 1 AND 2 - TECHNICAL SPECIFICATIONS (TS) CHANGE 03-05 "PHYSICS TESTS EXCEPTIONS AND REFUELING OPERATIONS"

Pursuant to 10 CFR 50.90, TVA is submitting a request for a TS change (TS-03-05) to Licenses DPR-77 and DPR-79 for SQN Units 1 and 2. The proposed TS change deletes the surveillance requirement to perform a channel functional test of the source range neutron flux monitor within 8 hours prior to the initial start of core alterations. The change also eliminates the surveillance requirement that each intermediate and power range channel shall be subjected to a channel functional test within 12 hours prior to initiating physics tests. The associated bases sections are being revised to reflect the purposed changes. These changes will eliminate extraneous and unnecessary performance of the surveillances. The proposed changes are consistent with TS Task Force 108 and Revision 2 to NUREG-1431.

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TVA has determined that there are no significant hazards considerations associated with the proposed change and that the TS change qualifies for 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 enclosures to the Tennessee State Department of Public Health.

Based on these changes eliminating extraneous and unnecessary performance of surveillances during performance of outage activities, TVA requests approval of this TS change by September 2004 to support the next refueling outage. The implementation of the revised TS will be within 45 days of NRC approval. There are no commitments contained in this submittal.

If you have any questions about this change, please contact me at 843-7170 or Jim Smith at 843-6672.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 5 day of March 2004.

Sincerely,

Pedro Salas
Manager of Licensing
and Industry Affairs

Enclosures:
1. TVA Evaluation of the Proposed Changes
2. Proposed Technical Specifications Changes (mark-up)
3. Changes to Technical Specifications Bases Pages

cc: See page 3

Enclosures
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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

1.0 DESCRIPTION

This letter is a request to amend Operating License(s) DPR-77 and DPR-79 for SQN Units 1 and 2. The proposed changes will delete the surveillance requirement (SR) to perform a CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS. The change also eliminates the SR that each Intermediate and Power Range channel shall be subjected to a CHANNEL FUNCTIONAL TEST within 12 hours prior to initiating physics tests. The associated bases sections are being revised to reflect these changes. The proposed changes will eliminate extraneous and unnecessary performance of these surveillances.

2.0 PROPOSED CHANGE

The proposed change will delete SR 4.9.2.c that requires performance of a CHANNEL FUNCTIONAL TEST of each Source Range neutron flux monitor within 8 hours prior to the initial start of CORE ALTERATIONS. SRs 4.10.3.2 and 4.10.4.2 require that a CHANNEL FUNCTIONAL TEST be performed on the Power Range and Intermediate Range neutron monitors "within 12 hours" prior to initiation of a PHYSICS TEST. The proposed change deletes the within 12 hours portion from these SRs. The proposed changes include associated revisions to the bases for 3/4.9.2, 3/4.10.3, and 3/4.10.4.

3.0 BACKGROUND

The nuclear reactor of a power plant requires monitoring of its power level in order to maintain reactor safety. By placing detectors at selected locations adjacent to the reactor, neutron flux level fluctuations present during an increasing, decreasing, or operating power level are detected. The Nuclear Instrumentation System (NIS), as described in Final Safety Analysis Section 4.4.5.3, monitors the power level of the reactor at all times. It is used primarily for plant protection, providing appropriate alarm functions for various phases of plant operating and shutdown conditions. It provides a secondary control function and indicates reactor status during startup and power operation. The three overlapping ranges of instrumentation (Source, Intermediate, and Power) provide overpower trip protection at increasing levels during startup and at power operation.

The NIS provides indication, alarm, control, and trip signals along with the capability to monitor neutron flux over the complete range from reactor shutdown to 120 percent full power. The system generates permissive and level trip signals, which are then coupled to the logic matrices of the reactor trip system (RTS). This interface either allows power changes based upon proper functioning of the next range of measurement instrumentation or shuts down the reactor as unsafe operating limits are approached.

