

## Industry/TSTF Standard Technical Specification Change Traveler

Require containment closure when shutdown cooling requirements are not met.

Classification: 3) Improve Specifications

NUREGs Affected:  1430  1431  1432  1433  1434

### Description:

The DHR/RHR/SDC High and Low Water Level Actions which require the closure of all penetrations providing direct access from containment atmosphere are replaced with requirements to:

- a) close the equipment hatch and secure with [four] bolts;
- b) close one door in each air lock; and
- c) either close each penetration providing direct access from the containment atmosphere to the outside atmosphere with a manual or automatic isolation valve, blind flange, or equivalent, or verify the penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

### 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. 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 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:

- a) close the equipment hatch and secure with [four] bolts;
- b) close one door in each air lock; and
- c) either close each penetration providing direct access from the containment atmosphere to the outside atmosphere with a manual or automatic isolation valve, blind flange, or equivalent, or verify the penetration is 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 from being released from the containment during a loss of shutdown cooling event. 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 in the 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.

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### Revision History

**OG Revision 0**

**Revision Status: Closed**

Revision Proposed by: Calvert Cliffs

Revision Description:  
Original Issue

6/15/99

**OG Revision 0****Revision Status: Closed****Owners Group Review Information**

Date Originated by OG: 18-Dec-96

Owners Group Comments  
(No Comments)

Owners Group Resolution: Approved Date: 18-Dec-96

**TSTF Review Information**

TSTF Received Date: 03-Jan-97 Date Distributed for Review 20-Jan-97

OG Review Completed:  BWOG  WOG  CEOG  BWROG

TSTF Comments:

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

**NRC Review Information**

NRC Received Date: 27-Mar-97

NRC Comments:

4/7/97 Rec'd pkg.

4/10/97 Forwarded to reviewer.

10/2/97 - Forwarded to SRXB for review. TSTF reported that they will submit a revision retaining the change in Action.

Final Resolution: Superseded by Revision

Final Resolution Date: 02-Oct-97

**TSTF Revision 1****Revision Status: Active****Next Action:**

Revision Proposed by: TSTF

Revision Description:

The NRC requested that the actions for the DHR/RHR/SDC High and Low Water Level define the actions to take, instead of referencing an LCO requirement. This revision addresses this NRC comment. The DHR/RHR/SDC High and Low Water Level Actions which require the closure of all penetrations providing direct access from containment atmosphere are replaced with requirements to:

- a) close the equipment hatch and secure with [four] bolts;
- b) close one door in each air lock; and
- c) either close each penetration providing direct access from the containment atmosphere to the environment with a manual or automatic isolation valve, blind flange, or equivalent, or verify the penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

6/15/99

**TSTF Revision 1****Revision Status: Active****Next Action:**

The Bases were revised to reflect this change.

**TSTF Review Information**

TSTF Received Date: 28-May-98      Date Distributed for Review 28-May-98

OG Review Completed:  BWOG  WOG  CEOG  BWROG

TSTF Comments:

Add "each" after "verify" in A.6.2. Delete Insert 1.

TSTF Resolution: Approved      Date: 10-Jul-98

**NRC Review Information**

NRC Received Date: 25-Sep-98

NRC Comments:

4/22/98 - NRC requests explanation on difference between "environment" and "outside atmosphere". TSTF to respond.

Final Resolution: Superseded by Revision

Final Resolution Date: 22-Apr-98

**TSTF Revision 2****Revision Status: Active****Next Action: NRC**

Revision Proposed by: NRC

Revision Description:

Based on NRC comments, the change from "outside atmosphere" to "environment" is eliminated from the Traveler.

**TSTF Review Information**

TSTF Received Date: 15-Jun-99      Date Distributed for Review 15-Jun-99

OG Review Completed:  BWOG  WOG  CEOG  BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved      Date: 15-Jun-99

**NRC Review Information**

NRC Received Date: 16-Jun-99

NRC Comments:

(No Comments)

Final Resolution: NRC Action Pending

Final Resolution Date:

**Incorporation Into the NUREGs**

File to BBS/LAN Date:

TSTF Informed Date:

TSTF Approved Date:

6/15/99

NUREG Rev Incorporated:

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### Affected Technical Specifications

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
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

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6/15/99

INSERT 2 (NUREG-1430)

If no DHR is in operation, the following actions must be taken:

- a) the equipment hatch must be closed and secured with [four] bolts;
- b) one door in each air lock must be closed; and
- c) each penetration providing direct access from the containment atmosphere to the ~~environment~~ must be either closed by a manual or automatic isolation valve, blind flange, or equivalent, or verified to be capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

*outside atmosphere*

With DHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Performing the actions stated above 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.

