



July 8, 2014  
L-2014-028  
10 CFR 50.90

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

Turkey Point Units 3 and 4  
Docket Nos. 50-250 and 50-251  
License Amendment Request No. LAR-230, Application to Revise Technical Specifications to Adopt Technical Specifications Task Force (TSTF) Traveler-523, "Generic Letter 2008-01, Managing Gas Accumulation," Using the Consolidated Line Item Improvement Process

Reference:

1. Letter (L-2008-218) from W. Jefferson, Jr. (FPL) to Document Control Desk (NRC), "Nine Month Response to NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," October 14, 2008

Pursuant to 10 CFR 50.90, Florida Power & Light Company (FPL) is submitting a request for amendment to the Technical Specifications for Turkey Point Nuclear Plant (Turkey Point), Units 3 and 4.

The proposed amendment would modify TS requirements to address NRC Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," as described in TSTF-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation." FPL committed to submit this proposed change in Reference 1.

Attachment 1 provides a description and assessment of the proposed change. Attachment 2 provides the existing TS pages marked up to show the proposed change. Attachment 3 provides revised (clean) TS pages. Attachment 4 provides existing TS Bases pages marked to show the proposed change. Changes to the existing TS Bases, consistent with the technical and regulatory analyses, will be implemented under the Technical Specification Bases Control Program. They are provided in Attachment 4 for information only.

Please process these changes within one (1) year of receipt, and once approved, the amendment shall be implemented within 60 days.

In accordance with 10 CFR 50.91, a copy of this application, with attachments is being provided to the designated State of Florida Official.

A134  
NRC

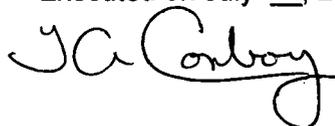
This application has been reviewed by the Turkey Point Onsite Review Group.

This letter satisfies FPL's commitment made in Reference 1 and makes no new commitments or changes to any other existing commitments.

If you have any questions or require additional information, please contact Robert Tomonto at 305-246-7327.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on July 8, 2014.

 Tom Conboy  
for  
Mike Kiley

Michael Kiley  
Site Vice President  
Turkey Point Nuclear Plant

Attachments (4)

cc: USNRC Regional Administrator, Region II  
USNRC Project Manager, Turkey Point Nuclear Plant  
USNRC Resident Inspector, Turkey Point Nuclear Plant  
Ms. Cindy Becker, Florida Department of Health

**License Amendment Request - LAR-230  
Adoption of Technical Specifications Task Force Traveler  
(TSTF)-523, Revision 2,  
Generic Letter 2008-01, Managing Gas Accumulation**

**Attachment 1  
Turkey Point  
Description and Assessment**

- 1.0 DESCRIPTION
- 2.0 ASSESSMENT
  - 2.1 Applicability of Published Safety Evaluation
  - 2.2 Optional Changes and Variations
- 3.0 REGULATORY ANALYSIS
  - 3.1 No Significant Hazards Consideration
  - 3.2 Applicable Regulatory Requirements/Criteria
- 4.0 ENVIRONMENTAL EVALUATION
- 5.0 REFERENCES

**ATTACHMENT 1  
DESCRIPTION AND ASSESSMENT**

**1.0 DESCRIPTION**

The proposed change revises or adds Surveillance Requirements to verify that the system locations susceptible to gas accumulation are sufficiently filled with water and to provide allowances which permit performance of the verification. The changes are being made to address the concerns discussed in NRC Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," [Reference 2].

The proposed amendment is consistent with Technical Specifications Task Force Traveler (TSTF)-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation" [Reference 3].

**2.0 ASSESSMENT**

**2.1 Applicability of Published Safety Evaluation**

Florida Power & Light Company (FPL) has reviewed the model safety evaluation published January 15, 2014 as part of the Federal Register Notice of Availability "TSTF-523, Generic Letter 2008-01 Managing Gas Accumulation Using the Consolidated Line Item Improvement Process" (79 FR 2700) [Reference 4]. This review included a review of the NRC staff's evaluation, as well as the information provided in TSTF-523. As described in the subsequent paragraphs, FPL has concluded that the justifications presented in the TSTF-523 proposal and the model safety evaluation prepared by the NRC staff are applicable to Turkey Point Units 3 and 4 (Turkey Point) and justify this amendment for incorporation of the changes to the Turkey Point Technical Specifications (TS).

**2.2 Optional Changes and Variations**

FPL is proposing the following variations from the TS changes described in the TSTF-523, Revision 2 [Reference 3], or the applicable parts of the NRC staff's model safety evaluation.

The Turkey Point TS utilize different numbering, format, and titles than NUREG-1431, "Standard Technical Specifications -Westinghouse Plants" [Reference 5] on which TSTF-523 was based. Specifically, the numbering and titles differences are provided in the table below.

