

June 14, 2011

TSTF-11-07
PROJ0753Attn: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001**SUBJECT:** Transmittal of TSTF-505, Revision 1, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b" Errata

TSTF-505, Revision 1, was submitted to the NRC for review on May 6, 2011 (ADAMS Accession Number ML111260628). At the March 12, 2011 TSTF/NRC public meeting, the NRC pointed out editorial improvements to TSTF-505 which did not affect the technical changes being proposed.

The TSTF has revised TSTF-505 to address these editorial improvements. The changes are described in the attachment. An updated TSTF-505, Revision 1, is attached.

Should you have any questions, please contact us.



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cc: Robert Elliott, Technical Specifications Branch, NRC
Michelle Honcharik, Special Projects Branch, NRCAttachment
Enclosure

Attachment
Editorial Corrections to TSTF-505, Revision 1, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b"

The following editorial changes were made:

1. The model application was revised to refer to TSTF-505, Revision 1, instead of Revision 0.
2. NUREG-1430, Specification 3.3.1, was revised to include missing pages.
3. NUREG-1430, Specification 3.7.9, Condition D, was revised to move a closing bracket from the Condition column to the Completion Time column.
4. In some cases, references to added optional (i.e., bracketed) Conditions were not shown in brackets. The following Technical Specifications (TS) and Bases were revised to bracket references to bracketed Conditions:

NUREG-1430

3.3.1 TS & Bases
3.6.6 TS & Bases
3.7.2 TS & Bases
3.7.9 TS
3.7.11 TS & Bases
3.8.1 TS

NUREG-1431

3.3.1 TS & Bases
3.3.2 TS & Bases
3.5.1 TS & Bases
3.6.6A TS & Bases
3.7.11 TS & Bases
3.8.1 TS

NUREG-1432

3.5.1 TS & Bases
3.6.6A TS & Bases
3.7.2 TS
3.7.8 TS & Bases
3.7.12 TS
3.8.1 TS

NUREG-1433

3.3.6.3 Bases
3.7.5 TS & Bases
3.8.1 TS
3.8.9 TS

NUREG-1434

3.8.1 TS
3.8.9 TS

Technical Specification Task Force Improved Standard Technical Specifications Change Traveler

Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b

NUREGs Affected: 1430 1431 1432 1433 1434

Classification 1) Technical Change

Recommended for CLIP?: Yes

Correction or Improvement: Improvement

NRC Fee Status: Exempt

Benefit: Provides Longer Completion Time

See attached.

Revision History

OG Revision 0

Revision Status: Closed

Revision Proposed by: RITSTF

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 11-Feb-09

Owners Group Comments

Comments from the RITSTF and Owners Group were addressed.

Owners Group Resolution: Approved Date: 26-Jun-09

TSTF Review Information

TSTF Received Date: 05-Mar-10

Date Distributed for Review 19-Mar-10

OG Review Completed: BWO WOG CEOG BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved

Date: 28-Mar-10

NRC Review Information

NRC Received Date: 28-Mar-10

TSTF Revision 1

Revision Status: Active

Revision Proposed by: NRC

14-Jun-11

TSTF Revision 1**Revision Status: Active****Revision Description:**

TSTF-505 was extensively revised in response to the NRC's July 27, 2010 Request for Additional Information and additional changes requested by the NRC on September 8, 2010. The changes are described in the TSTF's response letter accompanying Revision 1 of the Traveler.

Owners Group Review Information

Date Originated by OG: 06-Apr-11

Owners Group Comments
(No Comments)

Owners Group Resolution: _____ Date: _____

TSTF Review Information

TSTF Received Date: 06-Apr-11 Date Distributed for Review 06-Apr-11

OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 05-May-11

NRC Review Information

NRC Received Date: 14-Jun-11

NRC Comments:

TSTF-505, Revision 1, was revised to include editorial corrections and resubmitted as Revision 1.

Affected Technical Specifications

1.3	Completion Times	NUREG(s)- 1430 Only
	Change Description: new Example 1.3-8	
LCO 3.3.1	RPS Instrumentation	NUREG(s)- 1430 Only
	Change Description: Table 3.3.1-1	
Action 3.3.1.B	RPS Instrumentation	NUREG(s)- 1430 Only
Action 3.3.1.B Bases	RPS Instrumentation	NUREG(s)- 1430 Only
Action 3.3.1.C	RPS Instrumentation	NUREG(s)- 1430 Only
	Change Description: Renamed D	
Action 3.3.1.C	RPS Instrumentation	NUREG(s)- 1430 Only
	Change Description: New Condition	

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Action 3.3.1.C Bases	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.3.1.C Bases	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.3.1.D	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.3.1.D Bases	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.3.1.E	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed F	
Action 3.3.1.E Bases	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed F	
Action 3.3.1.F	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed G	
Action 3.3.1.F Bases	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed G	
Action 3.3.1.G	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed H	
Action 3.3.1.G Bases	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed H	
Action 3.3.2.A	RPS Manual Reactor Trip		NUREG(s)- 1430 Only
Action 3.3.2.A Bases	RPS Manual Reactor Trip		NUREG(s)- 1430 Only
Action 3.3.5.A	ESFAS Instrumentation		NUREG(s)- 1430 Only
Action 3.3.5.A Bases	ESFAS Instrumentation		NUREG(s)- 1430 Only
Action 3.3.5.B	ESFAS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.3.5.B	ESFAS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
Action 3.3.5.B Bases	ESFAS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.3.5.B Bases	ESFAS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
Action 3.3.6.A	ESFAS Manual Initiation		NUREG(s)- 1430 Only
Action 3.3.6.A Bases	ESFAS Manual Initiation		NUREG(s)- 1430 Only

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Action 3.3.6.B	ESFAS Manual Initiation Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.6.B	ESFAS Manual Initiation Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.6.B Bases	ESFAS Manual Initiation Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.6.B Bases	ESFAS Manual Initiation Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.8.A	EDG LOPS	NUREG(s)- 1430 Only
Action 3.3.8.A Bases	EDG LOPS	NUREG(s)- 1430 Only
Action 3.3.8.B	EDG LOPS	NUREG(s)- 1430 Only
Action 3.3.8.B Bases	EDG LOPS	NUREG(s)- 1430 Only
Action 3.3.11.A	EFIC System Instrumentation	NUREG(s)- 1430 Only
Action 3.3.11.A Bases	EFIC System Instrumentation	NUREG(s)- 1430 Only
Action 3.3.11.B	EFIC System Instrumentation	NUREG(s)- 1430 Only
Action 3.3.11.B Bases	EFIC System Instrumentation	NUREG(s)- 1430 Only
Action 3.3.11.C	EFIC System Instrumentation	NUREG(s)- 1430 Only
Action 3.3.11.C Bases	EFIC System Instrumentation	NUREG(s)- 1430 Only
Action 3.3.11.D	EFIC System Instrumentation Change Description: Renamed E	NUREG(s)- 1430 Only
Action 3.3.11.D	EFIC System Instrumentation Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.11.D Bases	EFIC System Instrumentation Change Description: Renamed E	NUREG(s)- 1430 Only
Action 3.3.11.D Bases	EFIC System Instrumentation Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.11.E	EFIC System Instrumentation Change Description: Renamed F	NUREG(s)- 1430 Only
Action 3.3.11.E Bases	EFIC System Instrumentation Change Description: Renamed F	NUREG(s)- 1430 Only
Action 3.3.11.F	EFIC System Instrumentation Change Description: Renamed G	NUREG(s)- 1430 Only

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Action 3.3.11.F Bases	EFIC System Instrumentation Change Description: Renamed G	NUREG(s)- 1430 Only
Action 3.3.12.A	EFIC Manual Initiation	NUREG(s)- 1430 Only
Action 3.3.12.A Bases	EFIC Manual Initiation	NUREG(s)- 1430 Only
Action 3.3.12.B	EFIC Manual Initiation	NUREG(s)- 1430 Only
Action 3.3.12.B Bases	EFIC Manual Initiation	NUREG(s)- 1430 Only
Action 3.3.13.A	EFIC Logic	NUREG(s)- 1430 Only
Action 3.3.13.A Bases	EFIC Logic	NUREG(s)- 1430 Only
Action 3.3.13.B	EFIC Logic Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.13.B	EFIC Logic Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.13.B Bases	EFIC Logic Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.13.B Bases	EFIC Logic Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.14.A	EFIC-EFW- Vector Valve Logic	NUREG(s)- 1430 Only
Action 3.3.14.A Bases	EFIC-EFW- Vector Valve Logic	NUREG(s)- 1430 Only
Action 3.3.14.B	EFIC-EFW- Vector Valve Logic Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.14.B	EFIC-EFW- Vector Valve Logic Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.14.B Bases	EFIC-EFW- Vector Valve Logic Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.14.B Bases	EFIC-EFW- Vector Valve Logic Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.4.5.A	RCS Loops - MODE 3	NUREG(s)- 1430 Only
Action 3.4.5.A Bases	RCS Loops - MODE 3	NUREG(s)- 1430 Only
Action 3.4.9.C	Pressurizer	NUREG(s)- 1430 Only
Action 3.4.9.C Bases	Pressurizer	NUREG(s)- 1430 Only
Action 3.4.10.A	Pressurizer Safety Valves	NUREG(s)- 1430 Only

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Action 3.4.10.A Bases	Pressurizer Safety Valves		NUREG(s)- 1430 Only
Action 3.4.14.C	RCS PIV Leakage		NUREG(s)- 1430 Only
Action 3.4.14.C Bases	RCS PIV Leakage		NUREG(s)- 1430 Only
Action 3.5.1.A	CFTs		NUREG(s)- 1430 Only
Action 3.5.1.A Bases	CFTs		NUREG(s)- 1430 Only
Action 3.5.1.B	CFTs		NUREG(s)- 1430 Only
Action 3.5.1.B Bases	CFTs		NUREG(s)- 1430 Only
Action 3.5.1.C	CFTs		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.5.1.C	CFTs		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.5.1.C Bases	CFTs		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.5.1.C Bases	CFTs		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.5.1.D	CFTs		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.5.1.D Bases	CFTs		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.5.2.A	ECCS - Operating		NUREG(s)- 1430 Only
Action 3.5.2.A Bases	ECCS - Operating		NUREG(s)- 1430 Only
Action 3.5.2.B	ECCS - Operating		NUREG(s)- 1430 Only
Action 3.5.2.B Bases	ECCS - Operating		NUREG(s)- 1430 Only
Action 3.5.2.C	ECCS - Operating		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.5.2.C Bases	ECCS - Operating		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.5.2.D	ECCS - Operating		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.5.2.D Bases	ECCS - Operating		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.5.3.B	ECCS - Shutdown		NUREG(s)- 1430 Only

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Action 3.5.3.B Bases	ECCS - Shutdown	NUREG(s)- 1430 Only
Action 3.5.4.A	BWST	NUREG(s)- 1430 Only
Action 3.5.4.A Bases	BWST	NUREG(s)- 1430 Only
Action 3.5.4.B	BWST	NUREG(s)- 1430 Only
Action 3.5.4.B Bases	BWST	NUREG(s)- 1430 Only
Action 3.6.2.C	Containment Air Locks	NUREG(s)- 1430 Only
Action 3.6.2.C Bases	Containment Air Locks	NUREG(s)- 1430 Only
Action 3.6.3.A	Containment Isolation Valves	NUREG(s)- 1430 Only
Action 3.6.3.A Bases	Containment Isolation Valves	NUREG(s)- 1430 Only
Action 3.6.3.B	Containment Isolation Valves	NUREG(s)- 1430 Only
Action 3.6.3.B Bases	Containment Isolation Valves	NUREG(s)- 1430 Only
Action 3.6.3.C	Containment Isolation Valves	NUREG(s)- 1430 Only
Action 3.6.3.C Bases	Containment Isolation Valves	NUREG(s)- 1430 Only
Action 3.6.3.D	Containment Isolation Valves	NUREG(s)- 1430 Only
Action 3.6.3.D Bases	Containment Isolation Valves	NUREG(s)- 1430 Only
Action 3.6.6.A	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
Action 3.6.6.A Bases	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
Action 3.6.6.C	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
Action 3.6.6.C Bases	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
Action 3.6.6.D	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
Action 3.6.6.D Bases	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
Action 3.6.6.E	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
Action 3.6.6.E Bases	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
Action 3.6.6.F	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
	Change Description: Renamed G	
Action 3.6.6.F	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
	Change Description: New Condition	

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Action 3.6.6.F Bases	Containment Spray and Cooling Systems Change Description: Renamed G	NUREG(s)- 1430 Only
Action 3.6.6.F Bases	Containment Spray and Cooling Systems Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.6.6.G	Containment Spray and Cooling Systems Change Description: Renamed H	NUREG(s)- 1430 Only
Action 3.6.6.G Bases	Containment Spray and Cooling Systems Change Description: Renamed H	NUREG(s)- 1430 Only
Action 3.7.2.A	MSIVs	NUREG(s)- 1430 Only
Action 3.7.2.A Bases	MSIVs	NUREG(s)- 1430 Only
Action 3.7.2.C	MSIVs Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.7.2.C	MSIVs Change Description: Renamed D	NUREG(s)- 1430 Only
Action 3.7.2.C Bases	MSIVs Change Description: Renamed D	NUREG(s)- 1430 Only
Action 3.7.2.C Bases	MSIVs Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.7.2.D	MSIVs Change Description: Renamed E	NUREG(s)- 1430 Only
Action 3.7.2.D Bases	MSIVs Change Description: Renamed E	NUREG(s)- 1430 Only
Action 3.7.4.A	AVVs	NUREG(s)- 1430 Only
Action 3.7.4.A Bases	AVVs	NUREG(s)- 1430 Only
Action 3.7.4.B	AVVs	NUREG(s)- 1430 Only
Action 3.7.4.B Bases	AVVs	NUREG(s)- 1430 Only
Action 3.7.5.A	EFW System	NUREG(s)- 1430 Only
Action 3.7.5.A Bases	EFW System	NUREG(s)- 1430 Only
Action 3.7.5.B	EFW System	NUREG(s)- 1430 Only
Action 3.7.5.B Bases	EFW System	NUREG(s)- 1430 Only
Action 3.7.5.C	EFW System Change Description: New Condition	NUREG(s)- 1430 Only

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Action 3.7.5.C	EFW System		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.7.5.D	EFW System		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.7.5.E	EFW System		NUREG(s)- 1430 Only
	Change Description:	Renamed F	
Action 3.7.6.A	CST		NUREG(s)- 1430 Only
Action 3.7.6.A Bases	CST		NUREG(s)- 1430 Only
Action 3.7.7.A	CCW System		NUREG(s)- 1430 Only
Action 3.7.7.A Bases	CCW System		NUREG(s)- 1430 Only
Action 3.7.7.B	CCW System		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.7.B	CCW System		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
Action 3.7.7.B Bases	CCW System		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
Action 3.7.7.B Bases	CCW System		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.8.A	SWS System		NUREG(s)- 1430 Only
Action 3.7.8.A Bases	SWS System		NUREG(s)- 1430 Only
Action 3.7.8.B	SWS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.8.B	SWS		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
Action 3.7.8.B Bases	SWS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.8.B Bases	SWS		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
Action 3.7.9.A	UHS		NUREG(s)- 1430 Only
Action 3.7.9.A Bases	UHS		NUREG(s)- 1430 Only
Action 3.7.9.C	UHS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.9.C	UHS		NUREG(s)- 1430 Only
	Change Description:	Renamed D	

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Action 3.7.9.C Bases	UHS		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.7.9.C Bases	UHS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.11.B	CREVS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.11.B	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
Action 3.7.11.B Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
Action 3.7.11.B Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.11.C	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.7.11.C Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.7.11.D	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.7.11.D Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.7.11.E	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed F	
Action 3.7.11.E Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed F	
Action 3.8.1.A	AC Sources - Operating		NUREG(s)- 1430 Only
Action 3.8.1.A Bases	AC Sources - Operating		NUREG(s)- 1430 Only
Action 3.8.1.B	AC Sources - Operating		NUREG(s)- 1430 Only
Action 3.8.1.B Bases	AC Sources - Operating		NUREG(s)- 1430 Only
Action 3.8.1.C	AC Sources - Operating		NUREG(s)- 1430 Only
Action 3.8.1.C Bases	AC Sources - Operating		NUREG(s)- 1430 Only
Action 3.8.1.D	AC Sources - Operating		NUREG(s)- 1430 Only
Action 3.8.1.D Bases	AC Sources - Operating		NUREG(s)- 1430 Only
Action 3.8.1.E	AC Sources - Operating		NUREG(s)- 1430 Only

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Action 3.8.1.E Bases	AC Sources - Operating	NUREG(s)- 1430 Only
Action 3.8.1.F	AC Sources - Operating	NUREG(s)- 1430 Only
Action 3.8.1.F Bases	AC Sources - Operating	NUREG(s)- 1430 Only
Action 3.8.1.G	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.1.G	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1430 Only
Action 3.8.1.G Bases	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.1.G Bases	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1430 Only
Action 3.8.1.H	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1430 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1430 Only
Action 3.8.4.A	DC Sources - Operating	NUREG(s)- 1430 Only
Action 3.8.4.A Bases	DC Sources - Operating	NUREG(s)- 1430 Only
Action 3.8.4.B	DC Sources - Operating	NUREG(s)- 1430 Only
Action 3.8.4.B Bases	DC Sources - Operating	NUREG(s)- 1430 Only
Action 3.8.4.C	DC Sources - Operating	NUREG(s)- 1430 Only
Action 3.8.4.C Bases	DC Sources - Operating	NUREG(s)- 1430 Only
Action 3.8.4.D	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.4.D	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1430 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1430 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.7.A	Inverters - Operating	NUREG(s)- 1430 Only
Action 3.8.7.A Bases	Inverters - Operating	NUREG(s)- 1430 Only

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Action 3.8.7.B	Inverters - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.7.B	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.9.A	Distribution Systems - Operating	NUREG(s)- 1430 Only
Action 3.8.9.A Bases	Distribution Systems - Operating	NUREG(s)- 1430 Only
Action 3.8.9.B	Distribution Systems - Operating	NUREG(s)- 1430 Only
Action 3.8.9.B Bases	Distribution Systems - Operating	NUREG(s)- 1430 Only
Action 3.8.9.C	Distribution Systems - Operating	NUREG(s)- 1430 Only
Action 3.8.9.C Bases	Distribution Systems - Operating	NUREG(s)- 1430 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1430 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1430 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.9.E	Distribution Systems - Operating Change Description: Deleted	NUREG(s)- 1430 Only
Action 3.8.9.E Bases	Distribution Systems - Operating Change Description: Deleted	NUREG(s)- 1430 Only
5.5.18	Risk Informed Completion Time Program	NUREG(s)- 1430 Only
1.3	Completion Times Change Description: new Example 1.3-8	NUREG(s)- 1431 Only
LCO 3.3.1	RTS Instrumentation Change Description: Revised Table 3.3.1-1	NUREG(s)- 1431 Only
Action 3.3.1.B	RTS Instrumentation	NUREG(s)- 1431 Only
Action 3.3.1.B Bases	RTS Instrumentation	NUREG(s)- 1431 Only

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Action 3.3.1.C	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.C	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.3.1.C Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.3.1.C Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.D	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed F	
Action 3.3.1.D Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed F	
Action 3.3.1.E	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.E	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed H	
Action 3.3.1.E Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed H	
Action 3.3.1.E Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.F	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed J	
Action 3.3.1.F Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed J	
Action 3.3.1.G	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.G	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed K	
Action 3.3.1.G Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed K	
Action 3.3.1.G Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.H	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed L	
Action 3.3.1.H Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed L	

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Action 3.3.1.I	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed M	
Action 3.3.1.I	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.I Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed M	
Action 3.3.1.I Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.J	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed N	
Action 3.3.1.J Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed N	
Action 3.3.1.K	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed P	
Action 3.3.1.K Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed P	
Action 3.3.1.L	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed S	
Action 3.3.1.L Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed S	
Action 3.3.1.M	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed V	
Action 3.3.1.M Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed V	
Action 3.3.1.N	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed Y	
Action 3.3.1.N Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed Y	
Action 3.3.1.O	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.O	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed BB	
Action 3.3.1.O Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.O Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed BB	

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Action 3.3.1.P	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed DD	
Action 3.3.1.P Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed DD	
Action 3.3.1.Q	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.Q	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed FF	
Action 3.3.1.Q Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed FF	
Action 3.3.1.Q Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.R	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed GG	
Action 3.3.1.R	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.R Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed GG	
Action 3.3.1.R Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.S	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed II	
Action 3.3.1.S Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed II	
Action 3.3.1.T	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.T Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.U	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.U Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.W	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.3.1.W Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	

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Action 3.3.1.X	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.X Bases	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.Z	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.Z Bases	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.AA	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.AA Bases	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.CC	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.CC Bases	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.EE	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.EE Bases	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.HH	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.HH Bases	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.JJ	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.JJ Bases	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.KK	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
Action 3.3.1.KK Bases	RTS Instrumentation	NUREG(s)- 1431 Only
	Change Description: New Condition	
LCO 3.3.2	ESFAS Instrumentation	NUREG(s)- 1431 Only
	Change Description: Table 3.3.2-1	
Action 3.3.2.B	ESFAS Instrumentation	NUREG(s)- 1431 Only
Action 3.3.2.B Bases	ESFAS Instrumentation	NUREG(s)- 1431 Only

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Action 3.3.2.C	ESFAS Instrumentation Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.3.2.C	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.C Bases	ESFAS Instrumentation Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.3.2.C Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.D	ESFAS Instrumentation Change Description: Renamed F	NUREG(s)- 1431 Only
Action 3.3.2.D Bases	ESFAS Instrumentation Change Description: Renamed F	NUREG(s)- 1431 Only
Action 3.3.2.E	ESFAS Instrumentation Change Description: Renamed H	NUREG(s)- 1431 Only
Action 3.3.2.E	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.E Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.E Bases	ESFAS Instrumentation Change Description: Renamed H	NUREG(s)- 1431 Only
Action 3.3.2.F	ESFAS Instrumentation Change Description: Renamed J	NUREG(s)- 1431 Only
Action 3.3.2.F Bases	ESFAS Instrumentation Change Description: Renamed J	NUREG(s)- 1431 Only
Action 3.3.2.G	ESFAS Instrumentation Change Description: Renamed L	NUREG(s)- 1431 Only
Action 3.3.2.G	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.G Bases	ESFAS Instrumentation Change Description: Renamed L	NUREG(s)- 1431 Only
Action 3.3.2.G Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.H	ESFAS Instrumentation Change Description: Renamed N	NUREG(s)- 1431 Only
Action 3.3.2.H Bases	ESFAS Instrumentation Change Description: Renamed N	NUREG(s)- 1431 Only

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Action 3.3.2.I	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.I	ESFAS Instrumentation Change Description: Renamed P	NUREG(s)- 1431 Only
Action 3.3.2.I Bases	ESFAS Instrumentation Change Description: Renamed P	NUREG(s)- 1431 Only
Action 3.3.2.I Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.J	ESFAS Instrumentation Change Description: Renamed R	NUREG(s)- 1431 Only
Action 3.3.2.J Bases	ESFAS Instrumentation Change Description: Renamed R	NUREG(s)- 1431 Only
Action 3.3.2.K	ESFAS Instrumentation Change Description: Renamed T	NUREG(s)- 1431 Only
Action 3.3.2.K	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.K Bases	ESFAS Instrumentation Change Description: Renamed T	NUREG(s)- 1431 Only
Action 3.3.2.K Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.L	ESFAS Instrumentation Change Description: Renamed V	NUREG(s)- 1431 Only
Action 3.3.2.L Bases	ESFAS Instrumentation Change Description: Renamed V	NUREG(s)- 1431 Only
Action 3.3.2.M	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.M Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.O	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.O Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.Q	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.Q Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only

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Action 3.3.2.S	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.S Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.U	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.U Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.W	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.W Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.X	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.X Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.Y	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.2.Y Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.5.A	LOP DG Start Instrumentation	NUREG(s)- 1431 Only
Action 3.3.5.A Bases	LOP DG Start Instrumentation	NUREG(s)- 1431 Only
Action 3.3.5.B	LOP DG Start Instrumentation	NUREG(s)- 1431 Only
Action 3.3.5.B Bases	LOP DG Start Instrumentation	NUREG(s)- 1431 Only
Action 3.3.9.A	BDPS	NUREG(s)- 1431 Only
Action 3.3.9.A Bases	BDPS	NUREG(s)- 1431 Only
Action 3.3.9.B	BDPS Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.9.B	BDPS Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.3.9.B Bases	BDPS Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.3.9.B Bases	BDPS Change Description: New Condition	NUREG(s)- 1431 Only

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Action 3.4.5.A	RCS Loops - MODE 3	NUREG(s)- 1431 Only
Action 3.4.5.A Bases	RCS Loops - MODE 3	NUREG(s)- 1431 Only
Action 3.4.5.C	RCS Loops - MODE 3	NUREG(s)- 1431 Only
Action 3.4.5.C Bases	RCS Loops - MODE 3	NUREG(s)- 1431 Only
Action 3.4.9.B	Pressurizer	NUREG(s)- 1431 Only
Action 3.4.9.B Bases	Pressurizer	NUREG(s)- 1431 Only
Action 3.4.9.C	Pressurizer Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.4.9.C	Pressurizer Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.4.9.C Bases	Pressurizer Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.4.9.C Bases	Pressurizer Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.4.10.A	Pressurizer Safety Valves	NUREG(s)- 1431 Only
Action 3.4.10.A Bases	Pressurizer Safety Valves	NUREG(s)- 1431 Only
Action 3.4.11.B	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.11.B Bases	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.11.C	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.11.C Bases	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.11.E	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.11.E Bases	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.11.F	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.11.F Bases	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.11.G	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.11.G Bases	Pressurizer PORVs	NUREG(s)- 1431 Only
Action 3.4.14.C	RCS PIV Leakage	NUREG(s)- 1431 Only
Action 3.4.14.C Bases	RCS PIV Leakage	NUREG(s)- 1431 Only
Action 3.5.1.A	Accumulators	NUREG(s)- 1431 Only

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Action 3.5.1.A Bases	Accumulators		NUREG(s)- 1431 Only
Action 3.5.1.B	Accumulators		NUREG(s)- 1431 Only
Action 3.5.1.B Bases	Accumulators		NUREG(s)- 1431 Only
Action 3.5.1.C	Accumulators		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.5.1.C	Accumulators		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.5.1.C Bases	Accumulators		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.5.1.C Bases	Accumulators		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.5.1.D	Accumulators		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.5.1.D Bases	Accumulators		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.5.2.A	ECCS - Operating		NUREG(s)- 1431 Only
Action 3.5.2.A Bases	ECCS - Operating		NUREG(s)- 1431 Only
Action 3.5.2.B	ECCS - Operating		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.5.2.B	ECCS - Operating		NUREG(s)- 1431 Only
	Change Description:	Renamed C	
Action 3.5.2.B Bases	ECCS - Operating		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.5.2.B Bases	ECCS - Operating		NUREG(s)- 1431 Only
	Change Description:	Renamed C	
Action 3.5.2.C	ECCS - Operating		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.5.2.C Bases	ECCS - Operating		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.5.3.B	ECCS - Shutdown		NUREG(s)- 1431 Only
Action 3.5.3.B Bases	ECCS - Shutdown		NUREG(s)- 1431 Only
Action 3.5.4.A	RWST		NUREG(s)- 1431 Only
Action 3.5.4.A Bases	RWST		NUREG(s)- 1431 Only

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Action 3.5.4.B	RWST	NUREG(s)- 1431 Only
Action 3.5.4.B Bases	RWST	NUREG(s)- 1431 Only
Action 3.5.6.A	BIT	NUREG(s)- 1431 Only
Action 3.5.6.A Bases	BIT	NUREG(s)- 1431 Only
Action 3.6.2.C	Containment Air Locks (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.2.C Bases	Containment Air Locks (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.A	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.A Bases	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.B	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.B Bases	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.C	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.C Bases	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.D	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.D Bases	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.E	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.3.E Bases	Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.6B.A	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6A.A	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6C.A	Containment Spray System (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.6D.A	QS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6E.A	RS System (Subatmospheric)	NUREG(s)- 1431 Only

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Action 3.6.6A.A Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6B.A Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6C.A Bases	Containment Spray System (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.6D.A Bases	QS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6E.A Bases	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6B.B	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6C.B	Containment Spray System (Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.6C.B	Containment Spray System (Ice Condenser) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.6D.B	QS System (Subatmospheric) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.6D.B	QS System (Subatmospheric) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.6E.B	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6B.B Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6C.B Bases	Containment Spray System (Ice Condenser) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.6C.B Bases	Containment Spray System (Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.6D.B Bases	QS System (Subatmospheric) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.6D.B Bases	QS System (Subatmospheric) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.6E.B Bases	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6B.C	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6A.C	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6E.C	RS System (Subatmospheric)	NUREG(s)- 1431 Only

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Action 3.6.6A.C Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6B.C Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6E.C Bases	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6B.D	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6A.D	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6E.D	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6B.D Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6A.D Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6E.D Bases	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6B.E	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6A.E	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed F	NUREG(s)- 1431 Only
Action 3.6.6E.E	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6A.E Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.6B.E Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6E.E Bases	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6B.F	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed H	NUREG(s)- 1431 Only
Action 3.6.6A.F	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed G	NUREG(s)- 1431 Only
Action 3.6.6B.F	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.6E.F	RS System (Subatmospheric)	NUREG(s)- 1431 Only

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Action 3.6.6A.F Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed G	NUREG(s)- 1431 Only
Action 3.6.6B.F Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed H	NUREG(s)- 1431 Only
Action 3.6.6B.F Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.6E.F Bases	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6B.G	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6E.G	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6B.G Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6E.G Bases	RS System (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.9.B	HMS (Atmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.9.B Bases	HMS (Atmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.10.A	HIS (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.10.A Bases	HIS (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.10.B	HIS (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.10.B Bases	HIS (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.10.C	HIS (Ice Condenser) Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.6.10.C	HIS (Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.10.C Bases	HIS (Ice Condenser) Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.6.10.C Bases	HIS (Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.14.A	ARS (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.14.A Bases	ARS (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.14.B	ARS (Ice Condenser) Change Description: Renamed C	NUREG(s)- 1431 Only

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Action 3.6.14.B	ARS (Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.14.B Bases	ARS (Ice Condenser) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.14.B Bases	ARS (Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.15.A	Ice Bed (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.15.A Bases	Ice Bed (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.16.A	Ice Condenser Doors (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.16.A Bases	Ice Condenser Doors (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.16.B	Ice Condenser Doors (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.16.B Bases	Ice Condenser Doors (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.17.A	Divider Barrier Integrity (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.17.A Bases	Divider Barrier Integrity (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.17.B	Divider Barrier Integrity (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.17.B Bases	Divider Barrier Integrity (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.18.A	Containment Recirculation Drains (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.18.A Bases	Containment Recirculation Drains (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.18.B	Containment Recirculation Drains (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.18.B Bases	Containment Recirculation Drains (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.7.2.A	MSIVs	NUREG(s)- 1431 Only
Action 3.7.2.A Bases	MSIVs	NUREG(s)- 1431 Only
Action 3.7.2.C	MSIVs Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.7.2.C	MSIVs Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.7.2.C Bases	MSIVs Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.7.2.C Bases	MSIVs Change Description: Renamed D	NUREG(s)- 1431 Only

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Action 3.7.2.D	MSIVs		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.7.2.D Bases	MSIVs		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.7.4.A	ADVs		NUREG(s)- 1431 Only
Action 3.7.4.A Bases	ADVs		NUREG(s)- 1431 Only
Action 3.7.4.B	ADVs		NUREG(s)- 1431 Only
Action 3.7.4.B Bases	ADVs		NUREG(s)- 1431 Only
Action 3.7.5.A	AFW System		NUREG(s)- 1431 Only
Action 3.7.5.A Bases	AFW System		NUREG(s)- 1431 Only
Action 3.7.5.B	AFW System		NUREG(s)- 1431 Only
Action 3.7.5.B Bases	AFW System		NUREG(s)- 1431 Only
Action 3.7.5.C	AFW System		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.5.C	AFW System		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.5.C Bases	AFW System		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.5.C Bases	AFW System		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.5.D	AFW System		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.7.5.D Bases	AFW System		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.7.5.E	AFW System		NUREG(s)- 1431 Only
	Change Description:	Renamed F	
Action 3.7.5.E Bases	AFW System		NUREG(s)- 1431 Only
	Change Description:	Renamed F	
Action 3.7.6.A	CST		NUREG(s)- 1431 Only
Action 3.7.6.A Bases	CST		NUREG(s)- 1431 Only
Action 3.7.7.A	CCW System		NUREG(s)- 1431 Only
Action 3.7.7.A Bases	CCW System		NUREG(s)- 1431 Only

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Action 3.7.7.B	CCW System		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.7.B	CCW System		NUREG(s)- 1431 Only
	Change Description:	Renamed C	
Action 3.7.7.B Bases	CCW System		NUREG(s)- 1431 Only
	Change Description:	Renamed C	
Action 3.7.7.B Bases	CCW System		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.8.A	SWS		NUREG(s)- 1431 Only
Action 3.7.8.A Bases	SWS		NUREG(s)- 1431 Only
Action 3.7.8.B	SWS		NUREG(s)- 1431 Only
	Change Description:	Renamed C	
Action 3.7.8.B	SWS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.8.B Bases	SWS		NUREG(s)- 1431 Only
	Change Description:	Renamed C	
Action 3.7.8.B Bases	SWS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.9.A	UHS		NUREG(s)- 1431 Only
Action 3.7.9.A Bases	UHS		NUREG(s)- 1431 Only
Action 3.7.9.C	UHS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.9.C	UHS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.9.C Bases	UHS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.9.C Bases	UHS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.11.B	CREATCS		NUREG(s)- 1431 Only
	Change Description:	Renamed C	
Action 3.7.11.B	CREATCS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.11.B Bases	CREATCS		NUREG(s)- 1431 Only
	Change Description:	Renamed C	

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Action 3.7.11.B Bases	CREATCS Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.7.11.C	CREATCS Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.7.11.C Bases	CREATCS Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.7.11.D	CREATCS Change Description: Renamed E	NUREG(s)- 1431 Only
Action 3.7.11.D Bases	CREATCS Change Description: Renamed E	NUREG(s)- 1431 Only
Action 3.7.11.E	CREATCS Change Description: Renamed F	NUREG(s)- 1431 Only
Action 3.7.11.E Bases	CREATCS Change Description: Renamed F	NUREG(s)- 1431 Only
Action 3.8.1.A	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.A Bases	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.B	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.B Bases	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.C	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.C Bases	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.D	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.D Bases	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.E	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.E Bases	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.F	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.F Bases	AC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.1.G	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1431 Only
Action 3.8.1.G	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.8.1.G Bases	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1431 Only

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Action 3.8.1.G Bases	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1431 Only
Action 3.8.1.H	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1431 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1431 Only
Action 3.8.4.A	DC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.4.A Bases	DC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.4.B	DC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.4.B Bases	DC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.4.C	DC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.4.C Bases	DC Sources - Operating	NUREG(s)- 1431 Only
Action 3.8.4.D	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.8.4.D	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1431 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1431 Only
Action 3.8.7.A	Inverters - Operating	NUREG(s)- 1431 Only
Action 3.8.7.A Bases	Inverters - Operating	NUREG(s)- 1431 Only
Action 3.8.7.B	Inverters - Operating Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.8.7.B	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.8.9.A	Distribution Systems - Operating	NUREG(s)- 1431 Only
Action 3.8.9.A Bases	Distribution Systems - Operating	NUREG(s)- 1431 Only

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Action 3.8.9.B	Distribution Systems - Operating	NUREG(s)- 1431 Only
Action 3.8.9.B Bases	Distribution Systems - Operating	NUREG(s)- 1431 Only
Action 3.8.9.C	Distribution Systems - Operating	NUREG(s)- 1431 Only
Action 3.8.9.C Bases	Distribution Systems - Operating	NUREG(s)- 1431 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1431 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1431 Only
Action 3.8.9.E	Distribution Systems - Operating Change Description: Renamed F	NUREG(s)- 1431 Only
Action 3.8.9.E Bases	Distribution Systems - Operating Change Description: Renamed F	NUREG(s)- 1431 Only
5.5.18	Risk Informed Completion Time Program	NUREG(s)- 1431 Only
1.3	Completion Times Change Description: new Example 1.3-8	NUREG(s)- 1432 Only
Action 3.3.1.A	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.A Bases	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.B	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.B Bases	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.E	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.E Bases	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.3.A	RPS Logic and Trip Initiation (Analog)	NUREG(s)- 1432 Only
Action 3.3.3.A Bases	RPS Logic and Trip Initiation (Analog)	NUREG(s)- 1432 Only
Action 3.3.4.A	RPS Logic and Trip Initiation (Digital)	NUREG(s)- 1432 Only
Action 3.3.4.A Bases	RPS Logic and Trip Initiation (Digital)	NUREG(s)- 1432 Only
Action 3.3.4.B	ESFAS Instrumentation (Analog) Change Description: New Condition	NUREG(s)- 1432 Only

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Action 3.3.4.B	ESFAS Instrumentation (Analog) Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.3.4.B Bases	ESFAS Instrumentation (Analog) Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.3.4.B Bases	ESFAS Instrumentation (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.4.C	ESFAS Instrumentation (Analog) Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.3.4.C Bases	ESFAS Instrumentation (Analog) Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.3.4.D	ESFAS Instrumentation (Analog) Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.3.4.D Bases	ESFAS Instrumentation (Analog) Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.3.4.E	ESFAS Instrumentation (Analog) Change Description: Renamed F	NUREG(s)- 1432 Only
Action 3.3.4.E Bases	ESFAS Instrumentation (Analog) Change Description: Renamed F	NUREG(s)- 1432 Only
Action 3.3.4.F	ESFAS Instrumentation (Analog) Change Description: Renamed G	NUREG(s)- 1432 Only
Action 3.3.4.F Bases	ESFAS Instrumentation (Analog) Change Description: Renamed G	NUREG(s)- 1432 Only
Action 3.3.5.A	ESFAS Logic and Manual Trip (Analog)	NUREG(s)- 1432 Only
Action 3.3.5.A Bases	ESFAS Logic and Manual Trip (Analog)	NUREG(s)- 1432 Only
Action 3.3.5.B	ESFAS Logic and Manual Trip (Analog) Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.3.5.B	ESFAS Logic and Manual Trip (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.5.B Bases	ESFAS Logic and Manual Trip (Analog) Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.3.5.B Bases	ESFAS Logic and Manual Trip (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.5.C	ESFAS Logic and Manual Trip (Analog) Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.3.5.C Bases	ESFAS Logic and Manual Trip (Analog) Change Description: Renamed D	NUREG(s)- 1432 Only

