

ATTACHMENT FOUR

PROPOSED TECHNICAL SPECIFICATION REVISIONS

LIMITING SAFETY SYSTEM SETTINGS

BASES

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Reactor Trip System Interlocks

The Reactor Trip System interlocks perform the following functions:

- P-6 On increasing power, P-6 allows the manual block of the Source Range trip (i.e., prevents premature block of Source Range trip), provides a backup block for Source Range Neutron Flux <sup>Multiplication</sup> coupling, and allows deenergization of the high voltage to the detectors. On decreasing power, Source Range Level trips are automatically reactivated and high voltage restored.
- P-7 On increasing power, P-7 automatically enables Reactor trips on low flow in more than one reactor coolant loop, reactor coolant pump bus undervoltage and underfrequency, pressurizer low pressure and pressurizer high level. On decreasing power, the above listed trips are automatically blocked.
- P-8 On increasing power, P-8 automatically enables Reactor trips on low flow in one or more reactor coolant loops. On decreasing power, the P-8 automatically blocks the single loop Low Flow trip.
- P-9 On increasing power, P-9 automatically enables Reactor trip on Turbine trip. On decreasing power, P-9 automatically blocks Reactor trip on Turbine trip.
- P-10 On increasing power, P-10 allows the manual block of the Intermediate Range trip and the Low Setpoint Power Range trip; and automatically blocks the Source Range trip and de-energizes the Source Range high voltage power. On decreasing power, the Intermediate Range trip and the Low Setpoint Power Range trip are automatically reactivated. Provides input to P-7.
- P-13 Provides input to P-7.

TABLE 3.3-1 (Continued)

TABLE NOTATIONS

\*Only if the Reactor Trip System breakers happen to be in the closed position and the Control Rod Drive System is capable of rod withdrawal.

\*\*The boron dilution flux ~~cooling~~ <sup>multiplication</sup> signals may be blocked during reactor startup in accordance with approved procedures.

#The provisions of Specification 3.0.4 are not applicable.

##Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint.

###Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.

- (1) The applicable MODES for these channels noted in Table 3.3-3 are more restrictive and, therefore, applicable.

ACTION STATEMENTS

ACTION 1 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

- a. The inoperable channel is placed in the tripped condition within 6 hours.
- b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1, and
- c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.2.

ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

- a. Below the P-6 (Intermediate Range Neutron Flux interlock) Setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint; or
- b. Above the P-6 (Intermediate Range Neutron Flux interlock) Setpoint but below 10% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10% of RATED THERMAL POWER.

TABLE 4.3-1 (Continued)

TSI 47

## TABLE NOTATIONS

\*Only if the Reactor Trip System breakers happen to be closed and the Control Rod Drive System is capable of rod withdrawal.

TSI 32

#The specified 18 month frequency may be waived for Cycle 1 provided the surveillance is performed prior to restart following the first refueling outage or June 1, 1986, whichever occurs first. The provisions of Specification 4.0.2 are reset from performance of this surveillance.

TSI 66

#Below P-6 (Intermediate Range Neutron Flux interlock) Setpoint.

##Below P-10 (Low Setpoint Power Range Neutron Flux interlock) Setpoint.

- (1) If not performed in previous 31 days.
- (2) Comparison of calorimetric to excore power indication above 15% of RATED THERMAL POWER. Adjust excore channel gains consistent with calorimetric power if absolute difference is greater than 2%. The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.
- (3) Single point comparison of incore to excore AXIAL FLUX DIFFERENCE above 15% of RATED THERMAL POWER. Recalibrate if the absolute difference is greater than or equal to 3%. The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.
- (4) Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (5) Detector plateau curves shall be obtained, evaluated and compared to manufacturer's data. For the Intermediate Range and Power Range Neutron Flux channels the provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.
- (6) Incore - Excore Calibration, above 75% of RATED THERMAL POWER. The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1. Determination of the loop specific vessel  $\Delta T$  value should be made when performing the Incore/Excore quarterly recalibration, under steady state conditions.
- (7) Each train shall be tested at least every 52 days on a STAGGERED TEST BASIS. The TRIP ACTUATING DEVICE OPERATIONAL TEST shall independently verify the OPERABILITY of the Undervoltage and Shunt Trip Attachments of the Reactor Trip Breakers.
- (8) Deleted
- (9) Quarterly surveillance in MODES 3\*, 4\*, and 5\* shall also include verification that permissives P-6 and P-10 are in their required state for existing plant conditions by observation of the permissive annunciator window. Quarterly surveillance shall include verification of the Boron Dilution Alarm Setpoint of less than or equal to an increase of ~~twice~~ *1.7 times* the count rate within a 10-minute period.

