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

July 10, 2002

TVA-SQN-TS-01-09

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. 01-09, "OPERATIONS INVOLVING POSITIVE REACTIVITY ADDITIONS"

In accordance with the provisions of 10 CFR 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 changes revise the TS requirements applicable when TS actions direct suspension of operations involving positive reactivity changes. The proposed change will remove the requirement to not make positive reactivity changes during certain conditions and replace it with requirements to maintain shutdown margin or boron concentration. The changes will permit limited positive reactivity changes that are necessitated by plant operations. These changes will limit the amount of reactivity changes to those that will continue to assure appropriate reactivity limits are met. The proposed changes are consistent with TS Task Force 286 and Revision 2 to NUREG-1431. Additionally, these changes are similar to changes approved for South Texas Project Units 1 and 2 (Facility Operating License Numbers NPF-76 and NPF-80) via Amendments 128 and 117, respectively.

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

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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 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 NRC approve this TS change by February 2003 to support the Unit 1 Cycle 12 outage scheduled for March 2003. TVA requests that the implementation of the revised TS be within 45 days of NRC approval. There are no commitments contained in this letter. This letter is being sent in accordance with NRC RIS 2001-05. 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 10th day of July

Peggy M. Billingsley
Notary Public

My Commission Expires October 9, 2002

Enclosures

ENCLOSURE 1

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

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE NO. 01-09
DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGE

I. DESCRIPTION OF THE PROPOSED CHANGE

TVA proposes to modify the requirements applicable when actions or other requirements direct suspension of activities that involve a positive reactivity change for the SQN Units 1 and 2 TSs. The proposed change will remove the requirement to not make positive reactivity changes during certain conditions. The changes will permit limited positive reactivity changes that are necessitated by plant operations. These changes will limit the amount of reactivity changes to those that will continue to assure appropriate reactivity limits are met, either shutdown margin or refueling boron concentration, as appropriate.

The TSs and Bases affected by the proposed change are as follows:

3/4.4.1.2	Reactor Coolant System - Hot Standby	Action c and note*
3/4.4.1.3	Reactor Coolant System - Hot Shutdown	Action b and note**
3/4.4.1.4	Reactor Coolant System - Cold Shutdown - Loops Filled	Action b and note**
3/4.4.2	Reactor Coolant System - Safety Valves - Shutdown	Action
3/4.8.1.2	Electrical Power Systems - Shutdown	Action
3/4.9.2	Refueling Operations - Instrumentation	Action a
3/4.9.8.1	Refueling Operations - Residual Heat Removal and Coolant Circulation - All Water Levels	Action a
Bases 3/4.8.1 and 3/4.8.2	A.C. Sources and Onsite Power Distribution Systems	

II. REASON FOR THE PROPOSED CHANGE

These specifications are modified to permit addition of positive reactivity and changes to the boron concentration as long as the change does not result in a power increase

and preserves the margin to core criticality as defined by the shutdown margin.

The proposed changes are needed for operational flexibility, during conditions in which these "ACTIONS" may be required, to continue various unit operations. For example, Reactor Coolant System (RCS) inventory must be maintained and RCS temperature must be controlled. These activities make it necessary to add water, that may be cooler, to the RCS (a positive reactivity change in most cases) and may involve inventory makeup from sources that are at a boron concentration less than that in the RCS.

Specifically, operational considerations may make it necessary or prudent to use a different shutdown cooling loop from the one in operation. With the proposed changes, if the newly selected shutdown cooling loop is sampled and the boron concentration is slightly lower than that of the RCS, but meet or exceed the applicable shutdown margin or refueling boron concentration limits, the switch to a different loop would be acceptable. Alternatively, if the shutdown cooling loop is at a lower or higher temperature than the RCS average temperature, but the reactivity effects are small enough to assure that shutdown margin or refueling boron concentration limits will continue to be met, again the change to an alternate loop may be performed.

Another example of the type of activity that will be acceptable when the proposed changes are in effect is the addition of inventory to the RCS from the Refueling Water Storage Tank (RWST). Boron concentration in the RWST is controlled between 2500 and 2700 parts per million. Provided that the RWST boron concentration is sufficiently high to assure shutdown margin or refueling boron concentration limits will continue to be met, an alternate supply of makeup to the RCS will be available from the RWST. These activities should not be precluded as long as the required shutdown margin or refueling boron concentration is maintained. The Bases revision for the A.C. Sources and Onsite Power Distribution Systems is needed to clarify the scope of the action for LCO 3.8.1.2.

III. SAFETY ANALYSIS

Shutdown margin and refueling boron concentration limits are established in TS Limiting Conditions for Operation (LCO) 3.1.1.1, "Boration Control - Shutdown Margin - T_{avg}, Greater Than or Equal to 200°F," LCO 3.1.1.2, "Shutdown Margin - T_{avg}, Less Than or Equal to 200°F," and LCO 3.9.1, (Refueling Operations) "Boron Concentration." No changes are proposed to these limits.