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Action 3.3.5.D	ESFAS Logic and Manual Trip (Analog) Change Description: Renamed F	NUREG(s)- 1432 Only
Action 3.3.5.D Bases	ESFAS Logic and Manual Trip (Analog) Change Description: Renamed F	NUREG(s)- 1432 Only
Action 3.3.5.E	ESFAS Logic and Manual Trip (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.5.E Bases	ESFAS Logic and Manual Trip (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.6.A	DG - LOVS (Analog)	NUREG(s)- 1432 Only
Action 3.3.6.A	ESFAS Logic and Manual Trip (Digital)	NUREG(s)- 1432 Only
Action 3.3.6.A Bases	DG - LOVS (Analog)	NUREG(s)- 1432 Only
Action 3.3.6.A Bases	ESFAS Logic and Manual Trip (Digital)	NUREG(s)- 1432 Only
Action 3.3.6.B	DG - LOVS (Analog)	NUREG(s)- 1432 Only
Action 3.3.6.B	ESFAS Logic and Manual Trip (Digital)	NUREG(s)- 1432 Only
Action 3.3.6.B Bases	DG - LOVS (Analog)	NUREG(s)- 1432 Only
Action 3.3.6.B Bases	ESFAS Logic and Manual Trip (Digital)	NUREG(s)- 1432 Only
Action 3.3.6.C	DG - LOVS (Analog)	NUREG(s)- 1432 Only
Action 3.3.6.C	ESFAS Logic and Manual Trip (Digital)	NUREG(s)- 1432 Only
Action 3.3.6.C Bases	DG - LOVS (Analog)	NUREG(s)- 1432 Only
Action 3.3.6.C Bases	ESFAS Logic and Manual Trip (Digital)	NUREG(s)- 1432 Only
Action 3.3.6.D	ESFAS Logic and Manual Trip (Digital)	NUREG(s)- 1432 Only
Action 3.3.6.D Bases	ESFAS Logic and Manual Trip (Digital)	NUREG(s)- 1432 Only
Action 3.3.6.E	ESFAS Logic and Manual Trip (Digital) Change Description: Renamed F	NUREG(s)- 1432 Only
Action 3.3.6.E	ESFAS Logic and Manual Trip (Digital) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.6.E Bases	ESFAS Logic and Manual Trip (Digital) Change Description: Renamed F	NUREG(s)- 1432 Only
Action 3.3.6.E Bases	ESFAS Logic and Manual Trip (Digital) Change Description: New Condition	NUREG(s)- 1432 Only

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Action 3.3.6.F	ESFAS Logic and Manual Trip (Digital) Change Description: Renamed G	NUREG(s)- 1432 Only
Action 3.3.6.F Bases	ESFAS Logic and Manual Trip (Digital) Change Description: Renamed G	NUREG(s)- 1432 Only
Action 3.4.5.A	RCS Loops - MODE 3	NUREG(s)- 1432 Only
Action 3.4.5.A Bases	RCS Loops - MODE 3	NUREG(s)- 1432 Only
Action 3.4.9.B	Pressurizer	NUREG(s)- 1432 Only
Action 3.4.9.B Bases	Pressurizer	NUREG(s)- 1432 Only
Action 3.4.9.C	Pressurizer Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.4.9.C	Pressurizer Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.4.9.C Bases	Pressurizer Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.4.9.C Bases	Pressurizer Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.4.10.A	Pressurizer Safety Valves	NUREG(s)- 1432 Only
Action 3.4.10.A Bases	Pressurizer Safety Valves	NUREG(s)- 1432 Only
Action 3.4.11.B	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.11.B Bases	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.11.C	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.11.C Bases	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.11.E	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.11.E Bases	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.11.F	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.11.F Bases	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.11.G	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.11.G Bases	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.14.C	RCS PIV Leakage	NUREG(s)- 1432 Only
Action 3.4.14.C Bases	RCS PIV Leakage	NUREG(s)- 1432 Only

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Action 3.5.1.A	SITs		NUREG(s)- 1432 Only
Action 3.5.1.A Bases	SITs		NUREG(s)- 1432 Only
Action 3.5.1.B	SITs		NUREG(s)- 1432 Only
Action 3.5.1.B Bases	SITs		NUREG(s)- 1432 Only
Action 3.5.1.C	SITs		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.5.1.C	SITs		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.5.1.C Bases	SITs		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.5.1.C Bases	SITs		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.5.1.D	SITs		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.5.1.D Bases	SITs		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.5.2.A	ECCS - Operating		NUREG(s)- 1432 Only
Action 3.5.2.A Bases	ECCS - Operating		NUREG(s)- 1432 Only
Action 3.5.2.B	ECCS - Operating		NUREG(s)- 1432 Only
Action 3.5.2.B Bases	ECCS - Operating		NUREG(s)- 1432 Only
Action 3.5.2.C	ECCS - Operating		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.5.2.C	ECCS - Operating		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.5.2.C Bases	ECCS - Operating		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.5.2.C Bases	ECCS - Operating		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.5.2.D	ECCS - Operating		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.5.2.D Bases	ECCS - Operating		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.5.3.A	ECCS - Shutdown		NUREG(s)- 1432 Only

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Action 3.5.3.A Bases	ECCS - Shutdown	NUREG(s)- 1432 Only
Action 3.5.4.A	RWT	NUREG(s)- 1432 Only
Action 3.5.4.A Bases	RWT	NUREG(s)- 1432 Only
Action 3.5.4.B	RWT	NUREG(s)- 1432 Only
Action 3.5.4.B Bases	RWT	NUREG(s)- 1432 Only
Action 3.6.2.C	Containment Air Locks (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.2.C Bases	Containment Air Locks (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.A	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.A Bases	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.B	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.B Bases	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.C	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.C Bases	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.D	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.D Bases	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.E	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.E Bases	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.F	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.3.F Bases	Containment Isolation Valves (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.A	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6A.A	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6A.A Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.A Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.B	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only

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Action 3.6.6B.B Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6A.C	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.C	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.C Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6A.C Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6A.D	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.D	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6A.D Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.D Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.E	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6A.E	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.E Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6A.E Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.6B.F	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed G	NUREG(s)- 1432 Only
Action 3.6.6A.F	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed G	NUREG(s)- 1432 Only
Action 3.6.6A.F	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.6.6B.F	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.6.6A.F Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: New Condition	NUREG(s)- 1432 Only

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Action 3.6.6A.F Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed G	NUREG(s)- 1432 Only
Action 3.6.6B.F Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.6.6B.F Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed G	NUREG(s)- 1432 Only
Action 3.6.6A.G	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed H	NUREG(s)- 1432 Only
Action 3.6.6B.G	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed H	NUREG(s)- 1432 Only
Action 3.6.6A.G Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed H	NUREG(s)- 1432 Only
Action 3.6.6B.G Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed H	NUREG(s)- 1432 Only
Action 3.6.9.B	HMS (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.9.B Bases	HMS (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.7.2.A	MSIVs	NUREG(s)- 1432 Only
Action 3.7.2.A Bases	MSIVs	NUREG(s)- 1432 Only
Action 3.7.2.C	MSIVs Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.7.2.C	MSIVs Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.7.2.C Bases	MSIVs Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.7.2.C Bases	MSIVs Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.7.2.D	MSIVs Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.7.2.D Bases	MSIVs Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.7.4.A	ADVs	NUREG(s)- 1432 Only

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Action 3.7.4.A	ADVs		NUREG(s)- 1432 Only
Action 3.7.4.B	ADVs		NUREG(s)- 1432 Only
Action 3.7.4.B	ADVs		NUREG(s)- 1432 Only
Action 3.7.5.A	AFW System		NUREG(s)- 1432 Only
Action 3.7.5.A Bases	AFW System		NUREG(s)- 1432 Only
Action 3.7.5.B	AFW System		NUREG(s)- 1432 Only
Action 3.7.5.B Bases	AFW System		NUREG(s)- 1432 Only
Action 3.7.5.C	AFW System		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.5.C	AFW System		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.5.C Bases	AFW System		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.5.C Bases	AFW System		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.5.D	AFW System		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.7.5.D Bases	AFW System		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.7.5.E	AFW System		NUREG(s)- 1432 Only
	Change Description:	Renamed F	
Action 3.7.5.E Bases	AFW System		NUREG(s)- 1432 Only
	Change Description:	Renamed F	
Action 3.7.6.A	CST		NUREG(s)- 1432 Only
Action 3.7.6.A Bases	CST		NUREG(s)- 1432 Only
Action 3.7.7.A	CCW System		NUREG(s)- 1432 Only
Action 3.7.7.A Bases	CCW System		NUREG(s)- 1432 Only
Action 3.7.7.B	CCW System		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
Action 3.7.7.B	CCW System		NUREG(s)- 1432 Only
	Change Description:	New Condition	

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Action 3.7.7.B Bases	CCW System		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
Action 3.7.7.B Bases	CCW System		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.8.A	SWS		NUREG(s)- 1432 Only
Action 3.7.8.A Bases	SWS		NUREG(s)- 1432 Only
Action 3.7.8.B	SWS		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
Action 3.7.8.B	SWS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.8.B Bases	SWS		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
Action 3.7.8.B Bases	SWS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.9.A	UHS		NUREG(s)- 1432 Only
Action 3.7.9.A Bases	UHS		NUREG(s)- 1432 Only
Action 3.7.9.C	UHS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.9.C	UHS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.9.C Bases	UHS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.9.C Bases	UHS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.10.A	ECW		NUREG(s)- 1432 Only
Action 3.7.10.A Bases	ECW		NUREG(s)- 1432 Only
Action 3.7.10.B	ECW		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
Action 3.7.10.B	ECW		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.10.B Bases	ECW		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.10.B Bases	ECW		NUREG(s)- 1432 Only
	Change Description:	Renamed C	

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Action 3.7.12.B	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
Action 3.7.12.B	CREATCS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.12.B Bases	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
Action 3.7.12.B Bases	CREATCS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.12.C	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.12.C Bases	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.12.D	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.7.12.D Bases	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.7.12.E	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Renamed F	
Action 3.7.12.E Bases	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Renamed F	
Action 3.8.1.A	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.A Bases	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.B	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.B Bases	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.C	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.C Bases	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.D	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.D Bases	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.E	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.E Bases	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.F	AC Sources - Operating		NUREG(s)- 1432 Only
Action 3.8.1.F Bases	AC Sources - Operating		NUREG(s)- 1432 Only

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Action 3.8.1.G	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.8.1.G	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1432 Only
Action 3.8.1.G Bases	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1432 Only
Action 3.8.1.G Bases	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.8.1.H	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1432 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1432 Only
Action 3.8.4.A	DC Sources - Operating	NUREG(s)- 1432 Only
Action 3.8.4.A Bases	DC Sources - Operating	NUREG(s)- 1432 Only
Action 3.8.4.B	DC Sources - Operating	NUREG(s)- 1432 Only
Action 3.8.4.B Bases	DC Sources - Operating	NUREG(s)- 1432 Only
Action 3.8.4.C	DC Sources - Operating	NUREG(s)- 1432 Only
Action 3.8.4.C Bases	DC Sources - Operating	NUREG(s)- 1432 Only
Action 3.8.4.D	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.8.4.D	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.8.7.A	Inverters - Operating	NUREG(s)- 1432 Only
Action 3.8.7.A Bases	Inverters - Operating	NUREG(s)- 1432 Only
Action 3.8.7.B	Inverters - Operating Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.8.7.B	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1432 Only

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Action 3.8.7.B Bases	Inverters - Operating Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.8.9.A	Distribution Systems - Operating	NUREG(s)- 1432 Only
Action 3.8.9.A Bases	Distribution Systems - Operating	NUREG(s)- 1432 Only
Action 3.8.9.B	Distribution Systems - Operating	NUREG(s)- 1432 Only
Action 3.8.9.B Bases	Distribution Systems - Operating	NUREG(s)- 1432 Only
Action 3.8.9.C	Distribution Systems - Operating	NUREG(s)- 1432 Only
Action 3.8.9.C Bases	Distribution Systems - Operating	NUREG(s)- 1432 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.8.9.E	Distribution Systems - Operating Change Description: Deleted	NUREG(s)- 1432 Only
Action 3.8.9.E Bases	Distribution Systems - Operating Change Description: Deleted	NUREG(s)- 1432 Only
5.5.18	Risk Informed Completion Time Program	NUREG(s)- 1432 Only
1.3	Completion Times Change Description: new Example 1.3-8	NUREG(s)- 1433 Only
Action 3.1.7.A	SLC System	NUREG(s)- 1433 Only
Action 3.1.7.A Bases	SLC System	NUREG(s)- 1433 Only
Action 3.1.7.B	SLC System	NUREG(s)- 1433 Only
Action 3.1.7.B Bases	SLC System	NUREG(s)- 1433 Only
Action 3.1.7.C	SLC System	NUREG(s)- 1433 Only
Action 3.1.7.C Bases	SLC System	NUREG(s)- 1433 Only
Action 3.3.1.1.A	RPS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.1.1.A Bases	RPS Instrumentation	NUREG(s)- 1433 Only

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Action 3.3.1.1.B	RPS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.1.1.B Bases	RPS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.1.1.C	RPS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.1.1.C Bases	RPS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.1.2.A	SRM Instrumentation	NUREG(s)- 1433 Only
Action 3.3.1.2.A Bases	SRM Instrumentation	NUREG(s)- 1433 Only
Action 3.3.2.2.A	Feedwater and Main Turbine High Water Level Trip Instrumentation	NUREG(s)- 1433 Only
Action 3.3.2.2.A Bases	Feedwater and Main Turbine High Water Level Trip Instrumentation	NUREG(s)- 1433 Only
Action 3.3.2.2.B	Feedwater and Main Turbine High Water Level Trip Instrumentation	NUREG(s)- 1433 Only
Action 3.3.2.2.B Bases	Feedwater and Main Turbine High Water Level Trip Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.1.A	EOC-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.1.A Bases	EOC-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.1.B	EOC-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.1.B Bases	EOC-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.2.A	ATWS-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.2.A Bases	ATWS-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.2.B	ATWS-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.2.B Bases	ATWS-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.2.C	ATWS-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.4.2.C Bases	ATWS-RPT Instrumentation	NUREG(s)- 1433 Only
Action 3.3.5.1.B	ECCS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.5.1.B Bases	ECCS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.5.1.C	ECCS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.5.1.C Bases	ECCS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.5.1.D	ECCS Instrumentation	NUREG(s)- 1433 Only

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Action	3.3.5.1.D Bases	ECCS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.1.E	ECCS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.1.E Bases	ECCS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.1.F	ECCS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.1.F Bases	ECCS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.1.G	ECCS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.1.G Bases	ECCS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.2.B	RCIC System Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.2.B Bases	RCIC System Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.2.C	RCIC System Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.2.C Bases	RCIC System Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.2.D	RCIC System Instrumentation	NUREG(s)- 1433 Only
Action	3.3.5.2.D Bases	RCIC System Instrumentation	NUREG(s)- 1433 Only
Action	3.3.6.1.A	Primary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
Action	3.3.6.1.A Bases	Primary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
Action	3.3.6.1.B	Primary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
Action	3.3.6.1.B Bases	Primary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
Action	3.3.6.3.A	LLS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.6.3.A Bases	LLS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.6.3.C	LLS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.6.3.C Bases	LLS Instrumentation	NUREG(s)- 1433 Only
Action	3.3.6.3.D	LLS Instrumentation	NUREG(s)- 1433 Only
		Change Description: Renamed E	
Action	3.3.6.3.D	LLS Instrumentation	NUREG(s)- 1433 Only
		Change Description: New Condition	
Action	3.3.6.3.D Bases	LLS Instrumentation	NUREG(s)- 1433 Only
		Change Description: New Condition	
Action	3.3.6.3.D Bases	LLS Instrumentation	NUREG(s)- 1433 Only
		Change Description: Renamed E	

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Action 3.3.8.1.A	LOP Instrumentation		NUREG(s)- 1433 Only
Action 3.3.8.1.A Bases	LOP Instrumentation		NUREG(s)- 1433 Only
Action 3.4.3.A	S/RVs		NUREG(s)- 1433 Only
Action 3.4.3.A Bases	S/RVs		NUREG(s)- 1433 Only
Action 3.4.3.B	S/RVs		NUREG(s)- 1433 Only
	Change Description:	New Condition	
Action 3.4.3.B	S/RVs		NUREG(s)- 1433 Only
	Change Description:	Renamed C	
Action 3.4.3.B Bases	S/RVs		NUREG(s)- 1433 Only
	Change Description:	Renamed C	
Action 3.4.3.B Bases	S/RVs		NUREG(s)- 1433 Only
	Change Description:	New Condition	
Action 3.5.1.A	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.A Bases	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.C	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.C Bases	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.D	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.D Bases	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.E	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.E Bases	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.F	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.F Bases	ECCS - Operating		NUREG(s)- 1433 Only
Action 3.5.1.G	ECCS - Operating		NUREG(s)- 1433 Only
	Change Description:	New Condition	
Action 3.5.1.G	ECCS - Operating		NUREG(s)- 1433 Only
	Change Description:	Renamed H	
Action 3.5.1.G Bases	ECCS - Operating		NUREG(s)- 1433 Only
	Change Description:	New Condition	
Action 3.5.1.G Bases	ECCS - Operating		NUREG(s)- 1433 Only
	Change Description:	Renamed H	

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Action 3.5.1.H	ECCS - Operating Change Description: Renamed J	NUREG(s)- 1433 Only
Action 3.5.1.H Bases	ECCS - Operating Change Description: Renamed J	NUREG(s)- 1433 Only
Action 3.5.1.I	ECCS - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.5.1.I Bases	ECCS - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.5.3.A	RCIC System	NUREG(s)- 1433 Only
Action 3.5.3.A Bases	RCIC System	NUREG(s)- 1433 Only
Action 3.6.1.2.C	Primary Containment Air Lock	NUREG(s)- 1433 Only
Action 3.6.1.2.C Bases	Primary Containment Air Lock	NUREG(s)- 1433 Only
Action 3.6.1.3.A	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.3.A Bases	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.3.B	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.3.B Bases	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.3.C	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.3.C Bases	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.3.D	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.3.D Bases	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.3.E	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.3.E Bases	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.7.C	Reactor Building-to-Suppression Chamber Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.7.C Bases	Reactor Building-to-Suppression Chamber Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.7.D	Reactor Building-to-Suppression Chamber Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.7.D Bases	Reactor Building-to-Suppression Chamber Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.8.A	Suppression Chamber-to-Drywell Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.8.A Bases	Suppression Chamber-to-Drywell Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.2.3.A	RHR Suppression Pool Cooling	NUREG(s)- 1433 Only

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Action 3.6.2.3.A Bases	RHR Suppression Pool Cooling	NUREG(s)- 1433 Only
Action 3.6.2.3.B	RHR Suppression Pool Cooling	NUREG(s)- 1433 Only
Action 3.6.2.3.B Bases	RHR Suppression Pool Cooling	NUREG(s)- 1433 Only
Action 3.6.2.4.A	RHR Suppression Pool Spray	NUREG(s)- 1433 Only
Action 3.6.2.4.A Bases	RHR Suppression Pool Spray	NUREG(s)- 1433 Only
Action 3.6.2.4.B	RHR Suppression Pool Spray	NUREG(s)- 1433 Only
Action 3.6.2.4.B Bases	RHR Suppression Pool Spray	NUREG(s)- 1433 Only
Action 3.6.3.1.B	[Drywell Cooling System Fans]	NUREG(s)- 1433 Only
Action 3.6.3.1.B Bases	[Drywell Cooling System Fans]	NUREG(s)- 1433 Only
Action 3.6.3.3.B	CAD System	NUREG(s)- 1433 Only
Action 3.6.3.3.B Bases	CAD System	NUREG(s)- 1433 Only
Action 3.7.1.B	RHRSW System	NUREG(s)- 1433 Only
Action 3.7.1.B Bases	RHRSW System	NUREG(s)- 1433 Only
Action 3.7.1.C	RHRSW System	NUREG(s)- 1433 Only
Action 3.7.1.C Bases	RHRSW System	NUREG(s)- 1433 Only
Action 3.7.1.D	RHRSW System	NUREG(s)- 1433 Only
Action 3.7.1.D Bases	RHRSW System	NUREG(s)- 1433 Only
Action 3.7.2.B	[PSW] System and [UHS]	NUREG(s)- 1433 Only
Action 3.7.2.B Bases	[PSW] System and [UHS]	NUREG(s)- 1433 Only
Action 3.7.2.C	[PSW] System and [UHS]	NUREG(s)- 1433 Only
Action 3.7.2.C Bases	[PSW] System and [UHS]	NUREG(s)- 1433 Only
Action 3.7.2.E	[PSW] System and [UHS]	NUREG(s)- 1433 Only
Action 3.7.2.E Bases	[PSW] System and [UHS]	NUREG(s)- 1433 Only
Action 3.7.2.F	[PSW] System and [UHS] Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.7.2.F	[PSW] System and [UHS] Change Description: Renamed G	NUREG(s)- 1433 Only

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Action 3.7.2.F Bases	[PSW] System and [UHS] Change Description: Renamed G	NUREG(s)- 1433 Only
Action 3.7.2.F Bases	[PSW] System and [UHS] Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.7.5.B	[Control Room AC] System Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.7.5.B	[Control Room AC] System Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.7.5.B Bases	[Control Room AC] System Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.7.5.B Bases	[Control Room AC] System Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.7.5.C	[Control Room AC] System Change Description: Renamed D	NUREG(s)- 1433 Only
Action 3.7.5.C Bases	[Control Room AC] System Change Description: Renamed D	NUREG(s)- 1433 Only
Action 3.7.5.D	[Control Room AC] System Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.7.5.D Bases	[Control Room AC] System Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.7.5.E	[Control Room AC] System Change Description: Renamed F	NUREG(s)- 1433 Only
Action 3.7.5.E Bases	[Control Room AC] System Change Description: Renamed F	NUREG(s)- 1433 Only
Action 3.7.7.A	Main Condenser Offgas Change Description: Main Turbine Bypass System	NUREG(s)- 1433 Only
Action 3.7.7.A Bases	Main Condenser Offgas Change Description: Main Turbine Bypass System	NUREG(s)- 1433 Only
Action 3.8.1.A	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.A Bases	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.B	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.B Bases	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.C	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.C Bases	AC Sources - Operating	NUREG(s)- 1433 Only

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Action 3.8.1.D	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.D Bases	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.E	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.E Bases	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.F	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.F Bases	AC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.1.G	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.8.1.G	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1433 Only
Action 3.8.1.G Bases	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.8.1.G Bases	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1433 Only
Action 3.8.1.H	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1433 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1433 Only
Action 3.8.4.A	DC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.4.A Bases	DC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.4.B	DC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.4.B Bases	DC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.4.C	DC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.4.C Bases	DC Sources - Operating	NUREG(s)- 1433 Only
Action 3.8.4.D	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.8.4.D	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1433 Only

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Action 3.8.4.E	DC Sources - Operating Change Description: Renamed F	NUREG(s)- 1433 Only
Action 3.8.4.E Bases	DC Sources - Operating Change Description: Renamed F	NUREG(s)- 1433 Only
Action 3.8.7.A	Inverters - Operating	NUREG(s)- 1433 Only
Action 3.8.7.A Bases	Inverters - Operating	NUREG(s)- 1433 Only
Action 3.8.7.B	Inverters - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.8.7.B	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.8.9.A	Distribution Systems - Operating	NUREG(s)- 1433 Only
Action 3.8.9.A Bases	Distribution Systems - Operating	NUREG(s)- 1433 Only
Action 3.8.9.B	Distribution Systems - Operating	NUREG(s)- 1433 Only
Action 3.8.9.B Bases	Distribution Systems - Operating	NUREG(s)- 1433 Only
Action 3.8.9.C	Distribution Systems - Operating	NUREG(s)- 1433 Only
Action 3.8.9.C Bases	Distribution Systems - Operating	NUREG(s)- 1433 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.8.9.E	Distribution Systems - Operating Change Description: Renamed F	NUREG(s)- 1433 Only
Action 3.8.9.E Bases	Distribution Systems - Operating Change Description: Renamed F	NUREG(s)- 1433 Only
Action 3.8.9.F	Distribution Systems - Operating Change Description: Renamed G	NUREG(s)- 1433 Only

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Action 3.8.9.F Bases	Distribution Systems - Operating Change Description: Renamed G	NUREG(s)- 1433 Only
5.5.15	Risk Informed Completion Time Program	NUREG(s)- 1433 Only
1.3	Completion Times Change Description: new Example 1.3-8	NUREG(s)- 1434 Only
Action 3.1.7.A	SLC System	NUREG(s)- 1434 Only
Action 3.1.7.A Bases	SLC System	NUREG(s)- 1434 Only
Action 3.1.7.B	SLC System	NUREG(s)- 1434 Only
Action 3.1.7.B Bases	SLC System	NUREG(s)- 1434 Only
Action 3.1.7.C	SLC System	NUREG(s)- 1434 Only
Action 3.1.7.C Bases	SLC System	NUREG(s)- 1434 Only
Action 3.3.1.1.A	RPS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.1.1.A Bases	RPS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.1.1.B	RPS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.1.1.B Bases	RPS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.1.1.C	RPS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.1.1.C Bases	RPS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.1.2.A	SRM Instrumentation	NUREG(s)- 1434 Only
Action 3.3.1.2.A Bases	SRM Instrumentation	NUREG(s)- 1434 Only
Action 3.3.4.1.A	EOC-RPT Instrumentation	NUREG(s)- 1434 Only
Action 3.3.4.1.A Bases	EOC-RPT Instrumentation	NUREG(s)- 1434 Only
Action 3.3.4.1.B	EOC-RPT Instrumentation	NUREG(s)- 1434 Only
Action 3.3.4.1.B Bases	EOC-RPT Instrumentation	NUREG(s)- 1434 Only
Action 3.3.4.2.A	ATWS-RPT Instrumentation	NUREG(s)- 1434 Only
Action 3.3.4.2.A Bases	ATWS-RPT Instrumentation	NUREG(s)- 1434 Only
Action 3.3.4.2.B	ATWS-RPT Instrumentation	NUREG(s)- 1434 Only
Action 3.3.4.2.B Bases	ATWS-RPT Instrumentation	NUREG(s)- 1434 Only
Action 3.3.4.2.C	ATWS-RPT Instrumentation	NUREG(s)- 1434 Only

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Action 3.3.4.2.C Bases	ATWS-RPT Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.B	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.B Bases	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.C	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.C Bases	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.D	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.D Bases	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.E	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.E Bases	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.F	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.F Bases	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.G	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.1.G Bases	ECCS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.2.B	RCIC System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.2.B Bases	RCIC System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.2.C	RCIC System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.2.C Bases	RCIC System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.2.D	RCIC System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.5.2.D Bases	RCIC System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.1.A	Primary Containment Isolation Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.1.A Bases	Primary Containment Isolation Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.1.B	Primary Containment Isolation Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.1.B Bases	Primary Containment Isolation Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.3.B	RHR Containment Spray System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.3.B Bases	RHR Containment Spray System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.3.C	RHR Containment Spray System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.3.C Bases	RHR Containment Spray System Instrumentation	NUREG(s)- 1434 Only

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Action 3.3.6.4.B	SPMU System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.4.B Bases	SPMU System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.4.C	SPMU System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.4.C Bases	SPMU System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.5.A	Relief and LLS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.5.A Bases	Relief and LLS Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.5.B	Relief and LLS Instrumentation Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.3.6.5.B	Relief and LLS Instrumentation Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.3.6.5.B Bases	Relief and LLS Instrumentation Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.3.6.5.B Bases	Relief and LLS Instrumentation Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.3.8.1.A	LOP Instrumentation	NUREG(s)- 1434 Only
Action 3.3.8.1.A Bases	LOP Instrumentation	NUREG(s)- 1434 Only
Action 3.4.4.A	S/RVs	NUREG(s)- 1434 Only
Action 3.4.4.A Bases	S/RVs	NUREG(s)- 1434 Only
Action 3.4.4.B	S/RVs Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.4.4.B	S/RVs Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.4.4.B Bases	S/RVs Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.4.4.B Bases	S/RVs Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.5.1.A	ECCS - Operating	NUREG(s)- 1434 Only
Action 3.5.1.A Bases	ECCS - Operating	NUREG(s)- 1434 Only
Action 3.5.1.B	ECCS - Operating	NUREG(s)- 1434 Only
Action 3.5.1.B Bases	ECCS - Operating	NUREG(s)- 1434 Only
Action 3.5.1.C	ECCS - Operating	NUREG(s)- 1434 Only

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Action 3.5.1.C Bases	ECCS - Operating		NUREG(s)- 1434 Only
Action 3.5.1.E	ECCS - Operating		NUREG(s)- 1434 Only
Action 3.5.1.E Bases	ECCS - Operating		NUREG(s)- 1434 Only
Action 3.5.1.F	ECCS - Operating		NUREG(s)- 1434 Only
Action 3.5.1.F Bases	ECCS - Operating		NUREG(s)- 1434 Only
Action 3.5.1.G	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	Renamed H	
Action 3.5.1.G	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.G Bases	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.G Bases	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	Renamed H	
Action 3.5.1.H	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	Renamed M	
Action 3.5.1.H Bases	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	Renamed M	
Action 3.5.1.I	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.I Bases	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.J	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.J Bases	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.K	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.K Bases	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.L	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.L Bases	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.3.A	RCIC System		NUREG(s)- 1434 Only

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Action 3.5.3.A Bases	RCIC System	NUREG(s)- 1434 Only
Action 3.6.1.2.C	Primary Containment Air Lock	NUREG(s)- 1434 Only
Action 3.6.1.2.C Bases	Primary Containment Air Lock	NUREG(s)- 1434 Only
Action 3.6.1.3.A	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.3.A Bases	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.3.B	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.3.B Bases	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.3.C	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.3.C Bases	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.3.D	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.3.D Bases	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.3.E	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.3.E Bases	PCIVs	NUREG(s)- 1434 Only
Action 3.6.1.7.A	RHR Containment Spray System	NUREG(s)- 1434 Only
Action 3.6.1.7.A Bases	RHR Containment Spray System	NUREG(s)- 1434 Only
Action 3.6.1.7.B	RHR Containment Spray System	NUREG(s)- 1434 Only
Action 3.6.1.7.B Bases	RHR Containment Spray System	NUREG(s)- 1434 Only
Action 3.6.2.3.A	RHR Suppression Pool Cooling	NUREG(s)- 1434 Only
Action 3.6.2.3.A	RHR Suppression Pool Cooling	NUREG(s)- 1434 Only
Action 3.6.2.3.B	RHR Suppression Pool Cooling	NUREG(s)- 1434 Only
Action 3.6.2.3.B Bases	RHR Suppression Pool Cooling	NUREG(s)- 1434 Only
Action 3.6.2.4.A	SPMU System	NUREG(s)- 1434 Only
Action 3.6.2.4.A	SPMU System	NUREG(s)- 1434 Only
Action 3.6.2.4.B	SPMU System	NUREG(s)- 1434 Only
Action 3.6.2.4.B	SPMU System	NUREG(s)- 1434 Only
Action 3.6.2.4.C	SPMU System	NUREG(s)- 1434 Only
Action 3.6.2.4.C	SPMU System	NUREG(s)- 1434 Only

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Action 3.6.2.4.D	SPMU System Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.6.2.4.D	SPMU System Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.6.2.4.D	SPMU System Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.6.2.4.D	SPMU System Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.6.3.1.B	Primary Containment and Drywell Hydrogen Igniters	NUREG(s)- 1434 Only
Action 3.6.3.1.B Bases	Primary Containment and Drywell Hydrogen Igniters	NUREG(s)- 1434 Only
Action 3.6.3.2.B	[Drywell Purge System]	NUREG(s)- 1434 Only
Action 3.6.3.2.B Bases	[Drywell Purge System]	NUREG(s)- 1434 Only
Action 3.6.5.1.A	Drywell	NUREG(s)- 1434 Only
Action 3.6.5.1.A Bases	Drywell	NUREG(s)- 1434 Only
Action 3.6.5.2.C	Drywell Air Lock	NUREG(s)- 1434 Only
Action 3.6.5.2.C Bases	Drywell Air Lock	NUREG(s)- 1434 Only
Action 3.6.5.3.A	Drywell Isolation Valves	NUREG(s)- 1434 Only
Action 3.6.5.3.A Bases	Drywell Isolation Valves	NUREG(s)- 1434 Only
Action 3.6.5.3.B	Drywell Isolation Valves	NUREG(s)- 1434 Only
Action 3.6.5.3.B Bases	Drywell Isolation Valves	NUREG(s)- 1434 Only
Action 3.6.5.6.D	Drywell Vacuum Relief System	NUREG(s)- 1434 Only
Action 3.6.5.6.D Bases	Drywell Vacuum Relief System	NUREG(s)- 1434 Only
Action 3.6.5.6.E	Drywell Vacuum Relief System	NUREG(s)- 1434 Only
Action 3.6.5.6.E Bases	Drywell Vacuum Relief System	NUREG(s)- 1434 Only
Action 3.6.5.6.F	Drywell Vacuum Relief System Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.6.5.6.F	Drywell Vacuum Relief System Change Description: Renamed G	NUREG(s)- 1434 Only
Action 3.6.5.6.F Bases	Drywell Vacuum Relief System Change Description: Renamed G	NUREG(s)- 1434 Only

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Action 3.6.5.6.F Bases	Drywell Vacuum Relief System Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.6.5.6.G	Drywell Vacuum Relief System Change Description: Renamed H	NUREG(s)- 1434 Only
Action 3.6.5.6.G Bases	Drywell Vacuum Relief System Change Description: Renamed H	NUREG(s)- 1434 Only
Action 3.7.1.A	[SSW] System and [UHS]	NUREG(s)- 1434 Only
Action 3.7.1.A Bases	[SSW] System and [UHS]	NUREG(s)- 1434 Only
Action 3.7.1.C	[SSW] System and [UHS]	NUREG(s)- 1434 Only
Action 3.7.1.C Bases	[SSW] System and [UHS]	NUREG(s)- 1434 Only
Action 3.7.1.D	[SSW] System and [UHS] Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.7.1.D	[SSW] System and [UHS] Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.7.1.D Bases	[SSW] System and [UHS] Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.7.1.D Bases	[SSW] System and [UHS] Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.7.4.B	[Control Room AC] System Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.7.4.B	[Control Room AC] System Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.7.4.B Bases	[Control Room AC] System Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.7.4.B Bases	[Control Room AC] System Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.7.4.C	[Control Room AC] System Change Description: Renamed D	NUREG(s)- 1434 Only
Action 3.7.4.C Bases	[Control Room AC] System Change Description: Renamed D	NUREG(s)- 1434 Only
Action 3.7.4.D	[Control Room AC] System Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.7.4.D Bases	[Control Room AC] System Change Description: Renamed E	NUREG(s)- 1434 Only

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Action 3.7.4.E	[Control Room AC] System Change Description: Renamed F	NUREG(s)- 1434 Only
Action 3.7.4.E Bases	[Control Room AC] System Change Description: Renamed F	NUREG(s)- 1434 Only
Action 3.7.6.A	Main Turbine Bypass System	NUREG(s)- 1434 Only
Action 3.7.6.A Bases	Main Turbine Bypass System	NUREG(s)- 1434 Only
Action 3.8.1.A	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.A Bases	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.B	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.B Bases	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.C	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.C Bases	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.D	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.D Bases	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.E	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.E Bases	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.F	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.F Bases	AC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.1.G	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1434 Only
Action 3.8.1.G	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.8.1.G Bases	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1434 Only
Action 3.8.1.G Bases	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.8.1.H	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1434 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Renamed I	NUREG(s)- 1434 Only
Action 3.8.4.A	DC Sources - Operating	NUREG(s)- 1434 Only

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Action 3.8.4.A Bases	DC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.4.B	DC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.4.B Bases	DC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.4.C	DC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.4.C Bases	DC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.4.D	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.8.4.D	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.8.4.E	DC Sources - Operating Change Description: Renamed F	NUREG(s)- 1434 Only
Action 3.8.4.E Bases	DC Sources - Operating Change Description: Renamed F	NUREG(s)- 1434 Only
Action 3.8.7.A	Inverters - Operating	NUREG(s)- 1434 Only
Action 3.8.7.A Bases	Inverters - Operating	NUREG(s)- 1434 Only
Action 3.8.7.B	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.8.7.B	Inverters - Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.8.7.C	Inverters - Operating Change Description: Renamed D	NUREG(s)- 1434 Only
Action 3.8.7.C Bases	Inverters - Operating Change Description: Renamed D	NUREG(s)- 1434 Only
Action 3.8.9.A	Distribution Systems - Operating	NUREG(s)- 1434 Only
Action 3.8.9.A Bases	Distribution Systems - Operating	NUREG(s)- 1434 Only

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Action 3.8.9.B	Distribution Systems - Operating	NUREG(s)- 1434 Only
Action 3.8.9.B Bases	Distribution Systems - Operating	NUREG(s)- 1434 Only
Action 3.8.9.C	Distribution Systems - Operating	NUREG(s)- 1434 Only
Action 3.8.9.C Bases	Distribution Systems - Operating	NUREG(s)- 1434 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.8.9.D	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.8.9.D Bases	Distribution Systems - Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.8.9.E	Distribution Systems - Operating Change Description: Renamed F	NUREG(s)- 1434 Only
Action 3.8.9.E Bases	Distribution Systems - Operating Change Description: Renamed F	NUREG(s)- 1434 Only
Action 3.8.9.F	Distribution Systems - Operating Change Description: Renamed G	NUREG(s)- 1434 Only
Action 3.8.9.F Bases	Distribution Systems - Operating Change Description: Renamed G	NUREG(s)- 1434 Only
5.5.15	Risk Informed Completion Time Program	NUREG(s)- 1434 Only

14-Jun-11

1.0 Description

The Nuclear Energy Institute's (NEI) Risk Informed Technical Specification Task Force (RITSTF) Initiative 4b, "Risk Informed Completion Times With Configuration Risk Management Program or Maintenance Rule Backstop," modifies selected Required Actions to provide an optional risk informed Completion Time. The technical justification for Initiative 4b is in NEI 06-09, "Risk-Informed Technical Specifications Initiative 4B, Risk-Managed Technical Specifications (RMTS) Guidelines," for which the initiative was approved by the Nuclear Regulatory Commission (NRC) on 5/17/07 (ADAMS Accession Number ML071200238). The lead plant for Initiative 4b was South Texas Project, which was approved on 7/13/07. Although 76 of 104 units in the U. S. have adopted the Improved Standard Technical Specifications (ISTS), South Texas Project is not an ISTS plant so an ISTS model is proposed that is consistent with the technical content of the South Texas Project amendment.

This Traveler provides a generic model for implementing Initiative 4b as justified in NEI 06-09. Plant's requesting adoption of this Traveler will only include those changes that can be supported in accordance with NEI 06-09.

2.0 Proposed Change

This Traveler is a model for adopting Initiative 4b and NEI 06-09. Plant's adopting this Traveler must compare the proposed changes to their plant-specific Probabilistic Risk Assessment (PRA) and incorporate in their plant-specific amendment only those changes for which a Risk Informed Completion Time (RICT) can be determined. There may also be plant-specific Specifications which do not appear in the ISTS to which changes of the type presented here may be applied. Therefore, NRC review and approval of this Traveler is based on the acceptability of the format and presentation and the proposed potential scope of applicability. The determination of the actual scope of applicability will be made on a plant-specific basis in accordance with NEI 06-09.

When requesting adoption of this Traveler, the licensee must specify each specification and Required Action to which the Risk Informed Completion Time Program will be applied and, for each Required Action, describe the corresponding function modeled in the PRA.

A new Example is added to Section 1.3, "Completion Times," to describe the use of the optional RICT.

There is a new Chapter 5 Program entitled, "Risk Informed Completion Time Program" which is invoked when utilizing a RICT. In NEI 06-09 this program is called the Configuration Risk Management Program. That title is not used in the Traveler because some licensees already have a Chapter 5 program of that name serving a different purpose and the proposed name is more descriptive of the purpose of the new program.

Note: It is necessary to adopt TSTF-439, "Eliminate Second Completion Times Limiting Time From Discovery of Failure To Meet an LCO," in order to adopt TSTF 505 for those Required Actions that are affected by both Travelers.

Scope

For the purposes of this Traveler, all Required Actions in the ISTS are modified to reflect implementation of NEI 06-09 unless excluded by one of the criteria given below.

Note that a plant-specific implementation of this change may not include all of the modifications shown in the Traveler, depending on the plant-specific PRA.

