Industry/TSTF Standard Technical Specification Change Traveler

Add an LCO item and SR to Mode 2 Physics Tests Exceptions to verify that Thermal Power <= 5% RTP.

Classification: Not Classified

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

Add an LCO requirement and SR to Mode 2 Physics Tests Exceptions 3.1.10 to verify that Thermal Power <= 5% RTP. Deleted references in the Bases to Physics Tests to tests performed in Mode 1 as this Tech Spec only applies to tests performed in Mode 2. Deleted the reference to Mode 2 in the Applicability.

Justification:

This LCO requirements and SR were added to verify that Thermal Power is within the defined power level for Mode 2 during performance of Physics Tests, since there is an action that addresses Thermal Power not within limit and no corresponding LCO or surveillance.

The Bases references to Physics Tests performed in Mode 1 were unnecessary as this specification refers only to tests performed in Mode 2.

The explicit reference to Mode 2 in the Applicability is unnecessary as the LCO limits the use of the Test Exception to power levels less than 5% (the upper limit of Mode 2).

Affected Technical Specifications

LCO 3.1.10	Physics Test Exceptions - Mode 2	
LCO 3.1.10 Bases	Physics Test Exceptions - Mode 2	
SR 3.1.10.3	Physics Test Exceptions - Mode 2	
	Change Description:	Renumber to 3.1.10.4
SR 3.1.10.3	Physics Test Exceptions - Mode 2	
	Change Description:	Inserted
SR 3.1.10.3 Bases	Physics Test Exceptions - Mode 2	
	Change Description:	Renumber to 3.1.10.4
SR 3.1.10.3 Bases	Physics Test Exceptions - Mode 2	
	Change Description:	Inserted

WOG Review Information

WOG-4.6

Originating Plant: Date Provided to OG: 11-Mar-95 Needed By:

Owners Group History:

WOG-04, C.6

Owners Group Resolution: Approved Date: 11-Aug-95

TSTF Review Information

TSTF Received Date: 05-Sep-95 Date Distributed to OGs for Review: 05-Sep-95

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

TSTF Resolution: Approved Date: 05-Sep-95 TSTF- 14

3/23/97

NRC Review Information

NRC Received Date: 03-Oct-95 NRC Reviewer: R. Tjader Reviewer Phone #:

Reviewer Comments:

10/4/95 - R. Tjader approved change, pkg to TSB mgmt.
11/17/95 - C. Grimes approved change.
1/20/96 changes processed. Compl ion of pkg. waiting on completion of TSTF-12.
6/12/96 - -Reviewer completed revie . Reviewer's comment: Change is a matter of preference and editorial. Adding "c. Thermal Power <= 5% RTP," to LCO and Bases adds clarity and should be approved. Removing "Mode 2" from Applicability and Bases does not enhance clarity. Except for a few refueling LCOs, all other LCOs refer to a Mode. Prefer "Mode 2" be retained in the Applicability section.
Note: TSTF-14, R. 2 was submitted by TSB reviewer on 6/12/96 for his review.
6/11/96 - C. Grimes comment: TSTF-14, R. 1 was approved.
9/18/96 - NRC requested revision to retain Mode 2 in the applicability. TSTF agreed and will prepare revision.
10/15/96 - New revision forwarded to the TSTF for review.
3/13/97 - NRC approves TSTF-14, Rev. 3.
3/18/97 - NRC informed by TSTF that editorial change to TSTF-14, Rev. 3 was needed. Rev. 4 forthcoming.

Final Resolution: NRC Requests Changes: TSTF Will Revise Final Resolution Date:

Revision History

TSTF Revision 1 Revision Date: 08-Jan-96 Proposed by: TSTF

Revision Description:
Remarked the pages to use TSTF number instead of OG number.
The Tech Spec markup contains other changes not discussed in the Discussion or Justification. The TSTF package was WOG-4, C.6 only, but changes WOG-4, C.1 and C.4 were included in the TSTF package. These were removed.

Distributed to TSTF: Resolution: Approved Date: 08-Jan-96 Rev to NRC: 1/8/96

TSTF Revision 2 Revision Date: 15-Jan-96 Proposed by: TSTF

Revision Description:
Added a LCO requirement in addition to the surveillance.

Distributed to TSTF: Resolution: Approved Date: 28-May-96 Rev to NRC: 5/28/96

TSTF Revision 3 Revision Date: 18-Sep-96 Proposed by:

Revision Description:
Reviewer completed review. Reviewer's comment: Change is a matter of preference and editorial. Adding "c. Thermal Power <= 5% RTP," to LCO and Bases adds clarity and should be approved. Removing "Mode 2" from Applicability and Bases does not enhance clarity. Except for a few refueling LCOs, all other LCOs refer to a Mode. Prefer "Mode 2" be retained in the Applicability section.

Distributed to TSTF: 11/20/96 Resolution: Approved Date: 19-Dec-96 Rev to NRC: 1/17/97

TSTF Revision 4 Revision Date: 23-Mar-97 Proposed by: TSTF

Revision Description:
Insert 1 to the Bases contained brackets around the Surveillance Frequency even though the Frequency was not backeted in the SR. This revision corrects this by eliminating the brackets in the insert.

Distributed to TSTF: 3/23/97 Resolution: Approved Date: 23-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

3.1 REACTIVITY CONTROL SYSTEMS

3.1.10 PHYSICS TESTS Exceptions—MODE 2

LCO 3.1.10 During the performance of PHYSICS TESTS, the requirements of

LCO 3.1.4, "Moderator Temperature Coefficient (MTC)";
LCO 3.1.5, "Rod Group Alignment Limits";
LCO 3.1.6, "Shutdown Bank Insertion Limits";
LCO 3.1.7, "Control Bank Insertion Limits"; and
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

may be suspended, provided:

a. RCS lowest loop average temperature is ≥ [531]°F; ~~and~~

b. SDM is ≥ [1.6]% Δk/k; and

c. THERMAL POWER is ≤ 5% RTP.

APPLICABILITY: MODE 2 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. SDM not within limit.	A.1	Initiate boration to restore SDM to within limit.	15 minutes
	AND		
	A.2	Suspend PHYSICS TESTS exceptions.	1 hour
B. THERMAL POWER not within limit.	B.1	Open reactor trip breakers.	Immediately

(continued)

TSTF-14, Rev. 4

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. RCS lowest loop average temperature not within limit.	C.1	Restore RCS lowest loop average temperature to within limit.	15 minutes
D. Required Action and associated Completion Time of Condition C not met.	D.1	Be in MODE 3.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.10.1	Perform a CHANNEL OPERATIONAL TEST on power range and intermediate range channels per [SR 3.3.1.7, SR 3.3.1.8, and Table 3.3.1-1].	Within 12 hours prior to initiation of PHYSICS TESTS
SR 3.1.10.2	Verify the RCS lowest loop average temperature is ≥ [531]°F.	30 minutes
SR 3.1.10.~~3~~ (4)	Verify SDM is ≥ 1.6% Δk/k.	24 hours
SR 3.1.10.3	Verify THERMAL POWER is ≤ 5% RTP.	30 minutes

TSTF-14, Rev. 4

BASES

LCO (continued)

limits is permitted for the purpose of performing PHYSICS TESTS and poses no threat to fuel integrity, provided the SRs are met.

The requirements of LCO 3.1.4, LCO 3.1.5, LCO 3.1.6, LCO 3.1.7, and LCO 3.4.2 may be suspended during the performance of PHYSICS TESTS provided:

a. RCS lowest loop average temperature is ≥ [531] °F; ~~and~~

b. SDM is ≥ [1.6]% Δk/~~k~~ ; and

c. THERMAL POWER is ≤ 5% RTP.

APPLICABILITY

This LCO is applicable in MODE 2 when performing low power PHYSICS TESTS. The applicable PHYSICS TESTS are performed in MODE 2 at HZP. Other PHYSICS TESTS are performed in MODE 1 and are addressed in LCO 3.1.9, "PHYSICS TESTS Exceptions—MODE 1."

ACTIONS

A.1 and A.2

If the SDM requirement is not met, boration must be initiated promptly. A Completion Time of 15 minutes is adequate for an operator to correctly align and start the required systems and components. The operator should begin boration with the best source available for the plant conditions. Boration will be continued until SDM is within limit.

Suspension of PHYSICS TESTS exceptions requires restoration of each of the applicable LCOs to within specification.

B.1

When THERMAL POWER is > 5% RTP, the only acceptable action is to open the reactor trip breakers (RTBs) to prevent operation of the reactor beyond its design limits. Immediately opening the RTBs will shut down the reactor and prevent operation of the reactor outside of its design limits.

(continued)

TSTF-14, Rev. 4

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.10.2 (continued)

performance of the PHYSICS TESTS will ensure that the initial conditions of the safety analyses are not violated.

INSERT 1 →

SR 3.1.10.~~3~~ 4

The SDM is verified by performing a reactivity balance calculation, considering the following reactivity effects:

a. RCS boron concentration;

b. Control bank position;

c. RCS average temperature;

d. Fuel burnup based on gross thermal energy generation;

e. Xenon concentration;

f. Samarium concentration; and

g. Isothermal temperature coefficient (ITC).

Using the ITC accounts for Doppler reactivity in this calculation because the reactor is subcritical, and the fuel temperature will be changing at the same rate as the RCS.

The Frequency of 24 hours is based on the generally slow change in required boron concentration and on the low probability of an accident occurring without the required SDM.

REFERENCES

1. 10 CFR 50, Appendix B, Section XI.

2. 10 CFR 50.59.

3. Regulatory Guide 1.68, Revision 2, August, 1978.

4. ANSI/ANS-19.6.1-1985, December 13, 1985.

(continued)

INSERT 1

SR 3.1.8.3 (10)

Verification that the THERMAL POWER is ≤ 5% RTP will ensure that the plant is not operating in a condition that could invalidate the safety analyses. Verification of the THERMAL POWER at a Frequency of 30 minutes during the performance of the PHYSICS TESTS will ensure that the initial conditions of the safety analyses are not violated.

Industry/TSTF Standard Technical Specification Change Traveler

Relocate the details of RTD and thermocouple calibration from the Channel Calibration definition

Classification: Consistency/Standardization

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Relocate the details of RTD and thermocouple calibration from the Channel Calibration definition to the Bases associated with calibration of these components.

Justification:

The details associated with defining acceptable means by which a channel calibration can be accomplished for RTDs and thermocouples is proposed to be relocated to the Bases associated with the calibration of these components. The information contained in the definition is prescriptive in nature, better suited as Bases information consistent with other material relocated to the Bases.

Affected Technical Specifications

1.1	Definition of Channel Calibration	
SR 3.3.1.6 Bases	RPS Instrumentation	NUREG(s)- 1430 Only
SR 3.3.17.2 Bases	PAM Instrumentation	NUREG(s)- 1430 Only
SR 3.3.18.3 Bases	Remote Shutdown System	NUREG(s)- 1430 Only
SR 3.3.1.12 Bases	RTS Instrumentation	NUREG(s)- 1431 Only
SR 3.3.3.2 Bases	PAM Instrumentation	NUREG(s)- 1431 Only
SR 3.3.4.3 Bases	Remote Shutdown System	NUREG(s)- 1431 Only
SR 3.3.11.2 Bases	PAM Instrumentation (Analog)	NUREG(s)- 1432 Only
SR 3.3.11.2 Bases	PAM Instrumentation (Digital)	NUREG(s)- 1432 Only
SR 3.3.12.3 Bases	Remote Shutdown System (Analog)	NUREG(s)- 1432 Only
SR 3.3.12.3 Bases	Remote Shutdown System (Digital)	NUREG(s)- 1432 Only

WOG Review Information

WOG-6

Originating Plant: Ginna Date Provided to OG: Needed By:

Owners Group History:

Owners Group Resolution: Approved Date: 02-Nov-95

TSTF Review Information

TSTF Received Date: 02-Nov-95 Date Distributed to OGs for Review: 02-Nov-95

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

TSTF Resolution: Approved Date: 14-Nov-95 **TSTF- 19**

NRC Review Information

NRC Received Date: 16-Nov-95 NRC Reviewer: R. Giardina Reviewer Phone #:

Reviewer Comments:

11/19/95 - reviewer modified package.
12/7/95 - pkg to C. Grimes to review
6/11/96 - C. Grimes comment: TSTF-19 to be referred to a Tech Br.
9/18/96 - No change in status.
10/30/96 - Awaiting ICSB for support.
12/31/96 - NRC requested changes to TSTF-19. TSTF considering.

Final Resolution: NRC Reviewing Final Resolution Date:

Revision History

TSTF Revision 1 Revision Date: 31-Dec-96 Proposed by: NRC

Revision Description:
Letter from C. I. Grimes to James Davis dated 12/31/96 requested modifications to TSTF-19. 1) Remove the sentence, ",which may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel," and 2) add inserts similar to Insert 1 and 2 to BWOG SR 3.3.1.6, SR 3.3.17.2, SR 3.3.18.3, WOG SR 3.3.3.2, 3.3.4.3, and CEOG (analog and digital) 3.3.11.2 and 3.3.12.3.

Distributed to TSTF: 2/3/97 Resolution: Approved Date: 21-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

INSERT 1

Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the resistance temperature detectors (RTD) sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.

INSERT 2

Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the Core Exit thermocouple sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.

TSTF-19, Rev. 1

1.0 USE AND APPLICATION

1.1 Definitions

------------------------------------NOTE------------------------------------
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ALLOWABLE THERMAL POWER	ALLOWABLE THERMAL POWER shall be the maximum reactor core heat transfer rate to the reactor coolant permitted by consideration of the number and configuration of reactor coolant pumps (RCPs) in operation.
AXIAL POWER IMBALANCE	AXIAL POWER IMBALANCE shall be the power in the top half of the core, expressed as a percentage of RATED THERMAL POWER (RTP), minus the power in the bottom half of the core, expressed as a percentage of RTP.
AXIAL POWER SHAPING RODS (APSRs)	APSRs shall be control components used to control the axial power distribution of the reactor core. The APSRs are positioned manually by the operator and are not trippable.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of ~~the remaining~~ adjustable devices in the channel. ~~Whenever a~~

(continued)

TSTF-19, Rev. 1

CHANNEL CALIBRATION (continued)	~~sensing element is replaced, the next required CHANNEL CALIBRATION shall include an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.~~ The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated. The CHANNEL CALIBRATION shall also include testing of safety related Reactor Protection System (RPS), Engineered Safety Feature Actuation System (ESFAS), and Emergency Feedwater Initiation and Control (EFIC) bypass functions for each channel affected by the bypass operation.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarms, interlocks, display, and trip functions. The ESFAS CHANNEL FUNCTIONAL TEST shall also include testing of ESFAS safety related bypass functions for each channel affected by bypass operation.
CONTROL RODS	CONTROL RODS shall be all full length safety and regulating rods that are used to shut down the reactor and control power level during maneuvering operations.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE

(continued)

TSTF-19, Rev. 1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.6 (continued)

A CHANNEL CALIBRATION is a complete check of the instrument channel, including the sensor. The test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift to ensure that the instrument channel remains operational between successive tests. CHANNEL CALIBRATION shall find that measurement errors and bistable setpoint errors are within the assumptions of the unit specific setpoint analysis. CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint analysis. (Insert 1)

The Frequency is justified by the assumption of an [18] month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.1.7

This SR verifies individual channel actuation response times are less than or equal to the maximum values assumed in the accident analysis. Individual component response times are not modeled in the analyses. The analyses model the overall, or total, elapsed time from the point at which the parameter exceeds the analytical limit at the sensor to the point of rod insertion. Response time testing acceptance criteria for this unit are included in Reference 1.

A Note to the Surveillance indicates that neutron detectors are excluded from RPS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response.

Response time tests are conducted on an [18] month STAGGERED TEST BASIS. Testing of the final actuation devices, which make up the bulk of the response time, is included in the testing of each channel. Therefore, staggered testing results in response time verification of these devices every [18] months. The [18] month Frequency is based on unit operating experience, which shows that random failures of

(continued)

TSTF-19, Rev. 1

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.17.2

A CHANNEL CALIBRATION is performed every [18] months or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument channel, including the sensor. This test verifies the channel responds to measured parameters within the necessary range and accuracy.

A Note clarifies that the neutron detectors are not required to be tested as part of the CHANNEL CALIBRATION. There is no adjustment that can be made to the detectors. Furthermore, adjustment of the detectors is unnecessary because they are passive devices, with minimal drift. Slow changes in detector sensitivity are compensated for by performing he daily calorimetric calibration and the monthly axial channel calibration.

For the Containment Area Radiation instrumentation, a CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/hr, and a one point calibration check of the detector below 10 R/hr with a gamma source.

Insert 1

Insert 2

The Frequency is based on operating experience and consistency with the typical industry refueling cycle and is justified by the assumption of an [18] month calibration interval in the determination of the magnitude of equipment drift.

REFERENCES

1. [Unit Specific Documents (e.g., FSAR, NRC Regulatory Guide 1.97 SER letter).]
2. Regulatory Guide 1.97.
3. NUREG-0737, 1979.
4. 32-1177256-00, "Technical Basis for Reactor Vessel Level Indication System (RVLIS) Action Statement," April 10, 1990.

TSTF-19, Rev. 1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.18.3 (continued)

because they are passive devices, with minimal drift. Slow changes in detector sensitivity are compensated for by performing the daily calorimetric calibration and the monthly axial channel calibration.

(Insert 1) →

The Frequency is based on operating experience and consistency with the typical industry refueling cycle and is justified by the assumption of an [18] month calibration interval in the determination of the magnitude of equipment drift.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19.

TSTF-19, Rev. 1

1.0 USE AND APPLICATION

1.1 Definitions

-------------------------------------NOTE-------------------------------------
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the [top and bottom halves of a two section excore neutron detector].
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known input. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, interlock, display, and trip functions. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. ~~Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION shall include an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.~~ The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping calibrations or total channel steps so that the entire channel is calibrated.

(continued)

TSTF19, Rev. 1

SURVEILLANCE REQUIREMENTS

SR 3.3.1.11 (continued)

plateau or preamp discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. This Surveillance is not required for the NIS power range detectors for entry into MODE 2 or 1, and is not required for the NIS intermediate range detectors for entry into MODE 2, because the unit must be in at least MODE 2 to perform the test for the intermediate range detectors and MODE 1 for the power range detectors. The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed on the [18] month Frequency.

SR 3.3.1.12

SR 3.3.1.12 is the performance of a CHANNEL CALIBRATION, as described in SR 3.3.1.10, every [18] months. This SR is modified by a Note stating that this test shall include verification of the RCS resistance temperature detector (RTD) bypass loop flow rate. (INSERT 1)

This test will verify the rate lag compensation for flow from the core to the RTDs.

The Frequency is justified by the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.1.13

SR 3.3.1.13 is the performance of a COT of RTS interlocks every [18] months.

The Frequency is based on the known reliability of the interlocks and the multichannel redundancy available, and has been shown to be acceptable through operating experience.

(continued)

TSTF-19, Rev.1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1 (continued)

should be compared to similar unit instruments located throughout the unit.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including isolation, indication, and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

As specified in the SR, a CHANNEL CHECK is only required for those channels that are normally energized.

The Frequency of 31 days is based on operating experience that demonstrates that channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

SR 3.3.3.2

A CHANNEL CALIBRATION is performed every [18] months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter with the necessary range and accuracy. This SR is modified by a Note that excludes neutron detectors. The calibration method for neutron detectors is specified in the Bases of LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation." [INSERT 2] The Frequency is based on operating experience and consistency with the typical industry refueling cycle.

REFERENCES

1. [Unit specific document (e.g., FSAR, NRC Regulatory Guide 1.97 SER letter).]
2. Regulatory Guide 1.97, [date].
3. NUREG-0737, Supplement 1, "TMI Action Items."

TSTF-19, Rev. 1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1 (continued)

within the criteria, it is an indication that the channels are OPERABLE. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

As specified in the Surveillance, a CHANNEL CHECK is only required for those channels which are normally energized.

The Frequency of 31 days is based upon operating experience which demonstrates that channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

SR 3.3.4.2

SR 3.3.4.2 verifies each required Remote Shutdown System control circuit and transfer switch performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of the equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the unit can be placed and maintained in MODE 3 from the remote shutdown panel and the local control stations. The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. (However, this Surveillance is not required to be performed only during a unit outage.) Operating experience demonstrates that remote shutdown control channels usually pass the Surveillance test when performed at the [18] month Frequency.

SR 3.3.4.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

Insert 1 →

(continued)

1.1 Definitions

CHANNEL CALIBRATION (continued)

the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. ~~Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION shall include an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.~~ The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated.

CHANNEL CHECK

A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

A CHANNEL FUNCTIONAL TEST shall be:

a. Analog and bistable channels—the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarms, interlocks, display and trip functions;

b. Digital computer channels—the use of diagnostic programs to test digital computer hardware and the injection of simulated process data into the channel to verify OPERABILITY, including alarm and trip functions.

The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

(continued)

TSTF-19, Rev. 1

SURVEILLANCE REQUIREMENTS

SR 3.3.11.1 (continued)

The Frequency of 31 days is based upon plant operating experience with regard to channel OPERABILITY and drift, which demonstrates that failure of more than one channel of a given Function in any 31 day interval is a rare event. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel during normal operational use of the displays associated with this LCO's required channels.

SR 3.3.11.2

A CHANNEL CALIBRATION is performed every [18] months or approximately every refueling. CHANNEL CALIBRATION is a complete check of the instrument channel including the sensor. The Surveillance verifies the channel responds to the measured parameter within the necessary range and accuracy. A Note allows exclusion of neutron detectors from the CHANNEL CALIBRATION.

[At this unit, CHANNEL CALIBRATION shall find measurement errors are within the following acceptance criteria:]

For the Containment Area Radiation instrumentation, a CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/hr, and a one point calibration check of the detector below 10 R/hr with a gamma source.

Insert 1

Insert 2

The Frequency is based upon operating experience and consistency with the typical industry refueling cycle and is justified by an [18] month calibration interval for the determination of the magnitude of equipment drift.

REFERENCES

1. Plant specific document (e.g., FSAR, NRC Regulatory Guide 1.97, SER letter).
2. Regulatory Guide 1.97.
3. NUREG-0737, Supplement 1.
4. NRC Safety Evaluation Report (SER).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.12.3 (continued)

that the channel responds to the measured parameter within the necessary range and accuracy. (Insert 1)

The 18 month Frequency is based upon the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

The SR is modified by a Note, which excludes neutron detectors from the CHANNEL CALIBRATION.

[SR 3.3.12.4

SR 3.3.12.4 is the performance of a CHANNEL FUNCTIONAL TEST every 18 months. This Surveillance should verify the OPERABILITY of the reactor trip circuit breaker (RTCB) open/closed indication on the remote shutdown panels by actuating the RTCBs. The Frequency of 18 months was chosen because the RTCBs cannot be exercised while the unit is at power. Operating experience has shown that these components usually pass the Surveillance when performed at a Frequency of once every 18 months. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.]

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19, and Appendix R.
2. NRC Safety Evaluation Report (SER).

TSTF-19, Rev.1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.11.1 (continued)

which demonstrates that failure of more than one channel of a given Function in any 31 day interval is a rare event. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel during normal operational use of the displays associated with this LCO's required channels.

SR 3.3.11.2

A CHANNEL CALIBRATION is performed every [18] months or approximately every refueling. CHANNEL CALIBRATION is a complete check of the instrument channel including the sensor. The Surveillance verifies the channel responds to the measured parameter within the necessary range and accuracy.

[At this unit, CHANNEL CALIBRATION shall find measurement errors are within the following acceptance criteria:]

For the Containment Area Radiation instrumentation, a CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/hr, and a one point calibration check of the detector below 10 R/hr with a gamma source.

Insert 1

Insert 2

The Frequency is based upon operating experience and consistency with the typical industry refueling cycle and is justified by the assumption of an [18] month calibration interval for the determination of the magnitude of equipment drift.

REFERENCES

1. [Plant specific document (e.g., FSAR, NRC Regulatory Guide 1.97, SER letter).]

2. Regulatory Guide 1.97.

3. NUREG-0737, Supplement 1.

4. NRC Safety Evaluation Report (SER).

TSTF-19, Rev.1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.12.1 (continued)

CHANNEL CALIBRATION. Agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. As specified in the Surveillance, a CHANNEL CHECK is only required for those channels that are normally energized.

The Frequency is based on plant operating experience that demonstrates channel failure is rare.

SR 3.3.12.2

SR 3.3.12.2 verifies that each required Remote Shutdown System transfer switch and control circuit performs its intended function. This verification is performed from the reactor shutdown panel and locally, as appropriate. Operation of the equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the plant can be brought to and maintained in MODE 3 from the reactor shutdown panel and the local control stations. The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience demonstrates that Remote Shutdown System control channels seldom fail to pass the Surveillance when performed at a Frequency of once every [18] months.

SR 3.3.12.3

CHANNEL CALIBRATION is a complete check of the instrument channel including the sensor. The Surveillance verifies that the channel responds to the measured parameter within the necessary range and accuracy.

Insert 1

The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Bracket NUREG-1431 LCO 3.9.2, Unborated Water Source Isolation Valves

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

Bracket NUREG-1431 LCO 3.9.2, Unborated Water Source Isolation Valves, to address licensing basis for plants analyzed for dilution events in Mode 6. LCO 3.9.3 is modified to add a Reviewer's Note and bracketed options for audible alarm or count rate, when it is credited for the mitigation of a dilution event.
In addition, a new Condition C was added to provide the appropriate actions to be taken with the audible count rate indication is lost.

Justification:

There are two basic methods used to address boron dilution events for Westinghouse plants. One method relies on precluding a boron dilution event by requiring all unborated water source isolation valves be closed. This is typically done at the source (makeup water storage tank outlet valve(s) and other potential sources). Plants using this method have clear statements in the FSARs that boron dilution is precluded by the Tech Spec requirement to isolate all potential sources of unborated water. No analyses are required or performed for the boron dilution event in this case. NUREG-1431, LCO 3.9.2, Unborated Water Source Isolation Valves, is intended only for those plants that preclude a boron dilution event by the closing of all unborated water isolation valves.
The other method used by Westinghouse plants to address boron dilution events is an analysis which assumes a maximum unborated water flow and determines that there is adequate time for operator action to mitigate the event. Plants which use this method to address a boron dilution event are not required to close all unborated water source isolation valves.
A Reviewer's Note which describes the use of LCO 3.9.2 was added to the Specification.
The proposed Condition C address the loss of the audible count and requires action to be initiated immediately to isolate all unborated water sources. The addition of this Condition and associated Required Action is necessary to address the safety analysis of units which assume a dilution event can occur. These safety analyses assume prompt identification of a boron dilution event to alert the operators to stop the dilution and protect the shutdown margin. When a plant is in Condition C, there is no assurance that prompt identification will occur, so Required Actions require the closure of all unborated water source isolation valves to preclude a boron dilution event. Since the event is precluded, prompt operator identification of the event is not required.

Affected Technical Specifications

3.9.2	Unborated Water Source Isolation Valves	
	Change Description:	LCO and Bases are Bracketed.
3.9.2 Bases	Unborated Water Source Isolation Valves	
	Change Description:	LCO and Bases are Bracketed
LCO 3.9.2	Unborated Water Source Isolation Valves	
	Change Description:	Reviewer's Note added
Bkgnd 3.9.3 Bases	Nuclear Instrumentation	
S/A 3.9.3 Bases	Nuclear Instrumentation	
LCO 3.9.3 Bases	Nuclear Instrumentation	
Appl. 3.9.3 Bases	Nuclear Instrumentation	

Action 3.9.3.C	Nuclear Instrumentation	
	Change Description:	New Condition
Action 3.9.3.C Bases	Nuclear Instrumentation	
SR 3.9.3.2 Bases	Nuclear Instrumentation	

WOG Review Information

WOG-10

Originating Plant: Ginna Date Provided to OG: Needed By:

Owners Group History:

Owners Group Resolution: Approved Date: 14-Nov-95

TSTF Review Information

TSTF Received Date: 02-Nov-95 Date Distributed to OGs for Review: 02-Nov-95

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

TSTF Resolution: Approved Date: 14-Nov-95 **TSTF- 23**

NRC Review Information

NRC Received Date: 16-Nov-95 NRC Reviewer: M. Weston Reviewer Phone #:

Reviewer Comments:

2/20/96 Reviewer approved change.
3/4/96 - package to C. Grimes to review
6/11/96 - C. Grimes comment: TSTF-23 to be referred to a Tech Br.
9/18/96 - Approved
11/19/97 - Reopened by the WOG. TSTF-23, R. 1 considered and rejected
12/17/96 - New revision created. TSTF-23, R. 2 to be provided to the NRC

Final Resolution: NRC Approves Final Resolution Date:

Revision History

TSTF Revision 1 Revision Date: 10-Oct-96 Proposed by: WOG

Revision Description:
This revision eliminates the new Action C for LCO 3.9.3 and substitutes a new Action B.2.

Distributed to TSTF: Resolution: Rejected Date: 19-Nov-96 Rev to NRC:

TSTF Revision 2 Revision Date: 17-Dec-96 Proposed by: WOG

Revision Description:
Description and Justification revised. Action 3.9.3.C created. New Reviewer's Notes written.

Distributed to TSTF: 2/3/97 Resolution: Approved Date: 21-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

Insert A

TSTF-23, Rev. 2

3.9 REFUELING OPERATIONS

3.9.2 Unborated Water Source Isolation Valves

LCO 3.9.2 Each valve used to isolate unborated water sources shall be secured in the closed position.

APPLICABILITY: MODE 6.

ACTIONS

------------------------------------NOTE------------------------------------
Separate Condition entry is allowed for each unborated water source isolation valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Required Action A.3 must be completed whenever Condition A is entered. ---------------------- One or more valves not secured in closed position.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Initiate actions to secure valve in closed position.	Immediately
	AND	
	A.3 Perform SR 3.9.1.1.	4 hours

INSERT A

[Reviewer's Note: This Technical Specification is not required for units that have analyzed a boron dilution event in Mode 6. It is required for those units that have not analyzed a boron dilution event in Mode 6. For units which have not analyzed a boron dilution event in Mode 6, the isolation of all unborated water sources is required to preclude the event from occurring.]

TSTF-23, Rev.2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify each valve that isolates unborated water sources is secured in the closed position.	31 days

TSTF-23, Rev 2

3.9 REFUELING OPERATIONS

3.9.3 Nuclear Instrumentation

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] source range neutron flux monitor inoperable.	A.1 Suspend CORE ALTERATIONS. AND A.2 Suspend positive reactivity additions.	Immediately Immediately
B. Two [required] source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status. AND B.2 Perform SR 3.9.1.1.	Immediately 4 hours AND Once per 12 hours thereafter
[C. No audible count rate	C.1 Initiate action to isolate unborated water sources.	Immediately]

---- Reviewers' Note ------
Condition C is included only for plants that assume a boron dilution event is mitigated by operator response to an audible source range indication. ------

TSTF-23, Rev. 2

B 3.9 REFUELING OPERATIONS

B 3.9.2 Unborated Water Source Isolation Valves

BASES

BACKGROUND	During MODE 6 operations, all isolation valves for reactor makeup water sources containing unborated water that are connected to the Reactor Coolant System (RCS) must be closed to prevent unplanned boron dilution of the reactor coolant. The isolation valves must be secured in the closed position. The Chemical and Volume Control System is capable of supplying borated and unborated water to the RCS through various flow paths. Since a positive reactivity addition made by reducing the boron concentration is inappropriate during MODE 6, isolation of all unborated water sources prevents an unplanned boron dilution.
APPLICABLE SAFETY ANALYSES	The possibility of an inadvertent boron dilution event (Ref. 1) occurring during MODE 6 refueling operations is precluded by adherence to this LCO, which requires that potential dilution sources be isolated. Closing the required valves during refueling operations prevents the flow of unborated water to the filled portion of the RCS. The valves are used to isolate unborated water sources. These valves have the potential to indirectly allow dilution of the RCS boron concentration in MODE 6. By isolating unborated water sources, a safety analysis for an uncontrolled boron dilution accident in accordance with the Standard Review Plan (Ref. 2) is not required for MODE 6. The RCS boron concentration satisfies Criterion 2 of the NRC Policy Statement.
LCO	This LCO requires that flow paths to the RCS from unborated water sources be isolated to prevent unplanned boron dilution during MODE 6 and thus avoid a reduction in SDM.

(continued)

TSTF-23, Rev.2

BASES (continued)

APPLICABILITY

In MODE 6, this LCO is applicable to prevent an inadvertent boron dilution event by ensuring isolation of all sources of unborated water to the RCS.

For all other MODES, the boron dilution accident was analyzed and was found to be capable of being mitigated.

ACTIONS

The ACTIONS table has been modified by a Note that allows separate Condition entry for each unborated water source isolation valve.

A.1

Continuation of CORE ALTERATIONS is contingent upon maintaining the unit in compliance with this LCO. With any valve used to isolate unborated water sources not secured in the closed position, all operations involving CORE ALTERATIONS must be suspended immediately. The Completion Time of "immediately" for performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.

Condition A has been modified by a Note to require that Required Action A.3 be completed whenever Condition A is entered.

A.2

Preventing inadvertent dilution of the reactor coolant boron concentration is dependent on maintaining the unborated water isolation valves secured closed. Securing the valves in the closed position ensures that the valves cannot be inadvertently opened. The Completion Time of "immediately" requires an operator to initiate actions to close an open valve and secure the isolation valve in the closed position immediately. Once actions are initiated, they must be continued until the valves are secured in the closed position.

(continued)

TSTF-23, Rev 2

BASES

ACTIONS (continued)

A.3

Due to the potential of having diluted the boron concentration of the reactor coolant, SR 3.9.1.1 (verification of boron concentration) must be performed whenever Condition A is entered to demonstrate that the required boron concentration exists. The Completion Time of 4 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration.

SURVEILLANCE REQUIREMENTS

SR 3.9.2.1

These valves are to be secured closed to isolate possible dilution paths. The likelihood of a significant reduction in the boron concentration during MODE 6 operations is remote due to the large mass of borated water in the refueling cavity and the fact that all unborated water sources are isolated, precluding a dilution. The boron concentration is checked every 72 hours during MODE 6 under SR 3.9.1.1. This Surveillance demonstrates that the valves are closed through a system walkdown. The 31 day Frequency is based on engineering judgment and is considered reasonable in view of other administrative controls that will ensure that the valve opening is an unlikely possibility.

REFERENCES

1. FSAR, Section [15.2.4].

2. NUREG-0800, Section 15.4.6.

TSTF-23, Rev. 2

B 3.9 REFUELING OPERATIONS

B 3.9.3 Nuclear Instrumentation

BASES

Insert B

BACKGROUND

The source range neutron flux monitors are used during refueling operations to monitor the core reactivity condition. The installed source range neutron flux monitors are part of the Nuclear Instrumentation System (NIS). These detectors are located external to the reactor vessel and detect neutrons leaking from the core.

The installed source range neutron flux monitors are BF3 detectors operating in the proportional region of the gas filled detector characteristic curve. The detectors monitor the neutron flux in counts per second. The instrument range covers six decades of neutron flux (1E+6 cps) with a [5]% instrument accuracy. The detectors also provide continuous visual indication in the control room [and an audible [Count rate] alarm] to alert operators to a possible dilution accident]. The NIS is designed in accordance with the criteria presented in Reference 1.

APPLICABLE SAFETY ANALYSES

Two OPERABLE source range neutron flux monitors are required to provide a signal to alert the operator to unexpected changes in core reactivity such as with a boron dilution accident (Ref. 2) or an improperly loaded fuel assembly. Insert C

---Reviewer's Note---

[The need for a safety analysis for an uncontrolled boron dilution accident is eliminated by isolating all unborated water sources as required by LCO 3.9.2, "Unborated Water Source Isolation Valves."]

The source range neutron flux monitors satisfy Criterion 3 of the NRC Policy Statement.

LCO

This LCO requires that two source range neutron flux monitors be OPERABLE to ensure that redundant monitoring capability is available to detect changes in core reactivity.

Insert D

(continued)

INSERT B

[Reviewer's Note: Bracketed options are provided for source range OPERABILITY requirements to include audible alarm or count rate function. These options apply to plants that assume a boron dilution event that is mitigated by operator response to an audible indication. For plants that isolate all boron dilution paths (per LCO 3.9.2), the source range OPERABILITY includes only a visual monitoring function.]

INSERT C

[The audible count rate from the source range neutron flux monitors provides prompt and definite indication of any boron dilution. The count rate increase is proportional to the subcritical multiplication factor and allows operations to promptly recognize the initiation of a boron dilution event. Prompt recognition of the initiation of a boron dilution event is consistent with the assumptions of the safety analysis and is necessary to assure sufficient time is available for isolation of the primary water makeup source before SHUTDOWN MARGIN is lost (Ref. 2).]

INSERT D

To be OPERABLE, each monitor must provide visual indication [in the control room]. [In addition, at least one of the two monitors must provide and audible [alarm][count rate] function to alert the operators to the initiation of a born dilution event].

BASES (continued)

APPLICABILITY

In MODE 6, the source range neutron flux monitors must be OPERABLE to determine changes in core reactivity. There are no other direct means available to check core reactivity levels. In MODES 2, 3, 4, and 5, these same installed source range detectors and circuitry are also required to be OPERABLE by LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation," [and LCO 3.3.9, BDPS.]

ACTIONS

A.1 and A.2

With only one source range neutron flux monitor OPERABLE, redundancy has been lost. Since these instruments are the only direct means of monitoring core reactivity conditions, CORE ALTERATIONS and positive reactivity additions must be suspended immediately. Performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.

B.1

With no source range neutron flux monitor OPERABLE, action to restore a monitor to OPERABLE status shall be initiated immediately. Once initiated, action shall be continued until a source range neutron flux monitor is restored to OPERABLE status.

B.2

With no source range neutron flux monitor OPERABLE, there are no direct means of detecting changes in core reactivity. However, since CORE ALTERATIONS and positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is determined by performing SR 3.9.1.1 to ensure that the required boron concentration exists.

The Completion Time of 4 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration. The Frequency of once per 12 hours ensures that unplanned changes in boron concentration would be identified. The 12 hour Frequency is reasonable, considering the low

(continued)

TSTF-23, Rev. 2

BASES

ACTIONS

B.2 (continued)

Insert E

probability of a change in core reactivity during this time period.

SURVEILLANCE REQUIREMENTS

SR 3.9.3.1

SR 3.9.3.1 is the performance of a CHANNEL CHECK, which is a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that the two indication channels should be consistent with core conditions. Changes in fuel loading and core geometry can result in significant differences between source range channels, but each channel should be consistent with its local conditions.

The Frequency of 12 hours is consistent with the CHANNEL CHECK Frequency specified similarly for the same instruments in LCO 3.3.1.

SR 3.9.3.2

SR 3.9.3.2 is the performance of a CHANNEL CALIBRATION every 18 months. This SR is modified by a Note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the source range neutron flux monitors consists of obtaining the detector plateau or preamp discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. [The CHANNEL CALIBRATION also includes verification of the audible [alarm] [count rate] function.] The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 13, GDC 26, GDC 28, and GDC 29.

2. FSAR, Section [15.2.4].

INSERT E

C.1

With no audible count rate available, prompt and definite indication of a boron dilution event, consistent with the assumptions of the safety analysis, is lost. In this situation, the boron dilution event may not be detected quickly enough to assure sufficient time is available for operations to manually isolate the unborated water source and stop the dilution prior to the loss of SHUTDOWN MARGIN. Therefore, action must be taken to prevent an inadvertent boron dilution event from occurring. This is accomplished by isolating all the unborated water flow paths to the reactor coolant system. Isolating these flow paths ensures that an inadvertent dilution of the reactor coolant boron concentration is prevented. The Completion Time of "immediately" assures a prompt response by operations and requires an operator to initiate actions to isolate an affected flow path immediately. Once actions are initiated, they must be continued until all the necessary flow paths are isolated.

Industry/TSTF Standard Technical Specification Change Traveler

Revise SR frequency for Minimum Temperature for Criticality

Classification: Improve Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

The frequency for SR 3.4.2.1 has been clarified such that initial performance does not result in non-compliance with the LCO. The Bases have been rewritten to clarify the application of the note that modifies the frequency of the SR. The NUREG-1432 Applicability is revised to match the other PWR specifications.

Justification:

NOTE: See replacement justification in Revision 2.

The surveillance of T-avg in Specification 3.4.2 (SR 3.4.2.1) is only required as T-avg approaches its limit. At normal operating temperatures there is no surveillance stated. The plant design incorporates monitoring of T-avg and automatic alarms as T-avg approaches its limit. Essentially, SR 3.4.2.1 requires increased monitoring during the time that the monitoring instrumentation would be in alarm (in fact, the WOG ISTS surveillance is explicitly not required unless the alarm is alarming.)

This type of alarm-response action is not typically implemented as TS required Surveillances. The typical ISTS surveillance would be to periodically (e.g., shiftly) monitor/check the parameter in question (and indirectly affirm appropriate state of the alarm), and allow and allow plant specific alarm response procedures to serve to increase the frequency of monitoring as the parameter approaches its limit.

Therefore, for consistency of presentation and to provide a more complete surveillance of T-avg, the frequency verification is revised to every "12 hours". This imposes a more restrictive surveillance in that a positive verification is now required, rather than relying solely on annunciation but also relocated the specific details associated with the operator's response to an alarm condition. This detail is not required to be in the ISTS to provide adequate protection of the public health and safety, since the ISTS still retains the requirement of monitor and limit T-avg.

Affected Technical Specifications

SR 3.4.2.1	RCS Minimum Temperature for Criticality	
SR 3.4.2.1 Bases	RCS Minimum Temperature for Criticality	
Appl. 3.4.2	RCS Minimum Temperature for Criticality	NUREG(s)- 1432 Only
Appl. 3.4.2 Bases	RCS Minimum Temperature for Criticality	NUREG(s)- 1432 Only

WOG Review Information

WOG-14

Originating Plant: Ginna Date Provided to OG: Needed By:

Owners Group History:

Owners Group Resolution: Approved Date: 14-Nov-95

TSTF Review Information

TSTF Received Date: 02-Nov-95 Date Distributed to OGs for Review: 02-Nov-95

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

TSTF Resolution: Approved Date: 14-Nov-95 **TSTF- 27**

NRC Review Information

NRC Received Date: 16-Nov-95 NRC Reviewer: M. Weston Reviewer Phone #:

Reviewer Comments:

2/20/96 - reviewer approved
3/4/96 package to C. Grimes to review
6/11/96 - C. Grimes comment: TSTF-27 to be referred to a Tech Br.
9/18/96 - NRC REJECTS: Although the proposed change is more restrictive, the staff believes that the purpose of the surveillance is for conditions approaching the minimum temperature for criticality, rather than to make the surveillance more routine. Thus, consistency and simplicity are not as important in this case, as the scope and purpose of the SR.
10/30/96 - TSTF to pursue.

Final Resolution: NRC Rejects: TSTF to Revise Final Resolution Date:

Revision History

TSTF Revision 1 Revision Date: 12-Apr-96 Proposed by: WOG

Revision Description:
This revision replaced the justification in total.

Distributed to TSTF: Resolution: Approved Date: 28-May-96 Rev to NRC: 5/28/96

TSTF Revision 2 Revision Date: 30-Oct-96 Proposed by: CEOG

Revision Description:
The PWR ITS specification, "RCS Minimum Temperature for Criticality," is designed to prevent criticality outside of the normal operating regime. There are no safety analyses that dictate the minimum temperature for criticality, but most low power accident analyses assume a specific starting temperature.

The presentation of this requirement varies between the PWR NUREGs, but the intent is the same. It can be stated as, "When RCS temperature is below a certain threshold temperature in Modes 1 and 2, verify that RCS temperature is not below the minimum temperature for criticality every 30 minutes."

TSTF-27 revises this presentation. The approach presented can be paraphrased as, "When in Modes 1 and 2, verify that the RCS temperature is above the minimum temperature for criticality every 12 hours."

On September 18, 1996, the NRC rejected the proposed change. They stated, "Although the proposed change is more restrictive, the staff believes that the purpose of the surveillance is for conditions approaching the minimum temperature for criticality, rather than to make the surveillance more routine. Thus, consistency and simplicity are not as important in this case, as the scope and purpose of the SR." The NRC's concerns are consistent with the Bases for the Surveillance.

Not withstanding the NRC's concerns, the TSTF believes that the proposed presentation is still preferable to the existing requirements for two reasons, described below.

The NRC's objection is based on the assumption that RCS temperature is only monitored when required to meet a Surveillance. This assumption is incorrect. During the approach to criticality, among of the most watched indicators in the control room are the RCS temperature instruments. RCS temperature is watched constantly because RCP heat addition and condenser bypass flow are being carefully balanced to maintain a steady RCS temperature. Following criticality, RCS temperature is watched constantly as the turbine is latched and put on automatic temperature control. There are indications in the control room on Tavg / Tref deviation and on low temperature to alert the operator if temperature is deviating from program. The frequency of the SR only specifies how often temperature is logged, not how often it is watched. Therefore, the issue isn't whether or not the safety analysis assumptions are being protected, but how often RCS temperature is recorded in an Operator's log. Therefore, this debate is about presentation and logging, not safety.

The problem with the current presentation is that it can lead to inadvertently violating the SR frequency with no effect on safety. The 30 minute SR Frequency "clock" continues even when RCS temperature is above the SR or Applicability threshold temperature. Therefore, if temperature drops below the threshold value after more than 37 minutes (30 minutes + 25%) from the last time RCS temperature was logged (for example, when latching the turbine), the SR frequency has been violated. If temperature has unexpectedly decreased, the Operator's attention should be on restoring temperature, not logging a value to met a Surveillance. The Operator is faced with making a decision of whether to focus his attention on the plant or on an administrative requirement. This is clearly adverse to safety. The other option is to perform the surveillance every 30 minutes until temperature is well above the threshold value (for example, 30% with the turbine latched) in order to ensure that the SR has been performed if temperature should drop. This is not a beneficial use of an Operator's time during the critical phases of a startup.

The 12 hour fixed frequency proposed in TSTF-27 will ensure that Tavg is logged at least once per shift (in addition to strip chart recorders and computer logging of temperature).

The requirement is sufficiently stated in the LCO: when the reactor is critical, temperature must be above a certain value. This requirement will be monitored based on operating necessity and existing instrumentation whether or not it is specified in a Surveillance. Requiring that the value be logged based on conditional circumstances is poor human-factors design and diverts the Operator's attention from his duties without a compensating safety benefit.

Distributed to TSTF: 2/3/97 Resolution: Approved Date: 21-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-27, Rev. 2

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 Each RCS loop average temperature (T_{avg}) shall be ≥ 525°F.

APPLICABILITY: MODE 1,
MODE 2 with k_{eff} ≥ 1.0.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{avg} in one or more RCS loops not within limit.	A.1 Be in MODE 3.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop ≥ 525°F.	~~-----NOTE----- Only required if any RCS loop T_{avg} < 530°F ------------- 30 minutes thereafter~~ 12 hours

TSTF-27, Rev 2

BASES (continued)

APPLICABILITY

The reactor has been designed and analyzed to be critical in MODES 1 and 2 only and in accordance with this Specification. Criticality is not permitted in any other MODE. Therefore, this LCO is applicable in MODE 1 and MODE 2 when $k_{eff} \geq 1.0$.

ACTIONS

A.1

With T_{avg} below 525°F, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 in 30 minutes. Rapid reactor shutdown can be readily and practically achieved in a 30 minute period. The Completion Time reflects the ability to perform this Action and maintain the plant within the analyzed range. If T_{avg} can be restored within the 30 minute time period, shutdown is not required.

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1

T_{avg} is required to be verified above 525°F every 30 minutes. The 30 minute time period is frequent enough to prevent inadvertent violation of the LCO. The 30 minute portion of the Frequency has been modified by a Note indicating this SR is only required when T_{avg} < 530°F. While Surveillance is required whenever the reactor is critical and temperature is below 530°F, in practice the Surveillance is most appropriate during the period when the reactor is brought critical.

Insert 1

REFERENCES

1. FSAR, Chapter [15].

TSTF-27, Rev. 2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Verify RCS T_{avg} in each loop ≥ [541]°F.	~~-----NOTE----- Only required if [T_{avg} - T_{ref} deviation, low low T_{avg}] alarm not reset and any RCS loop T_{avg} < [547]°F ------------- 30 minutes thereafter~~ 12 hours

TSTF-27, Rev. 2

BASES

APPLICABILITY (continued)

temperatures to fall below the temperature limit of this LCO.

ACTIONS

A.1

If the parameters that are outside the limit cannot be restored, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 30 minutes. Rapid reactor shutdown can be readily and practically achieved within a 30 minute period. The allowed time is reasonable, based on operating experience, to reach MODE 3 in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1

RCS loop average temperature is required to be verified at or above [541]°F every 30 minutes when [T_{avg}-T_{ref} deviation, low low T_{avg}] alarm not reset and any RCS loop T_{avg} < [547]°F.

The Note modifies the SR. When any RCS loop average temperature is < [547]°F and the [T_{avg} - T_{ref} deviation, low low T_{avg}] alarm is alarming, RCS loop average temperatures could fall below the LCO requirement without additional warning. The SR to verify RCS loop average temperatures every 30 minutes is frequent enough to prevent the inadvertent violation of the LCO.

Insert 2

REFERENCES

1. FSAR, Section [15.0.3].

TSTF-27, Rev. 2

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 Each RCS loop average temperature (T_{avg}) shall be ≥ [520°]F.

APPLICABILITY: MODE 1 ~~with T_{avg} in one or more RCS loops < [535]°F~~,
MODE 2 ~~with T_{avg} in one or more RCS loops < [535]°F and~~
K_{eff} ≥ 1.0.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{avg} in one or more RCS loops not within limit.	A.1 Be in MODE 3.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop ≥ [520]°F.	~~30 minutes thereafter~~ 12 hours

TSTF-27, Rev. 2

BASES

LCO (continued)

The LCO is only applicable below [535]°F and provides a reasonable distance to the limit of [520]°F. This allows adequate time to trend its approach and take corrective actions prior to exceeding the limit.

APPLICABILITY

The reactor has been designed and analyzed to be critical in MODES 1 and 2 only and in accordance with this specification. Criticality is not permitted in any other MODE. Therefore, this LCO is applicable in MODE 1, and MODE 2 when $K_{eff} \geq 1.0$. Coupled with the applicability definition for criticality is a temperature limit. Monitoring is required at or below a T_{avg} of [535]°F. The no load temperature of 544°F is maintained by the Steam Dump Control System.

ACTIONS

A.1

If T_{avg} is below [520]°F, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 30 minutes. Rapid reactor shutdown can be readily and practically achieved within a 30 minute period. The allowed time reflects the ability to perform this action and to maintain the plant within the analyzed range.

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1

Insert 3

T_{avg} is required to be verified ≥ [520]°F every 30 minutes. The 30 minute time period is frequent enough to prevent inadvertent violation of the LCO. While the Surveillance is required whenever the reactor is critical and temperature is below [535]°F, in practice the Surveillance is most appropriate during the period when the reactor is brought critical.

REFERENCES

1. FSAR, Section [15].

INSERT 1 (B&WOG)

RCS loop average temperature is required to be verified at or above 525°F every 12 hours. The SR to verify RCS loop average temperatures every 12 hours is frequent enough to prevent the inadvertent violation of the LCO and takes into account indications and alarms that are continuously available to the operator in the control room.

INSERT 2 (WOG)

RCS loop average temperature is required to be verified at or above [541]°F every 12 hours. The SR to verify RCS loop average temperatures every 12 hours is frequent enough to prevent the inadvertent violation of the LCO and takes into account indications and alarms that are continuously available to the operator in the control room.

INSERT 3 (CEOG)

RCS loop average temperature is required to be verified at or above [520]°F every 12 hours. The SR to verify RCS loop average temperatures every 12 hours is frequent enough to prevent the inadvertent violation of the LCO and takes into account indications and alarms that are continuously available to the operator in the control room.

Industry/TSTF Standard Technical Specification Change Traveler

Fuel Storage Pool Verification

Classification: Correct Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Required Action A.2.2 is to verify by administrative means that a fuel storage pool verification has been performed since the last fuel movement. This Required Action should be changed to perform a fuel storage pool verification.

Justification:

The Bases for Actions A.1, A.2 and A.3 (which incidentally should be A.1, A.2.1 and A.2.2) indicates that verification of fuel storage pool fuel locations can be performed by administrative means.
If a fuel storage pool verification had been performed since the last fuel movement as verified by existing Action A.2.2, the plant would not be in the condition specified by the Applicability. Therefore, a change to the Action is required.

Affected Technical Specifications

Action 3.7.15	Spent Fuel Pool Boron Concentration	NUREG(s)- 1430 Only
Action 3.7.15 Bases	Spent Fuel Pool Boron Concentration	NUREG(s)- 1430 Only
Action 3.7.16.A	Fuel Storage Pool Boron Concentration	NUREG(s)- 1431 Only
Action 3.7.16.A Bases	Fuel Storage Pool Boron Concentration	NUREG(s)- 1431 Only
Action 3.7.17.A	Fuel Storage Pool Boron Concentration	NUREG(s)- 1432 Only
Action 3.7.17.A Bases	Fuel Storage Pool Boron Concentration	NUREG(s)- 1432 Only

CEOG Review Information

CEOG-23

Originating Plant: Palo Verde Date Provided to OG: 14-Mar-96 Needed By: 01-Sep-96

Owners Group History:

Owners Group Resolution: Approved Date: 14-Mar-96

TSTF Review Information

TSTF Received Date: 12-Apr-96 Date Distributed to OGs for Review: 12-Apr-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

BWOG - Applies. change note to "Initiate Action to Perform".
WOG - Applies. Need Bases revision.

TSTF Resolution: Approved Date: 30-Apr-96 TSTF- 70

NRC Review Information

NRC Received Date: 17-Jul-96 NRC Reviewer: R. Giardina Reviewer Phone #:

Reviewer Comments:

9/18/96 - Approved

Final Resolution: NRC Approves Final Resolution Date: 18-Sep-96

Revision History

TSTF Revision 1 Revision Date: 01-Feb-97 Proposed by: BWOG

Revision Description:
The BWOG (NUREG-1430) markups were ommitted from TSTF-70 . This revision includes those pages.

Distributed to TSTF: 2/1/97 Resolution: Approved Date: 21-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-70, Rev. 1

3.7 PLANT SYSTEMS

3.7.15 Spent Fuel Pool Boron Concentration

LCO 3.7.15 The spent fuel pool boron concentration shall be ≥ [500] ppm.