Startup operation or a power increase requires a permissive signal from the higher range instrumentation channels before the lower range level trips can be manually blocked by the operator. An one-of-two Intermediate Range permissive signal P-6 is required before Source Range level trip blocking can be initiated by the plant operator. The Intermediate Range level trip and low range Power Range level trip can only be blocked by the plant operator after satisfactory operation and permissive information are obtained from two-of-four Power Range channels. Individual blocking switches are provided at the control board so that the low range Power Range trip and Intermediate Range trip can be independently blocked. These trips are automatically reactivated when any three of the four Power Range channels are below the permissive P-10 level, thus ensuring automatic activation of more restrictive trip protection. The reactor plant protection afforded by the high range, Power Range trips is never blocked or bypassed.

The NIS is designed to initiate nuclear overpower reactor trip signals for the RTS as a result of detecting high neutron flux or a high neutron flux rate of change and to monitor the neutron flux during and following an accident. Therefore, this system offers diverse protection against fuel cladding failure and/or loss of reactor coolant system integrity.

The Power Range, Intermediate Range, and Source Range monitors are part of the NIS excore neutron detectors. A CHANNEL FUNCTIONAL TEST is performed on these monitors in accordance with RTS SR 4.3.1.1. While the unit is in Modes 1 or 2, SR 4.3.1.1 is performed for the Power Range monitors every 92 days, a 31-day interval for the Source Range monitors, except when above the P-6 permissive, and during startup for the Intermediate Range monitors if not performed within the previous 31 days. This SR is also performed prior to startup of the reactor and at various points during power escalation or reduction.

Currently, SRs 4.10.3.2 and 4.10.4.2 require that a CHANNEL FUNCTIONAL TEST be performed on the Power Range and Intermediate Range neutron monitors within 12 hours prior to initiation of a PHYSICS TEST, even though SR 4.3.1.1 has been performed on the required frequency. SR 4.9.2 currently requires that a CHANNEL FUNCTIONAL TEST be performed on the Source Range monitors within 8 hours prior to initiation of CORE ALTERATIONS, even though SR 4.3.1.1 has been performed on the required frequency.

The redundant testing required by SRs 4.10.3.2 and 4.10.4.2 is addressed by Technical Specification Task Force (TSTF) Traveler 108. TSTF-108 was approved by NRC on May 2, 1997, and removes the 12 hour requirement so that the testing performed for SR 4.3.1.1 may be used to satisfy SRs 4.10.3.2 and 4.10.4.2. The proposed amendment revises SR 4.10.3.2 to implement the approved TSTF. Additionally, Revision 1 to NUREG-1431 addressed deleting SR 4.9.2 to perform a CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS. Therefore, the proposed change eliminates extraneous and unnecessary performance of these surveillances.

4.0 TECHNICAL ANALYSIS

The required frequency has been determined to be sufficient for verification that the Power Range, Intermediate Range, and Source Range monitors are properly functioning.

SRs 4.10.3.2 and 4.10.4.2 require a CHANNEL FUNCTIONAL TEST of the Power Range and Intermediate Range channels within 12 hours prior to initiation of PHYSICS TEST regardless of whether the CHANNEL FUNCTIONAL TEST has been performed within its required frequency. Initiation of PHYSICS TEST does not impact the ability of the monitors to perform their required function, does not affect the trip setpoints or RTS trip capability, and does not invalidate previous surveillances. Therefore, an additional surveillance required to perform "prior to" this event is an extraneous and unnecessary performance of a surveillance.

This surveillance is not related to any Limiting Conditions for Operation (LCO) requirement and has no appropriate action to enter upon failure to meet the surveillance. Therefore, deletion of the "within 12 hours" from the surveillance and relying on the CHANNEL FUNCTIONAL TEST surveillance specified within the RTS Instrumentation LCO, enhances the proper utilization of the TSs.

SR 4.9.2 requires a CHANNEL FUNCTIONAL TEST of the Source Range channels within 8 hours prior to initial start of CORE ALTERATIONS regardless of whether the CHANNEL FUNCTIONAL TEST has been performed within its required frequency. SR 4.9.2 requires a CHANNEL FUNCTIONAL TEST of the Source Range monitors be performed before entering Mode 6 and at least once per 7 days. Hence, a CHANNEL FUNCTIONAL TEST would have been performed within the previous 7 days of CORE ALTERNATIONS. Initiation of CORE ALTERATIONS does not impact the ability of the Source Range monitors to perform their required function, does not affect the trip setpoints or RTS trip capability, and does not invalidate previous surveillances. Therefore, an additional surveillance required to perform "prior to" this event is an extraneous and unnecessary performance of a surveillance.