As described in the Bases for Shutdown Margin limits, a sufficient shutdown margin ensures that: (1) the reactor can be made subcritical from all operating conditions, (2) the reactivity transients associated with postulated accident conditions are controllable within acceptable limits, and (3) the reactor will be maintained sufficiently subcritical to preclude inadvertent criticality while in the shutdown condition. The Bases for the refueling boron concentration similarly indicate that the limitations on reactivity conditions during refueling ensure that the reactor will remain subcritical during core alterations. Since the proposed changes will not alter the limits established in these specifications, there will be no effect on the ability to shutdown and maintain the reactor in a subcritical condition. During certain conditions that are addressed in this proposed change, addition of water with a reduced boron concentration compared to the RCS and temperature changes will be allowed when forced circulation is not occurring. The proposed changes only permit the addition of inventory from sources whose boron concentration is sufficient to maintain the required boron concentration if the entire RCS inventory was replaced from the selected source. That is, the source of the water being added must be of high enough boron concentration that effects of stratification, and subsequent mixing upon restoration of forced flow, cannot result in failure to meet the required boron concentration limits. This limitation addresses potential concern with stratification and subsequent introduction of the "reduced" concentration borated water into the reactor vessel when forced circulation is re-established.

The proposed changes are developed consistent with NRC approved changes to NUREG-1431 as provided by Technical Specification Task Force (TSTF) 286, Revision 2 and NUREG-1431, Revision 2. LCO 3.4.2, "Safety Valves - Shutdown," is not specifically addressed in NUREG-1431 or TSTF-286. A previous revision to NUREG-1431 relocated LCO 3.4.2 to the Technical Requirements Manual. However, the change to LCO 3.4.2 is consistent with changes to NUREG-1431 as provided by the TSTF-286. Additionally, some of the changes in the TSTF are not applicable to SQN because of the difference between our current specifications and NUREG-1431.

Based on the above evaluation, it is appropriate to make the proposed changes to the specifications. The proposed changes will not affect the limits on reactivity control, and will not permit operations that could result in exceeding these limits. Therefore, the proposed change will not affect any safety margin or safety limit applicable to the facility.

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 technical specifications (TS) 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). These changes will permit addition of positive reactivity or changes to the boron concentration as long as the change preserves the margin to core criticality as defined by the shutdown margin.

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

The proposed change does not involve an increase in the probability or consequences of an accident previously evaluated. The proposed activities to be allowed during certain operating conditions are permitted at other times during routine operating conditions. The changes do not affect the limits on reactivity that are specified in other specifications. The proposed changes continue to ensure restrictions on additions and flowpaths of unborated water that are in the existing specifications. The proposed change does not affect the limits on reactivity that are credited in the safety analysis. Therefore, no increase in the probability or consequences of any accident previously evaluated will occur.

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

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 changes to operating allowances are minor and are only applicable during certain conditions. The operating allowances are consistent with those acceptable at other times. 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.

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

The proposed changes do not involve a significant reduction in a margin of safety because the ability to make the reactor subcritical and maintain it subcritical during all operating conditions and modes of operation will be maintained. The margin of safety is defined by the shutdown margin limits and the refueling boron concentration limit. The proposed changes do not affect these operating restrictions and the margin of safety which assures the ability to make and maintain the reactor subcritical is not affected.

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.

ENCLOSURE 2

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

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE 01-09
MARKED PAGES

I. AFFECTED PAGE LIST

Unit 1
3/4 4-1a
3/4 4-2
3/4 4-2b
3/4 4-3
3/4 8-8
3/4 9-2
3/4 9-8
B3/4 8-1a

Unit 2
3/4 4-2
3/4 4-3
3/4 4-5
3/4 4-6
3/4 8-9
3/4 9-3
3/4 9-9
B3/4 8-1a

II. MARKED PAGES

See attached.

REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 At least two of the reactor coolant loops listed below shall be OPERABLE with at least two reactor coolant loops in operation when the Reactor Trip System breakers are closed and at least one reactor coolant loop in operation when the Reactor Trip System breakers are open:*

a. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,
b. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,
c. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump,
d. Reactor Coolant Loop D and its associated steam generator and reactor coolant pump,

APPLICABILITY: MODE 3

ACTION:

a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. With only one reactor coolant loop in operation and the Reactor Trip System breakers in the closed position, within 1 hour open the Reactor Trip System breakers.

c. With no reactor coolant loop in operation, ~~suspend all operations involving a reduction in boron concentration of the Reactor Coolant System~~ and immediately initiate corrective action to return the required coolant loop to operation.

Insert 1

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 At least the above required reactor coolant pumps, if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 The required steam generators shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 21 percent at least once per 12 hours.

4.4.1.2.3 The required Reactor Coolant loops shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

*All reactor coolant pumps may be de-energized for up to 1 hour provided (1) ~~no operations are permitted that would cause dilution of the reactor coolant system boron concentration,~~ and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

Insert 2

LIMITING CONDITION FOR OPERATION

3.4.1.3 a. At least two of the reactor coolant and/or residual heat removal (RHR) loops listed below shall be OPERABLE:

1. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,*
2. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,*
3. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump,*
4. Reactor Coolant Loop D and its associated steam generator and reactor coolant pump,*
5. Residual Heat Removal Loop A,
6. Residual Heat Removal Loop B.

b. At least one of the above reactor coolant and/or RHR loops shall be in operation.**

APPLICABILITY: MODE 4.