APPLICABILITY: When fuel assemblies are stored in the spent fuel pool and a spent fuel pool verification has not been performed since the last movement of fuel assemblies in the spent fuel pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel pool boron concentration not within limit.	------------NOTE------------ LCO 3.0.3 is not applicable. ----------------------------	
	A.1 Suspend movement of fuel assemblies in the spent fuel pool.	Immediately
	<u>AND</u>	
	A.2.1 Initiate action to restore spent fuel pool boron concentration to within limit.	Immediately
	<u>OR</u>	
	A.2.2 ~~Verify by administrative means a [Region 2] spent fuel pool verification has been performed since the last movement of fuel assemblies in the spent fuel pool.~~ Initiate action to perform a fuel storage pool verification.	Immediately

TSTF-70, Rev. 1

APPLICABILITY (continued)

verification has been performed following the last movement of fuel assemblies in the spent fuel pool. This LCO does not apply following the verification since the verification would confirm that there are no misloaded fuel assemblies. With no further fuel assembly movement in progress, there is no potential for a misloaded fuel assembly or a dropped fuel assembly.

ACTIONS

A.1, A.2.1, and A.2.2

The concentration of boron is restored simultaneously with suspending movement of the fuel assemblies.

The Required Actions are modified by a Note indicating that LCO 3.0.3 does not apply.

When the concentration of boron in the fuel storage pool is less than required, immediate action must be taken to preclude the occurrence of an accident or to mitigate the consequences of an accident in progress. This is most efficiently achieved by immediately suspending the movement of the fuel assemblies. This does not preclude movement of a fuel assembly to a safe position.

Alternately, beginning a verification of the spent fuel pool locations, to ensure proper locations of the fuel, can be performed. However, prior to resuming movement of fuel assemblies, the concentration of boron must be restored.

If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operation. Therefore, inability to suspend movement of fuel assemblies is not a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

This SR verifies that the concentration of boron in the fuel storage pool is within the required limit. As long as this SR is met, the analyzed incidents are fully addressed. The 7 day Frequency is appropriate because no major replenishment of pool water is expected to take place over a short period of time.

REFERENCES

None.

TSTF-70, Rev. 1

3.7 PLANT SYSTEMS

3.7.16 Fuel Storage Pool Boron Concentration

LCO 3.7.16 The fuel storage pool boron concentration shall be ≥ [2300] ppm.

APPLICABILITY: When fuel assemblies are stored in the fuel storage pool and a fuel storage pool verification has not been performed since the last movement of fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool boron concentration not within limit.	------------NOTE------------ LCO 3.0.3 is not applicable. ----------------------------	
	A.1 Suspend movement of fuel assemblies in the fuel storage pool.	Immediately
	AND	
	A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately
	OR	
	A.2.2 ~~Verify by administrative means [Region 2] fuel storage pool verification has been performed since the last movement of fuel assemblies in the fuel storage pool.~~ Initiate action to perform a fuel storage pool verification	Immediately

TSTF-70, Rev. 1

BASES

APPLICABILITY (continued)

progress, there is no potential for a misloaded fuel assembly or a dropped fuel assembly.

ACTIONS

A.1, A.2.1, and A.2.2

The Required Actions are modified by a Note indicating that LCO 3.0.3 does not apply.

When the concentration of boron in the fuel storage pool is less than required, immediate action must be taken to preclude the occurrence of an accident or to mitigate the consequences of an accident in progress. This is most efficiently achieved by immediately suspending the movement of fuel assemblies. The concentration of boron is restored simultaneously with suspending movement of fuel assemblies. ~~An acceptable alternative is to verify by administrative means that the fuel storage pool verification has been performed since the last movement of fuel assemblies in the fuel storage pool.~~ Alternatively, beginning a verification of the fuel storage pool fuel locations, to ensure proper locations of the fuel, can be performed However, prior to resuming movement of fuel assemblies, the concentration of boron must be restored. This does not preclude movement of a fuel assembly to a safe position.

If the LCO is not met while moving irradiated fuel assemblies in MODE 5 or 6, LCO 3.0.3 would not be applicable. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operation. Therefore, inability to suspend movement of fuel assemblies is not sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.7.16.1

This SR verifies that the concentration of boron in the fuel storage pool is within the required limit. As long as this SR is met, the analyzed accidents are fully addressed. The 7 day Frequency is appropriate because no major replenishment of pool water is expected to take place over such a short period of time.

(continued)

TSTF-70, Rev. 1

3.7 PLANT SYSTEMS

3.7.17 Fuel Storage Pool Boron Concentration

LCO 3.7.17 The fuel storage pool boron concentration shall be ≥ [2000] ppm.

APPLICABILITY: When fuel assemblies are stored in the fuel storage pool and a fuel storage pool verification has not been performed since the last movement of fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool boron concentration not within limit.	------------NOTE------------ LCO 3.0.3 is not applicable. ----------------------------	
	A.1 Suspend movement of fuel assemblies in the fuel storage pool.	Immediately
	AND	
	A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately
	OR	
	A.2.2 ~~Verify by administrative means [Region 2] fuel storage pool verification has been performed since the last movement of fuel assemblies in the fuel storage pool.~~ Initiate action to perform a fuel storage pool verification	Immediately

TSTF-70, Rev. 1

BASES

APPLICABILITY (continued)

verification has been performed following the last movement of fuel assemblies in the spent fuel pool. This LCO does not apply following the verification since the verification would confirm that there are no misloaded fuel assemblies. With no further fuel assembly movements in progress, there is no potential for a misloaded fuel assembly or a dropped fuel assembly.

ACTIONS

A.1, A.2, and A.3

The Required Actions are modified by a Note indicating that LCO 3.0.3 does not apply.

When the concentration of boron in the spent fuel pool is less than required, immediate action must be taken to preclude an accident from happening or to mitigate the consequences of an accident in progress. This is most efficiently achieved by immediately suspending the movement of fuel assemblies. This does not preclude the movement of fuel assemblies to a safe position. In addition, action must be immediately initiated to restore boron concentration to within limit. Alternately, beginning an immediate verification, by administrative means, of the fuel storage pool fuel locations, to ensure proper locations of the fuel since the last movement of fuel assemblies in the fuel storage pool, can be performed.

If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operation. Therefore, inability to suspend movement of fuel assemblies is not sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.7.17.1

This SR verifies that the concentration of boron in the spent fuel pool is within the required limit. As long as this SR is met, the analyzed incidents are fully addressed. The 7 day Frequency is appropriate because no major replenishment of pool water is expected to take place over a short period of time.

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Revise the Containment Purge and Exhaust SR to exempt valves that are locked, sealed or secured

Classification: Correct Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

(New Description for Rev. 1)
Revise SR 3.9.4.2, which tests containment purge and exhaust valves, to clarify that the autoisolation test is not required when the valves are closed as allowed by the LCO.

Justification:

(New Justification for Rev. 1)
SR 3.9.4.2 is proposed to be modified by a Note that will allow a closed penetration to be excluded from the automatic actuation test. With this change, containment purge and exhaust valves that are in the closed position (which is the position assumed in the safety analysis) as allowed by LCO C.1 will not result in failure to meet the surveillance.

Affected Technical Specifications

SR 3.9.3.2	Containment Penetrations	NUREG(s)- 1430 1432 Only
SR 3.9.3.2 Bases	Containment Penetrations	NUREG(s)- 1430 1432 Only
SR 3.9.4.2	Containment Penetrations	NUREG(s)- 1431 Only
SR 3.9.4.2 Bases	Containment Penetrations	NUREG(s)- 1431 Only

WOG Review Information

WOG-18

Originating Plant: Date Provided to OG: 27-Nov-95 Needed By:

Owners Group History:

Owners Group Resolution: Approved Date: 27-Nov-95

TSTF Review Information

TSTF Received Date: 27-Nov-95 Date Distributed to OGs for Review: 27-Nov-95

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

Accepted by all

TSTF Resolution: Approved Date: 30-Apr-96 **TSTF- 92**

NRC Review Information

NRC Received Date: 17-Jul-96 NRC Reviewer: M. Weston Reviewer Phone #:

Reviewer Comments:

9/18/96 - Review pending.
12/31/96 - Approved by NRC.
3/18/97 - NRC informed by TSTF of need to revise Traveler. Revision forthcoming.

Final Resolution: NRC Approves Final Resolution Date: 18-Mar-97

Revision History

TSTF Revision 1 Revision Date: 10-Oct-96 Proposed by: WOG

Revision Description:
Revise the Description, Justification and Markups to recognize that valves that are in compliance with LCO C.1 do not have to be tested for automatic isolation capability.
The original description was: "Revise SR 3.9.4.2, which tests containment purge and exhaust valves, to exempt valves which are locked, sealed, or otherwise secured in place." The original justification was, "SR 3.9.4.2 is proposed to be rewritten similar to SR 3.6.3.8. It will allow valves that are locked, sealed, or otherwise secured in the closed condition to be excluded from the automatic actuation test. With this change, containment purge and exhaust valves that are secured, locked, or sealed in the closed position (which is the position assumed in the safety analysis) and that cannot, therefore, be tested will not result in failure to meet the surveillance and the LCO.".

Distributed to TSTF: 2/3/97 Resolution: Approved Date: 21-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-92, Rev. 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify each required containment penetration is in the required status.	7 days
SR 3.9.3.2	Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal.	[18] months

Insert 1

INSERT 1

------------------------------------NOTE------------------------------------
Not applicable to containment purge and exhaust valve(s) in penetrations closed to comply with LCO C.1.

SURVEILLANCE REQUIREMENTS

SR 3.9.3.1 (continued)

radioactivity within the containment will not result in a release of fission product radioactivity to the environment.

SR 3.9.3.2

This Surveillance demonstrates that each containment purge and exhaust valve actuates to its isolation position on manual initiation or on an actual or simulated high radiation signal. The 18 month Frequency maintains consistency with other similar ESFAS instrumentation and valve testing requirements. In LCO 3.3.15, "RB Purge Isolation" High Radiation," the isolation instrumentation requires a CHANNEL CHECK every 12 hours and a CHANNEL FUNCTIONAL TEST every 92 days to ensure the channel OPERABILITY during refueling operations. Every 18 months a CHANNEL CALIBRATION is performed. The system actuation response time is demonstrated every 18 months, during refueling, on a STAGGERED TEST BASIS. SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the Inservice Testing Program requirements. These Surveillances performed during MODE 6 will ensure that the valves are capable of closing after a postulated fuel handling accident to limit a release of fission product radioactivity from the containment.

Insert 3 →

REFERENCES

1. GPU Nuclear Safety Evaluation SE-0002000-001, Rev. 0, May 20, 1988.

2. FSAR, Section [ ].

3. NUREG-0800, Section 15.7.4, Rev. 1, July 1981.

INSERT 3

The SR is modified by a Note stating that this demonstration is not applicable to valves in isolated penetrations. LCO 3.9.3 C.1 provides the option to close penetrations in lieu of requiring automatic isolation capability.

TSTF-92, Rev 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify each required containment penetration is in the required status.	7 days
SR 3.9.4.2 (Insert 1)	Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal.	[18] months

INSERT 1

---------------------------------------NOTE---------------------------------------
Not applicable to containment purge and exhaust valve(s) in penetrations closed to comply with LCO C.1.

SURVEILLANCE REQUIREMENTS

SR 3.9.4.1 (continued)

demonstrate that each valve operator has motive power, which will ensure that each valve is capable of being closed by an OPERABLE automatic containment purge and exhaust isolation signal.

The Surveillance is performed every 7 days during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment. The Surveillance interval is selected to be commensurate with the normal duration of time to complete fuel handling operations. A surveillance before the start of refueling operations will provide two or three surveillance verifications during the applicable period for this LCO. As such, this Surveillance ensures that a postulated fuel handling accident that releases fission product radioactivity within the containment will not result in a release of fission product radioactivity to the environment.

SR 3.9.4.2

This Surveillance demonstrates that each containment purge and exhaust valve actuates to its isolation position on manual initiation or on an actual or simulated high radiation signal. The 18 month Frequency maintains consistency with other similar ESFAS instrumentation and valve testing requirements. In LCO 3.3.6, the Containment Purge and Exhaust Isolation instrumentation requires a CHANNEL CHECK every 12 hours and a COT every 92 days to ensure the channel OPERABILITY during refueling operations. Every 18 months a CHANNEL CALIBRATION is performed. The system actuation response time is demonstrated every 18 months, during refueling, on a STAGGERED TEST BASIS. SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the Inservice Testing Program requirements. These Surveillances performed during MODE 6 will ensure that the valves are capable of closing after a postulated fuel handling accident to limit a release of fission product radioactivity from the containment.

Insert 2 →

(continued)

INSERT 2

The SR is modified by a Note stating that this demonstration is not applicable to valves in isolated penetrations. LCO 3.9.4.C.1 provides the option to close penetrations in lieu of requiring automatic isolation capability.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify each required containment penetration is in the required status.	7 days
SR 3.9.3.2 (Insert 1)	Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal.	[18] months

INSERT 1

----------------------------------NOTE----------------------------------
Not applicable to containment purge and exhaust valve [illegible]metrations closed to comply with LCO C.1.

SURVEILLANCE REQUIREMENTS

SR 3.9.3.1 (continued)

OPERABLE automatic containment purge and exhaust isolation signal.

The Surveillance is performed every 7 days during CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment. The Surveillance interval is selected to be commensurate with the normal duration of time to complete fuel handling operations. A surveillance before the start of refueling operations will provide two or three surveillance verifications during the applicable period for this LCO. As such, this Surveillance ensures that a postulated fuel handling accident that releases fission product radioactivity within the containment will not result in a release of fission product radioactivity to the environment.

SR 3.9.3.2

This Surveillance demonstrates that each containment purge and exhaust valve actuates to its isolation position on manual initiation or on an actual or simulated high radiation signal. The 18 month Frequency maintains consistency with other similar ESFAS instrumentation and valve testing requirements. In LCO 3.3.4 [(Digital) or 3.3.3 (Analog)], "Miscellaneous Actuations," the Containment Purge Isolation Signal System requires a CHANNEL CHECK every 7 days and a CHANNEL FUNCTIONAL TEST every 31 days to ensure the channel OPERABILITY during refueling operations. Every 18 months a CHANNEL CALIBRATION is performed. The system actuation response time is demonstrated every 18 months, during refueling, on a STAGGERED TEST BASIS. SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the Inservice Testing Program requirements. These surveillances performed during MODE 6 will ensure that the valves are capable of closing after a postulated fuel handling accident to limit a release of fission product radioactivity from the containment.

Insert 3 →

INSERT 3

The SR is modified by a Note stating that this demonstration is not applicable to valves in isolated penetrations. LCO 3.9.3.C.1 provides the option to close penetrations in lieu of requiring automatic isolation capability.

Industry/TSTF Standard Technical Specification Change Traveler

Revise Bases for SRs 3.3.1.16 and 3.3.2.10 to eliminate pressure sensor response time testing

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," dated January, 1996, justified the elimination of the pressure sensor response time testing requirements. This change revises the Bases to incorporate the elimination of pressure sensor response time testing and revises the definition of ESF and RTS Response Time to state "verfied" instead of "measured" to be consistent with the Safety Evaluation.

Justification:

This change is justified by the NRC Acceptance letter, Review of Westinghouse Electric Corporation Topical Report WCAP-13632, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," Dated August 1995 - Westinghouse Owners Group Program MUHP-3040, Revision 1, from Boger (NRC) to Newton (WOG) dated September 5, 1996.

Affected Technical Specifications

1.1	Definition - ESF Response Time
1.1	Definition - RTS Response Time
Ref. 3.3.1 Bases	RTS Instrumentation
SR 3.3.1.16 Bases	RTS Instrumentation
Ref. 3.3.2 Bases	ESFAS Instrumentation
SR 3.3.2.10 Bases	ESFAS Instrumentation

WOG Review Information

WOG-52

Originating Plant: Date Provided to OG: 09-May-96 Needed By:

Owners Group History:

Owners Group Resolution: Approved Date: 09-May-96

TSTF Review Information

TSTF Received Date: 09-May-96 Date Distributed to OGs for Review: 31-May-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

NA CEOG, BWOG, BWROG

TSTF Resolution: Approved Date: 16-Jun-96 **TSTF- 111**

NRC Review Information

NRC Received Date: 01-Aug-96 NRC Reviewer: C. Schulten Reviewer Phone #:

Reviewer Comments:

9/18/96 - Review pending.
3/13/97 - NRC approved.
3/18/97 - NRC informed by TSTF of need to revise Traveler. Revision forthcoming.

Final Resolution: NRC Approves Final Resolution Date: 13-Mar-97

Revision History

TSTF Revision 1 Revision Date: 19-Nov-96 Proposed by: WOG

Revision Description:
Added changes to the definition of ESF Response Time and RPS Response Time to be consistent with the approving SE.

Distributed to TSTF: 2/3/97 Resolution: Approved Date: 21-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

1.1 Definitions

DOSE EQUIVALENT I-131 (continued)	192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity"].
$\bar{E}$ – AVERAGE DISINTEGRATION ENERGY	$\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > [15] minutes, making up at least 95% of the total noniodine activity in the coolant.
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be ~~measured~~ verified by means of any series of sequential, overlapping, or total steps so that the entire response time is ~~measured~~ verified.
L_a	The maximum allowable primary containment leakage rate, L_a, shall be [ ]% of primary containment air weight per day at the calculated peak containment pressure (P_a).
LEAKAGE	LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;

2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection

(continued)

1.1 Definitions

PHYSICS TESTS (continued)	a. Described in Chapter [14, Initial Test Program] of the FSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.6. Plant operation within these operating limits is addressed in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," and LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System."
QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of [2893] MWt.
REACTOR TRIP SYSTEM (RTS) RESPONSE TIME	The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. verified
SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming:

(continued)

TSTF-111, Rev. 1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.16 (continued)

The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the trip setpoint value at the sensor to the point at which the equipment reaches the required functional state (i.e., control and shutdown rods fully inserted in the reactor core).

For channels that include dynamic transfer Functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed with the transfer Function set to one, with the resulting measured response time compared to the appropriate FSAR response time. Alternately, the response time test can be performed with the time constants set to their nominal value, provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

Insert 1 →

As appropriate, each channel's response must be verified every [18] months on a STAGGERED TEST BASIS. Testing of the final actuation devices is included in the testing. Response times cannot be determined during unit operation because equipment operation is required to measure response times. Experience has shown that these components usually pass this surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.3.1.16 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response.

REFERENCES

1. FSAR, Chapter [7].
2. FSAR, Chapter [6].
3. FSAR, Chapter [15].
4. IEEE-279-1971.

(continued)

Insert 1

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) inplace, onsite, or offsite (e.g. vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," dated January 1996, provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

The allocations for sensor response times must be verified prior to placing the component in operational service and re-verified following maintenance that my adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. One example where response time could be affected is replacing the sensing assembly of a transmitter.

TSTF-111, Rev. 1

BASES

REFERENCES (continued)

5. 10 CFR 50.49.

6. RTS/ESFAS Setpoint Methodology Study.

7. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

8. Technical Requirements Manual, Section 15, "Response Times."

Insert 2 →

Insert 2

9. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996.

TSTF-111, Rev 1

SURVEILLANCE REQUIREMENTS

SR 3.3.2.10 (continued)

accident analysis. Response Time testing acceptance criteria are included in the Technical Requirements Manual, Section 15 (Ref. 9). Individual component response times are not modeled in the analyses. The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the Trip Setpoint value at the sensor, to the point at which the equipment in both trains reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position).

For channels that include dynamic transfer functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed with the transfer functions set to one with the resulting measured response time compared to the appropriate FSAR response time. Alternately, the response time test can be performed with the time constants set to their nominal value provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

Insert 3 →

ESF RESPONSE TIME tests are conducted on an [18] month STAGGERED TEST BASIS. Testing of the final actuation devices, which make up the bulk of the response time, is included in the testing of each channel. The final actuation device in one train is tested with each channel. Therefore, staggered testing results in response time verification of these devices every [18] months. The [18] month Frequency is consistent with the typical refueling cycle and is based on unit operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

This SR is modified by a Note that clarifies that the turbine driven AFW pump is tested within 24 hours after reaching [1000] psig in the SGs.

SR 3.3.2.11

SR 3.3.2.11 is the performance of a TADOT as described in SR 3.3.2.8, except that it is performed for the P-4 Reactor

(continued)

Insert 3

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) inplace, onsite, or offsite (e.g. vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," dated January 1996, provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

The allocations for sensor response times must be verified prior to placing the component in operational service and re-verified following maintenance that my adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. One example where response time could be affected is replacing the sensing assembly of a transmitter.

TSTF-111, Rev.1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.11 (continued)

Trip Interlock, and the Frequency is once per RTB cycle. This Frequency is based on operating experience demonstrating that undetected failure of the P-4 interlock sometimes occurs when the RTB is cycled.

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Function tested has no associated setpoint.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [7].
3. FSAR, Chapter [15].
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. RTS/ESFAS Setpoint Methodology Study.
7. NUREG-1218, April 1988.
8. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.
9. Technical Requirements Manual, Section 15, "Response Times."

Insert 4

Insert 4

10. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996.

Industry/TSTF Standard Technical Specification Change Traveler

RCS Inventory Balance SR: Steady State Clarification

Classification: Correct Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Combine the SR 3.4.13.1 Frequency Note and Surveillance Note into the Surveillance Note:
1. Eliminate the Frequency Note
2. Eliminate the Surveillance Note reference to "in MODE 3 or 4"
3. Add the phrase "after establishment" to the SR Note.

Also add a similar Note (as modified) to the Required Actions A.1 and B.1.2 of LCO 3.4.15.
In addition, an editorial oversight is corrected in the WOG and CEOG Bases for Action 3.4.15.B in which one of the Actions was not reflected in the Bases.

Justification:

SR 3.4.13.1 contains two separate allowances; both intended to address the same concern: the RCS water inventory balance cannot be meaningfully performed unless the unit is operating at near full pressure steady state conditions. The Note to the Surveillance provides an exception for operation at less than rated conditions (i.e., in MODES 3 and 4), while the Note to the Frequency provides a similar allowance for all other operating conditions. The Frequency Note is non-specific as to the time allowed after reaching steady state conditions to complete performance of the inventory balance. One possible interpretation would to allow a full 72 hours after any non-steady state operation.
This change combines these exceptions into a single Surveillance Note, which simplifies and increases clarity. The RCS inventory balance will only be allowed to be deferred for 12 hours after re-establishing steady state conditions. Similarly, the RCS water inventory balance is required by the Actions of LCO 3.4.15, and the same exception is applied.

Affected Technical Specifications

SR 3.4.13.1	RCS Operational Leakage	
SR 3.4.13.1 Bases	RCS Operational Leakage	
Action 3.4.15.A	RCS Leakage Detection Instrumentation	
Action 3.4.15.A Bases	RCS Leakage Detection Instrumentation	
Action 3.4.15.B	RCS Leakage Detection Instrumentation	
Action 3.4.15.B Bases	RCS Leakage Detection Instrumentation	
Action 3.4.15.C	RCS Leakage Detection Instrumentation	NUREG(s)- 1431 1432 Only
Action 3.4.15.C Bases	RCS Leakage Detection Instrumentation	NUREG(s)- 1431 1432 Only

WOG Review Information

WOG-50

Originating Plant: Callaway Date Provided to OG: 12-Mar-96 Needed By:

Owners Group History:

Orginally approved on 3/2/96. Withdrawn for further consideration. Approved with changes on 4/25/96

Owners Group Resolution: Approved Date: 25-Apr-96

TSTF Review Information

TSTF Received Date: 31-May-96 Date Distributed to OGs for Review: 31-May-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

Applicable to CEOG and CEOG accepts
Applies to BWOG. BWOG was concerned that an inventory balance would never be required if the unit is not stable. However, BWOG accepts.

TSTF Resolution: Approved Date: 06-Aug-96 **TSTF- 116**

NRC Review Information

NRC Received Date: 30-Sep-96 NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

3/18/97 - NRC approved. TSTF informed NRC of need for further changes to the Traveler. TSTF-116, Rev. 1 forthcoming.

Final Resolution: NRC Approves Final Resolution Date: 13-Mar-97

Revision History

TSTF Revision 1 Revision Date: 19-Nov-96 Proposed by: WOG

Revision Description:
Revise the Bases insert to eliminate the phrase "near operating pressure." This is inconsistent with the existing Bases which address steady state operation and stable operating pressure.

Distributed to TSTF: 2/3/97 Resolution: Approved Date: 23-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-116, Rev 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	-------------------NOTE------------------- Not required to be performed in MODE 3 or 4 until 12 hours {after establishment} of steady state operation. --- Perform RCS water inventory balance.	-----NOTE----- Only required to be performed during steady state operation -------------- 72 hours
SR 3.4.13.2	Verify steam generator tube integrity is in accordance with the Steam Generator Tube Surveillance Program.	In accordance with the Steam Generator Tube Surveillance Program

TSTF-116, Rev. 1

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment sump monitor, and

b. One containment atmosphere radioactivity monitor (gaseous or particulate).

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump monitor inoperable.	------------NOTE------------ LCO 3.0.4 is not applicable. ----------------------------	
----NOTE---- Not required until 12 hours after establishment of steady state operation ----------	A.1 Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	A.2 Restore required containment sump monitor to OPERABLE status.	30 days
B. Required containment atmosphere radioactivity monitor inoperable.	------------NOTE------------ LCO 3.0.4 is not applicable. ----------------------------	
	B.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR	
		(continued)

TSTF-116, Rev. 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued) ----NOTE----- Not required until 12 hours after establishment of steady state operation ---------	B.1.2 Perform SR 3.4.13.1. AND B.2 Restore required containment atmosphere radioactivity monitor to OPERABLE status.	Once per 24 hours 30 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Both required monitors inoperabl .	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of required containment atmosphere radioactivity monitor.	12 hours
SR 3.4.15.2	Perform CHANNEL FUNCTIONAL TEST of required containment atmosphere radioactivity monitor.	92 days

(continued)

TSTF-116, Rev. 1

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1

Verifying RCS LEAKAGE within the LCO limits ensures that the integrity of the RCPB is maintained. Pressure boundary LEAKAGE would at first appear as unidentified LEAKAGE and can only be positively identified by inspection. Unidentified LEAKAGE and identified LEAKAGE are determined by performance of an RCS water inventory balance. Primary to secondary LEAKAGE is also measured by performance of an RCS water inventory balance in conjunction with effluent monitoring within the secondary steam and feedwater systems.

The RCS water inventory balance must be performed with the reactor at steady state operating conditions and near operating pressure. Therefore, this SR is not required to be performed in MODES 3 and 4 until 12 hours of steady state operation near operating pressures have been established.

a Note is added allowing that

after establishing

The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

since

Steady state operation is required to perform a proper water inventory balance; calculations during maneuvering are not useful and a Note requires the Surveillance to be met when steady state is established. For RCS operational LEAKAGE determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP pump seal injection and return flows.

An early warning of pressure boundary LEAKAGE or unidentified LEAKAGE is provided by the automatic systems that monitor the containment atmosphere radioactivity and the containment sump level. These leakage detection systems are specified in LCO 3.4.15, "RCS Leakage Detection Instrumentation."

The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents. The Note states that the SR is required to be performed in steady state operation.

SR 3.4.13.2

This SR provides the means necessary to determine SG OPERABILITY in an operational MODE. The requirement to demonstrate SG tube integrity in accordance with the Steam

(continued)

TSTF-116, Rev. 1

BASES (continued)

LCO

One method of protecting against large RCS LEAKAGE derives from the ability of instruments to rapidly detect extremely small leaks. This LCO requires instruments of diverse monitoring principles to be OPERABLE to provide a high degree of confidence that extremely small leaks are detected in time to allow actions to place the plant in a safe condition when RCS LEAKAGE indicates possible RCPB degradation.

The LCO requirements are satisfied when monitors of diverse measurement means are available. Thus, the containment sump monitor, in combination with a particulate or gaseous radioactivity monitor, provides an acceptable minimum.

APPLICABILITY

Because of elevated RCS temperature and pressure in MODES 1, 2, 3, and 4, RCS leakage detection instrumentation is required to be OPERABLE.

In MODE 5 or 6, the temperature is ≤ 200°F and pressure is maintained low or at atmospheric pressure. Since the temperatures and pressures are far lower than those for MODES 1, 2, 3, and 4, the likelihood of leakage and crack propagation is much smaller. Therefore, the requirements of this LCO are not applicable in MODES 5 and 6.

ACTIONS

A.1 and A.2

With the required containment sump monitor inoperable, no other form of sampling can provide the equivalent information.

However, the containment atmosphere activity monitor will provide indications of changes in leakage. Together with the atmosphere monitor, the periodic surveillance for RCS inventory balance, SR 3.4.13.1, water inventory balance, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage.

Insert

Restoration of the required sump monitor to OPERABLE status is required to regain the function in a Completion Time of 30 days after the monitor's failure. This time is

(continued)

TSTF-116, Rev.1

BASES

ACTIONS

A.1 and A.2 (continued)

acceptable considering the frequency and adequacy of the RCS water inventory balance required by Required Action A.1.

Required Action A.1 and Required Action A.2 are modified by a Note indicating that the provisions of LCO 3.0.4 do not apply. As a result, a MODE change is allowed when the sump monitor is inoperable. This allowance is provided because other instrumentation is available to monitor RCS LEAKAGE.

B.1.1, B.1.2, and B.2

With required gaseous or particulate containment atmosphere radioactivity monitoring instrumentation channels inoperable, alternative action is required. Either grab samples of the containment atmosphere must be taken and analyzed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. With a sample obtained and analyzed or a water inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of at least one of the radioactivity monitors.

The 24 hour interval provides periodic information that is adequate to detect leakage. [Insert] The 30 day Completion Time recognizes at least one other form of leak detection is available.

Required Actions B.1.1, B.1.2, and B.2 are modified by a Note indicating that the provisions of LCO 3.0.4 do not apply. As a result, a MODE change is allowed when the containment atmosphere radioactivity monitor is inoperable. This allowance is provided because other instrumentation is available to monitor RCS LEAKAGE.

C.1 and C.2

If a Required Action of Condition A or B cannot be met within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating

(continued)

INSERT

A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

TSTF-116, Rev. 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.13.1	------------------NOTE------------------ Not required to be performed ~~in MODE 3 or 4~~ until 12 hours (after establishment) of steady state operation. --- Perform RCS water inventory balance.	~~-----NOTE----- Only required to be performed during steady state operation -----------------~~ 72 hours
SR 3.4.13.2	Verify steam generator tube integrity is in accordance with the Steam Generator Tube Surveillance Program.	In accordance with the Steam Generator Tube Surveillance Program

TSTF-116, Rev 1

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment sump (level or discharge flow) monitor;

b. One containment atmosphere radioactivity monitor (gaseous or particulate); [and

c. One containment air cooler condensate flow rate monitor].

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump monitor inoperable.	------------NOTE------------ LCO 3.0.4 is not applicable. ----------------------------	
	A.1 Perform SR 3.4.13.1. ----NOTE---- Not required until 12 hours after establishment of steady state operation. ------------	Once per 24 hours
	AND	
	A.2 Restore required containment sump monitor to OPERABLE status.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	[------------NOTE------------ LCO 3.0.4 is not applicable. ----------------------------]	
	B.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR	
	B.1.2 Perform SR 3.4.13.1. ----NOTE---- Not required until 12 hours after establishment of steady state operation ----------	Once per 24 hours
	[AND	
	B.2.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
	OR	
	B.2.2 Verify containment air cooler condensate flow rate monitor is OPERABLE.]	30 days]
[C. Required containment air cooler condensate flow rate monitor inoperable.]	C.1 Perform SR 3.4.15.1.	[Once per 8 hours
	OR	
	C.2 Perform SR 3.4.13.1.	Once per 24 hours]

(continued)

TSTF-116, Rev.1

BASES

ACTIONS

B.1 and B.2 (continued)

acting on the RCPB are much lower, and further deterioration is much less likely.

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1

Verifying RCS LEAKAGE to be within the LCO limits ensures the integrity of the RCPB is maintained. Pressure boundary LEAKAGE would at first appear as unidentified LEAKAGE and can only be positively identified by inspection. It should be noted that LEAKAGE past seals and gaskets is not pressure boundary LEAKAGE. Unidentified LEAKAGE and identified LEAKAGE are determined by performance of an RCS water inventory balance. Primary to secondary LEAKAGE is also measured by performance of an RCS water inventory balance in conjunction with effluent monitoring within the secondary steam and feedwater systems.

The RCS water inventory balance must be met with the reactor at steady state operating conditions and near operating pressure. Therefore, this SR is not required to be performed in MODES 3 and 4 until 12 hours of steady state operation near operating pressure have been established.

a Note is added allowing that

after establishing

Steady state operation is required to perform a proper inventory balance; calculations during maneuvering are not useful and a Note requires the Surveillance to be met when steady state is established. For RCS operational LEAKAGE determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.

since

The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

An early warning of pressure boundary LEAKAGE or unidentified LEAKAGE is provided by the automatic systems that monitor the containment atmosphere radioactivity and the containment sump level. It should be noted that LEAKAGE past seals and gaskets is not pressure boundary LEAKAGE. These leakage detection systems are specified in LCO 3.4.15, "RCS Leakage Detection Instrumentation."

The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1 (continued)

detection in the prevention of accidents. A Note under the Frequency column states that this SR is required to be performed during steady state operation.

SR 3.4.13.2

This SR provides the means necessary to determine SG OPERABILITY in an operational MODE. The requirement to demonstrate SG tube integrity in accordance with the Steam Generator Tube Surveillance Program emphasizes the importance of SG tube integrity, even though this Surveillance cannot be performed at normal operating conditions.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
2. Regulatory Guide 1.45, May 1973.
3. FSAR, Section [15].

ACTIONS

A.1 and A.2 (continued)

must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage. [Insert]

Restoration of the required sump monitor to OPERABLE status within a Completion Time of 30 days is required to regain the function after the monitor's failure. This time is acceptable, considering the Frequency and adequacy of the RCS water inventory balance required by Required Action A.1.

Required Action A.1 is modified by a Note that indicates that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when the containment sump monitor is inoperable. This allowance is provided because other instrumentation is available to monitor RCS leakage.

B.1.1, B.1.2, B.2.1, and B.2.2

With both gaseous and particulate containment atmosphere radioactivity monitoring instrumentation channels inoperable, alternative action is required. Either grab samples of the containment atmosphere must be taken and analyzed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information.

With a sample obtained and analyzed or water inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of the required containment atmosphere radioactivity monitors. Alternatively, continued operation is allowed if the air cooler condensate flow rate monitoring system is OPERABLE, provided grab samples [or water inventory balance performed] are taken every 24 hours. [editorial oversight]

The 24 hour interval provides periodic information that is adequate to detect leakage. [Insert] The 30 day Completion Time recognizes at least one other form of leakage detection is available.

Required Action B.1 and Required Action B.2 are modified by a Note that indicates that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when the gaseous and particulate containment atmosphere radioactivity monitor channel is inoperable. This allowance

(continued)

TSTF-116, Rev.1

BASES

ACTIONS

B.1.1, B.1.2, B.2.1, and B.2.2 (continued)

is provided because other instrumentation is available to monitor for RCS LEAKAGE.

[C.1 and C.2

With the required containment air cooler condensate flow rate monitor inoperable, alternative action is again required. Either SR 3.4.15.1 must be performed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. Provided a CHANNEL CHECK is performed every 8 hours or a water inventory balance is performed every 24 hours, reactor operation may continue while awaiting restoration of the containment air cooler condensate flow rate monitor to OPERABLE status.

The 24 hour interval provides periodic information that is adequate to detect RCS LEAKAGE.]

Insert

[D.1 and D.2

With the required containment atmosphere radioactivity monitor and the required containment air cooler condensate flow rate monitor inoperable, the only means of detecting leakage is the containment sump monitor. This Condition does not provide the required diverse means of leakage detection. The Required Action is to restore either of the inoperable required monitors to OPERABLE status within 30 days to regain the intended leakage detection diversity. The 30 day Completion Time ensures that the plant will not be operated in a reduced configuration for a lengthy time period.]

E.1 and E.2

If a Required Action of Condition A, B, [C], or [D] cannot be met, the plant must be brought to a MODE in which the requirement does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the

(continued)

INSERT

A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

TSTF-116, Rev. 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.13.1	-------------------NOTE------------------- Not required to be performed in MODE 3 or 4 until 12 hours (after establishment) of steady state operation. --- Perform RCS water inventory balance.	-----NOTE----- Only required to be performed during steady state operation --------------- 72 hours
SR 3.4.13.2	Verify SG tube integrity is in accordance with the Steam Generator Tube Surveillance Program.	In accordance with the Steam Generator Tube Surveillance Program

TSTF-116, Rev.1

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 [Two of] the following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment sump monitor; [and]

b. One containment atmosphere radioactivity monitor (gaseous or particulate); [and

c. One containment air cooler condensate flow rate monitor.]

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump monitor inoperable. [OR Required containment air cooler flow rate monitor inoperable.]	------------NOTE------------ LCO 3.0.4 is not applicable. ---------------------------- A.1 [handwritten insert: ----NOTE---- Not required until 12 hours after establishment of steady state operation ----] Perform SR 3.4.13.1. AND A.2 Restore containment sump monitor to OPERABLE status.	 Once per 24 hours 30 days

(continued)

TSTF-116, Rev.1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	[------------NOTE------------ LCO 3.0.4 is not applicable. ----------------------------]	
	B.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR	
	--- NOTE --- Not required until 12 hours after establishment of steady state operation. ---	
	B.1.2 Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	B.2.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
	[OR	
	B.2.2 Verify containment air cooler condensate flow rate monitor is OPERABLE.]	30 days
[C. Required containment air cooler condensate flow rate monitor inoperable.	--- NOTE --- Not required until 12 hours after establishment of steady state operation. --- C.1 Perform SR 3.4.15.1.	[Once per 8 hours
	OR	
	C.2 Perform SR 3.4.13.1.]	Once per 24 hours]

(continued)

TSTF-116, Rev. 1

BASES

ACTIONS

B.1 and B.2 (continued)

acting on the RCPB are much lower, and further deterioration is much less likely.

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1

Verifying RCS LEAKAGE to be within the LCO limits ensures the integrity of the RCPB is maintained. Pressure boundary LEAKAGE would at first appear as unidentified LEAKAGE and can only be positively identified by inspection. Unidentified LEAKAGE and identified LEAKAGE are determined by performance of an RCS water inventory balance. Primary to secondary LEAKAGE is also measured by performance of an RCS water inventory balance in conjunction with effluent monitoring within the secondary steam and feedwater systems.

a note is added allowing that

The RCS water inventory balance must be performed with the reactor at steady state operating conditions and near operating pressure. Therefore, this SR is not required to be performed in MODES 3 and 4, until 12 hours of steady state operation near operating pressure have elapsed.

after establishing

The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

Steady state operation since is required to perform a proper water inventory balance; calculations during maneuvering are not useful and a Note requires the Surveillance to be met when steady state is established. For RCS operational LEAKAGE determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.

An early warning of pressure boundary LEAKAGE or unidentified LEAKAGE is provided by the automatic systems that monitor the containment atmosphere radioactivity and the containment sump level. These leakage detection systems are specified in LCO 3.4.15, "RCS Leakage Detection Instrumentation."

The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents. A Note under the Frequency column states that this SR is required to be performed during steady state operation.

(continued)

TSTF-116, Rev. 1

BASES

ACTIONS

A.1 and A.2 (continued)

at an increased frequency of 24 hours to provide information that is adequate to detect leakage. Insert

Restoration of the sump monitor to OPERABLE status is required to regain the function in a Completion Time of 30 days after the monitor's failure. This time is acceptable considering the frequency and adequacy of the RCS water inventory balance required by Required Action A.1.

Required Action A.1 and Required Action A.2 are modified by a Note that indicates the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when the containment sump monitor channel is inoperable. This allowance is provided because other instrumentation is available to monitor for RCS LEAKAGE.

B.1.1, B.1.2, B.2.1, and B.2.2

With both gaseous and particulate containment atmosphere radioactivity monitoring instrumentation channels inoperable, alternative action is required. Either grab samples of the containment atmosphere must be taken and analyzed, or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. With a sample obtained and analyzed or an inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of at least one of the radioactivity monitors.

Alternatively, continued operation is allowed if the air cooler condensate flow rate monitoring system is OPERABLE, provided grab samples are taken (or water inventory balance performed) every 24 hours. (editorial oversight)

The 24 hour interval provides periodic information that is adequate to detect leakage. Insert The 30 day Completion Time recognizes at least one other form of leakage detection is available.

Required Actions B.1.1, B.1.2, B.2.1, and B.2.2 are modified by a Note that indicates that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when the gaseous and particulate containment atmosphere radioactivity monitor channel is inoperable. This allowance

(continued)

TSTF-116, Rev.1

BASES

ACTIONS

B.1.1, B.1.2, B.2.1, and B.2.2 (continued)

is provided because other instrumentation is available to monitor for RCS LEAKAGE.

[C.1 and C.2

If the required containment air cooler condensate flow rate monitor is inoperable, alternative action is again required. Either SR 3.4.15.1 must be performed, or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. Provided a CHANNEL CHECK is performed every 8 hours or an inventory balance is performed every 24 hours, reactor operation may continue while awaiting restoration of the containment air cooler condensate flow rate monitor to OPERABLE status.

The 24 hour interval provides periodic information that is adequate to detect RCS LEAKAGE. {Insert}

D.1 and D.2

If the required containment atmosphere radioactivity monitor and the containment air cooler condensate flow rate monitor are inoperable, the only means of detecting leakage is the containment sump monitor. This Condition does not provide the required diverse means of leakage detection. The Required Action is to restore either of the inoperable monitors to OPERABLE status within 30 days to regain the intended leakage detection diversity. The 30 day Completion Times ensure that the plant will not be operated in a reduced configuration for a lengthy time period.]

E.1 and E.2

If any Required Action of Condition A, B, [C], or [D] cannot be met within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full

(continued)

INSERT

A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

Industry/TSTF Standard Technical Specification Change Traveler

Incorrect Criteria Defined in B 3.7.16

Classification: Change Bases

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☑ 1433 ☑ 1434

Description:

The Applicable Safety Analysis Section of B 3.7.16 has been revised to denote that the Fuel Storage Pool Water Level satisfies Criteria 2 and 3.

Justification:

Fuel Storage Pool Water Level is a process variable which satisfies criteria 2 and 3 of 10 CFR 50.36.c.2. It is an initial condition assumed in the fuel handling accident and mitigates the release of radionuclides.

Affected Technical Specifications

S/A 3.7.14 Bases	Fuel Storage Pool Water Level	NUREG(s)- 1430 Only
S/A 3.7.15 Bases	Fuel Storage Pool Water Level	NUREG(s)- 1431 Only
S/A 3.7.16 Bases	Fuel Storage Pool Water Level	NUREG(s)- 1432 Only
S/A 3.7.7 Bases	Fuel Pool Water Level	NUREG(s)- 1434 Only
S/A 3.7.8 Bases	Spent Fuel Storage Pool Water Level	NUREG(s)- 1433 Only

CEOG Review Information

CEOG-51

Originating Plant: Millstone 2 Date Provided to OG: 29-May-96 Needed By: 30-Jul-97

Owners Group History:

Owners Group Resolution: Approved Date: 04-Jun-96

TSTF Review Information

TSTF Received Date: 01-Jul-96 Date Distributed to OGs for Review: 31-Jul-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

BWOG - Applicable, BWOG accepts
WOG - Applicable, WOG accepts
BWROG - Applicable, BWROG accepts

TSTF Resolution: Approved Date: 10-Oct-96 **TSTF- 139**

NRC Review Information

NRC Received Date: 23-Jan-97 NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

3/23/97 - Revision 0 is withdrawn. Revision 1 replaces in total. Revision 0 was missing the BWR/4 and BWR/6 markups.

Final Resolution: TSTF Withdraws Final Resolution Date:

Revision History

TSTF Revision 1 Revision Date: 23-Mar-97 Proposed by: TSTF

Revision Description:
Revision 0 of TSTF-139 inadvertently ommitted the BWR/4 and BWR/6 markups. These markups have been supplied in this revision.

Distributed to TSTF: 3/23/97 Resolution: Approved Date: 23-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-139, Rev. 1

B 3.7 PLANT SYSTEMS

B 3.7.14 Fuel Storage Pool Water Level

BASES

BACKGROUND

The minimum water level in the fuel storage pool meets the assumption of iodine decontamination factors following a fuel handling accident. The specified water level shields and minimizes the general area dose when the storage racks are filled to their maximum capacity. The water also provides shielding during the movement of spent fuel.

A general description of the fuel storage pool design is given in the FSAR, Section [9.1.2], Reference 1. The Spent Fuel Pool Cooling and Cleanup System is given in the FSAR, Section [9.1.3] (Ref. 2). The assumptions of the fuel handling accident are given in the FSAR, Section [15.4.7] (Ref. 3).

APPLICABLE SAFETY ANALYSES

The minimum water level in the fuel storage pool meets the assumptions of the fuel handling accident described in Regulatory Guide 1.25 (Ref. 4). The resultant 2 hour thyroid dose to a person at the exclusion area boundary is below 10 CFR 100 (Ref. 5) guidelines.

According to Reference 4, there is 23 ft of water between the top of the damaged fuel bundle and the fuel pool surface for a fuel handling accident. With 23 ft, the assumptions of Reference 4 can be used directly. In practice, the LCO preserves this assumption for the bulk of the fuel in the storage racks. In the case of a single bundle dropped and lying horizontally on top of the spent fuel rack, however, there may be < 23 ft above the top of the fuel bundle and the surface, by the width of the bundle. To offset this small nonconservatism, the analysis assumes that all fuel rods fail, although the analysis shows that only the first [few] rows fail from a hypothetical maximum drop.

The fuel storage pool water level satisfies ~~Criterion~~ {Criteria} 2 {and 3} of the NRC Policy Statement.

(continued)

TSTF-139, Rev. 1

B 3.7 PLANT SYSTEMS

B 3.7.15 Fuel Storage Pool Water Level

BASES

BACKGROUND

The minimum water level in the fuel storage pool meets the assumptions of iodine decontamination factors following a fuel handling accident. The specified water level shields and minimizes the general area dose when the storage racks are filled to their maximum capacity. The water also provides shielding during the movement of spent fuel.

A general description of the fuel storage pool design is given in the FSAR, Section [9.1.2] (Ref. 1). A description of the Spent Fuel Pool Cooling and Cleanup System is given in the FSAR, Section [9.1.3] (Ref. 2). The assumptions of the fuel handling accident are given in the FSAR, Section [15.7.4] (Ref. 3).

APPLICABLE SAFETY ANALYSES

The minimum water level in the fuel storage pool meets the assumptions of the fuel handling accident described in Regulatory Guide 1.25 (Ref. 4). The resultant 2 hour thyroid dose per person at the exclusion area boundary is a small fraction of the 10 CFR 100 (Ref. 5) limits.

According to Reference 4, there is 23 ft of water between the top of the damaged fuel bundle and the fuel pool surface during a fuel handling accident. With 23 ft of water, the assumptions of Reference 4 can be used directly. In practice, this LCO preserves this assumption for the bulk of the fuel in the storage racks. In the case of a single bundle dropped and lying horizontally on top of the spent fuel racks, however, there may be < 23 ft of water above the top of the fuel bundle and the surface, indicated by the width of the bundle. To offset this small nonconservatism, the analysis assumes that all fuel rods fail, although analysis shows that only the first few rows fail from a hypothetical maximum drop.

The fuel storage pool water level satisfies ~~Criterion~~ Criteria 2 and 3 of the NRC Policy Statement.

(continued)

TSTF-139, Rev 1

B 3.7 PLANT SYSTEMS

B 3.7.16 Fuel Storage Pool Water Level

BASES

BACKGROUND

The minimum water level in the fuel storage pool meets the assumptions of iodine decontamination factors following a fuel handling accident. The specified water level shields and minimizes the general area dose when the storage racks are filled to their maximum capacity. The water also provides shielding during the movement of spent fuel.

A general description of the fuel storage pool design is given in the FSAR, Section [9.1.2], Reference 1, and the Spent Fuel Pool Cooling and Cleanup System is given in the FSAR, Section [9.1.3] (Ref. 2). The assumptions of the fuel handling accident are given in the FSAR, Section [15.7.4] (Ref. 3).

APPLICABLE SAFETY ANALYSES

The minimum water level in the fuel storage pool meets the assumptions of the fuel handling accident described in Regulatory Guide 1.25 (Ref. 4). The resultant 2 hour thyroid dose to a person at the exclusion area boundary is a small fraction of the 10 CFR 100 (Ref. 5) limits.

According to Reference 4, there is 23 ft of water between the top of the damaged fuel bundle and the fuel pool surface for a fuel handling accident. With a 23 ft water level, the assumptions of Reference 4 can be used directly. In practice, this LCO preserves this assumption for the bulk of the fuel in the storage racks. In the case of a single bundle, dropped and lying horizontally on top of the spent fuel racks, however, there may be < 23 ft of water above the top of the bundle and the surface, by the width of the bundle. To offset this small nonconservatism, the analysis assumes that all fuel rods fail, although analysis shows that only the first few rods fail from a hypothetical maximum drop.

The fuel storage pool water level satisfies Criterion 3 of the NRC Policy Statement.

Criteria 2 and

(continued)

TSTF-139, Rev. 1

B 3.7 PLANT SYSTEMS

B 3.7.8 Spent Fuel Storage Pool Water Level

BASES

BACKGROUND

The minimum water level in the spent fuel storage pool meets the assumptions of iodine decontamination factors following a fuel handling accident.

A general description of the spent fuel storage pool design is found in the FSAR, Section [ ] (Ref. 1). The assumptions of the fuel handling accident are found in the FSAR, Section [15.1.4] (Ref. 2).

APPLICABLE SAFETY ANALYSES

The water level above the irradiated fuel assemblies is an explicit assumption of the fuel handling accident. A fuel handling accident is evaluated to ensure that the radiological consequences (calculated whole body and thyroid doses at the exclusion area and low population zone boundaries) are ≤ 25% of 10 CFR 100 (Ref. 3) exposure guidelines NUREG-0800 (Ref. 4). A fuel handling accident could release a fraction of the fission product inventory by breaching the fuel rod cladding as discussed in the Regulatory Guide 1.25 (Ref. 5).

The fuel handling accident is evaluated for the dropping of an irradiated fuel assembly onto the reactor core. The consequences of a fuel handling accident over the spent fuel storage pool are no more severe than those of the fuel handling accident over the reactor core, as discussed in the FSAR, Section [9.1.2.2.2] (Ref. 6). The water level in the spent fuel storage pool provides for absorption of water soluble fission product gases and transport delays of soluble and insoluble gases that must pass through the water before being released to the secondary containment atmosphere. This absorption and transport delay reduces the potential radioactivity of the release during a fuel handling accident.

The spent fuel storage pool water level satisfies ~~Criterion~~ Criteria 2 and 3 of the NRC Policy Statement.

(continued)

TSTF-139, Rev. 1

B 3.7 PLANT SYSTEMS

B 3.7.7 Fuel Pool Water Level

BASES

BACKGROUND

The minimum water level in the spent fuel storage pool and upper containment fuel storage pool meets the assumptions of iodine decontamination factors following a fuel handling accident.

A general description of the spent fuel storage pool and upper containment fuel storage pool design is found in the FSAR, Section [9.1.2] (Ref. 1). The assumptions of the fuel handling accident are found in the FSAR, Sections [15.7.4] and [15.7.6] (Refs. 2 and 3, respectively).

APPLICABLE SAFETY ANALYSES

The water level above the irradiated fuel assemblies is an explicit assumption of the fuel handling accident. A fuel handling accident is evaluated to ensure that the radiological consequences (calculated whole body and thyroid doses at the exclusion area and low population zone boundaries) are ≤ 25% (NUREG-0800, Section 15.7.4, Ref. 4) of the 10 CFR 100 (Ref. 5) exposure guidelines. A fuel handling accident could release a fraction of the fission product inventory by breaching the fuel rod cladding as discussed in the Regulatory Guide 1.25 (Ref. 6).

The fuel handling accident is evaluated for the dropping of an irradiated fuel assembly onto stored fuel bundles. The consequences of a fuel handling accident inside the auxiliary building and inside containment are documented in References 2 and 3, respectively. The water levels in the spent fuel storage pool and upper containment fuel storage pool provide for absorption of water soluble fission product gases and transport delays of soluble and insoluble gases that must pass through the water before being released to the secondary containment atmosphere. This absorption and transport delay reduces the potential radioactivity of the release during a fuel handling accident.

The fuel pool water level satisfies ~~Criterion~~ Criteria 2 and 3 of the NRC Policy Statement.

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Add Action to Verify Flow Path is Isolated When 2 CIVs Inoperable

Classification: Improve Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☑ 1433 ☑ 1434

Description:

Add a Required Action to verify that the affected penetration flow path is isolated when two Containment Isolation Valves are inoperable.

Justification:

LCO 3.6.3, Condition A for one Containment Isolation Valve inoperable, requires that verification that the affected penetration flow path is isolated once per 31 days for isolation devices outside containment. Condition B for two Containment Isolation Valves does not carry the same requirement. However, if this is a prudent action when one CIV is inoperable, it is prudent when two CIVs are inoperable. Therefore, this Action is added to Condition B.

Affected Technical Specifications

Action 3.6.3.B	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Action 3.6.3.B Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Appl. 3.6.1.3.B Bases	PCIVs	NUREG(s)- 1433 1434 Only
Action 3.6.1.3.B	PCIVs	NUREG(s)- 1433 1434 Only

CEOG Review Information

CEOG-62

Originating Plant: Calvert Cliffs Date Provided to OG: 21-Aug-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 21-Aug-96

TSTF Review Information

TSTF Received Date: 27-Sep-96 Date Distributed to OGs for Review: 27-Sep-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

BWOG - Applicable, accepts
BWROG - Applicable, accepts
WOG - Applicable, accepts

TSTF Resolution: Approved Date: 21-Oct-96 **TSTF- 145**

NRC Review Information

NRC Received Date: 23-Jan-97 NRC Reviewer: Giardina, R. Reviewer Phone #:

Reviewer Comments:

TSTF-145, Revision 0 had an incorrect cover page. BWR/4 (NUREG-1433) was not marked as affected but markup pages were included. Revision 0 is withdrawn and replaced in total by Revision 1 which corrects the cover page.

Final Resolution: TSTF Withdraws Final Resolution Date:

Revision History

TSTF Revision 1 Revision Date: 23-Mar-97 Proposed by: TSTF

Revision Description:
Revision 0 cover page did not mark as applicable to BWR/4 even though BWR/4 pages were included. This revision replaces Revision 0 entirely and corrects the cover page.