<b>NUREG-1431 Standard Technical Specifications Westinghouse Plants</b>	<b>Turkey Point Technical Specifications</b>
3.4.6, RCS LOOPS – Mode 4	3/4.4.1.3, Reactor Coolant System – Hot Shutdown
3.4.7, RCS LOOPS – Mode 5 Loops Filled	3/4.4.1.4.1, Reactor Coolant System – Cold Shutdown – Loops Filled
3.4.8, RCS LOOPS – Mode 5 Loops Not Filled	3/4.4.1.4.2, Reactor Coolant System – Cold Shutdown – Loops Not Filled

<b>NUREG-1431 Standard Technical Specifications Westinghouse Plants</b>	<b>Turkey Point Technical Specifications</b>
3.5.2, ECCS – Operating	3/4.5.2, ECCS Subsystems - $T_{avg}$ Greater than or Equal to 350°F
3.6.6A, Containment Spray and Cooling Systems	3/4.6.2, Containment Systems - Depressurization and Cooling Systems
3.9.5, RHR and Coolant Circulation – High Water Level	3/4.9.8.1, Residual Heat Removal and Coolant Circulation - High Water Level
3.9.6, RHR and Coolant Circulation - Low Water Level	3/4.9.8.2, Residual Heat Removal and Coolant Circulation - Low Water Level

These differences are administrative and do not affect the applicability of TSTF-523 to Turkey Point. Attachment 3 provides revised (clean) TS pages.

TSTF-523 and the model safety evaluation discuss the applicable regulatory requirements and guidance including the 10 CFR 50, Appendix A, General Design Criteria (GDC). Turkey Point was not licensed to the 10 CFR 50, Appendix A, GDC. The Turkey Point design criteria are discussed in the Updated Final Safety Analysis Report (UFSAR) Section 1.3, General Design Criteria. The Turkey Point design criteria that equates to GDC 1 are addressed in UFSAR Section 1.3.1, Overall Requirements and the design criteria that equates to GDC 34 through GDC 40 are addressed in UFSAR Section 1.3.7, Engineered Safety Features. This difference does not alter the conclusion that the proposed change is applicable to Turkey Point Units 3 and 4.

### 3.0 REGULATORY SAFETY ANALYSIS

#### 3.1 No Significant Hazards Consideration Determination

Florida Power & Light Company (FPL) requests adoption of Technical Specification Task Force Traveler (TSTF)-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation," which is an approved change to the standard technical specifications (STS), into the Turkey Point Units 3 and 4 Technical Specifications (TS). The proposed change revises or adds Surveillance Requirements (SRs) to verify that the system locations susceptible to gas accumulation are sufficiently filled with water and to provide allowances which permit performance of the verification.

FPL has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

- 1: Does the Proposed Change Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated?

Response: No

The proposed change revises or adds SRs that require verification that the Emergency Core Cooling Systems (ECCS), the Residual Heat Removal (RHR) System, and the Containment Spray (CS) System are not rendered inoperable due to accumulated gas and to provide

allowances which permit performance of the revised verification. Gas accumulation in the subject systems is not an initiator of any accident previously evaluated. As a result, the probability of any accident previously evaluated is not significantly increased. The proposed SRs ensure that the subject systems continue to be capable to perform their assumed safety function and are not rendered inoperable due to gas accumulation. Thus, the consequences of any accident previously evaluated are not significantly increased.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the Proposed Change Create the Possibility of a New or Different Kind of Accident from any Accident Previously Evaluated?

Response: No

The proposed change revises or adds SRs that require verification that the ECCS, the RHR System, and the CS System are not rendered inoperable due to accumulated gas and to provide allowances which permit performance of the revised verification. The proposed change does not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. In addition, the proposed change does not impose any new or different requirements that could initiate an accident. The proposed change does not alter assumptions made in the safety analysis and is consistent with the safety analysis assumptions.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the Proposed Change Involve a Significant Reduction in a Margin of Safety?

Response: No

The proposed change revises or adds SRs that require verification that the ECCS, RHR System, and CS System are not rendered inoperable due to accumulated gas and to provide allowances which permit performance of the revised verification. The proposed change adds new requirements to manage gas accumulation in order to ensure that the subject systems are capable of performing their assumed safety functions. The proposed SRs are more comprehensive than the current SRs and will ensure that the assumptions of the safety analysis are protected. The proposed change does not adversely affect any current plant safety margins or the reliability of the equipment assumed in the safety analysis. Therefore, there are no changes being made to any safety analysis assumptions, safety limits, or limiting safety system settings that would adversely affect plant safety as a result of the proposed change.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

### **3.2 Applicable Regulatory Requirements/Criteria**

Based on the above, FPL concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is substantiated.

### **4.0 ENVIRONMENTAL EVALUATION**

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

### **5.0 REFERENCES**

1. Letter (L-2008-218) from W. Jefferson, Jr. (FPL) to Document Control Desk (NRC), "Nine Month Response to NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," October 14, 2008
2. Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," January 11, 2008, (ADAMS Accession No. ML072910759)
3. Technical Specifications Task Force (TSTF)-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation," February 23, 2013, (ADAMS Accession No. ML13053A075)
4. Federal Register Notice of Availability, "TSTF-523, Generic Letter 2008-01 Managing Gas Accumulation Using the Consolidated Line Item Improvement Process" published January 15, 2014 (79 FR 2700)
5. NUREG-1431, Revision 4, "Standard Technical Specifications –Westinghouse Plants," April 2012 (ADAMS Accession No. ML12100A222)