The following assumptions were used in preparing this Traveler:

1. NEI 06-09, Section 2.1, states that the justification is applicable to Modes 1 and 2 but may be extended on a plant-specific basis to Modes 3 and 4 (with cooling via steam generators) for pressurized water reactors (PWRs) and to Mode 3 (with cooling via the main condenser) for boiling water reactors (BWRs). The Traveler shows changes applicable to a RICT applicable in Modes 1 and 2 (PWRs and BWRs). Other specifications and Required Actions not shown in this Traveler could be affected by expansion of the applicability to include Modes 3 and 4 (with cooling via steam generators) for PWRs and to Mode 3 (with cooling via the main condenser) for BWRs. Licensees requesting to adopt the Risk Informed Completion Time Program may adopt the proposed changes only for those Required Actions for which a plant-specific RICT can be determined.
2. NEI 06-09, Section 2.1, states that Section 3.1, "Reactivity Control Systems," is excluded. This is true for PWR plants. However, for BWR plants, there is one modeled system in Section 3.1 (Standby Liquid Control) which is included.
3. NEI 06-09, Section 2.1, states that Section 3.2, "Power Distribution," is excluded.
4. NEI 06-09, Section 2.1, states that Test Exceptions are excluded.
5. The Traveler will not modify Required Actions that direct that other structures, systems, or components (SSCs) be declared inoperable.
6. The Traveler will not modify Required Actions that specify the periodic performance of an action or surveillance on a "once per" basis.
7. The Traveler will not modify Required Actions that specify placing an instrument channel in bypass.
8. The Traveler will not modify Required Actions that require a shutdown due to failure to perform a mitigating action (also known as the "default Condition")

and typically worded as "Required Action and associated Completion Time ... not met."

9. The Traveler will not modify Required Actions in Conditions in which variables are not within limit unless a modeled system could be used as a surrogate in calculating a RICT (e.g., using the modeled pressurizer as a surrogate for pressurizer level).
10. The Traveler will not modify Required Actions for systems that do not affect CDF or LERF or for which a Risk Informed Completion Time cannot be quantitatively determined.
11. The Traveler will not modify Required Actions that direct the performance of an analysis.
12. The Traveler will not modify Required Actions in Conditions entered during movement of [recently] irradiated fuel or during Core Alterations for plants that haven't adopted TSTF-471.
13. The Traveler will not modify Required Actions in Conditions entered during Operations with the Potential to Drain the Reactor Vessel (OPDRV) in BWRs.
14. The Traveler will not modify Required Actions that currently have a Completion Time of 30 days or more.
15. The Traveler will not modify Required Actions with a Completion Time of "immediately."
16. The Traveler will not modify Required Actions with a Completion Time that is based on a situation rather than a time period (e.g, a Completion Time such as "Prior to entering MODE 4").
17. In order to be within the review performed for the South Texas Project lead plant submittal, the Traveler will only modify Required Actions that specify that a system be restored to Operable status, that require an instrument channel to be placed in trip, or that require isolating an inoperable isolation valve.

NEI 06-09 allows the application of a RICT to emergent conditions which represent a loss of a specified safety function or inoperability of all required trains or divisions of a system required to be Operable provided one or more of the trains or divisions are considered "PRA functional" as defined in Section 2.3.1 of NEI 06-09. Incorporation of this allowance requires adding Conditions and Required Actions to the Technical Specifications for configurations that currently would require entry into LCO 3.0.3. These Conditions and Required Actions provide 1 hour to restore at least one train or division of the inoperable system. In order to avoid allowing intentional entry into the Condition for 1 hour in circumstances in which the current Technical Specifications require an LCO 3.0.3

entry, these conditions are modified by a Note similar to: "Not applicable when second [system] train intentionally made inoperable." Conditions representing more than two inoperable trains or subsystems are modified by a Note similar to: "Not applicable when two or more [system] trains intentionally made inoperable." The Bases are expanded to discuss the Note, similar to:

"The Condition is modified by a Note stating it is not applicable when the second [system] train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [system] train is inoperable for any reason and a second [system] train is found to be inoperable, or if two [system] trains are found to be inoperable at the same time."

The one hour allowance is consistent with the approach approved in the South Texas Project lead plant license amendment.

Unlike most Travelers which show all changes to be incorporated in the plant-specific Technical Specifications, the attached markup shows all specifications in the ISTS potentially affected by the proposed changes. The TSTF has included comments throughout the markup to explain why certain Required Actions were excluded from the Risk Informed Completion Time Program. Reviewer's Notes are included in the ISTS Bases to direct which portions of the ISTS apply when adopting or not adopting TSTF-505.

Changes are also included to make related Completion Times accurate following implementation of the RICT. For example most Technical Specifications have requirements to close/isolate containment isolation devices if one or more containment penetrations have inoperable devices. This is followed by a requirement to periodically verify the penetration is isolated. By adding the flexibility to use RCIT to determine a time to isolate the penetration, the periodic verification must then be based on the time "following isolation". Therefore these types of Completion Times have been revised to account for the time change caused by RICT implementation.

3.0 Background

This Traveler supports RITSTF Initiative 4b. NEI has separately developed a risk-informed methodology, documented in NEI 06-09, Revision 0. The methodology document was separately submitted for NRC review and approval, and was approved on May 17, 2007 (ADAMS Accession Number ML071200238). NEI 06-09, Revision 0, provides a risk-informed methodology which permits the extension of Completion times provided risk is assessed and managed within the Risk Informed Completion Time Program.

This Traveler is intended to improve safety through the incorporation of risk assessment and management techniques in Technical Specifications (TS), while

reducing unnecessary burden and making TS requirements consistent with the Nuclear Regulatory Commission's other risk-informed regulatory requirements.

For those specifications within the proposed scope of the Traveler, a new, optional Completion Time is provided that may permit continued operation beyond the existing Completion Time within the same Required Action. Use of this new Completion Time requires risk to be assessed, monitored, and managed as measured by the configuration-specific core damage frequency (CDF) and large early release frequency (LERF), using processes and limits specified in NEI 06-09, Revision 0. NEI 06-09 also requires compensatory measures or risk management actions (RMA), and quantitative evaluation of risk sources for which PRA models may not be available. NEI 06-09 also contains requirements on the scope and technical adequacy of the PRA models.

4.0 Technical Analysis

When the limiting condition for operation (LCO) is not met, most specifications provide a fixed Completion Time to permit a licensee to perform required testing, maintenance, or repair activities. Normally, upon expiration of the Completion Time, the requirement to exit the Applicability of the Specification or to follow remedial actions is imposed. The methodology document, NEI 06-09, Revision 0, provides a means for the licensee to extend the Completion Time and thereby delay exiting the Applicability or taking remedial actions, if risk is assessed and managed within the specified limits and programmatic requirements established by the Risk Informed Completion Time Program. The regulatory requirements for the content of TS will continue to be met, since only the Completion Time is changed by the methodology documented in NEI 06-09, Revision 0. The specific functional capabilities or performance levels of equipment are unchanged, and the remedial actions, including the requirement to shut down the reactor, are also unchanged; only the specific time limits for initiating actions are extended by the methodology documented in NEI 06-09, Revision 0.

NEI 06-09 also allows the application of a RICT to emergent conditions which represent a loss of a specified safety function or inoperability of all required trains or divisions of a system required to be Operable provided one or more of the trains or divisions are considered "PRA functional" as defined in Section 2.3.1 of NEI 06-09. Incorporation of this allowance requires adding Conditions and Required Actions to the Technical Specifications for configurations that currently would require entry into LCO 3.0.3. These Conditions and Required Actions provide 1 hour to restore at least one train or division of the inoperable system and then require being in Mode 3 in 6 hours and Mode 5 (PWRs) or Mode 4 (BWRs) in 36 hours. The Conditions are modified by a Note stating the Conditions are not applicable for intentional entry. The one hour allowance is consistent with the approach approved in the South Texas Project lead plant license amendment.

The maintenance rule, 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," requires licensees to monitor the performance or condition of SSCs against licensee-established goals, in a manner sufficient to provide a reasonable assurance that these SSCs are capable of fulfilling their intended functions. In addition, 10 CFR 50.65(a)(4) requires the assessment and management of the increase in risk that may result from a proposed maintenance activity. The proposed methodology in NEI 06-09, Revision 0, uses processes that are consistent with and complementary to the requirements of 10 CFR 50.65(a)(4).

The methodology used to determine the RICT, as well as other actions and restrictions, is described in NEI 06-09. The TS Risk Informed Completion Time Program requires the licensee to follow NEI 06-09 whenever a RICT is used.

As described in NEI 06-09, Revision 0, the PRA models must conform to the guidance of Regulatory Guide 1.200, Revision 0, and Capability Category II of American Society of Mechanical Engineers (ASME) Standard ASME RA-S-2002, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications." In its safety evaluation of NEI 06-09, Revision 0, the staff noted that Revision 1 to RG 1.200, issued in January 2007, endorsed ASME RA-Sb-2005, "Addenda to ASME RA-S-2002, Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications." The NRC therefore took exception to this particular part of NEI 06-09, Revision 0, and noted that licensees should conform to the updated RG 1.200, Revision 1. In Regulatory Issue Summary 2007-06, "Regulatory Guide 1.200 Implementation," the NRC noted that they would expect licensees to fully address all scope elements consistent with Revision 2 of RG 1.200 by the end of 2009. The NRC's assessment of the licensee's PRA technical adequacy will be based on the updated guidance.

Attachment 1 contains a proposed Model Application for TSTF-505 which describes the information required to be submitted in the plant-specific License Amendment Request (LAR) when adopting this Traveler.

5.0 Regulatory Analysis

5.1 No Significant Hazards Consideration

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change permits the extension of Completion Times provided risk is assessed and managed within the Risk Informed Completion Time Program. The proposed change does not involve a significant increase in the probability of an accident previously evaluated because the changes involve no change to the plant or its modes of operation. These proposed change

does not increase the consequences of an accident because the design-basis mitigation function of the affected systems is not changed and the consequences of an accident during the extended Completion Time are no different from those during the existing Completion Time.

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 does not change the design, configuration, or method of operation of the plant. The proposed change does not involve a physical alteration of the plant (no new or different kind of equipment will be installed).

Therefore, the proposed changes do 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 permits the extension of Completion Times provided risk is assessed and managed within the Risk Informed Completion Time Program. The proposed change implements a risk-informed configuration management program to assure that adequate margins of safety are maintained. Application of these new specifications and the configuration management program considers cumulative effects of multiple systems or components being out of service and does so more effectively than the current TS.

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

Based on the above, the TSTF 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 justified.

5.2 Applicable Regulatory Requirements/Criteria

The proposed Traveler permits the extension of Completion Times provided risk is assessed and managed within the Risk Informed Completion Time Program. The requirements for TS are given in 10 CFR 50.36, which states, "When a limiting condition for operation of a nuclear reactor is not met, the licensee shall

shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met." The proposed change revises the time requirements for completion of remedial actions permitted by the TS.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

6.0 Environmental Consideration

A review has determined that 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 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.

7.0 References

1. Nuclear Energy Institute (NEI) 06-09, Revision 0, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines, Industry Guidance Document," November 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML063390639).
2. Letter from Jennifer M. Golder (NRC) to Biff Bradley (NEI), " Final Safety Evaluation For Nuclear Energy Institute (NEI) Topical Report (TR) NEI 06-09, 'Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines'," dated 5/17/07 (ADAMS Accession Number ML071200238).
2. Letter from Mohan C. Thadani (NRC) to James J. Sheppard (STP Nuclear Operating Company) dated July 13, 2007, "South Texas Project, Units 1 and 2 - Issuance of Amendments Re: Broad-Scope Risk-Informed Technical Specifications Amendments (TAC Nos. MD2341 and MD2342).
3. Regulatory Guide 1.200, Revision 1, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," January 2007, Accession No. ML070240001.

4. American Society of Mechanical Engineers (ASME) ASME RA-S-2002, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications," 2002.
5. ASME RA-Sb-2005, "Addenda to ASME RA-S-2002, Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications," 2005.

Attachment 1

Model Application for Adoption of TSTF-505

Proposed Model Application for TSTF-505

[DATE]

U. S. Nuclear Regular Commission
Document Control Desk
Washington, DC 20555

SUBJECT: PLANT NAME
DOCKET NO. 50-[xxx]
APPLICATION TO REVISE TECHNICAL SPECIFICATIONS TO
ADOPT RISK INFORMED COMPLETION TIMES TSTF-505,
REVISION 1, "PROVIDE RISK-INFORMED EXTENDED
COMPLETION TIMES - RITSTF INITIATIVE 4B," USING THE
CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

Dear Sir or Madam:

In accordance with the provisions of 10 CFR 50.90, [LICENSEE] is submitting a request for an amendment to the Technical Specifications (TS) for [PLANT NAME, UNIT NOS.].

The proposed amendment would modify TS requirements to permit the use of Risk Informed Completion Times in accordance with TSTF-505, Revision 1, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b."

Attachment 1 provides a description and assessment of the proposed changes, the requested confirmation of applicability, and plant-specific verifications. Attachment 2 provides the existing TS pages marked up to show the proposed changes. [Attachment 3 provides revised (clean) TS pages.] Attachment [4] provides existing TS Bases pages marked up to show the proposed changes.

[LICENSEE] requests approval of the proposed license amendment by [DATE], with the amendment being implemented [BY DATE OR WITHIN X DAYS].

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

Proposed Model Application for TSTF-505

[In accordance with 10 CFR 50.30(b), a license amendment request must be executed in a signed original under oath or affirmation. This can be accomplished by attaching a notarized affidavit confirming the signature authority of the signatory, or by including the following statement in the cover letter: "I declare under penalty of perjury that the foregoing is true and correct. Executed on (date)." The alternative statement is pursuant to 28 USC 1746. It does not require notarization.]

If you should have any questions regarding this submittal, please contact [NAME, TELEPHONE NUMBER].

Sincerely,

[Name, Title]

Attachments: 1. Description and Assessment
 2. Proposed Technical Specification Changes (Mark-Up)
 [3. Revised Technical Specification Pages]
 [4]. Proposed Technical Specification Bases Changes (Mark-Up)

Enclosures: 1. List Of Revised Required Actions To Corresponding PRA Functions
 2. Information Supporting Consistency with Regulatory Guide 1.200, Revision 2.

cc: NRC Project Manager
 NRC Regional Office
 NRC Resident Inspector
 State Contact

Proposed Model Application for TSTF-505

ATTACHMENT 1 - DESCRIPTION AND ASSESSMENT

1.0 DESCRIPTION

The proposed amendment would modify the Technical Specification (TS) requirements related to Completion Times for Required Actions to provide the option to calculate a longer, risk-informed Completion Time. The allowance is described in a new program in Chapter 5, "Administrative Controls," entitled the "Risk Informed Completion Time Program."

The methodology for using the Risk Informed Completion Time Program is described in NEI 06-09, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines," which was approved by the NRC on 5/17/07. Adherence to NEI 06-09 is required by the Risk Informed Completion Time Program.

The proposed amendment is consistent with TSTF-505, Revision 1, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b." Only those Required Actions described in Enclosure 1 are proposed to be changed [, which does not include all of the modified Required Actions in TSTF-505] [and which includes some plant-specific Required Actions not included in TSTF-505]. This is consistent with the methodology described in NEI 06-09.

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

[LICENSEE] has reviewed the model safety evaluation dated [DATE] as part of the Federal Register Notice for Comment. This review included a review of the NRC staff's evaluation, as well as the supporting information provided to support TSTF-505 and the safety evaluation for NEI 06-09. [As described in the subsequent paragraphs,][LICENSEE] has concluded that the justifications presented in the TSTF-505 proposal and the model safety evaluation prepared by the NRC staff are applicable to [PLANT, UNIT NOS.] and justify this amendment for the incorporation of the changes to the [PLANT] TS.

2.2 Verifications and Regulatory Commitments

Section 4.0, Limitations and Conditions, of the safety evaluation for NEI 06-09 describes the requirements for a licensee submittal.

Enclosure 1 provides a list of the revised Required Actions and the corresponding probabilistic risk assessment functions that support calculation of an RICT.

Proposed Model Application for TSTF-505

Enclosure 2 provides information supporting consistency with Regulatory Guide 1.200, Revision 2.

2.3 Optional Changes and Variations

[LICENSEE is not proposing any variations or deviations from the TS changes described in the TSTF-505, Revision 1, or the applicable parts of the NRC staff's model safety evaluation dated [DATE].] [LICENSEE is proposing the following variations from the TS changes described in the TSTF-505, Revision 1, or the applicable parts of the NRC staff's model safety evaluation dated [DATE]. These options were recognized as acceptable variations in TSTF-505 and the NRC staff's model safety evaluation.]

[The [PLANT] TS utilize different [numbering][and][titles] than the Standard Technical Specifications on which TSTF-505 was based. Specifically, [describe differences between the plant-specific TS numbering and/or titles (including Required Actions and programs) and the TSTF-505 numbering and titles.] These differences are administrative and do not affect the applicability of TSTF-505 to the [PLANT] TS.]

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

[PLANT NAME, UNIT NOS.] requests adoption of an approved change to the standard technical specifications (STS) and plant specific technical specifications (TS), to modify the TS requirements related to Completion Times for Required Actions to provide the option to calculate a longer, risk-informed Completion Time. The allowance is described in a new program in Chapter 5, "Administrative Controls," entitled the "Risk Informed Completion Time Program."

As required by 10 CFR 50.91(a), an analysis of the issue of no significant hazards consideration is presented 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 permits the extension of Completion Times provided risk is assessed and managed within the Risk Informed Completion Time Program. The proposed change does not involve a significant increase in the probability of an accident previously evaluated because the changes involve no change to the plant or its modes of operation. These proposed change does not increase the consequences of an accident because the design-basis mitigation function of the affected systems is not changed and the consequences of an accident during the

Proposed Model Application for TSTF-505

extended Completion Time are no different from those during the existing Completion Time.

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 does not change the design, configuration, or method of operation of the plant. The proposed change does not involve a physical alteration of the plant (no new or different kind of equipment will be installed).

Therefore, the proposed changes do 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 permits the extension of Completion Times provided risk is assessed and managed within the Risk Informed Completion Time Program. The proposed change implements a risk-informed configuration management program to assure that adequate margins of safety are maintained. Application of these new specifications and the configuration management program considers cumulative effects of multiple systems or components being out of service and does so more effectively than the current TS.

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

Based on the above, [LICENSEE] 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 justified.

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 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,

Proposed Model Application for TSTF-505

pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

Proposed Model Application for TSTF-505

**ATTACHMENT 2 - PROPOSED TECHNICAL SPECIFICATION CHANGES
(MARK-UP)**

Proposed Model Application for TSTF-505

[ATTACHMENT 3 - REVISED TECHNICAL SPECIFICATION PAGES]

Proposed Model Application for TSTF-505

**ATTACHMENT [4] - PROPOSED CHANGES TO TECHNICAL SPECIFICATION
BASES CHANGES (MARK-UP)PAGES**

Proposed Model Application for TSTF-505

ENCLOSURE 1 - LIST OF REVISED REQUIRED ACTIONS TO CORRESPONDING PRA FUNCTIONS

When requesting adoption of this Traveler, the licensee must list each specification and Required Action to which the Risk Informed Completion Time Program will be applied and, for each Required Action, describe the corresponding function modeled in the PRA.

Proposed Model Application for TSTF-505

ENCLOSURE 2 - INFORMATION SUPPORTING CONSISTENCY WITH REGULATORY GUIDE 1.200, REVISION 2

----- Reviewer's Note -----

This enclosure must contain information to support the licensee's contention that the plant-specific PRA is consistent with Regulatory Guide 1.200, Revision 2.

The following guidance is taken from Section 4.0 of the Safety Evaluation for NEI 06-09:

1. The LAR will provide identification of the TS LCOs and action requirements to which the RMTS will apply, with a comparison of the TS functions to the PRA modeled functions of the SSCs subject to those LCO actions. The comparison should justify that the scope of the PRA model, including applicable success criteria such as number of SSCs required, flowrate, etc., are consistent licensing basis assumptions (i.e., 50.46 ECCS flowrates) for each of the TS requirements, or an appropriate disposition or programmatic restriction will be provided.
2. The LAR will provide a discussion of the results of peer reviews and self assessments conducted for the plant-specific PRA models which support the RMTS, including the resolution or disposition of any identified deficiencies (i.e., findings and observations from peer reviews). This will include a comparison of the requirements of RG 1.200 using the elements of ASME RA-Sb-2005 for capability Category II for internal events PRA models, and for other models for which RG 1.200 endorsed standards exist. If additional standards have been endorsed by revision to RG 1.200, the LAR will also provide similar information for those PRA models used to support the RMTS program.
3. The LAR will provide a description, in terms of scope, level of detail, technical adequacy, and methods applied, for all PRA models used in calculations of risk used to support the RMTS for risk sources for which NRC endorsed standards are not available.
4. The LAR will provide a justification for excluding any risk sources determined to be insignificant to the calculation of configuration-specific risk, and will provide a discussion of any conservative or bounding analyses to be applied to the calculation of RICTs for sources of risk not addressed by the PRA models.
5. The LAR will provide the plant-specific total CDF and total LERF to confirm that these are less than 10^{-4} /year and 10^{-5} /year, respectively. This assures that the potential risk increases allowed under the RMTS program are consistent with RG 1.174, Revision 1.
6. The LAR will provide appropriate plant-specific justification for using the at-power PRA models in shutdown modes to which the RMTS applies.

Proposed Model Application for TSTF-505

7. The LAR will provide a discussion of the licensee's programs and procedures which assure the PRA models which support the RMTS are maintained consistent with the as-built, as-operated plant.
 8. The LAR will provide a description of the PRA models and tools used to support the RMTS, including identification of how the baseline PRA model is modified for use in the CRMP tools, quality requirements applied to the PRA models and CRMP tools, consistency of calculated results from the PRA model and the CRMP tools, and training and qualification programs applicable to personnel responsible for development and use of the CRMP tools. The scope of SSCs within the CRMP will be provided. This item should also confirm that the CRMP tools can be readily applied for each TS LCO within the scope of the plant-specific RMTS submittal.
 9. The LAR will provide a discussion of how the key assumptions and sources of uncertainty were identified, and how their impact on the RMTS was assessed and dispositioned.
 10. The LAR will provide a description of the implementing programs and procedures regarding the plant staff responsibilities for the RMTS implementation, and specifically discuss the decision process for RMA implementation during a RICT.
 11. The LAR will include a description of the implementation and monitoring program as described in RG 1.174, Revision 1, Section 2.3, Element 3, and TR NEI 06-09, Revision 0, Section 2.3.2, Step 7.
 12. The LAR will describe the process to identify and provide compensatory measures and RMAs during extended CTs. Provide examples of compensatory measures/RMAs for planned activities which exceed risk levels identified in NUMARC 93-01 (RMA threshold) that involve an extended CT.
-

1.3 Completion Times

----- Reviewer's Note -----
 Example 1.3-8 is only applicable to plants that have adopted the Risk Informed Completion Time Program.

[

EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. ---- NOTE ----- Not applicable when second subsystem intentionally made inoperable. ----- Two subsystems inoperable.	B.1 Restore subsystems to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

When a subsystem is declared inoperable, Condition A is entered. The 7 day Completion Time may be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a Risk Informed Completion Time (RICT) that may be used to complete the Required Action beyond the 7 day Completion Time. The RICT

cannot exceed 30 days. After the 7 day Completion Time has expired, the subsystem must be restored to OPERABLE status within the RICT or Condition C must also be entered.

If a second subsystem is declared inoperable, Condition B may also be entered. The Condition is modified by a Note stating it is not applicable if the second subsystem is intentionally made inoperable. The Required Actions of Condition B are not intended for voluntary removal of redundant subsystems from service. The Required Action is only applicable if one subsystem is inoperable for any reason and the second subsystem is found to be inoperable, or if both subsystems are found to be inoperable at the same time. If Condition B is applicable, at least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. The licensee may be able to apply a RICT to extend the Completion Time beyond 1 hour if the requirements of the Risk Informed Completion Time Program are met. If two subsystems are inoperable and Condition B is not applicable (i.e., the second subsystem was intentionally made inoperable), LCO 3.0.3 is entered as there is no applicable Condition.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

If the 7 day Completion Time clock of Condition A or the 1 hour Completion Time clock of Condition B have expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition C is entered, Conditions A, B, and C are exited, and therefore, the Required Actions of Condition C may be terminated.]

IMMEDIATE When "Immediately" is used as a Completion Time, the Required Action
COMPLETION TIME should be pursued without delay and in a controlled manner.

Comment: Conditions E, F, G, and H apply to the default Condition (Condition D) and are therefore excluded. Required Actions A.1 and B.2 requires placing a channel in bypass and is excluded.

3.3 INSTRUMENTATION

3.3.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1 Four channels of RPS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Place channel in bypass or trip.	1 hour
B. Two channels inoperable.	B.1 Place one channel in trip. <u>AND</u>	1 hour <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
	B.2 Place second channel in bypass.	1 hour
<u>[C. ----- NOTE -----</u> <u>Not applicable when three or more channels intentionally made inoperable.</u> <u>-----</u> <u>Three or more channels inoperable.</u>	<u>C.1 Restore channels to OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<u>DG.</u> [Three or more channels inoperable. <u>OR]</u>	<u>DG.</u> 1 Enter the Condition referenced in Table 3.3.1-1 for the Function.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>Required Action and associated Completion Time of Condition A-or, B, <u>or C</u> not met.</p>		
<p>ED. As required by Required Action DE.1 and referenced in Table 3.3.1-1.</p>	<p>DE.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>ED.2 Open all CONTROL ROD drive (CRD) trip breakers.</p>	<p>6 hours</p> <p>6 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<u>FE</u> .1 As required by Required Action <u>DE</u> .1 and referenced in Table 3.3.1-1.	<u>FE</u> .1 Open all CRD trip breakers.	6 hours
<u>GF</u> .1 As required by Required Action <u>DE</u> .1 and referenced in Table 3.3.1-1.	<u>GF</u> .1 Reduce THERMAL POWER < [45]% RTP.	6 hours
<u>HG</u> .1 As required by Required Action <u>DE</u> .1 and referenced in Table 3.3.1-1.	<u>HG</u> .1 Reduce THERMAL POWER < [15]% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.1-1 to determine which SRs apply to each RPS Function.

SURVEILLANCE	FREQUENCY
SR 3.3.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2 -----NOTES----- 1. Adjust power range channel output if the absolute difference is > [2]% RTP. 2. Not required to be performed until [24] hours after THERMAL POWER is ≥ 15% RTP. ----- Compare result of calorimetric heat balance calculation to power range channel output.	24 hour

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> Adjust the power range channel imbalance output if the absolute value of the imbalance error is $\geq [2]\%$ RTP. Not required to be performed until [24] hours after THERMAL POWER is $\geq 15\%$ RTP. <p>-----</p> <p>Compare results of out of core measured AXIAL POWER IMBALANCE (API_0) to incore measured AXIAL POWER IMBALANCE (API_1) as follows:</p> <p>$(RTP/TP)(API_0 - API_1) = \text{imbalance error.}$</p>	<p>31 days</p>
<p>SR 3.3.1.4</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	<p>[45] days on a STAGGERED TEST BASIS</p>
<p>SR 3.3.1.5</p> <p>-----NOTE-----</p> <p>Neutron detectors are excluded from CHANNEL CALIBRATION.</p> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>[18] months</p>
<p>SR 3.3.1.6</p> <p>-----NOTE-----</p> <p>Neutron detectors are excluded from RPS RESPONSE TIME testing.</p> <p>-----</p> <p>Verify that RPS RESPONSE TIME is within limits.</p>	<p>[18] months on a STAGGERED TEST BASIS</p>

Table 3.3.1-1 (page 1 of 2)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CONDITIONS REFERENCED FROM REQUIRED ACTION <u>DE</u> .1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Nuclear Overpower -				
a. High Setpoint	1,2 ^(a) ,3 ^(d)	<u>DE</u>	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6	≤ [104.9]% RTP
b. Low Setpoint	2 ^(b) ,3 ^(b) 4 ^(b) ,5 ^(b)	<u>FE</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6	≤ 5% RTP
2. RCS High Outlet Temperature	1,2	<u>DE</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ [618]°F
3. RCS High Pressure	1,2 ^(a) ,3 ^(d)	<u>DE</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6	≤ [2355] psig
4. RCS Low Pressure	1,2 ^(a)	<u>DE</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6	≥ [1800] psig
5. RCS Variable Low Pressure	1,2 ^(a)	<u>DE</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≥ ([11.59] · T _{out} - [5037.8]) psig
6. Reactor Building High Pressure	1,2,3 ^(c)	<u>DE</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ [4] psig

- (a) When not in shutdown bypass operation.
- (b) During shutdown bypass operation with any CRD trip breaker in the closed position and the CRD System capable of rod withdrawal.
- (c) With any CRD trip breaker in the closed position and the CRD System capable of rod withdrawal.
- (d) With any CRD trip breaker in the closed position, the CRD System capable of rod withdrawal, and not in shutdown bypass operation.

Table 3.3.1-1 (page 2 of 2)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CONDITIONS REFERENCED FROM REQUIRED ACTION <u>DC</u> .1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Reactor Coolant Pump to Power	1,2 ^(a)	<u>DE</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6	[5]% RTP with ≤ 2 pumps operating
8. Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE	1,2 ^(a)	<u>DE</u>	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6	Nuclear Overpower RCS Flow and AXIAL POWER IMBALANCE setpoint envelope in COLR
9. Main Turbine Trip (Control Oil Pressure)	≥ [45]% RTP	<u>FG</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≥ [45] psig
10. Loss of Main Feedwater Pumps (Control Oil Pressure)	≥ [15]% RTP	<u>GH</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≥ [55] psig
11. Shutdown Bypass RCS High Pressure	2 ^(b) ,3 ^(b) ,4 ^(b) 5 ^(b)	<u>EF</u>	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ [1720] psig

(a) When not in shutdown bypass operation.

(b) During shutdown bypass operation with any CRD trip breakers in the closed position and the CRD System capable of rod withdrawal.

Comment: Condition B is a default Condition and Condition C is outside the applicability of the Traveler. These Conditions are excluded.

3.3 INSTRUMENTATION

3.3.2 Reactor Protection System (RPS) Manual Reactor Trip

LCO 3.3.2 The RPS Manual Reactor Trip Function shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 with any CONTROL ROD drive (CRD) trip breaker in the closed position and the CRD System capable of rod withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Manual Reactor Trip Function inoperable.	A.1 Restore Function to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met in MODE 1, 2, or 3.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Open all CRD trip breakers.	6 hours
C. Required Action and associated Completion Time not met in MODE 4 or 5.	C.1 Open all CRD trip breakers.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.2.1 Perform CHANNEL FUNCTIONAL TEST.	Once prior to each reactor

Comment: Condition B is a default Condition and Condition C is outside the applicability of the Traveler. Condition A does not contain "restore" actions. All Conditions are therefore excluded.

RPS - RTM
3.3.3

3.3 INSTRUMENTATION

3.3.3 Reactor Protection System (RPS) - Reactor Trip Module (RTM)

LCO 3.3.3 Four RTMs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 with any CONTROL ROD drive (CRD) trip breaker in the closed position and the CRD System capable of rod withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RTM inoperable.	A.1.1 Trip the associated CRD trip breaker.	1 hour
	<u>OR</u>	
	A.1.2 Remove power from the associated CRD trip breaker.	1 hour
	<u>AND</u>	
	A.2 Physically remove the inoperable RTM.	1 hour
B. Two or more RTMs inoperable in MODE 1, 2, or 3. <u>OR</u> Required Action and associated Completion Time not met in MODE 1, 2, or 3.	B.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	B.2.1 Open all CRD trip breakers.	6 hours
	<u>OR</u>	
	B.2.2 Remove power from all CRD trip breakers.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two or more RTMs inoperable in MODE 4 or 5. <u>OR</u> Required Action and associated Completion Time not met in MODE 4 or 5.	C.1 Open all CRD trip breakers.	6 hours
	<u>OR</u> C.2 Remove power from all CRD trip breakers.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.3.1 Perform CHANNEL FUNCTIONAL TEST.	[23] days on a STAGGERED TEST BASIS

Comment: The Required Actions of Conditions A, B, and C do not require "restore" actions. Condition D is a default Condition and Condition E is outside the applicability of the Traveler. All Conditions are therefore excluded.

3.3 INSTRUMENTATION

3.3.4 CONTROL ROD Drive (CRD) Trip Devices

LCO 3.3.4 The following CRD trip devices shall be OPERABLE:

- a. Two AC CRD trip breakers,
- b. Two DC CRD trip breaker pairs, and
- c. Eight electronic trip assembly (ETA) relays.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 when any CRD trip breaker is in the closed position
and the CRD System is capable of rod withdrawal.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each CRD trip device.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more CRD trip breaker(s) [or breaker pair] undervoltage or shunt trip Functions inoperable.	A.1 Trip the CRD trip breaker(s)	48 hours
	<u>OR</u> A.2 Remove power from the CRD trip breaker(s).	48 hours
B. One or more CRD trip breaker(s) [or breaker pair] inoperable for reasons other than those in Condition A.	B.1 Trip the CRD trip breaker(s).	1 hour
	<u>OR</u> B.2 Remove power from the CRD trip breaker(s).	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more ETA relays inoperable.	C.1 Transfer affected CONTROL ROD group to power supply with OPERABLE ETA relays.	1 hour
	<u>OR</u>	
	C.2 Trip corresponding AC CRD trip breaker.	1 hour
D. Required Action and associated Completion Time not met in MODE 1, 2, or 3.	D.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	D.2.1 Open all CRD trip breakers.	6 hours
	<u>OR</u>	
	D.2.2 Remove power from all CRD trip breakers.	6 hours
E. Required Action and associated Completion Time not met in MODE 4 or 5.	E.1 Open all CRD trip breakers.	6 hours
	<u>OR</u>	
	E.2 Remove power from all CRD trip breakers.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.4.1 Perform CHANNEL FUNCTIONAL TEST.	[23] days on a STAGGERED TEST BASIS

Comment: Condition C is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.5 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.5 Three channels of ESFAS instrumentation for each Parameter in Table 3.3.5-1 shall be OPERABLE in each ESFAS train.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more parameters with one channel inoperable.	A.1 Place channel in trip.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when one or more parameters with two or more channels intentionally made inoperable. ----- One or more parameters with two or more channels inoperable.	B.1 Restore channel(s) to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
CB.[One or more parameters with two or more channels inoperable. <u>OR</u>	CB-.1 Be in MODE 3. <u>AND</u>	6 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
Required Action and associated Completion Time not met.		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>BC.2.1 -----NOTE----- Only required for RCS Pressure - Low setpoint. -----</p> <p>Reduce RCS pressure < [1800] psig.</p> <p><u>AND</u></p> <p>CB.2.2 -----NOTE----- Only required for RCS Pressure - Low Low setpoint. -----</p> <p>Reduce RCS pressure < [900] psig.</p> <p><u>AND</u></p> <p>BC.2.3 -----NOTE----- Only required for Reactor Building Pressure High setpoint and High High setpoint. -----</p> <p>Be in MODE 5.</p>	<p>36 hours</p> <p>36 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.5.1 Perform CHANNEL CHECK.	12 hours

Comment: Condition C is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.6 Engineered Safety Feature Actuation System (ESFAS) Manual Initiation

LCO 3.3.6 Two manual initiation channels of each one of the ESFAS Functions below shall be OPERABLE:

- a. High Pressure Injection,
- b. Low Pressure Injection,
- [c. Reactor Building (RB) Cooling,]
- [d. RB Spray,]
- e. RB Isolation, and
- [f. Control Room Isolation.]

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when associated engineered safeguard equipment is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more ESFAS Functions with one channel inoperable.	A.1 Restore channel to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when one or more ESFAS Functions with two channels intentionally	B.1 Restore at least one channel to OPERABLE status.	1 hour <u>OR</u> In accordance with

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.7 Engineered Safety Feature Actuation System (ESFAS) Automatic Actuation Logic

LCO 3.3.7 All the ESFAS automatic actuation logic matrices shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when associated engineered safeguard equipment is required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each automatic actuation logic matrix.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more automatic actuation logic matrices inoperable.	A.1 Place associated component(s) in engineered safeguard configuration.	1 hour
	<u>OR</u>	
	A.2 Declare the associated component(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.7.1 Perform automatic actuation logic CHANNEL FUNCTIONAL TEST.	31 days on a STAGGERED TEST BASIS

Comment: Condition C is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.8 Emergency Diesel Generator (EDG) Loss of Power Start (LOPS)

LCO 3.3.8 Three channels of loss of voltage Function and three channels of degraded voltage Function EDG LOPS instrumentation per EDG shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated EDG is required to be OPERABLE by LCO 3.8.2 "AC Sources - Shutdown."

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per EDG inoperable.	A.1 Place channel in trip.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. One or more Functions with two or more channels per EDG inoperable.	B.1 Restore all but one channel to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Enter applicable Condition(s) and Required Action for EDG made inoperable by EDG LOPS.	Immediately

Comment: No changes made. The Completion Time (CT) of RA A.1 is not a time-based CT and RA B.1 and B.2 involve an "Immediately" CT. RA B.3 is a continuation of the results of the "Immediately" CT, RA B.4 involves a recurring verification and RA C.1 requires action to be initiated within 1 hour, but does not require the restoration within any timeframe. These are therefore excluded.

3.3 INSTRUMENTATION

3.3.9 Source Range Neutron Flux

LCO 3.3.9 Two source range neutron flux channels shall be OPERABLE.

-----NOTE-----
High voltage to detector may be de-energized with neutron flux > 1E-10 amp on intermediate range channels.

APPLICABILITY: MODES 2, 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One source range neutron flux channel inoperable with neutron flux $\leq 1E-10$ amp on the intermediate range neutron flux channels.	A.1 Restore channel to OPERABLE status.	Prior to increasing neutron flux
B. Two source range neutron flux channels inoperable with neutron flux $\leq 1E-10$ amp on the intermediate range neutron flux channels.	B.1 -----NOTE----- Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. ----- Suspend operations involving positive reactivity changes.	Immediately
	<u>AND</u> B.2 Initiate action to insert all CONTROL RODS. <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.3 Open CONTROL ROD drive trip breakers. <u>AND</u> B.4 Verify SDM is within the limits specified in the COLR.	1 hour <u>AND</u> Once per 12 hours thereafter
C. One or more source range neutron flux channel(s) inoperable with neutron flux > 1E-10 amp on the intermediate range neutron flux channels.	C.1 Initiate action to restore affected channel(s) to OPERABLE status.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.9.2	-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

Intermediate Range Neutron Flux
3.3.10

3.3 INSTRUMENTATION

3.3.10 Intermediate Range Neutron Flux

LCO 3.3.10 Two intermediate range neutron flux channels shall be OPERABLE.

APPLICABILITY: MODE 2,
MODES 3, 4, and 5 with any CONTROL ROD drive (CRD) trip breaker in the closed position and the CRD System capable of rod withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Reduce neutron flux to $\leq 1E-10$ amp.	2 hours
B. Two channels inoperable.	B.1 -----NOTE----- Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. ----- Suspend operations involving positive reactivity changes.	Immediately
	<u>AND</u> B.2 Open CRD trip breakers.	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.10.1 Perform CHANNEL CHECK.	12 hours

Comment: Condition E, F, and G are default Conditions and are therefore excluded. Required Actions A.1 and B.1 allow placing a channel in bypass and are excluded.