Distributed to TSTF: 3/23/97 Resolution: Approved Date: 23-Mar-97 Rev to NRC:

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

INSERT 3.6.3 ACTION B.2

AND B.2 -------------Note------------ Isolation devices in high radiation areas may be verified by use of administrative means. ---------------------------------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment.

INSERT B 3.6.3 B.2

For affected penetration flow paths that cannot be restored to OPERABLE status within the 1 hour Completion Time and that have been isolated in accordance with Required Action B.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification, through a system walkdown, that those isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Required Action B.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is small.

TSTF-145, Rev.1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 --------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	 Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. --------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. --------------------- One or more penetration flow paths with two containment isolation valves inoperable (except for purge valve leakage not within limit).	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. Insert 3.6.3 Action B.2	1 hour

(continued)

TSTF-145, Rev. 1

BASES

and B.2

Insert B 3.6.3 B.2

ACTIONS

B.1 (continued)

operated under administrative controls and the probability of their misalignment is low.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.

C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration. Required Action C.1 must be completed within the [4] hour Completion Time. The specified time period is reasonable, considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4. In the event the affected penetration is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This periodic verification is necessary to assure leak tightness of containment and that containment penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative controls and the probability of their misalignment is low.

Condition C is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with only one containment isolation valve and a closed system. This Note is necessary since this Condition is

(continued)

TSTF-145, Rev 1

ACTIONS

A.1 and A.2 (continued)

92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Condition A has been modified by a Note indicating this Condition is only applicable to those penetration flow paths with two containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides appropriate actions.

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows the devices to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is small.

B.1 and B.2

With two containment isolation valves in one or more penetration flow paths inoperable (except for purge valve leakage not within limit), the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are

(continued)

TSTF-145, Rev. 1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	---------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. --------------------- One or more penetration flow paths with two containment isolation valves inoperable [except for purge valve or shield building bypass leakage not within limit].	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. Insert 3.6.3 Action B.2	1 hour

(continued)

TSTF-145, Rev 1

BASES

ACTIONS

A.1 and A.2 (continued)

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position, is small.

B.1

With two containment isolation valves in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative control and the probability of their misalignment is low.

Insert B 3.6.3 B.2

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.

(continued)

TSTF-145, Rev. 1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. --------------------- One or more penetration flow paths with two containment isolation valves inoperable [except for purge valve leakage and shield building bypass leakage not within limit].	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour

INSERT 3.6.3 ACTION B.2

(continued)

TSTF-145, Rev 2

ACTIONS

A.1 and A.2 (continued)

means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is small.

B.1 (and B.2)

With two containment isolation valves in one or more penetration flow paths inoperable [except for purge valve leakage and shield building bypass leakage not within limit], the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative controls and the probability of their misalignment is low.

INSERT B 3.6.3 B.2

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.

C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve must be restored to OPERABLE status or the affected penetration flow

(continued)

TSTF-145, Rev.1

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs. --------------------- One or more penetration flow paths with two PCIVs inoperable [except for purge valve leakage not within limit].	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. ← Insert 3.6.3 Action B.2	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one PCIV. --------------------- One or more penetration flow paths with one PCIV inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	[4] hours except for excess flow check valves (EFCVs) <u>AND</u> 12 hours [for EFCVs]
	<u>AND</u>		
	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
[D. Secondary containment bypass leakage rate not within limit.	D.1	Restore leakage rate to within limit.	4 hours]

(continued)

TSTF-145, Rev 1

ACTIONS

A.1 and A.2 (continued)

allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is low.

B.1 and B.2

With one or more penetration flow paths with two PCIVs inoperable, either the inoperable PCIVs must be restored to OPERABLE status or the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1.

Insert B 3.6.3 B.2

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two PCIVs. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions.

C.1 and C.2

With one or more penetration flow paths with one PCIV inoperable, the inoperable valve must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration. Required Action C.1 must be completed within the [4] hour Completion Time. The Completion Time of [4] hours is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting primary containment OPERABILITY during

(continued)

TSTF-145, Rev. 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs. --------------------- One or more penetration flow paths with two PCIVs inoperable [except for purge valve leakage not within limit].	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour
		Insert 3.6.3 Action B.2	
C. ---------NOTE--------- Only applicable to penetration flow paths with only one PCIV. --------------------- One or more penetration flow paths with one PCIV inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	[4] hours
	AND		
	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
[D. Secondary containment bypass leakage rate not within limit.	D.1	Restore leakage rate to within limit.	4 hours]

(continued)

TSTF-145, Rev 1

BASES

ACTIONS

B.1 (continued)

Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1.

Insert B 3.6.3 B.2 →

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two PCIVs. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions.

C.1 and C.2

When one or more penetration flow paths with one PCIV inoperable, the inoperable valve must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration. Required Action C.1 must be completed within [4] hours. The [4] hour Completion Time is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting primary containment OPERABILITY during MODES 1, 2, and 3. In the event the affected penetration is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

Condition C is modified by a Note indicating this Condition is applicable only to those penetration flow paths with only one PCIV. For penetration flow paths with two PCIVs, Conditions A and B provide the appropriate Required Actions. This Note is necessary since this Condition is written

(continued)

TSTF-145, Rev. 1

ACTIONS

A.1 and A.2 (continued)

an accident, and no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification that those devices outside the primary containment, drywell, and steam tunnel and capable of being mispositioned are in the correct position. The Completion Time for this verification of "once per 31 days for isolation devices outside primary containment, drywell, and steam tunnel," is appropriate because the devices are operated under administrative controls and the probability of their misalignment is low. For devices inside the primary containment, drywell, or steam tunnel, the specified time period of "prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days," is based on engineering judgment and is considered reasonable in view of the inaccessibility of the devices and the existence of other administrative controls ensuring that device misalignment is an unlikely possibility.

Condition A is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two PCIVs. For penetration flow paths with one PCIV, Condition C provides appropriate Required Actions.

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is low.

B.1 and B.2

With one or more penetration flow paths with two PCIVs inoperable, either the inoperable PCIVs must be restored to OPERABLE status or the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure.

(continued)

TSB FORM 1 (11-95) U.S. NUCLEAR REGULATORY COMMISSION	PACKAGE NO.	DATE
TRAVELLER FOR STS Rev 2 CHANGES	TSTF-140	04/08/97

NUREGs	Specs/LCOs/Bases	Filenames
-1430 (BWOG)	3.7.6, B 3.7.6	BS3706__.L01, BS3706__.BA1
-1431 (WOG)	3.7.6, B 3.7.6	WS3706__.L01, WS3706__.BA1
-1432 (CEOG)	3.7.6, B 3.7.6	CS3706__.L01, CS3706__.BA1
-1433 (BWR/4)		
-1434 (BWR/6)		
Entered Database	Date: 4/8/97	DB Filename: R:\ACCESS.TSB\CHANGES.MDB

STS CHANGE REVIEW

Date Assigned: 4/8/97	Tech Branch: (if review requested)
TSB Reviewer: R. Giardina	Tech Reviewer:
Recommendation DATE:	Recommendation DATE:
[ ] APPROVE [ ] MODIFIY [ ] REJECT	[ ] APPROVE [ ] MODIFIY [ ] REJECT
Comments: Correct Condensate Storage Tank LCO and Criteria.	Comments:

STS CHANGE DISPOSITION

TSB ACTION DATE:	TSTF ACTION (if applicable) DATE:
[ ] APPROVED [ ] MODIFIED [ ] REJECTED	[ ] WITHDRAWN [ ] REVISED [ ] APPEALED
Comments:	Comments:

STS FILE AND RECORD DATA CHANGES

ACTION	BY	DATE	ACTION	BY	DATE
Working Draft Created			Approved Draft Created		
Changes Proofed			Approved Draft Certified		
Approved Package			Control Books Updated		
Correction			BBS Files Updated		
Tech Branch Review			Package Filed		
E-Mailed to NEI/TSTF			Database Updated		

Industry/TSTF Standard Technical Specification Change Traveler

Correct Condensate Storage Tank LCO and Criteria

Classification: Consistency/Standardization

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

LCO 3.7.6, "Condensate Storage Tank" is revised from requiring a CST volume to requiring that the CST be operable. The 10 CFR 50.36.(c).(2).(ii) criteria are also corrected to be consistent with the LCO.

Justification:

LCO 3.7.6 stated "The CST level shall be >= [350,000] gal." This presentation is inconsistent with other ITS LCOs in that it does not address Operability. The LCO is revised to state, "The CST shall be OPERABLE." The details of what constitutes operability are given in the Bases. The level requirement remains unchanged in SR 3.7.6.1. and continues to be an Operability requirement through SR 3.0.1. Action A is revised from "CST level not within limit" to "CST inoperable". This presentation is consistent with similar Specifications, such as Specification 3.5.4, Refueling Water Tank.

The Applicable Safety Analysis section states that CST volume meets Criteria 3 (mitigation), when it also meets Criteria 2 (process variable assumed as an initial condition). This has also been corrected.

Both of these changes make the Specifications consistent with the ITS rules and presentation without making any change to the existing requirements.

Affected Technical Specifications

S/A 3.7.6 Bases	Condensate Storage Tank	
LCO 3.7.6	Condensate Storage Tank	
Action 3.7.6.A	Condensate Storage Tank	
Action 3.7.6.A Bases	Condensate Storage Tank	NUREG(s)- 1431 1432 Only

CEOG Review Information

CEOG-52

Originating Plant: Millstone 2 Date Provided to OG: 29-May-96 Needed By: 30-Jul-97

Owners Group History:

Revised at 12/18/96 CEOG meeting.

Owners Group Resolution: Approved Date: 04-Jun-96

TSTF Review Information

TSTF Received Date: 01-Jul-96 Date Distributed to OGs for Review: 31-Jul-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

BWOG - Applicable, BWOG accepts
WOG - Applicable, WOG accepts
BWROG - Applicable, BWROG accepts
Originally approved 10/10/96, prior to replacement by Revision 1.
Revision 1 approved on 3/6/97.

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 140**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

OG Revision 1 Revision Date: 18-Dec-96 Proposed by: CEOG

Revision Description:
This revision replaced the TSTF in total and contained new revisions to the CST specification.

Distributed to TSTF: 1/20/97 Resolution: Approved Date: 06-Mar-97

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The [two] CST ~~level~~(s) shall be ~~≥ [250,000] gal~~ OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. The [two] CST ~~level~~(s) ~~not within limits~~ inoperable.	A.1	Verify by administrative means OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND		
	A.2	Restore CST ~~level~~(s) to ~~within limit~~ OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4 without reliance on steam generator for heat removal.	[18 hours]

APPLICABLE SAFETY ANALYSES (continued)

power. Single failures that also affect this event include the following:

a. Failure of the diesel generator powering the motor driven EFW pump to the unaffected steam generator (requiring additional steam to drive the remaining EFW pump turbine); and

b. Failure of the steam driven EFW pump (requiring a longer time for cooldown using only one motor driven EFW pump).

These are not usually the limiting failures in terms of consequences for these events.

Criteria ... 2 and

The CST satisfies Criterion 3 of the NRC Policy Statement.

LCO

To satisfy accident analysis assumptions, the [two] CSTs must contain sufficient cooling water to remove decay heat for 13 hours following a reactor trip from 102% RTP and then to cool down the RCS to DHR System entry conditions, assuming a coincident loss of offsite power and most adverse single failure. While so doing, the CSTs must retain sufficient water to ensure adequate net positive suction head for the EFW pump(s) during the cooldown, to account for any losses from the steam driven EFW pump turbine, as well as losses incurred before isolating EFW to a broken line.

The level required is equivalent to a usable volume of [250,000] gallons, which is based on holding the unit in MODE 3 for 13 hours, followed by a cooldown to DHR System entry conditions.

The OPERABILITY of the CST is determined by maintaining the tank level at or above the minimum required level.

APPLICABILITY

In MODES 1, 2, 3, and in MODE 4, when steam generator is being relied upon for heat removal, the CST is required to be OPERABLE.

In MODES 5 and 6, the CST is not required because the EFW System is not required.

(continued)

TSTF-140

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST ~~level~~ shall be ~~≥ [110,000 gal]~~. OPERABLE

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. CST ~~level not within limit~~. inoperable	A.1	Verify by administrative means OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND		
	A.2	Restore CST ~~level~~ to ~~within limit~~ OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4, without reliance on steam generator for heat removal.	[18] hours

APPLICABLE SAFETY ANALYSES (continued)

power. Single failures that also affect this event include the following:

a. Failure of the diesel generator powering the motor driven AFW pump to the unaffected steam generator (requiring additional steam to drive the remaining AFW pump turbine); and

b. Failure of the steam driven AFW pump (requiring a longer time for cooldown using only one motor driven AFW pump).

These are not usually the limiting failures in terms of consequences for these events.

A nonlimiting event considered in CST inventory determinations is a break in either the main feedwater or AFW line near where the two join. This break has the potential for dumping condensate until terminated by operator action, since the Emergency Feedwater Actuation System would not detect a difference in pressure between the steam generators for this break location. This loss of condensate inventory is partially compensated for by the retention of steam generator inventory.

The CST satisfies ~~Criterion~~ Criteria 2 and 3 of the NRC Policy Statement.

LCO

To satisfy accident analysis assumptions, the CST must contain sufficient cooling water to remove decay heat for [30 minutes] following a reactor trip from 102% RTP, and then to cool down the RCS to RHR entry conditions, assuming a coincident loss of offsite power and the most adverse single failure. In doing this, it must retain sufficient water to ensure adequate net positive suction head for the AFW pumps during cooldown, as well as account for any losses from the steam driven AFW pump turbine, or before isolating AFW to a broken line.

The CST level required is equivalent to a usable volume of ≥ [110,000 gallons], which is based on holding the unit in MODE 3 for [2] hours, followed by a cooldown to RHR entry conditions at [75]°F/hour. This basis is established in Reference 4 and exceeds the volume required by the accident analysis.

(continued)

TSTF-140

BASES

LCO (continued)

The OPERABILITY of the CST is determined by maintaining the tank level at or above the minimum required level.

APPLICABILITY

In MODES 1, 2, and 3, and in MODE 4, when steam generator is being relied upon for heat removal, the CST is required to be OPERABLE.

In MODE 5 or 6, the CST is not required because the AFW System is not required.

ACTIONS

A.1 and A.2

OPERABLE

If the CST ~~level~~ is not ~~within limits~~, the OPERABILITY of the backup supply should be verified by administrative means within 4 hours and once every 12 hours thereafter. OPERABILITY of the backup feedwater supply must include verification that the flow paths from the backup water supply to the AFW pumps are OPERABLE, and that the backup supply has the required volume of water available. The CST must be restored to OPERABLE status within 7 days, because the backup supply may be performing this function in addition to its normal functions. The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. The 7 day Completion Time is reasonable, based on an OPERABLE backup water supply being available, and the low probability of an event occurring during this time period requiring the CST.

B.1 and B.2

If the CST cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, without reliance on the steam generator for heat removal, within [18] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

(continued)

TSTF-140

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST ~~level~~ shall be ~~≥ [350,000] gal~~ OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
[MODE 4 when steam generator is relied upon for heat removal].

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. CST ~~level not within limit~~ inoperable.	A.1	Verify OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND		
	A.2	Restore CST ~~level~~ to ~~within limit~~ OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4 without reliance on steam generator for heat removal.	[18] hours

APPLICABLE SAFETY ANALYSES (continued)

power. Single failures that also affect this event include the following:

a. The failure of the diesel generator powering the motor driven AFW pump to the unaffected steam generator (requiring additional steam to drive the remaining AFW pump turbine); and

b. The failure of the steam driven AFW pump (requiring a longer time for cooldown using only one motor driven AFW pump).

These are not usually the limiting failures in terms of consequences for these events.

A nonlimiting event considered in CST inventory determinations is a break either in the main feedwater, or AFW line near where the two join. This break has the potential for dumping condensate until terminated by operator action, as the Emergency Feedwater Actuation System would not detect a difference in pressure between the steam generators for this break location. This loss of condensate inventory is partially compensated by the retaining of steam generator inventory.

The CST satisfies Criterion 3 of the NRC Policy Statement.

LCO

To satisfy accident analysis assumptions, the CST must contain sufficient cooling water to remove decay heat for [30 minutes] following a reactor trip from 102% RTP, and then cool down the RCS to SDC entry conditions, assuming a coincident loss of offsite power and the most adverse single failure. In doing this it must retain sufficient water to ensure adequate net positive suction head for the AFW pumps during the cooldown, as well as to account for any losses from the steam driven AFW pump turbine, or before isolating AFW to a broken line.

The CST level required is a usable volume of ≤ [350,000] gallons, which is based on holding the unit in MODE 3 for [4] hours, followed by a cooldown to SDC entry conditions at 75°F per hour. This basis is established by the NRC Standard Review Plan Branch Technical Position, Reactor

(continued)

LCO (continued)

Systems Branch 5-1 (Ref. 4) and exceeds the volume required by the accident analysis.

OPERABILITY of the CST is determined by maintaining the tank level at or above the minimum required level.

APPLICABILITY

In MODES 1, 2, and 3, [and in MODE 4, when steam generator is being relied upon for heat removal,] the CST is required to be OPERABLE.

In MODES 5 and 6, the CST is not required because the AFW System is not required.

ACTIONS

A.1 and A.2

If the CST ~~level~~ is not ~~within the limit~~ OPERABLE, the OPERABILITY of the backup water supply must be verified by administrative means within 4 hours.

OPERABILITY of the backup feedwater supply must include verification of the OPERABILITY of flow paths from the backup supply to the AFW pumps, and availability of the required volume of water in the backup supply. The CST ~~level~~ must be returned to OPERABLE status within 7 days, as the backup supply may be performing this function in addition to its normal functions. The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. The 7 day Completion Time is reasonable, based on an OPERABLE backup water supply being available, and the low probability of an event requiring the use of the water from the CST occurring during this period.

B.1 and B.2

If the CST cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, without reliance on steam generator for heat removal, within [18] hours. The allowed Completion

(continued)

Editorial

EDIT-017

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 The specific activity of the reactor coolant shall be within limits.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS average temperature (T_{avg}) ≥ 500°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 μCi/gm. (specific activity)	------------Note------------ LCO 3.0.4 is not applicable. ----------------------------	
	A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1. (specific activity)	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. Gross specific activity of the reactor coolant not within limit. (> $\frac{100}{\bar{E}}$ μCi/gm)	B.1 Perform SR 3.4.16.2.	4 hours
	AND	
	B.2 Be in MODE 3 with T_{avg} < 500°F.	6 hours

(continued)

Editorial

EDIT-017

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met. OR DOSE EQUIVALENT I-131 ← {specific activity} in the unacceptable region of Figure 3.4.16-1.	C.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant gross specific activity ≤ 100/Ē μCi/gm.	7 days
SR 3.4.16.2	-------------------NOTE------------------- Only required to be performed in MODE 1. -- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm.	14 days AND Between 2 and 6 hours after a THERMAL POWER change of ≥ 15% RTP within a 1 hour period

(continued)

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Boron concentration not within limit.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend positive reactivity additions.	Immediately
	AND	
	A.3 Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.1.1 Verify boron concentration is within the limit specified in COLR.	72 hours

the

Editorial

EDIT-017

BASES (continued)

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow paths, except for [42] inch purge valve penetration flow paths, to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. Due to the size of the containment purge line penetration and the fact that those penetrations exhaust directly from the containment atmosphere to the environment, the penetration flow path containing these valves may not be opened under administrative controls. A single purge valve in a penetration flow path may be opened to effect repairs to an inoperable valve, as allowed by SR 3.6.3.1.

A second Note has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable containment isolation valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable containment isolation valves are governed by subsequent Condition entry and application of associated Required Actions.

The ACTIONS are further modified by a third Note, which ensures appropriate remedial actions are taken, if necessary, if the affected systems are rendered inoperable by an inoperable containment isolation valve.

isolation valve

In the event the ~~air lock~~ leakage results in exceeding the overall containment leakage rate, Note 4 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1.

A.1 and A.2

In the event one containment isolation valve in one or more penetration flow paths is inoperable [except for purge valve or shield building bypass leakage not within limit], the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active

(continued)

TSTF-166

3.0 LCO APPLICABILITY (continued)

LCO 3.0.6 When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, ~~additional~~ (an) evaluations ~~and limitations may be required~~ (shall be performed) in accordance with Specification 5.5.12, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7 Special Operations LCOs in Section 3.10 allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain LCO 3.0.7 unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

3.9 REFUELING OPERATIONS

3.9.6 Refueling Water Level

LCO 3.9.6 Refueling water level shall be maintained ≥ 23 ft above the top of reactor vessel flange.

CEA

APPLICABILITY: During CORE ALTERATIONS, except during latching and unlatching of control rod drive shafts,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refueling water level not within limit.	A.1 Suspend CORE ALTERATIONS. AND	Immediately
	A.2 Suspend movement of irradiated fuel assemblies within containment. AND	Immediately
	A.3 Initiate action to restore refueling cavity water level to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.6.1 Verify refueling water level is ≥ 23 ft above the top of reactor vessel flange.	24 hours

BACKGROUND

Containment Spray System (continued)

minimize

The Containment Spray System provides a spray of cold borated water mixed with sodium hydroxide from the spray additive tank into the upper regions of containment to reduce containment pressure and temperature and to reduce the concentration of fission products in the containment atmosphere during a DBA. The RWT solution temperature is an important factor in determining the heat removal capability of the Containment Spray System during the injection phase. In the recirculation mode of operation, heat is removed from the containment sump water by the shutdown cooling heat exchangers. Each train of the Containment Spray System provides adequate spray coverage to meet 50% of the system design requirements for containment heat removal and 100% of the iodine removal design bases.

The Spray Additive System injects a hydrazine (N_2H_4) solution into the spray. The resulting alkaline pH of the spray enhances its ability to scavenge fission products from the containment atmosphere. The N_2H_4 added to the spray also ensures an alkaline pH for the solution recirculated in the containment sump. The alkaline pH of the containment sump water minimizes the evolution of iodine and minimizes the occurrence of chloride and caustic stress corrosion on mechanical systems and components exposed to the fluid.

The Containment Spray System is actuated either automatically by a containment High-High pressure signal coincident with a safety injection actuation signal (SIAS) or manually. An automatic actuation opens the containment spray pump discharge valves, starts the two Containment Spray System pumps, and begins the injection phase. The containment spray header isolation valves open upon a containment spray actuation signal. A manual actuation of the Containment Spray System is available on the main control board to begin the same sequence. The injection phase continues until an RWT level Low signal is received. The Low level for the RWT generates a recirculation actuation signal that aligns valves from the containment spray pump suction to the containment sump. The Containment Spray System in recirculation mode maintains an equilibrium temperature between the containment atmosphere and the recirculated sump water. Operation of the Containment Spray System in the recirculation mode is controlled by the

(continued)

LCO

During a DBA, a minimum of two containment cooling trains or two containment spray trains, or one of each, is required to maintain the containment peak pressure and temperature below the design limits (Ref. 5). Additionally, one containment spray train is also required to remove iodine from the containment atmosphere and maintain concentrations below those assumed in the safety analysis. To ensure that these requirements are met, two containment spray trains and two containment cooling units must be OPERABLE. Therefore, in the event of an accident, the minimum requirements are met, assuming that the worst case single active failure occurs.

Each Containment Spray System typically includes a spray pump, spray headers, nozzles, valves, piping, instruments, and controls to ensure an OPERABLE flow path capable of taking suction from the RWT upon an ESF actuation signal and automatically transferring suction to the containment sump.

Each Containment Cooling System typically includes demisters, cooling coils, dampers, fans, instruments, and controls to ensure an OPERABLE flow path.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment and an increase in containment pressure and temperature, requiring the operation of the containment spray trains and containment cooling trains.

In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Thus, the Containment Spray and Containment Cooling systems are not required to be OPERABLE in MODES 5 and 6.

ACTIONS

A.1

With one containment spray train inoperable, the inoperable containment spray train must be restored to OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE spray and cooling trains are adequate to perform the iodine removal and containment cooling functions. The 72 hour Completion Time takes into account the redundant heat

(continued)

ACTIONS (continued)

B.1 and B.2

If the MSSVs cannot be restored to OPERABLE status in the associated Completion Time, or if one or more steam generators have less than two MSSVs OPERABLE, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within [12] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1

This SR verifies the OPERABILITY of the MSSVs by the verification of each MSSV lift setpoints in accordance with the Inservice Testing Program. The ASME Code, Section XI (Ref. 4), requires that safety and relief valve tests be performed in accordance with ANSI/ASME OM-1-1987 (Ref. 5). According to Reference 5, the following tests are required for MSSVs:

a. Visual examination;

b. Seat tightness determination;

c. Setpoint pressure determination (lift setting);

d. Compliance with owner's seat tightness criteria; and

e. Verification of the balancing device integrity on balanced valves.

The ANSI/ASME Standard requires that all valves be tested every 5 years, and a minimum of 20% of the valves be tested every 24 months. The ASME Code specifies the activities and frequencies necessary to satisfy the requirements. Table 3.7.1-2 allows a ± [3]% setpoint tolerance for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This is to

(continued)

LCO

A minimum refueling water level of 23 ft above the reactor vessel flange is required to ensure that the radiological consequences of a postulated fuel handling accident inside containment are within acceptable limits as provided by the guidance of Reference 3.

APPLICABILITY

LCO 3.9.6 is applicable during CORE ALTERATIONS, except during latching and unlatching of control rod drive shafts, and when moving fuel assemblies in the presence of irradiated fuel assemblies. The LCO minimizes the possibility of a fuel handling accident in containment that is beyond the assumptions of the safety analysis. If irradiated fuel is not present in containment, there can be no significant radioactivity release as a result of a postulated fuel handling accident. Requirements for fuel handling accidents in the spent fuel pool are covered by LCO 3.7.10, "Fuel Storage Pool Water Level."

CEA

ACTIONS

A.1 and A.2

With a water level of < 23 ft above the top of the reactor vessel flange, all operations involving CORE ALTERATIONS or movement of irradiated fuel assemblies shall be suspended immediately to ensure that a fuel handling accident cannot occur.

The suspension of CORE ALTERATIONS and fuel movement shall not preclude completion of movement of a component to a safe position.

A.3

In addition to immediately suspending CORE ALTERATIONS or movement of irradiated fuel, action to restore refueling cavity water level must be initiated immediately.

(continued)

Editorial

EDIT-018

5.5.14 Technical Specifications (TS) Bases Control Program (continued)

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of Specification 5.5.14b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.15 Safety Functions Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

SI Reference Applicability

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

Add Applicability column to the Table (and revise the Applicability statement to refer to the Table) to clarify requirements for the ESFAS functions.

Justification:

LCOs 3.3.6 and 3.3.7 have Applicability statements that apply to the entire Table of Functions required to be OPERABLE; however one Function in each Table refers to LCO 3.3.2 "for all initiation functions and requirements." LCO 3.3.2 Applicability for these functions are different from Applicability for LCOs 3.3.6 and 3.3.7. The revised Applicability presentation clarifies the intent while the tables refer to LCO 3.3.2 for the Applicability of the appropriate Functions.

This presentation is consistent with the presentation of similar requirements in the Specifications.

Affected Technical Specifications

3.3.6	Containment Purge and Exhaust Isolation Instrumentation
	Change Description: Table 3.3.6-1
Appl. 3.3.6	Containment Purge and Exhaust Isolation Instrumentation
Appl. 3.3.6 Bases	Containment Purge and Exhaust Isolation Instrumentation
3.3.7	CREFS Actuation Instrumentation
	Change Description: Table 3.3.7-1
Appl. 3.3.7	CREFS Actuation Instrumentation
Appl. 3.3.7 Bases	CREFS Actuation Instrumentation

WOG Review Information

WOG-66

Originating Plant: WOG MiniGroup Date Provided to OG: 16-Aug-96 Needed By:

Owners Group History:

Owners Group Resolution: Approved Date: 16-Aug-96

TSTF Review Information

TSTF Received Date: 27-Sep-96 Date Distributed to OGs for Review: 29-Oct-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

CEOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 03-Dec-96 **TSTF- 161**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

OG Revision 1 Revision Date: 17-Dec-96 Proposed by: WOG

Revision Description:
Minor editorial changes.

Distributed to TSTF: Resolution: Approved Date: 19-Nov-96

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-161

3.3 INSTRUMENTATION

3.3.6 Containment Purge and Exhaust Isolation Instrumentation

LCO 3.3.6 The Containment Purge and Exhaust Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

According to Table 3.3.6-1.

APPLICABILITY: ~~MODES 1, 2, 3, and 4,~~
~~During CORE ALTERATIONS,~~
~~During movement of irradiated fuel assemblies within containment.~~

ACTIONS

-----------------------------------NOTE-----------------------------------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One radiation monitoring channel inoperable.	A.1	Restore the affected channel to OPERABLE status.	4 hours

(continued)

TSTF-161

Table 3.3.6-1 (page 1 of 1)
Containment Purge and Exhaust Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR Other SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1,2,3,4 (a),(b)	2	SR 3.3.6.6	NA
2. Automatic Actuation Logic and Actuation Relays	1,2,3,4 (a),(b)	2 trains	SR 3.3.6.2 SR 3.3.6.3 SR 3.3.6.5	NA
[3. Containment Radiation				
a. Gaseous	1,2,3,4 (a),(b)	[1]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	≤ [2 x background]
b. Particulate	1,2,3,4 (a),(b)	[1]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	≤ [2 x background]
c. Iodine	1,2,3,4 (a),(b)	[1]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	≤ [2 x background]
d. Area Radiation	1,2,3,4 (a),(b)	[1]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	≤ [2 x background]]
4. Containment Isolation – Phase A	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a., for all initiation functions and requirements.			

(a) During CORE ALTERATIONS

(b) During movement of irradiated fuel assemblies within containment.

TSTF-161

3.3 INSTRUMENTATION

3.3.7 Control Room Emergency Filtration System (CREFS) Actuation Instrumentation

LCO 3.3.7 The CREFS actuation instrumentation for each Function in Table 3.3.7-1 shall be OPERABLE.

According to Table 3.3.7-1.

APPLICABILITY: ~~MODES 1, 2, 3, 4, [5, and 6,]~~
~~During movement of irradiated fuel assemblies,~~
~~[During CORE ALTERATIONS].~~

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions with one channel or train inoperable.	A.1	[--------NOTE-------- Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable. --------------------]	
		Place one CREFS train in emergency [radiation protection] mode.	7 days

(continued)

TSTF-161

Table 3.3.7-1 (page 1 of 1)
CREFS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR Other SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1,2,3,4,[5,6] (a), [(b)]	2 trains	SR 3.3.7.6	NA
2. Automatic Actuation Logic and Actuation Relays	1,2,3,4,[5,6] (a), [(b)]	2 trains	SR 3.3.7.3 SR 3.3.7.4 SR 3.3.7.5	NA
3. Control Room Radiation				
a. Control Room Atmosphere	1,2,3,4 [5,6] (a), [(b)]	[2]	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.7	≤ [2] mR/hr
b. Control Room Air Intakes	1,2,3,4,[5,6] (a), [(b)]	[2]	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.7	≤ [2] mR/hr
4. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

(a) During movement of irradiated fuel assemblies

[(b) During CORE ALTERATIONS.]

TSTF-161

INSERT B 153

The Applicability for the containment purge and exhaust isolation on the ESFAS Containment Isolation–Phase A Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Containment Isolation–Phase A Function Applicability.

INSERT B 161

The Applicability for the CREFS actuation on the ESFAS Safety Injection Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Safety Injection Function Applicability.

TSTF-161

BASES (continued)

APPLICABILITY

The Manual Initiation, Automatic Actuation Logic and Actuation Relays, Containment Isolation – Phase A, and Containment Radiation Functions are required OPERABLE in MODES 1, 2, 3, and 4, and during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment. Under these conditions, the potential exists for an accident that could release fission product radioactivity into containment. Therefore, the containment purge and exhaust isolation instrumentation must be OPERABLE in these MODES.

While in MODES 5 and 6 without fuel handling in progress, the containment purge and exhaust isolation instrumentation need not be OPERABLE since the potential for radioactive releases is minimized and operator action is sufficient to ensure post accident offsite doses are maintained within the limits of Reference 1.

Insert B153 →

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.6-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A applies to the failure of one containment purge isolation radiation monitor channel. Since the four containment radiation monitors measure different parameters,

(continued)

TSTF-161

BASES

LCO

2. Automatic Actuation Logic and Actuation Relays (continued)

restrictive Actions specified for inoperability of the CREFS Functions specify sufficient compensatory measures for this case.

3. Control Room Radiation

The LCO specifies two required Control Room Atmosphere Radiation Monitors and two required Control Room Air Intake Radiation Monitors to ensure that the radiation monitoring instrumentation necessary to initiate the CREFS remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY may also require correct valve lineups, sample pump operation, and filter motor operation, as well as detector OPERABILITY, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses.

4. Safety Injection

Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements.

APPLICABILITY

The CREFS Functions must be OPERABLE in MODES 1, 2, 3, 4, [and during CORE ALTERATIONS] and movement of irradiated fuel assemblies. The Functions must also be OPERABLE in MODES [5 and 6] when required for a waste gas decay tank rupture accident, to ensure a habitable environment for the control room operators.

INSERT B161

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by the unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Maximum pressurizer water level limit bases

Classification: Change Bases

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

This change makes clear the bases for the maximum pressurizer water level limit.

Justification:

The maximum pressurizer water level limit is based on ensuring that a steam bubble exists in the pressurizer. The maximum pressurizer water level is not credited in any safety analysis. This change makes this fact clear in the Bases.

Affected Technical Specifications

S/A 3.4.9 Bases	Pressurizer
Action 3.4.9.A Bases	Pressurizer
SR 3.4.9.1 Bases	Pressurizer

WOG Review Information

WOG-68

Originating Plant: WOG Mini-Group Date Provided to OG: 10-Oct-96 Needed By:

Owners Group History:

Owners Group Resolution: Approved Date: 10-Oct-96

TSTF Review Information

TSTF Received Date: 15-Oct-96 Date Distributed to OGs for Review: 29-Oct-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

CEOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 03-Dec-96 **TSTF- 162**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-162

BASES

BACKGROUND (continued)

a loss of single phase natural circulation and decreased capability to remove core decay heat.

APPLICABLE SAFETY ANALYSES

In MODES 1, 2, and 3, the LCO requirement for a steam bubble is reflected implicitly in the accident analyses. Safety analyses performed for lower MODES are not limiting. All analyses performed from a critical reactor condition assume the existence of a steam bubble and saturated conditions in the pressurizer. In making this assumption, the analyses neglect the small fraction of noncondensible gases normally present.

Safety analyses presented in the FSAR (Ref. 1) do not take credit for pressurizer heater operation; however, an implicit initial condition assumption of the safety analyses is that the RCS is operating at normal pressure.

, which ensures that a steam bubble exists in the pressurizer,

The maximum pressurizer water level limit satisfies Criterion 2 of the NRC Policy Statement. Although the heaters are not specifically used in accident analysis, the need to maintain subcooling in the long term during loss of offsite power, as indicated in NUREG-0737 (Ref. 2), is the reason for providing an LCO.

LCO

The LCO requirement for the pressurizer to be OPERABLE with a water volume ≤ [1240] cubic feet, which is equivalent to [92]%, ensures that a steam bubble exists. Limiting the LCO maximum operating water level preserves the steam space for pressure control. The LCO has been established to ensure the capability to establish and maintain pressure control for steady state operation and to minimize the consequences of potential overpressure transients. Requiring the presence of a steam bubble is also consistent with analytical assumptions.

The LCO requires two groups of OPERABLE pressurizer heaters, each with a capacity ≥ [125] kW, capable of being powered from either the offsite power source or the emergency power supply. The minimum heater capacity required is sufficient to maintain the RCS near normal operating pressure when accounting for heat losses through the pressurizer insulation. By maintaining the pressure near the operating

(continued)

TSTF-162

LCO (continued)

conditions, a wide margin to subcooling can be obtained in the loops. The exact design value of [125 kW is derived from the use of seven heaters rated at 17.9 kW each]. The amount needed to maintain pressure is dependent on the heat losses.

APPLICABILITY

The need for pressure control is most pertinent when core heat can cause the greatest effect on RCS temperature, resulting in the greatest effect on pressurizer level and RCS pressure control. Thus, applicability has been designated for MODES 1 and 2. The applicability is also provided for MODE 3. The purpose is to prevent solid water RCS operation during heatup and cooldown to avoid rapid pressure rises caused by normal operational perturbation, such as reactor coolant pump startup.

In MODES 1, 2, and 3, there is need to maintain the availability of pressurizer heaters, capable of being powered from an emergency power supply. In the event of a loss of offsite power, the initial conditions of these MODES give the greatest demand for maintaining the RCS in a hot pressurized condition with loop subcooling for an extended period. For MODE 4, 5, or 6, it is not necessary to control pressure (by heaters) to ensure loop subcooling for heat transfer when the Residual Heat Removal (RHR) System is in service, and therefore, the LCO is not applicable.

ACTIONS

A.1 and A.2

Pressurizer water level control malfunctions or other plant evolutions may result in a pressurizer water level above the nominal upper limit, even with the plant at steady state conditions. Normally the plant will trip in this event since the upper limit of this LCO is the same as the Pressurizer Water Level – High Trip.

If the pressurizer water level is not within the limit, action must be taken to ~~restore the plant to operation within the bounds of the safety analyses.~~ [bring the plant to a MODE in which the LCO does not apply.] To achieve this status, the unit must be brought to MODE 3, with the reactor trip breakers open, within 6 hours and to MODE 4 within 12 hours. This takes the unit out of the applicable MODES.

(continued)

TSTF-162

ACTIONS

A.1 and A.2 (continued)

and restores the unit to operation within the bounds of the safety analyses.

The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

B.1

If one required group of pressurizer heaters is inoperable, restoration is required within 72 hours. The Completion Time of 72 hours is reasonable considering the anticipation that a demand caused by loss of offsite power would be unlikely in this period. Pressure control may be maintained during this time using normal station powered heaters.

C.1 and C.2

If one group of pressurizer heaters are inoperable and cannot be restored in the allowed Completion Time of Required Action B.1, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 6 hours and to MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1

This SR requires that during steady state operation, pressurizer level is maintained below the nominal upper limit to provide a minimum space for a steam bubble. The Surveillance is performed by observing the indicated level. The Frequency of 12 hours corresponds to verifying the parameter each shift. The 12 hour interval has been shown by operating practice to be sufficient to regularly assess level for any deviation and verify that operation is within

(continued)

TSTF-162

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1 (continued) (of ensuring that a steam bubble exists in the pressurizer.)

safety analyses assumptions. Alarms are also available for early detection of abnormal level indications.

SR 3.4.9.2

The SR is satisfied when the power supplies are demonstrated to be capable of producing the minimum power and the associated pressurizer heaters are verified to be at their design rating. This may be done by testing the power supply output and by performing an electrical check on heater element continuity and resistance. The Frequency of 92 days is considered adequate to detect heater degradation and has been shown by operating experience to be acceptable.

[SR 3.4.9.3

This SR is not applicable if the heaters are permanently powered by Class 1E power supplies.

This Surveillance demonstrates that the heaters can be manually transferred from the normal to the emergency power supply and energized. The Frequency of 18 months is based on a typical fuel cycle and is consistent with similar verifications of emergency power supplies.]

REFERENCES

1. FSAR, Section [ ].

2. NUREG-0737, November 1980.

Industry/TSTF Standard Technical Specification Change Traveler

Minimum vs. Steady State Voltage and Frequency

Classification: Correct Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☑ 1433 ☑ 1434

Description:

All of the [10]-second DG start tests are modified to provide minimum volt/Hz limits for the [10] second acceptance and then detail the volt/Hz range as "steady state" acceptance criteria.

Justification:

The intent of the [10] second start tests is to confirm the ability of the DG to reach the minimum conditions to accept load. This is consistent with the revised minimum volt/Hz. A new range of acceptable voltage and frequency are provided which are applicable only to steady state operation.

Affected Technical Specifications

SR 3.8.1.7	AC Sources Operating
SR 3.8.1.12	AC Sources Operating
SR 3.8.1.15	AC Sources Operating
SR 3.8.1.20	AC Sources Operating

WOG Review Information

WOG-69

Originating Plant: WOG Mini-Group Date Provided to OG: 10-Oct-96 Needed By:

Owners Group History:

Owners Group Resolution: Approved Date: 10-Oct-96

TSTF Review Information

TSTF Received Date: 11-Oct-96 Date Distributed to OGs for Review: 29-Oct-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

CEOG - Applicable. CEOG accepts, however, it appears that there are Bases changes also needed that were not provided.
BWOG - Applicable, accepts
BWROG - Applicable, accepts
A review of the Bases determined that Bases changes were not needed.

TSTF Resolution: Approved Date: 03-Dec-96 **TSTF- 163**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

INSERT 1

;

a. in ≤ [10] seconds, voltage ≥ [3740] V and frequency ≥ [58.8] Hz; and
b. steady state

INSERT 2

frequency ≥ [58.8] Hz

INSERT 3

steady state voltage ≥ [3740] V and ≤ [4580] V and

INSERT 4

;

a. in ≤ [12] seconds, voltage ≥ [3740] V and frequency ≥ [58.8] Hz; and
b. steady state

INSERT 5

;

a. in ≤ [10] seconds, voltage ≥ [3744] V and frequency ≥ [58.8] Hz; and
b. steady state

INSERT 6

steady state voltage ≥ [3744] V and ≤ [4576] V and

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. --- Verify each DG starts from standby condition and achieves, in ≤ [10] seconds, voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz. Insert 1	184 days
[SR 3.8.1.8	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify [automatic [and] manual] transfer of AC power sources from the normal offsite circuit to each alternate [required] offsite circuit.	[18 months]]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated [Engineered Safety Feature (ESF)] actuation signal each DG auto-starts from standby condition and: a. In ≤ [12] seconds after auto-start and during tests, achieves voltage ≥ [3740] V and ≤ [4580] V; Insert 2 b. In ≤ [12] seconds after auto-start and during tests, achieves frequency ≥ [58.8] Hz and ≤ [61.2] Hz; Insert 3 c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are energized [or auto-connected through the automatic load sequencer] from the offsite power system.	[18 months]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	-------------------NOTES------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify each DG operating at a power factor ≤ [0.9] operates for ≥ 24 hours: a. For ≥ [2] hours loaded ≥ [5250] kW and ≤ [6000] kW; and b. For the remaining hours of the test loaded ≥ [4500] kW and ≤ [5000] kW.	[18 months]
SR 3.8.1.15	-------------------NOTES------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ [2] hours loaded ≥ [4500] kW and ≤ [5000] kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. --- Verify each DG starts and achieves, in ≤ [10] seconds, voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz. Insert 1	[18 months]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.20	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. --- Verify, when started simultaneously from standby condition, each DG achieves, in ≤ [10] seconds, voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz. Insert 1	10 years

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- Verify each DG starts from standby condition and achieves ~~in ≤ [10] seconds,~~ voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	184 days Insert 1
[SR 3.8.1.8	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. -- Verify [automatic [and] manual] transfer of AC power sources from the normal offsite circuit to each alternate [required] offsite circuit.	[18 months]]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------NOTES------------------- 1. All DG starts may be preceded by prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each DG auto-starts from standby condition and: a. In ≤ [10] seconds after auto-start and during tests, achieves voltage ≥ [3740] V and ≤ [4580] V; (Insert 2) b. In ≤ [10] seconds after auto-start and during tests, achieves frequency ≥ [58.8] Hz and ≤ [61.2] Hz; (Insert 3) c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are energized [or auto-connected through the automatic load sequencer] from the offsite power system.	[18 months]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	-------------------NOTES------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify each DG operating at a power factor ≤ [0.9] operates for ≥ 24 hours: a. For ≥ [2] hours loaded ≥ [5250] kW and ≤ [5500] kW; and b. For the remaining hours of the test loaded ≥ [4500] kW and ≤ [5000] kW.	[18 months]
SR 3.8.1.15	-------------------NOTES------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ [2] hours loaded ≥ [4500] kW and ≤ [5000] kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. --- Insert 1 → Verify each DG starts and achieves~~, in ≤ [10] seconds,~~ voltage ≥ [3740] V, and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	[18 months]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.19	(continued) 2. energizes auto-connected emergency loads through load sequencer, 3. achieves steady state voltage ≥ [3740] V and ≤ [4580] V, 4. achieves steady state frequency ≥ [58.8] Hz and ≤ [61.2] Hz, and 5. supplies permanently connected [and auto-connected] emergency loads for ≥ 5 minutes.	
SR 3.8.1.20	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- Verify when started simultaneously from standby condition, each DG achieves ~~in ≤ [10] seconds,~~ Insert 1 voltage ≥ [3744] V and ≤ [4576] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	10 years

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- Verify each DG starts from standby condition and achieves, ~~in ≤ [10] seconds,~~ voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	184 days Insert 1
SR 3.8.1.8	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. -- Verify [automatic [and] manual] transfer of AC power sources from the normal offsite circuit to each alternate [required] offsite circuit.	[18 months]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	--------------------NOTES-------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each DG auto-starts from standby condition and: a. In ≤ [10] seconds after auto-start and during tests, achieves voltage ≥ [3740] V and ~~≤ [4580] V;~~ Insert 2 b. ~~In ≤ [10] seconds after auto-start and during tests, achieves~~ frequency ≥ [58.8] Hz and ≤ [61.2] Hz; Insert 3 c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are energized [or auto-connected through the automatic load sequencer] from the offsite power system.	[18 months]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	-------------------NOTES------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify each DG, operating at a power factor ≤ [0.9], operates for ≥ 24 hours: a. For ≥ [2] hours loaded ≥ [5250] kW and ≤ [5500] kW; and b. For the remaining hours of the test loaded ≥ [4500] kW and ≤ [5000] kW.	[18 months]
SR 3.8.1.15	-------------------NOTES------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ [2] hours loaded ≥ [4500] kW and ≤ [5000] kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. --- Verify each DG starts and achieves, in ≤ [10] seconds, voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz. Insert 1	[18 months]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.20	---NOTE--- All DG starts may be preceded by an engine prelube period. Verify, when started simultaneously from standby condition, each DG achieves, in ≤ [10] seconds, voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz. (Insert 1)	10 years

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	------------------NOTE------------------ All DG starts may be preceded by an engine prelube period. -- Verify each DG starts from standby condition and achieves, in ≤ [12] seconds, voltage ≥ [3740] V and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	184 days
[SR 3.8.1.8	[------------------NOTE------------------ This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --] Verify [automatic [and] manual] transfer of [unit power supply] from the [normal offsite circuit to the alternate] offsite circuit.]	[[18 months]]

Insert 4

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ [12] seconds after auto-start and during tests, achieves voltage ≥ [3740] V ~~and ≤ [4580] V~~; Insert 2 b. ~~In ≤ [12] seconds after auto-start and during tests,~~ ~~achieves~~ frequency ≥ [58.8] Hz and ≤ [61.2] Hz; Insert 3 c. Operates for ≥ [5] minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are energized [or auto-connected through the automatic load sequencer] from the offsite power system.	[18 months]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	-------------------NOTES------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify each DG operating at a power factor ≤ [0.9] operates for ≥ 24 hours: a. For ≥ [2] hours loaded ≥ [3100] kW and ≤ [3400] kW; and b. For the remaining hours of the test loaded ≥ [2850] kW and ≤ [3150] kW.	[18 months]
SR 3.8.1.15	-------------------NOTES------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ [2] hours loaded ≥ [1710] kW and ≤ [2000] kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. --- Verify each DG starts and achieves, in ≤ [12] seconds, voltage ≥ [3740] V and ≤ [4584] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	[18 months]

Insert 4 → (replacing ", in ≤ [12] seconds,")

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.19	(continued) 3. achieves steady state voltage ≥ [3740] V and ≤ [4580] V, 4. achieves steady state frequency ≥ [58.8] Hz and ≤ [61.2] Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ [5] minutes.	
SR 3.8.1.20	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. --- Verify, when started simultaneously from standby condition, [each] [2A and 2C] DG achieves ~~, in ≤ [12] seconds,~~ voltage ≥ [3740] V and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	10 years Insert 4

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- Verify each DG starts from standby condition and achieves, ~~in ≤ [10] seconds,~~ voltage ≥ [3744] V and ≤ [4576] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	184 days Insert 5
[SR 3.8.1.8	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. -- Verify [automatic and manual] transfer of [unit power supply] from the [normal offsite circuit to each [required] alternate offsite circuit and between the [required] alternate] offsite circuits.	[18 months]]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --	
	Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and:	[18 months]
	a. In ≤ [10] seconds after auto-start and during tests, achieves voltage ≥ [3744] V ~~and ≤ [4576] V~~;	Insert 2
	b. ~~In ≤ [10] seconds after auto-start and during tests,~~ achieves frequency ≥ [58.8] Hz and ≤ [61.2] Hz;	Insert 6
	c. Operates for ≥ [5] minutes;	
	d. Permanently connected loads remain energized from the offsite power system; and	
	e. Emergency loads are energized [or auto-connected through the automatic load sequencer] to from the offsite power system.	

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	-------------------NOTES------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ [2] hours loaded ≥ [4500] kW and ≤ [5000] kW for [Division 1 and 2] DGs, and ≥ [3300] kW and ≤ [3500] kW for Division 3 DG. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. ---	
	Verify each DG starts and achieves~~, in ≤ [10] seconds,~~ (Insert 5) voltage ≥ [3744] V and ≤ [4576] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	[18 months]
SR 3.8.1.16	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---	
	Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	[18 months]

(continued)

TSTF-163

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.20	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. --- Verify, when started simultaneously from standby condition, [each] [Division 1, 2, and 3] DG achieves~~, in ≤ [10] seconds,~~ voltage ≥ [3744] V and ≤ [4576] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	10 years Insert 5

Industry/TSTF Standard Technical Specification Change Traveler

AFD Notes Rearranged

Classification: Improve Specifications

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

Collect the 3 LCO Notes and one Applicability Note into one "Notes" list in the LCO.

Justification:

Revised presentation enhances clarity and usability. The Applicability Note is inappropriately located. Since it takes exception to the LCO requirement, it is relocated to an LCO Note.

Many Westinghouse plant submittals have incorporated this change. The proposed presentation is consistent with that approved for Ginna. This change to NUREG-1431 should be made to provide consistency between the Westinghouse plants.

In addition, an error is corrected on page B3.2-31, first paragraph. The ISTS states "THERMAL POWER > 50% RTP", but should stated >= 50% RTP to be consistent with the Note.

Affected Technical Specifications

LCO 3.2.3A	AFD (CAOC Methodology)
LCO 3.2.3A Bases	AFD (CAOC Methodology)
Appl. 3.2.3A	AFD (CAOC Methodology)
Appl. 3.2.3A Bases	AFD (CAOC Methodology)

WOG Review Information

WOG-75

Originating Plant: WOG Mini-Group   Date Provided to OG: 10-Oct-96   Needed By: 31-Dec-96

Owners Group History:

Owners Group Resolution: Approved   Date: 10-Oct-96

TSTF Review Information

TSTF Received Date: 11-Oct-96   Date Distributed to OGs for Review: 29-Oct-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

CEOG - Not applicable, accepts.
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved   Date: 03-Dec-96   **TSTF- 164**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

3/23/97

Revision History

OG Revision 1 Revision Date: 19-Nov-96 Proposed by:

Revision Description:
minor editorial revisions.

Distributed to TSTF: Resolution: Approved Date: 19-Nov-96

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-164

3.2 POWER DISTRIBUTION LIMITS

3.2.3A AXIAL FLUX DIFFERENCE (AFD) (Constant Axial Offset Control (CAOC) Methodology)

LCO 3.2.3 The AFD:

a. Shall be maintained within the target band about the target flux difference. The target band is specified in the COLR.

---NOTE---

1. The AFD shall be considered outside the target band when two or more OPERABLE excore channels indicate AFD to be outside the target band.

<MOVE>

b. May deviate outside the target band with THERMAL POWER < 90% RTP but ≥ 50% RTP, provided AFD is within the acceptable operation limits and cumulative penalty deviation time is ≤ 1 hour during the previous 24 hours. The acceptable operation limits are specified in the COLR.

---NOTE---

2. With THERMAL POWER ≥ 50% RTP Penalty deviation time shall be accumulated on the basis of a 1 minute penalty deviation for each 1 minute of power operation with AFD outside the target band.

<MOVE>

c. May deviate outside the target band with THERMAL POWER < 50% RTP.

---NOTE(S)---

1.
2.
3. With THERMAL POWER < 50% RTP, and > 15% RTP Penalty deviation time shall be accumulated on the basis of a 0.5 minute penalty deviation for each 1 minute of power operation with AFD outside the target band.

APPLICABILITY: MODE 1 with THERMAL POWER > 15% RTP.

---NOTE---

4. A total of 16 hours of operation may be accumulated with AFD outside the target band without penalty deviation time during surveillance of power range channels in accordance with SR 3.3.1.6, provided AFD is maintained within acceptable operation limits.

TSTF-164

BASES (continued)

LCO

The shape of the power profile in the axial (i.e., the vertical) direction is largely under the control of the operator, through either the manual operation of the control banks, or automatic motion of control banks responding to temperature deviations resulting from either manual operation of the Chemical and Volume Control System to change boron concentration, or from power level changes.

Signals are available to the operator from the Nuclear Instrumentation System (NIS) excore neutron detectors (Ref. 4). Separate signals are taken from the top and bottom detectors. The AFD is defined as the difference in normalized flux signals between the top and bottom excore detector in each detector well. For convenience, this flux difference is converted to provide flux difference units expressed as a percentage and labeled as %Δ flux or %ΔI.

~~Part A of this~~ The LCO is modified by ~~a~~ four Notes. Note 1 ~~that~~ states the conditions necessary for declaring the AFD outside of the target band. The required target band varies with axial burnup distribution, which in turn varies with the core average accumulated burnup. The target band defined in the COLR may provide one target band for the entire cycle or more than one band, each to be followed for a specific range of cycle burnup.

With THERMAL POWER ≥ 90% RTP, the AFD must be kept within the target band. With the AFD outside the target band with THERMAL POWER ≥ 90% RTP, the assumptions of the accident analyses may be violated.