**License Amendment Request - LAR-230  
Adoption of Technical Specifications Task Force Traveler  
(TSTF)-523, Revision 2,  
Generic Letter 2008-01, Managing Gas Accumulation**

**Attachment 2  
Turkey Point  
Proposed Technical Specifications Changes  
Mark Up**

**This coversheet plus 8 pages**

<b>List of Affected Pages</b>	
3/4 4-3 – No changes this page For information only	3/4 5-5
3/4 4-4	3/4 6-12
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3/4 4-6	3/4 9-8

REACTOR COOLANT SYSTEM

No change this page,  
for information only

HOT SHUTDOWN

LIMITING CONDITION FOR OPERATION

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3.4.1.3 At least two of the loops listed below shall be OPERABLE and at least one of these loops shall be in operation:\*

- a. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,\*\*
- b. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,\*\*
- c. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump,\*\*
- d. RHR Loop A, and
- e. RHR Loop B.

APPLICABILITY:       MODE 4.

ACTION:

- a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; if the remaining OPERABLE loop is an RHR loop, be in COLD SHUTDOWN within 24 hours.
- b. With no loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required loop to operation.

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

\*\* A reactor coolant pump shall not be started with one or more of the Reactor Coolant System cold leg temperatures less than or equal to 275°F unless the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

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4.4.1.3.1 The required reactor coolant pump(s), if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.3.2 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 10% at least once per 12 hours.

4.4.1.3.3 At least one reactor coolant or RHR loop shall be verified in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.3.4 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.\*

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\* Not required to be performed until 12 hours after entering MODE 4.

## REACTOR COOLANT SYSTEM

### COLD SHUTDOWN - LOOPS FILLED

#### LIMITING CONDITION FOR OPERATION

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3.4.1.4.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation\*, and either:

- a. One additional RHR loop shall be OPERABLE\*\*, or
- b. The secondary side water level of at least two steam generators shall be greater than 10%.

APPLICABILITY: MODE 5 with reactor coolant loops filled\*\*\*.

#### ACTION:

- a. With one of the RHR loops inoperable or with less than the required steam generator water level, immediately initiate corrective action to return the inoperable RHR loop to OPERABLE status or restore the required steam generator water level as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

#### SURVEILLANCE REQUIREMENTS

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4.4.1.4.1.1 The secondary side water level of at least two steam generators when required shall be determined to be within limits at least once per 12 hours.

4.4.1.4.1.2 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.4.1.3 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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

\*\* One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE.

\*\*\* A reactor coolant pump shall not be started with one or more of the Reactor Coolant System cold leg temperatures less than or equal to 275°F unless the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures.

REACTOR COOLANT SYSTEM

COLD SHUTDOWN - LOOPS NOT FILLED

LIMITING CONDITION FOR OPERATION

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3.4.1.4.2 Two residual heat removal (RHR) loops shall be OPERABLE\* and at least one RHR loop shall be in operation.\*\*

APPLICABILITY: MODE 5 with reactor coolant loops not filled.

ACTION:

- a. With less than the above required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

4.4.1.4.2.1

SURVEILLANCE REQUIREMENTS

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4.4.1.4.2 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.4.2.2 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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\* One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE.

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

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS component and flow path shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying by control room indication that the following valves are in the indicated positions with power to the valve operators removed:

<u>Valve Number</u>	<u>Valve Function</u>	<u>Valve Position</u>
864A and B	Supply from RWST to ECCS	Open
862A and B	RWST Supply to RHR pumps	Open
863A and B	RHR Recirculation	Closed
866A and B	H.H.S.I. to Hot Legs	Closed
HCV-758*	RHR HX Outlet	Open

To permit temporary operation of these valves for surveillance or maintenance purposes, power may be restored to these valves for a period not to exceed 24 hours.

- b. At least once per 31 days by:

Verifying ECCS locations susceptible to gas accumulation are sufficiently filled with water.

- 1) ~~Verifying that the ECCS piping is full of water by venting the ECCS pump casings and accessible discharge piping.~~
- 2) Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position and \*\*
- 3) Verifying that each RHR Pump develops the indicated differential pressure applicable to the operating conditions in accordance with Figure 3.5-1 when tested pursuant to Specification 4.0.5.

- c. At least once per 92 days by:

- 1) Verifying that each SI pump develops the indicated differential pressure applicable to the operating conditions when tested pursuant to Specification 4.0.5.  
  
SI pump     $\geq 1083$  psid at a metered flowrate  $\geq 300$  gpm (normal alignment or Unit 4 SI pumps aligned to Unit 3 RWST), or  
  
                   $\geq 1113$  psid at a metered flowrate  $\geq 280$  gpm (Unit 3 SI pumps aligned to Unit 4 RWST).

\*Air Supply to HCV-758 shall be verified shut off and sealed closed once per 31 days.

\*\* Not required to be met for system vent flow paths opened under administrative control.

CONTAINMENT SYSTEMS

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

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3.6.2.1 Two independent Containment Spray Systems shall be OPERABLE with each Spray System capable of taking suction from the RWST and manually transferring suction to the containment sump via the RHR System.