3.3 INSTRUMENTATION

3.3.11 Emergency Feedwater Initiation and Control (EFIC) System Instrumentation

LCO 3.3.11 The EFIC System instrumentation channels for each Function in Table 3.3.11-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.11-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Emergency Feedwater (EFW) Initiation, Main Steam Line Isolation, or Main Feedwater (MFW) Isolation Functions listed in Table 3.3.11-1 with one channel inoperable.	A.1 Place channel(s) in bypass or trip.	1 hour
	<u>AND</u> A.2 Place channel(s) in trip.	72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
B. One or more EFW Initiation, Main Steam Line Isolation, or MFW Isolation Functions listed in Table 3.3.11-1 with two channels inoperable.	B.1 Place one channel in bypass.	1 hour
	<u>AND</u> B.2 Place second channel in trip. <u>AND</u>	1 hour <u>[OR</u> In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.3 Restore one channel to OPERABLE status.	the Risk Informed Completion Time Program] 72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One EFW Vector Valve Control channel inoperable.</p>	<p>C.1 Restore channel to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[D. ----- NOTE ----- Not applicable when three or more EFW Initiation, Main Steam Line Isolation, or MFW Isolation channels, or two or more EFW Vector Valve Control channels intentionally made inoperable. -----</p> <p>One or more EFW Initiation, Main Steam Line Isolation, or MFW Isolation Functions listed in Table 3.3.11-1 with three or more channels inoperable.</p> <p><u>OR</u></p> <p>Two or more EFW Vector Valve Control channels inoperable.</p>	<p>D.1 Restore channels to OPERABLE status.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>ED.[Three or more channels inoperable for Functions 1.a or 1.b.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time not met for</p>	<p>ED.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>ED.2.1 -----NOTE----- Only required for Function 1a. -----</p>	<p>6 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>GF. [Three or more channels inoperable for Functions 1.c, 2, 3, or 4.</p> <p>OR</p> <p>Required Action and associated Completion Time not met for Functions 1.c, 2, 3, or 4.</p>	<p>GF.1 Reduce once through steam generator pressure to < 750 psig.</p>	12 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----

Refer to Table 3.3.11-1 to determine which SRs shall be performed for each EFIC Function.

SURVEILLANCE		FREQUENCY
SR 3.3.11.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.11.2	Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.11.3	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.11.4	Verify EFIC RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

Comment: Condition C is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.12 Emergency Feedwater Initiation and Control (EFIC) Manual Initiation

LCO 3.3.12 Two manual initiation switches per actuation channel for each of the following EFIC Functions shall be OPERABLE:

- a. Steam generator (SG) A Main Feedwater (MFW) Isolation,
- b. SG B MFW Isolation,
- c. SG A Main Steam Line Isolation,
- d. SG B Main Steam Line Isolation, and
- e. Emergency Feedwater Actuation.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more EFIC Function(s) with one or both manual initiation switches inoperable in one actuation channel.	A.1 Place actuation channel for the associated EFIC Function(s) in trip.	72 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
B. One or more EFIC Function(s) with one or both manual initiation switches inoperable in both actuation channels.	B.1 Restore one actuation channel for the associated EFIC Function(s) to OPERABLE status.	1 hour <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.12.1 Perform CHANNEL FUNCTIONAL TEST.	31 days

Comment: Condition C is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.13 Emergency Feedwater Initiation and Control (EFIC) Logic

LCO 3.3.13 Channels A and B of each Logic Function shown below shall be OPERABLE:

- a. Main Feedwater Isolation,
- b. Main Steam Line Isolation,
- c. Emergency Feedwater Actuation, and
- d. Vector Valve Enable Logic.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more channel A Functions inoperable with all channel B Functions OPERABLE.</p> <p><u>OR</u></p> <p>One or more channel B Functions inoperable with all channel A Functions OPERABLE.</p>	<p>A.1 Restore affected channel to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. ----- NOTE ----- Not applicable when Channel A and B for one or more Functions intentionally made inoperable. -----</p>	<p>B.1 Restore affected channels to OPERABLE status.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
Channel A and B inoperable for one or more Functions.		
CB. Required Action and associated Completion Time not met.	CB. 1 Be in MODE 3. <u>AND</u> CB. 2 Be in MODE 4.	6 hours 12 hours

Comment: Condition C is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.14 Emergency Feedwater Initiation and Control (EFIC) - Emergency Feedwater (EFW) - Vector Valve Logic

LCO 3.3.14 Four channels of the vector valve logic shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One vector valve logic channel inoperable.</p>	<p>A.1 Restore channel to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. ----- NOTE ----- Not applicable when two or more vector valve logic channels intentionally made inoperable. ----- Two or more vector valve logic channels inoperable.</p>	<p>B.1 Restore channels to OPERABLE status.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time not met.</p>	<p>CB..1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CB..2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>

SURVEILLANCE REQUIREMENTS

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

RB Purge Isolation - High Radiation
3.3.15

3.3 INSTRUMENTATION

3.3.15 Reactor Building (RB) Purge Isolation - High Radiation

LCO 3.3.15 [One] channel of Reactor Building Purge Isolation - High Radiation shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of [recently] irradiated fuel assemblies within the RB.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable in MODE 1, 2, 3, or 4.	A.1 Place and maintain RB purge valves in closed positions.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours
C. One channel inoperable during movement of [recently] irradiated fuel assemblies within the RB.	C.1 Place and maintain RB purge valves in closed positions.	Immediately
	<u>OR</u> C.2 Suspend movement of [recently] irradiated fuel assemblies within the RB.	Immediately

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.16 Control Room Isolation - High Radiation

LCO 3.3.16 [One] channel of Control Room Isolation - High Radiation shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable in MODE 1, 2, 3, or 4.	A.1 -----NOTE----- Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable. ----- Place one OPERABLE Control Room Emergency Ventilation System (CREVS) train in the emergency recirculation mode.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours
C. One channel inoperable during movement of [recently] irradiated fuel.	C.1 Place one OPERABLE CREVS train in emergency recirculation mode. <u>OR</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.16.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.16.2	<p>-----NOTE-----</p> <p>When the Control Room Isolation - High Radiation instrumentation is placed in an inoperable status solely for performance of this Surveillance, entry into associated Conditions and Required Actions may be delayed for up to 3 hours.</p> <p>-----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	92 days
SR 3.3.16.3	Perform CHANNEL CALIBRATION with setpoint Allowable Value \leq [25] mR/hr.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.17 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.17 The PAM instrumentation for each Function in Table 3.3.17-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.5.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.17-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.17-1.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Be in MODE 4.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.17-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----

These SRs apply to each PAM instrumentation Function in Table 3.3.17-1.

SURVEILLANCE		FREQUENCY
SR 3.3.17.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.17.2	-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	[18] months

Comment: No changes made. Condition A already has a 30 day CT and Condition B is a default Condition.

3.3 INSTRUMENTATION

3.3.18 Remote Shutdown System

LCO 3.3.18 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.18.1 [Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days]
SR 3.3.18.2 Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] month

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 RCS DNB parameters for loop pressure, hot leg temperature, and RCS total flow rate shall be within the limits specified below:

a. With four reactor coolant pumps (RCPs) operating:

RCS loop pressure shall be \geq [2061.6] psig, RCS hot leg temperature shall be \leq [604.6] $^{\circ}$ F, and RCS total flow rate shall be \geq [139.7 E6] lb/hr, and

b. With three RCPs operating:

RCS loop pressure shall be \geq [2057.2] psig, RCS hot leg temperature shall be \leq [604.6] $^{\circ}$ F, and RCS total flow rate shall be \geq [104.4 E6] lb/hr.

APPLICABILITY: MODE 1.

-----NOTES-----

RCS loop pressure limit does not apply during:

- a. THERMAL POWER ramp > 5% RTP per minute or
 - b. THERMAL POWER step > 10% RTP.
-

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

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 $\geq 525^\circ\text{F}$.

APPLICABILITY: MODE 1,
MODE 2 with $k_{eff} \geq 1.0$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{avg} in one or more RCS loops not within limit.	A.1 Be in MODE 2 with $K_{eff} < 1.0$.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop $\geq 525^\circ\text{F}$.	12 hours

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3 RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be maintained within the limits specified in the PTLR.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Required Action A.2 shall be completed whenever this Condition is entered. ----- Requirements of LCO not met in MODE 1, 2, 3, or 4.</p>	<p>A.1 Restore parameter(s) to within limits. <u>AND</u> A.2 Determine RCS is acceptable for continued operation.</p>	<p>30 minutes 72 hours</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.</p>	<p>6 hours 36 hours</p>
<p>C. -----NOTE----- Required Action C.2 shall be completed whenever this Condition is entered. ----- Requirements of LCO not met in other than MODE 1, 2, 3, or 4.</p>	<p>C.1 Initiate action to restore parameter(s) to within limit. <u>AND</u> C.2 Determine RCS is acceptable for continued operation.</p>	<p>Immediately Prior to entering MODE 4</p>

Comment: Non-compliance with the "in-operation" of this Specification will cause an automatic reactor trip. There is an implied restore "Immediately" Completion Time. Since the Risk Informed Completion time cannot be applied to a Required Action with an "Immediately" Completion Time, no changes are applied.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops - MODES 1 and 2

- LCO 3.4.4 Two RCS Loops shall be in operation, with:
- a. Four reactor coolant pumps (RCPs) operating or
 - b. Three RCPs operating and THERMAL POWER restricted to [79.9]% RTP.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO not met.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.4.1 Verify required RCS loops are in operation.	12 hours

Comment: This change is only applicable if use of the RICT in MODE 3 is justified. Condition B is a default Condition and Condition C contains "Immediately" CTs. Therefore these Conditions are excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

LCO 3.4.5 Two RCS loops shall be OPERABLE and one RCS loop shall be in operation.

-----NOTE-----

All reactor coolant pumps (RCPs) may be removed from operation for ≤ 8 hours per 24 hour period for the transition to or from the Decay Heat Removal System, and all RCPs may be de-energized for ≤ 1 hour per 8 hour period for any other reason, provided:

- a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
- b. Core outlet temperature is maintained at least [10]°F below saturation temperature.

APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RCS loop inoperable.	A.1 Restore RCS loop to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours

Comment: No changes made. The CTs of RA A.1 and Condition B contain "Immediately". RA A.2 places the unit in a Condition outside the applicability of the Traveler. Therefore these Conditions are excluded.

RCS Loops - MODE 4
3.4.6

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops - MODE 4

LCO 3.4.6 Two loops consisting of any combination of RCS loops and decay heat removal (DHR) loops shall be OPERABLE and one loop shall be in operation.

-----NOTE-----
All reactor coolant pumps (RCPs) may be removed from operation for ≤ 8 hours per 24 hour period for the transition to or from the DHR System, and all RCPs and DHR pumps may be de-energized for ≤ 1 hour per 8 hour period for any other reason, provided:

- a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
- b. Core outlet temperature is maintained at least 10°F below saturation temperature.

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required loop inoperable.	A.1 Initiate action to restore a second loop to OPERABLE status.	Immediately
	<p><u>AND</u></p> <p>A.2 -----NOTE----- Only required if one DHR loop is OPERABLE. -----</p> <p>Be in MODE 5.</p>	

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 One decay heat removal (DHR) loop shall be OPERABLE and in operation, and either:

- a. One additional DHR loop shall be OPERABLE or
- b. The secondary side water level of each steam generator (SG) shall be \geq [50]%.

-----NOTES-----

1. The DHR pump of the loop in operation may be removed from operation for \leq 1 hour per 8 hour period provided:
 - a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
2. One required DHR loop may be inoperable for up to 2 hours for surveillance testing provided that the other DHR loop is OPERABLE and in operation.
3. All DHR loops may be not in operation during planned heatup to MODE 4 when at least one RCS loop is in operation.

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required DHR loop inoperable.</p> <p><u>AND</u></p> <p>One DHR loop OPERABLE.</p>	<p>A.1 Initiate action to restore a second DHR loop to OPERABLE status.</p> <p><u>OR</u></p> <p>A.2 Initiate action to restore required SGs secondary side water levels to within limits.</p>	<p>Immediately</p> <p>Immediately</p>
<p>B. One or more required SGs with secondary side water level not within limit.</p> <p><u>AND</u></p> <p>One DHR loop OPERABLE.</p>	<p>B.1 Initiate action to restore a second DHR loop to OPERABLE status.</p> <p><u>OR</u></p> <p>B.2 Initiate action to restore required SGs secondary side water level to within limit.</p>	<p>Immediately</p> <p>Immediately</p>
<p>C. No required DHR loop OPERABLE.</p> <p><u>OR</u></p> <p>Required DHR loop not in operation.</p>	<p>C.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>C.2 Initiate action to restore one DHR loop to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p>

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two decay heat removal (DHR) loops shall be OPERABLE and one DHR loop shall be in operation.

-----NOTES-----

1. All DHR pumps may be removed from operation for ≤ 15 minutes when switching from one loop to another provided:
 - [a. The maximum RCS temperature is $\leq [160]^{\circ}\text{F}$,]
 - b. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - c. No draining operations to further reduce the RCS water volume are permitted.

2. One DHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other DHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required DHR loop inoperable.	A.1 Initiate action to restore DHR loop to OPERABLE status.	Immediately

Comment: A Risk Informed Completion Time cannot be calculated for Condition A. Conditions B and D are default Conditions and are therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

- a. Pressurizer water level \leq [290] inches and
- b. A minimum of [126] kW of pressurizer heaters OPERABLE [and capable of being powered from an emergency power supply].

-----NOTE-----

OPERABILITY requirements on pressurizer heaters do not apply in MODE 4.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with RCS temperature \geq [275]°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Restore level to within limit.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4 with RCS temperature \leq [275]°F.	[24] hours
C. Capacity of pressurizer heaters [capable of being powered by emergency power supply] less than limit.	C.1 Restore pressurizer heater capability.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

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.	6 hours
	<u>AND</u>	
	D.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level \leq [290] inches.	12 hours
SR 3.4.9.2	[Verify \geq [126] kW of pressurizer heaters are capable of being powered from an emergency power supply.	[18] months]
SR 3.4.9.3	[Verify emergency power supply for pressurizer heaters is OPERABLE.	[18] months]

Comment: Condition B is a default Condition and is therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 Two pressurizer safety valves shall be OPERABLE with lift settings \geq [2475] psig and \leq [2525] psig.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures $>$ [283]°F.

-----NOTE-----

The lift settings are not required to be within the LCO limits for entry into MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for [36] hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met. <u>OR</u> Two pressurizer safety valves inoperable.	B..1 Be in MODE 3. <u>AND</u> B..2 Be in MODE 4 with any RCS cold leg temperature \leq [283]°F.	6 hours [24] hours

Comment: No changes made. Conditions A and B have an implied "Immediately" restore action and Condition C is a default Condition. Therefore these are excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valve (PORV)

LCO 3.4.11 The PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. PORV inoperable.	A.1 Close block valve.	1 hour
	<u>AND</u>	
	A.2 Remove power from block valve.	1 hour
B. Block valve inoperable.	B.1 Close block valve.	1 hour
	<u>AND</u>	
	B.2 Remove power from block valve.	1 hour
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	C.2 Be in MODE 4.	12 hours

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.12 An LTOP System shall be OPERABLE with a maximum of [one] makeup pump capable of injecting into the RCS, high pressure injection (HPI) deactivated, and the core flood tanks (CFTs) isolated and:

-----NOTES-----

1. [Two makeup pumps] may be capable of injecting for ≤ 1 hour for pump swap operations.
 2. CFT may be unisolated when CFT pressure is less than the maximum RCS pressure for the existing RCS temperature allowed by the pressure and temperature limit curves provided in the PTLR.
-
- a. Pressurizer level $\leq [220]$ inches and an OPERABLE power operated relief valve (PORV) with a lift setpoint of $\leq [555]$ psig or
 - b. The RCS depressurized and an RCS vent of $\geq [0.75]$ square inch.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is $\leq [283]^{\circ}\text{F}$,
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. More than [one] makeup pump capable of injecting into the RCS.	A.1 Initiate action to verify only [one] makeup pump is capable of injecting into the RCS.	Immediately
B. HPI activated.	B.1 Initiate action to verify HPI deactivated.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. A CFT not isolated when CFT pressure is greater than or equal to the maximum RCS pressure for existing temperature allowed in the PTLR.	C.1 Isolate affected CFT.	1 hour
D. Required Action C.1 not met within the required Completion Time.	D.1 Increase RCS temperature to > 175°F.	12 hours
	<u>OR</u> D.2 Depressurize affected CFT to < [555] psig.	12 hours
E. Pressurizer level > [220] inches.	E.1 Restore pressurizer level to ≤ [220] inches.	1 hour
F. Required Action E.1 not met within the required Completion Time.	F.1 Close and maintain closed the makeup control valve and its associated isolation valve.	12 hours
	<u>AND</u> F.2 Stop RCS heatup.	12 hours
G. PORV inoperable.	G.1 Restore PORV to OPERABLE status.	1 hour
H. Required Action G.1 not met within the required Completion Time.	H.1 Reduce makeup tank level to ≤ [70] inches.	12 hours
	<u>AND</u> H.2 Deactivate low low makeup tank level interlock to the borated water storage tank suction valves.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. Pressurizer level > [220] inches. <u>AND</u> PORV inoperable. <u>OR</u> LTOP System inoperable for any reason other than Condition A through Condition H.	I.1 Depressurize RCS and establish RCS vent of ≥ [0.75] square inch.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.12.1 Verify a maximum of [one] makeup pump is capable of injecting into the RCS.	12 hours
SR 3.4.12.2 Verify HPI is deactivated.	12 hours
SR 3.4.12.3 Verify each CFT is isolated.	12 hours
SR 3.4.12.4 Verify pressurizer level is ≤ [220] inches.	30 minutes during RCS heatup and cooldown <u>AND</u> 12 hours
SR 3.4.12.5 Verify PORV block valve is open.	12 hours

Comment: Condition A represents a variable outside its limit,. Condition B is a default Condition and is therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14 Leakage from each RCS PIV shall be within limits.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the decay heat removal (DHR) flow path when in, or during the transition to or from, the DHR mode of operation.

ACTIONS

-----NOTES-----

1. Separate Condition entry is allowed for each flow path.
 2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>-----NOTE----- Each valve used to satisfy Required Action A.1 and Required Action A.2 must have been verified to meet SR 3.4.14.1 and be on the RCS pressure boundary [or the high pressure portion of the system]. -----</p> <p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.</p> <p><u>AND</u></p>	<p>4 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2 [Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.</p> <p>[or]</p> <p>Restore RCS PIV to within limits.</p>	<p>72 hours</p> <p>72 hours]</p>
<p>B. Required Action and associated Completion Time for Condition A not met.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>C. [Decay Heat Removal (DHR) System autoclosure interlock function inoperable.</p>	<p>C.1 Isolate the affected penetration by use of one closed manual or deactivated automatic valve.</p>	<p>4 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]]</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

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.	<p>A.1 -----NOTE----- Not required until 12 hours after establishment of steady state operation. -----</p> <p>Perform SR 3.4.13.1.</p> <p><u>AND</u></p> <p>A.2 Restore required containment sump monitor to OPERABLE status.</p>	<p>Once per 24 hours</p> <p>30 days</p>
B. Required containment atmosphere radioactivity monitor inoperable.	<p>B.1.1 Analyze grab samples of the containment atmosphere.</p> <p><u>OR</u></p>	Once per 24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.1.2 -----NOTE----- Not required until 12 hours after establishment of steady state operation. ----- Perform SR 3.4.13.1. <u>AND</u> 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. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours
D. Both required monitors inoperable.	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

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variable.

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}) \geq 500°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. DOSE EQUIVALENT I-131 $>$ 1.0 μCi/gm.</p>	<p>-----NOTE----- LCO 3.0.4.c is applicable. -----</p> <p>A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1.</p> <p><u>AND</u></p> <p>A.2 Restore DOSE EQUIVALENT I-131 to within limit.</p>	<p>Once per 4 hours</p> <p>48 hours</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>DOSE EQUIVALENT I-131 in unacceptable region of Figure 3.4.16-1.</p>	<p>B.1 Be in MODE 3 with $T_{avg} <$ 500°F.</p>	<p>6 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Gross specific activity of the coolant not within limit.	C.1 Be in MODE 3 with $T_{avg} < 500^{\circ}F$.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.16.1 Verify reactor coolant gross specific activity $\leq 100/\bar{E}$ $\mu Ci/gm$.	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 $\leq 1.0 \mu Ci/gm$.	14 days <u>AND</u> Between 2 and 6 hours after THERMAL POWER change of $\geq 15\%$ RTP within a 1 hour period
SR 3.4.16.3 -----NOTE----- Not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. ----- Determine \bar{E} .	184 days

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

SG Tube Integrity
3.4.17

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube repair criteria shall be plugged [or repaired] in accordance with the Steam Generator Program.

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

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each SG tube.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more SG tubes satisfying the tube repair criteria and not plugged [or repaired] in accordance with the Steam Generator Program.</p>	<p>A.1 Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection.</p> <p><u>AND</u></p> <p>A.2 Plug [or repair] the affected tube(s) in accordance with the Steam Generator Program.</p>	<p>7 days</p> <p>Prior to entering MODE 4 following the next refueling outage or SG tube inspection</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>SG tube integrity not maintained.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: While Condition A represents a variable outside its limit, the CFT could be substituted as a surrogate in an RICT calculation. Condition D is a default Condition and is therefore excluded.

CFTs
3.5.1

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Core Flood Tanks (CFTs)

LCO 3.5.1 Two CFTs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with Reactor Coolant System (RCS) pressure > [750] psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CFT inoperable due to boron concentration not within limits.	A.1 Restore boron concentration to within limits.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. One CFT inoperable for reasons other than Condition A.	B.1 Restore CFT to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[C. ----- NOTE ----- Not applicable when second CFT intentionally made inoperable. ----- Two CFTs inoperable.	C.1 Restore CFTs to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
DG. Required Action and associated Completion Time of Condition A or B	DG. .1 Be in MODE 3. <u>AND</u>	6 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
not met.	CD .2 Reduce RCS pressure to \leq [750] psig.	[12] hours
DE . Two CFTs inoperable.	ED .1 Enter LCO 3.0.3.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.1.1 Verify each CFT isolation valve is fully open.	12 hours

Comment: Condition D is a default Condition and is therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS - Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE.

-----NOTE-----
 [Operation in MODE 3 with high pressure injection (HPI) de-activated in accordance with LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," is allowed for up to [4] hours.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure injection (LPI) subsystem inoperable.	A.1 Restore LPI subsystem to OPERABLE status.	[7] days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
B. One or more trains inoperable for reasons other than Condition A.	B.1 Restore train(s) to OPERABLE status.	72 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
[C. ----- NOTE ----- Not applicable when second ECCS train intentionally made inoperable. -----	C.1 Restore ECCS flow equivalent to 100% of a single OPERABLE ECCS train.	1 hour <u>OR</u> In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.		Completion Time Program]
DG. Required Action and associated Completion Time not met.	DG.1 Be in MODE 3. <u>AND</u> DG.2 Be in MODE 4.	6 hours 12 hours
ED. Less than 100% of the ECCS flow equivalent to a single OPERABLE train available.	ED.1 Enter LCO 3.0.3.	Immediately]

Comment: This change is only applicable if use of the RICT in MODE 4 is justified. Condition A has an immediate CT and Condition C is a default Condition, and both are excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

-----NOTES-----

1. A DHR train may be considered OPERABLE during alignment and operation for DHR, if capable of being manually realigned to the ECCS mode of operation.
 2. High pressure injection (HPI) may be de-activated in accordance with LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System."
-

APPLICABILITY: MODE 4.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to ECCS DHR loops.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS decay heat removal (DHR) loop inoperable.	A.1 Initiate action to restore required ECCS DHR loop to OPERABLE status.	Immediately
B. Required ECCS HPI subsystem inoperable.	B.1 Restore required ECCS HPI subsystem to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 5.	24 hours

Comment: While Condition A represents a variable outside its limit, the BWST could be substituted as a surrogate in an RICT calculation. Condition C is a default Condition and is excluded.

BWST
3.5.4

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Borated Water Storage Tank (BWST)

LCO 3.5.4 The BWST shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. BWST boron concentration not within limits. <u>OR</u> BWST water temperature not within limits.	A.1 Restore BWST to OPERABLE status.	8 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
B. BWST inoperable for reasons other than Condition A.	B.1 Restore BWST to OPERABLE status.	1 hour <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

Comment: No changes made. Condition A represents a loss of function and Condition B is the Default Condition. NRC has not approved RICT changes to the Completion Time for an inoperable containment. Therefore changes are not proposed.

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment

LCO 3.6.1 Containment shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment inoperable.	A.1 Restore containment to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.1 Perform required visual examinations and leakage rate testing except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.1.2 [Verify containment structural integrity in accordance with the Containment Tendon Surveillance Program.	In accordance with the Containment Tendon Surveillance Program]

Comment: Conditions A and B contain mitigating actions and require the periodic performance of actions. Condition D is a default Condition. RA C.1 has a "immediately" CT and C.2 is a periodic verification. Therefore these are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks

LCO 3.6.2 [Two] containment air lock[s] shall be OPERABLE.

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

ACTIONS

-----NOTES-----

1. Entry and exit is permissible to perform repairs on the affected air lock components.
 2. Separate Condition entry is allowed for each air lock.
 3. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when air lock leakage results in exceeding the overall containment leakage rate acceptance criteria.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more containment air locks with one containment air lock door inoperable.</p>	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls [if both air locks are inoperable]. <p>-----</p> <p>A.1 Verify the OPERABLE door is closed in the affected air lock.</p> <p><u>AND</u></p>	<p>1 hour</p>

Comment: RAs A.2, C.2, D.2 and D.3 require the periodic performance of an action. Condition E is a default Condition. Therefore these are excluded. In Condition D, the valves can be substituted as surrogates for leakage (a variable).

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 [or more] containment isolation valves. ----- One or more penetration flow paths with one containment isolation valve inoperable [for reasons other than 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. <u>AND</u>	4 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation] for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable to penetration flow paths with two [or more] containment isolation valves. ----- One or more penetration flow paths with two [or more] containment isolation valves inoperable [for reasons other than purge valve leakage not within limit].</p>	<p>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.</p>	<p>1 hour <u>IOR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>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.</p>	<p>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. <u>AND</u></p>	<p>72 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>C.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation]</p>
<p>D. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.</p>	<p>D.1</p> <p>Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, or blind flange].</p> <p><u>AND</u></p>	<p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>D.2</p> <p>-----NOTES-----</p> <p>1. Isolation devices in high radiation areas may be verified by use of administrative means.</p> <p>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</p> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p> <p><u>AND</u></p> <p>D.3 Perform SR 3.6.3.6 for the resilient seal purge valves closed to comply with Required Action D.1.</p>	<p>Once per 31 days [following isolation] for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p> <p>Once per [] days] [following isolation]</p>
E. Required Action and associated Completion Time not met.	<p>E.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

Containment Pressure
3.6.4

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be $\geq [-2.0]$ psig and $\leq [+3.0]$ psig.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment pressure not within limits.	A.1 Restore containment pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.1 Verify containment pressure is within limits.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be $\leq [130]^{\circ}\text{F}$.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limit.	A.1 Restore containment average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5.1 Verify containment average air temperature is within limit.	24 hours

Comment: Conditions B and G are default Conditions. Therefore these Conditions are excluded.

Containment Spray and Cooling Systems
3.6.6

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray and Cooling Systems

LCO 3.6.6 Two containment spray trains and two containment cooling trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	[7] days <u>IOR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	84 hours
C. One [required] containment cooling train inoperable.	C.1 Restore [required] containment cooling train to OPERABLE status.	7 days <u>IOR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
D. One containment spray train and one [required] containment cooling train inoperable.	D.1 Restore containment spray train to OPERABLE status. <u>OR</u>	72 hours <u>IOR</u>

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2 Restore [required] containment cooling train to OPERABLE status.	<u>In accordance with the Risk Informed Completion Time Program]</u>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. Two [required] containment cooling trains inoperable.</p>	<p>E.1 Restore one [required] containment cooling train to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[F. ----- NOTE -----</u> <u>Not applicable when</u> <u>second containment</u> <u>spray train or three or</u> <u>more containment spray</u> <u>or cooling trains</u> <u>intentionally made</u> <u>inoperable.</u> <u>-----</u></p> <p><u>Two containment spray</u> <u>trains inoperable.</u></p> <p><u>OR</u></p> <p><u>Any combination of three</u> <u>or more trains</u> <u>inoperable.</u></p>	<p><u>F.1 Restore containment spray</u> <u>trains and containment</u> <u>cooling trains to</u> <u>OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program]</u></p>
<p><u>GF.</u> Required Action and associated Completion Time of Condition <u>C, D, E, [or F-D]</u> not met.</p>	<p><u>GF.1</u> Be in MODE 3.</p> <p><u>AND</u></p> <p><u>GF.2</u> Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p><u>HG.</u> Two containment spray trains inoperable.</p> <p><u>OR</u></p> <p>Any combination of three or more trains inoperable.</p>	<p>G.1 Enter LCO 3.0.3.</p>	<p>Immediately <u>]</u></p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.7 Spray Additive System

LCO 3.6.7 The Spray Additive System shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spray Additive System inoperable.	A.1 Restore Spray Additive System to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify each spray additive manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.7.2	Verify spray additive tank solution volume is $\geq [12,970]$ gal and $\leq [13,920]$ gal.	184 days
SR 3.6.7.3	Verify spray additive tank [NaOH] solution concentration is $\geq [60,000]$ ppm and $\leq [65,000]$ ppm.	184 days

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

MSSVs
3.7.1

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 The MSSVs shall be OPERABLE as specified in Table 3.7.1-1 and Figure 3.7.1-1.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required MSSVs inoperable.	A.1 Reduce power to less than the reduced power requirement of Figure 3.7.1-1. <u>AND</u> A.2 Reduce the nuclear overpower trip setpoint in accordance with Figure 3.7.1-1.	4 hours 36 hours
B. Required Action and associated Completion Time not met. <u>OR</u> One or more steam generators with less than [two] MSSVs OPERABLE.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	6 hours 12 hours

Comment: Conditions B and E are default Conditions. Required Action D.1 is not a "restore" function and D.2 requires the periodic performance of an action. Therefore these are excluded.

MSIVs
3.7.2

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 Two MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when all MSIVs are closed [and deactivated].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	[8] hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
<u>[C ----- NOTE -----</u> <u>Not applicable when second MSIV intentionally made inoperable.</u> <u>-----</u> <u>Two MSIVs inoperable in MODE 1.</u>	<u>C.1 Restore MSIVs to OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<u>DG. -----NOTE-----</u> <u>-----</u> <u>Separate Condition entry is allowed for each MSIV.</u> <u>-----</u>	<u>DG.1 Close MSIV.</u> <u>AND</u> <u>DG.2 Verify MSIV is closed.</u>	[8] hours Once per 7 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
One or more MSIVs inoperable in MODE 2 or 3.		
<u>ED</u> . Required Action and associated Completion Time of Condition [C or D] not met.	<u>ED.1</u> Be in MODE 3. <u>AND</u> <u>ED.2</u> Be in MODE 4.	6 hours 12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.3 [Main Feedwater Stop Valves (MFSVs), Main Feedwater Control Valves (MFCVs), and Associated Startup Feedwater Control Valves (SFCVs)]

LCO 3.7.3 [Two] [MFSVs], [MFCVs], [or associated SFCVs] shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3 except when all [MFSVs], [MFCVs], [or associated SFCVs] are closed [and deactivated] [or isolated by a closed manual valve].

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [MFSV] in one or more flow paths inoperable.	A.1 Close or isolate [MFSV].	[8 or 72] hours
	<u>AND</u>	
A. One [MFSV] in one or more flow paths inoperable.	A.2 Verify [MFSV] is closed or isolated.	Once per 7 days
B. One [MFCV] in one or more flow paths inoperable.	B.1 Close or isolate [MFCV].	[8 or 72] hours
	<u>AND</u>	
B. One [MFCV] in one or more flow paths inoperable.	B.2 Verify [MFCV] is closed or isolated.	Once per 7 days
C. One [SFCV] in one or more flow paths inoperable.	C.1 Close or isolate [SFCV].	[8 or 72] hours
	<u>AND</u>	
C. One [SFCV] in one or more flow paths inoperable.	C.2 Verify [SFCV] is closed or isolated.	Once per 7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two valves in the same flow path inoperable for one or more flow paths.	D.1 Isolate affected flow path.	8 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. [<u>AND</u> E.2 Be in MODE 4.	6 hours 12 hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.3.1 -----NOTE----- Only required to be performed in MODES 1 and 2. ----- Verify the isolation time of each [MFSV], [MFCV], and [SFCV] is \leq [7] seconds.	In accordance with the Inservice Testing Program
SR 3.7.3.2 -----NOTE----- Only required to be performed in MODES 1 and 2. ----- Verify each [MFSV], [MFCV], and [SFCV] actuates to the isolation position on an actual or simulated actuation signal.	[18] months

Comment: Condition C is a default Condition and is therefore excluded.

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Vent Valves (AVVs)

LCO 3.7.4 [Two] AVVs [lines per steam generator] shall be 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. One required AVV [line] inoperable.	A.1 Restore required AVV [line] to OPERABLE status.	[7 days] <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. [Two or more required AVV [lines] inoperable.	B.1 Restore all but one AVV [line] to OPERABLE status.	24 hours] <u>OR</u> In accordance with the Risk Informed Completion Time Program]]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	6 hours [24] hours

SURVEILLANCE REQUIREMENTS

Comment: Condition D is a default Condition and has an implied “restore” with an immediate Completion Time and is excluded. Conditions E and F have immediate CTs and are excluded.

3.7.5 Emergency Feedwater (EFW) System

LCO 3.7.5 [Three] EFW trains shall be OPERABLE.

-----NOTE-----
Only one EFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.

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

ACTIONS
-----NOTE-----
LCO 3.0.4.b is not applicable when entering MODE 1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. [One steam supply to turbine driven EFW pump inoperable.</p> <p><u>OR</u></p> <p>-----NOTE----- Only applicable if MODE 2 has not been entered following refueling. -----</p> <p>One turbine driven EFW pump inoperable in MODE 3 following refueling.</p>	<p>A.1 Restore affected equipment to OPERABLE status.</p>	<p>7 days]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One EFW train inoperable [for reasons other than Condition A] in MODE 1, 2, or 3.</p>	<p>B.1 Restore EFW train to OPERABLE status.</p>	<p>72 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[C. ----- NOTE ----- Not applicable when second EFW train intentionally made inoperable. -----</p> <p>Two EFW trains inoperable in MODE 1, 2, or 3.</p>	<p>C.1 Restore at least one EFW train to OPERABLE status.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>DC. Required Action and associated Completion Time of Condition A, [or B,] [or C] not met.</p> <p>[<u>OR</u></p> <p>Two EFW trains inoperable in MODE 1, 2, or 3.]</p>	<p>DC.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>DC.2 Be in MODE 4.</p>	<p>6 hours</p> <p>[18] hours</p>
<p>ED. [Three] EFW trains inoperable in MODE 1, 2, or 3.</p>	<p>ED.1 -----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one EFW train is restored to OPERABLE status. -----</p> <p>Initiate action to restore one EFW train to OPERABLE status.</p>	<p>Immediately</p>

FE. Required EFW train inoperable in MODE 4.	FE.1 Initiate action to restore EFW train to OPERABLE status.	Immediately

Comment: RA A.1 requires the periodic performance of an action, and Condition B is a default Condition. Therefore these are excluded.

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The [two] CST(s) shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. The [two] CST(s) inoperable.</p>	<p>A.1 Verify by administrative means OPERABILITY of backup water supply.</p> <p><u>AND</u></p> <p>A.2 Restore CST(s) to OPERABLE status.</p>	<p>4 hours</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>7 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. Required Action and associated Completion Time not met.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 4 without reliance on steam generator for heat removal.</p>	<p>6 hours</p> <p>[24] hours</p>

SURVEILLANCE REQUIREMENTS

Comment: Condition C is a default Condition and is excluded.

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One CCW train inoperable.</p>	<p>A.1 -----NOTES----- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by CCW. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for decay heat removal made inoperable by CCW. ----- Restore CCW train to OPERABLE status.</p>	<p>72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. ----- NOTE ----- Not applicable when second CCW train intentionally made</p>	<p>B.1 Restore at least one CCW train to OPERABLE status.</p>	<p>1 hour <u>OR</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>inoperable.</p> <p>Two CCW trains inoperable.</p>		<p>In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time of Condition A not met.</p>	<p>CB.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CB.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: Condition C is a default Condition and is excluded.

SWS
3.7.8

3.7 PLANT SYSTEMS

3.7.8 Service Water System (SWS)

LCO 3.7.8 Two SWS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One SWS train inoperable.</p>	<p>A.1 -----NOTES----- 1. [Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by SWS.] 2. [Enter Applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for decay heat removal made inoperable by SWS.] ----- Restore SWS train to OPERABLE status.</p>	<p>72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. ----- NOTE ----- Not applicable when second SWS train intentionally made inoperable.</p>	<p>B.1 Restore at least one SWS train to OPERABLE status.</p>	<p>1hour <u>OR</u> In accordance with</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----</p> <p>Two SWS trains inoperable.</p>		<p>the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time of Condition A not met.</p>	<p>CB.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CB.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: RA B.1 requires the periodic performance of an action and Condition D is a default Condition. Therefore these are excluded.

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. [One or more cooling towers with one cooling tower fan inoperable.</p>	<p>A.1 Restore cooling tower fan(s) to OPERABLE status.</p>	<p>7 days] <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>-----REVIEWER'S NOTE----- The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit. ----- B. [Water temperature of the UHS > [90]°F and ≤ []°F.</p>	<p>B.1 Verify water temperature of the UHS is ≤ [90]°F averaged over the previous 24 hour period.</p>	<p>Once per hour]</p>
<p><u>[C. ----- NOTE -----</u> <u>Not applicable when UHS intentionally made inoperable.</u> <u>-----</u> <u>UHS inoperable [for reasons other than</u></p>	<p><u>C.1 Restore UHS to OPERABLE status.</u></p>	<p><u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<u>Condition A or B.</u>		<u>Program]</u>
<u>DG.</u> [Required Action and associated Completion Time of Condition A or B not met.]	<u>DG.1</u> Be in MODE 3. <u>AND</u> <u>DG.2</u> Be in MODE 5 .	6 hours 36 hours]

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.10 Two CREVS trains shall be OPERABLE.

-----NOTE-----
The control room boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREVS train inoperable.	A.1 Restore CREVS train to OPERABLE status.	7 days
B. Two CREVS trains inoperable due to inoperable control room boundary in MODE 1, 2, 3, or 4.	B.1 Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. [Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies.	<p>D.1 -----NOTE----- Place in emergency mode if automatic transfer to emergency mode inoperable. -----</p> <p>Place OPERABLE CREVS train in emergency mode.</p> <p><u>OR</u></p> <p>D.2 Suspend movement of [recently] irradiated fuel assemblies.</p>	<p>Immediately</p> <p>Immediately]</p>
E. [Two CREVS trains inoperable during movement of [recently] irradiated fuel assemblies.	E.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately]
F. Two CREVS trains inoperable during MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREVS train for ≥ 10 continuous hours with the heaters operating or (for system without heaters) ≥ 15 minutes].	31 days

Comment: Condition A already has a CT of 30 days. Condition C is a default Condition. Condition D and E are outside the applicability of the Traveler. Therefore these Conditions are excluded.

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Temperature Control System (CREATCS)

LCO 3.7.11 Two CREATCS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREATCS train inoperable.	A.1 Restore CREATCS train to OPERABLE status.	30 days
<u>B. ----- NOTE -----</u> <u>Not applicable when second CREATCS train intentionally made inoperable.</u> <u>-----</u> <u>Two CREATCS trains inoperable in MODE 1, 2, 3 or 4.</u>	<u>B.1 Restore at least one CREATCS train to OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<u>CB.</u> Required Action and associated Completion Time of Condition A <u>[or B]</u> not met in MODE 1, 2, 3, or 4.	<u>CB.1</u> Be in MODE 3. <u>AND</u> <u>CB.2</u> Be in MODE 5.	6 hours 36 hours
<u>DC.</u> [Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies.	<u>DC.1</u> Place OPERABLE CREATCS train in operation. <u>OR</u> <u>DC.2</u> Suspend movement of [recently] irradiated fuel assemblies.	Immediately Immediately]

CONDITION	REQUIRED ACTION	COMPLETION TIME
<u>ED.</u> [Two CREATCS trains inoperable during movement of [recently] irradiated fuel assemblies.	<u>ED.</u> 1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
FE . Two CREATCS trains inoperable during MODE 1, 2, 3, or 4.	FE .1 Enter LCO 3.0.3.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.11.1 Verify each CREATCS train has the capability to remove the assumed heat load.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.12 Emergency Ventilation System (EVS)

LCO 3.7.12 Two EVS trains shall be OPERABLE.