MOVE UP FROM NEXT PAGE

~~Parts B and C of this LCO are modified by~~ Notes 2 and 3 ~~that~~ describe how the cumulative penalty deviation time is calculated. It is intended that the unit is operated with the AFD within the target band about the target flux difference. However, during rapid THERMAL POWER reductions, control bank motion may cause the AFD to deviate outside of the target band at reduced THERMAL POWER levels. This deviation does not affect the xenon distribution sufficiently to change the envelope of peaking factors that may be reached on a subsequent return to RTP with the AFD within the target band, provided the time duration of the deviation is limited. Accordingly, while THERMAL POWER is ≥ 50% RTP and < 90% RTP (i.e., Part B of this LCO), a 1 hour cumulative penalty deviation time limit, cumulative during the preceding 24 hours, is allowed during which the unit may

(continued)

TSTF-164

BASES

LCO (continued)

be operated outside of the target band but within the acceptable operation limits provided in the COLR (Note 2). This penalty time is accumulated at the rate of 1 minute for each 1 minute of operating time within the power range of Part B of this LCO (i.e., THERMAL POWER > 50% RTP ~~but < 90% RTP~~). The cumulative penalty time is the sum of penalty times from Parts B and C of this LCO.

For THERMAL POWER levels > 15% RTP and < 50% RTP (i.e., Part C of this LCO), deviations of the AFD outside of the target band are less significant. (Note 3 allows) The accumulation of 1/2 minute penalty deviation time per 1 minute of actual time outside the target band (and) reflects this reduced significance. With THERMAL POWER < 15% RTP, AFD is not a significant parameter in the assumptions used in the safety analysis and, therefore, requires no limits. Because the xenon distribution produced at THERMAL POWER levels less than RTP does affect the power distribution as power is increased, unanalyzed xenon and power distribution is prevented by limiting the accumulated penalty deviation time.

INSERT FROM NEXT PAGE

MOVE TO PREVIOUS PAGE

The frequency of monitoring the AFD by the unit computer is once per minute providing an essentially continuous accumulation of penalty deviation time that allows the operator to accurately assess the status of the penalty deviation time.

Violating the LCO on the AFD could produce unacceptable consequences if a Condition 2, 3, or 4 event occurs while the AFD is outside its limits.

Figure B 3.2.3A-1 shows a typical target band and typical AFD acceptable operation limits.

APPLICABILITY

AFD requirements are applicable in MODE 1 above 15% RTP. Above 50% RTP, the combination of THERMAL POWER and core peaking factors are the core parameters of primary importance in safety analyses (Ref. 1).

Between 15% RTP and 90% RTP, this LCO is applicable to ensure that the distributions of xenon are consistent with safety analysis assumptions.

(continued)

TSTF-164

BASES

APPLICABILITY (continued)

At or below 15% RTP and for lower operating MODES, the stored energy in the fuel and the energy being transferred to the reactor coolant are low. The value of the AFD in these conditions does not affect the consequences of the design basis events.

MOVE TO PREVIOUS PAGE

For surveillance of the ~~power range channels~~ performed according to SR 3.3.1.6, Note 4 allows deviation outside the target band ~~is permitted~~ for 16 hours and no penalty deviation time ~~is~~ accumulated. Some deviation in the AFD is required for doing the NIS calibration with the incore detector system. This calibration is performed every 92 days.

Low signal levels in the excore channels may preclude obtaining valid AFD signals below 15% RTP.

ACTIONS

A.1

With the AFD outside the target band and THERMAL POWER ≥ 90% RTP, the assumptions used in the accident analyses may be violated with respect to the maximum heat generation. Therefore, a Completion Time of 15 minutes is allowed to restore the AFD to within the target band because xenon distributions change little in this relatively short time.

B.1

If the AFD cannot be restored within the target band, then reducing THERMAL POWER to < 90% RTP places the core in a condition that has been analyzed and found to be acceptable, provided that the AFD is within the acceptable operation limits provided in the COLR.

The allowed Completion Time of 15 minutes provides an acceptable time to reduce power to < 90% RTP without allowing the plant to remain in an unanalyzed condition for an extended period of time.

C.1

With THERMAL POWER < 90% RTP but ≥ 50% RTP, operation with the AFD outside the target band is allowed for up to 1 hour

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Revise the LCO 3.0.5 Bases to Refer to Testing and Not SRs

Classification: Change Bases

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☑ 1433 ☑ 1434

Description:

The Bases for LCO 3.0.5 is changed to use the word "testing" instead of the acronym "SR".

Justification:

LCO 3.0.5 states, "Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY."

While LCO 3.0.5 refers to "testing", the Bases for LCO 3.0.5 inconsistently use the term "SRs" instead of "testing". This change corrects this inconsistency. This change addresses testing that is required to demonstrate operability that is not a surveillance. For example, post maintenance testing required to demonstrate operability may not be a Surveillance.

This change does not change the intent of the LCO and makes the Bases consistent with the LCO.

Affected Technical Specifications

LCO 3.0.5 Bases LCO Applicability

WOG Review Information

WOG-77

Originating Plant: Comanche Peak Date Provided to OG: 10-Oct-96 Needed By: 31-Jan-97

Owners Group History:

Owners Group Resolution: Approved Date: 11-Oct-96

TSTF Review Information

TSTF Received Date: 11-Oct-96 Date Distributed to OGs for Review: 29-Oct-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

CEOG - Applicable, accepts
BWOG - Applicable, accepts
BWROG - Applicable, accepts

TSTF Resolution: Approved Date: 03-Dec-96 **TSTF- 165**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-165

BASES

LCO 3.0.5 (continued)

the applicable Required Action(s)) to allow the performance of SRs to demonstrate: [handwritten: required testing]

a. The OPERABILITY of the equipment being returned to service; or

b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the ~~allowed SRs~~ [handwritten: required testing to demonstrate OPERABILITY]. This Specification does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions, and must be reopened to perform the SRs [handwritten: required testing].

An example of demonstrating the OPERABILITY of other equipment being returned to service is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of an SR on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of an SR on another channel in the same trip system.

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the unit is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

(continued)

LCO 3.0.5 (continued)

provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of SRs [required testing] to demonstrate:

a. The OPERABILITY of the equipment being returned to service; or

b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the ~~allowed SRs~~ [required testing to demonstrate OPERABILITY]. This Specification does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions and must be reopened to perform the SRs [required testing].

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of ~~an SR~~ [required testing] on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of ~~an SR~~ [required testing] on another channel in the same trip system.

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the unit is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the

(continued)

LCO 3.0.5 (continued)

ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of SRs to demonstrate:

required testing

a. The OPERABILITY of the equipment being returned to service; or

b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the allowed SRs. This Specification does not provide time to perform any other preventive or corrective maintenance.

required testing to demonstrate OPERABILITY

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions and must be reopened to perform the SRs.

required testing

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of an SR on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of an SR on another channel in the same trip system.

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the unit is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the

(continued)

BASES

LCO 3.0.5 (continued)

the applicable Required Action(s)) to allow the performance of SRs to demonstrate:

a. The OPERABILITY of the equipment being returned to service; or

b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the allowed SRs. This Specification does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions and must be reopened to perform the SRs.

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of an SR on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of an SR on another channel in the same trip system.

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the plant is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

(continued)

TSTF-165

BASES (continued)

LCO 3.0.5

LCO 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of SRs to demonstrate:

required testing

a. The OPERABILITY of the equipment being returned to service; or

b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the allowed SRs. This Specification does not provide time to perform any other preventive or corrective maintenance.

required testing to demonstrate OPERABILITY

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions, and must be reopened to perform the SRs.

required testing

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of an SR on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of an SR on another channel in the same trip system.

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Correct Inconsistency Between LCO 3.0.6 and the SFDP Regarding Performance of an Evaluation

Classification: Correct Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☑ 1433 ☑ 1434

Description:

Revise LCO 3.0.6 to explicitly require an evaluation per the Safety Function Determination Program. Delete statement "additional . . . limitations may be required" from LCO 3.0.6.

Justification:

There is an inconsistency between LCO 3.0.6, the Safety Function Determination Program (SFDP), and the LCO 3.0.6 Bases. As currently written, LCO 3.0.6 does not explicitly require an evaluation in accordance with the SFDP, rather it states that additional evaluations may be required. Both the SFDP and the LCO 3.0.6 Bases state that upon entry into LCO 3.0.6, an evaluation shall be made to determine if a loss of safety function exists. In addition, because LCO 3.0.6 states that the evaluation be done in accordance with the SFDP and the SFDP states that other appropriate actions may be taken, there is no need for the statement "additional . . . limitations may be required" in LCO 3.0.6.

Affected Technical Specifications

LCO 3.0.6 LCO Applicability

WOG Review Information

WOG-78

Originating Plant: Prairie Island Date Provided to OG: 10-Oct-96 Needed By: 30-Jun-97

Owners Group History:

Owners Group Resolution: Approved Date: 10-Oct-96

TSTF Review Information

TSTF Received Date: 11-Oct-96 Date Distributed to OGs for Review: 29-Oct-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

CEOG - Applicable, accepts
BWROG - Applicable, accepts
BWOG - Applicable, accepts

TSTF Resolution: Approved Date: 03-Dec-96 **TSTF- 166**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

3.0 LCO APPLICABILITY (continued)

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, ~~additional~~ an evaluation~~s and limitations may be required~~ shall be performed in accordance with Specification 5.5.15, "Safety Function Determination Program." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7

Test Exception LCOs [3.1.9, 3.1.10, 3.1.11 and 3.4.19] allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

TSTF-166

3.0 LCO APPLICABILITY (continued)

LCO 3.0.6 When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, additional evaluations and limitations may be required in accordance with Specification 5.5.15, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7 Test Exception LCOs [3.1.9, 3.1.10, 3.1.11, and 3.4.19] allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

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an

Shall be performed

TSTF-166

3.0 LCO APPLICABILITY (continued)

LCO 3.0.6 When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, ~~additional~~ an evaluation~~s~~ ~~and limitations may be required~~ shall be performed in accordance with Specification 5.5.15, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7 Special test exception (STE) LCOs [in each applicable LCO section] allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with STE LCOs is optional. When an STE LCO is desired to be met but is not met, the ACTIONS of the STE LCO shall be met. When an STE LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

TSTF-166

3.0 LCO APPLICABILITY (continued)

LCO 3.0.6 When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, (an) ~~additional~~ evaluations ~~and limitations may be required~~ (shall be performed) in accordance with Specification 5.5.12, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7 Special Operations LCOs in Section 3.10 allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

Industry/TSTF Standard Technical Specification Change Traveler

High Radiation Area - Unauthorized Changed to Inadvertent

Classification: Correct Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☑ 1433 ☑ 1434

Description:

Changes the word "unauthorized" to "inadvertent" in Section 5.7.2, High Radiation Area.

Justification:

The change from "unauthorized" to "inadvertent" reflects the NRCs position as stated in Reg Guide 8.38, Section 1.5, regarding physical barriers for high radiation areas. Plants have received violations based on misinterpretation of the current words in the ISTS.

Affected Technical Specifications

5.7.2 High Radiation Area

WOG Review Information

WOG-79

Originating Plant: Diablo Canyon Date Provided to OG: 10-Oct-96 Needed By: 01-Jan-97

Owners Group History:

Owners Group Resolution: Approved Date: 10-Oct-96

TSTF Review Information

TSTF Received Date: 11-Oct-96 Date Distributed to OGs for Review: 29-Oct-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

CEOG - Applicable, accepts
BWROG - Applicable, accepts
BWOG - Applicable, accepts

TSTF Resolution: Approved Date: 03-Dec-96 TSTF- 167

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-167

5.0 ADMINISTRATIVE CONTROLS

[5.7 High Radiation Area]

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., [Health Physics Technicians]) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the [Radiation Protection Manager] in the RWP.

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent ~~unauthorized~~ inadvertent entry and the keys shall be maintained under the administrative control of the Shift Foreman on duty or health physics supervision. Doors shall remain locked except during periods of access by personnel

(continued)

TSTF-167

5.0 ADMINISTRATIVE CONTROLS

[5.7 High Radiation Area]

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., [Health Physics Technicians]) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the [Radiation Protection Manager] in the RWP.

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent ~~unauthorized~~ inadvertent entry and the keys shall be maintained under the administrative control of the Shift Foreman on duty or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP that shall specify the dose rate levels in

(continued)

TSTF-167

5.0 ADMINISTRATIVE CONTROLS

[5.7 High Radiation Area]

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., [Health Physics Technicians]) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the [Radiation Protection Manager] in the RWP.

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent ~~unauthorized~~ inadvertent entry and the keys shall be maintained under the administrative control of the Shift Foreman on duty or health physics supervision. Doors shall remain locked except during periods of access by personnel

(continued)

TSTF-167

5.0 ADMINISTRATIVE CONTROLS

[5.7 High Radiation Area]

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., [Health Physics Technicians]) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the [Radiation Protection Manager] in the RWP.

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent unauthorized (inadvertent) entry and the keys shall be maintained under the administrative control of the Shift Foreman on duty or health physics supervision. Doors shall remain

(continued)

TSTF-167

5.0 ADMINISTRATIVE CONTROLS

[5.7 High Radiation Area]

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., [Health Physics Technicians]) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the [Radiation Protection Manager] in the RWP.

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent unauthorized (inadvertent) entry and the keys shall be maintained under the administrative control of the Shift Foreman on duty or health physics supervision. Doors shall remain locked except during periods of access by personnel

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

RTB Maintenance

Classification: Improve Specifications

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

Revise 3.3.1, Condition R, Note 2 to delete the reference to the UVTA and STA.

Justification:

The 2 hour maintenance AOT should apply to the entire RTB, not just the trip attachments. This would allow SSPS maintenance for 2 hours with the RTBB racked in. This would not affect the unavailability or CDF results presented in WCAP-10271-P-A, Supplement 2, Rev. 1, Appendix D.

Affected Technical Specifications

Action 3.3.1.R — RTS Instrumentation

Change Description: Note 2

Action 3.3.1.R Bases — RTS Instrumentation

Change Description: Note 2

WOG Review Information

WOG-82

Originating Plant: Callaway — Date Provided to OG: 10-Oct-96 — Needed By: 01-Jan-97

Owners Group History:

Owners Group Resolution: Approved — Date: 10-Oct-96

TSTF Review Information

TSTF Received Date: 11-Oct-96 — Date Distributed to OGs for Review: 29-Oct-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

CEOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved — Date: 03-Dec-96 — **TSTF- 168**

NRC Review Information

NRC Received Date: — NRC Reviewer: — Reviewer Phone #:

Reviewer Comments:

Final Resolution: — Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
R. One RTB train inoperable.	------------NOTES------------ 1. One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE. 2. One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE. ----------------------------		
	R.1	Restore train to OPERABLE status.	1 hour
	<u>OR</u>		
	R.2	Be in MODE 3.	7 hours
S. One channel inoperable.	S.1	Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u>		
	S.2	Be in MODE 3.	7 hours

(continued)

ACTIONS

Q.1 and Q.2 (continued)

next 6 hours. The Completion Time of 6 hours (Required Action Q.1) is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function and given the low probability of an event during this interval. The Completion Time of 6 hours (Required Action Q.2) is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

The Required Actions have been modified by a Note that allows bypassing one train up to [4] hours for surveillance testing, provided the other train is OPERABLE.

R.1 and R.2

Condition R applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one train inoperable, 1 hour is allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function. Placing the unit in MODE 3 removes the requirement for this particular Function.

The Required Actions have been modified by two Notes. Note 1 allows one channel to be bypassed for up to 2 hours for surveillance testing, provided the other channel is OPERABLE. Note 2 allows one RTB to be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms if the other RTB train is OPERABLE. The 2 hour time limit is justified in Reference 7.

S.1 and S.2

Condition S applies to the P-6 and P-10 interlocks. With one channel inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Delete Condition 3.3.1.N

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

Delete 3.3.1, Condition N.

Justification:

If a Reactor Coolant Flow channel is inoperable above P-8, Action N.1 requires the channel to be tripped within 6 hours or power reduced below P-8 within 10 hours. If the channel can not be tripped, the Applicability of the two-loop trip function is entered (below P-8) and Action M.1 again requires the channel to be tripped within 6 hours or power reduced below P-7 (per M.2) in 12 hours. Since the transmitter and other loop constituents are common to both trip functions, sequential entry into N then M would allow a 22 hour AOT when only a 12 hour AOT for maintenance was evaluated in WCAP-10271 and its supplements. A 22 hour allowance is also inconsistent with the TOPS Guidelines, WOG-90-18, dated 11/1/90.

Affected Technical Specifications

S/A 3.3.1 Bases	RTS Instrumentation	
LCO 3.3.1	RTS Instrumentation	
	Change Description:	Table 3.3.1-1
Action 3.3.1.M Bases	RTS Instrumentation	
Action 3.3.1.N	RTS Instrumentation	
	Change Description:	Condition N deleted
Action 3.3.1.N Bases	RTS Instrumentation	
	Change Description:	Condition N deleted
Action 3.3.1.O	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.N
Action 3.3.1.O Bases	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.N
Action 3.3.1.P	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.O
Action 3.3.1.P Bases	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.O
Action 3.3.1.Q	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.P
Action 3.3.1.Q Bases	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.P
Action 3.3.1.R	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.Q

Action 3.3.1.R Bases	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.Q
Action 3.3.1.S	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.R
Action 3.3.1.S Bases	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.R
Action 3.3.1.T	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.S
Action 3.3.1.T Bases	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.S
Action 3.3.1.U	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.T
Action 3.3.1.U Bases	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.T
Action 3.3.1.V	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.U
Action 3.3.1.V Bases	RTS Instrumentation	
	Change Description:	Relabeled 3.3.1.U

WOG Review Information

WOG-80

Originating Plant: Callaway | Date Provided to OG: 10-Oct-96 | Needed By: 01-Jan-97

Owners Group History:

Owners Group Resolution: Approved Date: 10-Oct-96

TSTF Review Information

TSTF Received Date: 11-Oct-96 Date Distributed to OGs for Review: 29-Oct-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

CEOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 03-Dec-96 **TSTF- 169**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-169

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
N. One Reactor Coolant Flow - Low (Single Loop) channel inoperable.	------------NOTE------------ The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------------------------		
	N.1	Place channel in trip.	6 hours
	OR		
	N.2	Reduce THERMAL POWER to < P-8.	10 hours
O. N One Reactor Coolant Pump Breaker Position channel inoperable.	------------NOTE------------ The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------------------------		
	N O.1	Restore channel to OPERABLE status.	6 hours
	OR		
	N O.2	Reduce THERMAL POWER to < P-8.	10 hours

(continued)

TSTF-169

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~N~~ O. One Turbine Trip channel inoperable.	-------------NOTE------------- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ------------------------------		
	~~N~~ O.1	Place channel in trip.	6 hours
	OR		
	~~N~~ O.2	Reduce THERMAL POWER to < [P-9].	10 hours
~~O~~ P. One train inoperable.	-------------NOTE------------- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. ------------------------------		
	~~O~~ P.1	Restore train to OPERABLE status.	6 hours
	OR		
	~~O~~ P.2	Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~P~~ Q. One RTB train inoperable.	------------NOTES------------ 1. One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE. 2. One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE. ------------------------------		
	Q ~~P~~.1	Restore train to OPERABLE status.	1 hour
	<u>OR</u>		
	Q ~~P~~.2	Be in MODE 3.	7 hours
~~S~~ R. One channel inoperable.	R ~~S~~.1	Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u>		
	R ~~S~~.2	Be in MODE 3.	7 hours

(continued)

TSTF-169

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
S. One channel inoperable.	S.1	Verify interlock is in required state for existing unit conditions.	1 hour
	OR		
	S.2	Be in MODE 2.	7 hours
T. One trip mechanism inoperable for one RTB.	T.1	Restore inoperable trip mechanism to OPERABLE status.	48 hours
	OR		
	T.2.1	Be in MODE 3.	54 hours
	AND		
	T.2.2	Open RTB.	55 hours
U. Two RTS trains inoperable.	U.1	Enter LCO 3.0.3.	Immediately

TSTF-169

Table 3.3.1-1 (page 3 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT[(a)]
8. Pressurizer Pressure						
a. Low	1[(g)]	[4]	M	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [1886] psig	≥ [1900] psig
b. High	1,2	[4]	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≤ [2396] psig	≤ [2385] psig
9. Pressurizer Water Level - High	1[(g)]	3	M	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ [93.8]%	≤ [92]%
10. Reactor Coolant Flow - Low	1(g)					
a. Single Loop	1[(h)]	3 per loop	M	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [89.2]%	≥ [90]%
b. Two Loops	1[(i)]	3 per loop	M	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [89.2]%	≥ [90]%

(continued)

(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

(g) Above the P-7 (Low Power Reactor Trips Block) interlock.

(h) Above the P-8 (Power Range Neutron Flux) interlock.

(i) Above the P-7 (Low Power Reactor Trips Block) interlock and below the P-8 (Power Range Neutron Flux) interlock.

TSTF-169

Table 3.3.1-1 (page 4 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT[(a)]
11. Reactor Coolant Pump (RCP) Breaker Position						
a. Single Loop	1[(h)]	1 per RCP	N ~~O~~	SR 3.3.1.14	NA	NA
b. Two Loops	1[(i)]	1 per RCP	M	SR 3.3.1.14	NA	NA
12. Undervoltage RCPs	1[(g)]	[3] per bus	M	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ [4760] V	≥ [4830] V
13. Underfrequency RCPs	1[(g)]	[3] per bus	M	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ [57.1] Hz	≥ [57.5] Hz
14. Steam Generator (SG) Water Level - Low Low	1,2	[4 per SG]	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [30.4]%	≥ [32.3]%
15. SG Water Level - Low	1,2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [30.4]%	≥ [32.3]%
Coincident with Steam Flow/ Feedwater Flow Mismatch	1,2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≤ [42.5]% full steam flow at RTP	≤ [40]% full steam flow at RTP

(continued)

(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

(g) Above the P-7 (Low Power Reactor Trips Block) interlock.

(h) Above the P-8 (Power Range Neutron Flux) interlock.

(i) Above the P-7 (Low Power Reactor Trips Block) interlock and below the P-8 (Power Range Neutron Flux) interlock.

TSTF-169

Table 3.3.1-1 (page 5 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT(a)
16. Turbine Trip						
a. Low Fluid Oil Pressure	1(j)	3	O	SR 3.3.1.10 SR 3.3.1.15	≥ [750] psig	≥ [800] psig
b. Turbine Stop Valve Closure	1(j)	4	O	SR 3.3.1.10 SR 3.3.1.15	≥ [1]% open	≥ [1]% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	P	SR 3.3.1.14	NA	NA
18. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	2(e)	2	R	SR 3.3.1.11 SR 3.3.1.13	≥ [6E-11] amp	≥ [1E-10] amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	S	SR 3.3.1.11 SR 3.3.1.13	NA	NA
c. Power Range Neutron Flux, P-8	1	4	S	SR 3.3.1.11 SR 3.3.1.13	≤ [50.2]% RTP	≤ [48]% RTP
d. Power Range Neutron Flux, P-9	1	4	S	SR 3.3.1.11 SR 3.3.1.13	≤ [52.2]% RTP	≤ [50]% RTP
e. Power Range Neutron Flux, P-10	1,2	4	R	SR 3.3.1.11 SR 3.3.1.13	≥ [7.8]% RTP and ≤ [12.2]% RTP	≥ [10]% RTP
f. Turbine Impulse Pressure, P-13	1	2	S	[SR 3.3.1.1] SR 3.3.1.10 SR 3.3.1.13	≤ [12.2]% turbine power	≤ [10]% turbine power

(continued)

(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

(e) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

(j) Above the P-9 (Power Range Neutron Flux) interlock.

TSTF-169

Table 3.3.1-1 (page 6 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT[(a)]
19. Reactor Trip Breakers[(k)]	1,2	2 trains	~~R~~ Q	SR 3.3.1.4	NA	NA
	3[(b)], 4[(b)], 5[(b)]	2 trains	C	SR 3.3.1.4	NA	NA
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	~~U~~ T	SR 3.3.1.4	NA	NA
	3[(b)], 4[(b)], 5[(b)]	1 each per RTB	C	SR 3.3.1.4	NA	NA
21. Automatic Trip Logic	1,2	2 trains	~~R~~ P	SR 3.3.1.5	NA	NA
	3[(b)], 4[(b)], 5[(b)]	2 trains	C	SR 3.3.1.5	NA	NA

(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

(b) With RTBs closed and Rod Control System capable of rod withdrawal.

(k) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

TSTF-169

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

a. Reactor Coolant Flow—Low (Single Loop) (continued)

The LCO requires three Reactor Coolant Flow—Low channels per loop to be OPERABLE in MODE 1 above P-8.

In MODE 1 above the P-8 setpoint, a loss of flow in one RCS loop could result in DNB conditions in the core. In MODE 1 below the P-8 setpoint, a loss of flow in two or more loops is required to actuate a reactor trip (Function 10.b) because of the lower power level and the greater margin to the design limit DNBR.

b. Reactor Coolant Flow—Low (Two Loops)

The Reactor Coolant Flow—Low (Two Loops) trip Function ensures that protection is provided against violating the DNBR limit due to low flow in two or more RCS loops while avoiding reactor trips due to normal variations in loop flow.

Above the P-7 setpoint and below the P-8 setpoint, a loss of flow in two or more loops will initiate a reactor trip. Each loop has three flow detectors to monitor flow. The flow signals are not used for any control system input.

The LCO requires three Reactor Coolant Flow—Low channels per loop to be OPERABLE.

In MODE 1 above the P-7 setpoint and below the P-8 setpoint, the Reactor Coolant Flow—Low (Two Loops) trip must be OPERABLE. Below the P-7 setpoint, all reactor trips on low flow are automatically blocked since no conceivable power distributions could occur that would cause a DNB concern at this low power level. Above the P-7 setpoint, the reactor trip on low flow in two or more RCS loops is automatically enabled. Above the P-8 setpoint, a loss of flow in any one loop will actuate a reactor trip because of the higher power level and the reduced margin to the design limit DNBR.

(continued)

ACTIONS

L.1, L.2, and L.3 (continued)

sufficient time to perform the calculations and determine that the SDM requirements are met. The SDM must also be verified once per 12 hours thereafter to ensure that the core reactivity has not changed. Required Action L.1 precludes any positive reactivity additions; therefore, core reactivity should not be increasing, and a 12 hour Frequency is adequate. The Completion Times of within 1 hour and once per 12 hours are based on operating experience in performing the Required Actions and the knowledge that unit conditions will change slowly.

M.1 and M.2

Condition M applies to the following reactor trip Functions:

- Pressurizer Pressure—Low;
- Pressurizer Water Level—High;
- Reactor Coolant Flow—Low (Single Loop);
- Reactor Coolant Flow—Low (Two Loops);
- RCP Breaker Position (Two Loops);
- Undervoltage RCPs; and
- Underfrequency RCPs.

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 6 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one additional channel to initiate a reactor trip above the P-7 setpoint ~~and below the P-8 setpoint~~ (above P-8 for Function 10.a). These Functions do not have to be OPERABLE below the P-7 setpoint because there are no loss of flow trips below the P-7 setpoint. The 6 hours allowed to place the channel in the tripped condition is justified in Reference 7. An additional 6 hours is allowed to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time. INSERT B 3.3-45

Allowance of this time interval takes into consideration the redundant capability provided by the remaining redundant

(continued)

INSERT B 3.3-45

The Reactor Coolant Flow-Low (Single Loop) reactor trip function does not have to be OPERABLE below the P-8 setpoint; however, the Required Action must take the plant below the P-7 setpoint if an inoperable channel is not tripped within 6 hours due to shared components between this function and the Reactor Coolant Flow-Low (Two Loops) trip function.

TSTF-169

BA...

ACTIONS

M.1 and M.2 (continued)

OPERABLE channel, and the low probability of occurrence of an event during this period that may require the protection afforded by the Functions associated with Condition M.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

N.1 and N.2

Condition N applies to the Reactor Coolant Flow—Low (Single Loop) reactor trip Function. With one channel inoperable, the inoperable channel must be placed in trip within 6 hours. If the channel cannot be restored to OPERABLE status or the channel placed in trip within the 6 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours. This places the unit in a MODE where the LCO is no longer applicable. This trip Function does not have to be OPERABLE below the P-8 setpoint because other RTS trip Functions provide core protection below the P-8 setpoint. The 6 hours allowed to restore the channel to OPERABLE status or place in trip and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

(N) O.1 and (N) O.2

Condition (N) O applies to the RCP Breaker Position (Single Loop) reactor trip Function. There is one breaker position device per RCP breaker. With one channel inoperable, the inoperable channel must be restored to OPERABLE status within 6 hours. If the channel cannot be restored to OPERABLE status within the 6 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours.

(continued)

TSTF-169

BASES

ACTIONS

N.1 and N.2 (continued)

This places the unit in a MODE where the LCO is no longer applicable. This Function does not have to be OPERABLE below the P-8 setpoint because other RTS Functions provide core protection below the P-8 setpoint. The 6 hours allowed to restore the channel to OPERABLE status and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7.
The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

O.1 and O.2

Condition O applies to Turbine Trip on Low Fluid Oil Pressure or on Turbine Stop Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 6 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 6 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 7.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

P.1 and P.2

Condition P applies to the SI Input from ESFAS reactor trip and the RTS Automatic Trip Logic in MODES 1 and 2. These actions address the train orientation of the RTS for these Functions. With one train inoperable, 6 hours are allowed to restore the train to OPERABLE status (Required Action P.1) or the unit must be placed in MODE 3 within the

(continued)

TSTF-169

BASES

ACTIONS

Q.1 and Q.2 (continued)

next 6 hours. The Completion Time of 6 hours (Required Action Q.1) is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function and given the low probability of an event during this interval. The Completion Time of 6 hours (Required Action Q.2) is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

The Required Actions have been modified by a Note that allows bypassing one train up to [4] hours for surveillance testing, provided the other train is OPERABLE.

R.1 and R.2

Condition R applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one train inoperable, 1 hour is allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function. Placing the unit in MODE 3 removes the requirement for this particular Function.

The Required Actions have been modified by two Notes. Note 1 allows one channel to be bypassed for up to 2 hours for surveillance testing, provided the other channel is OPERABLE. Note 2 allows one RTB to be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms if the other RTB train is OPERABLE. The 2 hour time limit is justified in Reference 7.

S.1 and S.2

Condition S applies to the P-6 and P-10 interlocks. With one channel inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition

(continued)

TSTF-169

BASES

ACTIONS

R.1 and R.2 (continued)

within 1 hour or the unit must be placed in MODE 3 within the next 6 hours. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function.

S.1 and S.2

Condition S applies to the P-7, P-8, P-9, and P-13 interlocks. With one channel inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed in MODE 2 within the next 6 hours. These actions are conservative for the case where power level is being raised. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power in an orderly manner and without challenging unit systems.

T.1, T.2.1, and T.2.2

Condition T applies to the RTB Undervoltage and Shunt Trip Mechanisms, or diverse trip features, in MODES 1 and 2. With one of the diverse trip features inoperable, it must be restored to an OPERABLE status within 48 hours or the unit must be placed in a MODE where the requirement does not apply. This is accomplished by placing the unit in MODE 3 within the next 6 hours (54 hours total time) followed by opening the RTBs in 1 additional hour (55 hours total time). The Completion Time of 6 hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

(continued)

TSTF-169

BASES

ACTIONS

(T) (T) (T) U.1, U.2.1, and U.2.2 (continued)

With the RTBs open and the unit in MODE 3, this trip Function is no longer required to be OPERABLE. The affected RTB shall not be bypassed while one of the diverse features is inoperable except for the time required to perform maintenance to one of the diverse features. The allowable time for performing maintenance of the diverse features is 2 hours for the reasons stated under Condition R. (Q)

The Completion Time of 48 hours for Required Action U.1 is reasonable considering that in this Condition there is one remaining diverse feature for the affected RTB, and one OPERABLE RTB capable of performing the safety function and given the low probability of an event occurring during this interval.

(U) V.1

With two RTS trains inoperable, no automatic capability is available to shut down the reactor, and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

The SRs for each RTS Function are identified by the SRs column of Table 3.3.1-1 for that Function.

A Note has been added to the SR Table stating that Table 3.3.1-1 determines which SRs apply to which RTS Functions.

Note that each channel of process protection supplies both trains of the RTS. When testing Channel I, Train A and Train B must be examined. Similarly, Train A and Train B must be examined when testing Channel II, Channel III, and Channel IV (if applicable). The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

[Reviewer's Note: Certain Frequencies are based on approval topical reports. In order for a licensee to use these times, the licensee must justify the Frequencies as required by the staff SER for the topical report.]

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Open only affected RTCBs when a single channel is inoperable

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

NUREG-1432, LCO 3.3.3 (analog) and LCO 3.3.4 (Digital) Required Action C.1 requires all RTCBs to be opened. This change allows only the affected RTCBs to be opened.

Justification:

When one channel of Manual Trip, RTCBs, or Initiation Logic is inoperable and the associated RTCBs are opened, the channel has performed its associated safety functions. The affected functions are left in a one-out-of-two logic condition, which meets redundancy requirements. Therefore, it is not necessary to open all RTCBs when one channel of Manual Trip, RTCBs, or Initiation Logic is inoperable. Opening the affected RTCBs is sufficient.
This change will also provide consistency with the Required Action B.1 which is used in Modes 1 and 2. It will also provide consistency with the Note in Condition C which implies that only the affected RTCBs are opened.

Affected Technical Specifications

Action 3.3.3.C	RPS Logic and Trip Initiation (Analog)
Action 3.3.3.C Bases	RPS Logic and Trip Initiation (Analog)
Action 3.3.4.C	RPS Logic and Trip Initiation (Digital)
Action 3.3.4.C Bases	RPS Logic and Trip Initiation (Digital)

CEOG Review Information

CEOG-73

Originating Plant: Palo Verde Date Provided to OG: 24-Oct-96 Needed By: 31-Aug-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 170**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-170

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1	Open the affected RTCBs.	1 hour
C. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1	Open ~~all RTCBs~~ the affected RTCBs.	48 hours
D. Two channels of RTCBs or Initiation Logic affecting the same trip leg inoperable.	D.1	Open the affected RTCBs.	Immediately

(continued)

TSTF-170

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1	Open the affected RTCBs.	1 hour
C. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1	Open ~~all RTCBs~~ the affected RTCBs.	48 hours
D. Two channels of RTCBs or Initiation Logic affecting the same trip leg inoperable.	D.1	Open the affected RTCBs.	Immediately

(continued)

ACTIONS

B.1 (continued)

Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

Required Action B.1 provides for opening the RTCBs associated with the inoperable channel within a Completion Time of 1 hour. This Required Action is conservative, since depressing the Manual Trip push button associated with either set of breakers in the other trip leg will cause a reactor trip. With this configuration, a single channel failure will not prevent a reactor trip. The allotted Completion Time is adequate to open the affected RTCBs while maintaining the risk of having them closed at an acceptable level.

C.1

Condition C applies to the failure of one Initiation Logic channel, RTCB channel, or Manual Trip channel affecting the same trip leg in MODE 3, 4, or 5 with the RTCBs closed. The channel must be restored to OPERABLE status within 48 hours. If the inoperable channel cannot be restored to OPERABLE status within 48 hours, all RTCBs must be opened, placing the plant in a MODE in which the LCO does not apply and ensuring no CEA withdrawal occurs.

Insert 1

The Completion Time of 48 hours is consistent with that of other RPS instrumentation and should be adequate to repair most failures.

Testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing. Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

D.1

Condition D applies to the failure of both Initiation Logic channels affecting the same trip leg. Since this will open

(continued)

TSTF-170

ACTIONS (continued)

C.1

Condition C applies to the failure of one Initiation Logic channel, RTCB channel, or Manual Trip channel affecting the same trip leg in MODE 3, 4, or 5 with the RTCBs closed. The channel must be restored to OPERABLE status within 48 hours. If the inoperable channel cannot be restored to OPERABLE status within 48 hours, all RTCBs must be opened, placing the plant in a MODE in which the LCO does not apply and ensuring no CEA withdrawal occurs.

Insert 1

The Completion Time of 48 hours is consistent with that of other RPS instrumentation and should be adequate to repair most failures.

Testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing. Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

D.1

Condition D applies to the failure of both Initiation Logic channels affecting the same trip leg. Since this will open two channels of RTCBs, this Condition is also applicable to channels in the same trip leg. This will open both sets of RTCBs in the affected trip leg, satisfying the Required Action of opening the affected RTCBs.

Of greater concern is the failure of the initiation circuit in a nontrip condition (e.g., due to two initiation K-relay failures). With only one Initiation Logic channel failed in a nontrip condition, there is still the redundant set of RTCBs in the trip leg. With both failed in a nontrip condition, the reactor will not trip automatically when required. In either case, the affected RTCBs must be opened immediately by using the appropriate Manual Trip push buttons, since each of the four push buttons opens one set of RTCBs, independent of the initiation circuitry. Caution must be exercised, since depressing the wrong push buttons may result in a reactor trip.

(continued)

Insert 1

the affected RTCBs must be opened. In some cases, this condition may effect all of the RTCBs. This removes the need for the affected channel by performing its associated safety function. With the RTCBs open, the affected functions are in a one-out-of-two logic, which meets redundancy requirements.

Industry/TSTF Standard Technical Specification Change Traveler

Revise Excore Channel Calibration Performance

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Add a frequency for excore channel calibration surveillance so that surveillance must be performed prior to operation above 90% RTP after each fuel loading.

Justification:

As currently written, SR 3.3.1.3 must be performed within 12 hours of exceeding 20% RTP. This means that power could be allowed to reach 100% prior to calibrating the power range excore detectors. This is inconsistent with Action C which requires power to be reduced to 90% if the detectors are not calibrated.
This change ensures that the power range detectors are calibrated prior to reaching full power which could result in accidentally exceeding the allowed overpower limits.

Affected Technical Specifications

SR 3.3.1.3	RPS Instrumentation - Operating (Analog)
SR 3.3.1.3 Bases	RPS Instrumentation - Operating (Analog)

CEOG Review Information

CEOG-74

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

Revise the Traveler to eliminate the new SR Frequency Note and to change the existing SR Note to state, "Not required to be performed until 12 hours after THERMAL POWER IS >= [20] % RTP, and after each fuel loading prior to operation above 90% RTP." Revise the description accordingly.

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 171**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-171

SURVEILLANCE REQUIREMENTS

---NOTE---
Refer to Table 3.3.1-1 to determine which SR shall be performed for each RPS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform a CHANNEL CHECK of each RPS instrument channel except Loss of Load.	12 hours
SR 3.3.1.2	---NOTES--- 1. Not required to be performed until 12 hours after THERMAL POWER is ≥ [20]% RTP. 2. The daily calibration may be suspended during PHYSICS TESTS, provided the calibration is performed upon reaching each major test power plateau and prior to proceeding to the next major test power plateau. --- Perform calibration (heat balance only) and adjust the excore power range and ΔT power channels to agree with calorimetric calculation if the absolute difference is ≥ [1.5]%.	24 hours
SR 3.3.1.3	---NOTE--- Not required to be performed until 12 hours after THERMAL POWER is ≥ [20]% RTP, and after each fuel loading prior to operation above 90% RTP. --- Calibrate the power range excore channels using the incore detectors.	31 days

(continued)

TSTF-171

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2 (continued)

this Surveillance must be performed within 12 hours after THERMAL POWER is ≥ 20% RTP. The secondary calorimetric is inaccurate at lower power levels. The 12 hours allows time requirements for plant stabilization, data taking, and instrument calibration.

A second Note indicates the daily calibration may be suspended during PHYSICS TESTS. This ensures that calibration is proper preceding and following physics testing at each plateau, recognizing that during testing, changes in power distribution and RCS temperature may render the calorimetric inaccurate.

SR 3.3.1.3

It is necessary to calibrate the excore power range channel upper and lower subchannel amplifiers such that the internal ASI used in the TM/LP and APD—High trips reflects the true core power distribution as determined by the incore detectors. A Note ~~to the Frequency~~ indicates the Surveillance is required within 12 hours after THERMAL POWER is ≥ [20]% RTP. Uncertainties in the excore and incore measurement process make it impractical to calibrate when THERMAL POWER is < [20]% RTP. The Completion Time of 12 hours allows time for plant stabilization, data taking, and instrument calibration. If the excore detectors are not properly calibrated to agree with the incore detectors, power is restricted during subsequent operations because of increased uncertainty associated with using uncalibrated excore detectors. The 31 day Frequency is adequate, based on operating experience of the excore linear amplifiers and the slow burnup of the detectors. The excore readings are a strong function of the power produced in the peripheral fuel bundles and do not represent an integrated reading across the core. Slow changes in neutron flux during the fuel cycle can also be detected at this Frequency.

The Note requires the Surveillance be performed prior to operations above 90% RTP after each refueling.

Requiring the Surveillance prior to operations above 90% RTP after each fuel loading is because of the increased uncertainties associated with using uncalibrated excore detectors.

SR 3.3.1.4

A CHANNEL FUNCTIONAL TEST is performed on each RPS instrument channel, except Loss of Load and Power Rate of

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Revise SR 3.1.4.1 to correct MTC reference

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Revise SR 3.1.4.1 to verify MTC is within the upper limits, which may not be in the COLR.

Justification:

LCO 3.1.4 states that the maximum positive MTC limit is specified in Figure 3.1.4-1. The COLR may contain a cycle-specific positive limit. Therefore, SR 3.1.4.1, which requires verification that the MTC is within the upper limits, should not specifiy the location of the limit. This change is consistent with NUREG-1431.

Affected Technical Specifications

SR 3.1.4.1 MTC (Analog)

CEOG Review Information

CEOG-75

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

Revise Traveler to match WOG SR, "Verity MTC is within the upper limit."

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 172**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

... Rev Incorporated Date

TSTF-172

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Moderator Temperature Coefficient (MTC) (Analog)

LCO 3.1.4 The MTC shall be maintained within the limits specified in the COLR. The maximum positive limit shall be that specified in Figure 3.1.4-1.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MTC not within limits.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	------------------NOTE------------------ This Surveillance is not required to be performed prior to entry into MODE 2. -- Verify MTC is within the upper limits. ~~specified in the COLR.~~	Prior to entering MODE 1 after each fuel loading

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Delete incorrect Bases statement regarding I-131 equilibrium

Classification: Change Bases

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

An incorrect statement in the Background section of the Bases to LCO 3.7.19 is deleted.

Justification:

The Bases to LCO 3.7.19, Secondary Specific Activity, state, "I-131, with a half-life of 8.04 days, concentrates faster than it decays, but does not reach equilibrium because of blowdown and other losses." This statement is incorrect. Secondary side I-131 will reach equilibrium but not at the same concentration as the RCS. This information is not needed to support the Specification and is deleted.

Affected Technical Specifications

Bkgnd 3.7.17 Bases	Secondary Specific Activity	NUREG(s)- 1430 Only
Bkgnd 3.7.18 Bases	Secondary Specific Activity	NUREG(s)- 1431 Only
Bkgnd 3.7.19 Bases	Secondary Specific Activity	NUREG(s)- 1432 Only

CEOG Review Information

CEOG-78

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Applicable, accepts
BWOG - Applicable, accepts
BWROG - Not Applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 173**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-173

B 3.7 PLANT SYSTEMS

B 3.7.17 Secondary Specific Activity

BASES

BACKGROUND

Activity in the secondary coolant results from steam generator tube out-LEAKAGE from the Reactor Coolant System (RCS). Under steady state conditions, the activity is primarily iodines with relatively short half lives and, thus, indicative of current conditions. During transients, I-131 spikes have been observed, as well as increased releases of some noble gases. Other fission product isotopes, as well as activated corrosion products, in lesser amounts, may also be found in the secondary coolant.

A limit on secondary coolant specific activity during power operation minimizes releases to the environment because of normal operation, anticipated operational occurrences, and accidents.

This limit is lower than the activity value that might be expected from a 1 gpm tube leak (LCO 3.4.13, "RCS Operational Leakage") of primary coolant at the limit of 1.0 μCi/gm (LCO 3.4.16, "RCS Specific Activity"). The steam line failure is assumed to result in the release of the noble gas and iodine activity contained in the steam generator inventory, the feedwater, and the reactor coolant leakage. Most of the iodine isotopes have short half lives (i.e., < 20 hours). I-131, with a half life of 8.04 days, concentrates faster than it decays, but does not reach equilibrium because of blowdown and other losses.

With the specified activity limit, the resultant 2 hour thyroid dose to a person at the exclusion area boundary (EAB) would be about 0.79 rem if the main steam safety valves (MSSVs) are open for the 2 hours following a trip from full power.

Operating a unit at the allowable limits could result in a 2 hour EAB exposure of a small fraction of the 10 CFR 100 (Ref. 1) limits, or the limits established as the NRC staff approved licensing basis.

(continued)

B 3.7 PLANT SYSTEMS

TSTF-173

B 3.7.18 Secondary Specific Activity

BASES

BACKGROUND

Activity in the secondary coolant results from steam generator tube outleakage from the Reactor Coolant System (RCS). Under steady state conditions, the activity is primarily iodines with relatively short half lives and, thus, indicates current conditions. During transients, I-131 spikes have been observed as well as increased releases of some noble gases. Other fission product isotopes, as well as activated corrosion products in lesser amounts, may also be found in the secondary coolant.

A limit on secondary coolant specific activity during power operation minimizes releases to the environment because of normal operation, anticipated operational occurrences, and accidents.

This limit is lower than the activity value that might be expected from a 1 gpm tube leak (LCO 3.4.13, "RCS Operational LEAKAGE") of primary coolant at the limit of [1.0] μCi/gm (LCO 3.4.16, "RCS Specific Activity"). The steam line failure is assumed to result in the release of the noble gas and iodine activity contained in the steam generator inventory, the feedwater, and the reactor coolant LEAKAGE. Most of the iodine isotopes have short half lives, (i.e., < 20 hours). I-131, with a half life of 8.04 days, concentrates faster than it decays, but does not reach equilibrium because of blowdown and other losses.

With the specified activity limit, the resultant 2 hour thyroid dose to a person at the exclusion area boundary (EAB) would be about 0.58 rem if the main steam safety valves (MSSVs) open for 2 hours following a trip from full power.

Operating a unit at the allowable limits could result in a 2 hour EAB exposure of a small fraction of the 10 CFR 100 (Ref. 1) limits, or the limits established as the NRC staff approved licensing basis.

(continued)

TSTF-173

B 3.7 PLANT SYSTEMS

B 3.7.19 Secondary Specific Activity

BASES

BACKGROUND

Activity in the secondary coolant results from steam generator tube outleakage from the Reactor Coolant System (RCS). Under steady state conditions, the activity is primarily iodines with relatively short half lives, and thus is indication of current conditions. During transients, I-131 spikes have been observed as well as increased releases of some noble gases. Other fission product isotopes, as well as activated corrosion products in lesser amounts, may also be found in the secondary coolant.

A limit on secondary coolant specific activity during power operation minimizes releases to the environment because of normal operation, anticipated operational occurrences, and accidents.

This limit is lower than the activity value that might be expected from a 1 gpm tube leak (LCO 3.4.13, "RCS Operational LEAKAGE") of primary coolant at the limit of 1.0 μCi/gm (LCO 3.4.16, "RCS Specific Activity"). The steam line failure is assumed to result in the release of the noble gas and iodine activity contained in the steam generator inventory, the feedwater, and reactor coolant LEAKAGE. Most of the iodine isotopes have short half lives (i.e., < 20 hours). I-131, with a half life of 8.04 days, concentrates faster than it decays, but does not reach equilibrium because of blowdown and other losses.

With the specified activity level, the resultant 2 hour thyroid dose to a person at the exclusion area boundary (EAB) would be about [.13] rem should the main steam safety valves (MSSVs) open for the 2 hours following a trip from full power.

Operating a unit at the allowable limits could result in a 2 hour EAB exposure of a small fraction of the 10 CFR 100 (Ref. 1) limits.

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Add missing Bases for 3.7.6, Actions A.1 and A.2

Classification: Change Bases

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

A discussion was added to 3.7.6 Bases for Action A.1 and A.2 to describe the requirement to verify the AFW backup water supply every 12 hours after an initial verification in 4 hours when the CST level is not within limit.

Justification:

The current Bases for 3.7.6 Actions A.1 and A.2 do not describe the frequency for performing the backup water supply verification. A description was added to bring the Bases in compliance with the NUREG format.

Affected Technical Specifications

Action 3.7.6.A Bases CST

CEOG Review Information

CEOG-79

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Applicable, accepts
BWOG - Applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 174**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

ACTIONS

A.1 and A.2

As an alternative to unit shutdown, the OPERABILITY of the backup water supply should be verified within 4 hours and once every 24 (12) hours thereafter. The OPERABILITY of the backup feedwater supply must include verification, by administrative means, of the OPERABILITY of flow paths from the backup supply to the EFW pumps and availability of the required volume of water in the backup supply. The CST must be restored to OPERABLE status within 7 days because the backup supply may be performing this function in addition to its normal functions. The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. (Insert 1) The 7 day Completion Time is reasonable, based on an OPERABLE backup water supply being available, and the low probability of an event occurring during this time period, requiring the use of the water from the CST(s).

B.1 and B.2

If the CST cannot be restored to OPERABLE status in the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply, with the DHR System in operation. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, without reliance on steam generators for heat removal, within [18 hours]. This allows an additional 6 hours for the DHR System to be placed in service after entering MODE 4.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1

This SR verifies that the CST(s) contains the required volume of cooling water. The 12 hour Frequency is based on operating experience and the need for operator awareness of unit evolutions that may affect the CST inventory between checks. The 12 hour Frequency is considered adequate in view of other indications in the control room, including

(continued)

BASES

LCO (continued)

The OPERABILITY of the CST is determined by maintaining the tank level at or above the minimum required level.

APPLICABILITY

In MODES 1, 2, and 3, and in MODE 4, when steam generator is being relied upon for heat removal, the CST is required to be OPERABLE.

In MODE 5 or 6, the CST is not required because the AFW System is not required.

ACTIONS

A.1 and A.2

If the CST level is not within limits, the OPERABILITY of the backup supply should be verified by administrative means within 4 hours and once every 12 hours thereafter. OPERABILITY of the backup feedwater supply must include verification that the flow paths from the backup water supply to the AFW pumps are OPERABLE, and that the backup supply has the required volume of water available. The CST must be restored to OPERABLE status within 7 days, because the backup supply may be performing this function in addition to its normal functions. The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. The 7 day Completion Time is reasonable, based on an OPERABLE backup water supply being available, and the low probability of an event occurring during this time period requiring the CST.

Insert 1

B.1 and B.2

If the CST cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, without reliance on the steam generator for heat removal, within [18] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

(continued)

LCO (continued)

Systems Branch 5-1 (Ref. 4) and exceeds the volume required by the accident analysis.

OPERABILITY of the CST is determined by maintaining the tank level at or above the minimum required level.

APPLICABILITY

In MODES 1, 2, and 3, [and in MODE 4, when steam generator is being relied upon for heat removal,] the CST is required to be OPERABLE.

In MODES 5 and 6, the CST is not required because the AFW System is not required.

ACTIONS

A.1 and A.2

If the CST level is not within the limit, the OPERABILITY of the backup water supply must be verified by administrative means within 4 hours. [and once every 12 hours thereafter]

OPERABILITY of the backup feedwater supply must include verification of the OPERABILITY of flow paths from the backup supply to the AFW pumps, and availability of the required volume of water in the backup supply. The CST level must be returned to OPERABLE status within 7 days, as the backup supply may be performing this function in addition to its normal functions. The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. The 7 day Completion Time is reasonable, based on an OPERABLE backup water supply being available, and the low probability of an event requiring the use of the water from the CST occurring during this period. [Insert 1]

B.1 and B.2

If the CST cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, without reliance on steam generator for heat removal, within [18] hours. The allowed Completion

(continued)

Insert 1

Additionally, verifying the backup water supply every 12 hours is adequate to ensure the backup water supply continues to be available.

Industry/TSTF Standard Technical Specification Change Traveler

Delete incorrect Bases discussion from 3.7.8, Action B

Classification: Change Bases

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

The Bases of 3.7.8, Action B states that the plant must be in Mode 4 in 12 hours. This is not in the Action and is being deleted.

Justification:

Action 3.7.8.B requires the plant to be in Mode 3 in 6 hours and Mode 5 in 36 hours. The Bases state that the plant must be in Mode 3 in 6 hours, Mode 4 in 12 hours, and Mode 5 in 36 hours. The Mode 4 description is inconsistent with the Action and is deleted.

Affected Technical Specifications

Action 3.7.8.B Bases SWS

CEOG Review Information

CEOG-80

Originating Plant:, Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 175**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

ACTIONS

A.1

With one SSW train inoperable, action must be taken to restore OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE SWS train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the SWS train could result in loss of SWS function. Required Action A.1 is modified by two Notes. The first Note indicates that the applicable Conditions of LCO 3.8.1, "AC Sources—Operating," should be entered if the inoperable SWS train results in an inoperable emergency diesel generator. The second Note indicates that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops—MODE 4," should be entered if an inoperable SWS train results in an inoperable SDC. The 72 hour Completion Time is based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this time period.

B.1 and B.2

If the SWS train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, in MODE 4 within [12] hours, and in MODE 5 within 36 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1

Verifying the correct alignment for manual, power operated, and automatic valves in the SWS flow path ensures that the proper flow paths exist for SWS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Revise SR 3.1.4.1 and SR 3.1.4.2 Bases to include SR Note

Classification: Change Bases

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Revise the Bases of SR 3.1.4.1 and SR 3.1.4.2 to include a discussion of the existing SR 3.1.4.1 Note.

Justification:

SR 3.1.4.1 contains a Note that is not discussed in the Bases. This change includes a discussion of the SR 3.1.4.1 Note in the Bases. This discussion is required by the NUREG format.

Affected Technical Specifications

SR 3.1.4.1 Bases MTC (Analog)

SR 3.1.4.1 Bases MTC (Digital)

CEOG Review Information

CEOG-81

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 TSTF- 176

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

APPLICABILITY (continued)

temperature assumed in the safety analysis, is accepted as valid once the BOC and MOC measurements are used for normalization.

ACTIONS

A.1

MTC is a function of the fuel and fuel cycle designs, and cannot be controlled directly once the designs have been implemented in the core. If MTC exceeds its limits, the reactor must be placed in MODE 3. This eliminates the potential for violation of the accident analysis bounds. The associated Completion Time of 6 hours is reasonable, considering the probability of an accident occurring during the time period that would require an MTC value within the LCO limits, and the time for reaching MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.1.4.1 and SR 3.1.4.2

The SRs for measurement of the MTC at the beginning and middle of each fuel cycle provide for confirmation of the limiting MTC values. The MTC changes smoothly from most positive (least negative) to most negative value during fuel cycle operation, as the RCS boron concentration is reduced to compensate for fuel depletion. The requirement for measurement prior to operation > 5% RTP satisfies the confirmatory check on the most positive (least negative) MTC value. The requirement for measurement, within 7 days after reaching 40 effective full power days and ⅔ core burnup, satisfies the confirmatory check of the most negative MTC value. The measurement is performed at any THERMAL POWER, so that the projected EOC MTC may be evaluated before the reactor actually reaches the EOC condition. MTC values may be extrapolated and compensated to permit direct comparison to the specified MTC limits.