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

ACTION:

- a. With one Containment Spray System inoperable restore the inoperable Spray System to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With two Containment Spray Systems inoperable restore at least one Spray System to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore both Spray Systems to OPERABLE status within 72 hours of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

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4.6.2.1 Each Containment Spray System shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position and that power is available to flow path components that require power for operation, \*
- b. By verifying that on recirculation flow, each pump develops the indicated differential pressure, when tested pursuant to Specification 4.0.5:

Containment Spray Pump  $\geq 241.6$  psid while aligned in recirculation mode.

- c. At least once per 31 days, by verifying containment spray locations susceptible to gas accumulation are sufficiently filled with water.

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\* Not required to be met for system vent flow paths opened under administrative control.

## REFUELING OPERATIONS

### 3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

#### HIGH WATER LEVEL

#### LIMITING CONDITION FOR OPERATION

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

**APPLICABILITY:** MODE 6, when the water level above the top of the reactor vessel flange is greater than or equal to 23 feet.

#### **ACTION:**

With no RHR loop OPERABLE and in operation, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to OPERABLE and operating status as soon as possible. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

#### SURVEILLANCE REQUIREMENTS

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4.9.8.1.1 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 3000 gpm at least once per 12 hours.

4.9.8.1.2 The RHR flow indicator shall be subjected to a CHANNEL CALIBRATION at least once per 18 months.

4.9.8.1.3 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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\*The required RHR loop may be removed from operation for up to 1 hour per 8 hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System boron concentration.

## REFUELING OPERATIONS

### LOW WATER LEVEL

#### LIMITING CONDITION FOR OPERATION

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3.9.8.2 Two independent residual heat removal (RHR) loops shall be OPERABLE, and at least one RHR loop shall be in operation\*.

APPLICABILITY: MODE 6, when the water level above the top of the reactor vessel flange is less than 23 feet.

#### ACTION:

- a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status, or to establish greater than or equal to 23 feet of water above the reactor vessel flange, as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

4.9.8.2.1



#### SURVEILLANCE REQUIREMENTS

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~~4.9.8.2~~ At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 3000 gpm at least once per 12 hours.

4.9.8.2.2 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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\* One required RHR loop may be inoperable for up to 2 hours for surveillance testing, provided that the other RHR loop is OPERABLE and in operation.

**License Amendment Request - LAR-230  
Adoption of Technical Specifications Task Force Traveler  
(TSTF)-523, Revision 2,  
Generic Letter 2008-01, Managing Gas Accumulation**

**Attachment 3  
Turkey Point  
Revised Technical Specifications Pages**

**This coversheet plus 7 pages**

## REACTOR COOLANT SYSTEM

### SURVEILLANCE REQUIREMENTS

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- 4.4.1.3.1 The required reactor coolant pump(s), if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.
- 4.4.1.3.2 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 10% at least once per 12 hours.
- 4.4.1.3.3 At least one reactor coolant or RHR loop shall be verified in operation and circulating reactor coolant at least once per 12 hours.
- 4.4.1.3.4 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.\*

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\* Not required to be performed until 12 hours after entering MODE 4.

REACTOR COOLANT SYSTEM

COLD SHUTDOWN - LOOPS FILLED

LIMITING CONDITION FOR OPERATION

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3.4.1.4.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation\*, and either:

- a. One additional RHR loop shall be OPERABLE\*\*, or
- b. The secondary side water level of at least two steam generators shall be greater than 10%.

APPLICABILITY: MODE 5 with reactor coolant loops filled\*\*\*.

ACTION:

- a. With one of the RHR loops inoperable or with less than the required steam generator water level, immediately initiate corrective action to return the inoperable RHR loop to OPERABLE status or restore the required steam generator water level as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

SURVEILLANCE REQUIREMENTS

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4.4.1.4.1.1 The secondary side water level of at least two steam generators when required shall be determined to be within limits at least once per 12 hours.

4.4.1.4.1.2 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.4.1.3 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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

\*\* One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE.

\*\*\* A reactor coolant pump shall not be started with one or more of the Reactor Coolant System cold leg temperatures less than or equal to 275°F unless the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures.

REACTOR COOLANT SYSTEM

COLD SHUTDOWN - LOOPS NOT FILLED

LIMITING CONDITION FOR OPERATION

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3.4.1.4.2 Two residual heat removal (RHR) loops shall be OPERABLE\* and at least one RHR loop shall be in operation.\*\*

APPLICABILITY: MODE 5 with reactor coolant loops not filled.

ACTION:

- a. With less than the above required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

SURVEILLANCE REQUIREMENTS

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4.4.1.4.2.1 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.4.2.2 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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\* One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE.

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

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS component and flow path shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying by control room indication that the following valves are in the indicated positions with power to the valve operators removed:

<u>Valve Number</u>	<u>Valve Function</u>	<u>Valve Position</u>
864A and B	Supply from RWST to ECCS	Open
862A and B	RWST Supply to RHR pumps	Open
863A and B	RHR Recirculation	Closed
866A and B	H.H.S.I. to Hot Legs	Closed
HCV-758*	RHR HX Outlet	Open

To permit temporary operation of these valves for surveillance or maintenance purposes, power may be restored to these valves for a period not to exceed 24 hours.