Since the applicability of LCO 3.9.2 is Mode 6, the CHANNEL FUNCTIONAL TEST will have been performed prior to entering Mode 6. In addition, the surveillance must be current during Mode 6. An additional performance of this SR prior to initial start of CORE ALTERNATIONS is an unnecessary verification that the monitor is OPERABLE. Since the monitors provide audible indication in the control room, the operators would know if the monitors became inoperable.

These changes will eliminate extraneous and unnecessary performance of surveillances. The proposed change is consistent with TSTF-108 in removing the CHANNEL FUNCTIONAL TEST within 12 hours prior to the initial start of PHYSICS TEST from SRs 4.10.3.2 and 4.10.4.2. The change to allow deletion of the CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS from SR 4.9.2.c is consistent with changes that were issued in NUREG-1431, Revision 1.

The instruments supporting the Power Range and Intermediate Range functions are determined to be OPERABLE by the performance of the testing required per SR 3.3.1.1.2. SRs 4.10.3.2 and 4.10.4.2 require testing of the instruments within 12 hours prior to initiation of a PHYSICS TEST does provide an additional measure of assurance that the instrumentation will perform its intended function. However, the redundant testing required by SRs 4.10.3.2 and 4.10.4.2 is addressed by TSTF-108 which was approved by NRC on May 2, 1997. TSTF-108 removes the 12-hour requirement so that the testing performed for SRs 3.3.1.7 and 4.3.1.1 can be used to satisfy SRs 4.10.3.2 and 4.10.4.2. SR 4.9.2 provides

an additional unnecessary measure to ensure that the Source Range instrumentation will perform its intended function. The removal of this requirement is consistent with NUREG 1431, Revision 2.

REGULATORY SAFETY ANALYSIS

TVA has concluded that operation of Sequoyah Nuclear Plant (SQN) Units 1 and 2, in accordance with the proposed change to the technical specifications (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). The redundant testing required by Surveillance Requirements (SRs) 4.9.2, 3.10.3.2, and 3.10.4.2 is addressed by Technical Specification Task Force (TSTF) Traveler 108 and NUREG-1432, Revision 1. TSTF-108 was approved by NRC on May 2, 1997, and removes the 12-hour requirement so that the testing performed for SR 4.3.1.1 can be used to satisfy SRs 4.10.3.2 and 4.10.4.2. The proposed amendment revises SRs 4.10.3.2 and 4.10.4.2 to implement the approved TSTF. These changes will continue to ensure that the Power Range, Intermediate Range, and Source Range monitors are properly functioning.

5.1 No Significant Hazards Consideration

TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) 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 amendment removes the requirement to perform an additional CHANNEL FUNCTIONAL TEST (CFT) on the Intermediate and Power Range functions within 12 hours of performing a PHYSICS TEST. The Intermediate and Power Range instrumentation is determined to be OPERABLE by periodic SRs which must be confirmed to be within frequency prior to making the reactor critical. The proposed amendment also removes the requirement to perform an additional CFT on the Source Range monitors. The Source Range

instrumentation is determined to be OPERABLE by periodic SRs, which must be confirmed to be within frequency prior to Mode 6, prior to CORE ALTERNATIONS, and must remain OPERABLE. A CFT for the Source Range, Intermediate Range, or Power Range instrumentation is not a precursor to, or assumed to be an initiator of any analyzed accident. Therefore, this change does not involve a significant increase in the probability of an accident previously evaluated.

Regarding a significant increase in the consequences of an accident, several factors must be considered. First the PHYSICS TESTS are performed in accordance with the TSs in Mode 2. Therefore, the power level of the reactor is limited to 5 percent or less. Along with this, the reactor trip function of the Intermediate Range detectors will be unaffected by the proposed amendment and therefore, will be available to mitigate a reactivity transient at low power. Further, the trip setpoint for the Power Range monitors are decreased during startup. This setpoint reduction provides an additional measure to limit a reactivity excursion. 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.