SR 3.1.4.2 is modified by a Note that indicates performance is not required prior to entering MODE 1 or 2. Although this Surveillance is applicable in MODES 1 and 2, the reactor must be critical before the Surveillance can be

(continued)

APPLICABILITY (continued)

temperature assumed in the safety analysis, is accepted as valid once the BOC and MOC measurements are used for normalization.

ACTIONS

A.1

MTC is a function of the fuel and fuel cycle designs, and cannot be controlled directly once the designs have been implemented in the core. If MTC exceeds its limits, the reactor must be placed in MODE 3. This eliminates the potential for violation of the accident analysis bounds. The associated Completion Time of 6 hours is reasonable, considering the probability of an accident occurring during the time period that would require an MTC value within the LCO limits, and the time for reaching MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.1.4.1 and SR 3.1.4.2

The SRs for measurement of the MTC at the beginning and middle of each fuel cycle provide for confirmation of the limiting MTC values. The MTC changes smoothly from most positive (least negative) to most negative value during fuel cycle operation, as the RCS boron concentration is reduced to compensate for fuel depletion. The requirement for measurement prior to operation > 5% RTP satisfies the confirmatory check on the most positive (least negative) MTC value. The requirement for measurement, within 7 days after reaching 40 effective full power days and a ⅔ core burnup, satisfies the confirmatory check of the most negative MTC value. The measurement is performed at any THERMAL POWER so that the projected EOC MTC may be evaluated before the reactor actually reaches the EOC condition. MTC values may be extrapolated and compensated to permit direct comparison to the specified MTC limits.

SR 3.1.4.2 is modified by a Note that indicates performance is not required prior to entering MODE 1 or 2. Although this Surveillance is applicable in MODES 1 and 2, the reactor must be critical before the Surveillance can be

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Revise LCO 3.4.5 Bases to clarify RCP requirements

Classification: Change Bases

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

This change corrects the LCO Bases of 3.4.5 to distinguish between RCS loops that are operable and those that are in operation.

Justification:

LCO 3.4.5 requires two RCS loops to be Operable and for at least one loop to be in operation. As written, the Bases state that an operable loop has at least one RCP providing forced flow. This would require both RCS loops to be in operation in order to be operable, which conflicts with the LCO. This change corrects this error.

In addition, the word "OPERABLE" was put before the word "RCP" in the first sentect of the paragraph to be consistent with the last sentence in the paragraph which states, "An RCP is OPERABLE if ....".

Affected Technical Specifications

LCO 3.4.5 Bases RCS Loops - Mode 3

CEOG Review Information

CEOG-83

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

Revise Bases to match same BWOG Bases for clarity and consistency.

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 177**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-177

BASES (continued)

LCO

The purpose of this LCO is to require [two] RCS loops to be available for heat removal, thus providing redundancy. The LCO requires the [two] loops to be OPERABLE with the intent of requiring both SGs to be capable (> 25% water level) of transferring heat from the reactor coolant at a controlled rate. Forced reactor coolant flow is the required way to transport heat, although natural circulation flow provides adequate removal. A minimum of one running RCP meets the LCO requirement for one loop in operation.

The Note permits a limited period of operation without RCPs. All RCPs may be de-energized for ≤ 1 hour per 8 hour period. This means that natural circulation has been established. When in natural circulation, a reduction in boron concentration is prohibited because an even concentration distribution throughout the RCS cannot be ensured. Core outlet temperature is to be maintained at least 10°F below the saturation temperature so that no vapor bubble may form and possibly cause a natural circulation flow obstruction.

In MODES 3, 4, and 5, it is sometimes necessary to stop all RCPs or shutdown cooling (SDC) pump forced circulation (e.g., to change operation from one SDC train to the other, to perform surveillance or startup testing, to perform the transition to and from SDC System cooling, or to avoid operation below the RCP minimum net positive suction head limit). The time period is acceptable because natural circulation is adequate for heat removal, or the reactor coolant temperature can be maintained subcooled and boron stratification affecting reactivity control is not expected.

An OPERABLE [RCS] loop consists of at least one [OPERABLE] RCP ~~providing forced flow for heat transport~~ and an SG that is OPERABLE in accordance with the Steam Generator Tube Surveillance Program. An RCP is OPERABLE if it is capable of being powered and is able to provide forced flow if required.

APPLICABILITY

In MODE 3, the heat load is lower than at power; therefore, one RCS loop in operation is adequate for transport and heat removal. A second RCS loop is required to be OPERABLE but not in operation for redundant heat removal capability.

Operation in other MODES is covered by:

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Remove "trip or bypass removal" from RPS and ESFAS Action Note

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

LCO 3.3.1 and 3.3.4 Action Note states that separate condition entry is allowed for each RPS and ESFAS "trip or bypass removal" function. The words "trip or bypass removal" are removed.

Justification:

The RPS Functions listed in Table 3.3.1-1 and ESFAS Functions in Table 3.3.4.1 include trip and bypass removal features where appropriate. Referring to the trip or bypass removal features as separate Functions is incorrec and confusing. Removing the words "trip or bypass removal" satisfies the intent of the Note and eliminates th or. This change is also consistent with the CEOG Digital LCO.

Affected Technical Specifications

Action 3.3.1 RPS Instrumentation - Operating (Analog)

Change Description: Action Note

Action 3.3.4 ESFAS Instrumentation (Analog)

Change Description: Action Note

CEOG Review Information

CEOG-89

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 178**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-178

3.3 INSTRUMENTATION

3.3.1 Reactor Protective System (RPS) Instrumentation—Operating (Analog)

LCO 3.3.1 Four RPS trip units and associated instrument and bypass removal channels for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

------------------------------------NOTE------------------------------------
Separate Condition entry is allowed for each RPS ~~trip or bypass removal~~ Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one RPS trip unit or associated instrument channel inoperable except for Condition C (excore channel not calibrated with incore detectors).	A.1 Place affected trip unit in bypass or trip.	1 hour
	<u>AND</u>	
	A.2.1 Restore channel to OPERABLE status.	[48] hours
	[<u>OR</u>	
	A.2.2 Place affected trip unit in trip.	48 hours]

(continued)

TSTF-178

3.3 INSTRUMENTATION

3.3.4 Engineered Safety Features Actuation System (ESFAS) Instrumentation (Analog)

LCO 3.3.4 Four ESFAS trip units and associated instrument and bypass removal channels for each Function in Table 3.3.4-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each ESFAS trip or bypass removal Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
[A. One Containment Spray Actuation Signal (CSAS) trip unit or associated instrument inoperable.	A.1	Place affected trip unit in bypass.	1 hour]
B. One or more Functions with one ESFAS trip unit or associated instrument channel (except CSAS) inoperable.	B.1	Place affected trip unit in bypass or trip.	1 hour
	AND		
	B.2.1	Restore channel to OPERABLE status.	[48] hours
	[OR		
	B.2.2	Place affected trip unit in trip.	48 hours]

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Replace the phrase "maximum allowed THERMAL POWER level" with "RTP"

Classification: Consistency/Standardization

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

LCO 3.3.1, Required Action C requires Thermal Power to be restricted to <= 90% of the "maximum allowed THERMAL POWER level." This phrase is undefined, and is intended to be the defined term "Rated Thermal Power," or RTP.

Justification:

Replacing the undefined phrase "maximum allowed THERMAL POWER level" with the defined phrase "RTP" eliminates possible misinterpretation of the Action and is consistent with the conventions in the NUREGs. This change is also consistent with the CEOG Digital Actions.

Affected Technical Specifications

Action 3.3.1.C RPS Instrumentation - Operating (Analog)

CEOG Review Information

CEOG-90

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 179**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-179

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with two RPS trip units or associated instrument channels inoperable except for Condition C (excore channel not calibrated with incore detectors).	------------NOTE------------ LCO 3.0.4 is not applicable. -----------------------------	
	B.1 Place one trip unit in bypass and place the other trip unit in trip.	1 hour
	AND	
	B.2 Restore one trip unit to OPERABLE status.	[48] hours
C. One or more Functions with one or more power range excore channels not calibrated with the incore detectors.	C.1 Perform SR 3.3.1.3.	24 hours
	OR	
	C.2 Restrict THERMAL POWER to ≤ 90% of the maximum allowed THERMAL POWER level. RTP	24 hours
D. One or more Functions with one automatic bypass removal channel inoperable.	D.1 Disable bypass channel.	1 hour
	OR	
	D.2.1 Place affected trip units in bypass or trip.	1 hour
	AND	

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Add "bypass removal" features to the RPS Instrumentation - Shutdown LCO

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Add "bypass removal" features to the RPS Instrumentation - Shutdown LCO.

Justification:

The bypass removal channels are applicable to the Shutdown RPS Instrumentation LCO, but are excluded. They are explicitiy included in the RPS Instrumentation - Operating LCO. Including them in this Specification is necessary to address all the features of the Power Rate of Change - High RPS trip. This change corrects the error. This change is also consistent with the CEOG Digital LCO.

Affected Technical Specifications

LCO 3.3.2 RPS Instrumentation - Shutdown (Analog)

LCO 3.3.2 Bases RPS Instrumentation - Shutdown (Analog)

CEOG Review Information

CEOG-91

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 180**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File tc TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-180

3.3 INSTRUMENTATION

3.3.2 Reactor Protective System (RPS) Instrumentation – Shutdown (Analog)

LCO 3.3.2 Four Power Rate of Change – High RPS trip units and associated instrument channels [and bypass removal] shall be OPERABLE, with an Allowable Value of ≤ [2.6] dpm.

APPLICABILITY: MODES 3, 4, and 5, with any reactor trip circuit breakers (RTCBs) closed and any control element assembly capable of being withdrawn.

-----------------------------NOTE-----------------------------
Trip may be bypassed when THERMAL POWER is < [1E-4]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [1E-4]% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Power Rate of Change – High trip unit or associated instrument channel inoperable.	A.1 Place affected trip unit in bypass or trip. AND A.2.1 Restore channel to OPERABLE status. [OR A.2.2 Place affected trip unit in trip.]	1 hour [48] hours [48 hours]

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

accident analysis were qualitatively credited in the safety analysis and the NRC staff approved licensing basis for the plant. These Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. Other Functions, such as the Loss of Load trip, are purely equipment protective, and their use minimizes the potential for equipment damage.

The Power Rate of Change – High trip is used to trip the reactor when excore wide range power indicates an excessive rate of change.

The Power Rate of Change – High trip is not required for protection. It serves as a backup to the administratively enforced startup rate limit.

The Power Rate of Change – High Function minimizes transients for events such as a continuous CEA withdrawal or a boron dilution event from low power levels. The Power Rate of Change – High trip is automatically bypassed at < 1E-4% RTP, as sensed by the wide range nuclear instrument (NI) Level 2 bistable, when poor counting statistics may lead to erroneous indication. It is also bypassed at > 12% RTP, where moderator temperature coefficient and fuel temperature coefficient make high rate of change of power unlikely. This bypass is effected by the power range NI Level 1 bistable. Automatic bypass removal is also effected by these bistables. With the RTCBs open, the Power Rate of Change – High trip is not required to be OPERABLE; however, the indication and alarm Functions of at least two channels are required to be OPERABLE. LCO 3.3.13 ensures the wide range channels are available to detect and alert the operator to a boron dilution event.

The RPS instrumentation satisfies Criterion 3 of the NRC Policy Statement.

LCO

The LCO requires all instrumentation performing an RPS Function to be OPERABLE. Failure of any required portion of the instrument channel, renders the affected channel(s) inoperable and reduces the reliability of the affected Functions.

, or bypass removal channel,

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Move Notes from Conditions to Required Actions

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

This change deletes Notes from Conditions in RPS Logic and Trip Initiation as the Notes are duplicative of, and are superseded by, LCO 3.0.5.

Justification:

The Notes address exceptions to the Required Actions. Specifically, RTCBs may be closed for testing for up to one hour when the RTCBs are required to be open to comply with the Required Actions. These exceptions to the Required Actions for the purpose of testing are unnecessary as the same allowance is given in LCO 3.0.5. Furthermore, the one hour given in the Notes is not limiting as LCO 3.0.5 allows as much time as is required to perform the required testing. Therefore, the Notes are duplicative and confusing and should be removed.

Affected Technical Specifications

Action 3.3.3.B	RPS Logic and Trip Initiation (Analog)
Action 3.3.3.B Bases	RPS Logic and Trip Initiation (Analog)
Action 3.3.3.C	RPS Logic and Trip Initiation (Analog)
Action 3.3.3.C Bases	RPS Logic and Trip Initiation (Analog)
Action 3.3.4.B	RPS Logic and Trip Initiation (Digital)
Action 3.3.4.B Bases	RPS Logic and Trip Initiation (Digital)
Action 3.3.4.C	RPS Logic and Trip Initiation (Digital)
Action 3.3.4.C Bases	RPS Logic and Trip Initiation (Digital)

CEOG Review Information

CEOG-93

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

Revise to delete Notes as same allowance is given in LCO 3.0.5.
WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 181**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-181

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ----------NOTE---------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ------------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1	Open the affected RTCBs.	1 hour
C. ----------NOTE---------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ------------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1	Open all RTCBs.	48 hours
D. Two channels of RTCBs or Initiation Logic affecting the same trip leg inoperable.	D.1	Open the affected RTCBs.	Immediately

(continued)

TSTF-181

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ----------NOTE---------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ------------------------ One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1	Open the affected RTCBs.	1 hour
C. ----------NOTE---------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ------------------------ One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1	Open all RTCBs.	48 hours
D. Two channels of RTCBs or Initiation Logic affecting the same trip leg inoperable.	D.1	Open the affected RTCBs.	Immediately

(continued)

TSTF-181

BASES

ACTIONS

B.1 (continued)

Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

Required Action B.1 provides for opening the RTCBs associated with the inoperable channel within a Completion Time of 1 hour. This Required Action is conservative, since depressing the Manual Trip push button associated with either set of breakers in the other trip leg will cause a reactor trip. With this configuration, a single channel failure will not prevent a reactor trip. The allotted Completion Time is adequate to open the affected RTCBs while maintaining the risk of having them closed at an acceptable level.

C.1

Condition C applies to the failure of one Initiation Logic channel, RTCB channel, or Manual Trip channel affecting the same trip leg in MODE 3, 4, or 5 with the RTCBs closed. The channel must be restored to OPERABLE status within 48 hours. If the inoperable channel cannot be restored to OPERABLE status within 48 hours, all RTCBs must be opened, placing the plant in a MODE in which the LCO does not apply and ensuring no CEA withdrawal occurs.

The Completion Time of 48 hours is consistent with that of other RPS instrumentation and should be adequate to repair most failures.

Testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing. Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

D.1

Condition D applies to the failure of both Initiation Logic channels affecting the same trip leg. Since this will open

(continued)

TSTF-181

BASES

ACTIONS

A.1 (continued)

The channel must be restored to OPERABLE status within 48 hours. The Completion Time of 48 hours provides the operator time to take appropriate actions and still ensures that any risk involved in operating with a failed channel is acceptable. Operating experience has demonstrated that the probability of a random failure of a second Matrix Logic channel is low during any given 48 hour interval. If the channel cannot be restored to OPERABLE status within 48 hours, Condition E is entered.

B.1

Condition B applies to one Initiation Logic channel, RTCB channel, or Manual Trip channel in MODES 1 and 2, since they have the same actions. MODES 3, 4, and 5, with the RTCBs shut, are addressed in Condition C. These Required Actions require opening the affected RTCBs. This removes the need for the affected channel by performing its associated safety function. With an RTCB open, the affected Functions are in one-out-of-two logic, which meets redundancy requirements, but testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing. Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

Required Action B.1 provides for opening the RTCBs associated with the inoperable channel within a Completion Time of 1 hour. This Required Action is conservative, since depressing the Manual Trip push button associated with either set of breakers in the other trip leg will cause a reactor trip. With this configuration, a single channel failure will not prevent a reactor trip. The allotted Completion Time is adequate for opening the affected RTCBs while maintaining the risk of having them closed at an acceptable level.

(continued)

BASES

ACTIONS (continued)

C.1

Condition C applies to the failure of one Initiation Logic channel, RTCB channel, or Manual Trip channel affecting the same trip leg in MODE 3, 4, or 5 with the RTCBs closed. The channel must be restored to OPERABLE status within 48 hours. If the inoperable channel cannot be restored to OPERABLE status within 48 hours, all RTCBs must be opened, placing the plant in a MODE in which the LCO does not apply and ensuring no CEA withdrawal occurs.

The Completion Time of 48 hours is consistent with that of other RPS instrumentation and should be adequate to repair most failures.

Testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing. Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

D.1

Condition D applies to the failure of both Initiation Logic channels affecting the same trip leg. Since this will open two channels of RTCBs, this Condition is also applicable to channels in the same trip leg. This will open both sets of RTCBs in the affected trip leg, satisfying the Required Action of opening the affected RTCBs.

Of greater concern is the failure of the initiation circuit in a nontrip condition (e.g., due to two initiation K-relay failures). With only one Initiation Logic channel failed in a nontrip condition, there is still the redundant set of RTCBs in the trip leg. With both failed in a nontrip condition, the reactor will not trip automatically when required. In either case, the affected RTCBs must be opened immediately by using the appropriate Manual Trip push buttons, since each of the four push buttons opens one set of RTCBs, independent of the initiation circuitry. Caution must be exercised, since depressing the wrong push buttons may result in a reactor trip.

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Add Manual Trip to Condition for two channels of RPS Logic and Trip Initiation inoperable

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Add Manual Trip to the Condition for two channels of RPS Logic and Trip Initiation inoperable.

Justification:

Manual Trip is one of the features addressed by the LCO, but is excluded from this condition. Manual Trip is included in the other applicable conditions and including it in this Condition as proposed makes the specification consistent and addresses all relevant Manual Trip conditions.

Without this change, two channels of Manual Trip would result in an LCO 3.0.3 entry, which is a significantly less conservative action than opening the affected RTCBs, as required by the proposed change.

Affected Technical Specifications

Action 3.3.3.D	RPC Logic and Trip Initiation (Analog)
Action 3.3.3.D Bases	RPC Logic and Trip Initiation (Analog)
Action 3.3.4.D	RPC Logic and Trip Initiation (Digital)
Action 3.3.4.D Bases	RPC Logic and Trip Initiation (Digital)

CEOG Review Information

CEOG-94

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 182**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

Insert

If two Manual Trip channels are inoperable and affecting the same trip leg, the associated RTCBs must be opened immediately to ensure Manual Trip capability is maintained. With the affected RTCBs open, any one of two Manual Trip push buttons being depressed will result in a reactor trip.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1	Open the affected RTCBs.	1 hour
C. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1	Open all RTCBs.	48 hours
D. Two channels of [Manual Trip,] RTCBs or Initiation Logic affecting the same trip leg inoperable.	D.1	Open the affected RTCBs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1 Open the affected RTCBs.	1 hour
C. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1 Open all RTCBs.	48 hours
D. Two channels of {Manual Trip,} RTCBs or Initiation Logic affecting the same trip leg inoperable.	D.1 Open the affected RTCBs.	Immediately

(continued)

TSTF-182

BASES

ACTIONS

B.1 (continued)

Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

Required Action B.1 provides for opening the RTCBs associated with the inoperable channel within a Completion Time of 1 hour. This Required Action is conservative, since depressing the Manual Trip push button associated with either set of breakers in the other trip leg will cause a reactor trip. With this configuration, a single channel failure will not prevent a reactor trip. The allotted Completion Time is adequate to open the affected RTCBs while maintaining the risk of having them closed at an acceptable level.

C.1

Condition C applies to the failure of one Initiation Logic channel, RTCB channel, or Manual Trip channel affecting the same trip leg in MODE 3, 4, or 5 with the RTCBs closed. The channel must be restored to OPERABLE status within 48 hours. If the inoperable channel cannot be restored to OPERABLE status within 48 hours, all RTCBs must be opened, placing the plant in a MODE in which the LCO does not apply and ensuring no CEA withdrawal occurs.

The Completion Time of 48 hours is consistent with that of other RPS instrumentation and should be adequate to repair most failures.

Testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing. Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

D.1

Condition D applies to the failure of both [Manual Trip or] Initiation Logic channels affecting the same trip leg. Since this will open

(continued)

TSTF-182

ACTIONS

D.1 (continued)

two channels of RTCBs, this Condition is also applicable to the two affected RTCBs. This Condition allows for loss of a single vital instrument bus or matrix power supply, which will de-energize both Initiation Logic channels in the same trip leg. This will open both sets of RTCBs in the affected trip leg, satisfying the Required Action of opening the affected RTCBs.

Of greater concern is the failure of the initiation circuit in a nontrip condition (e.g., due to two initiation K-relay failures). With only one Initiation Logic channel failed in a nontrip condition, there is still the redundant set of RTCBs in the trip leg. With both failed in a nontrip condition, the reactor will not trip automatically when required. In either case, the affected RTCBs must be opened immediately by using the appropriate Manual Trip push buttons, since each of the four push buttons opens one set of RTCBs, independent of the initiation circuitry. Caution must be exercised, since depressing the wrong push buttons may result in a reactor trip.

Insert →

If the affected RTCB(s) cannot be opened, Condition E is entered. This would only occur if there is a failure in the Manual Trip circuitry or the RTCB(s).

E.1 and E.2

Condition E is entered if Required Actions associated with Condition A, B, or D are not met within the required Completion Time or if for one or more Functions more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel is inoperable for reasons other than Condition A or D.

If the RTCBs associated with the inoperable channel cannot be opened, the reactor must be shut down within 6 hours and all the RTCBs opened. A Completion Time of 6 hours is reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems and to open RTCBs. All RTCBs should then be opened, placing the plant in a MODE where the LCO does not apply and ensuring no CEA withdrawal occurs.

(continued)

TSTF-182

BASES

ACTIONS (continued)

C.1

Condition C applies to the failure of one Initiation Logic channel, RTCB channel, or Manual Trip channel affecting the same trip leg in MODE 3, 4, or 5 with the RTCBs closed. The channel must be restored to OPERABLE status within 48 hours. If the inoperable channel cannot be restored to OPERABLE status within 48 hours, all RTCBs must be opened, placing the plant in a MODE in which the LCO does not apply and ensuring no CEA withdrawal occurs.

The Completion Time of 48 hours is consistent with that of other RPS instrumentation and should be adequate to repair most failures.

Testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing. Therefore, a Note has been added specifying that the RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST.

D.1

Condition D applies to the failure of both [Manual Trip or] Initiation Logic channels affecting the same trip leg. Since this will open two channels of RTCBs, this Condition is also applicable to channels in the same trip leg. This will open both sets of RTCBs in the affected trip leg, satisfying the Required Action of opening the affected RTCBs.

Of greater concern is the failure of the initiation circuit in a nontrip condition (e.g., due to two initiation K-relay failures). With only one Initiation Logic channel failed in a nontrip condition, there is still the redundant set of RTCBs in the trip leg. With both failed in a nontrip condition, the reactor will not trip automatically when required. In either case, the affected RTCBs must be opened immediately by using the appropriate Manual Trip push buttons, since each of the four push buttons opens one set of RTCBs, independent of the initiation circuitry. Caution must be exercised, since depressing the wrong push buttons may result in a reactor trip.

(continued)

ACTIONS

D.1 (continued)

Insert

If the affected RTCB cannot be opened, Required Action E is entered. This would only occur if there is a failure in the Manual Trip circuitry or the RTCB(s).

E.1 and E.2

Condition E is entered if Required Actions associated with Condition A, B, or D are not met within the required Completion Time or, if for one or more Functions, more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel is inoperable for reasons other than Condition A or D.

If the RTCBs associated with the inoperable channel cannot be opened, the reactor must be shut down within 6 hours and all the RTCBs opened. A Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required plant conditions from full power conditions in an orderly manner and without challenging plant systems and for opening RTCBs. All RTCBs should then be opened, placing the plant in a MODE where the LCO does not apply and ensuring no CEA withdrawal occurs.

SURVEILLANCE REQUIREMENTS

In order for a unit to take credit for topical reports as the basis for justifying Frequencies, topical reports must be supported by an NRC staff Safety Evaluation Report that establishes the acceptability of each topical report for that unit (Ref. 4).

SR 3.3.4.1

A CHANNEL FUNCTIONAL TEST on each RPS Logic channel and RTCB channel is performed every [92] days to ensure the entire channel will perform its intended function when needed.

In addition to power supply tests, the RPS CHANNEL FUNCTIONAL TEST consists of three overlapping tests as described in Reference 3. These tests verify that the RPS is capable of performing its intended function, from

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Eliminate incorrect reference to Functions from RPS Logic and Trip Initiation LCO

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Remove the phrase, "One or more Functions with" from Condition E of the RPS Logic and Trip Initiation LCO.

Justification:

RPS Logic and Trip Initiation is not a Function based LCO. There is no mention of Functions except in Condition E which states, "One or more Functions with two or more Manual Trip, Matrix Logic, Initiation Logic, or RTCB channels inoperable for reasons other than Condition A or D." This phrase was evidently included in the Condition in error and is removed.

Affected Technical Specifications

Action 3.3.3.E	RPS Logic and Trip Initiation (Analog)
Action 3.3.3.E Bases	RPS Logic and Trip Initiation (Analog)
Action 3.3.4.E	RPS Logic and Trip Initiation (Digital)
Action 3.3.4.E Bases	RPS Logic and Trip Initiation (Digital)

CEOG Review Information

CEOG-95

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 183**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, or D not met. OR One or more functions with two or more Manual Trip, Matrix Logic, Initiation Logic, or RTCB channels inoperable for reasons other than Condition A or D.	E.1 Be in MODE 3. AND E.2 Open all RTCBs.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel and RTCB channel.	[92] days
SR 3.3.3.2	Perform a CHANNEL FUNCTIONAL TEST on each RPS Manual Trip channel.	Once within 7 days prior to each reactor startup
[SR 3.3 3.3	Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB.	[18] months]

TSTF-183

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, or D not met. OR ~~One or more Functions with more than one~~ Two or more Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel inoperable for reasons other than Condition A or D.	E.1 Be in MODE 3. AND E.2 Open all RTCBs.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel and RTCB channel.	[92] days
SR 3.3.4.2	Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB.	[18] months
SR 3.3.4.3	Perform a CHANNEL FUNCTIONAL TEST on each RPS Manual Trip channel.	Once within 7 days prior to each reactor startup

ACTIONS

D.1 (continued)

two channels of RTCBs, this Condition is also applicable to the two affected RTCBs. This Condition allows for loss of a single vital instrument bus or matrix power supply, which will de-energize both Initiation Logic channels in the same trip leg. This will open both sets of RTCBs in the affected trip leg, satisfying the Required Action of opening the affected RTCBs.

Of greater concern is the failure of the initiation circuit in a nontrip condition (e.g., due to two initiation K-relay failures). With only one Initiation Logic channel failed in a nontrip condition, there is still the redundant set of RTCBs in the trip leg. With both failed in a nontrip condition, the reactor will not trip automatically when required. In either case, the affected RTCBs must be opened immediately by using the appropriate Manual Trip push buttons, since each of the four push buttons opens one set of RTCBs, independent of the initiation circuitry. Caution must be exercised, since depressing the wrong push buttons may result in a reactor trip.

If the affected RTCB(s) cannot be opened, Condition E is entered. This would only occur if there is a failure in the Manual Trip circuitry or the RTCB(s).

E.1 and E.2

Condition E is entered if Required Actions associated with Condition A, B, or D are not met within the required Completion Time or if ~~for one or more Functions~~ more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel is inoperable for reasons other than Condition A or D.

If the RTCBs associated with the inoperable channel cannot be opened, the reactor must be shut down within 6 hours and all the RTCBs opened. A Completion Time of 6 hours is reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems and to open RTCBs. All RTCBs should then be opened, placing the plant in a MODE where the LCO does not apply and ensuring no CEA withdrawal occurs.

(continued)

TSTF-183

ACTIONS

D.1 (continued)

If the affected RTCB cannot be opened, Required Action E is entered. This would only occur if there is a failure in the Manual Trip circuitry or the RTCB(s).

E.1 and E.2

Condition E is entered if Required Actions associated with Condition A, B, or D are not met within the required Completion Time or, if ~~for one or more Functions,~~ more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel is inoperable for reasons other than Condition A or D.

If the RTCBs associated with the inoperable channel cannot be opened, the reactor must be shut down within 6 hours and all the RTCBs opened. A Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required plant conditions from full power conditions in an orderly manner and without challenging plant systems and for opening RTCBs. All RTCBs should then be opened, placing the plant in a MODE where the LCO does not apply and ensuring no CEA withdrawal occurs.

SURVEILLANCE REQUIREMENTS

In order for a unit to take credit for topical reports as the basis for justifying Frequencies, topical reports must be supported by an NRC staff Safety Evaluation Report that establishes the acceptability of each topical report for that unit (Ref. 4).

SR 3.3.4.1

A CHANNEL FUNCTIONAL TEST on each RPS Logic channel and RTCB channel is performed every [92] days to ensure the entire channel will perform its intended function when needed.

In addition to power supply tests, the RPS CHANNEL FUNCTIONAL TEST consists of three overlapping tests as described in Reference 3. These tests verify that the RPS is capable of performing its intended function, from

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Change Required Action Reference from 3.6.3 to 3.9.3

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Change Required Action 3.3.7.B.2 regarding containment closure during shutdown conditions from referring to 3.6.3 to 3.9.3.

Justification:

Specification 3.3.7, Containment Purge Isolation Signal, is applicable during Core Alterations and Movement of Irradiated Fuel in the containment. Action B applies when the system is incapable of closing the containment purge valves. As written, it directs that the appropriate Required Actions of LCO 3.6.3, Containment Isolation Valves, be followed. However, LCO 3.6.3 does not apply in these conditions. The correct reference is to LCO 3.9.3, Containment Penetrations, which has the same Applicability and LCO 3.9.3 explicitly references the containment purge valves. The existing Required Action is in error. This change corrects that error.

Affected Technical Specifications

Action 3.3.7.B CPIS (Analog)

Action 3.3.7.B Bases CPIS (Analog)

CEOG Review Information

CEOG-96

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 184**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-184

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued) More than one radiation monitor channel inoperable. OR Required Action and associated Completion Time of Condition A not met.	B.2 Enter applicable Conditions and Required Actions for affected valves of LCO ~~3.6.3, "Containment Isolation Valves,"~~ 3.9.3, "Containment Penetrations," made inoperable by isolation instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform a CHANNEL CHECK on each containment radiation monitor channel.	12 hours
SR 3.3.7.2	Perform a CHANNEL FUNCTIONAL TEST on each containment radiation monitor channel. Verify CPIS high radiation setpoint Allowable Value is ≤ [220 mR/hr].	[92] days

(continued)

TSTF-184

ACTIONS

B.1 and B.2 (continued)

Required Action and associated Completion Time of Condition A are not met. Required Action B.1 is to place the containment purge and exhaust isolation valves in the closed position. The Required Action immediately performs the isolation Function of the CPIS. Required Action B.2 is to immediately enter the applicable Conditions and Required Actions for the affected isolation valves of LCO 3.6.3, (9) "Containment Isolation Valves," (Penetrations) that were made inoperable by the inoperable instrumentation of the CPIS LCO. The Required Action directs the operator to take actions that are appropriate for the containment isolation Function of the CPIS without initiating the containment air supply and exhaust fans. The Completion Time accounts for the fact that the automatic capability to isolate containment and initiate supply and exhaust fans on valid containment high radiation signals is degraded during conditions in which a fuel handling accident is possible and CPIS provides the only automatic mitigation of radiation release.

SURVEILLANCE REQUIREMENTS

SR 3.3.7.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value.

Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the transmitter or the signal processing equipment has drifted outside its limits.

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Change AND to OR in CPIS Condition B

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Change "AND" to "OR" in CPIS Condition B.

Justification:

Required Action B.1 for CPIS Condition B places and maintains the containment purge and exhaust valves in the closed position. This places the equipment in the position needed to fulfill its safety function, which is sufficient to meet the intent of the LCO. However, Condition B.2 which is connected to Condition B.1 with an "AND", requires entering the appropriate conditions of LCO 3.9.3 (changed from 3.6.3 by CEOG-96/TSTF-184) which would result in the stopping of movement of irradiated fuel, which would exit the LCO applicability.

Once the containment purge and exhaust valves are closed, the safety function of the Containment Purge Isolation System is met. Actions B.1 and B.2 should be connected with an "OR", not an "AND", as both Actions have the same effect. This change corrects this error.

This change is consistent with the CEOG digital CPIS Actions.

Affected Technical Specifications

Action 3.3.7.B CPIS (Analog)

CEOG Review Information

CEOG-97

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 TSTF- 185

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

3.3 INSTRUMENTATION

3.3.7 Containment Purge Isolation Signal (CPIS) (Analog)

LCO 3.3.7 [Four] CPIS containment radiation monitor channels and one CPIS automatic Actuation Logic and one Manual Trip train shall be OPERABLE.

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One radiation monitor channel inoperable.	A.1 Place the affected channel in trip.	4 hours
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately
B. One required Manual Trip or automatic Actuation Logic train inoperable.	B.1 Place and maintain containment purge and exhaust valves in closed position.	Immediately
<u>OR</u>	~~<u>AND</u>~~ ← <u>OR</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued) More than one radiation monitor channel inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A not met.	B.2 Enter applicable Conditions and Required Actions for affected valves of LCO 3.~~6~~ 9.3, "Containment ~~Isolation Valves~~ Penetrations," made inoperable by isolation instrumentation. TSTF-184	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform a CHANNEL CHECK on each containment radiation monitor channel.	12 hours
SR 3.3.7.2	Perform a CHANNEL FUNCTIONAL TEST on each containment radiation monitor channel. Verify CPIS high radiation setpoint Allowable Value is ≤ [220 mR/hr].	[92] days

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Correct SRs which verify setpoints

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

This change corrects an erroneous SR statement in two surveillances.

Justification:

The CPIS and CRIS Channel Functional Test SRs are incorrectly worded. They state, "Verify CPIS/CRIS high radiation setpoint Allowable Value is <= (a value)." In other words, the SR requires you to verify the value of the setpoint, rather than verify that the equipment will actuate at the setpoint.
The proposed change will correct this error and will make the CEOG Analog and Digital presentations more consistent.

Affected Technical Specifications

SR 3.3.7.2 CPIS (Analog)

SR 3.3.8.2 CRIS (Analog)

CEOG Review Information

CEOG-98

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 186**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued) More than one radiation monitor channel inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A not met.	B.2	Enter applicable Conditions and Required Actions for affected valves of LCO 3.6.3, "Containment Isolation Valves," made inoperable by isolation instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform a CHANNEL CHECK on each containment radiation monitor channel.	12 hours
SR 3.3.7.2	Perform a CHANNEL FUNCTIONAL TEST on each containment radiation monitor channel. Verify CPIS high radiation setpoint [Allowable Value] is ≤ [220 mR/hr].	[92] days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.8.2	Perform a CHANNEL FUNCTIONAL TEST on the required CRIS radiation monitor channel. Verify CRIS high radiation setpoint [Allowable Value] is ≤ [6E4] cpm above normal background.	[92] days
SR 3.3.8.3	------------------NOTES------------------ 1. Surveillance of Actuation Logic shall include verification of the proper operation of each initiation relay. 2. Relays associated with plant equipment that cannot be operated during plant operation are only required to be tested during each MODE 5 entry exceeding 24 hours unless tested within the previous 6 months. -- Perform a CHANNEL FUNCTIONAL TEST on the required CRIS Actuation Logic channel.	[31] days
SR 3.3.8.4	Perform a CHANNEL CALIBRATION on the required CRIS radiation monitor channel.	[18] months
SR 3.3.8.5	Perform a CHANNEL FUNCTIONAL TEST on the required CRIS Manual Trip channel.	[18] months
[SR 3.3.8.6	Verify response time of required CRIS channel is within limits.	[18] months]

Industry/TSTF Standard Technical Specification Change Traveler

Add Condition for Two Inoperable Actuation Channels

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

A Condition for two inoperable Actuation Logic Channels was added to CVCS Isolation and ESFAS Logic and Manual Trip.

Justification:

There is currently no Condition for two inoperable Actuation Logic channels. This change adds the Condition of two Actuation Logic channels inoperable with the Required Action to shutdown the plant. This change puts the appropriate Actions in the Specification and eliminates any confusion that may arise from not addressing the AFAS actuation logic and manual trip functions in the Actions.

Affected Technical Specifications

Action 3.3.5.B	ESFAS Logic and Manual Trip (Analog)
Action 3.3.5.B Bases	ESFAS Logic and Manual Trip (Analog)
Action 3.3.5.D	ESFAS Logic and Manual Trip (Analog)
Action 3.3.5.D Bases	ESFAS Logic and Manual Trip (Analog)
Action 3.3.6.E	ESFAS Logic and Manual Trip (Digital)
Action 3.3.6.E Bases	ESFAS Logic and Manual Trip (Digital)
Action 3.3.6.F	ESFAS Logic and Manual Trip (Digital)
Action 3.3.6.F Bases	ESFAS Logic and Manual Trip (Digital)
Action 3.3.9.D	CVCS Isolation Signal (Analog)
Action 3.3.9.D Bases	CVCS Isolation Signal (Analog)

CEOG Review Information

CEOG-99

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 187**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-187

3.3 INSTRUMENTATION

3.3.5 Engineered Safety Features Actuation System (ESFAS) Logic and Manual Trip (Analog)

LCO 3.3.5 Two ESFAS Manual Trip and two ESFAS Actuation Logic channels shall be OPERABLE for each ESFAS Function specified in Table 3.3.5-1.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

---------------------------------NOTE---------------------------------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions with one Auxiliary Feedwater Actuation Signal (AFAS) Manual Trip or Actuation Logic channel inoperable.	A.1	Restore channel to OPERABLE status.	48 hours
B. Required Action and associated Completion Time of Condition A not met. [handwritten insertion: Two AFAS Manual Trip or Actuation Logic channels inoperable OR]	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	[12] hours
C. One or more Functions with one Manual Trip or Actuation Logic channel inoperable except AFAS.	C.1	Restore channel to OPERABLE status.	48 hours

(continued)

TSTF-187

One or more Functions with two Manual Trip or Actuation Logic channel inoperable except AFAS
OR

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	-------------------NOTES------------------- 1. Testing of Actuation Logic shall include verification of the proper operation of each initiation relay. 2. Relays associated with plant equipment that cannot be operated during plant operation are only required to be tested during each MODE 5 entry exceeding 24 hours unless tested during the previous 6 months. --- Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.	[92] days
SR 3.3.5.2	Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.	[18] months

TSTF-187

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2	Restore one channel to OPERABLE status.	48 hours
D. [Two Actuation Logic channels inoperable OR] Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours

Two Actuation Logic channels inoperable

OR

TSTF-187

ACTIONS (continued)

A.1

Condition A applies to one AFAS Manual Trip or AFAS Actuation Logic channel inoperable. It is identical to Condition C for the other ESFAS Functions, except for the shutdown track imposed by Condition D.

The channel must be restored to OPERABLE status to restore redundancy of the AFAS Function. The 48 hour Completion Time is commensurate with the importance of avoiding the vulnerability of a single failure in the only remaining OPERABLE channel.

B.1 and B.2

two Manual Trip or Actuation Logic channels are inoperable or

If the Required Action and associated Completion Time of Condition A cannot be met, the reactor should be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within [12] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

C.1

Condition C applies to one Manual Trip or Actuation Logic channel inoperable for those ESFAS Functions that must be OPERABLE in MODES 1, 2, 3, and 4 (all Functions except AFAS). The shutdown track imposed by Condition D requires entry into MODE 5, where the LCO does not apply to the affected Functions.

The channel must be restored to OPERABLE status to restore redundancy of the affected Functions. The 48 hour Completion Time is commensurate with the importance of avoiding the vulnerability of a single failure in the only remaining OPERABLE channel.

(continued)

TSTF-187

one or more Functions have two Manual Trip or Actuation Logic channels inoperable except AFAS or

BASES

ACTIONS (continued)

D.1 and D.2

Condition D is entered when the Required Action and associated Completion Time of Condition C are not met. If Required Action C.1 cannot be met within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1

A CHANNEL FUNCTIONAL TEST is performed every 92 days to ensure the entire channel will perform its intended function when needed. Sensor subsystem tests are addressed in LCO 3.3.4. This SR addresses Actuation Logic tests.

Actuation Logic Tests

Actuation subsystem testing includes injecting one trip signal into each two-out-of-four logic subsystem in each ESFAS Function and using a bistable trip input to satisfy the trip logic. Initiation relays associated with the affected channel will then actuate the individual ESFAS components. Since each ESFAS Function employs subchannels of Actuation Logic, it is possible to actuate individual components without actuating an entire ESFAS Function.

Note 1 requires that Actuation Logic tests include operation of initiation relays. Note 2 allows deferred at power testing of certain relays to allow for the fact that operating certain relays during power operation could cause plant transients or equipment damage. Those initiation relays that cannot be tested at power must be tested in accordance with Note 2. These include [SIAS No. 5, SIAS No. 10, CIAS No. 5, and MSIS No. 1.]

These relays actuate the following components, which cannot be tested at power:

- RCP seal bleedoff isolation valves;

(continued)

BASES

ACTIONS (continued)

D.1 and D.2

two Actuation Logic channels are inoperable or

Condition D specifies the shutdown track to be followed if the Required Actions and associated Completion Times of Condition A, B, or C are not met. If the Required Actions cannot be met within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The Completion Times are reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.9.1

Performance of the CHANNEL CHECK on each CVCS isolation pressure indicating channel once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value.

Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the transmitter or the signal processing equipment has drifted outside its limit.

The Frequency, about once every shift, is based on operating experience that demonstrates the rarity of channel failure. Since the probability of two random failures in redundant channels in any 12 hour period is low, the CHANNEL CHECK

(continued)

TSTF-187

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more Functions with two Initiation Logic channels affecting the same trip leg inoperable.	C.1	Open at least one contact in the affected trip leg of both ESFAS Actuation Logics.	Immediately
	<u>AND</u>		
	C.2	Restore channels to OPERABLE status.	48 hours
D. One or more Functions with one Actuation Logic channel inoperable.	D.1	---------NOTE--------- One channel of Actuation Logic may be bypassed for up to 1 hour for Surveillances, provided the other channel is OPERABLE. ---------------------	
		Restore inoperable channel to OPERABLE status.	48 hours
E. Required Action and associated Completion Time of Conditions for Containment Spray Actuation Signal, Main Steam Isolation Signal, or Emergency Feedwater Actuation Signal not met. [handwritten insertion: Two Actuation Logic channels inoperable.]	E.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	[12] hours

(continued)

TSTF-187

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Conditions for Safety Injection Actuation Signal, Containment Isolation Actuation Signal, Recirculation Actuation Signal, or Containment Cooling Actuation Signal not met. [Handwritten insertion: Two Actuation Logic channels, inoperable, or]	F.1 Be in MODE 3. *AND* F.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	------NOTE------ Testing of Actuation Logic shall include the verification of the proper operation of each initiation relay. ------------ Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.	[92] days

(continued)

TSTF-187

ACTIONS

D.1 (continued)

channels. For the purposes of this Specification, the Actuation Logic is not inoperable. This obviates the need to enter LCO 3.0.3 in the event of a vital bus, matrix, or initiation channel failure.

Required Action D.1 is modified by a Note to indicate that one channel of Actuation Logic may be bypassed for up to 1 hour for Surveillance, provided the other channel is OPERABLE.

This allows performance of a PPS CHANNEL FUNCTIONAL TEST on an OPERABLE ESFAS train without generating an ESFAS actuation in the inoperable train.

E.1 and E.2

If two associated Actuation Logic channels are inoperable, or

If the Required Actions and associated Completion Times of Conditions for CSAS, MSIS, or EFAS cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within [12] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

F.1 and F.2

If the Required Actions and associated Completion Times for SIAS, CIAS, RAS, or CCAS are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Remove incorrect reference from the PAM table

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Remove reference (c) from CST level in Table 3.3.11-1.

Justification:

Reference (c) deals with core exit thermocouples and applies to Functions 14-17. It was inappropriately applied to Function 13, Condensate Storage Tank. This corrects the error.

Affected Technical Specifications

3.3.11-1 PAM Instrumentation (Analog)

Change Description: PAM Table, Function 13

CEOG Review Information

CEOG-100

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 188**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-188

Table 3.3.11-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. [Logarithmic] Neutron Flux	2	F
2. Reactor Coolant System Hot Leg Temperature	2 per loop	F
3. Reactor Coolant System Cold Leg Temperature	2 per loop	F
4. Reactor Coolant System Pressure (wide range)	2	F
5. Reactor Vessel Water Level	2	[G]
6. Containment Sump Water Level (wide range)	2	F
7. Containment Pressure (wide range)	2	F
8. Containment Isolation Valve Position	2 per penetration flow path(a)(b)	F
9. Containment Area Radiation (high range)	2	[G]
10. Containment Hydrogen Monitors	2	F
11. Pressurizer Level	2	F
12. Steam Generator Water Level (wide range)	2 per steam generator	F
13. Condensate Storage Tank Level	2(c)	F
14. Core Exit Temperature – Quadrant [1]	2(c)	F
15. Core Exit Temperature – Quadrant [2]	2(c)	F
16. Core Exit Temperature – Quadrant [3]	2(c)	F
17. Core Exit Temperature – Quadrant [4]	2(c)	F
18. Auxiliary Feedwater Flow	2	F

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) A channel consists of two or more core exit thermocouples.

Note: Table 3.3.11-1 shall be amended for each unit as necessary to list:

(1) all Regulatory Guide 1.97, Type A instruments, and
(2) all Regulatory Guide 1.97, Category I, non-Type A instruments specified in the unit's Regulatory Guide 1.97, Safety Evaluation Report.

Industry/TSTF Standard Technical Specification Change Traveler

Remove uncertainty discussion from the Bases

Classification: Consistency/Standardization

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Removes the discussion of the allowable value and it's uncertainty from the Containment Pressure - High Bases.

Justification:

References to instrument uncertainty in the Bases are inconsistent with the ITS conventions and not given in other Specifications. The change is consistent with the CEOG Digital Bases.

Affected Technical Specifications

LCO 3.3.1 RPS Instrumentation - Operating (Analog)

CEOG Review Information

CEOG-101

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 189**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-189

BASES

LCO

5. Containment Pressure—High (continued)

The Allowable Value is high enough to allow for small pressure increases in containment expected during normal operation (i.e., plant heatup) that are not indicative of an abnormal condition. The setting is low enough to initiate a reactor trip to prevent containment pressure from exceeding design pressure following a DBA. The 4 psig setpoint is also assumed in the safety analysis and includes an uncertainty of +0.75 and -0.25 psig.

6. Steam Generator Pressure—Low

This LCO requires four channels of Steam Generator Pressure—Low per steam generator to be OPERABLE in MODES 1 and 2.

The Allowable Value is sufficiently below the full load operating value for steam pressure so as not to interfere with normal plant operation, but still high enough to provide the required protection in the event of excessive steam demand. Since excessive steam demand causes the RCS to cool down, resulting in positive reactivity addition to the core, a reactor trip is required to offset that effect.

The difference between the Allowable Value and the safety analysis value of 600 psia includes harsh environment uncertainties.

The Function may be manually bypassed as steam generator pressure is reduced during controlled plant shutdowns. This bypass is permitted at a preset steam generator pressure. The bypass, in conjunction with the ZPMB, allows testing at low temperatures and pressures, and heatup and cooldown with the shutdown CEAs withdrawn. From a bypass condition the trip will be reinstated automatically as steam generator pressure increases above the preset pressure.

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Remove reference to inadvertently bypassing a redundant channel

Classification: Change Bases

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Remove the following statements from the RPS and ESFAS Bases, "By specifying either option [allowing an inoperable channel to be placed in bypass or trip], the possibility of inadvertently bypassing a redundant channel is eliminated. The provision of four trip channels allows one channel to be bypassed (removed from service) during operations, placing the RPS in two-out-of-three coincidence logic. It is preferable to place an inoperable channel in bypass rather trip, since no additional random failure of a single channel can either spuriously trip the reactor or prevent it from tripping."

Justification:

The statements are being removed because they are incorrect and repetitive of information in the Background section. If one channel is placed in trip, another channel can be placed in bypass. If the channel is in bypass, the remaining channels are in two-out-of-three coincidence logic. Therefore, the information is eliminated.

Affected Technical Specifications

Action 3.3.1.A Bases	RPS Instrumentation - Operating (Analog)
Action 3.3.2.A Bases	RPS Instrumentation - Shutdown (Analog)
Action 3.3.4.B Bases	ESFAS Instrumentation (Analog)

CEOG Review Information

CEOG-102

Originating Plant: Calvert Cliffs   Date Provided to OG: 24-Oct-96   Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved   Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96   Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved   Date: 06-Mar-97   **TSTF- 190**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-190

BASES

ACTIONS (continued)

A.1, A.2.1, and A.2.2

Condition A applies to the failure of a single channel in any RPS automatic trip Function. RPS coincidence logic is normally two-out-of-four.

If one RPS bistable trip unit or associated instrument channel is inoperable, startup or power operation is allowed to continue, providing the inoperable trip unit is placed in bypass or trip within 1 hour (Required Action A.1). By specifying either option, the possibility of inadvertently bypassing a redundant channel is eliminated. The provision of four trip channels allows one channel to be bypassed (removed from service) during operations, placing the RPS in two-out-of-three coincidence logic. It is preferable to place an inoperable channel in bypass rather than trip, since no additional random failure of a single channel can either spuriously trip the reactor or prevent it from tripping.

The Completion Time of 1 hour allotted to restore, bypass, or trip the channel is sufficient to allow the operator to take all appropriate actions for the failed channel while ensuring that the risk involved in operating with the failed channel is acceptable.

The failed channel is restored to OPERABLE status or is placed in trip within [48] hours (Required Action A.2.1 or Required Action A.2.2). Required Action A.2.1 restores the full capability of the Function.

[Required Action A.2.2 places the Function in a one-out-of-three configuration. In this configuration, common cause failure of dependent channels cannot prevent trip.]

The Completion Time of [48] hours is based on operating experience, which has demonstrated that a random failure of a second channel occurring during the [48] hour period is a low probability event.

B.1 and B.2

Condition B applies to the failure of two channels in any RPS automatic trip Function.

(continued)

TSTF-190

BASES

ACTIONS

A.1, A.2.1, and A.2.2 (continued)

inoperable, startup or power operation is allowed to continue, providing the inoperable trip unit is placed in bypass or trip within 1 hour (Required Action A.1). By specifying either option, the possibility of inadvertently bypassing a redundant channel is eliminated. The provision of four trip channels allows one channel to be bypassed (removed from service) during operations, placing the RPS in two-out-of-three coincidence logic. It is preferable to place an inoperable channel in bypass rather than trip, since no additional random failure of a single channel can either spuriously trip the reactor or prevent it from tripping.

The Completion Time of 1 hour allotted to restore, bypass, or trip the channel is sufficient to allow the operator to take all appropriate actions for the failed channel, while ensuring that the risk involved in operating with the failed channel is acceptable.

For plants that have not demonstrated sufficient channel to channel independence, the failed channel is restored to OPERABLE status or is placed in trip within 48 hours (Required Action A.2.1 or Required Action A.2.2). Required Action A.2.1 restores the full capability of the Function. Required Action A.2.2 places the Function in a one-out-of-three configuration. In this configuration, common cause failure of dependent channels cannot prevent trip.

The [48] hour Completion Time is based on operating experience, which has demonstrated that a random failure of a second channel occurring during the [48] hour period is a low probability event.

B.1 and B.2

Condition B applies to the failure of two channels in the Power Rate of Change—High RPS automatic trip Function.

Required Action B.1 provides for placing one inoperable channel in bypass and the other channel in trip within the Completion Time of 1 hour. This Completion Time is sufficient to allow the operator to take all appropriate

(continued)

TSTF-190

BASES

ACTIONS

B.1, B.2.1, and B.2.2 (continued)

If one ESFAS channel is inoperable, startup or power operation is allowed to continue, providing the inoperable channel is placed in bypass or trip within 1 hour (Required Action B.1). By specifying either option, the possibility of inadvertently bypassing a redundant channel is eliminated for those plants with an interlock. The provision of four trip channels allows one channel to be bypassed (removed from service) during operations, placing the ESFAS in two-out-of-three coincidence logic.

The Completion Time of 1 hour allotted to bypass or trip the channel is sufficient to allow the operator to take all appropriate actions for the failed channel and still ensures that the risk involved in operating with the failed channel is acceptable.

One failed channel is restored to OPERABLE status or is placed in trip within [48] hours (Required Action B.2.1 or B.2.2). Required Action B.2.1 restores the full capability of the function. Required Action B.2.2 places the function in a one-out-of-three configuration. In this configuration, common cause failure of the dependent channel cannot prevent ESFAS actuation. The [48] hour Completion Time is based upon operating experience, which has demonstrated that a random failure of a second channel occurring during the [48] hour period is a low probability event.

C.1 and C.2

Condition C applies to the failure of two channels in any of the following ESFAS functions:

1. Safety Injection Actuation Signal
   Containment Pressure—High
   Pressurizer Pressure—Low

3. Containment Isolation Actuation Signal
   Containment Pressure—High
   Containment Radiation—High

4. Main Steam Isolation Signal
   Steam Generator Pressure—Low

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Eliminate reference to Manual Trip in Bases

Classification: Change Bases

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Revise the Bases for SR 3.3.1.6 to remove the phrase, "and Manual Trip" from the Bases, and "The Manual Trip Function can be either tested at power or shutdown; however, the simplicity of this circuitry and the absence of drift concern makes this Frequency adequate. Additionally, operating experience has shown that these components usually pass the Surveillance when performed at a Frequency of once per 7 days prior to each reactor startup."

Justification:

The Manual Trip function of the RPS is addressed in LCO 3.3.3, RPS Logic and Trip Initiation, not in LCO 3.3.1 - RPS Instrumentation - Operating. SR 3.3.1.6 does not test Manual Trip.
Therefore, this discussion is inaccurate and should be removed.