-----NOTE-----
 The auxiliary building negative pressure area boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One EVS train inoperable.	A.1 Restore EVS train to OPERABLE status.	7 days
B. Two EVS trains inoperable due to inoperable auxiliary building negative pressure area boundary.	B.1 Restore auxiliary building negative pressure area boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.13 Fuel Storage Pool Ventilation System (FSPVS)

LCO 3.7.13 [Two] FSPVS trains shall be OPERABLE.

-----NOTE-----
 The fuel building boundary may be opened intermittently under administrative control.

APPLICABILITY: [MODES 1, 2, 3, and 4,]
 During movement of [recently] irradiated fuel assemblies in the fuel building.

ACTIONS

-----NOTE-----
 LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One FSPVS train inoperable.	A.1 Restore FSPVS train to OPERABLE status.	7 days
B. Two FSPVS trains inoperable due to inoperable fuel building boundary in MODE 1, 2, 3, or 4.	B.1 Restore fuel building boundary to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. [Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.</p> <p><u>OR</u></p> <p>Two FSPVs trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours]</p>
<p>D. Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>D.1 Place OPERABLE FSPVS train in operation.</p> <p><u>OR</u></p> <p>D.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>Immediately</p> <p>Immediately</p>
<p>E. Two FSPVS trains inoperable during movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>E.1 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.13.1 [Operate each FSPVS train for ≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].</p>	<p>31 days]</p>

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables. Also outside the applicability of the Traveler.

3.7 PLANT SYSTEMS

3.7.14 Fuel Storage Pool Water Level

LCO 3.7.14 The fuel storage pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: During movement of irradiated fuel assemblies in fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool water level not within limit.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of irradiated fuel assemblies in fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.14.1 Verify the fuel storage pool water level is ≥ 23 ft above the top of irradiated fuel assemblies seated in the storage racks.	7 days

Comment: No changes included.
The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.7.15 [Spent Fuel Pool Boron Concentration]

LCO 3.7.15 The spent fuel pool boron concentration shall be \geq [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.	<p style="text-align: center;">-----NOTE----- LCO 3.0.3 is not applicable. -----</p>		
	A.1 Suspend movement of fuel assemblies in the spent fuel pool.		Immediately
	<p style="text-align: center;"><u>AND</u></p> A.2.1 Initiate action to restore spent fuel pool boron concentration to within limit.		Immediately
	<p style="text-align: center;"><u>OR</u></p> A.2.2 Initiate action to perform a fuel storage pool verification.		Immediately

Comment: No changes included.
The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.7.16 [Spent Fuel Pool Storage]

LCO 3.7.16 The combination of initial enrichment and burnup of each fuel assembly stored in [Region 2] shall be within the acceptable [burnup domain] of Figure 3.7.16-1 or in accordance with Specification 4.3.1.1.

APPLICABILITY: Whenever any fuel assembly is stored in [Region 2] of the spent fuel pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Initiate action to move the noncomplying fuel assembly from [Region 2].	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.16.1 Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.16-1 or Specification 4.3.1.1.	Prior to storing the fuel assembly in [Region 2]

Comment: No changes included.
 The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.7 PLANT SYSTEMS

3.7.17 Secondary Specific Activity

LCO 3.7.17 The specific activity of the secondary coolant shall be $\leq [0.10] \mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Specific activity not within limit.	A.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.17.1 Verify the specific activity of the secondary coolant is $\leq [0.10] \mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.	[31] days

Comment: No changes included.
 The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.7 PLANT SYSTEMS

3.7.18 Steam Generator Level

LCO 3.7.18 Water level of each steam generator shall be less than or equal to the maximum water level shown in Figure 3.7.18-1.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Water level in one or more steam generators greater than maximum water level in Figure 3.7.18-1.	A.1 Restore steam generator level to within limit.	15 minutes
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.18.1 Verify steam generator water level to be within limits.	12 hours

Comment: RAs A.1 and B.1 specify the periodic performance of an action, RAs A.2, B.2 and C.1 declare another component inoperable, RA B.3 performs OPERABILITY determination and performance of a surveillance. Condition H is a default Condition. Therefore these Conditions are excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System,
- b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System, and
- [c. Automatic load sequencers for Train A and Train B.]

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

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE [required] offsite circuit.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.3 Restore [required] offsite circuit to OPERABLE status.	72 hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. One [required] DG inoperable.	B.1 Perform SR 3.8.1.1 for OPERABLE [required] offsite circuit(s). <u>AND</u> B.2 Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable. <u>AND</u> B.3.1 Determine OPERABLE DG(s) is not inoperable due to common cause failure. <u>OR</u> B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s). <u>AND</u> B.4 Restore [required] DG to OPERABLE status.	1 hour <u>AND</u> Once per 8 hours thereafter 4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s) [24] hours [24] hours 72 hours <u>OR</u> <u>In accordance with the Risk Informed</u>

		<u>Completion Time</u> <u>Program\</u>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Two [required] offsite circuits inoperable.</p>	<p>C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore one [required] offsite circuit to OPERABLE status.</p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)</p> <p>24 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>D. One [required] offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One [required] DG inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition D is entered with no AC power source to any train. -----</p> <p>D.1 Restore [required] offsite circuit to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore [required] DG to OPERABLE status.</p>	<p>12 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>12 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time</u></p>

		<u>Program]</u>
E. Two [required] DGs inoperable.	E.1 Restore one [required] DG to OPERABLE status.	2 hours <u>[OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----REVIEWER'S NOTE----- [This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event. -----</p> <p>F. One [required] [automatic load sequencer] inoperable.</p>	<p>F.1 Restore [required] [automatic load sequencer] to OPERABLE status.</p>	<p>[12] hours]</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[G. ----- NOTE -----</u> <u>Not applicable when three or more [required] AC sources intentionally made inoperable.</u> -----</p> <p><u>Three or more [required] AC sources inoperable.</u></p>	<p><u>G.1 Restore [required] inoperable AC sources to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>HG.</u> Required Action and Associated Completion Time of Condition A, B, C, D, E, or [F] <u>[or G]</u> not met.</p>	<p><u>HG.1</u> Be in MODE 3.</p> <p><u>AND</u></p> <p><u>HG.2</u> Be in MODE 5.</p>	<p>12 hours</p> <p>36 hours</p>
<p><u>IH.</u> Three or more [required] AC sources inoperable.</p>	<p><u>IH.1</u> Enter LCO 3.0.3.</p>	<p>Immediately]</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
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Comment: No changes made.
Outside the applicability of the
Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown," and
- b. One diesel generator (DG) capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s) with no offsite power available inoperable.</p> <p><u>OR</u></p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>A.2.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
B. One required DG inoperable.	<p>B.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.4 Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.2.1 -----NOTE----- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and [SR 3.8.1.18]. ----- For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources - Operating," except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.19, and SR 3.8.1.20, are applicable.	In accordance with applicable SRs

Comment: No changes made. The final action is to declare the EDG inoperable and a RICT is available for that Condition in LCO 3.8.1.

Diesel Fuel Oil, Lube Oil, and Starting Air
3.8.3

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel level < [33,000] gal and > [28,285] gal in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory < [500] gal and > [425] gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates to within limits.	7 days
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with starting air receiver pressure < [225] psig and \geq [125] psig.	E.1 Restore starting air receiver pressure to \geq [225] psig.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.</p>	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains \geq [33,000] gal of fuel.	31 days
SR 3.8.3.2	Verify lube oil inventory is \geq [500] gal.	31 days
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is \geq [225] psig.	31 days
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	[31] days

Comment: RA A.2 requires the performance of a periodic action. Condition E is a default Condition. These Conditions are therefore excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] battery charger[s] on one train] inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
	<u>AND</u>	
	A.2 Verify battery float current ≤ [2] amps.	Once per [12] hours
	<u>AND</u>	
	A.3 Restore battery charger[s] to OPERABLE status.	7 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
[B. One [or two] batter[y][ies] on one train] inoperable.	B.1 Restore batter[y][ies] to OPERABLE status.	[2] hours] <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One DC electrical power subsystem inoperable for reasons other than Condition A [or B].</p>	<p>C.1 Restore DC electrical power subsystem to OPERABLE status.</p>	<p>[2] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>[D. ----- NOTE ----- Not applicable when second DC electrical power subsystem intentionally made inoperable. ----- Two DC electrical power subsystems inoperable.</p>	<p>D.1 Restore at least one DC electrical power subsystem to OPERABLE status.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>ED. Required Action and Associated Completion Time not met.</p>	<p>ED.1 Be in MODE 3. <u>AND</u> ED.2 Be in MODE 5.</p>	<p>6 hours 36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.3 Restore battery charger[s] to OPERABLE status.	7 days]
<p>B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met].</p>	<p>B.1 Declare affected required feature(s) inoperable.</p> <p><u>OR</u></p> <p>B.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

Comment: No changes made. The final action is to declare the battery inoperable and a RICT is available for that Condition in LCO 3.8.4.

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

-----REVIEWER'S NOTE-----

Licensee's must implement a program, as specified in Specification 5.5.17, to monitor battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications."

LCO 3.8.6 Battery parameters for the Train A and Train B batteries shall be within limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] batter[y][ies on one train] with one or more battery cells float voltage < [2.07] V.	A.1 Perform SR 3.8.4.1	2 hours
	<u>AND</u>	
	A.2 Perform SR 3.8.6.1.	2 hours
	<u>AND</u>	
	A.3 Restore affected cell voltage ≥ [2.07] V.	24 hours
B. One [or two] batter[y][ies on one train] with float current > [2] amps.	B.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	B.2 Restore battery float current to ≤ [2] amps.	[12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of plates. -----</p> <p>C. One [or two] batter[y][ies on one train] with one or more cells electrolyte level less than minimum established design limits.</p>	<p>-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. -----</p> <p>C.1 Restore electrolyte level to above top of plates. <u>AND</u> C.2 Verify no evidence of leakage. <u>AND</u> C.3 Restore electrolyte level to greater than or equal to minimum established design limits.</p>	<p>8 hours</p> <p>12 hours</p> <p>31 days</p>
<p>D. One [or two] batter[y][ies on one train] with pilot cell electrolyte temperature less than minimum established design limits.</p>	<p>D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.</p>	<p>12 hours</p>
<p>E. One or more batteries in redundant trains with battery parameters not within limits.</p>	<p>E.1 Restore battery parameters for batteries in one train to within limits.</p>	<p>2 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p> <p><u>OR</u></p> <p>One [or two] batter[y][ies on one train] with one or more battery cells float voltage < [2.07] V and float current > [2] amps.</p>	<p>F.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 -----NOTE----- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. -----</p> <p>Verify each battery float current is \leq [2] amps.</p>	<p>7 days</p>
<p>SR 3.8.6.2 Verify each battery pilot cell voltage is \geq [2.07] V.</p>	<p>31 days</p>
<p>SR 3.8.6.3 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.</p>	<p>31 days</p>
<p>SR 3.8.6.4 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.</p>	<p>31 days</p>

Comment: Condition C is a default Condition and is excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The required Train A and Train B inverters shall be OPERABLE.

-----NOTE-----
 [[One/two] inverter[s] may be disconnected from [its/their] associated DC bus for ≤ 24 hours to perform an equalizing charge on [its/their] associated [common] battery provided:

- a. The associated AC vital bus(es) [is/are] energized from [its/their] [Class 1E constant voltage source transformers] [inverter using internal AC source] and
- b. All other AC vital buses are energized from their associated OPERABLE inverters.]

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] inverter inoperable.	A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any vital bus de-energized. ----- Restore inverter to OPERABLE status.	24 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when two or more [required]	B.1 Restore inverters to OPERABLE status.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>inverters intentionally made inoperable.</p> <p>-----</p> <p>Two or more [required] inverters inoperable.</p>		<p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time not met.</p>	<p>CB.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CB.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: No changes made.
Outside the applicability of the
Traveler.

3.9 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 [Inverters shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One] inverter[s] shall be OPERABLE.]

-----REVIEWER'S NOTE-----
This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only [one] inverter to be OPERABLE. The "[or more]" optional wording in Condition A is also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem/inverter support as is required for power operating conditions.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or more] [required] inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u> A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	

Comment: Condition E is a default Condition and is therefore excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more AC electrical power distribution subsystems inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC trains made inoperable by inoperable power distribution subsystems. -----</p> <p>A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>8 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One or more AC vital buses inoperable.</p>	<p>B.1 Restore AC vital bus subsystem(s) to OPERABLE status.</p>	<p>2 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. One or more DC electrical power distribution subsystems inoperable.</p>	<p>C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>2 hours</p> <p><u>IOR</u></p> <p>In accordance with</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>[D. ----- NOTE ----- Not applicable when Two or more electrical power distribution subsystems intentionally made inoperable. ----- Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.</p>	<p>D..1 Restore electrical power distribution subsystems to OPERABLE status to restore safety function.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>ED. Required Action and associated Completion Time not met.</p>	<p>ED..1 Be in MODE 3. <u>AND</u> ED..2 Be in MODE 5.</p>	<p>6 hours 36 hours</p>
<p>[FE. Two or more electrical power distribution subsystems inoperable that result in a loss of function.</p>	<p>FE..1 Enter LCO 3.0.3.</p>	<p>Immediately]</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.9.1 Verify correct breaker alignments and voltage to [required] AC, DC, and AC vital bus electrical power distribution subsystems.</p>	<p>7 days</p>

Comment: No changes made.
Outside the applicability of the
Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portion of AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>	

5.5 Programs and Manuals

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] including the following:

- a. Actions to restore battery cells with float voltage < [2.13] V, and
- b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

[5.5.18 Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

- a. The RICT may not exceed 30 days;

----- REVIEWER'S NOTE -----
The Risk Informed Completion Time is only applicable in MODES supported by the Licensees PRA. Licensee's applying the RICT Program to MODES other than Modes 1 and 2 must demonstrate that they have the capability to calculate a RICT in those MODES or that the risk indicated by their MODE 1 and 2 PRA model is bounding with respect to the lower MODE conditions.

- b. A RICT may only be utilized in MODE 1, 2 [, and 3, and MODE 4 while relying on steam generators for heat removal];
- c. When a RICT is being used, any plant configuration change within the scope of the Risk Informed Completion Time Program must be considered for the effect on the RICT.
 1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.
 2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

3. Revising the RICT is not required If the plant configuration change would lower plant risk and would result in a longer RICT.
 - d. Use of a RICT is not permitted for voluntary entry into a configuration which represents a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE.
 - e. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more of the trains are considered "PRA functional" as defined in Section 2.3.1 of NEI 06-09.]
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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 3 when not operating in shutdown bypass but with any CRD trip breaker in the closed position and the CRD System capable of rod withdrawal, the Nuclear Overpower-High Setpoint trip and the RCS High Pressure trip are required to be OPERABLE.

Two other Functions are required to be OPERABLE during portions of MODE 1. These are the Main Turbine Trip (Control Oil Pressure) and the Loss of Main Feedwater Pumps (Control Oil Pressure) trip. These Functions are required to be OPERABLE above [45]% RTP and [15]% RTP, respectively. Analyses presented in BAW-1893 (Ref. 8) have shown that for operation below these power levels, these trips are not necessary to minimize challenges to the PORVs as required by NUREG-0737 (Ref. 7).

Because the only safety function of the RPS is to trip the CONTROL RODS, the RPS is not required to be OPERABLE in MODE 3, 4, or 5 if the reactor trip breakers are open, or the CRD System is incapable of rod withdrawal. Similarly, the RPS is not required to be OPERABLE in MODE 6 when the CONTROL RODS are decoupled from the CRDs.

However, in MODE 2, 3, 4, or 5, the Shutdown Bypass RCS High Pressure and Nuclear Overpower - Low setpoint trips are required to be OPERABLE if the CRD trip breakers are closed and the CRD System is capable of rod withdrawal. Under these conditions, the Shutdown Bypass RCS High Pressure and Nuclear Overpower - Low setpoint trips are sufficient to prevent an approach to conditions that could challenge SLs.

ACTIONS

Conditions A, B, IC and DC are applicable to all RPS protection Functions. If a channel's trip setpoint is found nonconservative with respect to the required Allowable Value in Table 3.3.1-1, or the transmitter, instrument loop, signal processing electronics or bistable is found inoperable, the channel must be declared inoperable and Condition A or Conditions A, B, [and CB] entered immediately.

When the number of inoperable channels in a trip Function exceed those specified in the related Conditions associated with a trip Function, then the unit is outside the safety analysis. Therefore, LCO 3.0.3 must be immediately entered if applicable in the current MODE of operation.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----
If a unit is to take credit for topical reports as the basis for justifying Completion Times, the reports must be supported by an NRC Staff Safety Evaluation Report (SER) that establishes the acceptability of each topical report for that unit.

A.1

If one or more Functions in one protection channel become inoperable, the affected protection channel must be placed in bypass or trip. If the channel is bypassed, all RPS Functions are placed in a two-out-of-three logic configuration and the bypass of any other channel is prevented. In this configuration, the RPS can still perform its safety function in the presence of a random failure of any single channel. Alternatively, the inoperable channel can be placed in trip. Tripping the affected protection channel places all RPS Functions in a one-out-of-three configuration.

Operation in the two-out-of-three configuration or in the one-out-of-three configuration may continue indefinitely based on the NRC SER for BAW-10167, Supplement 2 (Ref. 9). In this configuration, the RPS is capable of performing its trip Function in the presence of any single random failure. The 1 hour Completion Time is sufficient to perform Required Action A.1.

B.1 and B.2

For Required Action B.1 and Required Action B.2, if one or more Functions in two protection channels become inoperable, one of two inoperable protection channels must be placed in trip and the other in bypass. These Required Actions place all RPS Functions in a one-out-of-two logic configuration and prevent bypass of a second channel. In this configuration, the RPS can still perform its safety functions in the presence of a random failure of any single channel. The 1 hour Completion Time is sufficient time to perform Required Action B.1 and Required Action B.2. [Alternatively, a Completion Time can be determined for Required Action B 1 in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

C.1

With three or more channels inoperable, the Required Action is to restore sufficient required inoperable channels to OPERABLE status within 1 hour to regain RPS Instrumentation functions. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when three or more channels are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one or two channels are inoperable for any reason and additional channels are found to be inoperable, or if three or more channels are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----
The bracketed reference to "Three or more channels inoperable" in Condition D is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

D~~C~~.1

Required Action D~~C~~.1 directs entry into the appropriate Condition referenced in Table 3.3.1-1. The applicable Condition referenced in the table is Function dependent. If the Required Action and the associated Completion Time of Condition A, B, or C~~B~~ are not met or if more than two channels are inoperable, Condition D~~C~~ is entered to provide for transfer to the appropriate subsequent Condition.

E~~D~~.1 and E~~D~~.2

If the Required Action and associated Completion Time of Condition A, B, [or C~~B~~ are not met and Table 3.3.1-1 directs entry into Condition E~~D~~, the unit must be brought to a MODE in which the specified RPS trip Functions are not required to be OPERABLE. The allowed Completion

Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and to open all CRD trip breakers without challenging plant systems.

FE.1

If the Required Action and associated Completion Time of Condition A, B, [C]-B are not met and Table 3.3.1-1 directs entry into Condition F-E, the unit must be brought to a MODE in which the specified RPS trip Functions are not required to be OPERABLE. To achieve this status, all CRD trip breakers must be opened. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to open CRD trip breakers without challenging plant systems.

GF.1

If the Required Action and associated Completion Time of Condition A, B, [C]-B are not met and Table 3.3.1-1 directs entry into Condition G-F, the unit must be brought to a MODE in which the specified RPS trip Function is not required to be OPERABLE. To achieve this status, THERMAL POWER must be reduced < [45]% RTP. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach [45]% RTP from full power conditions in an orderly manner without challenging plant systems.

BASES

ACTIONS (continued)

HG.1

If the Required Action and associated Completion Time of Condition A, B, [C]-B are not met and Table 3.3.1-1 directs entry into Condition H-G, the unit must be brought to a MODE in which the specified RPS trip Function is not required to be OPERABLE. To achieve this status, THERMAL POWER must be reduced < [15]% RTP. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach [15]% RTP from full power conditions in an orderly manner without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

The SRs for each RPS Function are identified by the SRs column of Table 3.3.1-1 for that Function. Most Functions are subject to CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, CHANNEL CALIBRATION, and RPS RESPONSE TIME testing.

The SRs are modified by a Note. The [first] Note directs the reader to Table 3.3.1-1 to determine the correct SRs to perform for each RPS Function.

-----REVIEWER'S NOTE-----
The CHANNEL FUNCTIONAL TEST Frequencies are based on approved topical reports. For a licensee to use these times, the licensee must justify the Frequencies as required by the NRC Staff SER for the topical report.

SR 3.3.1.1

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 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; therefore, it is key in verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

BASES

APPLICABILITY The Manual Reactor Trip Function is required to be OPERABLE in MODES 1 and 2. It is also required to be OPERABLE in MODES 3, 4, and 5 if any CRD trip breaker is in the closed position and if the CRD System is capable of rod withdrawal. The only safety function of the RPS is to trip the CONTROL RODS; therefore, the Manual Reactor Trip Function is not needed in MODE 3, 4, or 5 if the reactor trip breakers are open or if the CRD System is incapable of rod withdrawal. Similarly, the RPS Manual Reactor Trip is not needed in MODE 6 when the CONTROL RODS are decoupled from the CRDs.

ACTIONSA.1

Condition A applies when the Manual Reactor Trip Function is found inoperable. One hour is allowed to restore Function to OPERABLE status. The automatic functions and various alternative manual trip methods, such as removing power to the RTMs, are still available. The 1 hour Completion Time is sufficient time to correct minor problems. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

B.1 and B.2

With the Manual Reactor Trip Function inoperable and unable to be returned to OPERABLE status within 1 hour in MODE 1, 2, or 3, the unit must be placed in a MODE in which manual trip is not required. Required Action B.1 and Required Action B.2 place the unit in at least MODE 3 with all CRD trip breakers open within 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems.

C.1

With the Manual Reactor Trip Function inoperable and unable to be returned to OPERABLE status within 1 hour in MODE 4 or 5, the unit must be placed in a MODE in which manual trip is not required. To achieve this status, all CRD trip breakers must be opened. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to open all CRD trip breakers without challenging unit systems.

BASES

ACTIONS (continued)

A.1

Condition A applies when one channel becomes inoperable in one or more Parameters. If one ESFAS channel is inoperable, placing it in a tripped condition leaves the system in a one-out-of-two condition for actuation. Thus, if another channel were to fail, the ESFAS instrumentation could still perform its actuation functions. This action is completed when all of the affected output relays and block timers are tripped. This can normally be accomplished by tripping the affected bistables or tripping the individual output relays and block timers. [At this unit, the specific output relays associated with each ESFAS instrumentation channel are listed in the following document:]

The 1 hour Completion Time is sufficient time to perform the Required Action. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

B.1

With one or more Parameters with two or more channels inoperable, the Required Action is to restore sufficient channels to OPERABLE status to restore ESFAS instrument function for all Parameters within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when one or more parameters with two or more channels are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one or more parameters with one channel is inoperable for any reason and one or more parameters with additional channels are found to be inoperable, or if one or more parameters with two or more channels are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----

The bracketed phrase "One or more parameters with two or more channels inoperable" in Condition C is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

CB.1, CB.2.1, CB.2.2, and CB.2.3

Condition ~~CB~~ applies when Required Action A.1 or B.1 is not met within the required Completion Time [or when one or more parameters have more than one inoperable channel]. If Condition CB applies, 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, for the RCS Pressure - Low Setpoint, to < [1800] psig, for the RCS Pressure - Low Low Setpoint, to < [900] psig, and for the RB Pressure High Setpoint and High High Setpoint, to 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

All ESFAS Parameters listed in Table 3.3.5-1 are subject to CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, CHANNEL CALIBRATION, and response time testing. The operational bypasses associated with each ESFAS instrumentation channel are also subject to these SRs to ensure OPERABILITY of the ESFAS instrumentation channel.

BASES

ACTIONS (continued)

A.1

Condition A applies when one manual initiation channel of one or more ESFAS Functions becomes inoperable. Required Action A.1 must be taken to restore the channel to OPERABLE status within the next 72 hours [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 72 hours is based on unit operating experience and administrative controls, which provide alternative means of ESFAS Function initiation via individual component controls. The 72 hour Completion Time is consistent with the allowed outage time for the safety systems actuated by ESFAS.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

B.1

With two manual initiation channels inoperable, the Required Action is to restore at least one channel to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one channel. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when one or more ESFAS Functions with two channels are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one or more ESFAS Functions with one channel is inoperable for any reason and additional channels with one or more ESFAS Functions are found to be inoperable, or if one or more ESFAS Functions with two channels are found to be inoperable at the same time.]

CB.1 and CB.2

Required Action ~~C-B.1~~ and Required Action ~~C-B.2~~ apply if Required Action ~~-A.1~~ or ~~B.1~~ cannot be met within the required Completion Time. If Required Action ~~-A.1~~ or ~~B.1~~ 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 experience, to

BASES

ACTIONS (continued)

A.1

If one channel per EDG in one or more Functions is inoperable, it must be tripped within 1 hour [or in accordance with the Risk Informed Completion Time Program]. With a channel in trip, the LOPS channels are configured to provide a one-out-of-two logic to initiate a trip of the incoming offsite power. In trip, one additional valid actuation will cause a LOPS signal on the bus. The 1 hour Completion Time is reasonable to evaluate and to take action by correcting a degraded condition in an orderly manner and takes into account the low probability of an event requiring LOPS occurring during this interval.

B.1

Condition B applies when two or more undervoltage or two or more degraded voltage channels on a single bus are inoperable.

Required Action B.1 requires all but one inoperable channel to be restored to OPERABLE status within 1 hour [or in accordance with the Risk Informed Completion Time Program]. With two or more channels inoperable, the logic is not capable of providing an automatic EDG LOPS signal for valid loss of voltage or degraded voltage conditions. The 1 hour Completion Time is reasonable to evaluate and to take action by correcting the degraded condition in an orderly manner and takes into account the low probability of an event requiring LOPS occurring during this interval.

C.1

Condition C applies if the Required Action of Condition A or Condition B and the associated Completion Time is not met.

Required Action C.1 ensures that Required Actions for affected diesel generator inoperabilities are initiated. Depending on unit MODE, the Actions specified in LCO 3.8.1, "AC Sources - Operating," or LCO 3.8.2, are required immediately.

SURVEILLANCE
REQUIREMENTSSR 3.3.8.1

SR 3.3.8.1 is the performance of the CHANNEL CHECK once every 12 hours to ensure that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the

BASES

ACTIONS (continued)

A.1 and A.2

Condition A applies to failures of a single EFW Initiation, Main Steam Line Isolation, or MFW Isolation instrumentation channel. This includes failure of a common instrumentation channel in any combination of the Functions.

With one channel inoperable in one or more EFW Initiation, Main Steam Line Isolation, or MFW Isolation Functions listed in Table 3.3.11-1, the channel(s) must be placed in bypass or trip within 1 hour. This Condition applies to failures that occur in a single channel, e.g., channel A, which when bypassed will remove initiate Functions within the channel from service. Since the RPS and EFIC channels are interlocked, only the corresponding channel in each system may be bypassed at any time. This feature is ensured by an electrical interlock. If testing of another channel in either the EFIC or RPS is required, the EFIC channel must be placed in trip to allow the other channel to be bypassed. With the channel in trip, the resultant logic is one-out-of-two. The Completion Time of 1 hour is adequate to perform Required Action A.1.

Required Action A.2 provides for placing the channel(s) in trip if the channel(s) is/are not restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program].

A single inoperable EFIC instrumentation channel affects at most one train of EFW, Main Steam Line Isolation, and MFW Isolation. Therefore, the 72 hour Completion Time was selected to be consistent with the allowed out of service time for the EFW, Main Steam Line Isolation, and MFW Isolation Functions.

B.1, B.2, and B.3

Condition B applies to a situation where two instrumentation channels for multiple protection functions of EFW Initiation, Main Steam Line Isolation, or MFW Isolation instrumentation are inoperable. For example, Condition B applies if channel A and B of the EFW Initiation Function are inoperable.

Condition B does not apply if one channel of different Functions is inoperable in the same protection channel. That condition is addressed by Condition A.

BASES

ACTIONS (continued)

With two EFW Initiation, Main Steam Line Isolation, or MFW Isolation protection channels inoperable, one channel must be placed in bypass (Required Action B.1). Bypassing one of the remaining OPERABLE channels is not possible due to system interlocks. Therefore, the second channel must be tripped (Required Action B.2) to prevent a single failure from causing loss of the EFIC Function. The Completion Times of 1 hour are adequate to perform the Required Actions. [Alternatively, a Completion Time can be determined for Required Actions B.2 in accordance with the Risk Informed Completion Time Program.]

One of the channels must be returned to OPERABLE status (Required Action B.3) to minimize the time the system is permitted to operate in a configuration that is not capable of withstanding a single failure and still initiate EFW, Main Steam Line Isolation, and MFW Isolation. Restoring one channel changes system status to that of Condition A. A single inoperable EFIC channel affects at most one train of EFW, Main Steam Line Isolation, and MFW Isolation. Therefore the 72 hour Completion Time was selected to be consistent with the allowed out of service time for the EFW, Main Steam Line Isolation, and MFW Isolation Functions. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1

The function of the EFW Vector Valve Control is to meet the single-failure criterion while being able to provide EFW on demand and isolate an SG when required. These conflicting requirements result in the necessity for two valves in series, in parallel with two valves in series, and a four channel valve command system. Refer to LCO 3.3.14, "Emergency Feedwater Initiation and Control (EFIC) Emergency Feedwater (EFW) - Vector Valve Logic."

With one EFW Vector Valve Control channel inoperable, the system cannot meet the single-failure criterion and still meet the dual functional criteria described earlier. This condition is analogous to having one EFW train inoperable. Therefore, when one vector valve control channel is inoperable, the channel must be restored to OPERABLE status (Required Action C.1) within 72 hours, which is consistent with the Completion Time associated with the loss of one train of EFW. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

D.1

With three or more EFW Initiation, Main Steam Line Isolation, or MFW Isolation Functions channels or two or more EFW Vector Valve Control channels inoperable, the Required Action is to restore sufficient channels to OPERABLE status within 1 hour to restore EFIC functions. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when three or more EFW Initiation, Main Steam Line Isolation, or MFW Isolation channels, or two or more EFW Vector Valve Control channels are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one or two channels of EFW Initiation, Main Steam Line Isolation, or MFW Isolation are inoperable for any reason and additional EFW Initiation, Main Steam Line Isolation, or MFW Isolation channels are found to be inoperable, or if three or more EFW Initiation, Main Steam Line Isolation, or MFW Isolation channels are found to be inoperable at the same time. Alternatively, the Required Action is only applicable if one EFW Vector Valve Control channel is inoperable for any reason and additional EFW Vector Valve Control channels are found to be inoperable, or if two or more EFW Vector Valve Control channels are found to be inoperable at the same time]

----- REVIEWER'S NOTE -----
The bracketed conditions in Condition E, F, and G are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

ED.1, ED.2.1, ED.2.2, FE.1, and GF.1

If the Required Actions cannot be met within the required Completion Time [or if more than two channels are inoperable in one or more Functions], the unit must be placed in a MODE or condition in which the requirement does not apply. This is done by placing the unit in a nonapplicable MODE for the particular Function. The nonapplicable MODE is to open the CRD trip breakers for Function 1.a, MODE 4 for

Function 1.b, less than 10% RTP for Function 1.d, and SG pressure less than 750 psig for all other Functions. 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**

A Note indicates that the SRs for each EFIC instrumentation Function are identified in the SRs column of Table 3.3.11-1. All Functions are subject to CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION. The SG - Low Level Function is the only Function that was modeled in transient analysis, and thus is the only EFW Initiation Function subjected to response time testing. Response time testing is also required for Main Steam Line and MFW Isolation. Individual EFIC subgroup relays must also be tested, one at a time, to verify the individual EFIC components will actuate when required. Some components cannot be tested at power since their actuation might lead to unit trip or equipment damage. These are specifically identified and must be tested when shut down. The various SRs account for individual functional differences and for test frequencies applicable specifically to the Functions listed in Table 3.3.11-1. The operational bypasses associated with each EFIC instrumentation channel are also subject to these SRs to ensure OPERABILITY of the EFIC instrumentation channel.

SR 3.3.11.1

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

BASES

LCO (continued)

channel B actuation logic for each Function has two manual trip switches. Both switches per actuation channel must be OPERABLE and must be depressed to get a full manual trip of that channel. The use of two manual trip switches for each channel of actuation logic allows for testing without actuating the end devices and also reduces the possibility of accidental manual actuation.

APPLICABILITY

The MFW and Main Steam Line Isolation manual initiation Functions shall be OPERABLE in MODES 1, 2, and 3 because SG inventory can be at a sufficiently high energy level to contribute significantly to the peak containment pressure during a secondary side break. In MODES 4, 5, and 6, the SG energy level is low and secondary side feedwater flow rate is low or nonexistent.

The EFW manual initiation Function shall be OPERABLE in MODES 1, 2, and 3 because the SGs are relied on for Reactor Coolant System heat removal. In MODES 4, 5, and 6, heat removal requirements are reduced and can be provided by the Decay Heat Removal System.

ACTIONS

A Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each EFIC manual initiation Function.

A.1

With one or both manual initiation switches of one or more EFIC Function(s) inoperable in one channel, the channel for the associated EFIC Function(s) must be placed in the tripped condition within 72 hours [or in accordance with the Risk Informed Completion Time Program]. With the channel in the tripped condition, the single-failure criterion is met and the operator can still initiate one actuation channel given a single failure in the other channel. Failure to perform Required Action A.1 could allow a single failure of another switch to prevent manual actuation of at least one of two trip channels. The Completion Time allotted to trip the channel allows the operator to take all the appropriate actions for the failed channel and still ensure that the risk involved in operating with the failed channel is acceptable.

BASES

ACTIONS (continued)

B.1

With one or both manual initiation switches of one or more EFIC Function(s) inoperable in both actuation channels, one actuation channel for each Function must be restored to OPERABLE status within 1 hour [or in accordance with the Risk Informed Completion Time Program]. With the channel restored, the second channel must be placed in the tripped condition within 72 hours (Required Action A.1). With the channel in the tripped condition, the single-failure criterion is met and the operator can still initiate one actuation channel given a single failure in the other channel. The Completion Time allotted to restore the channel allows the operator to take all the appropriate actions for the failed channel and still ensures that the risk involved in operating with the failed channel is acceptable.

C.1 and C.2

If Required Action A.1 or Required Action B.1 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 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required MODES from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE
REQUIREMENTSSR 3.3.12.1

This SR requires the performance of a CHANNEL FUNCTIONAL TEST to ensure that the channels can perform their intended functions. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. For MFW and Main Steam Line Isolation, the test need not include actuation of the end device. This is due to the risk of a unit transient caused by the closure of valves associated with MFW and Main Steam Line Isolation or actuating EFW during testing at power. The Frequency of 31 days is based on operating experience that demonstrates the rarity of more than one channel failing within the same 31 day interval.

REFERENCES

1. IEEE-279-1971, April 1972.

BASES

APPLICABILITY (continued)

The EFW automatic actuation and vector enable logics shall be OPERABLE in MODES 1, 2, and 3 because the SGs are being used for heat removal from the primary system. During these MODES, the core power and heat removal requirements are the greatest, and if the normal source of feedwater is lost, EFW must be initiated rapidly to minimize the overheating of the primary system.

For portions of MODE 4 and for all of MODES 5 and 6, the primary system temperatures are too low to allow the SGs to effectively remove energy.

ACTIONS

If a channel is found inoperable, then all affected logic Functions provided by that channel must be declared inoperable and the LCO Condition entered for the particular protection function affected.

For this LCO, a Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each EFIC logic Function.

A.1

Condition A applies when one or more EFIC logic Functions in a single channel are inoperable (i.e., channel A could be inoperable for all four EFIC logic Functions and Condition A would still be applicable) with all Functions in the other channel OPERABLE. This Condition is equivalent to failure of one EFW, Main Steam Line Isolation, and MFW Isolation train.

With one automatic actuation logic channel of one or more EFIC Functions inoperable, the associated EFIC train must be restored to OPERABLE status. Since there are only two automatic actuation logic channels per EFIC Function, the condition of one channel inoperable is analogous to having one train of a two train Engineered Safety Feature (ESF) System inoperable. The system safety function can be accomplished; however, a single failure cannot be taken. Therefore, the failed channel(s) must be restored to OPERABLE status to re-establish the system's single-failure tolerance.

Condition A can be thought of as equivalent to failure of a single train of a two train safety system (e.g., the safety function can be accomplished, but a single failure cannot be taken). Thus, the Completion Time of 72 hours has been chosen to be consistent with Completion Times for restoring one inoperable ESF System train. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

The EFIC System has not been analyzed for failure of one train of one Function and the opposite train of the same Function. In this condition, the potential for system interactions that disable heat removal capability on EFW has not been evaluated. Consequently, any combination of failures in both channels A and B is not covered by Condition A and must be addressed by entry into LCO 3.0.3.

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

B.1

With Channel A and B inoperable for one or more Functions, the Required Action is to restore a channel to OPERABLE status for the affected Functions within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of a channel. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when Channel A and B for one or more Functions are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if a channel (either A or B) is inoperable for one or more Functions for any reason and a second channel for one of the affected Functions is found to be inoperable, or if two channels are found to be inoperable for one or more Functions at the same time.]

CB.1 and CB.2

If Required Action A.1 or B.1 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 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required MODES from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE
REQUIREMENTSSR 3.3.13.1

This SR requires the performance of a CHANNEL FUNCTIONAL TEST to ensure that the channels can perform their intended functions. This test

BASES

APPLICABLE SAFETY ANALYSES (continued)

EFW vector valve logic response time is included in the required response time for each EFW actuation initiation function instrumentation and is not specified separately.

The EFIC - EFW - vector valve logic satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Four channels of the EFIC - EFW - vector valve logic module are required to be OPERABLE. The necessity for four channels is discussed in the BASES for ACTIONS. The 600 psig and 125 psid setpoints were chosen as discussed in Specification B 3.3.11, "EFIC System Instrumentation." The feed only good generator verification study assumed a differential pressure vector value of 150 psid. The 125 psid setpoint conservatively assumes a 25 psi margin for instrument error. Failure to meet this LCO results in not being able to meet the single-failure criterion.

APPLICABILITY

EFIC - EFW - vector valve logic is required in MODES 1, 2, and 3 because the SGs are relied on in these MODES for required RCS heat removal. In MODES 4, 5, and 6, heat removal requirements are reduced and may be provided by the Decay Heat Removal System. Therefore, vector valve logic is not required to be OPERABLE in these MODES.

ACTIONS

A.1

The function of the EFIC-EFW control/isolation valves and the vector valve logic is to meet the single-failure criterion while maintaining the capability to:

- a. Provide EFW on demand and
- b. Isolate an SG when required.

These conflicting requirements result in the necessity for two valves in series, in parallel with two valves in series, and a four channel valve command system.

With one channel inoperable, the system cannot meet the single-failure criterion and still meet the dual functional criteria previously described. Therefore, when one vector valve logic channel is inoperable, the channel must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. This is analogous to having one EFW train inoperable; wherein a 72 hour Completion Time is provided by the Required Actions of LCO 3.7.4, "EFW System." As such, the Completion Time of 72 hours is based on engineering judgement.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

B.1

With two or more vector valve logic channels inoperable, the Required Action is to restore sufficient required vector valve logic channels to OPERABLE status within 1 hour to regain the EFIC-EFW-Vector Valve Logic function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more vector valve logic channels are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one vector valve logic channel is inoperable for any reason and additional vector valve logic channels are found to be inoperable, or if two or more vector valve logic channels are found to be inoperable at the same time.]