The proposed changes permit the conduct of normal operating evolutions during limited periods when additional controls over reactivity margin are imposed by the TSs. The proposed change does not introduce any new equipment into the plant or significantly alter the manner in which existing equipment will be operated. The proposed changes are not based on a change in the design or configuration of the plant. The changes to operating allowances are minor and are only applicable during certain conditions. The operating allowances are consistent with those acceptable at other times. The proposed changes

delete the requirements for the performance of a CFT for the Source Range, Intermediate Range, and Power Range instrumentation within 8 hours of initiating CORE ALTERNATIONS for the Source Range monitors and within 12 hours of starting a PHYSICS TEST for the Intermediate Range and Power Range instrumentation. Since the proposed changes only allow activities that are presently approved and routinely conducted, no possibility exists for a new or different kind of accident from those previously evaluated. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

Response: No.
As stated previously, the proposed change deletes the requirement to perform an additional CFT for the Source Range, Intermediate Range, and Power Range instrumentation within 8 hours of initiating CORE ALTERNATIONS for the Source Range monitors and within 12 hours of starting a PHYSICS TEST for the Intermediate Range and Power Range instrumentation. The Source Range, Intermediate Range, and Power Range instrumentation channels are determined to be OPERABLE by meeting the requirements of the periodic surveillances. These SRs are not affected by the proposed amendment. The proposed changes do not involve a significant reduction in a margin of safety because the ability to monitor the reactor during the applicable operating conditions and modes of operation will be maintained. The proposed changes do not affect these operating restrictions and the margin of safety which assures the ability to monitor the reactor is not affected. 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(s) present no 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.

5.2 Applicable Regulatory Requirements/Criteria

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include technical specifications (TSs) as part of the license. The Commission's regulatory requirements related to the content of the TS are contained in Title 10, Code of Federal Regulations (10 CFR), Section 50.36. The TS requirements in 10 CFR 50.36 include the following categories: (1) safety limits, limiting safety systems settings and control settings, (2) Limiting Conditions for Operation (LCO), (3) SRs, (4) design features, and (5) administrative controls. The testing requirements for the Source Range, Intermediate Range, and Power Range instrumentation are included in the TS in accordance with 10 CFR 50.36(c)(2), "Limiting Conditions for Operation."

As stated in 10 CFR 50.59(c)(1)(i), a licensee is required to submit a license amendment pursuant to 10 CFR 50.90 if a change to the TS is required. Furthermore, the requirements of 10 CFR 50.59 necessitate that U.S. Nuclear Regulatory Commission (NRC) approve the TS changes before the TS changes are implemented. TVA's submittal meets the requirements of 10 CFR 50.59(c)(1)(i) and 10 CFR 50.90.

TVA proposes to eliminate the 12-hour requirement for the testing required by SRs 4.10.3.2 and 4.10.4.2 so that the testing performed for SRs 4.3.1.1.1 and 4.3.1.1.2 for the Power Range and Intermediate Range can be used to satisfy SRs 4.10.3.2 and 4.10.4.2. This change also deletes the SR to perform a CHANNEL FUNCTIONAL TEST of the Source Range neutron flux monitor within 8 hours prior to the initial start of CORE ALTERATIONS. This issue has been previously reviewed by the NRC staff and has been approved as TS Task Force (TSTF)-108, Revision 1, by Christopher Grimes' signature dated May 2, 1997 to James Davis, Nuclear Energy Institute (NEI). Also, the proposed changes are consistent with NUREG-1431.

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.

6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a SR. 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 effluent 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 50.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

1. NUREG-1431, Revision 2, "Standard Technical Specifications Westinghouse Plants," April 2001.

2. Technical Specification Task Force (TSTF)-108, Revision 1, by Christopher Grimes' signature dated May 2, 1997 to James Davis, Nuclear Energy Institute (NEI).

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

Proposed Technical Specification Changes (mark-up)

I. AFFECTED PAGE LIST

UNIT 1

3/4 9-2
3/4 10-3
3/4 10-4

UNIT 2

3/4 9-3
3/4 10-3
3/4 10-4

II. MARKED PAGES

See attached.

REFUELING OPERATIONS

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 As a minimum, two source range neutron flux monitors shall be OPERABLE and operating, each with continuous visual indication in the control room and one with audible indication in the containment and control room.

APPLICABILITY: MODE 6.