Affected Technical Specifications

SR 3.3.1.6 Bases RPS Instrumentation - Operating (Analog)

CEOG Review Information

CEOG-103

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 TSTF- 191

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-191

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.6

A CHANNEL FUNCTIONAL TEST on the Loss of Load, and Power Rate of Change, and Manual Trip channels is performed prior to a reactor startup to ensure the entire channel will perform its intended function if required. The Loss of Load pressure sensor cannot be tested during reactor operation without closing the high pressure TSV, which would result in a turbine trip or reactor trip. The Power Rate of Change—High trip Function is required during startup operation and is bypassed when shut down or > 15% RTP. The Manual Trip Function can either be tested at power or shutdown; however, the simplicity of this circuitry and the absence of drift concern makes this Frequency adequate. Additionally, operating experience has shown that these components usually pass the Surveillance when performed at a Frequency of once per 7 days prior to each reactor startup.

SR 3.3.1.7

SR 3.3.1.7 is a CHANNEL FUNCTIONAL TEST similar to SR 3.3.1.4, except SR 3.3.1.7 is applicable only to bypass Functions and is performed once within 92 days prior to each startup. Proper operation of bypass permissives is critical during plant startup because the bypasses must be in place to allow startup operation and must be removed at the appropriate points during power ascent to enable certain reactor trips. Consequently, the appropriate time to verify bypass removal function OPERABILITY is just prior to startup. The allowance to conduct this test within 92 days of startup is based on the reliability analysis presented in topical report CEN-327, "RPS/ESFAS Extended Test Interval Evaluation" (Ref. 9). Once the operating bypasses are removed, the bypasses must not fail in such a way that the associated trip Function gets inadvertently bypassed. This feature is verified by the trip Function CHANNEL FUNCTIONAL TEST, SR 3.3.1.4. Therefore, further testing of the bypass function after startup is unnecessary.

SR 3.3.1.8

SR 3.3.1.8 is the performance of a CHANNEL CALIBRATION every [18] months.

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Correct a reference to RTCB channels

Classification: Change Bases

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

Change the phrase, "... applicable to the two affected RTCBs" to "... applicable to the two affected channels of RTCBs".

Justification:

Condition 3.3.3.D applies to "Two Channels of RTCBs or Initiation Logic affecting the same trip leg inoperable." The current statement in the Bases is incorrect and is inconsistent with the LCO. Furthermore, it is very confusing because a single channel consists of two RTCBs. Therefore, the Bases imply that only a single channel of RTCBs is affected instead of two. This error is corrected.

Affected Technical Specifications

Action 3.3.3.D Bases RPS Logic and Trip Initiation (Analog)

CEOG Review Information

CEOG-104

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 04-Nov-96 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 192**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-192

BASES

ACTIONS

D.1 (continued) channels of

two channels of RTCBs, this Condition is also applicable to the two affected RTCBs. This Condition allows for loss of a single vital instrument bus or matrix power supply, which will de-energize both Initiation Logic channels in the same trip leg. This will open both sets of RTCBs in the affected trip leg, satisfying the Required Action of opening the affected RTCBs.

Of greater concern is the failure of the initiation circuit in a nontrip condition (e.g., due to two initiation K-relay failures). With only one Initiation Logic channel failed in a nontrip condition, there is still the redundant set of RTCBs in the trip leg. With both failed in a nontrip condition, the reactor will not trip automatically when required. In either case, the affected RTCBs must be opened immediately by using the appropriate Manual Trip push buttons, since each of the four push buttons opens one set of RTCBs, independent of the initiation circuitry. Caution must be exercised, since depressing the wrong push buttons may result in a reactor trip.

If the affected RTCB(s) cannot be opened, Condition E is entered. This would only occur if there is a failure in the Manual Trip circuitry or the RTCB(s).

E.1 and E.2

Condition E is entered if Required Actions associated with Condition A, B, or D are not met within the required Completion Time or if for one or more Functions more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel is inoperable for reasons other than Condition A or D.

If the RTCBs associated with the inoperable channel cannot be opened, the reactor must be shut down within 6 hours and all the RTCBs opened. A Completion Time of 6 hours is reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems and to open RTCBs. All RTCBs should then be opened, placing the plant in a MODE where the LCO does not apply and ensuring no CEA withdrawal occurs.

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Revise CE Analog CEA Position Indication Verification

Classification: Improve Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

The change replaces SR 3.1.5.2 (position indication verification) and adds a new Frequency to SR 3.1.5.1 to verify the indicated position of each CEA to be within 7 inches of all other CEAs in its group within one hour following any CEA movement of > 7 inches.

Justification:

The typical CE Analog plant has four methods of CEA position indication: 1) full length reed switch position transmitters, 2) plant computer pulse counter, 3) CEA full-in switch, and 4) CEA full-out switch. During normal plant operation, the CEAs are slightly inserted to prevent fretting, so only two position indication systems are available. The performance of SR 3.1.5.2 requires at least two position indication systems every 12 hours.

Of the two available position indication systems, the pulse counting method requires the plant computer. Plant computers are non-safety related equipment in CE Analog plants. If the equipment is unavailable due to maintenance or equipment failure for 12 hours, the SR cannot be performed. As there is no Condition for an inoperable position indication system, LCO 3.0.3 would be entered.

An alternate Surveillance is suggested. Since the most likely condition for a CEA to become misaligned is during rod movement, SR 3.1.5.1, which requires that the indicated position of all CEAs be verified to be within 7 inches of all other CEAs in its group, is given an additional Frequency. The alignment verification must be performed once every 12 hours and within 1 hour following any CEA movement of > [7 inches].

With this change, CEA alignment is verified after each CEA movement using the available position indication methods. This will ensure that CEA alignment is maintained, while not imposing unnecessary plant shutdowns due to a malfunctioning plant computer.

Affected Technical Specifications

SR 3.1.5.1	CEA Alignment (Analog)	
SR 3.1.5.1 Bases	CEA Alignment (Analog)	
SR 3.1.5.2	CEA Alignment (Analog)	
	Change Description:	Deleted
SR 3.1.5.2 Bases	CEA Alignment (Analog)	
	Change Description:	Deleted
SR 3.1.5.3	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.2
SR 3.1.5.3 Bases	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.2
SR 3.1.5.4	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.3
SR 3.1.5.4 Bases	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.3
SR 3.1.5.5	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.4

SR 3.1.5.5 Bases	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.4
SR 3.1.5.6	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.5
SR 3.1.5.6 Bases	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.5
SR 3.1.5.7	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.6
SR 3.1.5.7 Bases	CEA Alignment (Analog)	
	Change Description:	Renumbered to SR 3.1.5.6

CEOG Review Information

CEOG-107

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 24-Oct-96

TSTF Review Information

TSTF Received Date: 03-Jan-97 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 193**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time not met. OR One or more CEAs untrippable. OR Two or more CEAs misaligned by > [15 inches].	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify the indicated position of each CEA to be within [7 inches] of all other CEAs in its group.	within 1 hour following any CEA movement of > [7 inches] AND 12 hours
SR 3.1.5.2	Verify that, for each CEA, the OPERABLE CEA position indicator channels, reed switch, and plant computer CEA position indication indicate within [5 inches] of each other.	12 hours
SR 3.1.5.3 (2)	Verify the CEA motion inhibit is OPERABLE.	31 days

(continued)

TSTF-193

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.5.~~4~~ 3	Verify the CEA deviation circuit is OPERABLE.	31 days
SR 3.1.5.~~5~~ 4	Verify CEA freedom of movement (trippability) by moving each individual CEA that is not fully inserted into the reactor core [5 inches] in either direction.	92 days
SR 3.1.5.~~6~~ 5	Perform a CHANNEL FUNCTIONAL TEST of the reed switch position transmitter channel.	18 months
SR 3.1.5.~~7~~ 6	Verify each CEA drop time is ≤ [3.1] seconds.	Prior to reactor criticality, after each removal of the reactor head

ACTIONS

E.1 (continued)

MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1

Verification that individual CEA positions are within [7 inches] (indicated reed switch positions) of all other CEAs in the group at a 12 hour Frequency allows the operator to detect a CEA that is beginning to deviate from its expected position. The specified Frequency takes into account other CEA position information that is continuously available to the operator in the control room, so that during CEA movement, deviations can be detected, and protection can be provided by the CEA motion inhibit and deviation circuits.

Frequencies of within 1 hour of any CEA movement of > 7.5 inches and every 12 hours. The CEA position verification after each movement of > 7.5 inches ensures that the CEAs in that group are properly aligned at the time when CEA misalignments are most likely to have occurred. The

SR 3.1.5.2

OPERABILITY of at least two CEA position indicator channels is required to determine CEA positions, and thereby ensure compliance with the CEA alignment and insertion limits. The CEA "full in" and "full out" limits provide an additional independent means for determining the CEA positions when the CEAs are at either their fully inserted or fully withdrawn positions.

The 12 hour Frequency takes into consideration other information continuously available to the operator in the control room, so that during CEA movement, deviations can be detected, and protection can be provided by the CEA motion inhibit and deviation circuits.

SR 3.1.5.3 (2)

Demonstrating the CEA motion inhibit OPERABLE verifies that the CEA motion inhibit is functional, even if it is not regularly operated. The 31 day Frequency takes into account other information continuously available to the operator in the control room, so that during CEA movement, deviations

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.5.3 (continued)

can be detected, and protection can be provided by the CEA deviation circuits.

SR 3.1.5.4

Demonstrating the CEA deviation circuit is OPERABLE verifies the circuit is functional. The 31 day Frequency takes into account other information continuously available to the operator in the control room, so that during CEA movement, deviations can be detected, and protection can be provided by the CEA motion inhibit.

SR 3.1.5.5

Verifying each CEA is trippable would require that each CEA be tripped. In MODES 1 and 2, tripping each CEA would result in radial or axial power tilts, or oscillations. Therefore, individual CEAs are exercised every 92 days to provide increased confidence that all CEAs continue to be trippable, even if they are not regularly tripped. A movement of [5 inches] is adequate to demonstrate motion without exceeding the alignment limit when only one CEA is being moved. The 92 day Frequency takes into consideration other information available to the operator in the control room and other surveillances being performed more frequently, which add to the determination of OPERABILITY of the CEAs. Between required performances of SR 3.1.5.5, if a CEA(s) is discovered to be immovable, but remains trippable and aligned, the CEA is considered to be OPERABLE. At any time, if a CEA(s) is immovable, a determination of the trippability (OPERABILITY) of the CEA(s) must be made, and appropriate action taken.

SR 3.1.5.6

Performance of a CHANNEL FUNCTIONAL TEST of each reed switch position transmitter channel ensures the channel is OPERABLE and capable of indicating CEA position over the entire length of the CEA's travel. Since this Surveillance must be performed when the reactor is shut down, an 18 month Frequency to be coincident with refueling outage was

(continued)

TSTF-193

SURVEILLANCE REQUIREMENTS

(5)

SR 3.1.5.6 (continued)

selected. Operating experience has shown that these components usually pass this Surveillance when performed at a Frequency of once every 18 months. Furthermore, the Frequency takes into account other surveillances being performed at shorter Frequencies, which determine the OPERABILITY of the CEA Reed Switch Indication System.

(6)

SR 3.1.5.7

Verification of CEA drop times determined that the maximum CEA drop time permitted is consistent with the assumed drop time used in that safety analysis (Ref. 7). Measuring drop times prior to reactor criticality, after reactor vessel head removal, ensures that reactor internals and CEDM will not interfere with CEA motion or drop time and that no degradation in these systems has occurred that would adversely affect CEA motion or drop time. Individual CEAs whose drop times are greater than safety analysis assumptions are not OPERABLE. This SR is performed prior to criticality, based on the need to perform this Surveillance under the conditions that apply during a unit outage and because of the potential for an unplanned unit transient if the Surveillance were performed with the reactor at power.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 10 and GDC 26.
2. 10 CFR 50.46.
3. FSAR, Section [ ].
4. FSAR, Section [ ].
5. FSAR, Section [ ].
6. FSAR, Section [ ].
7. FSAR, Section [ ].

Industry/TSTF Standard Technical Specification Change Traveler

Add shutdown CEAs to the SDM Special Test Exception

Classification: Correct Specifications

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

This change adds the Shutdown CEAs to the SDM Special Test Exception LCO as an exempted LCO.

Justification:

The Shutdown CEA Specification was added to the SDM Special Test Exception to allow CEA worth measurements to be performed on the Shutdown CEAs. Shutdown CEA worth measurements are required if the acceptance criteria for the Regulating CEAs are not met.

Affected Technical Specifications

LCO 3.1.8	STE-SDM (Analog)
LCO 3.1.8 Bases	STE-SDM (Analog)
LCO 3.1.9	STE-SDM (Digital)
LCO 3.1.9 Bases	STE-SDM (Digital)

CEOG Review Information

CEOG-108

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 18-Dec-96

TSTF Review Information

TSTF Received Date: 03-Jan-97 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 194**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-197

BASES

ACTIONS (continued)

A.4

Insert 4 →

If SDC loop requirements are not met, all containment penetrations to the outside atmosphere must be closed to prevent fission products, if released by a loss of decay heat event, from escaping the containment building. The 4 hour Completion Time allows fixing most SDC problems without incurring the additional action of violating the containment atmosphere.

SURVEILLANCE REQUIREMENTS

SR 3.9.4.1

This Surveillance demonstrates that the SDC loop is in operation and circulating reactor coolant. The flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability and to prevent thermal and boron stratification in the core. The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control, and alarm indications available to the operator in the control room for monitoring the SDC System.

REFERENCES

1. FSAR, Section [ ].

TSTF-197

BASES

ACTIONS (continued)

B.1

If no SDC loop is in operation or no SDC loops are OPERABLE, there will be no forced circulation to provide mixing to establish uniform boron concentrations. Reduced boron concentrations can occur by the addition of water with lower boron concentration than that contained in the RCS. Therefore, actions that reduce boron concentration shall be suspended immediately.

B.2

If no SDC loop is in operation or no SDC loops are OPERABLE, action shall be initiated immediately and continued without interruption to restore one SDC loop to OPERABLE status and operation. Since the unit is in Conditions A and B concurrently, the restoration of two OPERABLE SDC loops and one operating SDC loop should be accomplished expeditiously.

B.3

Insert 4 →

If no RHR loop is in operation, all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere must be closed within 4 hours. With the RHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Closing containment penetrations that are open to the outside atmosphere ensures that dose limits are not exceeded.

The Completion Time of 4 hours is reasonable, based on the low probability of the coolant boiling in that time.

SURVEILLANCE REQUIREMENTS

SR 3.9.5.1

This Surveillance demonstrates that one SDC loop is operating and circulating reactor coolant. The flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability and to prevent thermal and boron stratification in the core. In addition, this Surveillance demonstrates that the other SDC loop is OPERABLE.

(continued)

TSTF-194

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Special Test Exception (STE)—SHUTDOWN MARGIN (SDM) (Analog)

LCO 3.1.8 The SDM requirements of LCO 3.1.1, "SHUTDOWN MARGIN (SDM) T_{avg} > 200°F," and the regulating control element assembly (CEA) insertion limits of LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits," may be suspended for measurement of CEA worth and the SDM, provided shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion.

the shutdown control element assembly (CEA) insertion limits of LCO 3.1.6, "Shutdown Control Element Assembly (CEA) Insertion Limits,"

APPLICABILITY: MODES 2 and 3 during PHYSICS TESTS.

---------------------------NOTE---------------------------
Operation in MODE 3 shall be limited to 6 consecutive hours.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any CEA not fully inserted and less than the above shutdown reactivity equivalent available for trip insertion. OR All CEAs inserted and the reactor subcritical by less than the above shutdown reactivity equivalent.	A.1 Initiate boration to restore required shutdown reactivity.	15 minutes

APPLICABLE SAFETY ANALYSES (continued)

peaking factor, T_q and ASI, which represent initial condition input (power peaking) to the accident analysis. Also involved are the shutdown and regulating CEAs, which affect power peaking and are required for shutdown of the reactor. The limits for these variables are specified for each fuel cycle in the COLR.

PHYSICS TESTS meet the criteria for inclusion in the Technical Specifications, since the components and process variable LCOs suspended during PHYSICS TESTS meet Criteria 1, 2, and 3 of the NRC Policy Statement.

LCO

This LCO provides that a minimum amount of CEA worth is immediately available for reactivity control when CEA worth measurement tests are performed. The STE 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. The SDM requirements of LCO 3.1.1, and the regulating CEA insertion limits of LCO 3.1.7 may be suspended.

, the shutdown CEA insertion limits of LCO 3.1.6,

APPLICABILITY

This LCO is applicable in MODES 2 and 3. Although CEA worth testing is conducted in MODE 2, sufficient negative reactivity is inserted during the performance of these tests to result in temporary entry into MODE 3. Because the intent is to immediately return to MODE 2 to continue CEA worth measurements, the STE allows limited operation to 6 consecutive hours in MODE 3, as indicated by the Note, without having to borate to meet the SDM requirements of LCO 3.1.1.

ACTIONS

A.1

With any CEA not fully inserted and less than the minimum required reactivity equivalent available for insertion, or with all CEAs inserted and the reactor subcritical by less than the reactivity equivalent of the highest worth CEA, restoration of the minimum SDM requirements must be accomplished by increasing the RCS boron concentration. The required Completion Time of 15 minutes for initiating

(continued)

TSTF-194

3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 Special Test Exception (STE)—SHUTDOWN MARGIN (SDM) (Digital)

LCO 3.1.9 The SDM requirements of LCO 3.1.1, "SHUTDOWN MARGIN (SDM)—T_{avg} > 200°F," and the regulating control element assembly (CEA) insertion limits of LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits," may be suspended for measurement of CEA worth and SDM, provided shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion.

the shutdown control element assembly (CEA) insertion limits of LCO 3.1.6, "Shutdown Control Element Assembly (CEA) Insertion Limits,"

APPLICABILITY: MODES 2 and 3 during PHYSICS TESTS.

---------------------------NOTE---------------------------
Operation in MODE 3 shall be limited to 6 consecutive hours.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Any full length CEA not fully inserted and less than the required shutdown reactivity available for trip insertion. <u>OR</u> All full length CEAs inserted and the reactor subcritical by less than the above required shutdown reactivity equivalent.	A.1	Initiate boration to restore required shutdown reactivity.	15 minutes

TSTF-194

BASES

APPLICABLE SAFETY ANALYSES (continued)

peaking factor, T_q, and ASI, which represent initial condition input (power peaking) to the accident analysis. Also involved are the shutdown and regulating CEAs, which affect power peaking and are required for shutdown of the reactor. The limits for these variables are specified for each fuel cycle in the COLR.

PHYSICS TESTS meet the criteria for inclusion in the Technical Specifications since the components and process variable LCOs suspended during PHYSICS TESTS meet Criteria 1, 2, and 3 of the NRC Policy Statement.

LCO

This LCO provides that a minimum amount of CEA worth is immediately available for reactivity control when CEA worth measurement tests are performed. This STE 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. The SDM requirements of LCO 3.1.1, and the regulating CEA insertion limits of LCO 3.1.7 may be suspended.

, this shutdown CEA insertion limits of LCO 3.1.6,

APPLICABILITY

This LCO is applicable in MODES 2 and 3. Although CEA worth testing is conducted in MODE 2, sufficient negative reactivity is inserted during the performance of these tests to result in temporary entry into MODE 3. Because the intent is to immediately return to MODE 2 to continue CEA worth measurements, the STE allows limited operation to 6 consecutive hours in MODE 3 as indicated by the Note, without having to borate to meet the SDM requirements of LCO 3.1.1.

ACTIONS

A.1

With any CEA not fully inserted and less than the minimum required reactivity equivalent available for insertion, or with all CEAs inserted and the reactor subcritical by less than the reactivity equivalent of the highest worth withdrawn CEA, restoration of the minimum SDM requirements must be accomplished by increasing the RCS boron concentration. The required Completion Time of 15 minutes

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Revise 3.4.6 Action A.1 to be consistent with the Specification

Classification: Change Bases

NUREGs Affected: ☐ 1430 ☐ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

This change revises the Bases for LCO 3.4.6, RCS Loops - Mode 4, to match the Actions.

Justification:

The existing Bases for LCO 3.4.6, Actions A.1 and B.1 do not accurately reflect the Conditions. This may lead to misinterpretation of the Conditions and should be corrected.

Affected Technical Specifications

Action 3.4.6.A Bases RCS Loops - Mode 4

Action 3.4.6.B Bases RCS Loops - Mode 4

CEOG Review Information

CEOG-109

Originating Plant: Calvert Cliffs Date Provided to OG: 24-Oct-96 Needed By: 01-Nov-96

Owners Group History:

Owners Group Resolution: Approved Date: 18-Dec-96

TSTF Review Information

TSTF Received Date: 03-Jan-97 Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Not applicable, accepts
BWOG - Not applicable, accepts
BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97 **TSTF- 195**

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

TSTF-195

BASES

LCO (continued)

forced flow to the SDC heat exchanger(s). RCPs and SDC pumps are OPERABLE if they are capable of being powered and are able to provide flow if required.

APPLICABILITY

In MODE 4, this LCO applies because it is possible to remove core decay heat and to provide proper boron mixing with either the RCS loops and SGs or the SDC System.

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops—MODES 1 and 2";
LCO 3.4.5, "RCS Loops—MODE 3";
LCO 3.4.7, "RCS Loops—MODE 5, Loops Filled";
LCO 3.4.8, "RCS Loops—MODE 5, Loops Not Filled";
LCO 3.9.4, "Shutdown Cooling (SDC) and Coolant Circulation—High Water Level" (MODE 6); and
LCO 3.9.5, "Shutdown Cooling (SDC) and Coolant Circulation—Low Water Level" (MODE 6).

ACTIONS

A.1

If only one required RCS loop ~~or SDC train~~ is OPERABLE and in operation, [and no SDC trains are OPERABLE] redundancy for heat removal is lost. Action must be initiated immediately to restore a second loop or train to OPERABLE status. The immediate Completion Time reflects the importance of maintaining the availability of two paths for decay heat removal.

B.1

If only one required SDC train is OPERABLE and in operation, [and no RCS loops are OPERABLE,] redundancy for heat removal is lost. The plant must be placed in MODE 5 within the next 24 hours. Placing the plant in MODE 5 is a conservative action with regard to decay heat removal. With only one SDC train OPERABLE, redundancy for decay heat removal is lost and, in the event of a loss of the remaining SDC train, it would be safer to initiate that loss from MODE 5 (≤ 200°F) rather than MODE 4 (200°F to 300°F). The Completion Time of 24 hours is reasonable, based on operating experience, to reach MODE 5

(continued)

Industry/TSTF Standard Technical Specification Change Traveler

Revise isolation devices to include ASME/ANSI equivalent methods

Classification: Improve Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☑ 1433 ☑ 1434

Description:

This change allows the use of equivalent isolation methods for containment penetrations.

Justification:

Section 3.9.3 of the PWR specifications allows penetrations to be isolated via an equivalent isolation method. This change will revise other specifications which allow or require penetrations to be closed by isolation methods including a blind flange to allow equivalent methods to also be used. The equivalent methods used are required to be ASME/ANSI approved. This will ensure that the methods used will be capable of isolating the penetration for the containment pressures assumed in the accident analysis. Since other methods are capable of isolating penetrations besides closed deactivated automatic valves, closed manual valves, check valves with flow through the valve secured, and blind flanges, equivalent methods were added. The equivalent methods may include caps or other ASME/ANSI approved devices. This change will continue to ensure that penetrations can be maintained closed in order to meet design basis offsite release requirements while providing flexibility in the type of closure mechanism used.

Affected Technical Specifications

Bkgnd 3.6.3 Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
LCO 3.6.3 Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Action 3.6.3.A	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Action 3.6.3.A Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Action 3.6.3.B	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Action 3.6.3.B Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Action 3.6.3.C	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Action 3.6.3.C Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Action 3.6.3.D Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
SR 3.6.3.3	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
SR 3.6.3.3 Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
SR 3.6.3.4	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
SR 3.6.3.4 Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
Bkgnd 3.9.3 Bases	Containment Penetrations	NUREG(s)- 1430 1432 Only
LCO 3.3.17	PAM Instrumentation Change Description: Table 3.3.17-1, Note (a)	NUREG(s)- 1430 Only
LCO 3.3.17 Bases	PAM Instrumentation	NUREG(s)- 1430 Only

Bkgnd 3.6.1 Bases	Containment	NUREG(s)- 1430 Only
Action 3.6.3.D	Containment Isolation Valves	NUREG(s)- 1430 Only
Bkgnd 3.6.1 Bases	Containment (Atmospheric)	NUREG(s)- 1431 1432 Only
Bkgnd 3.6.1 Bases	Containment (Dual)	NUREG(s)- 1431 1432 Only
Action 3.6.3.E	Containment Isolation Valves	NUREG(s)- 1431 1432 Only
Action 3.6.3.E Bases	Containment Isolation Valves	NUREG(s)- 1431 1432 Only
LCO 3.3.3	PAM Instrumentation Change Description: Table 3.3.3-1, Note (a)	NUREG(s)- 1431 Only
LCO 3.3.3 Bases	PAM Instrumentation	NUREG(s)- 1431 Only
Bkgnd 3.6.1 Bases	Containment (Ice Condenser)	NUREG(s)- 1431 Only
Bkgnd 3.6.1 Bases	Containment (Subatmospheric)	NUREG(s)- 1431 Only
SR 3.6.3.11 Bases	Containment Isolation Valves	NUREG(s)- 1431 Only
Bkgnd 3.9.4 Bases	Containment Penetrations	NUREG(s)- 1431 Only
Appl. 3.3.8	Containment Purge Isolation Signal (Digital)	NUREG(s)- 1432 Only
Appl. 3.3.8 Bases	Containment Purge Isolation Signal (Digital)	NUREG(s)- 1432 Only
LCO 3.3.11	PAM Instrumentation (Analog) Change Description: Table 3.3.11-1, Note (a)	NUREG(s)- 1432 Only
LCO 3.3.11	PAM Instrumentation (Digital) Change Description: Table 3.3.11-1, Note (a)	NUREG(s)- 1432 Only
LCO 3.3.11 Bases	PAM Instrumentation (Analog)	NUREG(s)- 1432 Only
LCO 3.3.11 Bases	PAM Instrumentation (Digital)	NUREG(s)- 1432 Only
SR 3.6.3.9 Bases	Containment Isolation Valves	NUREG(s)- 1432 Only
LCO 3.3.3.1	PAM Instrumentation Change Description: Table 3.3.3.1-1, Note (a)	NUREG(s)- 1433 1434 Only
LCO 3.3.3.1 Bases	PAM Instrumentation	NUREG(s)- 1433 1434 Only
Bkgnd 3.6.1.1 Bases	Primary Containment	NUREG(s)- 1433 1434 Only
Bkgnd 3.6.1.3 Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
LCO 3.6.1.3 Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.1.3.A	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only

Action 3.6.1.3.A Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.1.3.B	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.1.3.B Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.1.3.C	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.1.3.C Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.1.3.D Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.1.3.E	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.1.3.E Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
SR 3.6.1.3.3	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
SR 3.6.1.3.3 Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
SR 3.6.1.3.4	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
SR 3.6.1.3.4 Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 1434 Only
Bkgnd 3.6.4.2 Bases	Secondary Containment Isolation Valves (SCIVs)	NUREG(s)- 1433 1434 Only
LCO 3.6.4.2 Bases	Secondary Containment Isolation Valves (SCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.4.2.A	Secondary Containment Isolation Valves (SCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.4.2.A Bases	Secondary Containment Isolation Valves (SCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.4.2.B	Secondary Containment Isolation Valves (SCIVs)	NUREG(s)- 1433 1434 Only
Action 3.6.4.2.B Bases	Secondary Containment Isolation Valves (SCIVs)	NUREG(s)- 1433 1434 Only
SR 3.6.4.2.1	Secondary Containment Isolation Valves (SCIVs)	NUREG(s)- 1433 1434 Only
SR 3.6.4.2.1 Bases	Secondary Containment Isolation Valves (SCIVs)	NUREG(s)- 1433 1434 Only
SR 3.6.1.3.12 Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1433 Only
SR 3.6.1.3.9 Bases	Primary Containment Isolation Valves (PCIVs)	NUREG(s)- 1434 Only
Bkgnd 3.6.5.1 Bases	Drywell	NUREG(s)- 1434 Only
Bkgnd 3.6.5.3 Bases	Drywell Isolation Valve[s]	NUREG(s)- 1434 Only
LCO 3.6.5.3 Bases	Drywell Isolation Valve[s]	NUREG(s)- 1434 Only
Action 3.6.5.3.A	Drywell Isolation Valve[s]	NUREG(s)- 1434 Only
Action 3.6.5.3.A Bases	Drywell Isolation Valve[s]	NUREG(s)- 1434 Only

Action 3.6.5.3.B	Drywell Isolation Valve[s]	NUREG(s)- 1434 Only
Action 3.6.5.3.B Bases	Drywell Isolation Valve[s]	NUREG(s)- 1434 Only
SR 3.6.5.3.3	Drywell Isolation Valv[s]	NUREG(s)- 1434 Only
SR 3.6.5.3.3 Bases	Drywell Isolation Valve[s]	NUREG(s)- 1434 Only

CEOG Review Information

CEOG-112

Originating Plant: Calvert Cliffs   Date Provided to OG: 18-Dec-96   Needed By: 01-Mar-97

Owners Group History:

Owners Group Resolution: Approved   Date: 18-Dec-96

TSTF Review Information

TSTF Received Date: 03-Jan-97   Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Applicable, accepts
BWOG - Applicable, accepts
BWROG - Applicable, accepts.

TSTF Resolution: Approved   Date: 06-Mar-97   TSTF- 196

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

INSERT

Equivalent isolation methods must be approved in accordance with appropriate American Society of Mechanical Engineers (ASME) / American National Standards Institute (ANSI) Codes.

TSTF-196

Table 3.3.17-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1
1.	Wide Range Neutron Flux	2	F
2.	RCS Hot Leg Temperature	2 per loop	F
3.	RCS Cold Leg Temperature	2 per loop	F
4.	RCS Pressure (Wide Range)	2	F
5.	Reactor Vessel Water Level	2	G
6.	Containment Sump Water Level (Wide Range)	2	F
7.	Containment Pressure (Wide Range)	2	F
8.	Containment Isolation Valve Position	2 per penetration flow path(a)(b)	F
9.	Containment Area Radiation (High Range)	2	G
10.	Containment Hydrogen Concentration	2	F
11.	Pressurizer Level	2	F
12.	Steam Generator Water Level	2 per SG	F
13.	Condensate Storage Tank Level	2	F
14.	Core Exit Temperature	2 independent sets of 5(c)	F
15.	Emergency Feedwater Flow	2	F

NOTE: Table 3.3.17-1 shall be amended for each unit as necessary to list all U.S. NRC Regulatory Guide 1.97, Type A instruments and all U.S. NRC Regulatory Guide 1.97, Category I, non-Type A instruments in accordance with the unit's U.S. NRC Regulatory Guide 1.97, Safety Evaluation Report.

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, ~~or~~ check valve with flow through the valve secured, or equivalent.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) The subcooling margin monitor takes the average of the five highest CETs for each of the ICCM trains.

TSTF-196

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

-----NOTES-----

1. Penetration flow paths [except for 48 inch purge valve penetration flow paths] may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for system(s) made inoperable by containment isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. --------NOTE-------- Only applicable to penetration flow paths with two containment isolation valves. --------------------- One or more penetration flow paths with one containment isolation valve inoperable (except for purge valve leakage not within limit).	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. equivalent AND	4 hours
		(continued)

TSTF-196

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 --------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. --------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. --------------------- One or more penetration flow paths with two containment isolation valves inoperable (except for purge valve leakage not within limit).	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange, or equivalent.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. --------NOTE--------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. --------------------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange ~~.~~ , or equivalent	[4] hours
	AND		
	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
[D. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	D.1	Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange] , or equivalent.	24 hours]
	AND		

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
[SR 3.6.3.1	Verify each [48] inch purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition D of the LCO.	31 days]
SR 3.6.3.2	Verify each [8] inch purge valve is closed except when the [8] inch purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.	31 days
SR 3.6.3.3	--------------------NOTE------------------ Valves and blind flanges, or equivalent, in high radiation areas may be verified by use of administrative means. -- Verify each containment isolation manual valve and blind flange, or equivalent, that is located outside containment and is required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	31 days

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.6.3.4	-------------------NOTE------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. -- Verify each containment isolation manual valve and blind flange that is located inside containment and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	, or equivalent Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.5	Verify the isolation time of each power operated and each automatic containment isolation valve is within limits.	[In accordance with the Inservice Testing Program or 92 days]
SR 3.6.3.6	Perform leakage rate testing for containment purge valves with resilient seals.	184 days AND Within 92 days after opening the valve
SR 3.6.3.7	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	[18] months

(continued)

LCO

8. Containment Isolation Valve Position (continued)

penetrations with only one active PCIV having control room indication, Note (b) requires a single channel of valve position indication to be OPERABLE. This is sufficient to redundantly verify the isolation status of each isolable penetration via indicated status of the active valve, as applicable, and prior knowledge of passive valve or system boundary status. If a penetration flow path is isolated, position indication for the PCIV(s) in the associated penetration flow path is not needed to determine status. [Insert] Therefore, the position indication for valves in an isolated penetration flow path is not required to be OPERABLE. [For this plant, the PCIV position PAM instrumentation consists of the following:]

9. Containment Area Radiation (High Range)

Containment Area Radiation (High Range) instrumentation is provided to monitor the potential for significant radiation releases and to provide release assessment for use by operators in determining the need to invoke site emergency plans. [For this unit, the Containment Area Radiation instrumentation consists of the following:]

10. Containment Hydrogen Concentration

Containment Hydrogen Concentration instrumentation is provided to detect high hydrogen concentration conditions that represent a potential for containment breach. This variable is also important in verifying the adequacy of mitigating actions. [For this unit, the Containment Hydrogen Concentration instrumentation consists of the following:]

11. Pressurizer Level

Pressurizer Level instrumentation is used to determine whether to terminate safety injection (SI), if still in progress, or to reinitiate SI if it has been stopped. Knowledge of pressurizer water level is also

(continued)

BASES

(Or equivalent isolation methods)

BACKGROUND (continued)

2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks";

c. All equipment hatches are closed; and

[d. The pressurized sealing mechanism associated with each penetration, except as provided in LCO 3.6.[ ], is OPERABLE.]

Insert →

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a loss of coolant accident (LOCA), a steam line break, and a rod ejection accident (REA) (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or REA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of [0.25]% of containment air weight per day (Ref. 3). This leakage rate, used in the evaluation of offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J (Ref. 1), as L_a: the maximum allowable leakage rate at the calculated maximum peak containment pressure (P_a) resulting from the limiting DBA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be [0.25]% per day in the safety analysis at P_a = [53.9] psig (Ref. 3).

Satisfactory leakage rate test results are a requirement for the establishment of containment OPERABILITY.

The containment satisfies Criterion 3 of the NRC Policy Statement.

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.3 Containment Isolation Valves

BASES

BACKGROUND

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on an automatic isolation signal. These isolation devices consist of either passive devices or active (automatic) devices. Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, and closed systems are considered passive devices. Check valves, or other automatic valves designed to close following an accident without operator action, are considered active devices. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system. These barriers (typically containment isolation valves) make up the Containment Isolation System.

or equivalent isolation methods

Containment isolation occurs upon receipt of a high containment pressure or diverse containment isolation signal. The containment isolation signal closes automatic containment isolation valves in fluid penetrations not required for operation of engineered safeguard systems to prevent leakage of radioactive material. Upon actuation of high pressure injection, automatic containment valves also isolate systems not required for containment or Reactor Coolant System (RCS) heat removal. Other penetrations are isolated by the use of valves in the closed position or blind flanges. As a result, the containment isolation valves (and blind flanges) help ensure that the containment atmosphere will be isolated in the event of a release of radioactive material to containment atmosphere from the RCS following a Design Basis Accident (DBA).

or equivalent isolation methods

OPERABILITY of the containment isolation valves (and blind flanges) supports containment OPERABILITY during accident conditions.

(continued)

TSTF-196

BACKGROUND (continued)

The OPERABILITY requirements for containment isolation valves help ensure that containment is isolated within the time limits assumed in the safety analysis. Therefore, the OPERABILITY requirements provide assurance that the containment function assumed in the safety analysis will be maintained.

Insert →

The Reactor Building Purge System is part of the Reactor Building Ventilation System. The Purge System was designed for intermittent operation, providing a means of removing airborne radioactivity caused by minor leakage from the RCS prior to personnel entry into containment. The Containment Purge System consists of one [48] inch line for exhaust and one [48] inch line for supply, with supply and exhaust fans capable of purging the containment atmosphere at a rate of approximately [50,000] ft^3/min. This flow rate is sufficient to reduce the airborne radioactivity level within containment to levels defined in 10 CFR 20 (Ref. 1) for a 40 hour workweek within 2 hours of purge initiation during reactor operation. The containment purge supply and exhaust lines each contain two isolation valves that receive an isolation signal on a unit vent high radiation condition.

Failure of the purge valves to close following a design basis event would cause a significant increase in the radioactive release because of the large containment leakage path introduced by these [48] inch purge lines. Failure of the purge valves to close would result in leakage considerably in excess of the containment design leakage rate of [0.25]% of containment air weight per day (L_a) (Ref. 2). Because of their large size, the [48] inch purge valves in some units are not qualified for automatic closure from their open position under DBA conditions. Therefore, the [48] inch purge valves are maintained sealed closed (SR 3.6.3.1) in MODES 1, 2, 3, and 4 to ensure the containment boundary is maintained.

The [8 inch] containment minipurge valves operate to:

a. Reduce the concentration of noble gases within containment prior to and during personnel access; and

b. Equalize internal and external pressures.

Since the minipurge valves are designed to meet the requirements for automatic containment isolation valves,

(continued)

TSTF-196

BASES

APPLICABLE SAFETY ANALYSES (continued)

The purge valves may be unable to close in the environment following a LOCA. Therefore, each of the purge valves is required to remain sealed closed during MODES 1, 2, 3, and 4. In this case, the single-failure criterion remains applicable to the containment purge valves because of failure in the control circuit associated with each valve. Again, the purge system valve design prevents a single failure from compromising the containment boundary as long as the system is operated in accordance with the subject LCO.

The containment isolation valves satisfy Criterion 3 of the NRC Policy Statement.

LCO

Containment isolation valves form a part of the containment boundary. The containment isolation valve safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA.

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The [48] inch purge valves must be maintained sealed closed [or have blocks installed to prevent full opening]. [Blocked purge valves also actuate on an automatic signal.] The valves covered by this LCO are listed along with their associated stroke times in the FSAR (Ref. 4).

The normally closed isolation valves are considered OPERABLE when manual valves are closed, check valves have flow through the valve secured, blind flanges [handwritten insertion: or equivalent isolation methods] are in place, and closed systems are intact. These passive isolation valves/devices are those listed in Reference 5.

Purge valves with resilient seals must meet additional leakage rate requirements. The other containment isolation valve leakage rates are addressed by LCO 3.6.1, "Containment," as Type C testing.

This LCO provides assurance that the containment isolation valves and purge valves will perform their designated safety functions to minimize the loss of reactor coolant inventory and establish the containment boundary during accident

(continued)

TSTF-196

BASES

ACTIONS (continued)

into the applicable Conditions and Required Actions of LCO 3.6.1.

A.1 and A.2

In the event one containment isolation valve in one or more penetration flow paths is inoperable (except for purge valve leakage not within limit), the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within the 4 hour Completion Time. The specified time period is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4.

Or equivalent isolation method

For affected penetration flow paths that cannot be restored to OPERABLE status within the 4 hour Completion Time and that have been isolated in accordance with Required Action A.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification, through a system walkdown, that those isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous

(continued)

TSTF-196

ACTIONS

A.1 and A.2 (continued)

92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Condition A has been modified by a Note indicating this Condition is only applicable to those penetration flow paths with two containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides appropriate actions.

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows the devices to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is small.

B.1

With two containment isolation valves in one or more penetration flow paths inoperable (except for purge valve leakage not within limit), the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, ~~and~~ a blind flange, or equivalent isolation method. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are

(continued)

TSTF-196

ACTIONS

B.1 (continued)

operated under administrative controls and the probability of their misalignment is low.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.

C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange, [handwritten insert: or equivalent isolation method]. A check valve may not be used to isolate the affected penetration. Required Action C.1 must be completed within the [4] hour Completion Time. The specified time period is reasonable, considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4. In the event the affected penetration is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This periodic verification is necessary to assure leak tightness of containment and that containment penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative controls and the probability of their misalignment is low.

Condition C is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with only one containment isolation valve and a closed system. This Note is necessary since this Condition is

(continued)

ACTIONS

C.1 and C.2 (continued)

written to specifically address those penetration flow paths in a closed system.

(and equivalent isolation methods)

Required Action C.2 is modified by a Note that applies to valves, and blind flanges located in high radiation areas and allows these devices to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once verified to be in the proper position, is small.

D.1, D.2, and D.3

(or equivalent isolation method)

In the event one or more containment purge valves in one or more penetration flow paths are not within the purge valve leakage limits, purge valve leakage must be restored to within limits or the affected penetration flow path must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a [closed and de-activated automatic valve, closed manual valve, and blind flange]. A purge valve with resilient seals utilized to satisfy Required Action D.1 must have been demonstrated to meet the leakage requirements of SR 3.6.3.6. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist.

In accordance with Required Action D.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those isolation devices outside containment and potentially capable of being mispositioned are in the correct position. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if

(continued)

TSTF-196

BASES

SURVEILLANCE REQUIREMENTS

[SR 3.6.3.1 (continued)

sealed closed position during MODES 1, 2, 3, and 4. A containment purge valve that is sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or by removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leak tightness. The Frequency is a result of an NRC initiative, Generic Issue B-24 (Ref. 6), related to containment purge valve use during unit operations. In the event purge valve leakage requires entry into Condition D, the Surveillance permits opening one purge valve in a penetration flow path to perform repairs.]

SR 3.6.3.2

This SR ensures that the minipurge valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have leakage outside of limits. The SR is not required to be met when the minipurge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open. The minipurge valves are capable of closing in the environment following a LOCA. Therefore, these valves are allowed to be open for limited periods of time. The 31 day Frequency is consistent with other containment isolation valve requirements discussed in SR 3.6.3.3.

SR 3.6.3.3

(or equivalent isolation method)

This SR requires verification that each containment isolation manual valve, ~~and~~ blind flange located outside containment and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those containment isolation valves outside containment and capable

(continued)

TSTF-196

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.3 (continued)

of being mispositioned are in the correct position. Since verification of valve position for containment isolation valves outside containment is relatively easy, the 31 day Frequency is based on engineering judgment and was chosen to provide added assurance of the correct positions. The SR specifies that containment isolation valves open under administrative controls are not required to meet the SR during the time the valves are open.

The Note applies to valves, ~~and~~ or blind flanges, and equivalent isolation methods located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, and 4 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in the proper position, is low.

SR 3.6.3.4

This SR requires verification that each containment isolation manual valve ~~and~~, blind flange, and equivalent isolation method that is located inside containment and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the containment boundary is within design limits. For containment isolation valves inside containment, the Frequency of "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is appropriate, since these containment isolation valves are operated under administrative controls and the probability of their misalignment is low. The SR specifies that containment isolation valves open under administrative controls are not required to meet the SR during the time they are open.

The Note allows valves ~~and~~ or blind flanges and equivalent isolation methods located in high radiation areas to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the access to these areas is typically restricted during MODES 1, 2, 3, and 4 for ALARA reasons. Therefore, the

(continued)

TSTF-196

BACKGROUND (continued)

when containment closure is not required, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, containment closure is required; therefore, the door interlock mechanism may remain disabled, but one air lock door must always remain closed.

The requirements on containment penetration closure ensure that a release of fission product radioactivity within containment will be restricted from escaping to the environment. The closure restrictions are sufficient to restrict fission product radioactivity release from containment due to a fuel handling accident during refueling.

The Containment Purge and Exhaust System includes two subsystems. The normal subsystem includes a [42] inch purge penetration and a [42] inch exhaust penetration. The second subsystem, or minipurge system, includes an [8] inch purge penetration and an [8] inch exhaust penetration. During MODES 1, 2, 3, and 4, the two valves in each of the normal purge and exhaust penetrations are secured in the closed position. The two valves in each of the two minipurge penetrations can be opened intermittently but are closed automatically by the Engineered Safety Feature Actuation System (ESFAS). Neither of the subsystems is subject to a Specification in MODE 5.

In MODE 6, large air exchangers are necessary to conduct refueling operations. The normal [42] inch purge system is used for this purpose, and all four valves are closed on a reactor building (RB) high radiation signal in accordance with LCO 3.3.15, "Reactor Building (RB) Purge Isolation High Radiation.

The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side. 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 [in accordance with appropriate ASME/ANSI codes] and may include use of a material that can provide a temporary, atmospheric pressure ventilation barrier for the other containment penetrations during fuel movements (Ref. 1).

(continued)

TSTF-196

Table 3.3.3-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION E.1
1. Power Range Neutron Flux	2	F
2. Source Range Neutron Flux	2	F
3. Reactor Coolant System (RCS) Hot Leg Temperature	2 per loop	F
4. RCS Cold Leg Temperature	2 per loop	F
5. RCS Pressure (Wide Range)	2	F
6. Reactor Vessel Water Level	2	G
7. Containment Sump Water Level (Wide Range)	2	F
8. Containment Pressure (Wide Range)	2	F
9. Containment Isolation Valve Position	2 per penetration flow path(a)(b)	F
10. Containment Area Radiation (High Range)	2	G
11. Hydrogen Monitors	2	F
12. Pressurizer Level	2	F
13. Steam Generator Water Level (Wide Range)	2 per steam generator	F
14. Condensate Storage Tank Level	2	F
15. Core Exit Temperature - Quadrant [1]	2(c)	F
16. Core Exit Temperature - Quadrant [2]	2(c)	F
17. Core Exit Temperature - Quadrant [3]	2(c)	F
18. Core Exit Temperature - Quadrant [4]	2(c)	F
19. Auxiliary Feedwater Flow	2	F

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. or equivalent

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) A channel consists of two core exit thermocouples (CETs).

Reviewer's Note: Table 3.3.3-1 shall be amended for each unit as necessary to list:

(1) All Regulatory Guide 1.97, Type A instruments, and

(2) All Regulatory Guide 1.97, Category I, non-Type A instruments in accordance with the unit's Regulatory Guide 1.97, Safety Evaluation Report.

TSTF-196

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

-----NOTES-----

1. Penetration flow path(s) [except for [42] inch purge valve flow paths] may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. -----NOTE----- Only applicable to penetration flow paths with two containment isolation valves. ----- One or more penetration flow paths with one containment isolation valve inoperable [except for purge valve or shield building bypass leakage not within limit].	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. equivalent	4 hours
	AND		

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 --------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. ---------------------- One or more penetration flow paths with two containment isolation valves inoperable [except for purge valve or shield building bypass leakage not within limit].	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange, or equivalent.	1 hour

(continued)

TSTF-196

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ---------NOTE--------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. --------------------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. , or equivalent	[4] hours
	AND		
	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
[D. Shield building bypass leakage not within limit.	D.1	Restore leakage within limit.	4 hours]
[E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	E.1	Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, or blind flange]. , or equivalent	24 hours]
	AND		

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
[SR 3.6.3.1	Verify each [42] inch purge valve is sealed closed, except for one purge valve in a penetration flow path while in Condition E of this LCO.	31 days]
[SR 3.6.3.2	Verify each [8] inch purge valve is closed, except when the [8] inch containment purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.	31 days]
SR 3.6.3.3	-------------------NOTE------------------- Valves and blind flanges, or equivalent in high radiation areas may be verified by use of administrative controls. -- Verify each containment isolation manual valve and blind flange, or equivalent that is located outside containment and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	31 days

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.6.3.4	-------------------NOTE------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. --- Verify each containment isolation manual valve and blind flange that is located inside containment and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.5	Verify the isolation time of each power operated and each automatic containment isolation valve is within limits.	[In accordance with the Inservice Testing Program or 92 days]
[SR 3.6.3.6	Cycle each weight or spring loaded check valve testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.	92 days]

, or equivalent

(continued)

TSTF-196

LCO (continued)

8. Containment Pressure (Wide Range)

Containment Pressure (Wide Range) is provided for verification of RCS and containment OPERABILITY.

Containment pressure is used to verify closure of main steam isolation valves (MSIVs), and containment spray Phase B isolation when High-3 containment pressure is reached.

9. Containment Isolation Valve Position

CIV Position is provided for verification of Containment OPERABILITY, and Phase A and Phase B isolation.

When used to verify Phase A and Phase B isolation, the important information is the isolation status of the containment penetrations. The LCO requires one channel of valve position indication in the control room to be OPERABLE for each active CIV in a containment penetration flow path, i.e., two total channels of CIV position indication for a penetration flow path with two active valves. For containment penetrations with only one active CIV having control room indication, Note (b) requires a single channel of valve position indication to be OPERABLE. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active valve, as applicable, and prior knowledge of a passive valve, or via system boundary status. If a normally active CIV is known to be closed and deactivated, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE. Note (a) to the Required Channels states that the Function is not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

or equivalent isolation method

Insert →

(continued)

TSTF-196

BASES

BACKGROUND (continued)

a. All penetrations required to be closed during accident conditions are either:

1. capable of being closed by an OPERABLE automatic containment isolation system, or (or equivalent isolation methods)

2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks";

c. All equipment hatches are closed; and

[d. The pressurized sealing mechanism associated with a penetration is operable, except as provided in LCO 3.6.[ ].]

Insert →

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rates.

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a loss of coolant accident (LOCA), a steam line break, and a rod ejection accident (REA) (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or REA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of [0.1]% of containment air weight per day (Ref 3). This leakage rate, used in the evaluation of offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting DBA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be

(continued)

TSTF-196

BASES

(or equivalent isolation methods)

BACKGROUND (continued)

2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks";

c. All equipment hatches are closed; and

[d. The pressurized sealing mechanism associated with a penetration is OPERABLE, except as provided in LCO 3.6.[ ].]

(Insert)

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a loss of coolant accident (LOCA), a steam line break, and a rod ejection accident (REA) (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or REA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of [0.1]% of containment air weight per day (Ref. 3). This leakage rate, used to evaluate offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting DBA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be [0.1]% per day in the safety analysis at P_a = [44.1] psig (Ref. 3).

Satisfactory leakage rate test results are a requirement for the establishment of containment OPERABILITY.

(continued)

TSTF-196

BASES

BACKGROUND (continued)

2. closed by manual valves, blind flanges, (or equivalent isolation methods) or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks";

c. All equipment hatches are closed; and

[d. The pressurized sealing mechanism associated with a penetration is OPERABLE, except as provided in LCO 3.6.[ ].]

Insert →

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a loss of coolant accident (LOCA), a steam line break, and a rod ejection accident (REA) (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or REA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of [0.1]% of containment air weight per day (Ref. 3). This leakage rate, used to evaluate offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting DBA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be [0.1]% per day in the safety analyses at P_a = [40.4] psig (Ref. 3).

Satisfactory leakage rate test results are a requirement for the establishment of containment OPERABILITY.

(continued)

TSTF-196

BACKGROUND (continued)

a. All penetrations required to be closed during accident conditions are either:

1. capable of being closed by an OPERABLE automatic containment isolation system, or

2. closed by manual valves, blind flanges, or equivalent isolation methods, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks";

c. All equipment hatches are closed; and

[d. The pressurized sealing mechanism associated with a penetration is OPERABLE, except as provided in LCO 3.6.[ ].]

Insert →

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a loss of coolant accident (LOCA), a steam line break, and a rod ejection accident (REA) (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or REA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of [0.1]% of containment air weight per day (Ref. 3). This leakage rate, used in the evaluation of offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting DBA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.3 Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)

BASES

BACKGROUND

Or equivalent isolation methods

Insert

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on a containment isolation signal. These isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system. These barriers (typically containment isolation valves) make up the Containment Isolation System.

Automatic isolation signals are produced during accident conditions. Containment Phase "A" isolation occurs upon receipt of a safety injection signal. The Phase "A" isolation signal isolates nonessential process lines in order to minimize leakage of fission product radioactivity. Containment Phase "B" isolation occurs upon receipt of a containment pressure High-High signal and isolates the remaining process lines, except systems required for accident mitigation. In addition to the isolation signals listed above, the purge and exhaust valves receive an isolation signal on a containment high radiation condition. As a result, the containment isolation valves (and blind flanges) help ensure that the containment atmosphere will be isolated from the environment in the event of a release of fission product radioactivity to the containment atmosphere as a result of a Design Basis Accident (DBA).

The OPERABILITY requirements for containment isolation valves help ensure that containment is isolated within the

(continued)

TSTF-196

BASES (continued)

LCO

Containment isolation valves form a part of the containment boundary. The containment isolation valves' safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA.

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The [42] inch purge valves must be maintained sealed closed [or have blocks installed to prevent full opening]. [Blocked purge valves also actuate on an automatic signal.] The valves covered by this LCO are listed along with their associated stroke times in the FSAR (Ref. 2).

The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, blind flanges are in place, and closed systems are intact. These passive isolation valves/devices are those listed in Reference 1.

or equivalent isolation methods

Purge valves with resilient seals [and secondary containment bypass valves] must meet additional leakage rate requirements. The other containment isolation valve leakage rates are addressed by LCO 3.6.1, "Containment," as Type C testing.

This LCO provides assurance that the containment isolation valves and purge valves will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment isolation valves are not required to be OPERABLE in MODE 5. The requirements for containment isolation valves during MODE 6 are addressed in LCO 3.9.4, "Containment Penetrations."

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

or equivalent isolation method

failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within 4 hours. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4.

For affected penetration flow paths that cannot be restored to OPERABLE status within the 4 hour Completion Time and that have been isolated in accordance with Required Action A.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification, through a system walkdown, that those isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Condition A has been modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides the appropriate actions.

(continued)

TSTF-196

BASES

ACTIONS

A.1 and A.2 (continued)

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position, is small.

B.1

With two containment isolation valves in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange, [or equivalent isolation method]. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative control and the probability of their misalignment is low.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.

(continued)

TSTF-196

BASES

ACTIONS (continued)

C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve flow path must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange, or equivalent isolation method. A check valve may not be used to isolate the affected penetration flow path. Required Action C.1 must be completed within the [4] hour Completion Time. The specified time period is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of maintaining containment integrity during MODES 1, 2, 3, and 4. In the event the affected penetration flow path is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This periodic verification is necessary to assure leak tightness of containment and that containment penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration flow path is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

Condition C is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with only one containment isolation valve and a closed system. This Note is necessary since this Condition is written to specifically address those penetration flow paths in a closed system.