CB.1 and C-B.2

If Required Action A.1 or B.1 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 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
REQUIREMENTSSR 3.3.14.1

SR 3.3.14.1 is the performance of a CHANNEL FUNCTIONAL TEST every 31 days. This test demonstrates that the EFIC - EFW - vector valve logic performs its function as desired. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The Frequency is

BASES

APPLICABILITY (continued)

- LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled,"
LCO 3.9.4, "Decay Heat Removal (DHR) and Coolant Circulation - High Water Level" (MODE 6), and
LCO 3.9.5, "Decay Heat Removal (DHR) and Coolant Circulation - Low Water Level" (MODE 6).
-

ACTIONS

A.1

If one RCS loop is inoperable, redundancy for forced flow heat removal is lost. The Required Action is restoration of the RCS loop to OPERABLE status within a Completion Time of 72 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] This time allowance is a justified period to be without the redundant nonoperating loop because a single loop in operation has a heat transfer capability greater than that needed to remove the decay heat produced in the reactor core.

B.1

If restoration of an RCS loop as required in A.1 is not possible within 72 hours, the unit must be brought to MODE 4. In MODE 4, the plant may be placed on the DHR System. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to achieve cooldown and depressurization from the existing plant conditions and without challenging plant systems.

C.1 and C.2

If two RCS loops are inoperable or a required RCS loop is not in operation, except as provided in the Note in the LCO section, all operations involving introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 must be immediately suspended. Action to restore one RCS loop to operation shall be immediately initiated and continued until one RCS loop is restored to OPERABLE status and to operation. Suspending the introduction of coolant into the RCS of coolant with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core, however coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Time reflects the importance of maintaining operation for decay heat removal.

BASES

ACTIONS (continued)

Six hours is a reasonable time based upon operating experience to reach MODE 3 from full power without challenging plant systems and operators. Further pressure and temperature reduction to MODE 4 with RCS temperature \leq [275] $^{\circ}$ F places the plant into a MODE where the LCO is not applicable. The [24] hour Completion Time to reach the nonapplicable MODE is reasonable based upon operating experience.

C.1

If the [emergency] power supplies to the heaters are not capable of providing [126] kW, or the pressurizer heaters are inoperable, restoration is required in 72 hours [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 72 hours is reasonable considering the anticipation that a demand caused by loss of offsite power will not occur in this period. Pressure control may be maintained during this time using normal station powered heaters.

D.1 and D.2

If pressurizer heater capability cannot be restored within the allowed Completion Time of Required Action C.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 the following 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. Similarly, the Completion Time of 12 hours to reach MODE 4 is reasonable based on operating experience to achieve power reduction from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTSSR 3.4.9.1

This SR requires that during steady state operation, pressurizer water 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 12 hour interval has been shown by operating practice to be sufficient to regularly assess the level for any deviation and verify that operation is within safety analyses assumptions. Alarms are also available for early detection of abnormal level indications.

BASES

LCO (continued)

condition. Only one valve at a time will be removed from service for testing. The [36] hour exception is based on an 18 hour outage time for each of the two valves. The 18 hour period is derived from operating experience that hot testing can be performed in this timeframe.

ACTIONS

A.1

With one pressurizer safety valve inoperable, restoration must take place within 15 minutes [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 15 minutes reflects the importance of maintaining the RCS overpressure protection system. An inoperable safety valve coincident with an RCS overpressure event could challenge the integrity of the RCPB.

B.1 and B.2

If the Required Action cannot be met within the required Completion Time or if both pressurizer safety valves are inoperable, 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 4 with any RCS cold leg temperature \leq [283] $^{\circ}$ F within 12 hours. The 6 hours allowed is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. Similarly, the [24] hours allowed is reasonable, based on operating experience, to reach MODE 4 without challenging plant systems. With any RCS cold leg temperature at or below [283] $^{\circ}$ F, overpressure protection is provided by LTOP. The change from MODE 1, 2, or 3 to MODE 4 reduces the RCS energy (core power and pressure), lowers the potential for large pressurizer insurges, and thereby removes the need for overpressure protection by two pressurizer safety valves.

SURVEILLANCE
REQUIREMENTSSR 3.4.10.1

SRs are specified in the Inservice Testing Program. Pressurizer safety valves are to be tested in accordance with the requirements of the ASME Code (Ref. 1), which provides the activities and the Frequency necessary to satisfy the SRs. No additional requirements are specified.

The pressurizer safety valve setpoint is \pm [3]% for OPERABILITY; however, the valves are reset to \pm 1% during the Surveillance to allow for drift.

REFERENCES

1. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

ACTIONS (continued)

[Required Action A.2 specifies that the double isolation barrier of two valves be restored by closing some other valve qualified for isolation or restoring one leaking PIV. [The 72 hour time after exceeding the limit considers the time required to complete the Action and the low probability of a second valve failing during this time period.

or

The 72 hour time after exceeding the limit allows for the restoration of the leaking PIV to OPERABLE status. This timeframe considers the time required to complete this Action and the low probability of a second valve failing during this period.]

-----REVIEWER'S NOTE-----
Two options are provided for Required Action A.2. The second option (72 hour restoration) is appropriate if isolation of a second valve would place the unit in an unanalyzed condition.

B.1 and B.2

If leakage cannot be reduced, [the system isolated,] or other Required Actions accomplished, 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 MODE 3 within 6 hours and to MODE 5 within 36 hours. This Required Action may reduce the leakage and also reduces the potential for a LOCA outside the containment. 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

The inoperability of the DHR autoclosure interlock renders the DHR suction isolation valves incapable of isolating in response to a high pressure condition and preventing inadvertent opening of the valves at RCS pressures in excess of the DHR systems design pressure. If the DHR autoclosure interlock is inoperable, operation may continue as long as the DHR suction penetration is closed by at least one closed manual or deactivated automatic valve within 4 hours [or in accordance with the Risk Informed Completion Time Program]. This action accomplishes the purpose of the autoclosure function.

BASES

LCO The LCO establishes the minimum conditions required to ensure that the CFTs are available to accomplish their core cooling safety function following a LOCA. Both CFTs are required to function in the event of a large break LOCA. If the entire contents of both tanks are not injected during the blowdown phase of a large break LOCA, the ECCS acceptance criteria of 10 CFR 50.46 (Ref. 2) could be violated. For a CFT to be considered OPERABLE, the isolation valve must be fully open, power removed above [2000] psig, and the limits established in the SR for contained volume, boron concentration, and nitrogen cover pressure must be met.

APPLICABILITY In MODES 1 and 2, and in MODE 3 with RCS pressure > 750 psig, the CFT OPERABILITY requirements are based on full power operation. Although cooling requirements may decrease as power decreases, the CFTs are still required to provide core cooling as long as elevated RCS pressures and temperatures exist.

This LCO is only applicable at pressures \geq 750 psig. Below 750 psig, the rate of RCS blowdown is such that the safety injection pumps can provide adequate injection to ensure that peak clad temperature remains below the 10 CFR 50.46 (Ref. 2) limit of 2200°F.

In MODE 3 with RCS pressure \leq 750 psig, and in MODES 4, 5, and 6, the CFT motor operated isolation valves are closed to isolate the CFTs from the RCS. This allows RCS cooldown and depressurization without discharging the CFTs into the RCS or requiring depressurization of the CFTs.

ACTIONS A.1

If the boron concentration of one CFT is not within limits, it must be returned to within the limits within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In this condition, ability to maintain subcriticality may be reduced, but the effects of reduced boron concentration on core subcriticality during reflood are minor. Boiling of the ECCS water in the core during reflood concentrates the boron in the saturated liquid that remains in the core. In addition, the volume of the CFT is still available for injection. Since the boron requirements are based on the average boron concentration of the total volume of two CFTs, the consequences are less severe than they would be if the contents of a CFT were not available for injection. Thus, 72 hours is allowed to return the boron concentration to within limits.

BASES

ACTIONS (continued)

B.1

If one CFT is inoperable for a reason other than boron concentration, the CFT must be returned to OPERABLE status within 1 hour [or in accordance with the Risk Informed Completion Time Program]. In this condition it cannot be assumed that the CFT will perform its required function during a LOCA. Due to the severity of the consequences should a LOCA occur in these conditions, the 1 hour Completion Time to open the valve, remove power to the valve, or restore the proper water volume or nitrogen cover pressure ensures that prompt action will be taken to return the inoperable CFT to OPERABLE status. The Completion Time minimizes the time the plant is potentially exposed to a LOCA in these conditions.

----- REVIEWER'S NOTE -----
 Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1

With two CFTs inoperable, the Required Action is to restore at least one CFT to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one CFT. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second CFT is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CFT is inoperable for any reason and a second CFT is found to be inoperable, or if two CFTs are found to be inoperable at the same time.]

DC.1 and DC.2

If the CFT(s) cannot be returned to OPERABLE status within the associated 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 RCS pressure reduced to ≤ 750 psig 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.

----- REVIEWER'S NOTE -----
Condition E is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

ED.1

If more than one CFT is inoperable, the unit is in a condition outside the accident analysis; therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.1

Verification every 12 hours that each CFT isolation valve is fully open, as indicated in the control room, ensures that the CFTs are available for injection and ensures timely discovery if a valve should be less than fully open. If an isolation valve is not fully open, the rate of injection to the RCS would be reduced. Although a motor operated valve position should not change with power removed, a closed valve could result in accident analysis assumptions not being met. A 12 hour Frequency is considered reasonable in view of administrative controls that ensure that a mispositioned isolation valve is unlikely.

BASES

APPLICABILITY In MODES 1, 2, and 3, the ECCS train OPERABILITY requirements for the limiting Design Basis Accident, a large break LOCA, are based on full power operation. Although reduced power would not require the same level of performance, the accident analysis does not provide for reduced cooling requirements in the lower MODES. The HPI pump performance is based on the small break LOCA, which establishes the pump performance curve and is less dependent on power. The HPI pump performance requirements are based on a small break LOCA. MODES 2 and 3 requirements are bounded by the MODE 1 analysis.

In MODES 5 and 6, plant conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.4, "Decay Heat Removal (DHR) and Coolant Circulation - High Water Level," and LCO 3.9.5, "Decay Heat Removal (DHR) and Coolant Circulation - Low Water Level."

ACTIONSA.1

With one LPI subsystem inoperable, action must be taken to restore it to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this condition, the remaining OPERABLE ECCS train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure to the remaining LPI subsystem could result in loss of ECCS function. The [7] day Completion Time is reasonable to perform corrective maintenance on the inoperable LPI subsystem. The [7] day Completion Time is based on the findings of the deterministic and probabilistic analysis in Reference 3. Reference 3 concluded that extending the Completion Time to [7] days for an inoperable LPI subsystem proves plant operational flexibility while simultaneously reducing overall plant risk. This is because the risks incurred by having the LPI subsystem unavailable for a longer time at power will be substantially offset by the benefits associated with avoiding unnecessary plant transitions and by reducing risk during plant shutdown operations.

B.1

With one or more trains operable and at least 100% of the injection flow equivalent to a single OPERABLE ECCS train available, components inoperable for reasons other than Condition A must be returned to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The 72 hour Completion Time is based on NRC recommendations (Ref. 4) that are based on a risk evaluation and is a reasonable time for many repairs.

BASES

ACTIONS (continued)

An ECCS train is inoperable if it is not capable of delivering the design flow to the RCS.

The LCO requires the OPERABILITY of a number of independent subsystems. Due to the redundancy of trains and the diversity of subsystems, the inoperability of one component in a train does not render the ECCS incapable of performing its function. Neither does the inoperability of two different components, each in a different train, necessarily result in a loss of function for the ECCS. This allows increased flexibility in plant operations under circumstances when components in opposite trains are inoperable.

An event accompanied by a loss of offsite power and the failure of an EDG can disable one ECCS train until power is restored. A reliability analysis (Ref. 4) has shown the risk of having one full ECCS train inoperable to be sufficiently low to justify continued operation for 72 hours.

With one or more components inoperable such that 100% of the flow equivalent to a single OPERABLE ECCS train is not available, the facility is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be immediately entered.

----- REVIEWER'S NOTE -----
 Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1]

Condition A or B is applicable with one or more trains inoperable. The allowed Completion Time is based on the assumption that at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train is available. With less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available, the facility is in a condition outside of the accident analyses and flow must be restored to 100% of the ECCS flow equivalent to a single OPERABLE ECCS train within the 1 hour Completion Time, or a Completion Time determined under the Risk Informed Completion Time Program. The Completion Time is based on the need to restore the ECCS flow to within the safety analysis assumptions.

The Condition is modified by a Note stating it is not applicable when the second ECCS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or

components from service. The Required Action is only applicable if one ECCS train is inoperable for any reason and a second ECCS train is found to be inoperable, or if two ECCS trains are found to be inoperable at the same time.]

DC.1 and DC.2

If the inoperable components cannot be returned to OPERABLE status within the associated 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 at least 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.

----- REVIEWER'S NOTE -----

Condition E is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

IED.1

Condition A is applicable with one or more trains inoperable. The allowed Completion Time is based on the assumption that at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train is available. With less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available, the facility is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.]

BASES

ACTIONS (continued)

A.1

If no LPI subsystem train is OPERABLE, the unit is not prepared to respond to a LOCA or to continue cooldown using the LPI pumps and decay heat exchangers. The Completion Time of immediately, which would initiate action to restore at least one ECCS LPI subsystem to OPERABLE status, ensures that prompt action is taken to restore the required cooling capacity. Normally, in MODE 4, reactor decay heat must be removed by an LPI train operating with suction from the RCS. If no LPI train is OPERABLE for this function, reactor decay heat must be removed by some alternate method, such as use of the steam generator(s). The alternate means of heat removal must continue until the inoperable ECCS LPI subsystem can be restored to operation so that continuation of decay heat removal (DHR) is provided.

With both DHR pumps and heat exchangers inoperable, it would be unwise to require the plant to go to MODE 5, where the only available heat removal system is the LPI trains operating in the DHR mode. Therefore, the appropriate action is to initiate measures to restore one ECCS LPI subsystem and to continue the actions until the subsystem is restored to OPERABLE status.

B.1

If no ECCS HPI subsystem is OPERABLE, due to the inoperability of the HPI pump or flow path from the BWST, the plant is not prepared to provide high pressure response to Design Basis Events requiring ESFAS. The 1 hour Completion Time to restore at least one ECCS HPI subsystem to OPERABLE status ensures that prompt action is taken to provide the required cooling capacity or to initiate actions to place the plant in MODE 5, where an ECCS train is not required. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

C.1

When the Required Action of Condition B cannot be completed within the required Completion Time, a controlled shutdown should be initiated. The allowed Completion Time of 24 hours is reasonable, based on operating experience, to reach MODE 5 from full power conditions in an orderly manner and without challenging plant systems.

BASES

LCO The BWST exists to ensure that an adequate supply of borated water is available to cool and depressurize the containment in the event of a DBA; to cool and cover the core in the event of a LOCA, thereby ensuring the reactor remains subcritical following a DBA; and to ensure an adequate level exists in the containment sump to support ECCS and containment spray pump operation in the recirculation MODE. To be considered OPERABLE, the BWST must meet the limits for water volume, boron concentration, and temperature established in the SRs.

APPLICABILITY In MODES 1, 2, 3, and 4, the BWST OPERABILITY requirements are dictated by the ECCS and Containment Spray System OPERABILITY requirements. Since both the ECCS and Containment Spray System must be OPERABLE in MODES 1, 2, 3, and 4, the BWST must be OPERABLE to support their operation.

Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled," respectively. MODE 6 core cooling requirements are addressed by LCO 3.9.4, "DHR and Coolant Circulation - High Water Level," and LCO 3.9.5, "DHR and Coolant Circulation - Low Water Level."

ACTIONS

A.1

With either the BWST boron concentration or borated water temperature not within limits, the condition must be corrected within 8 hours [or in accordance with the Risk Informed Completion Time Program]. In this condition, neither the ECCS nor the Reactor Building Spray System can perform its design functions. Therefore, prompt action must be taken to restore the tank to OPERABLE status or to place the plant in a MODE in which these systems are not required. The 8 hour limit to restore the temperature or boron concentration to within limits was developed considering the time required to change boron concentration or temperature and assuming that the contents of the tank are still available for injection.

B.1

With the BWST inoperable for reasons other than Condition A (e.g., water volume), levels must be restored to within required limits within 1 hour [or in accordance with the Risk Informed Completion Time Program]. In this condition, neither the ECCS nor the Containment Spray System can perform its design functions. Therefore, prompt action must be taken to restore the tank to OPERABLE status or to place the plant in a MODE in which the BWST is not required. The allowed Completion Time of 1 hour to restore the BWST to OPERABLE status is based on this condition simultaneously affecting multiple redundant trains.

BASES

ACTIONS (continued)

The Required Actions have been modified by two Notes. Note 1 clarifies that only the Required Actions and associated Completion Times of Condition C are required if both doors in the same air lock are inoperable. With both doors in the same air lock inoperable, an OPERABLE door is not available to be closed. Required Actions C.1 and C.2 are the appropriate remedial actions. Note 2 allows entry into and exit from the containment under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs the function of the interlock).

Required Action B.3 is modified by a Note that applies to air lock doors located in high radiation areas and allows these doors to be verified locked 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 the door, once it has been verified to be in the proper position, is small.

C.1, C.2, and C.3

With one or more air locks inoperable for reasons other than those described in Condition A or B, Required Action C.1 requires action to be immediately initiated to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour (per LCO 3.6.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Required Action C.2 requires that one door in the affected containment air lock must be verified to be closed. This action must be completed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires that containment be restored to OPERABLE status within 1 hour.

Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour Completion Time **[or in accordance with the Risk Informed Completion Time Program]**. The specified time period is considered reasonable for restoring an inoperable air lock to OPERABLE status assuming that at least one door is maintained closed in each affected air lock.

BASES

ACTIONS (continued)

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.

In the event isolation valve 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.

----- REVIEWER'S NOTE -----
 The bracketed phrase "following isolation" in the Completion Times for Required Actions A.2, C.2, D.2, and D.3 is only applicable to plants that have adopted a Risk Informed Completion Time Program.

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 [or in accordance with the Risk Informed Completion Time Program]. 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.

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

BASES

ACTIONS (continued)

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 isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days [following isolation] 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 this Condition is only applicable to those penetration flow paths with two [or more] 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 two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. 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 [or more] 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 [or in accordance with the Risk Informed Completion Time Program]. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active

BASES

ACTIONS (continued)

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.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two [or more] 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 72 hour Completion Time [or in accordance with the Risk Informed Completion Time Program]. 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 [following isolation] 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.

BASES

ACTIONS (continued)

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. The closed system must meet the requirements of Reference 6. 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 two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. 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

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. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

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

BASES

ACTIONS (continued)

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 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.

For the containment purge valve with resilient seal that is isolated in accordance with Required Action D.1, SR 3.6.3.6 must be performed at least once every [] days [following isolation]. 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 3.6.3.6, 184 days, is based on an NRC initiative, Generic Issue B-20 (Ref. 8). 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.

Required Action D.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned.]

E.1 and E.2

If the Required Actions and associated Completion Times 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.

BASES

ACTIONS

A.1

With one containment spray train inoperable, action must be taken to restore it to OPERABLE status within [7] days for in accordance with the Risk Informed Completion Time Program. In this condition, the remaining OPERABLE containment spray train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure to the remaining containment spray train could result in loss of spray function. The [7] day Completion Time is reasonable to perform corrective maintenance on the inoperable containment spray train. The [7] day Completion Time is based on the findings of the deterministic and probabilistic analysis in Reference 5. Reference 5 concluded that extending the Completion Time to [7] days for an inoperable containment spray train proves plant operational flexibility while simultaneously reducing overall plant risk. This is because the risks incurred by having the containment spray train unavailable for a longer time at power will be substantially offset by the benefits associated with avoiding unnecessary plant transitions and by reducing risk during plant shutdown operations.

B.1 and B.2

If the inoperable containment spray train cannot be restored to OPERABLE status 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 84 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. The extended interval to reach MODE 5 allows additional time to attempt restoration of the containment spray train and is reasonable when considering the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

C.1

With one of the required containment cooling trains inoperable, the inoperable containment cooling train must be restored to OPERABLE status within 7 days for in accordance with the Risk Informed Completion Time Program. The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 7 day Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System

and Containment Cooling System and the low probability of a DBA occurring during this period.

BASES

ACTIONS (continued)

D.1 and D.2

With one containment spray and one [required] containment cooling train inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours for in accordance with the Risk Informed Completion Time Program. The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System, the iodine removal function of the Containment Spray System, and the low probability of a DBA occurring during this period.

E.1

With two of the required containment cooling trains inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours for in accordance with the Risk Informed Completion Time Program. The components in this degraded condition (both spray trains are OPERABLE or else Condition G is entered) provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System and the low probability of a DBA occurring during this period.

----- REVIEWER'S NOTE -----
Condition F is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[F.1

With two containment spray trains or any combination of three or more containment spray and containment cooling trains inoperable, sufficient containment spray trains and/or containment cooling trains must be restored to OPERABLE status so that no more than one containment spray train or two containment cooling trains are inoperable within one hour or in accordance with the Risk Informed Completion Time Program. The allowed Completion Time provides a short time to restore the trains to OPERABLE status before proceeding with a plant shutdown as required by Condition G.

The Condition is modified by a Note stating it is not applicable when two containment spray trains or any combination of three or more containment spray and cooling trains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one containment spray train or a combination of two containment spray and cooling trains are inoperable for any reason and a second containment spray train or additional containment spray or cooling trains are found to be inoperable, or if two containment spray trains or any combination of three or more containment spray and cooling trains are found to be inoperable at the same time.]

GE.1 and GE.2

If the Required Actions and associated Completion Times of Condition C, D, E. [or EE] of this LCO 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.

----- REVIEWER'S NOTE -----

Condition H is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

IHG.1

With two containment spray trains or any combination of three or more containment spray and containment cooling trains inoperable, the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.]

BASES

APPLICABLE SAFETY ANALYSES (continued)

- d. Following a steam generator tube rupture, closure of the MSIVs isolates the ruptured steam generator from the intact steam generator. In addition to minimizing radiological releases, this enables the operator to maintain the pressure of the steam generator with the ruptured tube below the MSIVs' setpoints, a necessary step toward isolating flow through the rupture.
- e. The MSIVs are also utilized during other events such as an FWLB.

The MSIVs satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO requires that the MSIV in both steam lines be OPERABLE. The MSIVs are considered OPERABLE when the isolation times are within limits and they close on an isolation actuation signal.

This LCO provides assurance that the MSIVs will perform their design safety function to mitigate the consequences of accidents that could result in offsite exposures comparable to the 10 CFR 100 limits (Ref. 4).

APPLICABILITY

The MSIVs must be OPERABLE in MODE 1 and in MODES 2 and 3 with any MSIVs open, when there is significant mass and energy in the RCS and steam generator; therefore, the MSIVs must be OPERABLE or closed. When the MSIVs are closed, they are already performing the safety function.

In MODE 4, the steam generator energy is low. Therefore, the MSIVs are not required to be OPERABLE.

In MODES 5 and 6, the steam generators do not contain much energy because their temperature is below the boiling point of water; therefore, the MSIVs are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

ACTIONS

A.1

With one MSIV inoperable in MODE 1, action must be taken to restore the component to OPERABLE status within [8] hours for in accordance with the Risk Informed Completion Time Program. Some repairs can be made to the MSIV with the unit hot. The [8] hour Completion Time is reasonable, considering the probability of an accident that would require actuation of the MSIVs occurring during this time interval. The turbine stop valves are available to provide the required isolation for the postulated accidents.

BASES

ACTIONS (continued)

The [8] hour Completion Time is greater than that normally allowed for containment isolation valves because the MSIVs are valves that isolate a closed system penetrating containment. These valves differ from other containment isolation valves in that the closed system provides an additional means for containment isolation.

B.1

If the MSIV cannot be restored to OPERABLE status ~~within in accordance with Required Action A.1~~ [8] hours, the unit must be placed in MODE 2 and the inoperable MSIV closed within the next 6 hours. The Completion Times are reasonable, based on operating experience, to reach MODE 2.

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1 and C.2

With two MSIVs inoperable the Required Action is to restore sufficient required inoperable MSIVs to OPERABLE status within 1 hour to regain a method of main steam line isolation. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient MSIVs. Alternately, a Completion time can be determined in accordance with the Risk Informed Completion time Program.

The Condition is modified by a Note stating it is not applicable when two MSIVs are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one MSIV is inoperable for any reason and a second MSIV is found to be inoperable, or if two MSIVs are found to be inoperable at the same time.]

D.1 and D.2

Condition DC is modified by a Note indicating that separate Condition entry is allowed for each MSIV.

Since the MSIVs are required to be OPERABLE in MODES 2 and 3, the inoperable MSIVs may either be restored to OPERABLE status or closed. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis.

The [8] hour Completion Time is consistent with that allowed in Condition A.

Inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of MSIV status indications available in the control room, and other administrative controls, to ensure these valves are in the closed position.

BASES

ACTIONS (continued)

E-D.1 and E-D.2

If the MSIV[(s)] cannot be restored to OPERABLE status or closed in 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 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from MODE 2 conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE
REQUIREMENTSSR 3.7.2.1

This SR verifies that MSIV closure time of each MSIV is \leq [6] seconds. The MSIV isolation time is assumed in the accident and containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage, because the MSIVs should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. As the MSIVs are not to be tested at power, they are exempt from the ASME Code (Ref. 5) requirements during operation in MODES 1 and 2.

The Frequency for this SR is in accordance with the Inservice Testing Program.

This test is conducted in MODE 3, with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows delaying testing until MODE 3 in order to establish conditions consistent with those under which the acceptance criterion was generated.

SR 3.7.2.2

This SR verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. The Frequency of MSIV testing is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

BASES

ACTIONS

A.1

With one AVV [line] inoperable, action must be taken to restore the inoperable AVV to OPERABLE status. The 7 day Completion Time allows for redundant capability afforded by the remaining OPERABLE AVV and a nonsafety grade backup in the Steam Bypass System and MSSVs. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

[B.1

With more than one AVV [line] inoperable, action must be taken to restore [all but one] AVV [lines] to OPERABLE status. As the block valve can be closed to isolate an AVV, some repairs may be possible with the unit at power. The 24 hour Completion Time is reasonable to repair inoperable AVV [lines], based on the availability of the Steam Bypass System and MSSVs, and the low probability of an event occurring during this period that would require the AVV [lines]. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

If the AVV [lines] 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 within [24] hours, without reliance upon the steam generator for heat removal. 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
REQUIREMENTSSR 3.7.4.1

To perform a controlled cooldown of the RCS, the AVVs must be able to be opened either remotely or locally and throttled through their full range. This SR ensures that the AVVs are tested through a full control cycle at least once per fuel cycle. Performance of inservice testing or use of an AVV during a unit cooldown may satisfy this requirement. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

BASES

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable EFW train when entering MODE 1. There is an increased risk associated with entering MODE 1 with EFW inoperable and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

[A.1

With one of the two steam supplies to the turbine driven EFW pump inoperable, or if a turbine driven pump is inoperable while in MODE 3 immediately following refueling, action must be taken to restore the inoperable equipment to an OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The 7 day Completion Time is reasonable, based on the following reasons:

- a. For the inoperability of a steam supply to the turbine driven EFW pump, the 7 day Completion Time is reasonable since there is a redundant steam supply line for the turbine driven pump.
- b. For the inoperability of a turbine driven EFW pump while in MODE 3 immediately subsequent to a refueling, the 7 day Completion Time is reasonable due to the minimal decay heat levels in this situation.
- c. For both the inoperability of a steam supply line to the turbine driven pump and an inoperable turbine driven EFW pump while in MODE 3 immediately following refueling, the 7 day Completion Time is reasonable due to the availability of redundant OPERABLE motor driven EFW pumps, and due to the low probability of an event requiring the use of the turbine driven EFW pump.

Condition A is modified by a Note which limits the applicability of the Condition to when the unit has not entered MODE 2 following a refueling. Condition A allows one EFW train to be inoperable for 7 days vice the 72 hour Completion Time in Condition B. This longer Completion Time is based on the reduced decay heat following refueling and prior to the reactor being critical.]

BASES

ACTIONS (continued)

B.1

When one of the required EFW trains (pump or flow path) is inoperable, action must be taken to restore the train to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. This Condition includes the loss of two steam supply lines to one of the turbine driven EFW pumps. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the EFW System, time needed for repairs, and the low probability of a DBA occurring during this time period.

----- REVIEWER'S NOTE -----

The provision of a Risk Informed Completion Time for Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

C.1

With two EFW trains are inoperable in MODE 1, 2, or 3, the Required Action is to restore at least one of the EFW trains to OPERABLE status within 1 hour to regain a method of decay heat removal. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second EFW train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one EFW train is inoperable for any reason and a second EFW train is found to be inoperable, or if two EFW trains are found to be inoperable at the same time.

In MODE 4 with two EFW trains inoperable, operation is allowed to continue because only one motor driven pump EFW train is required in accordance with the Note that modifies the LCO. Although not required, the unit may continue to cool down and initiate DHR.]

----- REVIEWER'S NOTE -----

The bracketed portions of Condition D are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

DG.1 and DG.2

When either Required Action A.1, B.1 or [C.1]Required Action B.1 cannot be completed within the required Completion Time, [or when two EFW trains are inoperable in MODE 1, 2, or 3,] 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 [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.

[In MODE 4, with two EFW trains inoperable, operation is allowed to continue because only one motor driven EFW train is required in accordance with the Note that modifies the LCO. Although not required, the unit may continue to cool down and initiate DHR.]

ED.1

Required Action E-D.1 is modified by a Note indicating that all required MODE changes or power reductions are suspended until at least one EFW train is restored to OPERABLE status.

With [all] EFW trains inoperable in MODE 1, 2, or 3, the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting a cooldown with nonsafety grade equipment. In such a condition, the unit should not be perturbed by any action, including a power change, that might result in a trip. The seriousness of this condition requires that action be started immediately to restore at least one EFW train to OPERABLE status. LCO 3.0.3 is not applicable, as it could force the units into a less safe condition.

BASES

ACTIONS (continued)

FE.1

In MODE 4, either the steam generator loops or the DHR loops can be used to provide heat removal, which is addressed in LCO 3.4.6, "RCS Loops - MODE 4." With one EFW train inoperable, action must be taken to immediately restore the inoperable train to OPERABLE status.

SURVEILLANCE
REQUIREMENTSSR 3.7.5.1

Verifying the correct alignment for manual, power operated, and automatic valves in the EFW water and steam supply flow paths provides assurance that the proper flow paths exist for EFW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since those valves 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 Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.5.2

Verifying that each EFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that EFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of pump performance required by the ASME Code (Ref. 3). Because it is undesirable to introduce cold EFW into the steam generators while they are operating, this test is performed on recirculation flow.

This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. Performance of inservice testing in the ASME Code (Ref. 3), at 3 month intervals, satisfies this requirement.

BASES

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 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.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. Additionally, verifying the backup water supply every 12 hours is adequate to ensure the backup water supply continues to be available. 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 [24] 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
REQUIREMENTSSR 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 alarms, to alert the operator to abnormal deviations in CST levels.

BASES

LCO

The CCW trains are independent of each other to the degree that each has separate controls and power supplies and the operation of one train does not depend on the other. In the event of a DBA, one train of CCW is required to provide the minimum heat removal capability assumed in the safety analysis for systems to which it supplies cooling water. To ensure this is met, two CCW trains must be OPERABLE. At least one CCW train will operate assuming the worst case single active failure occurs coincident with loss of offsite power.

A CCW train is considered OPERABLE when:

- a. It has an OPERABLE pump and associated surge tank and
- b. The associated piping, valves, heat exchanger, and instrumentation and controls required to perform the safety related function are OPERABLE.

The isolation of CCW from other components or systems not required for safety may render these components or systems inoperable, but does not affect the OPERABILITY of the CCW System.

APPLICABILITY

In MODES 1, 2, 3, and 4, the CCW System is a normally operating system that must be prepared to perform its post accident safety functions, primarily Reactor Coolant System heat removal, by cooling the DHR heat exchanger.

In MODES 5 and 6, the OPERABILITY requirements of the CCW System are determined by the systems it supports.

ACTIONS

A.1

Required Action A.1 is modified by a Note indicating that the applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," and LCO 3.4.6, "RCS Loops - MODE 4," should be entered if an inoperable CCW train results in an inoperable EDG or DHR loop. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

If one CCW train is inoperable, action must be taken to restore OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining OPERABLE CCW train is adequate to perform the heat removal function. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this period.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1 and B.2

With two CCW trains inoperable, the Required Action is to restore at least one of the inoperable CCW trains to OPERABLE status within 1 hour to regain a heat sink for safety related components. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second CCW train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CCW train is inoperable for any reason and a second CCW train is found to be inoperable, or if two CCW trains are found to be inoperable at the same time.]

C.1 and C.2

If the CCW train(s) 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. To achieve this status, the unit must be placed in at least MODE 3 within 6 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
REQUIREMENTSSR 3.7.7.1

This SR is modified by a Note indicating that the isolation of the CCW flow to individual components may render those components inoperable, but does not affect the OPERABILITY of the CCW System.

Verifying the correct alignment for manual, power operated, and automatic valves in the CCW flow path provides assurance that the proper flow paths exist for CCW 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

BASES

ACTIONS (continued)

OPERABLE 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 and Required Actions of LCO 3.8.1, "AC Sources - Operating," should be entered if an inoperable SWS train results in an inoperable EDG. 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 DHR train. 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 period.

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

B.1 and B.2

With two SWS trains inoperable, the Required Action is to restore at least one of the inoperable SWS trains to OPERABLE status within 1 hour to regain a heat sink for safety related components. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second SWS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one SWS train is inoperable for any reason and a second SWS train is found to be inoperable, or if two SWS trains are found to be inoperable at the same time.]

C.1 and C.2

If the SWS train(s) 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 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.

BASES

APPLICABLE
SAFETY
ANALYSES

The UHS is the sink for heat removal from the reactor core following all accidents and anticipated operational occurrences in which the unit is cooled down and placed on [decay heat removal]. Its maximum post accident heat load occurs approximately 20 minutes after a design basis loss of coolant accident (LOCA). Near this time, the unit switches from injection to recirculation and the containment cooling systems are required to remove the core decay heat.

The operating limits are based on conservative heat transfer analyses for the worst case LOCA. Reference 1 provides the details of the assumptions used in the analysis. These assumptions include: worst expected meteorological conditions, conservative uncertainties when calculating decay heat, and the worst case failure (e.g., single failure of a manmade structure). The UHS is designed in accordance with Regulatory Guide 1.27 (Ref. 2), which requires a 30 day supply of cooling water in the UHS.

The UHS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The UHS is required to be OPERABLE and is considered OPERABLE if [it contains a sufficient volume of water at or below the maximum temperature] that would allow the SWS to operate for at least 30 days following the design basis LOCA without the loss of net positive suction head (NPSH), and without exceeding the maximum design temperature of the equipment served by the SWS. To meet this condition, the UHS temperature should not exceed [90]°F, and the level should not fall below [562] ft [mean sea level] during normal unit operation.

APPLICABILITY

In MODES 1, 2, 3, and 4, the UHS is a normally operating system that is required to support the OPERABILITY of the equipment serviced by the UHS and is required to be OPERABLE in these MODES.

In MODES 5 and 6, the OPERABILITY requirements of the UHS are determined by the systems it supports.

ACTIONS

[A.1]

If one or more cooling towers have one fan inoperable (i.e., up to one fan per cooling tower inoperable), action must be taken to restore the inoperable cooling tower fan(s) to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program].

The 7 day Completion Time is reasonable, based on the low probability of an accident occurring during the 7 days that one cooling tower fan is inoperable in one or more cooling towers, the number of available systems, and the time required to complete the Required Action.]

BASES

ACTIONS (continued)

[B.1

-----REVIEWER'S NOTE-----
 The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit.

With water temperature of the UHS > [90]°F, the design basis assumption associated with initial UHS temperature is bounded provided the temperature of the UHS averaged over the previous 24 hour period is ≥ [90]°F. With the water temperature of the UHS > [90]°F, long term cooling capability of the ECCS loads and DGs may be affected. Therefore, to ensure long term cooling capability is provided to the ECCS loads when water temperature of the UHS is > [90]°F, Required Action B.1 is provided to more frequently monitor the water temperature of the UHS and verify the temperature is ≤ [90]°F when averaged over the previous 24 hour period. The once per hour Completion Time takes into consideration UHS temperature variations and the increased monitoring frequency needed to ensure design basis assumptions and equipment limitations are not exceeded in this condition. If the water temperature of the UHS exceeds [90]°F when averaged over the previous 24 hour period or the water temperature of the UHS exceeds []°F, Condition C must be entered immediately.]

----- REVIEWER'S NOTE -----
 Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1

With the UHS inoperable [for reasons other than Condition A or B], the Required Action is to restore the UHS to OPERABLE status within 1 hour to regain a heat sink for safety related components. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the UHS. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the UHS is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if the UHS is found to be inoperable.]

[~~DC.1~~ and ~~DC.2~~

If the Required Actions and Completion Time of Condition [A, B, or CB] are not met, ~~or the UHS is inoperable [for reasons other than Condition A or B]~~, 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 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 3.7.9.1

This SR verifies that adequate long term (30 days) cooling can be maintained. The level specified also ensures NPSH is available for operating the SWS pumps. The 24 hour Frequency is based on operating experience related to the trending of the parameter variations during the applicable MODES. This SR verifies that the UHS water level is \geq [] ft [mean sea level].]

BASES

LCO Two independent and redundant trains of the CREATCS are required to be OPERABLE to ensure that at least one is available, assuming a single failure disables the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident.

The CREATCS is considered OPERABLE when the individual components that are necessary to maintain control room temperature are OPERABLE in both trains. These components include the cooling coils, water cooled condensing units, and associated temperature control instrumentation. In addition, the CREATCS must be OPERABLE to the extent that air circulation can be maintained.

APPLICABILITY In MODES 1, 2, 3, 4, [5, and 6,] and during movement of [recently] irradiated fuel assemblies [i.e., fuel that has occupied part of a critical reactor core within the previous [X] days]), the CREATCS must be OPERABLE to ensure that the control room temperature will not exceed equipment OPERABILITY requirements following isolation of the control room.

ACTIONS

A.1

With one CREATCS train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CREATCS train is adequate to maintain the control room temperature within limits. However, the overall reliability is reduced because a failure in the OPERABLE CREATCS train could result in a loss of CREATCS function. The 30 day Completion Time is based on the low probability of an event occurring requiring control room isolation, the consideration that the remaining train can provide the required capabilities, and the alternate safety or nonsafety related cooling means that are available.

Concurrent failure of two CREATCS trains would result in the loss of function capability; therefore, LCO 3.0.3 must be entered immediately.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1

With two CREATCS trains inoperable, the Required Action is to restore at least one of the required inoperable CREATCS trains to OPERABLE status within 1 hour to regain temperature control for the control room following isolation of the control room. The 1 hour Completion Time is

acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second CREATCS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CREATCS train is inoperable for any reason and a second CREATCS train is found to be inoperable, or if two CREATCS trains are found to be inoperable at the same time.]

CB.1 and CB.2

In MODE 1, 2, 3, or 4, if the inoperable CREATCS train[s] cannot be restored to OPERABLE status within the required 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 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 without challenging unit systems.

BASES

ACTIONS (continued)

[DC.1 and DC.2

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel, if the inoperable CREATCS train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CREATCS train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

An alternative to Required Action DC.1 is to immediately suspend activities that could release radioactivity that might require the isolation of the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.]

[ED.1

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, with two CREATCS trains inoperable, action must be taken to immediately suspend activities that could release radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.]