ACTION:

a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; be in COLD SHUTDOWN within 20 hours.

b. With no reactor coolant or RHR loop in operation, ~~suspend all operations involving a reduction in boron concentration of the Reactor Coolant System~~ and immediately initiate corrective action to return the required coolant loop to operation.

Insert 1

**All reactor coolant pumps and residual heat removal pumps may be de-energized for up to 1 hour provided 1) ~~no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration;~~ and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

*A reactor coolant pump shall not be restarted unless a steam bubble exists in the pressurizer.

Insert 2

REACTOR COOLANT SYSTEM

COLD SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.1.4 Two[#] residual heat removal (RHR) loops shall be OPERABLE* and at least one RHR loop shall be in operation.**

APPLICABILITY: MODE 5.

ACTION:

a. With less than the above required RHR/reactor coolant loops OPERABLE, immediately initiate corrective action to return the required RHR/reactor coolant loops to OPERABLE status as soon as possible.

b. With no RHR loop in operation, ~~suspend all operations involving a reduction in boron concentration of the Reactor Coolant System~~ and immediately initiate corrective action to return the required RHR loop to operation.

Insert 3

SURVEILLANCE REQUIREMENTS

4.4.1.4 The residual heat removal loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE and in operation. Four filled reactor coolant loops with at least 2 steam generators having levels greater than or equal to 10 percent (wide-range indication) may be substituted for one RHR loop.

* The normal or emergency power source may be inoperable.

** The RHR pumps may be de-energized for up to 1 hour provided 1) ~~no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration~~, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

Insert 4

3/4.4.2 SAFETY VALVES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.2 A minimum of one pressurizer code safety valve shall be OPERABLE# with a lift setting of 2485 PSIG ± 3%.*

APPLICABILITY: MODES 4 and 5

ACTION:

MODE 4

ADD

Insert 1

With no pressurizer code safety valve OPERABLE, immediately ~~suspend all operations involving positive reactivity changes~~ and place an OPERABLE RHR loop into operation in the shutdown cooling mode.

MODE 5

With no pressurizer code safety valve OPERABLE, immediately suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2 and place an OPERABLE RHR loop into operation in the shutdown cooling mode.

SURVEILLANCE REQUIREMENTS

4.4.2 No additional Surveillance Requirements other than those required by Specification 4.0.5. Following testing, lift settings shall be within ± 1%.

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* The lift setting pressure shall correspond to ambient conditions of the valve of nominal operating temperature and pressure.

A safety valve is not required OPERABLE provided at least one safety valve is removed from the pressurizer and the associated RCS breech is not covered by a pressure retaining membrane.

SHUTDOWN

LIMITING CONDIT10N FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and

b. Diesel generator sets 1A-A and 2A-A or 1B-B and 2B-B each with:

1. Two diesels driving a common generator,

2. Two engine-mounted fuel tanks containing a minimum volume of 250 gallons of fuel per tank,

3. A fuel storage system containing a minimum volume of 62,000 gallons of fuel,

4. A fuel transfer pump, and

5. A separate 125-volt D.C. distribution panel, 125-volt D.C. battery bank and associated charger.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS ~~or positive reactivity changes~~.

Insert 5

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 (except for requirement 4.8.1.1.2.a.5), and 4.8.1.1.3.

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:

Insert 6

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.

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.

REFUELING OPERATIONS

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

ALL WATER LEVELS

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one residual heat removal (RHR) loop shall be in operation.

APPLICABILITY: MODE 6.

Insert 6

ACTION:

a. With less than one residual heat removal loop in operation, except as provided in b. below, suspend all operations involving an increase in the reactor decay heat load ~~or a reduction in boron concentration of the Reactor Coolant System~~. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

b. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.8.1 At least one residual heat removal loop shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 12 hours.

3/4.8.1 and 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

According to Generic Letter 84-15, 24 hours is reasonable to confirm that the OPERABLE diesel generators are not affected by the same problem as the inoperable diesel generator.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

Insert 7 →

The requirements of Specification 3.8.2.1 provide those actions to be taken for the inoperability of A.C. Distribution Systems. Action a of this specification provides an 8-hour action for the inoperability of one or more A.C. boards. Action b of this specification provides a relaxation of the 8-hour action to 24-hours provided the Vital Instrument Power Board is inoperable solely as a result of one inoperable inverter and the board has been energized within 8 hours. In this condition the requirements of Action a do not have to be applied. Action b is not intended to provide actions for inoperable inverters, which is addressed by the operability requirements for the boards, and is included only for relief from the 8-hour action of Action a when only one inverter is affected. More than one inverter inoperable will result in the inoperability of the associated 120 Volt A.C. Vital Instrument Power Board(s) in accordance with Action a. With more than one inverter inoperable entry into the actions of TS 3.0.3 is not applicable because Action a includes provisions for multiple inoperable inverters as attendant equipment to the boards.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137 "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979. The Surveillance Requirements for the diesel generator load-run test and the 24-hour endurance and margin test are in accordance with Regulatory Guide 1.9, Revision 3, July 1993, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power Systems at Nuclear Power Plants." During the diesel generator endurance and margin surveillance test, momentary transients outside the kw and kvar load ranges do not invalidate the test results. Similarly, during the diesel generator load-run test, momentary transients outside the kw load range do not invalidate the test results.