- b. At least once per 31 days by:

- 1) Verifying ECCS locations susceptible to gas accumulation are sufficiently filled with water.
- 2) Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position, \*\* and
- 3) Verifying that each RHR Pump develops the indicated differential pressure applicable to the operating conditions in accordance with Figure 3.5-1 when tested pursuant to Specification 4.0.5.

- c. At least once per 92 days by:

- 1) Verifying that each SI pump develops the indicated differential pressure applicable to the operating conditions when tested pursuant to Specification 4.0.5.  
  
SI pump     $\geq 1083$  psid at a metered flowrate  $\geq 300$  gpm (normal alignment or Unit 4 SI pumps aligned to Unit 3 RWST), or  
  
                   $\geq 1113$  psid at a metered flowrate  $\geq 280$  gpm (Unit 3 SI pumps aligned to Unit 4 RWST).

\*Air Supply to HCV-758 shall be verified shut off and sealed closed once per 31 days.

\*\*Not required to be met for system vent flow paths opened under administrative control.

## CONTAINMENT SYSTEMS

### 3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

#### CONTAINMENT SPRAY SYSTEM

##### LIMITING CONDITION FOR OPERATION

---

3.6.2.1 Two independent Containment Spray Systems shall be OPERABLE with each Spray System capable of taking suction from the RWST and manually transferring suction to the containment sump via the RHR System.

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

ACTION:

- a. With one Containment Spray System inoperable restore the inoperable Spray System to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With two Containment Spray Systems inoperable restore at least one Spray System to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore both Spray Systems to OPERABLE status within 72 hours of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

##### SURVEILLANCE REQUIREMENTS

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4.6.2.1 Each Containment Spray System shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position and that power is available to flow path components that require power for operation;\*
- b. By verifying that on recirculation flow, each pump develops the indicated differential pressure, when tested pursuant to Specification 4.0.5:  
  
Containment Spray Pump  $\geq 241.6$  psid while aligned in recirculation mode.
- c. At least once per 31 days, by verifying containment spray locations susceptible to gas accumulation are sufficiently filled with water.

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\*Not required to be met for system vent flow paths opened under administrative control.

## REFUELING OPERATIONS

### 3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

#### HIGH WATER LEVEL

#### LIMITING CONDITION FOR OPERATION

---

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

**APPLICABILITY:** MODE 6, when the water level above the top of the reactor vessel flange is greater than or equal to 23 feet.

#### **ACTION:**

With no RHR loop OPERABLE and in operation, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to OPERABLE and operating status as soon as possible. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.9.8.1.1 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 3000 gpm at least once per 12 hours.

4.9.8.1.2 The RHR flow indicator shall be subjected to a CHANNEL CALIBRATION at least once per 18 months.

4.9.8.1.3 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled water at least once per 31 days.

---

\*The required RHR loop may be removed from operation for up to 1 hour per 8 hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System boron concentration.

## REFUELING OPERATIONS

### LOW WATER LEVEL

#### LIMITING CONDITION FOR OPERATION

---

3.9.8.2 Two independent residual heat removal (RHR) loops shall be OPERABLE, and at least one RHR loop shall be in operation\*.

APPLICABILITY: MODE 6, when the water level above the top of the reactor vessel flange is less than 23 feet.

#### ACTION:

- a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status, or to establish greater than or equal to 23 feet of water above the reactor vessel flange, as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.9.8.2.1 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 3000 gpm at least once per 12 hours.

4.9.8.2.2 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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\* One required RHR loop may be inoperable for up to 2 hours for surveillance testing, provided that the other RHR loop is OPERABLE and in operation.

**License Amendment Request - LAR-230  
Adoption of Technical Specifications Task Force Traveler  
(TSTF)-523, Revision 2,  
Generic Letter 2008-01, Managing Gas Accumulation**

**Attachment 4  
Turkey Point  
Proposed Technical Specifications Bases Changes  
Mark Up**

**(For Information Only)**

**This coversheet plus 10 pages**

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3/4.4.1 (Continued)

The Technical Specifications for Cold Shutdown allow an inoperable RHR pump to be the operating RHR pump for up to 2 hours for surveillance testing to establish operability. This is required because of the piping arrangement when the RHR system is being used for Decay Heat Removal.

3/4.4.2 Safety Valves ← INSERT 1 next page

The Pressurizer Code Safety Valves operate to prevent the RCS from being pressurized above its Safety Limit of 2735 psig. Each safety valve is designed to relieve 293,330 lbs per hour of saturated steam at the valve setpoint. The relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown. In the event that **NO** safety valves are OPERABLE, an RCS vent opening of at least 2.20 square inches will provide overpressure relief capability and will prevent RCS overpressurization. In addition, the Overpressure Mitigating System provides a diverse means of protection against RCS overpressurization at low temperatures.

During operation, all Pressurizer Code Safety Valves must be OPERABLE to prevent the RCS from being pressurized above its Safety Limit of 2735 psig. The combined relief capacity of all of these valves is greater than the maximum surge rate resulting from a complete loss-of-load assuming **NO** Reactor trip until the first Reactor Trip System Trip Setpoint is reached (i.e., **NO** credit is taken for a direct Reactor trip on the loss-of-load) and also assuming **NO** operation of the power-operated relief valves or steam dump valves.