ACTION:

a. With one of the above required monitors inoperable or not operating, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With both of the above required monitors inoperable or not operating, determine the boron concentration of the reactor coolant system at least once per 12 hours.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

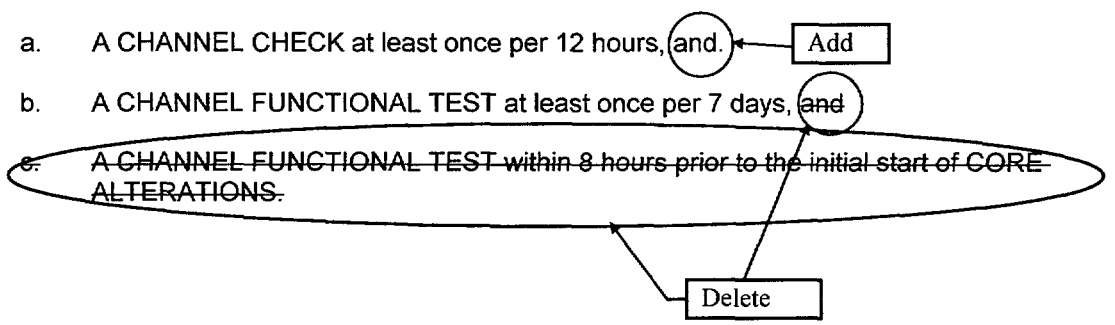
SURVEILLANCE REQUIREMENTS

4.9.2 Each source range neutron flux monitor shall be demonstrated OPERABLE by performance of:

a. A CHANNEL CHECK at least once per 12 hours, and.

b. A CHANNEL FUNCTIONAL TEST at least once per 7 days, ~~and~~

~~c. A CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS.~~



SPECIAL TEST EXCEPTIONS

3/4.10.3 PHYSICS TESTS

LIMITING CONDITION FOR OPERATION

3.10.3 The limitations of Specifications 3.1.1.3, 3.1.1.4, 3.1.3.1, 3.1.3.5 and 3.1.3.6 may be suspended during the performance of PHYSICS TESTS provided:

a. The THERMAL POWER does not exceed 5% of RATED THERMAL POWER,

b. The reactor trip setpoints on the OPERABLE Intermediate and Power Range Nuclear Channels low trip setpoints are set at less than or equal to 25% of RATED THERMAL POWER, and

c. The Reactor Coolant System lowest operating loop temperature (T_{avg}) is greater than or equal to 531°F.

APPLICABILITY: MODE 2.

ACTION:

a. With the THERMAL POWER greater than 5% of RATED THERMAL POWER, immediately open the reactor trip breakers.

b. With a Reactor Coolant System operating loop temperature (T_{avg}) less than 531°F, restore T_{avg} to within its limits within 15 minutes or be in at least HOT STANDBY within the next 15 minutes.

SURVEILLANCE REQUIREMENTS

4.10.3.1 The THERMAL POWER shall be determined to be less than or equal to 5% of RATED THERMAL POWER at least once per hour during PHYSICS TESTS.

4.10.3.2 Each Intermediate and Power Range Channel shall be subjected to a CHANNEL FUNCTIONAL TEST ~~within 12 hours~~ prior to initiating PHYSICS TESTS.

Delete

4.10.3.3 The Reactor Coolant System temperature (T_{avg}) shall be determined to be greater than or equal to 531°F at least once per 30 minutes during PHYSICS TESTS.

SPECIAL TEST EXCEPTIONS

3/4.10.4 REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

3.10.4 The limitations of Specification 3.4.1.1 may be suspended during the performance of startup and PHYSICS TESTS provided:

a. The THERMAL POWER does not exceed the P-7 Interlock Setpoint, and

b. The Reactor Trip Setpoints on the OPERABLE Intermediate and Power Range Channels are set less than or equal to 25% of RATED THERMAL POWER

APPLICABILITY: During operation below the P-7 Interlock Setpoint.

ACTION:

With the THERMAL POWER greater than the P-7 Interlock Setpoint, immediately open the reactor trip breakers.

SURVEILLANCE REQUIREMENTS

4.10.4.1 The THERMAL POWER shall be determined to be less than P-7 Interlock Setpoint at least once per hour during startup and PHYSICS TESTS.

4.10.4.2 Each Intermediate, Power Range Channel and P-7 Interlock shall be subjected to a CHANNEL FUNCTIONAL TEST ~~within 12 hours~~ prior to initiating startup or PHYSICS TESTS.