Where the SRs discussed herein specify voltage and frequency tolerances, the following is applicable. 6800 volts is the minimum steady state output voltage and the 10 second transient value. 6800 volts is 98.6% of nominal bus voltage of 6900 volts and is based on the minimum voltage required for the diesel generator supply breaker to close on the 6.9 kV shutdown board. The specified maximum steady state output voltage of 7260 volts is based on the degraded over voltage relay setpoint and is equivalent to 110% of the nameplate rating of the 6600 volt motors. The specified minimum and maximum frequencies of the diesel generator are 58.8 Hz and 61.2 Hz, respectively. These values are equal to ± 2% of the 60 Hz nominal frequency and are derived from the recommendations given in regulatory Guide 1.9.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage batteries for Generating Stations and Substations."

REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 At least two of the reactor coolant loops listed below shall be OPERABLE with at least two reactor coolant loops in operation when the Reactor Trip System breakers are closed and at least one reactor coolant loop in operation when the Reactor Trip System breakers are open:*

a. Reactor Coolant Loop A and its associated steam generator and Reactor Coolant pump,

b. Reactor Coolant Loop B and its associated steam generator and Reactor Coolant pump,

c. Reactor Coolant Loop C and its associated steam generator and Reactor Coolant pump,

d. Reactor Coolant Loop D and its associated steam generator and Reactor Coolant pump.

APPLICABILITY: MODE 3

ACTION:

a. With less than the above required Reactor Coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. With only one reactor coolant loop in operation and the Reactor Trip System breakers in the closed position, within one hour open the Reactor Trip System breakers.

c. With no Reactor Coolant loop in operation, ~~suspend all operations involving a reduction in boron concentration of the Reactor Coolant System~~ and immediately initiate corrective action to return the required Reactor Coolant loop to operation.

Insert 1

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 At least the above required Reactor Coolant pumps, if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 The required steam generators shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 21 percent at least once per 12 hours.

4.4.1.2.3 The required Reactor Coolant loops shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

Insert 2

* All Reactor Coolant pumps may be de-energized for up to 1 hour provided (1) ~~no operations are permitted that would cause dilution of the reactor coolant system boron concentration,~~ and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

REACTOR COOLANT SYSTEM

HOT SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.1.3 a. At least two of the reactor coolant and/or Residual heat removal (RHR) loops listed below shall be OPERABLE:

1. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,*
2. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,*
3. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump,*
4. Reactor Coolant Loop D and its associated steam generator and reactor coolant pump,*
5. Residual Heat Removal Loop A,
6. Residual Heat Removal Loop B.

b. At least one of the above reactor coolant and/or RHR loops shall be in operation.**

APPLICABILITY: MODE 4.

ACTION:

a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; be in COLD SHUTDOWN within 20 hours.

Insert 1

b. With no reactor coolant or RHR loop in operation, ~~suspend all operations involving a reduction in boron concentration of the Reactor Coolant System~~ and immediately initiate corrective action to return the required coolant loop to operation.

Insert 2

**All reactor coolant pumps and residual heat removal pumps may be de-energized for up to 1 hour provided 1) ~~no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration,~~ and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

*A reactor coolant pump shall not be restarted unless a steam bubble exists in the pressurizer.

REACTOR COOLANT SYSTEM

COLD SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.1.4 Two[#] residual heat removal (RHR) loops shall be OPERABLE* and at least one RHR loop shall be in operation.**

APPLICABILITY: MODE 5.

ACTION:

a. With less than the above required RHR/reactor coolant loops OPERABLE, immediately initiate corrective action to return the required RHR/reactor coolant loops to OPERABLE status as soon as possible.

Insert 3

b. With no RHR loop in operation, ~~suspend all operations involving a reduction in boron concentration of the Reactor Coolant System~~ and immediately initiate corrective action to return the required RHR loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.4 The residual heat removal loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE and in operation. Four filled reactor coolant loops with at least 2 steam generators having levels greater than or equal to 10 percent (wide-range indication) may be substituted for one RHR loop.

* The normal or emergency power source may be inoperable.

Insert 4

** The RHR pumps may be de-energized for up to 1 hour provided 1) ~~no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration~~, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

REACTOR COOLANT SYSTEM

3/4.4.2 SAFETY VALVES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.2 A minimum of one pressurizer code safety valve shall be OPERABLE# with a lift setting of 2485 PSIG ± 3%.*

APPLICABILITY: MODES 4 and 5.