----- REVIEWER'S NOTE -----
Condition F is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[FE.1

If both CREATCS trains are inoperable in MODE 1, 2, 3, or 4, the CREATCS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE
REQUIREMENTSSR 3.7.11.1

This SR verifies that the heat removal capability of the system is sufficient to remove the heat load assumed in the [safety analyses]. This SR consists of a combination of testing and calculations. An [18] month Frequency is appropriate, as significant degradation of the CREATCS is slow and is not expected over this time period.

BASES

ACTIONS (continued)

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

-----REVIEWER'S NOTE-----

The turbine driven auxiliary feedwater pump is only required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor or turbine driven auxiliary feedwater pump(s) is not by itself capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

A.2

Required Action A.2, which only applies if the train cannot be powered from an offsite source, is intended to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of safety function of critical redundant required features. These features are powered from the redundant AC electrical power train. This includes motor driven emergency feedwater pumps. Single train systems, such as turbine driven emergency feedwater pumps, may not be included.

The Completion Time for Required Action A.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. The train has no offsite power supplying it loads and
- b. A required feature on the other train is inoperable.

BASES

ACTIONS (continued)

If at any time during the existence of Condition A (one offsite circuit inoperable) a redundant required feature subsequently becomes inoperable, this Completion Time begins to be tracked,

Discovering no offsite power to one train of the onsite Class 1E Electrical Power Distribution System coincident with one or more inoperable required support or supported features, or both, that are associated with the other train that has offsite power, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

The remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to Train A and Train B of the onsite Class 1E Distribution System. The 24 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

A.3

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition A for a period that should not exceed 72 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.1

To ensure a highly reliable power source remains with an inoperable DG, it is necessary to verify the availability of the offsite circuits on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a circuit fails to pass SR 3.8.1.1, it is

inoperable. Upon offsite circuit inoperability, additional Conditions and Required Actions must then be entered.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----
 The turbine driven auxiliary feedwater pump is only required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor or turbine driven auxiliary feedwater pump(s) is not by itself capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related trains. This includes motor driven emergency feedwater pumps. Single train systems, such as turbine driven emergency feedwater pumps, are not included. Redundant required feature failures consist of inoperable features associated with a train, redundant to the train that has an inoperable DG.

The Completion Time for Required Action B.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. An inoperable DG exists and
- b. A required feature on the other train is inoperable.

If at any time during the existence of this Condition (one DG inoperable) a required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

Discovering one required DG inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE DG, results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

BASES

ACTIONS (continued)

In this Condition, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single-failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of OPERABLE DG(s). If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on other DG(s), the other DG(s) would be declared inoperable upon discovery and Condition E of LCO 3.8.1 would be entered. Once the failure is repaired, the common cause failure no longer exists and Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on the remaining DG(s), performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of that DG.

In the event the inoperable DG is restored to OPERABLE status prior to completing either B.3.1 or B.3.2, the [plant corrective action program] will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in Condition B.

According to Generic Letter 84-15 (Ref. 7), [24] hours is reasonable to confirm that the OPERABLE DG(s) is not affected by the same problem as the inoperable DG.

BASES

ACTIONS (continued)

B.4

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition B for a period that should not exceed 72 hours.

In Condition B, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

Required Action C.1, which applies when two offsite circuits are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required safety functions. The Completion Time for this failure of redundant required features is reduced to 12 hours from that allowed for one train without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are powered from redundant AC safety trains. This includes motor driven auxiliary feedwater pumps. Single train features, such as turbine driven auxiliary pumps, are not included in the list.

The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. All required offsite circuits are inoperable and
- b. A required feature is inoperable.

If at any time during the existence of Condition C (two offsite circuits inoperable) and a required feature becomes inoperable, this Completion Time begins to be tracked.

BASES

ACTIONS (continued)

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition C for a period that should not exceed 24 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

Because of the normally high availability of the offsite sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more DGs inoperable. However, two factors tend to decrease the severity of this level of degradation:

- a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure and
- b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

With both of the required offsite circuits inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient. In fact, a simultaneous loss of offsite AC sources, a LOCA, and a worst-case single failure were postulated as a part of the design basis in the safety analysis. Thus, the 24 hour Completion Time provides a period of time to effect restoration of one of the offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

According to Reference 6, with the available offsite AC sources, two less than required by the LCO, operation may continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source is restored within 24 hours, power operation would continue in accordance with Condition A.

BASES

ACTIONS (continued)

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no AC source to any train, the Conditions and Required Actions for LCO 3.8.9, "Distribution Systems - Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of one offsite circuit and one DG without regard to whether a train is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized train.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition D for a period that should not exceed 12 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

In Condition D, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than that in Condition C (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 12 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and the low probability of a DBA occurring during this period. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

E.1

With Train A and Train B DGs inoperable, there are no remaining standby AC sources. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources are available to power the minimum required ESF functions. Since the offsite electrical power system is the only source of AC power for this level of degradation, the risk associated with continued operation for a very short time could be less than that associated with an immediate controlled shutdown (the immediate shutdown could cause grid instability, which could result in a total loss of AC power). Since any inadvertent generator trip could also result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk

associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

BASES

ACTIONS (continued)

According to Reference 6, with both DGs inoperable, operation may continue for a period that should not exceed 2 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

[F.1

The sequencer(s) is an essential support system to [both the offsite circuit and the DG associated with a given ESF bus]. [Furthermore, the sequencer is on the primary success path for most major AC electrically powered safety systems powered from the associated ESF bus.] Therefore, loss of an [ESF bus sequencer] affects every major ESF system in the [division]. The [12] hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining sequencer OPERABILITY. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** This time period also ensures that the probability of an accident (requiring sequencer OPERABILITY) occurring during periods when the sequencer is inoperable is minimal.

This Condition is preceded by a Note that allows the Condition to be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads under any conditions. Implicit in this Note is the concept that the Condition must be retained if any sequencer failure mode results in the inability to start all or part of the safety loads when required, regardless of power availability, or results in overloading the offsite power circuit to a safety bus during an event thereby causing its failure. Also implicit in the Note is that the Condition is not applicable to any train that does not have a sequencer.]

----- REVIEWER'S NOTE -----
Condition G is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[G.1 and G.2

With three or more [required] AC sources inoperable, the Required Action is to restore enough of the required inoperable AC sources to OPERABLE status within 1 hour to regain some level of redundancy in the AC electrical power supplies. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of

sufficient AC sources. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when three or more [required] AC sources are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if two [required] AC sources are inoperable for any reason and additional [required] AC sources are found to be inoperable, or if three or more [required] AC sources are found to be inoperable at the same time.]

H.1 and H.2

If the inoperable AC electrical power sources cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition I is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

IH.1

Condition IH corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown.]

SURVEILLANCE
REQUIREMENTS

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, in accordance with 10 CFR 50, Appendix A, GDC 18 (Ref. 8). Periodic component tests are supplemented by extensive functional tests during refueling outages (under simulated accident conditions). The SRs for demonstrating the OPERABILITY of the DGs are in accordance with the recommendations of Regulatory Guide 1.9 (Ref. 3), Regulatory Guide 1.108 (Ref. 9), and Regulatory Guide 1.137 (Ref. 10), as addressed in the FSAR.

Where the SRs discussed herein specify voltage and frequency tolerances, the following is applicable. The minimum steady state output voltage of [3740] V is 90% of the nominal 4160 V output voltage. This value, which is specified in ANSI C84.1 (Ref. 11), allows for voltage drop to the terminals of 4000 V motors whose minimum operating voltage is specified as 90% or 3600 V. It also allows for voltage drops to motors and other equipment down through the 120 V level where minimum operating voltage is also usually specified as 90% of name plate rating. The specified maximum steady state output voltage of [4756] V is equal to the maximum operating voltage specified for 4000 V motors. It ensures that for a lightly loaded distribution system, the voltage at the terminals of 4000 V motors is no more than the maximum rated operating voltages. The specified minimum and maximum frequencies of the DG are 58.8 Hz and 61.2 Hz, respectively. These values are equal to $\pm 2\%$ of the 60 Hz nominal frequency and are derived from the recommendations given in Regulatory Guide 1.9 (Ref. 3).

BASES

LCO The DC electrical power subsystems, each subsystem consisting of [two] batteries, battery charger [for each battery] and the corresponding control equipment and interconnecting cabling supplying power to the associated bus within the train are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any train DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4).

An OPERABLE DC electrical power subsystem requires all required batteries and respective chargers to be operating and connected to the associated DC bus(es).

APPLICABILITY The DC electrical power sources are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure safe unit operation and to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment integrity and other vital functions are maintained in the event of a postulated DBA.

The DC electrical power requirements for MODES 5 and 6 are addressed in the Bases for LCO 3.8.5, "DC Sources - Shutdown."

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

Condition A represents one train with one [or two] battery chargers inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring a fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours [or in accordance with the Risk Informed Completion Time Program]. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within [12] hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----
A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).

A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a premature shutdown with its own attendant risk.

If established battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

If the charger is operating in the current limit mode after 2 hours that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action A.2).

Required Action A.2 requires that the battery float current be verified as less than or equal to [2] amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial [12] hour period the battery float current is not less than or equal to [2] amps this indicates there may be additional battery problems and the battery must be declared inoperable.

BASES

ACTIONS (continued)

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

B.1

-----REVIEWER'S NOTE-----
The 2 hour Completion Times of Required Actions B.1 and C.1 are in brackets. Any licensee wishing to request a longer Completion Time will need to demonstrate that the longer Completion Time is appropriate for the plant in accordance with the guidance in Regulatory Guide (RG) 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications."

Condition B represents one train with one [or two] batter[y][ies] inoperable. With one [or two] batter[y][ies] inoperable, the DC bus is being supplied by the OPERABLE battery charger[s]. Any event that results in a loss of the AC bus supporting the battery charger[s] will also result in loss of DC to that train. Recovery of the AC bus, especially if it is due to a loss of offsite power, will be hampered by the fact that many of the components necessary for the recovery (e.g., diesel generator control and field flash, AC load shed and diesel generator output circuit breakers, etc.) likely rely upon the batter[y][ies]. In addition the energization transients of any DC loads that are beyond the capability of the battery charger[s] and normally require the assistance of the batter[y][ies] will not be able to be brought online. The [2] hour limit allows sufficient time to effect restoration of an inoperable battery given that the majority of the conditions that lead to battery inoperability (e.g., loss of battery charger, battery cell voltage less than [2.07] V, etc.) are identified in Specifications 3.8.4, 3.8.5, and 3.8.6 together with additional specific Completion Times. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

C.1

Condition C represents one train with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected train. The 2 hour limit is consistent with the allowed time for an inoperable DC distribution system train. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

If one of the required DC electrical power subsystems is inoperable for reasons other than Condition A or B (e.g., inoperable battery charger and associated inoperable battery), the remaining DC electrical power subsystem has the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary DC electrical subsystems to mitigate a worst case accident, continued power operation should not exceed 2 hours. The 2 hour Completion Time is based on Regulatory Guide 1.93 (Ref. 7) and reflects a reasonable time to assess unit status as a function of the inoperable DC electrical power subsystem and, if the DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown.

----- REVIEWER'S NOTE -----
Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1 and D.2]

With two DC electrical power subsystems inoperable, the Required Action is to restore at least one of the required inoperable DC electrical power subsystems to OPERABLE status within 1 hour to regain control power for the AC emergency power system. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required DC electrical power subsystem. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second DC electrical power subsystem is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one DC electrical power subsystem is inoperable for any

reason and a second DC electrical power subsystem is found to be inoperable, or if two DC electrical power subsystem are found to be inoperable at the same time.]

E.1 and E.2

If the inoperable DC electrical power subsystem(s) cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems. The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

BASES

ACTIONS

A.1

With a required inverter inoperable, its associated AC vital bus becomes inoperable until it is [manually] re-energized from its [Class 1E constant voltage source transformer or inverter using internal AC source].

For this reason, a Note has been included in Condition A requiring entry into the Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating." This ensures the vital bus is re-energized within 2 hours. Required Action A.1 allows 24 hours to fix the inoperable inverter and return it to service. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 24 hour limit is based upon engineering judgment, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. This has to be balanced against the risk of an immediate shutdown, along with the potential challenges to safety systems such a shutdown might entail. When the AC vital bus is powered from its constant voltage source, it is relying upon interruptible AC electrical power sources (offsite and onsite). The uninterruptible inverter source to the AC vital buses is the preferred source for powering instrumentation trip setpoint devices.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1 and B.2

With two required inverters inoperable, the Required Action is to restore at least one of the required inverters to OPERABLE status within 1 hour to regain AC electrical power to the vital buses. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required inverter. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more [required] inverters are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [required] inverter is inoperable for any reason and additional [required] inverters are found to be inoperable, or if two or more [required] inverters are found to be inoperable at the same time.]

C.1 and C.2

If the inoperable devices or components cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

**SURVEILLANCE
REQUIREMENTS****SR 3.8.7.1**

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation of the RPS and ESFAS connected to the AC vital buses. The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions.

BASES

LCO (continued)

In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, if they exist, must be open. This prevents any electrical malfunction in any power distribution subsystem from propagating to the redundant subsystem, that could cause the failure of a redundant subsystem and a loss of essential safety function(s). If any tie breakers are closed, the affected redundant electrical power distribution subsystems are considered inoperable. This applies to the onsite, safety related redundant electrical power distribution subsystems. It does not, however, preclude redundant Class 1E 4.16 kV buses from being powered from the same offsite circuit.

APPLICABILITY

The electrical power distribution subsystems are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Electrical power distribution subsystem requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.10, "Distribution Systems - Shutdown."

ACTIONS

A.1

With one or more Train A and B required AC buses, load centers, motor control centers, or distribution panels (except AC vital buses), in one train inoperable and a loss of function has not occurred, the remaining AC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required AC buses, load centers, motor control centers, and distribution panels must be restored to OPERABLE status within 8 hours [or in accordance with the Risk Informed Completion Time Program].

BASES

ACTIONS (continued)

Condition A worst scenario is one train without AC power (i.e., no offsite power to the train and the associated DG inoperable). In this Condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operator's attention be focused on minimizing the potential for loss of power to the remaining train by stabilizing the unit, and on restoring power to the affected train. The 8 hour time limit before requiring a unit shutdown in this Condition is acceptable because of:

- a. The potential for decreased safety if the unit operator's attention is diverted from the evaluations and actions necessary to restore power to the affected train to the actions associated with taking the unit to shutdown within this time limit and
- b. The potential for an event in conjunction with a single failure of a redundant component in the train with AC power.

Required Action A.1 is modified by a Note that requires the applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," to be entered for DC trains made inoperable by inoperable power distribution subsystems. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. Inoperability of a distribution system can result in loss of charging power to batteries and eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems.

B.1

With one or more AC vital buses inoperable, and a loss of function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the minimum required ESF functions not being supported. Therefore, the [required] AC vital bus must be restored to OPERABLE status within 2 hours by powering the bus from the associated [inverter via inverted DC, inverter using internal AC Source, or Class 1E constant voltage transformer]. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source are nonfunctioning. In this situation the unit is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining vital buses and restoring power to the affected vital bus.

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate vital AC power, that would have the Required Action Completion Times shorter than 2 hours if declared inoperable, is acceptable because of:

- a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) and not allowing stable operations to continue,
- b. The potential for decreased safety by requiring entry into numerous applicable Conditions and Required Actions for components without adequate vital AC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train, and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time takes into account the importance to safety of restoring the AC vital bus to OPERABLE status, the redundant capability afforded by the other OPERABLE vital buses, and the low probability of a DBA occurring during this period.

C.1

With one or more DC buses or distribution panels inoperable, and a loss of function has not yet occurred, the remaining DC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystem could result in the minimum required ESF functions not being supported. Therefore, the [required] DC buses and distribution panels must be restored to OPERABLE status within 2 hours by powering the bus from the associated battery or charger.

[Alternatively, a Completion Time can be determined in accordance with
the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

Condition C represents one or more DC buses or distribution panels without adequate DC power; potentially both with the battery significantly degraded and the associated charger nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining trains and restoring power to the affected train.

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components that are without power. Taking exception to LCO 3.0.2 for components without adequate DC power, which would have Required Action Completion Times shorter than 2 hours, is acceptable because of:

- a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) while allowing stable operations to continue,
- b. The potential for decreased safety by requiring entry into numerous applicable Conditions and Required Actions for components without DC power and not providing sufficient time for the operators to perform the necessary evaluations and actions to restore power to the affected train, and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for DC buses is consistent with Regulatory Guide 1.93 (Ref. 3).

----- REVIEWER'S NOTE -----
 Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1 and D.2

With two or more electrical power distribution subsystems inoperable that result in a loss of safety function, the Required Action is to restore sufficient electrical power distribution subsystems within 1 hour to restore safety function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient electrical power distribution subsystems. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the two or more electrical power distribution subsystems are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one electrical power distribution subsystem is inoperable for any reason and a second electrical power distribution subsystem is found to be inoperable, or if two or more electrical power distribution subsystems are found to be inoperable at the same time.]

E.1 and E.2

If the inoperable distribution subsystem(s) cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition F is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[FE.1

Condition FE corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. When more than one inoperable electrical power distribution subsystem results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.]

SURVEILLANCE
REQUIREMENTSSR 3.8.9.1

This Surveillance verifies that the [required] AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [14].
3. Regulatory Guide 1.93, December 1974.

----- Reviewer's Note -----
 Example 1.3-8 is only applicable to plants that have adopted the Risk Informed Completion Time Program.

[

EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. ---- NOTE ----- Not applicable when second subsystem intentionally made inoperable. ----- Two subsystems inoperable.	B.1 Restore subsystems to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

When a subsystem is declared inoperable, Condition A is entered. The 7 day Completion Time may be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a Risk Informed Completion Time (RICT) that may be used to complete the Required Action beyond the 7 day Completion Time. The RICT cannot exceed 30 days. After the 7 day Completion Time has expired, the subsystem must be restored to OPERABLE status within the RICT or Condition C must also be entered.

If a second subsystem is declared inoperable, Condition B may also be entered. The Condition is modified by a Note stating it is not applicable if the second subsystem is intentionally made inoperable. The Required Actions of Condition B are not intended for voluntary removal of redundant subsystems from service. The Required Action is only applicable if one subsystem is inoperable for any reason and the second subsystem is found to be inoperable, or if both subsystems are found to be inoperable at the same time. If Condition B is applicable, at least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. The licensee may be able to apply a RICT to extend the Completion Time beyond 1 hour if the requirements of the Risk Informed Completion Time Program are met. If two subsystems are inoperable and Condition B is not applicable (i.e., the second subsystem was intentionally made inoperable), LCO 3.0.3 is entered as there is no applicable Condition.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

If the 7 day Completion Time clock of Condition A or the 1 hour Completion Time clock of Condition B have expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition C is entered, Conditions A, B, and C are exited, and therefore, the Required Actions of Condition C may be terminated.]

IMMEDIATE When "Immediately" is used as a Completion Time, The Required Action
COMPLETION TIME should be pursued without delay and in a controlled manner.

Comment: Required Action F.2.2 requires periodic performance of an action, Required Actions A.1, K.1, L.1, and M.1 contain an "Immediately" Completion Time and Conditions O, R, U, X, AA, HH and KK are default Conditions. Required Actions J.1, J.2, K.2, FF.1, and GG.1 are not restore or place in trip. Therefore these are excluded

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately
B. One Manual Reactor Trip channel inoperable.	B.1 Restore channel to OPERABLE status. <u>OR</u> B.2 Be in MODE 3.	48 hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u> 54 hours
<u>[C. ----- NOTE -----</u> <u>Not applicable when</u> <u>second Manual Reactor</u> <u>Trip channel</u> <u>intentionally made</u> <u>inoperable.</u> <u>-----</u> <u>Two Manual Reactor</u> <u>Trip channels</u>	<u>C.1 Restore channels to</u> <u>OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program]</u>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<u>inoperable.</u>		
<p>GD. One channel or train inoperable.</p>	<p>GD.1 Restore channel or train to OPERABLE status.</p> <p>OR</p> <p>C.2.1 Initiate action to fully insert all rods.</p> <p>AND</p>	<p>48 hours</p> <p>[OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>48 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	49 hours
<p><u>[E. ----- NOTE -----</u> <u>Not applicable when second channel or train intentionally made inoperable.</u> <u>-----</u> <u>Two channels or trains inoperable.</u></p>	<p><u>E.1 Restore channels to OPERABLE status.</u></p>	<p><u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>E. One Power Range Neutron Flux - High channel inoperable.</p>	<p>[-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels. ----- -----REVIEWER'S NOTE----- The below Note should be used for plants with installed bypass test capability. One channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment. -----]</p> <p>E.1.1 Place channel in trip.</p> <p style="text-align: center;"><u>AND</u></p> <p>E</p> <p><u>E.1.2 Reduce THERMAL POWER to ≤ 75% RTP.</u></p>	<p>72 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>78 hours</p>

	<p><u>OR</u></p> <p>E.2.1 Place channel in trip.</p> <p><u>AND</u></p>	<p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>72 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>DE.2.2 -----NOTE----- Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable. ----- Perform SR 3.2.4.2.</p> <p>OR</p> <p>D.3 Be in MODE 3.</p>	<p>Once per 12 hours</p> <p>78 hours</p>
<p>[G.----- NOTE ----- Not applicable when two or more Power Range Neutron Flux - High channels intentionally made inoperable. ----- Two or more Power Range Neutron Flux - High channel inoperable.</p>	<p>G.1 Restore channels to OPERABLE status.</p>	<p>1 hour</p> <p>OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>EH.One channel inoperable.</p>	<p>[-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----- -----REVIEWER'S NOTE----- The below Note should be used for plants with installed bypass test capability: One channel may be bypassed for up to 12 hours for surveillance testing. -----]</p> <p>EH.1 Place channel in trip.</p>	<p>72 hours</p>

	<u>OR</u> E.2 Be in MODE 3.	<u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u> <u>78 hours</u>
<u>[I. ----- NOTE -----</u> <u>Not applicable when two or more channels intentionally made inoperable.</u> <u>-----</u> <u>Two or more channels inoperable.</u>	<u>I.1 Restore channels to OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<u>F.J. One Intermediate Range Neutron Flux channel inoperable.</u>	<u>F.J.1 Reduce THERMAL POWER to < P-6.</u> <u>OR</u>	<u>24 hours</u>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>FJ.2 Increase THERMAL POWER to > P-10.</p>	24 hours
<p>GK. Two Intermediate Range Neutron Flux channels inoperable.</p>	<p>GK.1 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----- Suspend operations involving positive reactivity additions.</p> <p><u>AND</u></p> <p>GK.2 Reduce THERMAL POWER to < P-6.</p>	<p>Immediately</p> <p>2 hours</p>
<p>HL. One Source Range Neutron Flux channel inoperable.</p>	<p>-----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. -----</p> <p>HL.1 Suspend operations involving positive reactivity additions.</p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>M. Two Source Range Neutron Flux channels inoperable.</p>	<p>M.1 Open reactor trip breakers (RTBs).</p>	<p>Immediately</p>
<p>N. One Source Range Neutron Flux channel inoperable.</p>	<p>N.1 Restore channel to OPERABLE status.</p> <p>OR</p> <p>J.2.1 Initiate action to fully insert all rods.</p> <p>—AND</p> <p>J.2.2. Place the Rod Control System in a condition incapable of rod withdrawal.</p> <p>.</p>	<p>48 hours</p> <p>OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>48 hours</p> <p>49 hours</p>
<p>O. <u>Required Action and associated Completion Time of Condition D, [E] or N not met.</u></p>	<p>O.1 Initiate action to fully insert all rods.</p> <p>AND</p> <p>O.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p>	<p>Immediately</p> <p>1 hour</p>
<p>KP. One channel inoperable.</p>	<p>[-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----- -----REVIEWER'S NOTE----- The below Note should be used for plants with installed bypass test capability:</p>	

	<p>One channel may be bypassed for up to 12 hours for surveillance testing. -----]</p> <p>KP.1 Place channel in trip.</p> <p>OR</p>	<p>72 hours</p> <p>OR</p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>[Q.----- NOTE -----</u> <u>Not applicable when two</u> <u>or more channels</u> <u>intentionally made</u> <u>inoperable.</u> <u>-----</u> <u>Two or more channels</u> <u>inoperable.</u></p>	<p><u>Q.1 Restore channels to</u> <u>OPERABLE status.</u></p>	<p><u>1 hour</u> <u>OR</u> <u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program]</u></p>
<p><u>R. Required Action and</u> <u>associated Completion</u> <u>Time of Condition P [or</u> <u>Q] not met.</u></p>	<p>K.2<u>R.1</u> Reduce THERMAL POWER to < P-7.</p>	<p>78<u>6</u> hours</p>
<p>L<u>S</u>. One Reactor Coolant Pump Breaker Position (Single Loop) channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels. -----</p> <p>L<u>S</u>.1 Restore channel to OPERABLE status.</p> <p><u>OR</u></p> <p>L.2 Reduce THERMAL POWER to < P-8.</p>	<p>[6] hours <u>OR</u> <u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program]</u> [10] hours</p>
<p><u>[T.----- NOTE -----</u> <u>Not applicable when</u> <u>second Reactor Coolant</u> <u>Pump Breaker Position</u> <u>(Single Loop) channel</u> <u>intentionally made</u></p>	<p><u>T.1 Restore channels to</u> <u>OPERABLE status.</u></p>	<p><u>1 hour</u> <u>OR</u> <u>In accordance with</u> <u>the Risk Informed</u></p>

<p><u>inoperable.</u> ----- <u>Two Reactor Coolant Pump Breaker Position (Single Loop) channels inoperable.</u></p>		<p><u>Completion Time Program]</u></p>
<p><u>U. Required Action and associated Completion Time of Condition S [or T] not met.</u></p>	<p><u>U.1 Reduce THERMAL POWER to < P-8.</u></p>	<p><u>[4] hours</u></p>
<p><u>MV. One Reactor Coolant Breaker Position (Two Loops) channel inoperable.</u></p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels. ----- <u>MV.1 Place the channel in trip.</u> <u>OR</u> <u>M.2 Reduce THERMAL POWER to <P-7.</u></p>	<p><u>[6] hours</u> <u>[OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u> <u>[12] hours</u></p>
<p><u>[W. ----- NOTE -----</u> <u>=</u> <u>Not applicable when second Reactor Coolant Pump Breaker Position (Two Loops) channel intentionally made inoperable.</u> ----- <u>Two or more Reactor Coolant Breaker Position (Two Loops) channels inoperable.</u></p>	<p><u>W.1 Restore channels to OPERABLE status.</u></p>	<p><u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>X.</u> <u>Required Action and associated Completion Time of Condition V [or W] not met.</u></p>	<p><u>X.1</u> <u>Reduce THERMAL POWER to <P-7.</u></p>	<p><u>[6] hours</u></p>
<p><u>NY.</u> One Turbine Trip channel inoperable.</p>	<p>[-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----- -----REVIEWER'S NOTE----- The below Note should be used for plants with installed bypass test capability. One channel may be bypassed for up to 12 hours for surveillance testing. -----]</p> <p><u>NY.1</u> Place channel in trip.</p> <p><u>OR</u></p> <p><u>N.2</u> <u>Reduce THERMAL POWER to <[P-9].</u></p>	<p>72 hours</p> <p><u>[OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>76 hours</p>
<p><u>[Z. ----- NOTE ----- Not applicable when two or more Turbine Trip channels intentionally made inoperable. ----- <u>Two or more Turbine Trip channels inoperable.</u></u></p>	<p><u>Z.1</u> <u>Restore channels to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

<p><u>AA. Required Action and associated Completion Time of Condition Y [or Z] not met.</u></p>	<p><u>AA.1 Reduce THERMAL POWER to < [P-9].</u></p>	<p><u>4 hours</u></p>
<p><u>OBB. One train inoperable.</u></p>	<p>-----NOTE----- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. -----</p> <p><u>OBB.1 Restore train to OPERABLE status.</u></p> <p><u>OR</u></p> <p><u>O.2 Be in MODE 3.</u></p>	<p>24 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p><u>30 hours</u></p>
<p><u>[CC. ----- NOTE -----</u> <u>=</u> <u>Not applicable when second train intentionally made inoperable.</u> <u>-----</u> <u>Two trains inoperable.</u></p>	<p><u>CC.1 Restore trains to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>PDD. One RTB train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. -----</p> <p>PDD.1 Restore train to OPERABLE status.</p> <p>OR</p> <p>P.2 Be in MODE 3.</p>	<p>[24] hours</p> <p>OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>[30] hours</p>
<p>[EE. ----- NOTE ----- = Not applicable when second RTB train intentionally made inoperable. -----</p> <p>Two RTB trains inoperable.</p>	<p>EE.1 Restore trains to OPERABLE status.</p>	<p>1 hour</p> <p>OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>QFF. One or more channels inoperable.</p>	<p>QFF.1 Verify interlock is in required state for existing unit conditions.</p> <p>OR</p> <p>Q.2 Be in MODE 3.</p>	<p>1 hour</p> <p>7 hours</p>
<p>R.GG One or more channels inoperable.</p>	<p>RGG.1 Verify interlock is in required state for existing unit conditions.</p> <p>OR</p>	<p>1 hour</p>

	R.2 — Be in MODE 2.	7 hours
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>HH. Required Action and associated Completion Time of Condition GG not met.</u></p>	<p><u>HH.1 Be in MODE 2.</u></p>	<p><u>6 hours</u></p>
<p><u>S. II. One trip mechanism inoperable for one RTB.</u></p>	<p><u>SII.1 Restore inoperable trip mechanism to OPERABLE status.</u></p> <p><u>OR</u></p> <p><u>S.2 Be in MODE 3.</u></p>	<p>48 hours</p> <p><u>[OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>54 hours</p>
<p><u>[JJ. ----- NOTE -----</u> <u>=</u> <u>Not applicable when one trip mechanism for two or more RTBs intentionally made inoperable.</u> <u>-----</u> <u>One trip mechanism inoperable for two or more RTBs.</u></p>	<p><u>JJ.1 Restore trip mechanisms to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>KK. Required Action and associated Completion Time of Condition B, [C,] E, [G,] H, [I,] BB, [CC], DD, [EE], FF, II [or JJ] not met.</u></p>	<p><u>KK.1 Be in MODE 3.</u></p>	<p><u>6 hours</u></p>

Table 3.3.1-1 (page 1 of 7)
 Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
1. Manual Reactor Trip	1,2	2	B , C	SR 3.3.1.14	NA	NA
	3 ^(a) , 4 ^(a) , 5 ^(a)	2	C D , E	SR 3.3.1.14	NA	NA
2. Power Range Neutron Flux						
a. High	1,2	4	D F , G	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ [111.2]% RTP	[109]% RTP
b. Low	1 ^(b) , 2	4	E H , I	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ [27.2]% RTP	[25]% RTP
3. Power Range Neutron Flux Rate						
a. High Positive Rate	1,2	4	E H , I	SR 3.3.1.7 SR 3.3.1.11	≤ [6.8]% RTP with time constant ≥ [2] sec	[5]% RTP with time constant ≥ [2] sec
b. High Negative Rate	1,2	4	E H , I	SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ [6.8]% RTP with time constant ≥ [2] sec	[5]% RTP with time constant ≥ [2] sec
4. Intermediate Range Neutron Flux	1 ^(b) , 2 ^(c)	2	F , G , J , K	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ [31]% RTP	[25]% RTP

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully insert.

(b) Below the P-10 (Power Range Neutron Flux) interlocks.

(c) Above the P-6 (Intermediate Range Neutron Flux) interlocks.

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.1-1 (page 2 of 7)
 Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
5. Source Range Neutron Flux	2 ^(d)	2	H, L, M	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ [1.4 E5] cps	[1.0 E5] cps
	3 ^(a) , 4 ^(a) , 5 ^(a)	2	H, J, M, N	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ [1.4 E5] cps	[1.0 E5] cps
6. Overtemperature ΔT	1,2	[4]	E, H	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.12 SR 3.3.1.16	Refer to Note 1 (Page 3.3.1-19)	Refer to Note 1 (Page 3.3.1-19)
7. Overpower ΔT	1,2	[4]	E, H	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.12 SR 3.3.1.16	Refer to Note 2 (Page 3.3.1-20)	Refer to Note 2 (Page 3.3.1-20)
8. Pressurizer Pressure						
a. Low	1 ^(f)	[4]	K, P	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, H	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 ^(e)	3	K, P	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ [93.8]%	[92]%
10. Reactor Coolant Flow - Low	1 ^(f)	3 per loop	K, P	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ [89.2]%	[90]%

- (a) With Rod Control System capable of rod withdrawal or one or more rods not fully insert.
- (d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.
- (e) Above the P-7 (Low Power Reactor Trips Block) interlock.
- (f) Above the P-8 (Power Range Neutron Flux) interlock.

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.1-1 (page 3 of 7)
 Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
11. Reactor Coolant Pump (RCP) Breaker Position						
a. Single Loop	1 ^(f)	1 per RCP	LS, TI	SR 3.3.1.14	NA	NA
b. Two Loops	1 ^(g)	1 per RCP	MV, W	SR 3.3.1.14	NA	NA
12. Undervoltage RCPs	1 ^(e)	[3] per bus	KP	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ [4760] V	[4830] V
13. Underfrequency RCPs	1 ^(e)	[3] per bus	KP	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]	EH	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	EH	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	EH	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
16. Turbine Trip						
a. Low Fluid Oil Pressure	1 ^(h)	3	NY, Z	SR 3.3.1.10 SR 3.3.1.15	≥ [750] psig	[800] psig
b. Turbine Stop Valve Closure	1 ^(h)	4	NY, Z	SR 3.3.1.10 SR 3.3.1.15	≥ [1]% open	[1]% open

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

(f) Above the P-8 (Power Range Neutron Flux) interlock.

(g) Above the P-7 (Low Power Reactor Trips Block) interlock and below the P-8 (Power Range Neutron Flux) Interlock

(h) Above the P-9 (Power Range Neutron Flux) interlock.

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.1-1 (page 4 of 7)
 Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	QBB	SR 3.3.1.14	NA	NA
18. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	2 ^(d)	2	QFF	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	RGG	SR 3.3.1.5	NA	NA
c. Power Range Neutron Flux, P-8	1	4	RGG	SR 3.3.1.11 SR 3.3.1.13	≤ [50.2]% RTP	[48]% RTP
d. Power Range Neutron Flux, P-9	1	4	RGG	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	QFF	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	RGG	[SR 3.3.1.1] SR 3.3.1.10 SR 3.3.1.13	≤ [12.2]% turbine power	10% turbine power
19. Reactor Trip Breakers ⁽ⁱ⁾ (RTBs)	1,2	2 trains	PDDI, EEI	SR 3.3.1.4	NA	NA
	3 ^(b) , 4 ^(b) , 5 ^(b)	2 trains	GD	SR 3.3.1.4	NA	NA

(b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

(i) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.1-1 (page 5 of 7)
 Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	SI	SR 3.3.1.4	NA	NA
	3 ^(b) , 4 ^(b) , 5 ^(b)	1 each per RTB	CD	SR 3.3.1.4	NA	NA
21. Automatic Trip Logic	1,2	2 trains	EBB	SR 3.3.1.5	NA	NA
	3 ^(b) , 4 ^(b) , 5 ^(b)	2 trains	CD	SR 3.3.1.5	NA	NA

-----REVIEWER'S NOTE-----

(b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Comment: Conditions W, X, and Y are default Conditions. Required Action A.1 is has an immediate Completion Time. Required Action H.1 and T.1 are to place a channel in bypass. Required Action V.1 is to confirm a interlock. These Conditions and Required Actions are excluded

3.3 INSTRUMENTATION

3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.2 The ESFAS instrumentation for each Function in Table 3.3.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
B. One channel or train inoperable.	B.1 Restore channel or train to OPERABLE status. OR B.2.1 Be in MODE 3. AND B.2.2 Be in MODE 5.	48 hours 54 hours 84 hours [OR <u>In accordance with the Risk Informed Completion Time Program]</u>
[C. ----- NOTE ----- Not applicable when second channel or train	C.1 Restore at least one channel or train to OPERABLE status.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>intentionally made inoperable.</u></p> <p>-----</p> <p><u>Two channels or trains inoperable.</u></p>		<p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program.]</u></p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>CD. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. -----</p> <p>CD.1 Restore train to OPERABLE status.</p> <p>OR</p> <p>C.2.1 Be in MODE 3.</p> <p>AND</p> <p>C.2.2 Be in MODE 5.</p>	<p>24 hours</p> <p>30 hours</p> <p>60 hoursOR</p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>[E. ----- NOTE ----- Not applicable when second train intentionally made inoperable. ----- Two trains inoperable.</p>	<p>E.1 Restore at least one train to OPERABLE status.</p>	<p>1 hour</p> <p>OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>DE. One channel inoperable.</p>	<p>[-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p> <p>-----REVIEWER'S NOTE----- The below Note should be used for plants with installed bypass test</p>	

	<p>capability:</p> <p>One channel may be bypassed for up to 12 hours for surveillance testing.</p> <p>-----]</p> <p>DE.1 Place channel in trip.</p> <p>OR</p>	<p>72 hours</p> <p>IOR</p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>[G.----- NOTE -----</u> <u>Not applicable when two</u> <u>or more required</u> <u>channels or one channel</u> <u>in more than one loop,</u> <u>steam line, or stream</u> <u>generator intentionally</u> <u>made inoperable.</u> <u>-----</u> <u>Two or more required</u> <u>channels inoperable or</u> <u>one channel inoperable</u> <u>in more than one loop,</u> <u>steam line, or stream</u> <u>generator.</u></p>	<p><u>G.1</u> D.2.1 Be in MODE 3. <u>—AND</u> <u>D.2.2</u> Be in MODE 4. <u>Restore channels to</u> <u>OPERABLE status.</u></p>	<p><u>78 hours</u> <u>84 hours</u><u>1 hour</u> <u>OR</u> <u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program]</u></p>
<p>E<u>H</u>. One Containment Pressure channel inoperable.</p>	<p>[-----NOTE----- One additional channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----- -----REVIEWER'S NOTE----- The below Note should be used for plants with installed bypass test capability. One channel may be bypassed for up to 12 hours for surveillance testing. -----]</p> <p>E<u>H</u>.1 Place channel in bypass.</p> <p><u>OR</u></p> <p>E<u>.2.1</u> Be in MODE 3.</p> <p><u>—AND</u></p> <p>E<u>.2.2</u> Be in MODE 4.</p>	<p><u>72 hours</u> <u>78 hours</u> <u>84 hours</u></p>

<p><u>[I. ----- NOTE -----</u> <u>Not applicable when</u> <u>second Containment</u> <u>Pressure channel</u> <u>intentionally made</u> <u>inoperable.</u> <u>-----</u> <u>Two or more</u> <u>Containment Pressure</u> <u>channels inoperable.</u></p>	<p><u>I.1 Restore channels to</u> <u>OPERABLE status.</u></p>	<p><u>1 hour</u> <u>OR</u> <u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program]</u></p>
<p><u>FJ. One channel or train</u> <u>inoperable.</u></p>	<p><u>FJ.1 Restore channel or train to</u> <u>OPERABLE status.</u></p> <p><u>OR</u></p> <p><u>F.2.1 Be in MODE 3.</u></p> <p><u>AND</u></p>	<p><u>48 hours</u></p> <p><u>54 hours</u></p> <p><u>[OR</u> <u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program]</u></p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	F.2.2 — Be in MODE 4.	60 hours
<p>[K.----- NOTE ----- Not applicable when two or more required channels or second train intentionally made inoperable. ----- Two or more required channels or two trains inoperable.</p>	<p>K.1 Restore channels or trains to OPERABLE status.</p>	<p>1 hour OR In accordance with the Risk Informed Completion Time Program]</p>
<p>G.L. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. ----- G.L.1 Restore train to OPERABLE status. OR G.2.1 — Be in MODE 3. —AND G.2.2 — Be in MODE 4.</p>	<p>24 hours 30 hours 36 hours[OR In accordance with the Risk Informed Completion Time Program]</p>
<p>[M.----- NOTE ----- Not applicable when second train intentionally made inoperable.</p>	<p>M.1 Restore at least one train to OPERABLE status.</p>	<p>1 hour OR In accordance with</p>

<p><u>Two trains inoperable.</u></p>		<p><u>the Risk Informed Completion Time Program]</u></p>
<p><u>HN.</u> One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. -----</p> <p><u>HN.1</u> Restore train to OPERABLE status.</p> <p><u>OR</u></p> <p><u>H.2</u> Be in MODE 3.</p>	<p>24 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>30 hours</p>
<p><u>[O.----- NOTE -----</u> <u>Not applicable when second train intentionally made inoperable.</u> <u>-----</u></p> <p><u>Two trains inoperable.</u></p>	<p><u>O.1</u> <u>Restore at least one train to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I.P. One channel inoperable.</p>	<p>[-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----- -----REVIEWER'S NOTE----- The below Note should be used for plants with installed bypass test capability. One channel may be bypassed for up to 12 hours for surveillance testing. -----]</p> <p>I.P..1 Place channel in trip.</p> <p>OR</p> <p>I.2 — Be in MODE 3.</p>	<p>72 hours</p> <p>78 hours <u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[Q.----- NOTE ----- Not applicable when two or more channels intentionally made inoperable. ----- Two or more channels inoperable.</u></p>	<p><u>Q.1 Restore channels to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>R.J. One Main Feedwater Pumps trip channel inoperable.</p>	<p>R.J..1 Restore channel to OPERABLE status.</p>	<p>48 hours</p>

	<p><u>OR</u></p> <p>J.2 <u>Be in MODE 3.</u></p>	<p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p><u>54 hours</u></p>
<p><u>[S. ----- NOTE -----</u> <u>Not applicable when two or more Main Feedwater Pumps trip channels intentionally made inoperable.</u> <u>-----</u> <u>Two or more Main Feedwater Pumps trip channels inoperable.</u></p>	<p><u>S.1 Restore channels to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>KI. One channel inoperable.</p>	<p>[-----NOTE----- One additional channel may be bypassed for up to [4] hours for surveillance testing. ----- -----REVIEWER'S NOTE----- The below Note should be used for plants with installed bypass test capability: One channel may be bypassed for up to 12 hours for surveillance testing. -----]</p> <p>KI.1 Place channel in bypass.</p> <p>OR</p> <p>K.2.1 Be in MODE 3.</p> <p>—AND</p> <p>K.2.2 Be in MODE 5.</p>	<p>[6] hours</p> <p>[12] hours</p> <p>[42] hours]</p>
<p>[U. ----- NOTE ----- <u>Not applicable when two or more channels intentionally made inoperable.</u> ----- <u>Two or more channels inoperable.</u></p>	<p>U.1 <u>Restore channels to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p>OR</p> <p><u>In accordance with the Risk Informed Completion Time Program.]</u></p>
<p>LV. One or more channels inoperable.</p>	<p>LV.1 Verify interlock is in required state for existing unit condition.</p> <p>OR</p> <p>L.2.1 Be in MODE 3.</p>	<p>1 hour</p> <p>OR</p> <p><u>In accordance with the Risk Informed Completion Time</u></p>

	<p>—AND</p> <p>L.2.2 Be in MODE 4.</p>	<p><u>Program]</u></p> <p> </p> <p><u>7 hours</u></p> <p> </p> <p><u>13 hours]</u></p>
<p><u>W. Required Action and associated Completion Time of Conditions B, [C.] D, [E.] T or [U] not met.</u></p>	<p><u>W.1 Be in MODE 3.</u></p> <p><u>AND</u></p> <p><u>W.2 Be in MODE 5.</u></p>	<p><u>6 hours</u></p> <p> </p> <p><u>36 hours</u></p>
<p><u>X. Required Action and associated Completion Time of Conditions F, [G.] H, [I.] J, [K.] L, [M] or V not met.</u></p>	<p><u>X.1 Be in MODE 3.</u></p> <p><u>AND</u></p> <p><u>X.2 Be in MODE 4.</u></p>	<p><u>6 hours</u></p> <p> </p> <p><u>12 hours</u></p>
<p><u>Y. Required Action and associated Completion Time of Conditions N, [O.] P, [Q.] R or [S] not met.</u></p>	<p><u>Y.1 Be in MODE 3.</u></p>	<p><u>6 hours</u></p>

Table 3.3.2-1 (page 1 of 8)
 Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
1. Safety Injection						
a. Manual Initiation	1,2,3,4	2	B,C	SR 3.3.2.8	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	D,E	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
c. Containment Pressure - High 1	1,2,3	3	F,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [3.86] psig	[3.6] psig
d. Pressurizer Pressure - Low	1,2,3 ^(a)	[3]	F,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [1839] psig	[1850] psig
e. Steam Line Pressure						
(1) Low	1,2,3 ^(a)	3 per steam line	F,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [635] ^(b) psig	[675] ^(b) psig
(2) High Differential Pressure Between Steam Lines	1,2,3	3 per steam line	F,G	[SR 3.3.2.1] SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [106] psig	[97] psig

(a) Above the P-11 (Pressurizer Pressure) interlock.