The pressurizer safety valves are set to open at an RCS pressure of 2465 psig +2% and -3% to avoid exceeding the maximum design pressure safety limit and to maintain accident assumptions. The pressurizer safety valve lift setting is needed to assure acceptable results for the Loss of Load/ Turbine Trip analysis. The upper and lower pressure tolerance limits are based on the tolerance requirements assumed in the safety analyses.

INSERT 1

RHR System piping and components have the potential to develop voids and pockets of entrained gases. Preventing and managing gas intrusion and accumulation is necessary for proper operation of the required RHR loops and may also prevent water hammer, pump cavitation, and pumping of non-condensable gas into the reactor vessel.

Selection of RHR System locations susceptible to gas accumulation is based on a review of system design information, including piping and instrument drawings, isometric drawings, plan and elevation drawings, and calculations. The design review is supplemented by system walk downs to validate the system high points and to confirm the location and orientation of important components that can become sources of gas or could otherwise cause gas to be trapped or difficult to remove during system maintenance or restoration. Susceptible locations depend on plant and system configuration, such as stand-by versus operating conditions.

The RHR System is OPERABLE when it is sufficiently filled with water. Acceptance criteria are established for the volume of accumulated gas at susceptible locations. If accumulated gas is discovered that exceeds the acceptance criteria for the susceptible location (or the volume of accumulated gas at one or more susceptible locations exceeds an acceptance criteria for gas volume at the suction or discharge of a pump), the Surveillance is not met. If it is determined by subsequent evaluation that the RHR System is not rendered inoperable by the accumulated gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

RHR System locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations, alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

SR 4.4.1.3.4 is modified by a Note that states the SR is not required to be performed until 12 hours after entering MODE 4. In a rapid shutdown, there may be insufficient time to verify all susceptible locations prior to entering MODE 4.

The 31 day frequency for ensuring locations are sufficiently filled with water takes into consideration the gradual nature of gas accumulation in the RHR System piping and the procedural controls governing system operation.

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3/4.5.2  
&  
3/4.5.3

**ECCS Subsystems**

Management of gas voids is important to ECCS OPERABILITY.

The OPERABILITY of ECCS components and flowpaths required in Modes 1, 2 and 3 ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming any single active failure consideration. Two SI Pumps and one RHR Pump operating in conjunction with two Accumulators are capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all pipe break sizes up to and including the maximum hypothetical accident of a circumferential rupture of a reactor coolant loop. In addition, the RHR subsystem provides long-term core cooling capability in the recirculation mode during the accident recovery period. ←

**CAUTION**

**Interim Compensatory Measure**

The provision for temporary restoration of power to locked ECCS valves listed in SR 4.5.2.a for up to 24 hours to permit temporary operation for surveillance and maintenance purposes has been determined to be non-conservative with respect to the safety analysis. Therefore, until appropriate changes to SR 4.5.2 via LAR 212 are approved and implemented, restoration of power to the valves listed in SR 4.5.2.a shall be limited to one hour in order to provide alternative valve position indication in the event that the continuous valve position indication (amber light) in the control room is unavailable. Ref AR 1811016

Motor Operated Valves (MOVs) 862A, 862B, 863A, 863B are required to take suction from the containment sump via the RHR System. PC-600 supplies controlling signals to valves MOVs 862B and 863B, to prevent opening these valves if RHR Pump B discharge pressure is above 210 psig. PC-601 provides similar functions to valves MOVs 862A and 863A. Although all four valves are normally locked in position, with power removed, the capability to power up and stroke the valves must be maintained in order to satisfy the requirements for OPERABLE flow paths (capable of taking suction from the containment sump).

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**INSERT 2**  
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3/4.5.2 & 3/4.5.3 (Continued)

~~ECCS "accessible discharge piping" is defined as discharge piping outside of containment in accordance with NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems interpretation. High point vents (current or added) outside of containment on the HHSI and RHR Systems discharge piping are considered accessible. These valves must be included in the monthly venting procedure to comply with Technical Specification Surveillance Requirement 4.5.2.b.1. This clarification was added as a corrective action to CR# 2009-18558.~~

In the RHR test, differential head is specified in feet. This criteria will allow for compensation of test data with water density due to varying temperature.

ECCS pump testing for the SI and RHR Pumps accounts for possible underfrequency conditions, i.e., the results of pump testing performed at 60 Hz is then adjusted to reflect possible degraded grid conditions (60±0.6) to the lower limit (59.4 Hz).

**CAUTION**

**Interim Compensatory Measure**

TS 3.5.2 Action 'a' has been determined to be non-conservative with respect to the safety analysis as it allows up to 72 hours for restoration of the inoperable flow path despite inoperability of both ECCS trains during this period. Therefore, until appropriate changes to TS 3/4.5.2 via LAR 212 are approved and implemented, TS 3.0.3 shall be entered vice TS 3.5.2 Action 'a' in the event that the suction flow path from the RWST to the ECCS is inoperable. Reference AR 1811016.