ACTION:

MODE 4

ADD

Insert 1

With no pressurizer code safety valve OPERABLE, immediately ~~suspend all operations involving positive reactivity changes~~ and place an OPERABLE residual heat removal loop into operation in the shutdown cooling mode.

MODE 5

With no pressurizer code safety valve OPERABLE, immediately suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2 and place an OPERABLE RHR loop into operation in the shutdown cooling mode.

SURVEILLANCE REQUIREMENTS

4.4.2 No additional Surveillance Requirements other than those required by Specification 4.0.5. Following testing, lift settings shall be within ± 1%.

* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

A safety valve is not required OPERABLE provided at least one safety valve is removed from the pressurizer and the associated RCS breech is not covered by a pressure retaining membrane.

ELECTRICAL POWER SYSTEMS

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and

b. Diesel generator sets 1A-A and 2A-A or 1B-B and 2B-B each with:

1. Two diesels driving a common generator,

2. Two engine-mounted fuel tanks containing a minimum volume of 250 gallons of fuel per tank,

3. A fuel storage system containing a minimum volume of 62,000 gallons of fuel,

4. A fuel transfer pump, and

5. A separate 125-volt D.C. distribution panel, 125-volt D.C. battery bank and associated charger.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS ~~or positive reactivity changes~~.

Insert 5

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 (except for requirement 4.8.1.1.2.a.5), and 4.8.1.1.3.

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:

Insert 6

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,

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.

REFUELING OPERATIONS

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

ALL WATER LEVELS

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one residual heat removal (RHR) loop shall be in operation.

APPLICABILITY: MODE 6.

ACTION:

Insert 6

a. With less than one residual heat removal loop in operation, except as provided in b. below, suspend all operations involving an increase in the reactor decay heat load ~~or a reduction in boron concentration of the Reactor Coolant System~~. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

b. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.8.1 At least one residual heat removal loop shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 12 hours.

3/4.8.1 AND 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

According to Generic Letter 84-15, 24 hours is reasonable to confirm that the OPERABLE diesel generators are not affected by the same problem as the inoperable diesel generator.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

Insert 7 →

The requirements of Specification 3.8.2.1 provide those actions to be taken for the inoperability of A.C. Distribution Systems. Action a of this specification provides an 8-hour action for the inoperability of one or more A.C. boards. Action b of this specification provides a relaxation of the 8-hour action to 24-hours provided the Vital Instrument Power Board is inoperable solely as a result of one inoperable inverter and the board has been energized within 8 hours. In this condition the requirements of Action a do not have to be applied. Action b is not intended to provide actions for inoperable inverters, which is addressed by the operability requirements for the boards, and is included only for relief from the 8-hour action of Action a when only one inverter is affected. More than one inverter inoperable will result in the inoperability of the associated 120 Volt A.C. Vital Instrument Power Board(s) in accordance with Action a. With more than one inverter inoperable entry into the actions of TS 3.0.3 is not applicable because Action a includes provisions for multiple inoperable inverters as attendant equipment to the boards.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies", March 10, 1971, 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137 "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979. The surveillance requirements for the diesel generator load-run test and the 24-hour endurance and margin test are in accordance with Regulatory Guide 1.9, Revision 3, July 1993, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power Systems at Nuclear Power Plant." During the diesel generator endurance and margin surveillance test, momentary transients outside the kw and kvar load ranges do not invalidate the test results. Similarly, during the diesel generator load-run test, momentary transients outside the kw load range do not invalidate the test results.

Where the SRs discussed herein specify voltage and frequency tolerances, the following is applicable. 6800 volts is the minimum steady state output voltage and the 10 second transient value. 6800 volts is 98.6% of nominal bus voltage of 6900 volts and is based on the minimum voltage required for the diesel generator supply breaker to close on the 6.9 kV shutdown board. The specified maximum steady state output voltage of 7260 volts is based on the degraded over voltage relay setpoint and is equivalent to 110% of the nameplate rating of the 6600 volt motors. The specified minimum and maximum frequencies of the diesel generator are 58.8 Hz and 61.2 Hz, respectively. These values are equal to ± 2% of the 60 Hz nominal frequency and are derived from the recommendations given in regulatory Guide 1.9.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are are based on the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

INSERT 1

suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1

INSERT 2

no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1,

INSERT 3

suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2

INSERT 4

no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2,

INSERT 5

and suspend operations involving positive reactivity additions that could result in loss of required shutdown margin or boron concentration.

INSERT 6

and suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet LCO 3.9.1.

INSERT 7

With the minimum required AC power sources not available, it is required to suspend CORE ALTERATIONS and operations involving positive reactivity additions that could result in loss of required SDM (Mode 5) or boron concentration (Mode 6). Suspending positive reactivity additions that could result in failure to meet minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than or equal to that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

ENCLOSURE 3

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

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE 01-09
REVISED PAGES

I. AFFECTED PAGE LIST

Unit 1
3/4 4-1a
3/4 4-2
3/4 4-2b
3/4 4-3
3/4 8-8
3/4 9-2
3/4 9-8
B3/4 8-1a
B3/4 8-1b

Unit 2
3/4 4-2
3/4 4-3
3/4 4-5
3/4 4-6
3/4 8-9
3/4 9-3
3/4 9-9
B3/4 8-1a
B3/4 8-1b

II. REVISED PAGES

See attached.