Required Action C.2 is modified by a Note that applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

(continued)

TSTF-196

BASES

ACTIONS (continued)

[D.1

With the shield building bypass leakage rate not within limit, the assumptions of the safety analyses are not met. Therefore, the leakage must be restored to within limit within 4 hours. Restoration can be accomplished by isolating the penetration(s) that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration(s) and the relative importance of secondary containment bypass leakage to the overall containment function.]

or equivalent isolation method

[E.1, E.2, and E.3

In the event one or more containment purge valves in one or more penetration flow paths are not within the purge valve leakage limits, purge valve leakage must be restored to within limits, or the affected penetration flow path must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a [closed and de-activated automatic valve, closed manual valve, or blind flange]. A purge valve with resilient seals utilized to satisfy Required Action E.1 must have been demonstrated to meet the leakage requirements of SR 3.6.3.7. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist.

In accordance with Required Action E.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being

(continued)

TSTF-196

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.3

or equivalent isolation method

This SR requires verification that each containment isolation manual valve, and blind flange located outside containment and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those containment isolation valves outside containment and capable of being mispositioned are in the correct position. Since verification of valve position for containment isolation valves outside containment is relatively easy, the 31 day Frequency is based on engineering judgment and was chosen to provide added assurance of the correct positions. The SR specifies that containment isolation valves that are open under administrative controls are not required to meet the SR during the time the valves are open.

or equivalent isolation methods

The Note applies to valves, and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3 and 4 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in the proper position, is small.

or equivalent isolation method

SR 3.6.3.4

This SR requires verification that each containment isolation manual valve, and blind flange located inside containment and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. For containment isolation valves inside containment, the Frequency of "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is appropriate since these containment isolation valves are operated under

(continued)

TSTF-196

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.11 (continued)

maximum pathway leakage (leakage through the worse of the two isolation valves) unless the penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. This method of quantifying maximum pathway leakage is only to be used for this SR (i.e., Appendix J maximum pathway leakage limits are to be quantified in accordance with Appendix J). The Frequency is required by 10 CFR 50, Appendix J, as modified by approved exemptions (and therefore, the Frequency extensions of SR 3.0.2 may not be applied), since the testing is an Appendix J, Type C test. This SR simply imposes additional acceptance criteria.

or equivalent isolation method

[By pass leakage is considered part of L_a. [Reviewer's Note: Unless specifically exempted].]

REFERENCES

1. FSAR, Section [15].
2. FSAR, Section [6.2].
3. Generic Issue B-20, "Containment Leakage Due to Seal Deterioration."
4. Generic Issue B-24.

TSTF-196

BASES

BACKGROUND (continued)

must be isolated on at least one side. 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 [in accordance with appropriate ASME/ANSI Codes] and may include use of a material that can provide a temporary, atmospheric pressure, ventilation barrier for the other containment penetrations during fuel movements (Ref. 1).

APPLICABLE SAFETY ANALYSES

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident. The fuel handling accident is a postulated event that involves damage to irradiated fuel (Ref. 2). Fuel handling accidents, analyzed in Reference 3, include dropping a single irradiated fuel assembly and handling tool or a heavy object onto other irradiated fuel assemblies. The requirements of LCO 3.9.7, "Refueling Cavity Water Level," and the minimum decay time of 100 hours prior to CORE ALTERATIONS ensure that the release of fission product radioactivity, subsequent to a fuel handling accident, results in doses that are well within the guideline values specified in 10 CFR 100. Standard Review Plan, Section 15.7.4, Rev. 1 (Ref. 3), defines "well within" 10 CFR 100 to be 25% or less of the 10 CFR 100 values. The acceptance limits for offsite radiation exposure will be 25% of 10 CFR 100 values or the NRC staff approved licensing basis (e.g., a specified fraction of 10 CFR 100 limits).

Containment penetrations satisfy Criterion 3 of the NRC Policy Statement.

LCO

This LCO limits the consequences of a fuel handling accident in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the outside atmosphere to be closed except for the OPERABLE containment purge and exhaust penetrations. For the OPERABLE containment purge and exhaust penetrations, this LCO ensures that these penetrations are isolable by the Containment Purge and Exhaust Isolation System. The OPERABILITY requirements for this LCO ensure that the automatic purge and exhaust valve

(continued)

TSTF-196

3.3 INSTRUMENTATION

3.3.8 Containment Purge Isolation Signal (CPIS) (Digital)

LCO 3.3.8 One CPIS channel shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

-----------------------------NOTE-----------------------------
Only required when the penetration is not isolated by at least one closed and de-activated automatic valve, closed manual valve, or blind flange, or equivalent
----

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. CPIS Manual Trip, Actuation Logic, or one or more required channels of radiation monitors inoperable in MODES 1, 2, 3, and 4.	A.1	Enter applicable Conditions and Required Actions for affected valves of LCO 3.6.3, "Containment Isolation Valves," made inoperable by CPIS instrumentation.	Immediately
B. Required Action and associated Completion Time not met in MODE 1, 2, 3, or 4.	B.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	B.2	Be in MODE 5.	36 hours

(continued)

TSTF-196

Table 3.3.11-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. [Wide Range] Neutron Flux	2	F
2. Reactor Coolant System Hot Leg Temperature	2 per loop	F
3. Reactor Coolant System Cold Leg Temperature	2 per loop	F
4. Reactor Coolant System Pressure (wide range)	2	F
5. Reactor Vessel Water Level	2	[G]
6. Containment Sump Water Level (wide range)	2	F
7. Containment Pressure (wide range)	2	F
8. Containment Isolation Valve Position	2 per penetration flow path(a)(b)	F
9. Containment Area Radiation (high range)	2	[G]
10. Containment Hydrogen Monitors	2	F
11. Pressurizer Level	2	F
12. Steam Generator Water Level (wide range)	2 per steam generator	F
13. Condensate Storage Tank Level	2	F
14. Core Exit Temperature – Quadrant [1]	2(c)	F
15. Core Exit Temperature – Quadrant [2]	2(c)	F
16. Core Exit Temperature – Quadrant [3]	2(c)	F
17. Core Exit Temperature – Quadrant [4]	2(c)	F
18. Emergency Feedwater Flow	2	F

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. (or equivalent)

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) A channel consists of two or more core exit thermocouples.

Note: Table 3.3.11-1 shall be amended for each unit as necessary to list:

(1) all Regulatory Guide 1.97, Type A instruments, and
(2) all Regulatory Guide 1.97, Category I, non-Type A instruments specified in the unit's Regulatory Guide 1.97, Safety Evaluation Report.

TSTF-196

Table 3.3.11-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1.	[Logarithmic] Neutron Flux	2	F
2.	Reactor Coolant System Hot Leg Temperature	2 per loop	F
3.	Reactor Coolant System Cold Leg Temperature	2 per loop	F
4.	Reactor Coolant System Pressure (wide range)	2	F
5.	Reactor Vessel Water Level	2	[G]
6.	Containment Sump Water Level (wide range)	2	F
7.	Containment Pressure (wide range)	2	F
8.	Containment Isolation Valve Position	2 per penetration flow path(a)(b)	F
9.	Containment Area Radiation (high range)	2	[G]
10.	Containment Hydrogen Monitors	2	F
11.	Pressurizer Level	2	F
12.	Steam Generator Water Level (wide range)	2 per steam generator	F
13.	Condensate Storage Tank Level	2(c)	F
14.	Core Exit Temperature – Quadrant [1]	2(c)	F
15.	Core Exit Temperature – Quadrant [2]	2(c)	F
16.	Core Exit Temperature – Quadrant [3]	2(c)	F
17.	Core Exit Temperature – Quadrant [4]	2(c)	F
18.	Auxiliary Feedwater Flow	2	F

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or equivalent, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) A channel consists of two or more core exit thermocouples.

Note: Table 3.3.11-1 shall be amended for each unit as necessary to list:

(1) all Regulatory Guide 1.97, Type A instruments, and
(2) all Regulatory Guide 1.97, Category I, non-Type A instruments specified in the unit's Regulatory Guide 1.97, Safety Evaluation Report.

TSTF-196

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves (Atmospheric and Dual)

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

-------------------------------------NOTES-------------------------------------

1. Penetration flow paths [except for [42] inch purge valve penetration flow paths] may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for system(s) made inoperable by containment isolation valves.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. --------------------- One or more penetration flow paths with one containment isolation valve inoperable [except for purge valve leakage and shield building bypass leakage not within limit].	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. equivalent	4 hours
	AND		
			(continued)

TSTF-196

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	---------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------------------	
		Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. --------------------- One or more penetration flow paths with two containment isolation valves inoperable [except for purge valve leakage and shield building bypass leakage not within limit].	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange, or equivalent.	1 hour

(continued)

TSTF-196

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ---------NOTE--------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. --------------------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange, or equivalent.	[4] hours
	AND		
	C.2	---------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
[D. Secondary containment bypass leakage not within limit.	D.1	Restore leakage within limit.	4 hours]
E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	E.1	Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve with resilient seals, closed manual valve with resilient seals, ~~or~~ blind flange or equivalent].	24 hours
	AND		

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
[SR 3.6.3.1	Verify each [42] inch purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition E of this LCO.	31 days]
SR 3.6.3.2	Verify each [8] inch purge valve is closed except when the [8] inch purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.	31 days
SR 3.6.3.3	-------------------NOTE------------------- Valves and blind flanges, or equivalent in high radiation areas may be verified by use of administrative means. --- Verify each containment isolation manual valve and blind flange, or equivalent that is located outside containment and is required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	31 days

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.6.3.4	-------------------NOTE------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. --- Verify each containment isolation manual valve and blind flange that is located inside containment and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls. [handwritten insertion: ", or equivalent"]	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.5	Verify the isolation time of each power operated and each automatic containment isolation valve is within limits.	[In accordance with the Inservice Testing Program or 92 days]
SR 3.6.3.6	Perform leakage rate testing for containment purge valves with resilient seals.	184 days AND Within 92 days after opening the valve
SR 3.6.3.7	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	[18] months

(continued)

BASES

LCO

a. <u>Manual Trip</u> (continued)

manual channel of CPIS is required during CORE ALTERATIONS and movement of irradiated fuel assemblies, since there are additional means of closing the containment purge valves in the event of a channel failure.

b. <u>Airborne Radiation and Containment Area Radiation</u>

The LCO on the radiation channels requires that each channel be OPERABLE for each Actuation Logic channel, since they are not totally redundant to each other.

The trip setpoint of twice background is selected to allow detection of small deviations from normal. The absolute value of the trip setpoint in MODES 5 and 6 differs from the setpoint in MODES 1, 2, 3, and 4 so that a fuel handling accident can be detected in the lower background radiation expected in these MODES.

c. <u>Actuation Logic</u>

One channel of Actuation Logic is required, since the valves can be shut independently of the CPIS signal either manually from the control room or using either the SIAS or CIAS push button.

APPLICABILITY

In MODES 1, 2, 3, and 4, the minipurge valves may be open. In the MODES, it is necessary to ensure the valves will shut in the event of a primary leak in containment whenever any of the containment purge valves are open.

With the purge valves open during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, there is the possibility of a fuel handling accident requiring CPIS on high radiation in containment.

The APPLICABILITY is modified by a Note, which states that the CPIS Specification is only required when the penetration is not isolated by at least one closed and de-activated automatic valve, closed manual valve, or blind flange.

Insert → or equivalent isolation method

(continued)

TSTF-196

BASES

LCO

8. Containment Isolation Valve Position (continued)

the containment penetration. The LCO requires one channel of valve position indication in the control room to be OPERABLE for each active PCIV in a containment penetration flow path, i.e., two total channels of PCIV position indication for a penetration flow path with two active valves. For containment penetrations with only one active PCIV having control room indication, Note (b) requires a single channel of valve position indication to be OPERABLE. This is sufficient to redundantly verify the isolation status of each isolable penetration via indicated status of the active valve, as applicable, and prior knowledge of passive valve or system boundary status. If a penetration flow path is isolated, position indication for the PCIV(s) in the associated penetration flow path is not needed to determine status. [Insert] ~~Therefore, the position indication for valves in an isolated penetration flow path is not required to be OPERABLE.~~

[For this unit, the PCIV position PAM instrumentation consists of the following:]

9. Containment Area Radiation (high range)

Containment Area Radiation is provided to monitor for the potential of significant radiation releases and to provide release assessment for use by operators in determining the need to invoke site emergency plans.

[For this unit, Containment Area Radiation instrumentation consists of the following:]

10. Containment Hydrogen Monitors

Containment Hydrogen Monitors are provided to detect high hydrogen concentration conditions that represent a potential for containment breach. This variable is also important in verifying the adequacy of mitigating actions.

[For this unit, Containment Hydrogen instrumentation consists of the following:]

(continued)

LCO

8. Containment Isolation Valve Position (continued)

sufficient to redundantly verify the isolation status of each isolable penetration via indicated status of the active valve, as applicable, and prior knowledge of passive valve or system boundary status. If a penetration flow path is isolated, position indication for the PCIV(s) in the associated penetration flow path is not needed to determine status. Insert Therefore, the position indication for valves in an isolated penetration flow path is not required to be OPERABLE.

[For this unit, the PCIV position PAM instrumentation consists of the following:]

9. Containment Area Radiation (high range)

Containment Area Radiation is provided to monitor for the potential of significant radiation releases and to provide release assessment for use by operators in determining the need to invoke site emergency plans.

[For this unit, Containment Area Radiation instrumentation consists of the following:]

10. Containment Hydrogen Monitors

Containment Hydrogen Monitors are provided to detect high hydrogen concentration conditions that represent a potential for containment breach. This variable is also important in verifying the adequacy of mitigating actions.

[For this unit, Containment Hydrogen instrumentation consists of the following:]

11. Pressurizer Level

Pressurizer Level is used to determine whether to terminate safety injection (SI), if still in progress, or to reinitiate SI if it has been stopped. Knowledge of pressurizer water level is also used to verify the

(continued)

TSTF-196

BASES

(or equivalent isolation methods)

BACKGROUND (continued)

2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks";

c. All equipment hatches are closed; and

[d. The pressurized sealing mechanism associated with a penetration, except as provided in LCO 3.6.[ ], is OPERABLE.]

Insert →

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident, a main steam line break (MSLB), and a control element assembly ejection accident (Ref. 2). In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of [0.10]% of containment air weight per day (Ref. 3). This leakage rate is defined in 10 CFR 50, Appendix J (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated maximum peak containment pressure (P_a) of [55.7] psig, which results from the limiting DBA, which is a design basis MSLB (Ref. 2).

Satisfactory leakage rate test results are a requirement for the establishment of containment OPERABILITY.

The containment satisfies Criterion 3 of the NRC Policy Statement.

LCO

Containment OPERABILITY is maintained by limiting leakage to $\leq 1.0\ L_a$, except prior to the first startup after performing a required 10 CFR 50, Appendix J, leakage test. At this

(continued)

BACKGROUND (continued)

The isolation devices for the penetrations in the containment boundary are a part of the containment leak tight barrier. To maintain this leak tight barrier:

a. All penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE automatic containment isolation system, or

   2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

   (or equivalent isolation methods)

b. Each air lock is OPERABLE except as provided in LCO 3.6.2, "Containment Air Locks";

c. All equipment hatches are closed; and

[d. The pressurized sealing mechanism associated with a penetration, except as provided in LCO 3.6.[ ], is OPERABLE.]

(Insert)

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident, a main steam line break (MSLB), and a control element assembly ejection accident (Ref. 2). In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of [0.50]% of containment air weight per day (Ref. 3). This leakage rate is defined in 10 CFR 50, Appendix J (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated maximum peak containment pressure (P_a) of [42.3] psig, which results from the limiting DBA, which is a 75% RTP MSLB (Ref. 2).

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.3 Containment Isolation Valves (Atmospheric and Dual)

BASES

BACKGROUND

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on an automatic isolation signal. These isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analysis. One of these barriers may be a closed system.

, or equivalent isolation methods

Containment isolation occurs upon receipt of a high containment pressure signal or a low Reactor Coolant System (RCS) pressure signal. The containment isolation signal closes automatic containment isolation valves in fluid penetrations not required for operation of Engineered Safety Feature systems in order to prevent leakage of radioactive material. Upon actuation of safety injection, automatic containment isolation valves also isolate systems not required for containment or RCS heat removal. Other penetrations are isolated by the use of valves in the closed position, or blind flanges. As a result, the containment isolation valves (and blind flanges) help ensure that the containment atmosphere will be isolated in the event of a release of radioactive material to containment atmosphere from the RCS following a Design Basis Accident (DBA).

or equivalent isolation methods

The OPERABILITY requirements for containment isolation valves help ensure that containment is isolated within the time limits assumed in the safety analysis. Therefore, the OPERABILITY requirements provide assurance that the containment function assumed in the accident analysis will be maintained.

Insert →

(continued)

TSTF-196

LCO

Containment isolation valves form a part of the containment boundary. The containment isolation valve safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA.

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The purge valves must be maintained sealed closed [or have blocks installed to prevent full opening]. [Blocked purge valves also actuate on an automatic signal.] The valves covered by this LCO are listed with their associated stroke times in the FSAR (Ref. 1).

The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, blind flanges [or equivalent isolation methods] are in place, and closed systems are intact. These passive isolation valves or devices are those listed in Reference 2.

Purge valves with resilient seals [and secondary containment bypass valves] must meet additional leakage rate requirements. The other containment isolation valve leakage rates are addressed by LCO 3.6.1, "Containment," as Type C testing.

This LCO provides assurance that the containment isolation valves and purge valves will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment isolation valves are not required to be OPERABLE in MODE 5. The requirements for containment isolation valves during MODE 6 are addressed in LCO 3.9.3, "Containment Penetrations."

(continued)

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow paths, except for [42] inch purge valve penetration flow paths, to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. Due to the size of the containment purge line penetration and the fact that those penetrations exhaust directly from the containment atmosphere to the environment, these valves may not be opened under administrative controls.

A second Note has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable containment isolation valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable containment isolation valves are governed by subsequent Condition entry and application of associated Required Actions.

The ACTIONS are further modified by a third Note, which ensures that appropriate remedial actions are taken, if necessary, if the affected systems are rendered inoperable by an inoperable containment isolation valve.

A fourth Note has been added that requires entry into the applicable Conditions and Required Actions of LCO 3.6.1 when leakage results in exceeding the overall containment leakage limit.

<u>A.1 and A.2</u>

In the event one containment isolation valve in one or more penetration flow paths is inoperable [except for purge valve leakage and shield building bypass leakage not within limit], the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind

(continued)

ACTIONS

A.1 and A.2 (continued)

, a blind flange or equivalent isolation method

flange, and a check valve with flow through the valve secured. For penetrations isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within the 4 hour Completion Time. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4.

For affected penetration flow paths that cannot be restored to OPERABLE status within the 4 hour Completion Time and that have been isolated in accordance with Required Action A.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification, through a system walkdown, that those isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Condition A has been modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides appropriate actions.

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative

(continued)

TSTF-196

ACTIONS

A.1 and A.2 (continued)

means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is small.

B.1

With two containment isolation valves in one or more penetration flow paths inoperable [except for purge valve leakage and shield building bypass leakage not within limit], the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange (Or equivalent isolation method). The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative controls and the probability of their misalignment is low.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.

C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve must be restored to OPERABLE status or the affected penetration flow

(continued)

TSTF-196

BASES

ACTIONS

C.1 and C.2 (continued)

path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration. Required Action C.1 must be completed within the [4] hour Completion Time. The specified time period is reasonable, considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4. In the event the affected penetration is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This is necessary to assure leak tightness of containment and that containment penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration flow path is isolated is appropriate considering the valves are operated under administrative controls and the probability of their misalignment is low.

or equivalent isolation method

Condition C is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with only one containment isolation valve and a closed system. This Note is necessary since this Condition is written to specifically address those penetration flow paths in a closed system.

Required Action C.2 is modified by a Note that applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

and equivalent isolation methods

[D.1

With the secondary containment bypass leakage rate not within limit, the assumptions of the safety analysis are not]

(continued)

BASES

{or equivalent isolation method}

ACTIONS

D.1 (continued)

met. Therefore, the leakage must be restored to within limit within 4 hours. Restoration can be accomplished by isolating the penetration(s) that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated, the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration(s) and the relative importance of secondary containment bypass leakage to the overall containment function.

E.1, E.2, and E.3

In the event one or more containment purge valves in one or more penetration flow paths are not within the purge valve leakage limits, purge valve leakage must be restored to within limits, or the affected penetration must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a [closed and de-activated automatic valve with resilient seals, a closed manual valve with resilient seals, or a blind flange]. A purge valve with resilient seals utilized to satisfy Required Action E.1 must have been demonstrated to meet the leakage requirements of SR 3.6.3.6. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist.

, or an equivalent isolation method

In accordance with Required Action E.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those

(continued)

TSTF-196

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.1 (continued)

opening of a containment purge valve. Detailed analysis of the purge valves failed to conclusively demonstrate their ability to close during a LOCA in time to limit offsite doses. Therefore, these valves are required to be in the sealed closed position during MODES 1, 2, 3, and 4. A containment purge valve that is sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or by removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leak tightness. The Frequency is a result of an NRC initiative, Generic Issue B-24 (Ref. 4), related to containment purge valve use during unit operations. This SR is not required to be met while in Condition E of this LCO. This is reasonable since the penetration flow path would be isolated.

SR 3.6.3.2

This SR ensures that the minipurge valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have leakage outside of limits. The SR is not required to be met when the purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open. The minipurge valves are capable of closing in the environment following a LOCA. Therefore, these valves are allowed to be open for limited periods of time. The 31 day Frequency is consistent with other containment isolation valve requirements discussed in SR 3.6.3.3.

SR 3.6.3.3

or equivalent isolation method

This SR requires verification that each containment isolation manual valve, ~~and~~ blind flange located outside containment and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.3.3 (continued)

containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those containment isolation valves outside containment and capable of being mispositioned are in the correct position. Since verification of valve position for containment isolation valves outside containment is relatively easy, the 31 day Frequency is based on engineering judgment and was chosen to provide added assurance of the correct positions. Containment isolation valves that are open under administrative controls are not required to meet the SR during the time the valves are open.

The Note applies to valves, and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, 4 and for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in the proper position, is small.

or equivalent isolation methods

SR 3.6.3.4

or equivalent isolation method

This SR requires verification that each containment isolation manual valve, and blind flange located inside containment and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the containment boundary is within design limits. For containment isolation valves inside containment, the Frequency of "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is appropriate, since these containment isolation valves are operated under administrative controls and the probability of their misalignment is low. Containment isolation valves that are open under administrative controls are not required to meet the SR during the time that they are open.

The Note allows valves, and blind flanges located in high radiation areas to be verified closed by use of administrative means. Allowing verification by

(continued)

TSTF-196

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.9 (continued)

equal to the specified leakage rate. This provides assurance that the assumptions in the safety analysis are met. The leakage rate of each bypass leakage path is assumed to be the maximum pathway leakage (leakage through the worse of the two isolation valves) unless the penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. This method of quantifying maximum pathway leakage is only to be used for this SR (i.e., Appendix J maximum pathway leakage limits are to be quantified in accordance with Appendix J). The Frequency is required by 10 CFR 50, Appendix J, as modified by approved exemptions (and therefore, the Frequency extensions of SR 3.0.2 may not be applied), since the testing is an Appendix J, Type C test. This SR simply imposes additional acceptance criteria.

or equivalent isolation method

[Bypass leakage is considered part of L_a. [Reviewer's Note: Unless specifically exempted].]

REFERENCES

1. FSAR, Section [ ].

2. FSAR, Section [ ].

3. Generic Issue B-20.

4. Generic Issue B-24.

5. 10 CFR 50, Appendix J.

TSTF-196

BASES

BACKGROUND (continued)

must be isolated on at least one side. 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 [in accordance with appropriate ASME/ANSI Codes] and may include use of a material that can provide a temporary, atmospheric pressure ventilation barrier for the other containment penetrations during fuel movements (Ref. 1).

APPLICABLE SAFETY ANALYSES

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident. The fuel handling accident is a postulated event that involves damage to irradiated fuel (Ref. 2). Fuel handling accidents, analyzed in Reference 3, include dropping a single irradiated fuel assembly and handling tool or a heavy object onto other irradiated fuel assemblies. The requirements of LCO 3.9.6, "Refueling Water Level," and the minimum decay time of [72] hours prior to CORE ALTERATIONS ensure that the release of fission product radioactivity, subsequent to a fuel handling accident, results in doses that are well within the guideline values specified in 10 CFR 100. The acceptance limits for offsite radiation exposure are contained in Standard Review Plan Section 15.7.4, Rev. 1 (Ref. 2), which defines "well within" 10 CFR 100 to be 25% or less of the 10 CFR 100 values.

Containment penetrations satisfy Criterion 3 of the NRC Policy Statement.

LCO

This LCO limits the consequences of a fuel handling accident in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the outside atmosphere to be closed except for the OPERABLE containment purge and exhaust penetrations. For the OPERABLE containment purge and exhaust penetrations, this LCO ensures that these penetrations are isolable by the Containment Purge and Exhaust Isolation System. The OPERABILITY requirements for this LCO ensure that the automatic purge and exhaust valve closure times specified in the FSAR can be achieved and therefore meet the assumptions used in the safety analysis

(continued)

TSTF-196

Table 3.3.3.1-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION E.1
1. Reactor Steam Dome Pressure	2	F
2. Reactor Vessel Water Level	2	F
3. Suppression Pool Water Level	2	F
4. Drywell Pressure	2	F
5. Primary Containment Area Radiation	2	[G]
[6. Drywell Sump Level	2	F
7. Drywell Drain Sump Level	2	F]
8. PCIV Position	2 per penetration flow path[(a)(b)]	F
9. Wide Range Neutron Flux	2	F
10. Drywell H_2 & O_2 Analyzer	2	F
11. Containment H_2 & O_2 Analyzer	2	F
12. Primary Containment Pressure	2	F
13. Suppression Pool Water Temperature	2[(c)]	F

(a) Not required for isolation valves whose associated penetration flow path is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. Or equivalent

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) Monitoring each [relief valve discharge location].

Reviewer Note: Table 3.3.3.1-1 shall be amended for each plant as necessary to list:

1. All Regulatory Guide 1.97, Type A instruments, and
2. All Regulatory Guide 1.97, Category 1, non-Type A instruments specified in the plant's Regulatory Guide 1.97, Safety Evaluation Report.

TSTF-196

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

ACTIONS

-----NOTES-----

1. Penetration flow paths [except for purge valve penetration flow paths] may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs. ---------------------- One or more penetration flow paths with one PCIV inoperable [except for purge valve leakage not within limit].	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. (equivalent)	4 hours except for main steam line AND 8 hours for main steam line
	AND		
			(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs. --------------------- One or more penetration flow paths with two PCIVs inoperable [except for purge valve leakage not within limit].	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange, or equivalent.	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one PCIV. --------------------- One or more penetration flow paths with one PCIV inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange, or equivalent.	[4] hours except for excess flow check valves (EFCVs) AND 12 hours [for EFCVs]
	AND		
	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
[D. Secondary containment bypass leakage rate not within limit.	D.1	Restore leakage rate to within limit.	4 hours]

(continued)

TSTF-196

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
[E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	E.1	Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange], or equivalent.	24 hours
	AND		
	E.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------------------	
		Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 2 or 3 from MODE 4 if not performed within the previous 92 days for isolation devices inside containment]
	AND		

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
[SR 3.6.1.3.2	-------------------NOTES------------------ [1. Only required to be met in MODES 1, 2, and 3.] 2. Not required to be met when the [18] inch primary containment purge valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open. --- Verify each [18] inch primary containment purge valve is closed.	31 days]
SR 3.6.1.3.3	-------------------NOTES------------------ 1. Valves, and blind flanges, or equivalent in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. --- Verify each primary containment isolation manual valve, and blind flange, or equivalent that is located outside primary containment and is required to be closed during accident conditions is closed.	31 days

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.4	-------------------NOTES------------------ 1. Valves and blind flanges[, or equivalent] in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. -- Verify each primary containment manual isolation valve and blind flange that is located inside primary containment and is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days
SR 3.6.1.3.5	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	31 days
SR 3.6.1.3.6	Verify the isolation time of each power operated and each automatic PCIV[, except for MSIVs,] is within limits.	[In accordance with the Inservice Testing Program or 92 days]

(continued)

TSTF-196 -

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the [secondary] containment,
During CORE ALTERATIONS,
During operations with a potenti... ,or draining the reactor vessel (OPDRVs).

ACTIONS

-----NOTES-----

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange, or equivalent.	8 hours
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	---------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
B. ---------NOTE--------- Only applicable to penetration flow paths with two isolation valves. --------------------- One or more penetration flow paths with two SCIVs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange, or equivalent.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 AND C.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	-------------------NOTES------------------ 1. Valves, ~~and~~ blind flanges, or equivalent in high radiation areas may be verified by use of administrative means. 2. Not required to be met for SCIVs that are open under administrative controls. --- Verify each secondary containment isolation manual valve, ~~and~~ blind flange, or equivalent that is required to be closed during accident conditions is closed.	31 days
SR 3.6.4.2.2	Verify the isolation time of each power operated and each automatic SCIV is within limits.	[In accordance with the Inservice Testing Program or 92 days]
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	[18] months

TSTF-196

BASES

LCO

5. Primary Containment Area Radiation (High Range) (continued)

this plant, primary containment area radiation (high range) PAM instrumentation consists of the following:]

6. Drywell Sump Level

Drywell sump level is a Category I variable provided for verification of ECCS functions that operate to maintain RCS integrity. [For this plant, the drywell sump level PAM instrumentation consists of the following:]

7. Drywell Drain Sump Level

Drywell drain sump level is a Category I variable provided to detect breach of the RCPB and for verification and long term surveillance of ECCS functions that operate to maintain RCS integrity. [For this plant, the drywell drain sump level PAM instrumentation consists of the following:]

8. Primary Containment Isolation Valve (PCIV) Position

PCIV position is provided for verification of containment integrity. In the case of PCIV position, the important information is the isolation status of the containment penetration. The LCO requires one channel of valve position indication in the control room to be OPERABLE for each active PCIV in a containment penetration flow path, i.e., two total channels of PCIV position indication for a penetration flow path with two active valves. For containment penetrations with only one active PCIV having control room indication, Note (b) requires a single channel of valve position indication to be OPERABLE. This is sufficient to redundantly verify the isolation status of each isolable penetration via indicated status of the active valve, as applicable, and prior knowledge of passive valve or system boundary status. If a penetration flow path is isolated, position indication for the PCIV(s) in the associated penetration flow path is not needed to determine status. (Insert) Therefore, the position indication for valves in an isolated penetration flow path is not required to be OPERABLE.

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.1 Primary Containment

BASES

BACKGROUND

The function of the primary containment is to isolate and contain fission products released from the Reactor Primary System following a Design Basis Accident (DBA) and to confine the postulated release of radioactive material. The primary containment consists of a steel lined, reinforced concrete vessel, which surrounds the Reactor Primary System and provides an essentially leak tight barrier against an uncontrolled release of radioactive material to the environment.

The isolation devices for the penetrations in the primary containment boundary are a part of the containment leak tight barrier. To maintain this leak tight barrier:

a. All penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE automatic containment isolation system, or

   2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)";

   or equivalent isolation methods

b. The primary containment air lock is OPERABLE, except as provided in LCO 3.6.1.2, "Primary Containment Air Lock";

c. All equipment hatches are closed; and

[d. The pressurized sealing mechanism associated with a penetration is OPERABLE, except as provided in LCO 3.6.1.[ ].]

This Specification ensures that the performance of the primary containment, in the event of a DBA, meets the assumptions used in the safety analyses of References 1 and 2. SR 3.6.1.1.1 leakage rate requirements are in

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

BASES

BACKGROUND

The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) to within limits. Primary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.

The OPERABILITY requirements for PCIVs help ensure that an adequate primary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. Therefore, the OPERABILITY requirements provide assurance that primary containment function assumed in the safety analyses will be maintained. These isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, [or equivalent isolation methods] and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system.

Insert →

The reactor building-to-suppression chamber vacuum breakers serve a dual function, one of which is primary containment isolation. However, since the other safety function of the vacuum breakers would not be available if the normal PCIV actions were taken, the PCIV OPERABILITY requirements are not applicable to the reactor building-to-suppression chamber vacuum breakers valves. Similar surveillance requirements in the LCO for reactor building-to-suppression chamber vacuum breakers provide assurance that the isolation capability is available without conflicting with the vacuum relief function.

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TSTF-196

LCO (continued)

3.6.1.7, "Reactor Building-to-Suppression Chamber Vacuum Breakers." The valves covered by this LCO are listed with their associated stroke times in Reference 2.

The normally closed PCIVs are considered OPERABLE when manual valves are closed or open in accordance with appropriate administrative controls, automatic valves are de-activated and secured in their closed position, blind flanges [or equivalent isolation methods] are in place, and closed systems are intact. These passive isolation valves and devices are those listed in Reference 2.

Purge valves with resilient seals, secondary bypass valves, MSIVs, and hydrostatically tested valves must meet additional leakage rate requirements. Other PCIV leakage rates are addressed by LCO 3.6.1.1, "Primary Containment," as Type B or C testing.

This LCO provides assurance that the PCIVs will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the primary containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, most PCIVs are not required to be OPERABLE and the primary containment purge valves are not required to be sealed closed in MODES 4 and 5. Certain valves, however, are required to be OPERABLE to prevent inadvertent reactor vessel draindown. These valves are those whose associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation." (This does not include the valves that isolate the associated instrumentation.)

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow path(s) [except for purge valve flow path(s)] to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous

(continued)

ACTIONS (continued)

communication with the control room. In this way, the penetration can be rapidly isolated when a need for primary containment isolation is indicated. Due to the size of the primary containment purge line penetration and the fact that those penetrations exhaust directly from the containment atmosphere to the environment, the penetration flow path containing these valves is not allowed to be opened under administrative controls. A single purge valve in a penetration flow path may be opened to effect repairs to an inoperable valve, as allowed by SR 3.6.1.3.1.

A second Note has been added to provide clarification that, for the purpose of this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable PCIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable PCIVs are governed by subsequent Condition entry and application of associated Required Actions.

The ACTIONS are modified by Notes 3 and 4. Note 3 ensures that appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable PCIV (e.g., an Emergency Core Cooling System subsystem is inoperable due to a failed open test return valve). Note 4 ensures appropriate remedial actions are taken when the primary containment leakage limits are exceeded. Pursuant to LCO 3.0.6, these actions are not required even when the associated LCO is not met. Therefore, Notes 3 and 4 are added to require the proper actions be taken.

A.1 and A.2

With one or more penetration flow paths with one PCIV inoperable [except for purge valve leakage not within limit], the affected penetration flow paths must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, a blind flange, or equivalent isolation methods and a check valve with flow through the valve secured. For a penetration isolated in accordance with Required Action A.1,

(continued)

TSTF-196

BASES

ACTIONS

A.1 and A.2 (continued)

allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is low.

B.1

With one or more penetration flow paths with two PCIVs inoperable, either the inoperable PCIVs must be restored to OPERABLE status or the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1.

or equivalent isolation method

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two PCIVs. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions.

C.1 and C.2

With one or more penetration flow paths with one PCIV inoperable, the inoperable valve must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration. Required Action C.1 must be completed within the [4] hour Completion Time. The Completion Time of [4] hours is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting primary containment OPERABILITY during

(continued)

TSTF-196

BASES

ACTIONS

C.1 and C.2 (continued)

MODES 1, 2, and 3. The Completion Time of 12 hours is reasonable considering the instrument and the small pipe diameter of penetration (hence, reliability) to act as a penetration isolation boundary and the small pipe diameter of the affected penetrations. In the event the affected penetration flow path is isolated in accordance with Required Action C.1, the affected penetration must be verified to be isolated on a periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

Condition C is modified by a Note indicating that this Condition is only applicable to penetration flow paths with only one PCIV. For penetration flow paths with two PCIVs, Conditions A and B provide the appropriate Required Actions.

Required Action C.2 is modified by a Note that applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is low.

and equivalent isolation methods

D.1

With the secondary containment bypass leakage rate or MSIV leakage rate not within limit, the assumptions of the safety analysis may not be met. Therefore, the leakage must be restored to within limit within 4 hours. Restoration can be accomplished by isolating the penetration that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated, the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed

or equivalent isolation method

(continued)

TSTF-196

ACTIONS

D.1 (continued)

to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration and the relative importance of secondary containment bypass leakage to the overall containment function.

E.1, E.2, and E.3

In the event one or more containment purge valves are not within the purge valve leakage limits, purge valve leakage must be restored to within limits or the affected penetration must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a [closed and de-activated automatic valve, closed manual valve, and blind flange]. If a purge valve with resilient seals is utilized to satisfy Required Action E.1, it must have been demonstrated to meet the leakage requirements of SR 3.6.1.3.7. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist.

Or equivalent isolation method

In accordance with Required Action E.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification that those isolation devices outside containment and potentially capable of being mispositioned are in the correct position. For the isolation devices inside containment, the time period specified as "prior to entering MODE 2 or 3 from MODE 4 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

(continued)

TSTF-196

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.3

Or equivalent isolation method

This SR verifies that each primary containment isolation manual valve and blind flange that is located outside primary containment and is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the primary containment boundary is within design limits.

This SR does not require any testing or valve manipulation. Rather, it involves verification that those PCIVs outside primary containment, and capable of being mispositioned, are in the correct position. Since verification of valve position for PCIVs outside primary containment is relatively easy, the 31 day Frequency was chosen to provide added assurance that the PCIVs are in the correct positions.

Or equivalent isolation methods

Two Notes have been added to this SR. The first Note allows valves and blind flanges located in high radiation areas to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable since the primary containment is inerted and access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these PCIVs, once they have been verified to be in the proper position, is low. A second Note has been included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open.

SR 3.6.1.3.4

This SR verifies that each primary containment manual isolation valve and blind flange that is located inside primary containment and is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the primary containment boundary is within design limits. For PCIVs inside primary containment, the Frequency defined as "prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days" is appropriate since these PCIVs are operated under administrative controls and the probability of their misalignment is low.

(continued)

TSTF-196

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.4 (continued)

(and equivalent isolation methods)

Two Notes have been added to this SR. The first Note allows valves, and blind flanges located in high radiation areas to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable since the primary containment is inerted and access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these PCIVs, once they have been verified to be in their proper position, is low. A second Note has been included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open.

SR 3.6.1.3.5

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.

SR 3.6.1.3.6

Verifying the isolation time of each power operated and each automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.7. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time and Frequency of this SR are [in accordance with the requirements of the Inservice Testing Program or 92 days].

[SR 3.6.1.3.7

For primary containment purge valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J (Ref. 3), is required to ensure]

(continued)

TSTF-156

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.11 (continued)

required. The replacement charge for the explosive squib shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of the batch successfully fired. The Frequency of 18 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequent checks of circuit continuity (SR 3.6.1.3.5).

SR 3.6.1.3.12

This SR ensures that the leakage rate of secondary containment bypass leakage paths is less than the specified leakage rate. This provides assurance that the assumptions in the radiological evaluations of Reference 7 are met. The leakage rate of each bypass leakage path is assumed to be the maximum pathway leakage (leakage through the worse of the two isolation valves) unless the penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. This method of quantifying maximum pathway leakage is only to be used for this SR (i.e., Appendix J maximum pathway leakage limits are to be quantified in accordance with Appendix J). The Frequency is required by 10 CFR 50, Appendix J, as modified by approved exemptions (and therefore, the Frequency extensions of SR 3.0.2 may not be applied), since the testing is an Appendix J, Type C test. This SR simply imposes additional acceptance criteria. Note 1 is added to this SR which states that these valves are only required to meet this leakage limit in MODES 1, 2, and 3. In the other conditions, the Reactor Coolant System is not pressurized and specific primary containment leakage limits are not required.

or equivalent isolation method

[Bypass leakage is considered part of L_a. [Reviewer's Note: Unless specifically exempted].]

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

BASES

BACKGROUND

The function of the SCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) (Ref. 1). Secondary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that fission products that leak from primary containment following a DBA, or that are released during certain operations when primary containment is not required to be OPERABLE or take place outside primary containment, are maintained within the secondary containment boundary.

The OPERABILITY requirements for SCIVs help ensure that an adequate [secondary] containment boundary is maintained during and after an accident by minimizing potential paths to the environment. These isolation devices consist of either passive devices or active (automatic) devices. Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), and blind flanges, are considered passive devices.

and equivalent isolation methods

Insert

Automatic SCIVs close on a [secondary] containment isolation signal to establish a boundary for untreated radioactive material within [secondary] containment following a DBA or other accidents.

Other penetrations are isolated by the use of valves in the closed position or blind flanges.

APPLICABLE SAFETY ANALYSES

The SCIVs must be OPERABLE to ensure the [secondary] containment barrier to fission product releases is established. The principal accidents for which the [secondary] containment boundary is required are a loss of coolant accident (Ref. 1) and a fuel handling accident inside [secondary] containment (Ref. 2). The [secondary] containment performs no active function in response to either of these limiting events, but the boundary

(continued)

TSTF-196

APPLICABLE SAFETY ANALYSES (continued)

established by SCIVs is required to ensure that leakage from the primary containment is processed by the Standby Gas Treatment (SGT) System before being released to the environment.

Maintaining SCIVs OPERABLE with isolation times within limits ensures that fission products will remain trapped inside [secondary] containment so that they can be treated by the SGT System prior to discharge to the environment.

SCIVs satisfy Criterion 3 of the NRC Policy Statement.

LCO

SCIVs form a part of the [secondary] containment boundary. The SCIV safety function is related to control of offsite radiation releases resulting from DBAs.

The power operated isolation valves are considered OPERABLE when their isolation times are within limits and the valves actuate on an automatic isolation signal. The valves covered by this LCO, along with their associated stroke times, are listed in Reference 3.

The normally closed isolation valves, or blind flanges (Or equivalent isolation methods) are considered OPERABLE when manual valves are closed or open in accordance with appropriate administrative controls, automatic SCIVs are de-activated and secured in their closed position, and blind flanges (Or equivalent isolation methods) are in place. These passive isolation valves or devices are listed in Reference 3.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could lead to a fission product release to the primary containment that leaks to the [secondary] containment. Therefore, the OPERABILITY of SCIVs is required.

In MODES 4 and 5, the probability and consequences of these events are reduced due to pressure and temperature limitations in these MODES. Therefore, maintaining SCIVs OPERABLE is not required in MODE 4 or 5, except for other situations under which significant radioactive releases can be postulated, such as during operations with a potential for draining the reactor vessel (OPDRVs), during CORE

(continued)

TSTF-196

BASES

APPLICABILITY (continued)

ALTERATIONS, or during movement of irradiated fuel assemblies in the [secondary] containment. Moving irradiated fuel assemblies in the [secondary] containment may also occur in MODES 1, 2, and 3.

ACTIONS

The ACTIONS are modified by three Notes. The first Note allows penetration flow paths to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for [secondary] containment isolation is indicated.

The second Note provides clarification that for the purpose of this LCO separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SCIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SCIVs are governed by subsequent Condition entry and application of associated Required Actions.

The third Note ensures appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable SCIV.

A.1 and A.2

In the event that there are one or more penetration flow paths with one SCIV inoperable, the affected penetration flow path(s) must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic SCIV, a closed manual valve, and a blind flange [or equivalent isolation method]. For penetrations isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available device to [secondary] containment. The Required Action must be completed within the 8 hour Completion Time. The specified time period is reasonable considering the time required to

(continued)

TSTF-196

ACTIONS

A.1 and A.2 (continued)

isolate the penetration, and the probability of a DBA, which requires the SCIVs to close, occurring during this short time is very low.

For affected penetrations that have been isolated in accordance with Required Action A.1, the affected penetration must be verified to be isolated on a periodic basis. This is necessary to ensure that [secondary] containment penetrations required to be isolated following an accident, but no longer capable of being automatically isolated, will be in the isolation position should an event occur. The Completion Time of once per 31 days is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low. This Required Action does not require any testing or device manipulation. Rather, it involves verification that the affected penetration remains isolated.

Required Action A.2 is modified by a Note that applies to devices located in high radiation areas and allows them to be verified closed by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment, once they have been verified to be in the proper position, is low.

B.1

With two SCIVs in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 4 hours. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange [handwritten insertion: or equivalent isolation method]. The 4 hour Completion Time is reasonable considering the time required to isolate the penetration and the probability of a DBA, which requires the SCIVs to close, occurring during this short time, is very low.

The Condition has been modified by a Note stating that Condition B is only applicable to penetration flow paths

(continued)

TSTF-196

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

or equivalent isolation method

This SR verifies that each secondary containment manual isolation valve and blind flange that is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the [secondary] containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those SCIVs in [secondary] containment that are capable of being mispositioned are in the correct position.

Since these SCIVs are readily accessible to personnel during normal operation and verification of their position is relatively easy, the 31 day Frequency was chosen to provide added assurance that the SCIVs are in the correct positions.

and equivalent isolation methods

Two Notes have been added to this SR. The first Note applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these SCIVs, once they have been verified to be in the proper position, is low.

A second Note has been included to clarify that SCIVs that are open under administrative controls are not required to meet the SR during the time the SCIVs are open.

SR 3.6.4.2.2

Verifying that the isolation time of each power operated and each automatic SCIV is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the SCIV will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time and Frequency of this SR are [in accordance with the Inservice Testing Program or 92 days].

(continued)

TSTF-196

Table 3.3.3.1-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION E.1
1. Reactor Steam Dome Pressure	2	F
2. Reactor Vessel Water Level	2	F
3. Suppression Pool Water Level	2	F
4. Drywell Pressure	2	F
5. Primary Containment Area Radiation	2	[G]
[6. Drywell Sump Level	2	F
7. Drywell Drain Sump Level	2	F]
8. PCIV Position	2 per penetration flow path(a)(b)	F
9. Wide Range Neutron Flux	2	F
10. Drywell H_2 & O_2 Analyzer	2	F
11. Containment H_2 & O_2 Analyzer	2	F
12. Primary Containment Pressure	2	F
13. Suppression Pool Water Temperature	2(c)	F

(a) Not required for isolation valves whose associated penetration flow path is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. (or equivalent)

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) Monitoring each [relief valve discharge location].

Reviewer's Note: Table 3.3.3.1-1 shall be amended for each plant as necessary to list:

1. All Regulatory Guide 1.97, Type A instruments, and
2. All Regulatory Guide 1.97, Category 1, non-Type A instruments specified in the plant's Regulatory Guide 1.97, Safety Evaluation Report.

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

ACTIONS

------------------------------------NOTES------------------------------------

1. Penetration flow paths [except for [ ] inch purge valve penetration flow paths] may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs. --------------------- One or more penetration flow paths with one PCIV inoperable [except for purge valve or secondary containment bypass leakage not within limit].	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or equivalent check valve with flow through the valve secured. AND	4 hours except for main steam line AND 8 hours for main steam line

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs. --------------------- One or more penetration flow paths with two PCIVs inoperable [except for purge valve leakage not within limit].	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange, or equivalent.	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one PCIV. --------------------- One or more penetration flow paths with one PCIV inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange, or equivalent.	[4] hours
	AND		
	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
[D. Secondary containment bypass leakage rate not within limit.	D.1	Restore leakage rate to within limit.	4 hours]

(continued)

TSTF-196

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	E.1	Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, or blind flange], or equivalent.	24 hours
	AND		
	E.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 2 or 3 from MODE 4 if not performed within the previous 92 days for isolation devices inside containment
	AND		
	E.3	Perform SR 3.6.1.3.6 for the resilient seal purge valves closed to comply with Required Action E.1.	Once per [92] days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.3	-------------------NOTES------------------- 1. Valves, ~~and~~ blind flanges, or equivalent in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. --- Verify each primary containment isolation manual valve, ~~and~~ blind flange, or equivalent that is located outside primary containment, drywell, and steam tunnel and is required to be closed during accident conditions is closed.	31 days
SR 3.6.1.3.4	-------------------NOTES------------------- 1. Valves, ~~and~~ blind flanges, or equivalent in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. --- Verify each primary containment isolation manual valve, ~~and~~ blind flange, or equivalent that is located inside primary containment, drywell, or steam tunnel and is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days

(continued)

TSTF-196

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the [primary or secondary containment],
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

---NOTES---

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. [handwritten insertion: ", or equivalent"]	8 hours
	AND		(continued)

TSTF-196

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------------------	
		Verify the affected penetration flow path is isolated.	Once per 31 days
B. ---------NOTE--------- Only applicable to penetration flow paths with two isolation valves. ---------------------- One or more penetration flow paths with two SCIVs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, ~~or~~ blind flange, or equivalent.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.4.2.1	-------------------NOTES------------------- 1. Valves ~~and~~ or blind flanges or equivalent in high radiation areas may be verified by use of administrative controls. 2. Not required to be met for SCIVs that are open under administrative means. --- Verify each secondary containment isolation manual valve ~~and~~ or blind flange or equivalent that is required to be closed during accident conditions is closed.	31 days
SR 3.6.4.2.2	Verify the isolation time of each power operated and each automatic SCIV is within limits.	[In accordance with the Inservice Testing Program or 92 days]
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated automatic isolation signal.	[18] months

TSTF-196

3.6 CONTAINMENT SYSTEMS

3.6.5.3 Drywell Isolation Valve[s]

LCO 3.6.5.3 Each drywell isolation valve [, except for Drywell Vacuum Relief System valves,] shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----------------------------------NOTES-----------------------------------

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by drywell isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.5.1, "Drywell," when drywell isolation valve leakage results in exceeding overall drywell bypass leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more penetration flow paths with one drywell isolation valve inoperable.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. (equivalent)	8 hours
	AND		
			(continued)

TSTF-196

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------------------	
		Verify the affected penetration flow path is isolated.	Prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days
B. ---------NOTE--------- Only applicable to penetration flow paths with two isolation valves. ---------------------- One or more penetration flow paths with two drywell isolation valves inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. equivalent	4 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

TSTF-196

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
[SR 3.6.5.3.1	Verify each [ ] inch drywell purge isolation valve is sealed closed.	31 days]
[SR 3.6.5.3.2	------------------NOTE------------------- Not required to be met when the drywell purge supply or exhaust valves are open for pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open [provided the [20] inch containment [purge system supply and exhaust] lines are isolated]. -- Verify each [20] inch drywell purge isolation valve is closed.	 31 days]
SR 3.6.5.3.3	------------------NOTE------------------- Not required to be met for drywell isolation valves that are open under administrative controls. -- Verify each drywell isolation manual valve ~~and~~ or blind flange, or equivalent, that is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4, if not performed in the previous 92 days

(continued)

LCO

8. Primary Containment Isolation Valve (PCIV) Position (continued)

valve, as applicable, and prior knowledge of passive valve or system boundary status. If a penetration is isolated, position indication for the PCIV(s) in the associated penetration flow path is not needed to determine status. [Insert] Therefore, the position indication for valves in an isolated penetration is not required to be OPERABLE.

[For this plant, the PCIV position PAM instrumentation consists of the following:]

9. Wide Range Neutron Flux

Wide range neutron flux is a Category I variable provided to verify reactor shutdown.

[For this plant, wide range neutron flux PAM instrumentation consists of the following:]

10, 11. Drywell and Containment Hydrogen and Oxygen Analyzer

Drywell and containment hydrogen and oxygen analyzers are Category I instruments provided to detect high hydrogen or oxygen concentration conditions that represent a potential for containment breach. This variable is also important in verifying the adequacy of mitigating actions.

[For this plant, the drywell and containment hydrogen and oxygen analyzers PAM instrumentation consists of the following:]

12. Primary Containment Pressure

Primary containment pressure is a Category I variable provided to verify RCS and containment integrity and to verify the effectiveness of ECCS actions taken to prevent containment breach. Two wide range primary containment pressure signals are transmitted from separate pressure transmitters and are continuously recorded and displayed on two control room recorders. These recorders are the primary

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

BASES

BACKGROUND

The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) to within limits. Primary containment isolation within the time limits specified for those PCIVs designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.

The OPERABILITY requirements for PCIVs help ensure that an adequate primary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. Therefore, the OPERABILITY requirements provide assurance that the primary containment function assumed in the safety analysis will be maintained. These isolation devices consist of either passive devices or active (automatic) devices. Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, [or equivalent isolation methods] and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analysis. One of these barriers may be a closed system.

Insert →

The [6] and [20] inch primary containment purge valves are PCIVs that are qualified for use during all operational conditions. The [6] and [20] inch primary containment purge valves are normally maintained closed in MODES 1, 2, and 3 to ensure leak tightness. The purge valves must be closed when not being used for pressure control, ALARA, or air quality considerations to ensure that the primary containment boundary assumed in the safety analysis will be maintained.

(continued)

APPLICABLE SAFETY ANALYSES (continued)

[The purge valves may be unable to close in the environment following a LOCA. Therefore, each of the purge valves is required to remain sealed closed during MODES 1, 2, and 3. In this case, the single failure criterion remains applicable to the primary containment purge valve due to failure in the control circuit associated with each valve. Again, the primary containment purge valve design precludes a single failure from compromising the primary containment boundary as long as the system is operated in accordance with this LCO.]

PCIVs satisfy Criterion 3 of the NRC Policy Statement.

LCO

PCIVs form a part of the primary containment boundary. The PCIV safety function is related to minimizing the loss of reactor coolant inventory and establishing the primary containment boundary during a DBA.

The power operated, automatic isolation valves are required to have isolation times within limits and actuate on an automatic isolation signal. Primary containment purge valves that are not qualified to close under accident conditions must be sealed closed [or blocked to prevent full opening] to be OPERABLE. The valves covered by this LCO are listed with their associated stroke times in the FSAR (Ref. 3).

The normally closed PCIVs are considered OPERABLE when manual valves are closed or open in accordance with appropriate administrative controls, automatic valves are de-activated and secured in their closed position, blind flanges (or equivalent isolation methods) are in place, and closed systems are intact. These passive isolation valves and devices are those listed in Reference 3. Purge valves with resilient seals, secondary bypass valves, MSIVs, and hydrostatically tested valves must meet additional leakage rate requirements. Other PCIV leakage rates are addressed by LCO 3.6.1.1, "Primary Containment," as Type B or C testing.

This LCO provides assurance that the PCIVs will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the primary containment boundary during accidents.

TSTF-196

ACTIONS (continued)

subsequent Condition entry and application of associated Required Actions.

The ACTIONS are modified by Notes 3 and 4. Note 3 ensures appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable PCIV (e.g., an Emergency Core Cooling System subsystem is inoperable due to a failed open test return valve). Note 4 ensures appropriate remedial actions are taken when the primary containment leakage limits are exceeded. Pursuant to LCO 3.0.6, these ACTIONS are not required even when the associated LCO is not met. Therefore, Notes 3 and 4 are added to require the proper actions are taken.