Technical Specifications Surveillance Requirement 4.5.2.e.3 requires that each ECCS component and flow path be demonstrated OPERABLE every 18 months by visual inspection which verifies sump components (trash racks, screens, etc.) show **NO** evidence of structural distress or abnormal corrosion. The strainer modules are rigid enough to provide both functions as trash racks and screens without losing their structural integrity and particle efficiency. Therefore, strainer modules are functionally equivalent to trash racks and screens. Accordingly, the categorical description, sump components, is broad enough to require inspection of the strainer modules.

## INSERT 2

ECCS piping and components have the potential to develop voids and pockets of entrained gases. Preventing and managing gas intrusion and accumulation is necessary for proper operation of the ECCS and may also prevent a water hammer, pump cavitation, and pumping of noncondensable gas into the reactor vessel.

Selection of ECCS locations susceptible to gas accumulation is based on a review of system design information, including piping and instrument drawings, isometric drawings, plan and elevation drawings, and calculations. The design review is supplemented by system walk downs to validate the system high points and to confirm the location and orientation of important components that can become sources of gas or could otherwise cause gas to be trapped or difficult to remove during system maintenance or restoration. Susceptible locations depend on plant and system configuration, such as stand-by versus operating conditions.

The ECCS is OPERABLE when it is sufficiently filled with water. Acceptance criteria are established for the volume of accumulated gas at susceptible locations. If accumulated gas is discovered that exceeds the acceptance criteria for the susceptible location (or the volume of accumulated gas at one or more susceptible locations exceeds an acceptance criteria for gas volume at the suction or discharge of a pump), the Surveillance is not met. If it is determined by subsequent evaluation that the ECCS is not rendered inoperable by the accumulated gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

ECCS locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations, alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

The 31 day frequency for SR 4.5.2.b.1) takes into consideration the gradual nature of gas accumulation in the ECCS piping and the procedural controls governing system operation.

Surveillance 4.5.2.b.2) is modified by a Note which exempts system vent flow paths opened under administrative control. The administrative control should be proceduralized and include stationing a dedicated individual at the system vent flow path who is in continuous communication with the operators in the control room. This individual will have a method to rapidly close the system vent path if directed.

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3/4.6.1.6 (Continued)

The required Special Reports from any engineering evaluation of containment abnormalities shall include a description of the tendon condition, the condition of the concrete (specially at tendon anchorages), the inspection procedures, the tolerances on cracking, the results of the engineering evaluation, and the corrective actions taken.

The submittal of a Special Report for a failed tendon surveillance is considered an administrative requirement and it does **NOT** impact the plant operability. The administrative requirements for Special Reports are defined in Technical Specifications section 6.9.2.

3/4.6.1.7 Containment Ventilation System

The Containment Purge supply and exhaust isolation valves are required to be closed during a LOCA. When **NOT** purging, power to the purge valve actuators will be removed (sealed closed) to prevent inadvertent opening of these valves. Maintaining these valves sealed closed during plant operation ensures that excessive quantities of radioactive materials will **NOT** be released via the Containment Purge System.

Leakage integrity tests with a maximum allowable leakage rate for Containment Purge supply and exhaust supply valves will provide early indication of resilient material seal degradation and will allow opportunity for repair before gross leakage failures could develop. The 0.60 La leakage limit shall **NOT** be exceeded when the leakage rates determined by the leakage integrity tests of these valves are added to the previously determined total for all valves and penetrations subject to Type B and C tests.

3/4.6.2 Depressurization and Cooling Systems

3/4.6.2.1 Containment Spray System

The OPERABILITY of the Containment Spray System ensures that containment depressurization capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the safety analyses. ←

Management of gas voids is important to containment spray system OPERABILITY.

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3/4.6.2.1 (Continued)

The allowable out-of-service time requirements for the Containment Spray System have been maintained consistent with that assigned other inoperable ESF equipment and do **NOT** reflect the additional redundancy in cooling capability provided by the Emergency Containment Cooling System. Pump performance requirements are obtained from the accidents analysis assumptions.

Motor Operated Valves (MOVs) 862A, 862B, 863A, 863B are required to take suction from the Containment Sump via the RHR system. PC-600 supplies controlling signals to valves MOVs 862B and 863B, to prevent opening these valves if RHR pump B discharge pressure is above 210 psig. PC-601 provides similar functions to valves MOVs 862A and 863A. Although all four valves are normally locked in position, with power removed, the capability to power up and stroke the valves must be maintained in order to satisfy the requirements for OPERABLE flow paths (capable of taking suction from the containment sump).

When PC-600/-601 are calibrated, a test signal is supplied to each circuit to check operation of the relays and annunciators operated by subject controllers. This test signal will prevent MOVs 862A, 862B, 863A, 863B from opening. Therefore, it is appropriate to tag out the MOV breakers, and enter Technical Specification Action Statement 3.5.2.a. and 3.6.2.1 when calibrating PC-600/-601.