Delete

REFUELING OPERATIONS

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 As a minimum, two source range neutron flux monitors shall be OPERABLE and operating, each with continuous visual indication in the control room and one with audible indication in the containment and control room.

APPLICABILITY: MODE 6.

ACTION:

a. With one of the above required monitors inoperable or not operating, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With both of the above required monitors inoperable or not operating, determine the boron concentration of the reactor coolant system at least once per 12 hours.

c. *The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.*

SURVEILLANCE REQUIREMENTS

4.9.2 Each source range neutron flux monitor shall be demonstrated OPERABLE by performance of:

a. A CHANNEL CHECK at least once per 12 hours, and

b. A CHANNEL FUNCTIONAL TEST at least once per 7 days, ~~and~~

~~c. A CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS.~~

Add

Delete

SPECIAL TEST EXCEPTIONS

3/4.10.3 PHYSICS TESTS

LIMITING CONDITION FOR OPERATION

3.10.3 The limitations of Specifications 3.1.1.3, 3.1.1.4, 3.1.3.1, 3.1.3.5, and 3.1.3.6 may be suspended during the performance of PHYSICS TESTS provided:

a. The THERMAL POWER does not exceed 5% of RATED THERMAL POWER,

b. The reactor trip setpoints on the OPERABLE Intermediate and Power Range Nuclear Channels are set at less than or equal to 25% of RATED THERMAL POWER, and

c. The Reactor Coolant System lowest operating loop temperature (T_{avg}) is greater than or equal to 531°F.

APPLICABILITY: MODE 2.

ACTION:

a. With the THERMAL POWER greater than 5% of RATED THERMAL POWER, immediately open the reactor trip breakers.

b. With a Reactor Coolant System operating loop temperature (T_{avg}) less than 531°F, restore (T_{avg}) to within its limit within 15 minutes or be in at least HOT STANDBY within the next 15 minutes.

SURVEILLANCE REQUIREMENTS

4.10.3.1 The THERMAL POWER shall be determined to be less than or equal to 5% of RATED THERMAL POWER at least once per hour during PHYSICS TESTS.

4.10.3.2 ~~Each~~ Intermediate and Power Range Channel shall be subjected to a CHANNEL FUNCTIONAL TEST ~~within 12 hours~~ prior to initiating PHYSICS TESTS.

Delete

4.10.3.3 The Reactor Coolant System temperature (T_{avg}) shall be determined to be greater than or equal to 531°F at least once per 30 minutes during PHYSICS TESTS.

SPECIAL TEST EXCEPTIONS

3/4.10.4 REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

3.10.4 The limitations of Specification 3.4.1.1 may be suspended during the performance of start up and PHYSICS TESTS provided:

a. The THERMAL POWER does not exceed the P-7 Interlock Setpoint, and

b. The Reactor Trip Setpoints on the OPERABLE Intermediate and Power Range Channels are set less than or equal to 25% of RATED THERMAL POWER.

APPLICABILITY: During operation below the P-7 Interlock Setpoint.

ACTION:

With the THERMAL POWER greater than the P-7 Interlock Setpoint, immediately open the reactor trip breakers.

SURVEILLANCE REQUIREMENTS

4.10.4.1 The THERMAL POWER shall be determined to be less than P-7 Interlock Setpoint at least once per hour during start up and PHYSICS TESTS.

4.10.4.2 Each Intermediate, Power Range Channel and P-7 Interlock shall be subjected to a CHANNEL FUNCTIONAL TEST ~~within 12 hours~~ prior to initiating start up and PHYSICS TESTS.

Delete

ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

Changes to Technical Specifications Bases Pages

I. AFFECTED PAGE LIST

Unit 1

B 3/4 9-1
B 3/4 10-1

Unit 2

B 3/4 9-1
B 3/4 10-1

II. MARKED PAGES

See attached.