A.1 and A.2

With one or more penetration flow paths with one PCIV inoperable [except for purge valve or secondary containment bypass leakage not within limits], the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For penetrations isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to the primary containment. The Required Action must be completed within the 4 hour Completion Time (8 hours for main steam lines). The specified time period of 4 hours is reasonable considering the time required to isolate the penetration and the relative importance of supporting primary containment OPERABILITY during MODES 1, 2, and 3. For main steam lines, an 8 hour Completion Time is allowed. The Completion Time of 8 hours for the main steam lines allows a period of time to restore the MSIVs to OPERABLE status given the fact that MSIV closure will result in isolation of the main steam line(s) and a potential for plant shutdown.

or equivalent isolation method

For affected penetrations that have been isolated in accordance with Required Action A.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following

(continued)

ACTIONS

B.1 (continued)

Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1.

, or equivalent isolation method

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two PCIVs. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions.

C.1 and C.2

When one or more penetration flow paths with one PCIV inoperable, the inoperable valve must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration. Required Action C.1 must be completed within [4] hours. The [4] hour Completion Time is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting primary containment OPERABILITY during MODES 1, 2, and 3. In the event the affected penetration is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

Condition C is modified by a Note indicating this Condition is applicable only to those penetration flow paths with only one PCIV. For penetration flow paths with two PCIVs, Conditions A and B provide the appropriate Required Actions. This Note is necessary since this Condition is written

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

specifically to address those penetrations with a single PCIV.

or equivalent isolation methods

Required Action C.2 is modified by a Note that applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is low.

or equivalent isolation method

D.1

With the secondary containment bypass leakage rate, not within limit, the assumptions of the safety analysis are not met. Therefore, the leakage must be restored to within limit within 4 hours. Restoration can be accomplished by isolating the penetration that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated, the leakage rate for the isolation penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration and the relative importance of secondary containment bypass leakage to the overall containment function.

E.1, E.2, and E.3

In the event one or more containment purge valves are not within the purge valve leakage limits, purge valve leakage must be restored to within limits or the affected penetration must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a [closed and

(continued)

TSTF-196

ACTIONS

E.1, E.2, and E.3 (continued)

or equivalent isolation method

de-activated automatic valve, closed manual valve, and blind flange]. If a purge valve with resilient sea'- is utilized to satisfy Required Action E.1 it must have be.. demonstrated to meet the leakage requirements of SR 3.6.1.3.6. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist.

In accordance with Required Action E.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification that those isolation devices outside containment and potentially capable of being mispositioned are in the correct position. For the isolation devices inside containment, the time period specified as "prior to entering MODE 2 or 3 from MODE 4 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

For the containment purge valve with resilient seal that is isolated in accordance with Required Action E.1, SR 3.6.1.3.6 must be performed at least once every [ ] days. This provides assurance that degradation of the resilient seal is detected and confirms that the leakage rate of the containment purge valve does not increase during the time the penetration is isolated. The normal Frequency for SR 3.6.1.3.6 is 184 days. Since more reliance is placed on a single valve while in this Condition, it is prudent to perform the SR more often. Therefore, a Frequency of once per [ ] days was chosen and has been shown acceptable based on operating experience.

(continued)

TSTF-196

SURVEILLANCE REQUIREMENTS

[SR 3.6.1.3.2 (continued)

this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have leakage outside of limits.]

[[The SR is also modified by a Note (Note 1) stating that primary containment purge valves are only required to be closed in MODES 1, 2, and 3. If a LOCA inside primary containment occurs in these MODES, the purge valves may not be capable of closing before the pressure pulse affects systems downstream of the purge valves, or the release of radioactive material will exceed limits prior to the purge valves closing. At other times when the purge valves are required to be capable of closing (e.g., during movement of irradiated fuel assemblies) pressurization concerns are not present and the purge valves are allowed to be open.]

The SR is modified by a Note (Note 2) stating that the SR is not required to be met when the purge valves are open for the stated reasons. The Note states that these valves may be opened for pressure control, ALARA, or air quality considerations for personnel entry, or for Surveillances that require the valves to be open, provided the drywell [purge supply and exhaust] lines are isolated. These primary containment purge valves are capable of closing in the environment following a LOCA. Therefore, these valves are allowed to be open for limited periods of time. The 31 day Frequency is consistent with other primary containment purge valve requirements discussed in SR 3.6.1.3.1.]

SR 3.6.1.3.3

or equivalent isolation method

This SR verifies that each primary containment isolation manual valve, and blind flange that is located outside primary containment, drywell, and steam tunnel, and is required to be closed during accident conditions, is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the primary containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those PCIVs outside primary

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.3 (continued)

containment, and capable of being mispositioned, are in the correct position. Since verification of valve position for PCIVs outside primary containment is relatively easy, the 31 day Frequency was chosen to provide added assurance that the PCIVs are in the correct positions.

Or equivalent isolation methods

Two Notes are added to this SR. The first Note applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these PCIVs, once they have been verified to be in the proper position, is low. A second Note is included to clarify that PCIVs open under administrative controls are not required to meet the SR during the time the PCIVs are open.

Or equivalent isolation method

SR 3.6.1.3.4

This SR verifies that each primary containment manual isolation valve and blind flange located inside primary containment, drywell, or steam tunnel, and required to be closed during accident conditions, is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the primary containment boundary is within design limits. For PCIVs inside primary containment, drywell, or steam tunnel the Frequency of "prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days," is appropriate since these PCIVs are operated under administrative controls and the probability of their misalignment is low.

Or equivalent isolation methods

Two Notes are added to this SR. The first Note allows valves and blind flanges located in high radiation areas to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable since access to these areas is typically restricted during MODES 1, 2, and 3. Therefore, the probability of misalignment of these PCIVs, once they have been verified to be in their proper position, is low. A second Note is included to clarify that PCIVs that are open

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.9 (continued)

(or equivalent isolation method)

the two isolation valves) unless the penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. This method of quantifying maximum pathway leakage is only to be used for this SR (i.e., Appendix J maximum pathway leakage limits are to be quantified in accordance with Appendix J). The Frequency is required by 10 CFR 50, Appendix J, as modified by approved exemptions (and therefore, the Frequency extensions of SR 3.0.2 may not be applied), since the testing is an Appendix J, Type C test. This SR simply imposes additional acceptance criteria.

Note 1 is added to this SR which states that these valves are only required to meet this leakage limit in MODES 1, 2, and 3. In the other conditions, the Reactor Coolant System is not pressurized and specific primary containment leakage limits are not required.

[Bypass leakage is considered part of L_a. [Reviewer's Note: Unless specifically exempted].]

SR 3.6.1.3.10

The analyses in References 2 and 3 are based on leakage that is less than the specified leakage rate. Leakage through all four MSIVs must be ≤ [100] scfh when tested at P_t ([11.5] psig). The MSIV leakage rate must be verified to be in accordance with the leakage test requirements of Reference 4, as modified by approved exemptions. Note 1 is added to this SR which states that these valves are only required to meet this leakage limit in MODES 1, 2, and 3. In the other conditions, the Reactor Coolant System is not pressurized and specific primary containment leakage limits are not required. This ensures that MSIV leakage is properly accounted for in determining the overall primary containment leakage rate. The Frequency is required by 10 CFR 50, Appendix J (Ref. 4), as modified by approved

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

BASES

BACKGROUND

The function of the SCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) (Ref. 1). Secondary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that fission products that leak from primary containment following a DBA, that are released during certain operations when primary containment is not required to be OPERABLE, or that take place outside primary containment, are maintained within the secondary containment boundary.

The OPERABILITY requirements for SCIVs help ensure that an adequate secondary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. These isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), and blind flanges are considered passive devices. Check valves or other automatic valves designed to close without operator action following an accident are considered active devices. Isolation barrier(s) for the penetration are discussed in Reference 2.

, or equivalent isolation methods

Insert

Automatic SCIVs close on a secondary containment isolation signal to establish a boundary for untreated radioactive material within secondary containment following a DBA or other accidents.

Other penetrations are isolated by the use of valves in the closed position or blind flanges.

APPLICABLE SAFETY ANALYSES

The SCIVs must be OPERABLE to ensure the secondary containment barrier to fission product releases is established. The principal accidents for which the secondary containment boundary is required are a loss of coolant accident (Ref. 1), a fuel handling accident inside

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

primary containment (Ref. 3), and a fuel handling accident in the auxiliary building (Ref. 4). The secondary containment performs no active function in response to each of these limiting events, but the boundary established by SCIVs is required to ensure that leakage from the primary containment is processed by the Standby Gas Treatment (SGT) System before being released to the environment.

Maintaining SCIVs OPERABLE with isolation times within limits ensures that fission products will remain trapped inside secondary containment so that they can be treated by the SGT System prior to discharge to the environment.

SCIVs satisfy Criterion 3 of the NRC Policy Statement.

LCO

SCIVs form a part of the secondary containment boundary. The SCIV safety function is related to control of offsite radiation releases resulting from DBAs.

The automatic power operated isolation valves are considered OPERABLE when their isolation times are within limits and the valves actuate on an automatic isolation signal. The valves covered by this LCO, along with their associated stroke times, are listed in Reference 5.

The normally closed isolation valves, ~~or~~ blind flanges, or equivalent isolation methods are considered OPERABLE when manual valves are closed or open in accordance with appropriate administrative controls, automatic SCIVs are de-activated and secured in their closed position, and blind flanges, or equivalent isolation methods are in place. These passive isolation valves or devices are listed in Reference 5.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could lead to a fission product release to the primary containment that leaks to the secondary containment. Therefore, OPERABILITY of SCIVs is required.

In MODES 4 and 5, the probability and consequences of these events are reduced due to pressure and temperature limitations in these MODES. Therefore, maintaining SCIVs OPERABLE is not required in MODE 4 or 5, except for other

(continued)

TSTF-196

BASES

APPLICABILITY (continued)

situations under which significant releases of radioactive material can be postulated, such as during operations with a potential for draining the reactor vessel (OPDRVs), during CORE ALTERATIONS, or during movement of irradiated fuel assemblies. Moving irradiated fuel assemblies in the [primary or secondary containment] may also occur in MODES 1, 2, and 3.

ACTIONS

The ACTIONS are modified by three Notes. The first Note allows penetration flow paths to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when the need for [secondary containment] isolation is indicated.

The second Note provides clarification that for the purpose of this LCO separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SCIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SCIVs are governed by subsequent Condition entry and application of associated Required Actions.

The third Note ensures appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable SCIV.

A.1 and A.2

In the event that there are one or more penetration flow paths with one SCIV inoperable, the affected penetration flow path(s) must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criteria are a closed and de-activated automatic SCIV, a closed manual valve, and a blind flange [handwritten insertion: or equivalent isolation method]. For penetrations isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available device to

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

secondary containment. This Required Action must be completed within the 8 hour Completion Time. The specified time period is reasonable considering the time required to isolate the penetration and the low probability of a DBA, which requires the SCIVs to close, occurring during this short time.

For affected penetrations that have been isolated in accordance with Required Action A.1, the affected penetration must be verified to be isolated on a periodic basis. This is necessary to ensure that secondary containment penetrations required to be isolated following an accident, but no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification that the affected penetration remains isolated.

Required Action A.2 is modified by a Note that applies to devices located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment, once they have been verified to be in the proper position, is low.

B.1

With two SCIVs in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 4 hours. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange [or equivalent isolation method]. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the low probability of a DBA, which requires the SCIVs to close, occurring during this short time.

The Condition has been modified by a Note stating that Condition B is only applicable to penetration flow paths

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

(or equivalent isolation method)

This SR verifies each secondary containment isolation manual valve and blind flange that is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the [secondary containment] boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those SCIVs in [secondary containment] that are capable of being mispositioned are in the correct position.

Since these SCIVs are readily accessible to personnel during normal unit operation and verification of their position is relatively easy, the 31 day Frequency was chosen to provide added assurance that the SCIVs are in the correct positions.

(or equivalent isolation methods)

Two Notes have been added to this SR. The first Note applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these SCIVs, once they have been verified to be in the proper position, is low.

A second Note has been included to clarify that SCIVs that are open under administrative controls are not required to meet the SR during the time the SCIVs are open.

SR 3.6.4.2.2

Verifying the isolation time of each power operated and each automatic SCIV is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the SCIV will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time and Frequency of this SR are [in accordance with the Inservice Testing Program or 92 days].

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.1 Primary Containment

BASES

BACKGROUND

The function of the primary containment is to isolate and contain fission products released from the Reactor Primary System following a Design Basis Accident (DBA) and to confine the postulated release of radioactive material to within limits. The primary containment consists of a steel lined, reinforced concrete vessel, which surrounds the Reactor Primary System and provides an essentially leak tight barrier against an uncontrolled release of radioactive material to the environment. Additionally, this structure provides shielding from the fission products that may be present in the primary containment atmosphere following accident conditions.

The isolation devices for the penetrations in the primary containment boundary are a part of the primary containment leak tight barrier. To maintain this leak tight barrier:

a. All penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE automatic containment isolation system, or

   2. closed by manual valves, blind flanges, [Or equivalent isolation methods] or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)";

b. Primary containment air locks are OPERABLE, except as provided in LCO 3.6.1.2, "Primary Containment Air Locks";

c. All equipment hatches are closed; and

[d. The pressurized sealing mechanism associated with a penetration is OPERABLE, except as provided in LCO 3.6.1.[ ].]

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.5.3 Drywell Isolation Valve[s]

BASES

BACKGROUND

The drywell isolation valves, in combination with other accident mitigation systems, function to ensure that steam and water releases to the drywell are channeled to the suppression pool to maintain the pressure suppression function of the drywell.

The OPERABILITY requirements for drywell isolation valves help ensure that valves are closed, when required, and isolation occurs within the time limits specified for those isolation valves designed to close automatically. Therefore, the OPERABILITY requirements support minimizing drywell bypass leakage assumed in the safety analysis (Ref. 1) for a DBA. These isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, [or equivalent isolation methods] and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration so that no credible single failure or malfunction of an active component can result in a loss of isolation.

[Insert]

The Drywell Vacuum Relief System valves serve a dual function, one of which is drywell isolation. However, since the other safety function of vacuum relief would not be available if the normal drywell isolation valve actions were taken, the drywell isolation valve OPERABILITY requirements are not applicable to the Drywell Vacuum Relief System isolation valves. Similar surveillance requirements in the LCO for Drywell Vacuum Relief System provide assurance that the isolation capability is available without conflicting with the vacuum relief function.

The Drywell Vent and Purge System is a high capacity system with a [20] inch line, which has isolation valves covered by this LCO. The system supplies filtered outside air directly to the drywell through two lines, each containing two primary containment isolation valves (PCIVs) and two drywell isolation valves called drywell purge isolation valves. The

(continued)

LCO (continued)

The drywell isolation valves are required to have isolation times of automatic drywell isolation valves within limits, automatic drywell isolation valves actuate on an automatic isolation signal, drywell isolation manual valves closed, purge valves closed, and 20 inch purge valves blocked to restrict maximum valve opening. While the Drywell Vacuum Relief System valves isolate drywell penetrations, they are excluded from this Specification. Controls on their isolation function are adequately addressed in LCO 3.6.5.6, "Drywell Vacuum Relief System." The valves covered by this LCO are included (with their associated stroke time for automatic valves) in Reference 2.

or equivalent isolation methods

The normally closed isolation valves or blind flanges are considered OPERABLE when manual valves are closed or open in accordance with appropriate administrative controls, automatic valves are de-activated and secured in their closed position (including check valves with flow through the valve secured), and blind flanges are in place. These passive isolation valves and devices are those listed in Reference 2.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to the primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Therefore, the drywell isolation valves are not required to be OPERABLE in MODES 4 and 5.

ACTIONS

The ACTIONS are modified by three Notes. The first Note allows penetration flow paths to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the valve. In this way, the penetration can be rapidly isolated when a need for drywell isolation is indicated.

The second Note provides clarification that for the purpose of this LCO separate Condition entry is allowed for each penetration flow path.

(continued)

TSTF-196

BASES

ACTIONS (continued)

The third Note requires the OPERABILITY of affected systems to be evaluated when a drywell isolation valve is inoperable. This ensures appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable drywell isolation valve.

The fourth Note ensures appropriate remedial actions are taken when the drywell bypass leakage limits are exceeded. Pursuant to LCO 3.0.6, these ACTIONS are not required even when the associated LCO is not met. Therefore, Note 4 is added to require the proper actions be taken.

A.1 and A.2

With one or more penetration flow paths with one drywell isolation valve inoperable, the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic drywell isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. In this Condition, the remaining OPERABLE drywell isolation valve is adequate to perform the isolation function. However, the overall reliability is reduced because a single failure in the OPERABLE drywell isolation valve could result in a loss of drywell isolation. The 8 hour Completion Time is acceptable, since the drywell design bypass leakage $A/\sqrt{k}$ of [1.0] ft^2 would be maintained even with a single failure due to application of ACTIONS Note 4. In addition, the Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting drywell OPERABILITY during MODES 1, 2, and 3.

or equivalent isolation method

For affected penetration flow paths that have been isolated in accordance with Required Action A.1, the affected penetrations must be verified to be isolated on a periodic basis. This is necessary to ensure that drywell penetrations that are required to be isolated following an accident, and are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation; rather, it involves verification that those devices outside drywell and capable of potentially

(continued)

TSTF-196

BASES

ACTIONS

A.1 and A.2 (continued)

being mispositioned are in the correct position. Since these devices are inside primary containment, the time period specified as "prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days," is based on engineering judgment and is considered reasonable in view of the inaccessibility of the devices and other administrative controls that will ensure that device misalignment is an unlikely possibility. Also, this Completion Time is consistent with the Completion Time specified for PCIVs in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)."

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment once they have been verified to be in the proper position, is low.

B.1

With one or more penetration flow paths with two drywell isolation valves inoperable, the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. The 4 hour Completion Time is acceptable, since the drywell design bypass leakage $A/\sqrt{k}$ of [1.0] ft^2 is maintained due to application of ACTIONS Note 4. The Completion Time is reasonable, considering the time required to isolate the penetration, and the probability of a DBA, which requires the drywell isolation valves to close, occurring during this short time is very low.

or equivalent isolation method

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two isolation valves. For penetration flow paths with one

(continued)

TSTF-196

BASES

SURVEILLANCE REQUIREMENTS (continued)

[SR 3.6.5.3.2

This SR ensures that the [20] inch drywell purge isolation valves are closed as required or, if open, open for an allowable reason. This SR is intended to be used for drywell purge isolation valves that are fully qualified to close under accident conditions; therefore, these valves are allowed to be open for limited periods of time. This SR has been modified by a Note indicating the SR is not required to be met when the drywell purge supply or exhaust valves are open for pressure control, ALARA or air quality considerations for personnel entry, or surveillances that require the valve to be open [provided the [20] inch containment [purge system supply and exhaust] lines are isolated]. The 31 day Frequency is consistent with the valve requirements discussed under SR 3.6.5.3.1.]

SR 3.6.5.3.3

This SR requires verification [or equivalent isolation method] that each drywell isolation manual valve, ~~and~~ or blind flange that is required to be closed during accident conditions is closed. The SR helps to ensure that drywell bypass leakage is maintained to a minimum. Since these valves are inside primary containment, the Frequency specified as "prior to entering MODE 2 or 3 from MODE 4, if not performed in the previous 92 days," is appropriate because of the inaccessibility of the drywell isolation valves and because these drywell isolation valves are operated under administrative controls and the probability of their misalignment is low.

A Note has been included to clarify that valves that are open under administrative controls are not required to meet the SR during the time the valves are open.

SR 3.6.5.3.4

Verifying that the isolation time of each power operated and each automatic drywell isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analysis. The isolation time and Frequency of this SR are [in accordance with the Inservice Testing Program or 92 days].

(continued)

TSTF-196

B 3.6 CONTAINMENT SYSTEMS

B 3.6.5.1 Drywell

BASES

BACKGROUND

The drywell houses the reactor pressure vessel (RPV), the reactor coolant recirculating loops, and branch connections of the Reactor Coolant System (RCS), which have isolation valves at the primary containment boundary. The function of the drywell is to maintain a pressure boundary that channels steam from a loss of coolant accident (LOCA) to the suppression pool, where it is condensed. Air forced from the drywell is released into the primary containment. The pressure suppression capability assures that peak LOCA temperature and pressure in the primary containment are within design limits. The drywell also protects accessible areas of the containment from radiation originating in the reactor core and RCS.

To ensure the drywell pressure suppression capability, the drywell bypass leakage must be minimized to prevent overpressurization of the primary containment during the drywell pressurization phase of a LOCA. This requires periodic testing of the drywell bypass leakage, confirmation that the drywell air lock is leak tight, OPERABILITY of the drywell isolation valves (DIVs), and confirmation that the drywell vacuum relief valves are closed.

The isolation devices for the drywell penetrations are a part of the drywell barrier. To maintain this barrier:

a. The drywell air lock is OPERABLE except as provided in LCO 3.6.5.2, "Drywell Air Lock";

b. The drywell penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE automatic DIV, or

   2. closed by manual valves, blind flanges, [or equivalent isolation methods] or de-activated automatic valves secured in closed positions except as provided in LCO 3.6.5.3, "Drywell Isolation Valves (DIVs)"; and

(continued)

TSB FORM 1 (11-95)

U.S. NUCLEAR REGULATORY COMMISSION

TRAVELLER FOR STS Rev 2 CHANGES

PACKAGE NO. TSTF-197

DATE 04/10/97

NUREGs	Specs/LCOs/Bases	Filenames
-1430 (BWOG)	3.9.3, 3.9.4, 3.9.5, B 3.9.3, B 3.9.4, B 3.9.5	BS3903__.L01, BS3904__.L01, BS3905__.L01, BS3903__.BA1, BS3904__.BA1, BS3905__.BA1
-1431 (WOG)	3.9.4, 3.9.5, 3.9.6, B 3.9.4, B 3.9.5, B 3.9.6	WS3904__.L01, WS3905__.L01, WS3906__.L01, WS3904__.BA1, WS3905__.BA1, WS3906__.BA1
-1432 (CEOG)	3.9.3, 3.9.4, 3.9.5, B 3.9.3, B 3.9.4, B 3.9.5	CS3903__.L01, CS3904__.L01, CS3905__.L01, CS3903__.BA1, CS3904__.BA1, CS3905__.BA1
-1433 (BWR/4)		
-1434 (BWR/6)		

Entered Database | Date: 4/10/97 | DB Filename: R:\ACCESS.TSB\CHANGES.MDB

STS CHANGE REVIEW

Date Assigned: 4/10/97	Tech Branch: (if review requested)
TSB Reviewer: M. Weston	Tech Reviewer:
Recommendation DATE:	Recommendation DATE:
[ ] APPROVE [ ] MODIFIY [ ] REJECT	[ ] APPROVE [ ] MODIFIY [ ] REJECT
Comments: Replace "outside atmosphere" with "environment" in Containment Penetrations specifications and Bases.	Comments:

STS CHANGE DISPOSITION

TSB ACTION DATE:	TSTF ACTION (if applicable) DATE:
[ ] APPROVED [ ] MODIFIED [ ] REJECTED	[ ] WITHDRAWN [ ] REVISED [ ] APPEALED
Comments:	Comments:

STS FILE AND RECORD DATA CHANGES

ACTION	BY	DATE	ACTION	BY	DATE
Working Draft Created			Approved Draft Created		
Changes Proofed			Approved Draft Certified		
Approved Package			Control Books Updated		
Correction			BBS Files Updated		
Tech Branch Review			Package Filed		
E-Mailed to NEI/TSTF			Database Updated		

G:\FORMS\TVLR-NO.197

Industry/TSTF Standard Technical Specification Change Traveler

Require containment closure when shutdown cooling requirements are not met.

Classification: Improve Specifications

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434

Description:

The phrase "outside atmosphere" is replaced with "environment" in Containment Penetrations specifications and Bases. The DHR/RHR/SDC High and Low Water Level Actions which require "Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere" are replaced with requirements to, "Place containment penetrations in the status described in LCO 3.9.[3][4], 'Containment Penetrations'."

Justification:

The DHR/RHR/SDC and Coolant Circulation - High Water Level, and Low Water Level Actions when the LCO requirements are not met are to, "Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere." This requirement is vague and, in some cases, overly restrictive. It is unclear whether
"outside atmosphere" is the environment or any atmosphere outside of containment. The distinction is important, as the later interpretation would not allow venting of the containment atmosphere to filtered and monitored locations, such as the penetration rooms or the spent fuel pool area. This may have a substantial effect on a refueling outage as it does not allow containment atmospheric venting for pressure control.

The Background section of Containment Penetration LCO describes preventing fission products within the containment from escaping "to the environment," which is an appropriate interpretation of the requirement. Therefore, the phrase "outside atmosphere" is replaced with "environment" in the Specification and Bases.

The requirement in the DHR/RHR/SDC Specifications to, "Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere" is also overly restrictive. There is no reason that the containment purge valves should be closed as long as they are Operable (i.e., will close automatically on a Containment High Radiation Signal).

To clarify the "outside atmosphere" phrase and to address the overly restrictive Actions, the DHR/RHR/SDC requirement "Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere" is replaced with a requirement to, "Place containment penetrations in the status described in LCO 3.9.[3][4], 'Containment Penetrations'." This will require:

a. The equipment hatch closed and held in place by [four] bolts;

b. One door in each air lock closed; and

c. Each penetration providing direct access from the containment atmosphere to the environment either:

1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or
2. capable of being closed by an Operable Containment Purge and Exhaust Isolation System.

This change has several advantages. First, establishing containment closure meets the Bases description for the Action, which is to prevent fission products resulting from a loss of decay heat removal from being released from the containment. Secondly, containment closure is a well understood and controlled condition which is used routinely during a refueling outage. The current DHR/RHR/SDC Action to close all penetrations providing direct access from the containment atmosphere to the outside atmosphere is a rarely used arrangement. Utilizing containment closure instead of the current special actions gives greater confidence that the containment will be appropriate state.

Therefore, the analysis assumptions and Bases assumptions for the Actions are preserved while eliminating an unclear requirement, lessening the administrative burden on the plant, and increasing confidence that the containment will be in the proper status should an event occur.

Affected Technical Specifications

Bkgnd 3.9.3 Bases	Containment Penetrations	NUREG(s)- 1430 1432 Only

3/23/97

LCO 3.9.3	Containment Penetrations	NUREG(s)- 1430 1432 Only
LCO 3.9.3 Bases	Containment Penetrations	NUREG(s)- 1430 1432 Only
Action 3.9.3.A Bases	Containment Penetrations	NUREG(s)- 1430 1432 Only
Action 3.9.4.A	DHR and Coolant Circulation - High Water Level	NUREG(s)- 1430 Only
Action 3.9.4.A Bases	DHR and Coolant Circulation - High Water Level	NUREG(s)- 1430 Only
Action 3.9.5.B	DHR and Coolant Circulation - Low Water Level	NUREG(s)- 1430 Only
Action 3.9.5.B Bases	DHR and Coolant Circulation - Low Water Level	NUREG(s)- 1430 Only
Bkgnd 3.9.4 Bases	Containment Penetrations	NUREG(s)- 1431 Only
LCO 3.9.4	Containment Penetrations	NUREG(s)- 1431 Only
LCO 3.9.4 Bases	Containment Penetrations	NUREG(s)- 1431 Only
Action 3.9.4.A Bases	Containment Penetrations	NUREG(s)- 1431 Only
Action 3.9.5.A	RHR and Coolant Circulation - High Water Level	NUREG(s)- 1431 Only
Action 3.9.5.A Bases	RHR and Coolant Circulation - High Water Level	NUREG(s)- 1431 Only
Action 3.9.6.B	RHR and Coolant Circulation - Low Water Level	NUREG(s)- 1431 Only
Action 3.9.6.B Bases	RHR and Coolant Circulation - Low Water Level	NUREG(s)- 1431 Only
Action 3.9.4.A	SDC and Coolant Circulation - High Water Level	NUREG(s)- 1432 Only
Action 3.9.4.A Bases	SDC and Coolant Circulation - High Water Level	NUREG(s)- 1432 Only
Action 3.9.5.B	SDC and Coolant Circulation - Low Water Level	NUREG(s)- 1432 Only
Action 3.9.5.B Bases	SDC and Coolant Circulation - Low Water Level	NUREG(s)- 1432 Only

CEOG Review Information

CEOG-115

Originating Plant: Calvert Cliffs   Date Provided to OG: 18-Dec-96   Needed By: 01-Mar-97

Owners Group History:

Owners Group Resolution: Approved   Date: 18-Dec-96

TSTF Review Information

TSTF Received Date: 03-Jan-97   Date Distributed to OGs for Review: 20-Jan-97

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF History:

WOG - Applicable, accepts
BWOG - Applicable, accepts
BWROG - Applicable, accepts. Look for list in BWR/4 and BWR/6 NUREGS and determine how to add allowance as they have no Containment Closure LCO.
NOTE: A review of the BWR/4 and BWR/6 NUREGs determined that the phrase "outside atmosphere" is not used and that the RHR - High Water Level and Low Water Level do not have actions analogous to the PWR specifications. Therefore, this change was determined to not be applicable to the BWR/4 and BWR/6 specifications.

TSTF Resolution: Approved   Date: 06-Mar-97   TSTF- 197

NRC Review Information

NRC Received Date: NRC Reviewer: Reviewer Phone #:

Reviewer Comments:

Final Resolution: Final Resolution Date:

Revision History

Incorporation Into the NUREGs

File to BBS/LAN Date:

File to TSTF Date:

File Rev Incoporated:

File Rev Incorporated Date

INSERT 1

A penetration which provides direct access from the containment atmosphere to the environment is defined as any penetration through which potentially radioactive gases could flow from the containment atmosphere to the site boundary without being monitored and without the ability to stop the release if necessary.

TSTF-197

3.9 REFUELING OPERATIONS

3.9.3 Containment Penetrations

LCO 3.9.3 The containment penetrations shall be in the following status:

a. The equipment hatch closed and held in place by four bolts;

b. One door in each air lock closed; and

c. Each penetration providing direct access from the containment atmosphere to the ~~outside atmosphere~~ environment either:

1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or

2. capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	A.2	Suspend movement of irradiated fuel assemblies within containment.	Immediately

TSTF-197

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 ~~Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.~~ Place containment penetrations in the status described in LCO 3.9.3 "Containment Penetrations."	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one DHR loop is in operation and circulating reactor coolant at a flow rate of ≥ [2800] gpm.	12 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	~~Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.~~ Place containment penetrations in the status described in LCO 3.9.3, "Containment Penetrations."	4 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.9.5.1	Verify one DHR loop is in operation.	12 hours
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required DHR pump that is not in operation.	7 days

TSTF-197

B 3.9 REFUELING OPERATIONS

B 3.9.3 Containment Penetrations

BASES

BACKGROUND

During CORE ALTERATIONS or movement of fuel assemblies within containment with irradiated fuel in containment, a release of fission product radioactivity within containment will be restricted from escaping to the environment when the LCO requirements are met. In MODES 1, 2, 3, and 4, this is accomplished by maintaining containment OPERABLE as described in LCO 3.6.1, "Containment." In MODE 6, the potential for containment pressurization as a result of an accident is not likely; therefore, requirements to isolate the containment from the outside atmosphere [environment] can be less stringent. The LCO requirements are referred to as "containment closure" rather than "containment OPERABILITY." Containment closure means that all potential escape paths are closed or capable of being closed. Since there is no potential for containment pressurization, the Appendix J leakage criteria and tests are not required.

The containment serves to contain fission product radioactivity that may be released from the reactor core following an accident, such that offsite radiation exposures are maintained well within the requirements of 10 CFR 100. Additionally, the containment provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment equipment hatch, which is part of the containment pressure boundary, provides a means for moving large equipment and components into and out of containment. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the equipment hatch must be held in place by at least four bolts. Good engineering practice dictates that the bolts required by this LCO be approximately equally spaced.

The containment air locks, which are also part of the containment pressure boundary, provide a means for personnel access during MODES 1, 2, 3, and 4 unit operation in accordance with LCO 3.6.2, "Containment Air Locks." Each air lock has a door at both ends. The doors are normally interlocked to prevent simultaneous opening when containment OPERABILITY is required. During periods of unit shutdown

(continued)

TSTF-197

BACKGROUND (continued)

when containment closure is not required, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, containment closure is required; therefore, the door interlock mechanism may remain disabled, but one air lock door must always remain closed.

The requirements on containment penetration closure ensure that a release of fission product radioactivity within containment will be restricted from escaping to the environment. The closure restrictions are sufficient to restrict fission product radioactivity release from containment due to a fuel handling accident during refueling.

The Containment Purge and Exhaust System includes two subsystems. The normal subsystem includes a [42] inch purge penetration and a [42] inch exhaust penetration. The second subsystem, or minipurge system, includes an [8] inch purge penetration and an [8] inch exhaust penetration. During MODES 1, 2, 3, and 4, the two valves in each of the normal purge and exhaust penetrations are secured in the closed position. The two valves in each of the two minipurge penetrations can be opened intermittently but are closed automatically by the Engineered Safety Feature Actuation System (ESFAS). Neither of the subsystems is subject to a Specification in MODE 5.

In MODE 6, large air exchangers are necessary to conduct refueling operations. The normal [42] inch purge system is used for this purpose, and all four valves are closed on a reactor building (RB) high radiation signal in accordance with LCO 3.3.15, "Reactor Building (RB) Purge Isolation" High Radiation.

environment the

The other containment penetrations that provide direct access from containment atmosphere to ~~outside atmosphere~~ must be isolated on at least one side. 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 the other containment penetrations during fuel movements (Ref. 1).

(continued)

TSTF-197

BASES (continued)

APPLICABLE SAFETY ANALYSES

During CORE ALTERATIONS or movement of fuel assemblies within containment with irradiated fuel in containment, the most severe radiological consequences result from a fuel handling accident. The fuel handling accident is a postulated event that involves damage to irradiated fuel (Ref. 2). Fuel handling accidents, analyzed in Reference 3, include dropping a single irradiated fuel assembly and handling tool or a heavy object onto other irradiated fuel assemblies. The requirements of LCO 3.9.6, "Refueling Canal Water Level," and the minimum decay time of [100] hours prior to CORE ALTERATIONS ensure that the release of fission product radioactivity subsequent to a fuel handling accident results in doses that are within the requirements specified in 10 CFR 100. The acceptance limits for offsite radiation exposure are contained in Reference 2.

Containment penetrations satisfy Criterion 3 of the NRC Policy Statement.

LCO

This LCO limits the consequences of a fuel handling accident in containment by limiting the potential escape paths for fission product radioactivity from containment. The LCO requires any penetration providing direct access from the containment atmosphere to the ~~outside atmosphere~~ environment to be closed except for the OPERABLE containment purge and exhaust penetrations. Insert 1 For the OPERABLE containment purge and exhaust penetrations, this LCO ensures that these penetrations are isolable by the RB purge isolation signal. The OPERABILITY requirements for this LCO ensure that the automatic purge and exhaust valve closure times specified in the FSAR can be achieved and therefore meet the assumptions used in the safety analysis to ensure releases through the valves are terminated such that radiological doses are within the acceptance limit.

APPLICABILITY

The containment penetration requirements are applicable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment because this is when there is a potential for a fuel handling accident. In MODES 1, 2, 3, and 4, containment penetration requirements are addressed by LCO 3.6.1. In MODES 5 and 6, when CORE ALTERATIONS or movement of irradiated fuel assemblies within containment

(continued)

TSTF-197

BASES

APPLICABILITY (continued)

are not being conducted, the potential for a fuel handling accident does not exist. Therefore, under these conditions no requirements are placed on containment penetration status.

ACTIONS

A.1 and A.2

With the containment equipment hatch, air locks, or any containment penetration that provides direct access from the containment atmosphere to the outside atmosphere [environment] not in the required status, including the Containment Purge and Exhaust Isolation System not capable of automatic actuation when the purge and exhaust valves are open, the unit must be placed in a condition in which the isolation function is not needed. This is accomplished by immediately suspending CORE ALTERATIONS and movement of irradiated fuel assemblies within containment. Performance of these actions shall not preclude moving a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.3.1

This Surveillance demonstrates that each of the containment penetrations required to be in its closed position is in that position. The Surveillance on the open purge and exhaust valves will demonstrate that the valves are not blocked from closing. Also the Surveillance will demonstrate that each valve operator has motive power, which will ensure each valve is capable of being closed by an OPERABLE automatic RB purge isolation signal.

The Surveillance is performed every 7 days during CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment. The Surveillance interval is selected to be commensurate with the normal duration of time to complete fuel handling operations. A surveillance before the start of refueling operations will provide two or three surveillance verifications during the applicable period for this LCO.

As such, this Surveillance ensures that a postulated fuel handling accident that releases fission product

(continued)

INSERT 2(NUREG-1430)

If no DHR is in operation, all containment penetrations must be put in the status described in LCO 3.9.3, "Containment Penetrations." With DHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Placing the containment penetrations in the status described in LCO 3.9.3 ensures that all containment penetrations are either closed or can be closed so that the dose limits are not exceeded.

The completion time of 4 hours allows fixing of most DHR problems and is reasonable, based on the low probability of the coolant boiling in that time.

TSTF-197

BASES

ACTIONS (continued)

A.3

If DHR loop requirements are not met, actions shall be initiated immediately in order to satisfy DHR loop requirements.

A.4

Insert 2 →

~~If DHR loop requirements are not met, all containment penetrations providing direct access from the containment atmosphere to outside atmosphere shall be closed within 4 hours.~~

SURVEILLANCE REQUIREMENTS

SR 3.9.4.1

This Surveillance demonstrates that the DHR loop is in operation and circulating reactor coolant. The flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability and to prevent thermal and boron stratification in the core. The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control, and alarm indications available to the operator in the control room for monitoring the DHR System.

REFERENCES

1. FSAR, Section [ ].

TSTF-197

BASES

ACTIONS (continued)

B.3

Insert 2

If no RHR loop is in operation, all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere must be closed within 4 hours. With the RHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Closing containment penetrations that are open to the outside atmosphere ensures that dose limits are not exceeded.

The Completion Time of 4 hours is reasonable, based on the low probability of the coolant boiling in that time.

SURVEILLANCE REQUIREMENTS

SR 3.9.5.1

This Surveillance demonstrates that one DHR loop is in operation. The flow rate is determined by the flow rate necessary to provide efficient decay heat removal capability and to prevent thermal and boron stratification in the core.

In addition, during operation of the DHR loop with the water level in the vicinity of the reactor vessel nozzles, the DHR loop flow rate determination must also consider the DHR pump suction requirement. The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control, and alarm indications available to the operator to monitor the DHR System in the control room.

SR 3.9.5.2

Verification that the required pump is OPERABLE ensures that an additional DHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to the required pump. The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.

REFERENCES

1. FSAR, Section [ ].

TSTF-197

3.9 REFUELING OPERATIONS

3.9.4 Containment Penetrations

LCO 3.9.4 The containment penetrations shall be in the following status:

a. The equipment hatch closed and held in place by [four] bolts;

b. One door in each air lock closed; and

c. Each penetration providing direct access from the containment atmosphere to the ~~outside atmosphere~~ environment either:

1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or

2. capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately

TSTF-197

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 ~~Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.~~ Place containment penetrations in the status described in LCO 3.9.4, "Containment Penetrations."	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ [2800] gpm.	12 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Initiate action to restore one RHR loop to operation.	Immediately
	AND	
	B.3 ~~Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.~~ Place containment penetrations in the status described in LCO 3.9.4, "Containment Penetrations."	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ [2800] gpm.	12 hours
SR 3.9.6.2	Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	7 days

TSTF-197

B 3.9 REFUELING OPERATIONS

B 3.9.4 Containment Penetrations

BASES

BACKGROUND

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, a release of fission product radioactivity within containment will be restricted from escaping to the environment when the LCO requirements are met. In MODES 1, 2, 3, and 4, this is accomplished by maintaining containment OPERABLE as described in LCO 3.6.1, "Containment." In MODE 6, the potential for containment pressurization as a result of an accident is not likely; therefore, requirements to isolate the containment from the ~~outside atmosphere~~ environment can be less stringent. The LCO requirements are referred to as "containment closure" rather than "containment OPERABILITY." Containment closure means that all potential escape paths are closed or capable of being closed. Since there is no potential for containment pressurization, the Appendix J leakage criteria and tests are not required.

The containment serves to contain fission product radioactivity that may be released from the reactor core following an accident, such that offsite radiation exposures are maintained well within the requirements of 10 CFR 100. Additionally, the containment provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment equipment hatch, which is part of the containment pressure boundary, provides a means for moving large equipment and components into and out of containment. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the equipment hatch must be held in place by at least four bolts. Good engineering practice dictates that the bolts required by this LCO be approximately equally spaced.

The containment air locks, which are also part of the containment pressure boundary, provide a means for personnel access during MODES 1, 2, 3, and 4 unit operation in accordance with LCO 3.6.2, "Containment Air Locks." Each air lock has a door at both ends. The doors are normally interlocked to prevent simultaneous opening when containment OPERABILITY is required. During periods of unit shutdown

(continued)

BACKGROUND (continued)

when containment closure is not required, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, containment closure is required; therefore, the door interlock mechanism may remain disabled, but one air lock door must always remain closed.

The requirements for containment penetration closure ensure that a release of fission product radioactivity within containment will be restricted from escaping to the environment. The closure restrictions are sufficient to restrict fission product radioactivity release from containment due to a fuel handling accident during refueling.

The Containment Purge and Exhaust System includes two subsystems. The normal subsystem includes a 42 inch purge penetration and a 42 inch exhaust penetration. The second subsystem, a minipurge system, includes an 8 inch purge penetration and an 8 inch exhaust penetration. During MODES 1, 2, 3, and 4, the two valves in each of the normal purge and exhaust penetrations are secured in the closed position. The two valves in each of the two minipurge penetrations can be opened intermittently, but are closed automatically by the Engineered Safety Features Actuation System (ESFAS). Neither of the subsystems is subject to a Specification in MODE 5.

In MODE 6, large air exchangers are necessary to conduct refueling operations. The normal 42 inch purge system is used for this purpose, and all four valves are closed by the ESFAS in accordance with LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation."

[The minipurge system remains operational in MODE 6, and all four valves are also closed by the ESFAS.

or

The minipurge system is not used in MODE 6. All four 8 inch valves are secured in the closed position.]

The other containment penetrations that provide direct access from containment atmosphere to ~~outside atmosphere~~ {the environment}

(continued)

BACKGROUND (continued)

must be isolated on at least one side. 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 the other containment penetrations during fuel movements (Ref. 1).

APPLICABLE SAFETY ANALYSES

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident. The fuel handling accident is a postulated event that involves damage to irradiated fuel (Ref. 2). Fuel handling accidents, analyzed in Reference 3, include dropping a single irradiated fuel assembly and handling tool or a heavy object onto other irradiated fuel assemblies. The requirements of LCO 3.9.7, "Refueling Cavity Water Level," and the minimum decay time of 100 hours prior to CORE ALTERATIONS ensure that the release of fission product radioactivity, subsequent to a fuel handling accident, results in doses that are well within the guideline values specified in 10 CFR 100. Standard Review Plan, Section 15.7.4, Rev. 1 (Ref. 3), defines "well within" 10 CFR 100 to be 25% or less of the 10 CFR 100 values. The acceptance limits for offsite radiation exposure will be 25% of 10 CFR 100 values or the NRC staff approved licensing basis (e.g., a specified fraction of 10 CFR 100 limits).

Containment penetrations satisfy Criterion 3 of the NRC Policy Statement.

LCO

This LCO limits the consequences of a fuel handling accident in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the ~~outside atmosphere~~ environment to be closed except for the OPERABLE containment purge and exhaust ~~penetrations.~~ [Insert 1] For the OPERABLE containment purge and exhaust penetrations, this LCO ensures that these penetrations are isolable by the Containment Purge and Exhaust Isolation System. The OPERABILITY requirements for this LCO ensure that the automatic purge and exhaust valve

(continued)

LCO (continued)

closure times specified in the FSAR can be achieved and, therefore, meet the assumptions used in the safety analysis to ensure that releases through the valves are terminated, such that radiological doses are within the acceptance limit.

APPLICABILITY

The containment penetration requirements are applicable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment because this is when there is a potential for a fuel handling accident. In MODES 1, 2, 3, and 4, containment penetration requirements are addressed by LCO 3.6.1. In MODES 5 and 6, when CORE ALTERATIONS or movement of irradiated fuel assemblies within containment are not being conducted, the potential for a fuel handling accident does not exist. Therefore, under these conditions no requirements are placed on containment penetration status.

ACTIONS

A.1 and A.2

environment

If the containment equipment hatch, air locks, or any containment penetration that provides direct access from the containment atmosphere to the ~~outside atmosphere~~ is not in the required status, including the Containment Purge and Exhaust Isolation System not capable of automatic actuation when the purge and exhaust valves are open, the unit must be placed in a condition where the isolation function is not needed. This is accomplished by immediately suspending CORE ALTERATIONS and movement of irradiated fuel assemblies within containment. Performance of these actions shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.4.1

This Surveillance demonstrates that each of the containment penetrations required to be in its closed position is in that position. The Surveillance on the open purge and exhaust valves will demonstrate that the valves are not blocked from closing. Also the Surveillance will

(continued)

INSERT 3(NUREG-1431)

If no RHR is in operation, all containment penetrations must be put in the status described in LCO 3.9.4, "Containment Penetrations." With RHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Placing the containment penetrations in the status described in LCO 3.9.4 ensures that all containment penetrations are either closed or can be closed so that the dose limits are not exceeded.

The completion time of 4 hours allows fixing of most RHR problems and is reasonable, based on the low probability of the coolant boiling in that time.

TSTF-197

BASES

ACTIONS

A.3 (continued)

water level ≥ 23 ft above the top of the reactor vessel flange, corrective actions shall be initiated immediately.

A.4

Insert 3

~~If RHR loop requirements are not met, all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere must be closed within 4 hours. With the RHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Closing containment penetrations that are open to the outside atmosphere ensures dose limits are not exceeded.~~

~~The Completion Time of 4 hours is reasonable, based on the low probability of the coolant boiling in that time.~~

SURVEILLANCE REQUIREMENTS

SR 3.9.5.1

This Surveillance demonstrates that the RHR loop is in operation and circulating reactor coolant. The flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability and to prevent thermal and boron stratification in the core. The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control, and alarm indications available to the operator in the control room for monitoring the RHR System.

REFERENCES

1. FSAR, Section [5.5.7].

TSTF-197

BASES

ACTIONS (continued)

B.1

If no RHR loop is in operation, there will be no forced circulation to provide mixing to establish uniform boron concentrations. Reduced boron concentrations cannot occur by the addition of water with a lower boron concentration than that contained in the RCS, because all of the unborated water sources are isolated.

B.2

If no RHR loop is in operation, actions shall be initiated immediately, and continued, to restore one RHR loop to operation. Since the unit is in Conditions A and B concurrently, the restoration of two OPERABLE RHR loops and one operating RHR loop should be accomplished expeditiously.

B.3

Insert 3

If no RHR loop is in operation, all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere must be closed within 4 hours. With the RHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Closing containment penetrations that are open to the outside atmosphere ensures that dose limits are not exceeded.

The Completion Time of 4 hours is reasonable, based on the low probability of the coolant boiling in that time.

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

This Surveillance demonstrates that one RHR loop is in operation and circulating reactor coolant. The flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability and to prevent thermal and boron stratification in the core. In addition, during operation of the RHR loop with the water level in the vicinity of the reactor vessel nozzles, the RHR pump suction requirements must be met. The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control,

(continued)

TSTF-197

3.9 REFUELING OPERATIONS

3.9.3 Containment Penetrations

LCO 3.9.3 The containment penetrations shall be in the following status:

a. The equipment hatch closed and held in place by [four] bolts;

b. One door in each air lock closed; and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere either: environment

1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or

2. capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	A.2	Suspend movement of irradiated fuel assemblies within containment.	Immediately

TSTF-197

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 ~~Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.~~ Place containment penetrations in the status described in LCO 3.9.3, "Containment Penetrations."	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one SDC loop is in operation and circulating reactor coolant at a flow rate of ≥ [2200] gpm.	12 hours

TSTF-197

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	~~Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.~~ Place containment penetrations in the status described in LCO 3.9.3 "Containment Penetrations."	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify required SDC loops are OPERABLE and one SDC loop is in operation.	12 hours
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	7 days

TSTF-197

B 3.9 REFUELING OPERATIONS

B 3.9.3 Containment Penetrations

BASES

BACKGROUND

During CORE ALTERATIONS or movement of fuel assemblies within containment with irradiated fuel in containment, a release of fission product radioactivity within the containment will be restricted from escaping to the environment when the LCO requirements are met. In MODES 1, 2, 3, and 4, this is accomplished by maintaining containment OPERABLE as described in LCO 3.6.1, "Containment." In MODE 6, the potential for containment pressurization as a result of an accident is not likely; therefore, requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements are referred to as "containment closure" rather than "containment OPERABILITY." Containment closure means that all potential escape paths are closed or capable of being closed. Since there is no potential for containment pressurization, the Appendix J leakage criteria and tests are not required.

environment

The containment serves to contain fission product radioactivity that may be released from the reactor core following an accident, such that offsite radiation exposures are maintained well within the requirements of 10 CFR 100. Additionally, the containment structure provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment equipment hatch, which is part of the containment pressure boundary, provides a means for moving large equipment and components into and out of containment. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the equipment hatch must be held in place by at least four bolts. Good engineering practice dictates that the bolts required by this LCO be approximately equally spaced.

The containment air locks, which are also part of the containment pressure boundary, provide a means for personnel access during MODES 1, 2, 3, and 4 operation in accordance with LCO 3.6.2, "Containment Air Locks." Each air lock has a door at both ends. The doors are normally interlocked to prevent simultaneous opening when containment OPERABILITY is required. During periods of shutdown when containment

(continued)

BACKGROUND (continued)

closure is not required, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, containment closure is required; therefore, the door interlock mechanism may remain disabled, but one air lock door must always remain closed.

The requirements on containment penetration closure ensure that a release of fission product radioactivity within containment will be restricted from escaping to the environment. The closure restrictions are sufficient to restrict fission product radioactivity release from containment due to a fuel handling accident during refueling.

The Containment Purge and Exhaust System includes two subsystems. The normal subsystem includes a 42 inch purge penetration and a 42 inch exhaust penetration. The second subsystem, a minipurge system, includes an 8 inch purge penetration and an 8 inch exhaust penetration. During MODES 1, 2, 3, and 4, the two valves in each of the normal purge and exhaust penetrations are secured in the closed position. The two valves in each of the two minipurge penetrations can be opened intermittently, but are closed automatically by the Engineered Safety Features Actuation System (ESFAS). Neither of the subsystems is subject to a Specification in MODE 5.

In MODE 6, large air exchanges are necessary to conduct refueling operations. The normal 42 inch purge system is used for this purpose and all valves are closed by the ESFAS in accordance with LCO 3.3.2, "Reactor Protective System (RPS)—Shutdown."

[The minipurge system remains operational in MODE 6 and all four valves are also closed by the ESFAS.

or

The minipurge system is not used in MODE 6. All four [8] inch valves are secured in the closed position.]

The other containment penetrations that provide direct access from containment atmosphere to ~~outside atmosphere~~ environment

(continued)

BACKGROUND (continued)

must be isolated on at least one side. 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 the other containment penetrations during fuel movements (Ref. 1).

APPLICABLE SAFETY ANALYSES

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident. The fuel handling accident is a postulated event that involves damage to irradiated fuel (Ref. 2). Fuel handling accidents, analyzed in Reference 3, include dropping a single irradiated fuel assembly and handling tool or a heavy object onto other irradiated fuel assemblies. The requirements of LCO 3.9.6, "Refueling Water Level," and the minimum decay time of [72] hours prior to CORE ALTERATIONS ensure that the release of fission product radioactivity, subsequent to a fuel handling accident, results in doses that are well within the guideline values specified in 10 CFR 100. The acceptance limits for offsite radiation exposure are contained in Standard Review Plan Section 15.7.4, Rev. 1 (Ref. 2), which defines "well within" 10 CFR 100 to be 25% or less of the 10 CFR 100 values.

Containment penetrations satisfy Criterion 3 of the NRC Policy Statement.

LCO

This LCO limits the consequences of a fuel handling accident in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the ~~outside atmosphere~~ environment to be closed except for the OPERABLE containment purge and exhaust penetrations. Insert 1 For the OPERABLE containment purge and exhaust penetrations, this LCO ensures that these penetrations are isolable by the Containment Purge and Exhaust Isolation System. The OPERABILITY requirements for this LCO ensure that the automatic purge and exhaust valve closure times specified in the FSAR can be achieved and therefore meet the assumptions used in the safety analysis

(continued)

LCO (continued)

to ensure releases through the valves are terminated, such that the radiological doses are within the acceptance limit.

APPLICABILITY

The containment penetration requirements are applicable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment because this is when there is a potential for a fuel handling accident. In MODES 1, 2, 3, and 4, containment penetration requirements are addressed by LCO 3.6.1, "Containment." In MODES 5 and 6, when CORE ALTERATIONS or movement of irradiated fuel assemblies within containment are not being conducted, the potential for a fuel handling accident does not exist. Therefore, under these conditions no requirements are placed on containment penetration status.

ACTIONS

A.1 and A.2

With the containment equipment hatch, air locks, or any containment penetration that provides direct access from the containment atmosphere to the outside atmosphere [environment] not in the required status, including the Containment Purge and Exhaust Isolation System not capable of automatic actuation when the purge and exhaust valves are open, the unit must be placed in a condition in which the isolation function is not needed. This is accomplished by immediately suspending CORE ALTERATIONS and movement of irradiated fuel assemblies within containment. Performance of these actions shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.3.1

This Surveillance demonstrates that each of the containment penetrations required to be in its closed position is in that position. The Surveillance on the open purge and exhaust valves will demonstrate that the valves are not blocked from closing. Also, the Surveillance will demonstrate that each valve operator has motive power, which will ensure each valve is capable of being closed by an

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INSERT 4(NUREG-1432)

If no SDC is in operation, all containment penetrations must be put in the status described in LCO 3.9.3, "Containment Penetrations." With SDC loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Placing the containment penetrations in the status described in LCO 3.9.3 ensures that all containment penetrations are either closed or can be closed so that the dose limits are not exceeded.

The completion time of 4 hours allows fixing of most SDC problems and is reasonable, based on the low probability of the coolant boiling in that time.