TABLE 4.3-1 (Continued)

## TABLE NOTATIONS

- (10) Setpoint verification is not required.
- (11) Following maintenance or adjustment of the Reactor trip breakers, the TRIP ACTUATING DEVICE OPERATIONAL TEST shall include independent verification of the Undervoltage and Shunt trips.
- (12) At least once per 18 months during shutdown, verify that on a simulated Boron Dilution ~~Doubling~~ <sup>Flux Multiplication</sup> test signal the normal CVCS discharge valves will close and the centrifugal charging pumps suction valves from the RWST will open within 30 seconds.
- (13) Deleted
- (14) Deleted
- (15) The surveillance MODES specified for these channels in Table 4.3-2 are more restrictive and, therefore, applicable.
- (16) The TRIP ACTUATING DEVICE OPERATIONAL TEST shall independently verify the OPERABILITY<sup>†</sup> of the Undervoltage and Shunt Trip circuits for the Manual Reactor Trip function. The test shall also verify the OPERABILITY of the Bypass Breaker trip circuit.
- (17) Local manual shunt trip prior to placing breaker in service.
- (18) Automatic Undervoltage Trip.

<sup>†</sup> Complete verification of OPERABILITY of the manual reactor trip switch circuitry shall be performed prior to startup from the first shutdown to Mode 3 occurring after August 7, 1992.



### 3/4.4 REACTOR COOLANT SYSTEM

#### BASES

#### 3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

The plant is designed to operate with all reactor coolant loops in operation and maintain DNBR above the safety analysis DNBR limits during all normal operations and anticipated transients. In MODES 1 and 2 with one reactor coolant loop not in operation this specification requires that the plant be in at least HOT STANDBY within 6 hours.

In MODE 3, two reactor coolant loops provide sufficient heat removal capability for removing decay heat even in the event of a bank withdrawal accident; however, single failure considerations require that three loops be OPERABLE. A single reactor coolant loop provides sufficient heat removal if a bank withdrawal accident can be prevented, i.e., by opening the Reactor Trip System Breakers.

In MODE 4, and in MODE 5 with reactor coolant loops filled, a single reactor coolant loop or RHR loop provides sufficient heat removal capability for removing decay heat; but single failure considerations require that at least two loops (either RHR or RCS) be OPERABLE.

In MODE 5 with reactor coolant loops not filled, a single RHR loop provides sufficient heat removal capability for removing decay heat; but single failure considerations, and the unavailability of the steam generators as a heat removing component, require that at least two RHR loops be OPERABLE.

The operation of one reactor coolant pump (RCP) <sup>in MODES 3, 4, and 5</sup> ~~or an RHR pump~~ provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with boron reduction will, therefore, be within the capability of ~~operator recognition and control.~~ <sup>transient mitigation</sup> ~~INSERT~~

The restrictions on starting a reactor coolant pump in MODES 4 and 5 are provided to prevent RCS pressure transients, caused by energy additions from the Secondary Coolant System, which could exceed the limits of Appendix G to 10 CFR Part 50. The RCS will be protected against overpressure transients and will not exceed the limits of Appendix G by restricting starting of the RCPs to when the secondary water temperature of each steam generator is less than 50°F above each of the RCS cold leg temperatures.

## INSERT 1

the Boron Dilution Mitigation System (BDMS). With no reactor coolant loop in operation in either MODES 3, 4, or 5, boron dilutions must be terminated and dilution sources isolated. The boron dilution analysis in these MODES takes credit for the mixing volume associated with having at least one reactor coolant loop in operation.