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 At least two of the reactor coolant loops listed below shall be OPERABLE with at least two reactor coolant loops in operation when the Reactor Trip System breakers are closed and at least one reactor coolant loop in operation when the Reactor Trip System breakers are open:*

a. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,
b. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,
c. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump,
d. Reactor Coolant Loop D and its associated steam generator and reactor coolant pump,

APPLICABILITY: MODE 3

ACTION:

a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. With only one reactor coolant loop in operation and the Reactor Trip System breakers in the closed position, within 1 hour open the Reactor Trip System breakers.

c. With no reactor coolant loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1 and immediately initiate corrective action to return the required coolant loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 At least the above required reactor coolant pumps, if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 The required steam generators shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 21 percent at least once per 12 hours.

4.4.1.2.3 The required Reactor Coolant loops shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

* All reactor coolant pumps may be de-energized for up to 1 hour provided (1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

LIMITING CONDITION FOR OPERATION

3.4.1.3 a. At least two of the reactor coolant and/or residual heat removal (RHR) loops listed below shall be OPERABLE:

1. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,*
2. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,*
3. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump,*
4. Reactor Coolant Loop D and its associated steam generator and reactor coolant pump,*
5. Residual Heat Removal Loop A,
6. Residual Heat Removal Loop B.

b. At least one of the above reactor coolant and/or RHR loops shall be in operation.**

APPLICABILITY: MODE 4.

ACTION:

a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; be in COLD SHUTDOWN within 20 hours.

b. With no reactor coolant or RHR loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1 and immediately initiate corrective action to return the required coolant loop to operation.

**All reactor coolant pumps and residual heat removal pumps may be de-energized for up to 1 hour provided 1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1, and 2) core outlet temperature is maintained at least $10^{o}F$ below saturation temperature.

*A reactor coolant pump shall not be restarted unless a steam bubble exists in the pressurizer.

COLD SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.1.4 Two[#] residual heat removal (RHR) loops shall be OPERABLE* and at least one RHR loop shall be in operation.**

APPLICABILITY: MODE 5.

ACTION:

a. With less than the above required RHR/reactor coolant loops OPERABLE, immediately initiate corrective action to return the required RHR/reactor coolant loops to OPERABLE status as soon as possible.

b. With no RHR loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2 and immediately initiate corrective action to return the required RHR loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.4 The residual heat removal loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE and in operation. Four filled reactor coolant loops with at least 2 steam generators having levels greater than or equal to 10 percent (wide-range indication) may be substituted for one RHR loop.

* The normal or emergency power source may be inoperable.

** The RHR pumps may be de-energized for up to 1 hour provided 1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

REACTOR COOLANT SYSTEM

3/4.4.2 SAFETY VALVES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.2 A minimum of one pressurizer code safety valve shall be OPERABLE# with a lift setting of 2485 PSIG ± 3%.*

APPLICABILITY: MODES 4 and 5

ACTION:

MODE 4

With no pressurizer code safety valve OPERABLE, immediately suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1 and place an OPERABLE RHR loop into operation in the shutdown cooling mode.

MODE 5

With no pressurizer code safety valve OPERABLE, immediately suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2 and place an OPERABLE RHR loop into operation in the shutdown cooling mode.

SURVEILLANCE REQUIREMENTS

4.4.2 No additional Surveillance Requirements other than those required by Specification 4.0.5. Following testing, lift settings shall be within ± 1%.

* The lift setting pressure shall correspond to ambient conditions of the valve of nominal operating temperature and pressure.

A safety valve is not required OPERABLE provided at least one safety valve is removed from the pressurizer and the associated RCS breech is not covered by a pressure retaining membrane.

SHUTDOWN

LIMITING CONDIT10N FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and

b. Diesel generator sets 1A-A and 2A-A or 1B-B and 2B-B each with:

1. Two diesels driving a common generator,

2. Two engine-mounted fuel tanks containing a minimum volume of 250 gallons of fuel per tank,

3. A fuel storage system containing a minimum volume of 62,000 gallons of fuel,

4. A fuel transfer pump, and

5. A separate 125-volt D.C. distribution panel, 125-volt D.C. battery bank and associated charger.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS and suspend operations involving positive reactivity additions that could result in loss of required shutdown margin or boron concentration.

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 (except for requirement 4.8.1.1.2.a.5), and 4.8.1.1.3.

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 and suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet LCO 3.9.1.

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.

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.

REFUELING OPERATIONS

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

ALL WATER LEVELS

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one residual heat removal (RHR) loop shall be in operation.

APPLICABILITY: MODE 6.

ACTION:

a. With less than one residual heat removal loop in operation, except as provided in b. below, suspend all operations involving an increase in the reactor decay heat load and suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet LCO 3.9.1. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

b. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.8.1 At least one residual heat removal loop shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 12 hours.