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. Maintaining the listed valves in the closed position precludes an uncontrolled boron dilution accident by closing the flow paths for possible sources of unborated water. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analyses.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core. ADD

Testing within the required frequency is sufficient for verification that the source range monitors are properly functioning.

assemblies in the reactor pressure vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY ensure that a significant release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE. Containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side during movement of irradiated fuel. The containment building equipment door must be closed during movement of recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 100 hours). Isolation may be achieved by an OPERABLE automatic isolation valve, or by a manual isolation valve, blind flange, or equivalent. Equivalent isolation methods must be approved and may include use of a material that can provide a temporary, atmospheric pressure, ventilation barrier for containment penetrations during fuel movements. Both sets of the containment personnel airlock doors may be open during movement of irradiated fuel in containment provided one train of Auxiliary Building Gas Treatment System (ABGTS) is available for manual operation. The basis of this is that SQN is analyzed for a fuel handling accident (FHA) in either the containment or the auxiliary building; however, a manual ABGTS start may be necessary for a containment FHA. The requirement for an airlock door to be capable of closure is provided to allow for long-term recovery from a FHA in containment.

During movement of irradiated fuel assemblies, a single normal or contingency method to promptly close the containment building equipment door will be in place. Such prompt methods need not completely block the penetration or be capable of resisting pressure. The purpose is to enable ventilation systems to draw the release from a postulated fuel handling accident in the proper directions such that it can be treated and monitored.

The LCO is modified by a footnote allowing penetration flow paths with direct access from the containment atmosphere to the Auxiliary Building Secondary Containment Enclosure (ABSCE) to be unisolated under administrative controls. These flow paths must be within the ABSCE structure or in qualified piping that constitutes the ABSCE boundary and either terminate or have an isolation device within the ABSCE. Administrative controls ensure that 1) appropriate personnel are aware of the open status of the penetration flow path during movement of irradiated fuel assemblies within containment, 2) specified individuals are designated and readily available to isolate the flow path in the event of an FHA, and 3) one train of the ABGTS is OPERABLE in accordance with Technical Specification 3.9.12. As discussed above for the containment airlock doors, the basis for this allowance is the SQN analysis for an FHA in containment or the auxiliary building and the potential need for a manual start of the ABGTS for an FHA in containment. This allowance is not applicable to the containment ventilation isolation flow paths because of the potential motive force associated with the containment purge system that could result in additional releases of radioactivity. Additionally, this allowance is not applicable to those flow paths that terminate or are routed outside the ABSCE in piping that does not meet the requirements for an ABSCE boundary.

BASES

3/4.10.1 SHUTDOWN MARGIN

This special test exception provides that a minimum amount of control rod worth is immediately available for reactivity control when tests are performed for control rod worth measurement. This special test exception is required to permit the periodic verification of the actual versus predicted core reactivity condition occurring as a result of fuel burnup or fuel cycling operations.

3/4.10.2 GROUP HEIGHT, INSERTION, AND POWER DISTRIBUTION LIMITS

This special test exception permits individual control rods to be positioned outside of their normal group heights and insertion limits during the performance of such PHYSICS TESTS as those required to 1) measure control rod worth and 2) determine the reactor stability index and damping factor under xenon oscillation conditions.

3/4.10.3 PHYSICS TESTS

This special test exception permits PHYSICS TESTS to be performed at less than or equal to 5% of RATED THERMAL POWER with the RCS T_{AVG} slightly lower than normally allowed so that the fundamental nuclear characteristics of the reactor core and related instrumentation can be verified. In order for various characteristics to be accurately measured it is, at times, necessary to operate outside the normal restrictions of these technical Specifications. For instance, to measure the moderator temperature coefficient at BOL it is necessary to position various control rods at heights which may not normally be allowed by Specification 3.1.3.6 which may cause the RCS T_{AVG} to fall slightly below the minimum temperature of Specification 3.1.1.4.

Testing performed pursuant to Specification 4.10.3.2 ensures that the intermediate and power range reactor trip functions which operate at less than or equal to 25% RATED THERMAL POWER are available to limit power excursions during PHYSICS TESTS.

ADD

Testing within the required frequency is sufficient for verification that the power range and intermediate range monitors are properly functioning.

3/4.10.4 REACTOR COOLANT LOOPS

This special test exception permits reactor criticality under no flow conditions and is required to perform certain startup and PHYSICS TESTS while at low THERMAL POWER levels.