INSERT 3(NUREG-1431)

If no RHR is in operation, the following actions must be taken:

- a) the equipment hatch must be closed and secured with [four] bolts;
- b) one door in each air lock must be closed; and
- c) each penetration providing direct access from the containment atmosphere to the ~~environment~~ must be either closed by a manual or automatic isolation valve, blind flange, or equivalent, or verified to be capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

*outside atmosphere*

With RHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Performing the actions described above 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.

INSERT 4(NUREG-1432)

If no SDC is in operation, the following actions must be taken:

- a) the equipment hatch must be closed and secured with [four] bolts;
- b) one door in each air lock must be closed; and
- c) each penetration providing direct access from the containment atmosphere to the ~~environment~~ must be either closed by a manual or automatic isolation valve, blind flange, or equivalent, or verified to be capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

*outside atmosphere*

With SDC loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Performing the actions described above 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.

Insert 5

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.4 Close equipment hatch and secure with [four] bolts.	4 hours
	<u>AND</u>	
	A.5 Close one door in each air lock.	4 hours
	<u>AND</u>	
	A.6.1 Close each penetration providing direct access from the containment atmosphere to the <del>environment</del> with a manual or automatic isolation valve, blind flange, or equivalent.	4 hours
	<u>OR</u>	
	A.6.2 Verify <sup>each</sup> penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.	4 hours

outside atmosphere



each

Insert 6

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.3 Close equipment hatch and secure with [four] bolts.	4 hours
	<u>AND</u>	
	B.4 Close one door in each air lock.	4 hours
	<u>AND</u>	
	B.5.1 Close each penetration providing direct access from the containment atmosphere to the <del>environment</del> with a manual or automatic isolation valve, blind flange, or equivalent.	4 hours
	<u>OR</u>	
	B.5.2 Verify <sup>each</sup> penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.	4 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 <span style="border: 1px solid black; padding: 5px; display: inline-block;"> <del>Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.</del> </span>	4 hours

INSERT 5

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 $\geq$ [2800] gpm.	12 hours

DHR and Coolant Circulation—Low Water Level  
3.9.5

TSTF-197,  
Rev. 2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 <del>Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.</del>	4 hours

INSERT 6

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,  
Rev. 2

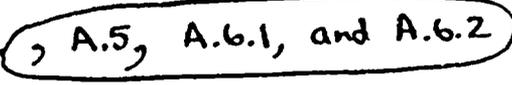
BASES

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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 



~~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.~~

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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.

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REFERENCES

1. FSAR, Section [ ].
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TSTF-197  
Rev. 2

BASES

ACTIONS  
(continued)

B.3

B.4, B.5.1, and B.5.2

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,  
Rev. 2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 <del>Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.</del>	4 hours

INSERT 5

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 $\geq$ [2800] gpm.	12 hours

RHR and Coolant Circulation—Low Water Level

3.9.6

TSTF-197,

Rev. 2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Initiate action to restore one RHR loop to operation.	Immediately
	<p><u>AND</u></p> <p>B.3 <del>Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.</del></p>	4 hours

INSERT 6

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 $\geq$ [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,  
Rev. 2

BASES

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ACTIONS

A.3 (continued)

water level  $\geq$  23 ft above the top of the reactor vessel flange, corrective actions shall be initiated immediately.

A.5, A.6.1, and A.6.2

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.

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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.

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REFERENCES

1. FSAR, Section [5.5.7].
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TST-177,  
Rev. 2

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.3A

2 B.4, B.5.1 and B.5.2

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.

Insert 3

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)

SDC and Coolant Circulation—High Water Level  
3.9.4

TSTF-197  
Rev. 2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 <span style="border: 1px solid black; padding: 5px; display: inline-block;">Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.</span>	4 hours

Insert 5

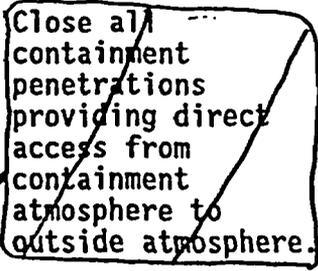
SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.4.1 Verify one SDC loop is in operation and circulating reactor coolant at a flow rate of $\geq$ [2200] gpm.	12 hours

SDC and Coolant Circulation—Low Water Level  
3.9.5

TSTF-197,  
Rev.2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3  <p>Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.</p>	4 hours

INSERT 6

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-177  
Rev. 2

BASES

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ACTIONS  
(continued)

A.4

, A.5, A.6.1, and A.6.2

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.

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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.

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REFERENCES

1. FSAR, Section [ ].
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TSTF-197,  
Rev. 2

BASES

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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

→ B.4, B.5.1, and B.5.2

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.

Insert 4 →

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)