## LIMITING SAFETY SYSTEM SETTINGS

### BASES

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#### REACTOR TRIP SYSTEM INTERLOCKS

The Reactor Trip System interlocks perform the following functions:

- P-6      On increasing power, P-6 allows the manual block of the Source Range trip (i.e., prevents premature block of Source Range trip), provides a backup block for Source Range Neutron Flux Multiplication, and allows deenergization of the high voltage to the detectors. On decreasing power, Source Range Level trips are automatically reactivated and high voltage restored.
- P-7      On increasing power, P-7 automatically enables Reactor trips on low flow in more than one reactor coolant loop, reactor coolant pump bus undervoltage and underfrequency, pressurizer low pressure and pressurizer high level. On decreasing power, the above listed trips are automatically blocked.
- P-8      On increasing power, P-8 automatically enables Reactor trips on low flow in one or more reactor coolant loops. On decreasing power, the P-8 automatically blocks the single loop Low Flow trip.
- P-9      On increasing power, P-9 automatically enables Reactor trip on Turbine trip. On decreasing power, P-9 automatically blocks Reactor trip on Turbine trip.
- P-10     On increasing power, P-10 allows the manual block of the Intermediate Range trip and the Low Setpoint Power Range trip; and automatically blocks the Source Range trip and de-energizes the Source Range high voltage power. On decreasing power; the Intermediate Range trip and the Low Setpoint Power Range trip are automatically reactivated. Provides input to P-7.
- P-13     Provides input to P-7.



TABLE 3.3-1 (Continued)

TABLE NOTATIONS

- \* Only if the Reactor Trip System breakers happen to be in the closed position and the Control Rod Drive System is capable of rod withdrawal.
- \*\* The boron dilution flux multiplication signals may be blocked during reactor startup in accordance with approved procedures.
- # The provisions of Specification 3.0.4 are not applicable.
- ## Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint.
- ### Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.
- (1) The applicable MODES for these channels noted in Table 3.3-3 are more restrictive and, therefore, applicable.

ACTION STATEMENTS

ACTION 1 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

- a. The inoperable channel is placed in the tripped condition within 6 hours,
- b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1, and
- c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.2.

ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

- a. Below the P-6 (Intermediate Range Neutron Flux interlock) Setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint; or
- b. Above the P-6 (Intermediate Range Neutron Flux interlock) Setpoint but below 10% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10% of RATED THERMAL POWER.

TABLE 4.3-1 (Continued)

TABLE NOTATIONS

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# The specified 18 month frequency may be waived for Cycle 1 provided the surveillance is performed prior to restart following the first refueling outage or June 1, 1986, whichever occurs first. The provisions of Specification 4.0.2 are reset from performance of this surveillance.

## Below P-6 (Intermediate Range Neutron Flux interlock) Setpoint.

### Below P-10 (Low Setpoint Power Range Neutron Flux interlock) Setpoint.

- (1) If not performed in previous 31 days.
- (2) Comparison of calorimetric to excore power indication above 15% of **RATED THERMAL POWER**. Adjust excore channel gains consistent with calorimetric power if absolute difference is greater than 2%. The provisions of Specification 4.0.4 are not applicable for entry into **MODE 2** or **1**.
- (3) Single point comparison of incore to excore **AXIAL FLUX DIFFERENCE** above 15% of **RATED THERMAL POWER**. Recalibrate if the absolute difference is greater than or equal to 3%. The provisions of Specification 4.0.4 are not applicable for entry into **MODE 2** or **1**.
- (4) Neutron detectors may be excluded from **CHANNEL CALIBRATION**.
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- (6) Incore - Excore Calibration, above 75% of **RATED THERMAL POWER**. The provisions of Specification 4.0.4 are not applicable for entry into **MODE 2** or **1**. Determination of the loop specific vessel  $\Delta T$  value should be made when performing the Incore/Excore quarterly recalibration, under steady state conditions.
- (7) Each train shall be tested at least every 62 days on a **STAGGERED TEST BASIS**. The **TRIP ACTUATING DEVICE OPERATIONAL TEST** shall independently verify the **OPERABILITY** of the Un.ervoltage and Shunt Trip Attachments of the Reactor Trip Breakers.
- (8) Deleted
- (9) Quarterly surveillance in **MODES 3\***, **4\***, and **5\*** shall also include verification that permissives P-6 and P-10 are in their required state for existing plant conditions by observation of the permissive annunciator window. Quarterly surveillance shall include verification of the Boron Dilution Alarm Setpoint of less than or equal to an increase of 1.7 times the count rate within a 10-minute period.

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