3/4 10.5 POSITION INDICATION SYSTEM-SHUTDOWN (This specification is deleted)

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. Maintaining the listed valves in the closed position precludes an uncontrolled boron dilution accident by closing the flow paths for possible sources of unborated water. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analyses.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core. ADD

Testing within the required frequency is sufficient for verification that the source range monitors are properly functioning.

assemblies in the reactor pressure vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY ensure that a significant release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE. Containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side during movement of irradiated fuel. The containment building equipment door must be closed during movement of recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 100 hours). Isolation may be achieved by an OPERABLE automatic isolation valve, or by a manual isolation valve, blind flange, or equivalent. Equivalent isolation methods must be approved and may include use of a material that can provide a temporary, atmospheric pressure, ventilation barrier for containment penetrations during fuel movements. Both sets of the containment personnel airlock doors may be open during movement of irradiated fuel in containment provided one train of Auxiliary Building Gas Treatment System (ABGTS) is available for manual operation. The basis of this is that SQN is analyzed for a fuel handling accident (FHA) in either the containment or the auxiliary building; however, a manual ABGTS start may be necessary for a containment FHA. The requirement for an airlock door to be capable of closure is provided to allow for long-term recovery from a FHA in containment.

During movement of irradiated fuel assemblies, a single normal or contingency method to promptly close the containment building equipment door will be in place. Such prompt methods need not completely block the penetration or be capable of resisting pressure. The purpose is to enable ventilation systems to draw the release from a postulated fuel handling accident in the proper directions such that it can be treated and monitored.

The LCO is modified by a footnote allowing penetration flow paths with direct access from the containment atmosphere to the Auxiliary Building Secondary Containment Enclosure (ABSCE) to be unisolated under administrative controls. These flow paths must be within the ABSCE structure or in qualified piping that constitutes the ABSCE boundary and either terminate or have an isolation device within the ABSCE. Administrative controls ensure that 1) appropriate personnel are aware of the open status of the penetration flow path during movement of irradiated fuel assemblies within containment, 2) specified individuals are designated and readily available to isolate the flow path in the event of an FHA, and 3) one train of the ABGTS is OPERABLE in accordance with Technical Specification 3.9.12. As discussed above for the containment airlock doors, the basis for this allowance is the SQN analysis for an FHA in containment or the auxiliary building and the potential need for a manual start of the ABGTS for an FHA in containment. This allowance is not applicable to the containment ventilation isolation flow paths because of the potential motive force associated with the containment purge system that could result in additional releases of radioactivity. Additionally, this allowance is not applicable to those flow paths that terminate or are routed outside the ABSCE in piping that does not meet the requirements for an ABSCE boundary.

3/4.10 SPECIAL TEST EXCEPTIONS

BASES

3/4.10.1 SHUTDOWN MARGIN

This special test exception provides that a minimum amount of control rod worth is immediately available for reactivity control when tests are performed for control rod worth measurement. This special test exception is required to permit the periodic verification of the actual versus predicted core reactivity condition occurring as a result of fuel burnup or fuel cycling operations.

3/4.10.2 GROUP HEIGHT, INSERTION, AND POWER DISTRIBUTION LIMITS

This special test exception permits individual control rods to be positioned outside of their normal group heights and insertion limits during the performance of such PHYSICS TESTS as those required to 1) measure control rod worth and 2) determine the reactor stability index and damping factor under xenon oscillation conditions.

3/4.10.3 PHYSICS TESTS

This special test exception permits PHYSICS TESTS to be performed at less than or equal to 5% of RATED THERMAL POWER with the RCS T_{AVG} slightly lower than normally allowed so that the fundamental nuclear characteristics of the reactor core and related instrumentation can be verified. In order for various characteristics to be accurately measured it is, at times, necessary to operate outside the normal restrictions of these Technical Specifications. For instance, to measure the moderator temperature coefficient at BOL it is necessary to position the various control rods at heights which may not normally be allowed by Specification 3.1.3.6 which in turn may cause the RCS T_{AVG} to fall slightly below the minimum temperature of Specification 3.1.1.4.

Testing performed pursuant to Specification 4.10.3.2 ensures that the intermediate and power range reactor trip functions which operate at less than or equal to 25% RATED THERMAL POWER are available to limit power excursions during PHYSICS TESTS.

3/4.10.4 REACTOR COOLANT LOOPS

This special test exception permits reactor criticality under no flow conditions and is required to perform certain startup and PHYSICS TESTS while at low THERMAL POWER levels.

3/4.10.5 POSITION INDICATION SYSTEM-SHUTDOWN (This specification is deleted)

Testing within the required frequency is sufficient for verification that the power range and intermediate range monitors are properly functioning.

ADD