3/4.8.1 and 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

According to Generic Letter 84-15, 24 hours is reasonable to confirm that the OPERABLE diesel generators are not affected by the same problem as the inoperable diesel generator.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

With the minimum required AC power sources not available, it is required to suspend CORE ALTERATIONS and operations involving positive reactivity additions that could result in loss of required SDM (Mode 5) or boron concentration (Mode 6). Suspending positive reactivity additions that could result in failure to meet minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than or equal to that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

The requirements of Specification 3.8.2.1 provide those actions to be taken for the inoperability of A.C. Distribution Systems. Action a of this specification provides an 8-hour action for the inoperability of one or more A.C. boards. Action b of this specification provides a relaxation of the 8-hour action to 24-hours provided the Vital Instrument Power Board is inoperable solely as a result of one inoperable inverter and the board has been energized within 8 hours. In this condition the requirements of Action a do not have to be applied. Action b is not intended to provide actions for inoperable inverters, which is addressed by the operability requirements for the boards, and is included only for relief from the 8-hour action of Action a when only one inverter is affected. More than one inverter inoperable will result in the inoperability of the associated 120 Volt A.C. Vital Instrument Power Board(s) in accordance with Action a. With more than one inverter inoperable entry into the actions of TS 3.0.3 is not applicable because Action a includes provisions for multiple inoperable inverters as attendant equipment to the boards.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137 "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979. The Surveillance Requirements for the diesel generator load-run test and the 24-hour endurance and margin test are in accordance with Regulatory Guide 1.9, Revision 3, July 1993, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power Systems at Nuclear Power Plants." During the diesel generator endurance and margin surveillance test, momentary transients outside the kw and kvar load ranges do not invalidate the test results. Similarly, during the diesel generator load-run test, momentary transients outside the kw load range do not invalidate the test results.

Where the SRs discussed herein specify voltage and frequency tolerances, the following is applicable. 6800 volts is the minimum steady state output voltage and the 10 second transient value. 6800 volts is 98.6% of nominal bus voltage of 6900 volts and is based on the minimum voltage required for the diesel generator supply breaker to close on the 6.9 kV shutdown board. The specified maximum steady state output voltage of 7260 volts is based on the degraded over voltage relay setpoint and is equivalent to 110% of the nameplate rating of the 6600 volt motors. The specified minimum and maximum frequencies of the diesel generator are 58.8 Hz and 61.2 Hz, respectively. These values are equal to ± 2% of the 60 Hz nominal frequency and are derived from the recommendations given in regulatory Guide 1.9.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage batteries for Generating Stations and Substations."

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 At least two of the reactor coolant loops listed below shall be OPERABLE with at least two reactor coolant loops in operation when the Reactor Trip System breakers are closed and at least one reactor coolant loop in operation when the Reactor Trip System breakers are open:*

a. Reactor Coolant Loop A and its associated steam generator and Reactor Coolant pump,

b. Reactor Coolant Loop B and its associated steam generator and Reactor Coolant pump,

c. Reactor Coolant Loop C and its associated steam generator and Reactor Coolant pump,

d. Reactor Coolant Loop D and its associated steam generator and Reactor Coolant pump.

APPLICABILITY: MODE 3

ACTION:

a. With less than the above required Reactor Coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. With only one reactor coolant loop in operation and the Reactor Trip System breakers in the closed position, within one hour open the Reactor Trip System breakers.

c. With no Reactor Coolant loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1 and immediately initiate corrective action to return the required Reactor Coolant loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 At least the above required Reactor Coolant pumps, if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 The required steam generators shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 21 percent at least once per 12 hours.

4.4.1.2.3 The required Reactor Coolant loops shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

* All Reactor Coolant pumps may be de-energized for up to 1 hour provided (1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

HOT SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.1.3 a. At least two of the reactor coolant and/or Residual heat removal (RHR) loops listed below shall be OPERABLE:

1. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,*
2. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,*
3. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump,*
4. Reactor Coolant Loop D and its associated steam generator and reactor coolant pump,*
5. Residual Heat Removal Loop A,
6. Residual Heat Removal Loop B.

b. At least one of the above reactor coolant and/or RHR loops shall be in operation.**

APPLICABILITY: MODE 4.

ACTION:

a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; be in COLD SHUTDOWN within 20 hours.

b. With no reactor coolant or RHR loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1 and immediately initiate corrective action to return the required coolant loop to operation.

**All reactor coolant pumps and residual heat removal pumps may be de-energized for up to 1 hour provided 1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

*A reactor coolant pump shall not be restarted unless a steam bubble exists in the pressurizer.

REACTOR COOLANT SYSTEM

COLD SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.1.4 Two[#] residual heat removal (RHR) loops shall be OPERABLE* and at least one RHR loop shall be in operation.**

APPLICABILITY: MODE 5.