INSERT 3  
next page

3/4.6.2.2 Emergency Containment Cooling System

The OPERABILITY of the Emergency Containment Cooling (ECC) System ensures that the heat removal capacity is maintained with acceptable ranges following postulated design basis accidents. To support both containment integrity safety analyses and component cooling water thermal analysis, a maximum of two ECCs can receive an automatic start signal following generation of a safety injection (SI) signal (one ECC receives an A train SI signal and another ECC receives a B train SI signal). To support post-LOCA long-term containment pressure/temperature analyses, a maximum of two ECCs are required to operate. The third (swing) ECC is required to be OPERABLE to support manual starting following a postulated LOCA event for containment pressure/temperature suppression.

### INSERT 3

Containment Spray System piping and components have the potential to develop voids and pockets of entrained gases. Preventing and managing gas intrusion and accumulation is necessary for proper operation of the containment spray trains and may also prevent a water hammer and pump cavitation.

Selection of Containment Spray System locations susceptible to gas accumulation is based on a review of system design information, including piping and instrument drawings, isometric drawings, plan and elevation drawings, and calculations. The design review is supplemented by system walk downs to validate the system high points and to confirm the location and orientation of important components that can become sources of gas or could otherwise cause gas to be trapped or difficult to remove during system maintenance or restoration. Susceptible locations depend on plant and system configuration, such as stand-by versus operating conditions.

The Containment Spray System is OPERABLE when it is sufficiently filled with water. Acceptance criteria are established for the volume of accumulated gas at susceptible locations. If accumulated gas is discovered that exceeds the acceptance criteria for the susceptible location (or the volume of accumulated gas at one or more susceptible locations exceeds an acceptance criteria for gas volume at the suction or discharge of a pump), the Surveillance is not met. If it is determined by subsequent evaluation that the Containment Spray System is not rendered inoperable by the accumulated gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

Containment Spray System locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations, alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

The 31 day frequency for SR 4.6.2.1.c takes into consideration the gradual nature of gas accumulation in the Containment Spray System piping and the procedural controls governing system operation.

SR 4.6.2.1.a is modified by a Note which exempts system vent flow paths opened under administrative control. The administrative control should be proceduralized and include stationing a dedicated individual at the system vent flow path who is in continuous communication with the operators in the control room. This individual will have a method to rapidly close the system vent path if directed.

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3/4.9.8 (Continued)

The requirement to have two RHR loops OPERABLE when there is less than 23 feet of water above the reactor vessel flange ensures that a single failure of the operating RHR loop will **NOT** result in a complete loss of residual heat removal capability. With the reactor vessel head removed and at least 23 feet of water above the reactor pressure vessel flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

INSERT 4  
next page



3/4.9.9 Containment Ventilation Isolation System

The OPERABILITY of this system ensures that the containment ventilation penetrations will be automatically isolated upon detection of high radiation levels within the containment. The OPERABILITY of this system is required to restrict the release of radioactive material from the containment atmosphere to the environment.

T.S. surveillance requirement 4.9.9 states:

4.9.9 The Containment Ventilation Isolation System shall be demonstrated OPERABLE within 100 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS by verifying that Containment Ventilation Isolation occurs on a High Radiation test signal from each of the containment radiation monitoring instrumentation channels.

A normal refueling consists of 2 CORE ALTERATION sequences: unloading the core, and reloading the core, typically with a suspension of CORE ALTERATIONS in between. The core unload sequence begins with control rod unlatching, followed by removal of upper internals, followed by unloading fuel assemblies to the SFP. The core reload sequence consists of reloading fuel assemblies from the SFP, followed by upper internals installation, followed by latching control rods. Therefore, if the Containment Ventilation Isolation System is demonstrated OPERABLE at least once per 7 days following the specified testing within 100 hours prior to the start of control rod unlatching, then Containment Ventilation Isolation System operability need **NOT** be demonstrated within 100 hours prior to the start of core reload. Otherwise, the specified testing is required to be performed within 100 hours prior to the start of core reload.

INSERT 4

RHR System piping and components have the potential to develop voids and pockets of entrained gases. Preventing and managing gas intrusion and accumulation is necessary for proper operation of the RHR loops and may also prevent water hammer, pump cavitation, and pumping of non-condensable gas into the reactor vessel.

Selection of RHR System locations susceptible to gas accumulation is based on a review of system design information, including piping and instrument drawings, isometric drawings, plan and elevation drawings, and calculations. The design review is supplemented by system walk downs to validate the system high points and to confirm the location and orientation of important components that can become sources of gas or could otherwise cause gas to be trapped or difficult to remove during system maintenance or restoration. Susceptible locations depend on plant and system configuration, such as stand-by versus operating conditions.

The RHR System is OPERABLE when it is sufficiently filled with water. Acceptance criteria are established for the volume of accumulated gas at susceptible locations. If accumulated gas is discovered that exceeds the acceptance criteria for the susceptible location (or the volume of accumulated gas at one or more susceptible locations exceeds an acceptance criteria for gas volume at the suction or discharge of a pump), the Surveillance is not met. If it is determined by subsequent evaluation that the RHR System is not rendered inoperable by the accumulated gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

RHR System locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations, alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

The 31 day frequency for ensuring locations are sufficiently filled with water takes into consideration the gradual nature of gas accumulation in the RHR System piping and the procedural controls governing system operation.