ACTION:

a. With less than the above required RHR/reactor coolant loops OPERABLE, immediately initiate corrective action to return the required RHR/reactor coolant loops to OPERABLE status as soon as possible.

b. With no RHR loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2 and immediately initiate corrective action to return the required RHR loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.4 The residual heat removal loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE and in operation. Four filled reactor coolant loops with at least 2 steam generators having levels greater than or equal to 10 percent (wide-range indication) may be substituted for one RHR loop.

* The normal or emergency power source may be inoperable.

** The RHR pumps may be de-energized for up to 1 hour provided 1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

3/4.4.2 SAFETY VALVES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.2 A minimum of one pressurizer code safety valve shall be OPERABLE# with a lift setting of 2485 PSIG ± 3%.*

APPLICABILITY: MODES 4 and 5.

ACTION:

MODE 4

With no pressurizer code safety valve OPERABLE, immediately suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.1 and place an OPERABLE RHR loop into operation in the shutdown cooling mode.

MODE 5

With no pressurizer code safety valve OPERABLE, immediately suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.2 and place an OPERABLE RHR loop into operation in the shutdown cooling mode.

SURVEILLANCE REQUIREMENTS

4.4.2 No additional Surveillance Requirements other than those required by Specification 4.0.5. Following testing, lift settings shall be within ± 1%.

* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

\# A safety valve is not required OPERABLE provided at least one safety valve is removed from the pressurizer and the associated RCS breech is not covered by a pressure retaining membrane.

ELECTRICAL POWER SYSTEMS

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and

b. Diesel generator sets 1A-A and 2A-A or 1B-B and 2B-B each with:

1. Two diesels driving a common generator,

2. Two engine-mounted fuel tanks containing a minimum volume of 250 gallons of fuel per tank,

3. A fuel storage system containing a minimum volume of 62,000 gallons of fuel,

4. A fuel transfer pump, and

5. A separate 125-volt D.C. distribution panel, 125-volt D.C. battery bank and associated charger.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS and suspend operations involving positive reactivity additions that could result in loss of required shutdown margin or boron concentration.

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 (except for requirement 4.8.1.1.2.a.5), and 4.8.1.1.3.

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 and suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet LCO 3.9.1.

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,

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.

REFUELING OPERATIONS

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

ALL WATER LEVELS

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one residual heat removal (RHR) loop shall be in operation.

APPLICABILITY: MODE 6.

ACTION:

a. With less than one residual heat removal loop in operation, except as provided in b. below, suspend all operations involving an increase in the reactor decay heat load and suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet LCO 3.9.1. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

b. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.8.1 At least one residual heat removal loop shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 12 hours.

3/4.8.1 AND 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

According to Generic Letter 84-15, 24 hours is reasonable to confirm that the OPERABLE diesel generators are not affected by the same problem as the inoperable diesel generator.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

With the minimum required AC power sources not available, it is required to suspend CORE ALTERATIONS and operations involving positive reactivity additions that could result in loss of required SDM (Mode 5) or boron concentration (Mode 6). Suspending positive reactivity additions that could result in failure to meet minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than or equal to that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

The requirements of Specification 3.8.2.1 provide those actions to be taken for the inoperability of A.C. Distribution Systems. Action a of this specification provides an 8-hour action for the inoperability of one or more A.C. boards. Action b of this specification provides a relaxation of the 8-hour action to 24-hours provided the Vital Instrument Power Board is inoperable solely as a result of one inoperable inverter and the board has been energized within 8 hours. In this condition the requirements of Action a do not have to be applied. Action b is not intended to provide actions for inoperable inverters, which is addressed by the operability requirements for the boards, and is included only for relief from the 8-hour action of Action a when only one inverter is affected. More than one inverter inoperable will result in the inoperability of the associated 120 Volt A.C. Vital Instrument Power Board(s) in accordance with Action a. With more than one inverter inoperable entry into the actions of TS 3.0.3 is not applicable because Action a includes provisions for multiple inoperable inverters as attendant equipment to the boards.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies", March 10, 1971, 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137 "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979. The surveillance requirements for the diesel generator load-run test and the 24-hour endurance and margin test are in accordance with Regulatory Guide 1.9, Revision 3, July 1993, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power Systems at Nuclear Power Plant." During the diesel generator endurance and margin surveillance test, momentary transients outside the kw and kvar load ranges do not invalidate the test results. Similarly, during the diesel generator load-run test, momentary transients outside the kw load range do not invalidate the test results.

Where the SRs discussed herein specify voltage and frequency tolerances, the following is applicable. 6800 volts is the minimum steady state output voltage and the 10 second transient value. 6800 volts is 98.6% of nominal bus voltage of 6900 volts and is based on the minimum voltage required for the diesel generator supply breaker to close on the 6.9 kV shutdown board. The specified maximum steady state output voltage of 7260 volts is based on the degraded over voltage relay setpoint and is equivalent to 110% of the nameplate rating of the 6600 volt motors. The specified minimum and maximum frequencies of the diesel generator are 58.8 Hz and 61.2 Hz, respectively. These values are equal to ± 2% of the 60 Hz nominal frequency and are derived from the recommendations given in regulatory Guide 1.9.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are are based on the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."