(b) Time constants used in the lead/lag controller are $t_1 \geq [50]$ seconds and $t_2 \leq [5]$ seconds.

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.2-1 (page 2 of 8)
 Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ⁽ⁱ⁾ TRIP SETPOINT
1. Safety Injection						
f. High Steam Flow in Two Steam Lines	1,2,3 ^(c)	2 per steam line	DFI,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	(d)	(e)
Coincident with T _{avg} - Low Low	1,2,3 ^(c)	1 per loop	DFI,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [550.6]°F	[553]°F
g. High Steam Flow in Two Steam Lines	1,2,3 ^(c)	2 per steam line	DFI,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	(d)	(e)
Coincident with Steam Line Pressure - Low	1,2,3 ^(c)	1 per steam line	DFI,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [635] ^(b) psig	[675] psig
2. Containment Spray						
a. Manual Initiation	1,2,3,4	2 per train, 2 trains	B,C	SR 3.3.2.8	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	GD,E	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
c. Containment Pressure High - 3 (High High)	1,2,3	4	EH,I	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [12.31] psig	[12.05] psig

(c) Above the P-12 (T_{avg} - Low Low) interlock.

(d) Less than or equal to a function defined as ΔP corresponding to [44]% full steam flow below [20]% load, and ΔP increasing linearly from [44]% full steam flow at [20]% load to [114]% full steam flow at [100]% load, and ΔP corresponding to [114]% full steam flow above 100% load.

(e) Less than or equal to a function defined as ΔP corresponding to [40]% full steam flow between [0]% and [20]% load and then a ΔP increasing linearly from [40]% steam flow at [20]% load to [110]% full steam flow at [100]% load.

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.2-1 (page 3 of 8)
 Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
2. Containment Spray						
d. Containment Pressure High - 3 (Two Loop Plants)	1,2,3	[3] sets of [2]	E H, <u>L</u>	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [12.31] psig	[12.05] psig
3. Containment Isolation						
a. Phase A Isolation						
(1) Manual Initiation	1,2,3,4	2	B, <u>C</u>	SR 3.3.2.8	NA	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C D, <u>E</u>	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
(3) Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
b. Phase B Isolation						
(1) Manual Initiation	1,2,3,4	2 per train, 2 trains	B, <u>C</u>	SR 3.3.2.8	NA	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C D, <u>E</u>	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
(3) Containment Pressure High - 3 (High High)	1,2,3	[4]	E H, <u>L</u>	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [12.31] psig	[12.05] psig

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.2-1 (page 4 of 8)
 Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ⁽ⁱ⁾ TRIP SETPOINT
4. Steam Line Isolation						
a. Manual Initiation	1,2 ^(h) ,3 ^(h)	2	FJ,KI	SR 3.3.2.8	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2 ^(h) ,3 ^(h)	2 trains	GL,M	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
c. Containment Pressure - High 2	1, 2 ^(h) , 3 ^(h)	[4]	DFI,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [6.61] psig	[6.35] psig
d. Steam Line Pressure						
(1) Low	1, 2 ^(h) , 3 ^{(a)(h)}	3 per steam line	DFI,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [635] ^(b) psig	[675] ^(b) psig
(2) Negative Rate - High	3 ^{(f)(h)}	3 per steam line	DFI,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [121.6] ^(g) psi	[110] ^(g) psi

- (a) Above the P-11 (Pressurizer Pressure) interlock.
- (b) Time constants used in the lead/lag controller are $t_1 \geq [50]$ seconds and $t_2 \leq [5]$ seconds.
- (f) Below the P-11 (Pressurizer Pressure) interlock.
- (g) Time constant utilized in the rate/lag controller is $\geq [50]$ seconds.
- (h) Except when all MSIVs are closed and [de-activated].

-----REVIEWER'S NOTE-----

- (j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.
-

Table 3.3.2-1 (page 5 of 8)
 Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
4. Steam Line Isolation						
e. High Steam Flow in Two Steam Lines	1, 2 ^(h) , 3 ^(h)	2 per steam line	$\Delta F, G$	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	(d)	(e)
Coincident with T _{avg} - Low Low	1, 2 ^(h) , 3 ^{(c)(h)}	1 per loop	$\Delta F, G$	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [550.6]°F	[553]°F
f. High Steam Flow in Two Steam Lines	1, 2 ^(h) , 3 ^(h)	2 per steam line	$\Delta F, G$	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	(d)	(e)
Coincident with Steam Line Pressure - Low	1, 2 ^(h) , 3 ^(h)	1 per steam line	$\Delta F, G$	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [635] ^(b) psig	[675] ^(b) psig
g. High Steam Flow	1, 2 ^(h) , 3 ^(h)	2 per steam line	$\Delta F, G$	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [25]% of full steam flow at no load steam pressure	[] full steam flow at no load steam pressure
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
and						
Coincident with T _{avg} - Low Low	1, 2 ^(h) , 3 ^{(c)(h)}	[2] per loop	$\Delta F, G$	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [550.6]°F	[553]°F

(b) Time constants used in the lead/lag controller are $t_1 \geq [50]$ seconds and $t_2 \leq [5]$ seconds.

(c) Above the P-12 (T_{avg} - Low Low) interlock.

(d) Less than or equal to a function defined as ΔP corresponding to [44]% full steam flow below [20]% load, ΔP increasing linearly from [44]% full steam flow at [20]% load to [114]% full steam flow at [100]% load, and ΔP corresponding to [114]% full steam flow above 100% load.

(e) Less than or equal to a function defined as ΔP corresponding to [40]% full steam flow between [0]% and [20]% load and then a ΔP increasing linearly from [40]% steam flow at [20]% load to [110]% full steam flow at [100]% load.

(h) Except when all MSIVs are closed and [de-activated].

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.2-1 (page 6 of 8)
 Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
4. Steam Line Isolation						
h. High High Steam Flow	1,2 ^(h) ,3 ^(h)	2 per steam line	DF,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [130]% of full steam flow at full load steam pressure	[] of full steam flow at full load steam pressure
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
5. Turbine Trip and Feedwater Isolation						
a. Automatic Actuation Logic and Actuation Relays	1, 2 ⁽ⁱ⁾ , [3] ⁽ⁱ⁾	2 trains	H,G,N,O,I,L,M	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
b. SG Water Level - High High (P-14)	1,2 ⁽ⁱ⁾ ,[3] ⁽ⁱ⁾	[3] per SG	H,D,P,Q,I,F,G	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [84.2]%	[82.4]%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
a. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	GL,M	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
b. Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)	1,2,3	2 trains	GL,M	SR 3.3.2.3	NA	NA

(h) Except when all MSIVs are closed and [de-activated].

(i) Except when all MFIVs, MFRVs, [and associated bypass valves] are closed and [de-activated] [or isolated by a closed manual valve].

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.2-1 (page 7 of 8)
 Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
6. Auxiliary Feedwater						
c. SG Water Level - Low Low	1,2,3	[3] per SG	F [G]	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [30.4]%	[32.2]%
d. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
e. Loss of Offsite Power	1,2,3	[3] per bus	F[J,K]	SR 3.3.2.7 SR 3.3.2.9 SR 3.3.2.10	≥ [2912] V with ≤ 0.8 sec time delay	[2975] V with ≤ 0.8 sec time delay
f. Undervoltage Reactor Coolant Pump	1,2	[3] per bus	P[Q]	SR 3.3.2.7 SR 3.3.2.9 SR 3.3.2.10	≥ [69]% bus voltage	[70]% bus voltage
g. Trip of all Main Feedwater Pumps	1,2	[2] per pump	R[S]	SR 3.3.2.8 SR 3.3.2.9 SR 3.3.2.10	≥ [] psig	[] psig
h. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low	1,2,3	[2]	F[J,K]	SR 3.3.2.1 SR 3.3.2.7 SR 3.3.2.9	≥ [20.53] [psia]	[] [psia]
7. Automatic Switchover to Containment Sump						
a. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	D[E]	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
b. Refueling Water Storage Tank (RWST) Level - Low Low	1,2,3,4	4	K[U]	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [15]% and ≤ []%	[]% and []%
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Table 3.3.2-1 (page 8 of 8)
 Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL ^(j) TRIP SETPOINT
7. Automatic Switchover to Containment Sump						
c. RWST Level - Low Low	1,2,3,4	4	K T,U	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [15]%	[18]%
Coincident with Safety Injection and	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
Coincident with Containment Sump Level - High	1,2,3,4	4	K T,U	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [30] in. above el. [703] ft	[] in. above el. [] ft
8. ESFAS Interlocks						
a. Reactor Trip, P-4	1,2,3	1 per train, 2 trains	F J,K	SR 3.3.2.11	NA	NA
b. Pressurizer Pressure, P-11	1,2,3	3	L V	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9	≤ [1996] psig	[] psig
c. T _{avg} - Low Low, P-12	1,2,3	[1] per loop	L V	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9	≥ [550.6]°F	[553]° F

-----REVIEWER'S NOTE-----

(j) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3 The PAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.5.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.3-1.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Be in MODE 4.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----

SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM instrumentation Function in Table 3.3.3-1.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2	-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	[18] months

Comment: No changes made. Required Action A.1 already has a 30 day CT. Condition B is a default Condition.

3.3 INSTRUMENTATION

3.3.4 Remote Shutdown System

LCO 3.3.4 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.4.1 [Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days]
SR 3.3.4.2 Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] months

Comment: Condition C is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.5 Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation

LCO 3.3.5 [Three] channels per bus of the loss of voltage Function and [three] channels per bus of the degraded voltage Function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more Functions with one channel per bus inoperable.</p>	<p>A.1 -----NOTE----- The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels. ----- Place channel in trip.</p>	<p>[6] hours <u>IOR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>B. One or more Functions with two or more channels per bus inoperable.</p>	<p>B.1 Restore all but one channel per bus to OPERABLE status.</p>	<p>1 hour <u>IOR</u> <u>In accordance with the Risk Informed Completion Time</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Program]
C. Required Action and associated Completion Time not met.	C.1 Enter applicable Condition(s) and Required Action(s) for the associated DG made inoperable by LOP DG start instrumentation.	Immediately

Containment Purge and Exhaust Isolation Instrumentation

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3.6

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.

APPLICABILITY: According to Table 3.3.6-1.

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
B. -----NOTE----- Only applicable in MODE 1, 2, 3, or 4. ----- One or more Functions with one or more manual or automatic actuation trains inoperable. <u>OR</u> Two or more radiation monitoring channels inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A not met.	B.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for containment purge and exhaust isolation valves made inoperable by isolation instrumentation.	Immediately

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

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.

APPLICABILITY: According to Table 3.3.7-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more Functions with one channel or train inoperable.</p>	<p>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.</p>	<p>7 days</p>
<p>B. One or more Functions with two channels or two trains inoperable.</p>	<p>-----NOTE----- [Place in the toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] ----- B.1.1 Place one CREFS train in emergency [radiation protection] mode. <u>AND</u></p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.1.2 Enter applicable Conditions and Required Actions for one CREFS train made inoperable by inoperable CREFS actuation instrumentation. <u>OR</u> B.2 Place both trains in emergency [radiation protection] mode.	Immediately Immediately
C. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of [recently] irradiated fuel assemblies.	D.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
E. [Required Action and associated Completion Time for Condition A or B not met in MODE 5 or 6.	E.1 Initiate action to restore one CREFS train to OPERABLE status.	Immediately]

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.8 Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation

LCO 3.3.8 The FBACS actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.8-1.

ACTIONS

NOTES

1. LCO 3.0.3 is not applicable.
2. 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 Place one FBACS train in operation.	7 days
B. One or more Functions with two channels or two trains inoperable.	B.1.1 Place one FBACS train in operation.	Immediately
	<u>AND</u>	
	B.1.2 Enter applicable Conditions and Required Actions of LCO 3.7.13, "Fuel Building Air Cleanup System (FBACS)," for one train made inoperable by inoperable actuation instrumentation.	Immediately
	<u>OR</u>	
	B.2 Place both trains in emergency [radiation protection] mode.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time for Condition A or B not met during movement of [recently] irradiated fuel assemblies in the fuel building.	C.1 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately
D. [Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.	6 hours 36 hours]

SURVEILLANCE REQUIREMENTS

-----NOTE-----

Refer to Table 3.3.8-1 to determine which SRs apply for each FBACS Actuation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.8.2	Perform COT.	92 days
SR 3.3.8.3	[Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS]
SR 3.3.8.4	-----NOTE----- Verification of setpoint is not required. ----- Perform TADOT.	[18] months

Comment: RA B.1 has an immediately perform and RA B.2.2 contains a periodically performed Surveillance. These Conditions are therefore excluded.

3.3 INSTRUMENTATION

3.3.9 Boron Dilution Protection System (BDPS)

LCO 3.3.9 Two trains of the BDPS shall be OPERABLE.

APPLICABILITY: MODES [2,] 3, 4, and 5.

-----NOTE-----
 The boron dilution flux doubling signal may be blocked in MODES 2 and 3 during reactor startup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One train inoperable.	A.1 Restore train to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when two trains intentionally made inoperable. ----- Two trains inoperable.	B.1 -----NOTE----- Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. ----- Suspend operations involving positive reactivity additions. <u>AND</u> B.2 Restore trains to	Immediately 1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>OPERABLE status.</p>	<p><u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>CB.[Two trains inoperable. <u>OR</u>] Required Action and associated Completion Time of Condition A [or B] not met.</p>	<p>CB.1 -----NOTE----- Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. ----- Suspend operations involving positive reactivity additions.</p> <p><u>AND</u></p> <p>CB.2.1 Restore one train to OPERABLE status.</p> <p><u>OR</u></p>	<p>Immediately</p> <p>1 hour</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>CB.2.2.1 Close unborated water source isolation valves.</p> <p><u>AND</u></p> <p>CB.2.2.2 Perform SR 3.1.1.1.</p>	<p>1 hour</p> <p>1 hour</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.9.1 Perform CHANNEL CHECK.</p>	<p>12 hours</p>
<p>SR 3.3.9.2 Perform COT.</p>	<p>[184] days</p>
<p>SR 3.3.9.3 -----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.</p>	<p>[18] months</p>

Comment: No Changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified below:

- a. Pressurizer pressure is greater than or equal to the limit specified in the COLR,
- b. RCS average temperature is less than or equal to the limit specified in the COLR, and
- c. RCS total flow rate \geq [284,000] gpm and greater than or equal to the limit specified in the COLR.

APPLICABILITY: MODE 1.

-----NOTE-----
 Pressurizer pressure limit does not apply during:

- a. THERMAL POWER ramp > 5% RTP per minute or
- b. THERMAL POWER step > 10% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

Comment: No Changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

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 $\geq [541]^{\circ}\text{F}$.

APPLICABILITY: MODE 1,
MODE 2 with $k_{eff} \geq 1.0$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{avg} in one or more RCS loops not within limit.	A.1 Be in MODE 2 with $K_{eff} < 1.0$.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop $\geq [541]^{\circ}\text{F}$.	12 hours

Comment: Low flow from a loop not in operation in one loop above the P-8 setpoint or in two or more loops between the P-7 and P-8 setpoints will cause an automatic reactor trip. There is an implied "restore" action with an "immediate" Completion Time. Since the Risk Informed Completion Time cannot be applied to a Required Action with an "Immediately" Completion Time, no changes are applied.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops - MODES 1 and 2

LCO 3.4.4 [Four] RCS loops shall be OPERABLE and in operation.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO not met.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.4.1 Verify each RCS loop is in operation.	12 hours

Comment: This change is only applicable if use of the RICT in MODE 3 is justified. Condition B is a default Condition and RAs D.1, D.2 and D.3 contain "Immediately" in the Completion Times, and are therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

LCO 3.4.5 [Two] RCS loops shall be OPERABLE and either:

- a. [Two] RCS loops shall be in operation when the Rod Control System is capable of rod withdrawal or
- b. One RCS loop shall be in operation when the Rod Control System is not capable of rod withdrawal.

-----NOTE-----
All reactor coolant pumps may be removed from operation for ≤ 1 hour per 8 hour period provided:

- a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
-

APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RCS loop inoperable.	A.1 Restore required RCS loop to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion	B.1 Be in MODE 4.	12 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
Time of Condition A not met.		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. [One required RCS loop not in operation with Rod Control System capable of rod withdrawal.</p> <p><u>OR</u></p> <p>Required RCS loop(s) not in operation.</p>	<p>C.1 Restore required RCS loop to operation.</p> <p><u>OR</u></p> <p>C.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>1 hour }</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]]</p>
<p>D. [Two] [required] RCS loops inoperable.</p> <p><u>OR</u></p> <p>Required RCS loop(s) not in operation.</p>	<p>D.1 Place the Rod Control System in a condition incapable of rod withdrawal.</p> <p><u>AND</u></p> <p>D.2 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>D.3 Initiate action to restore one RCS loop to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

Comment: No changes made. The immediate CTs of RAs A.1, B.1 and B.2 are excluded. The RA A.2 places the unit in a Condition outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops - MODE 4

LCO 3.4.6 Two loops consisting of any combination of RCS loops and residual heat removal (RHR) loops shall be OPERABLE, and one loop shall be in operation.

-----NOTES-----

1. All reactor coolant pumps (RCPs) and RHR pumps may be removed from operation for ≤ 1 hour per 8 hour period provided:
 - a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
2. No RCP shall be started with any RCS cold leg temperature ≤ [275°F] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR] unless the secondary side water temperature of each steam generator (SG) is ≤ [50]°F above each of the RCS cold leg temperatures.

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required loop inoperable.	A.1 Initiate action to restore a second loop to OPERABLE status. <u>AND</u>	Immediately

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 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 (SGs) shall be \geq [17] %.

-----NOTES-----

1. The RHR pump of the loop in operation may be removed from operation for \leq 1 hour per 8 hour period provided:
 - a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
 2. 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.
 3. No reactor coolant pump shall be started with one or more RCS cold leg temperatures \leq [275°F] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR] unless the secondary side water temperature of each SG is \leq [50]°F above each of the RCS cold leg temperatures.
 4. All RHR loops may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.
-

APPLICABILITY: MODE 5 with RCS Loops Filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required RHR loop inoperable.</p> <p><u>AND</u></p> <p>One RHR loop OPERABLE.</p>	<p>A.1 Initiate action to restore a second RHR loop to OPERABLE status.</p> <p><u>OR</u></p> <p>A.2 Initiate action to restore required SGs secondary side water level to within limit.</p>	<p>Immediately</p> <p>Immediately</p>
<p>B. One or more required SGs with secondary side water level not within limit.</p> <p><u>AND</u></p> <p>One RHR loop OPERABLE.</p>	<p>B.1 Initiate action to restore a second RHR loop to OPERABLE status.</p> <p><u>OR</u></p> <p>B.2 Initiate action to restore required SGs secondary side water level to within limit.</p>	<p>Immediately</p> <p>Immediately</p>
<p>C. No required RHR loops OPERABLE.</p> <p><u>OR</u></p> <p>Required RHR loop not in operation.</p>	<p>C.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>C.2 Initiate action to restore one RHR loop to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p>

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

- NOTES-----
1. All RHR pumps may be removed from operation for ≤ 15 minutes when switching from one loop to another provided:
 - [a. The core outlet temperature is maintained > 10°F below saturation temperature,]
 - b. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - c. No draining operations to further reduce the RCS water volume are permitted.
 2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.
-

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately

Comment: There is an implied "restore" action with an "Immediately" completion Time for Condition A. Since the RIST cannot be applied to a Required Action with an "Immediately" Completion Time, no changes are applied. Condition D is a default Condition and is excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

- a. Pressurizer water level \leq [92]% and
- b. [Two groups of] pressurizer heaters OPERABLE with the capacity [of each group] \geq [125] kW [and capable of being powered from an emergency power supply].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	A.2 Fully insert all rods.	6 hours
	<u>AND</u>	
	A.3 Place Rod Control System in a condition incapable of rod withdrawal.	6 hours
	<u>AND</u>	
	A.4 Be in MODE 4.	12 hours
B. One [required] group of pressurizer heaters inoperable.	B.1 Restore [required] group of pressurizer heaters to OPERABLE status.	72 hours [OR] In accordance with the Risk Informed Completion Time

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>[C. ----- NOTE ----- Not applicable when second group of [required] pressurizer heaters intentionally made inoperable. ----- Two [required] group of pressurizer heaters inoperable.</p>	<p>CB.1 Restore [required] inoperable pressurizer heaters to OPERABLE status.</p>	<p>Program] 1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>DG. Required Action and associated Completion Time of Condition B [or C] not met.</p>	<p>CD.1 Be in MODE 3. <u>AND</u></p>	<p>6 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	DC.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.9.1 Verify pressurizer water level is \leq [92]%. -----REVIEWER'S NOTE----- The frequency for performing Pressurizer heater capacity testing shall be either 18 months or 92 days, depending on whether or not the plant has dedicated safety-related heaters. For dedicated safety-related heaters, which do not normally operate, 92 days is applied. For non-dedicated safety-related heaters, which normally operate, 18 months is applied. -----	12 hours
SR 3.4.9.2 Verify capacity of each required group of pressurizer heaters is \geq [125] kW.	[18] months
SR 3.4.9.3 [Verify required pressurizer heaters are capable of being powered from an emergency power supply.	[18] months]

Comment: Condition B is either a default Condition or one that has an implied "restore" with an immediate Completion Time, and is therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 [Three] pressurizer safety valves shall be OPERABLE with lift settings \geq [2460] psig and \leq [2510] psig.

APPLICABILITY: MODES 1, 2, and 3, MODE 4 with all RCS cold leg temperatures $>$ [275°F] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR].

-----NOTE-----
The lift settings are not required to be within the LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for [54] hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Required Action and associated Completion Time not met. <u>OR</u> Two or more pressurizer	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4 with any RCS cold leg temperatures \leq [275°F] [LTOP arming	6 hours [24] hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
safety valves inoperable.	temperature specified in the PTLR].	

Comment: Condition A and RAs B.1, B.2, C.1, E.1 and E.2 contains actions that will not result in plant shutdown and- Condition D and G are default Conditions. Therefore these are excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each PORV and each block valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more PORVs inoperable and capable of being manually cycled.	A.1 Close and maintain power to associated block valve.	1 hour
B. One [or two] PORV[s] inoperable and not capable of being manually cycled.	B.1 Close associated block valve[s].	1 hour
	<u>AND</u>	
	B.2 Remove power from associated block valve[s].	1 hour
	<u>AND</u>	
	B.3 Restore PORV[s] to OPERABLE status.	72 hours
		<u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One [or two] block valve(s) inoperable.	<p>-----NOTE----- Required Actions C.1 and C.2 do not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2. -----</p> <p>C.1 Place associated PORV in manual control.</p> <p><u>AND</u></p> <p>C.2 Restore block valve to OPERABLE status.</p>	<p>1 hour</p> <p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
D. Required Action and associated Completion Time of Condition A, B, or C not met.	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>
E. Two [or three] PORVs inoperable and not capable of being manually cycled.	<p>E.1 Close associated block valves.</p> <p><u>AND</u></p> <p>E.2 Remove power from associated block valves.</p> <p><u>AND</u></p> <p>[E.3 Be in MODE 3.</p> <p><u>AND</u></p>	<p>1 hour</p> <p>1 hour</p> <p>6 hours</p>

	E.4 Be in MODE 4. [E.3 Restore PORVs to OPERABLE status.	12 hours] <u>1 hour</u> <u>OR</u> In accordance with the Risk Informed Completion Time Program]
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two [or three] block valves inoperable.	<p>-----NOTE----- Required Action F.1 does not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2. -----</p> <p>F.1 Restore one block valve to OPERABLE status [if three block valves are inoperable].</p>	<p>2 hours]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
G. Required Action and associated Completion Time of Condition [E or] F not met.	<p>G.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>G.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP) System

- LCO 3.4.12 An LTOP System shall be OPERABLE with a maximum of [one] [high pressure injection (HPI)] pump [and one charging pump] capable of injecting into the RCS and the accumulators isolated and one of the following pressure relief capabilities:
- a. Two power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR,
 - [b. Two residual heat removal (RHR) suction relief valves with setpoints \geq [436.5] psig and \leq [463.5] psig,]
 - [c. One PORV with a lift setting within the limits specified in the PTLR and one RHR suction relief valve with a setpoint \geq [436.5] psig and \leq [463.5] psig,] or
 - d. The RCS depressurized and an RCS vent of \geq [2.07] square inches.

-----NOTES-----

1. [Two charging pumps] may be made capable of injecting for \leq 1 hour for pump swap operations.
 2. Accumulator may be unisolated when accumulator pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.
-

APPLICABILITY: MODE 4 when any RCS cold leg temperature is \leq [275°F] [LTOP arming temperature specified in the PTLR],
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Two or more [HPI] pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of [one] [HPI] pump is capable of injecting into the RCS.	Immediately
B. [Two or more charging pumps capable of injecting into the RCS.	B.1 Initiate action to verify a maximum of [one] charging pump is capable of injecting into the RCS.	Immediately]
C. An accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	C.1 Isolate affected accumulator.	1 hour
D. Required Action and associated Completion Time of Condition [C] not met.	D.1 Increase RCS cold leg temperature to > [275°F] [LTOP arming temperature specified in the PTLR]. <u>OR</u> D.2 Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours 12 hours
E. One required RCS relief valve inoperable in MODE 4.	E.1 Restore required RCS relief valve to OPERABLE status.	7 days

ACTINS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One required RCS relief valve inoperable in MODE 5 or 6.	F.1 Restore required RCS relief valve to OPERABLE status.	24 hours
G. Two required RCS relief valves inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A, [B,] D, E, or F not met. <u>OR</u> LTOP System inoperable for any reason other than Condition A, [B,] C, D, E, or F.	G.1 Depressurize RCS and establish RCS vent of $\geq [2.07]$ square inches.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.12.1 Verify a maximum of [one] [HPI] pump is capable of injecting into the RCS.	12 hours
SR 3.4.12.2 [Verify a maximum of one charging pump is capable of injecting into the RCS.	12 hours]
SR 3.4.12.3 Verify each accumulator is isolated.	12 hours
SR 3.4.12.4 [Verify RHR suction valve is open for each required RHR suction relief valve.	12 hours]

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE,
- b. 1 gpm unidentified LEAKAGE,
- c. 10 gpm identified LEAKAGE, and
- d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Pressure boundary LEAKAGE exists. <u>OR</u> Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

Comment: Condition A represents a variable outside its limit,.
Condition B is a default Condition and is therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14 Leakage from each RCS PIV shall be within limit.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the residual heat removal (RHR) flow path
when in, or during the transition to or from, the RHR mode of
operation.

ACTIONS

-----NOTES-----

1. Separate Condition entry is allowed for each flow path.
 2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>-----NOTE----- Each valve used to satisfy Required Action A.1 and Required Action A.2 must have been verified to meet SR 3.4.14.1 and be in the reactor coolant pressure boundary [or the high pressure portion of the system]. -----</p> <p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.</p> <p><u>AND</u></p>	<p>4 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2 [Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.</p> <p>[or]</p> <p>Restore RCS PIV to within limits.</p>	<p>72 hours</p> <p>72 hours]</p>
<p>B. Required Action and associated Completion Time for Condition A not met.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>C. [RHR System autoclosure interlock function inoperable.</p>	<p>C.1 Isolate the affected penetration by use of one closed manual or deactivated automatic valve.</p>	<p>4 hours]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]]</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

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
<p>A. Required containment sump monitor inoperable.</p>	<p>A.1 -----NOTE----- Not required until 12 hours after establishment of steady state operation. -----</p>	<p>Once per 24 hours</p>
	<p>Perform SR 3.4.13.1.</p> <p><u>AND</u></p> <p>A.2 Restore required containment sump monitor to OPERABLE status.</p>	

ACTIONS (continued)

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. [Required containment atmosphere radioactivity monitor inoperable. <u>AND</u> Required containment air cooler condensate flow rate monitor inoperable.	D.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status. <u>OR</u> D.2 Restore required containment air cooler condensate flow rate monitor to OPERABLE status.	30 days 30 days]
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours
F. All required monitors inoperable.	F1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.15.1 Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	12 hours
SR 3.4.15.2 Perform COT of the required containment atmosphere radioactivity monitor.	92 days
SR 3.4.15.3 Perform CHANNEL CALIBRATION of the required containment sump monitor.	[18] months

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that can be used to model the variables.

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}) \geq 500°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. DOSE EQUIVALENT I-131 > 1.0 μCi/gm.</p>	<p>-----NOTE----- LCO 3.0.4.c is applicable. -----</p> <p>A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1.</p> <p><u>AND</u></p> <p>A.2 Restore DOSE EQUIVALENT I-131 to within limit.</p>	<p>Once per 4 hours</p> <p>48 hours</p>
<p>B. Gross specific activity of the reactor coolant not within limit.</p>	<p>B.1 Be in MODE 3 with T_{avg} < 500°F.</p>	<p>6 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>DOSE EQUIVALENT I-131 in the unacceptable region of Figure 3.4.16-1.</p>	<p>C.1 Be in MODE 3 with $T_{avg} < 500^{\circ}F$.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.16.1 Verify reactor coolant gross specific activity $\leq 100/\bar{E}$ $\mu Ci/gm$.</p>	<p>7 days</p>
<p>SR 3.4.16.2 -----NOTE----- Only required to be performed in MODE 1. -----</p> <p>Verify reactor coolant DOSE EQUIVALENT I-131 specific activity $\leq 1.0 \mu Ci/gm$.</p>	<p>14 days</p> <p><u>AND</u></p> <p>Between 2 and 6 hours after a THERMAL POWER change of $\geq 15\%$ RTP within a 1 hour period</p>

Comment: Required Action A.1 excluded due to action that is required. Required Action B.1 contains an "Immediately" Completion Time. Since the Risk Informed Completion Time cannot be applied to a Required Action with an "Immediately" Completion Time, this is excluded. Required Actions B.2 and B.3 are default required actions and are excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 RCS Loop Isolation Valves

LCO 3.4.17 Each RCS hot and cold leg loop isolation valve shall be open with power removed from each isolation valve operator.

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

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each RCS loop isolation valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Power available to one or more loop isolation valve operators.	A.1 Remove power from loop isolation valve operators.	30 minutes
B. -----NOTE----- All Required Actions shall be completed whenever this Condition is entered. ----- One or more RCS loop isolation valves closed.	B.1 Maintain valve(s) closed. <u>AND</u> B.2 Be in MODE 3. <u>AND</u> B.3 Be in MODE 5.	Immediately 6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.17.1 Verify each RCS loop isolation valve is open and power is removed from each loop isolation valve operator.	31 days

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.18 RCS Isolated Loop Startup

LCO 3.4.18 Each RCS isolated loop shall remain isolated with:

- a. The hot and cold leg isolation valves closed if boron concentration of the isolated loop is less than boron concentration required to meet the SDM of LCO 3.1.1 or boron concentration of LCO 3.9.1 and
- b. The cold leg isolation valve closed if the cold leg temperature of the isolated loop is > [20]°F below the highest cold leg temperature of the operating loops.

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Isolated loop hot or cold leg isolation valve open with LCO requirements not met.	A.1 -----NOTE----- Only required if boron concentration requirement not met. ----- Close hot and cold leg isolation valves.	Immediately
	<u>OR</u> A.2 -----NOTE----- Only required if temperature requirement not met. ----- Close cold leg isolation valve.	

Comment: This is a test exception which is excluded from the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.19 RCS Loops - Test Exceptions

LCO 3.4.19 The requirements of LCO 3.4.4, "RCS Loops - MODES 1 and 2," may be suspended with THERMAL POWER < P-7.

APPLICABILITY: MODES 1 and 2 during startup and PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. THERMAL POWER \geq P-7.	A.1 Open reactor trip breakers.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.19.1 Verify THERMAL POWER is < P-7.	1 hour
SR 3.4.19.2 Perform a COT for each power range neutron flux - low channel, intermediate range neutron flux channel, P-10, and P-13.	Prior to initiation of startup and PHYSICS TESTS
SR 3.4.19.3 Perform an ACTUATION LOGIC TEST on P-7.	Prior to initiation of startup and PHYSICS TESTS

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.20 Steam Generator (SG) Tube Integrity

LCO 3.4.20 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube repair criteria shall be plugged [or repaired] in accordance with the Steam Generator Program.

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

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each SG tube.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SG tubes satisfying the tube repair criteria and not plugged [or repaired] in accordance with the Steam Generator Program.	A.1 Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection.	7 days
	<u>AND</u> A.2 Plug [or repair] the affected tube(s) in accordance with the Steam Generator Program.	Prior to entering MODE 4 following the next refueling outage or SG tube inspection
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> SG tube integrity not maintained.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

Comment: While Condition A represents a variable outside the limit, the Accumulator could be substituted as a surrogate in an RICT calculation. Condition D is a default Condition and is therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Accumulators

LCO 3.5.1 [Four] ECCS accumulators shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS pressure > [1000] psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One accumulator inoperable due to boron concentration not within limits.</p>	<p>A.1 Restore boron concentration to within limits.</p>	<p>72 hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>B. One accumulator inoperable for reasons other than Condition A.</p>	<p>B.1 Restore accumulator to OPERABLE status.</p>	<p>24 hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[C. ----- NOTE -----</u> <u>Not applicable when two or more accumulators intentionally made inoperable.</u> <u>-----</u> <u>Two or more</u></p>	<p><u>C.1 Restore accumulators to OPERABLE status.</u></p>	<p><u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<u>accumulators inoperable.</u>		<u>Program]</u>
<u>DC.</u> Required Action and associated Completion Time of Condition A, <u>B</u> [or <u>CB</u>] not met.	<u>DC.1</u> Be in MODE 3. <u>AND</u> <u>DC.2</u> Reduce RCS pressure to ≤[1000] psig.	6 hours 12 hours
<u>ED.</u> Two or more accumulators inoperable.	<u>ED.1</u> Enter LCO 3.0.3.	Immediately]

Comment: Condition C is a default Condition and is therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS - Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE.

-----NOTES-----

- [1. In MODE 3, both safety injection (SI) pump flow paths may be isolated by closing the isolation valves for up to 2 hours to perform pressure isolation valve testing per SR 3.4.14.1.

 - 2. In MODE 3, ECCS pumps may be made incapable of injecting to support transition into or from the Applicability of LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," for up to 4 hours or until the temperature of all RCS cold legs exceeds [375°F] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR plus [25]°F], whichever comes first.]
-

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more trains inoperable.	A.1 Restore train(s) to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when second ECCS train intentionally made inoperable. -----	B.1 Restore ECCS flow equivalent to 100% of a single OPERABLE ECCS train.	1 hour <u>OR</u> In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.		Completion Time Program]
CB. Required Action and associated Completion Time not met.	CB.1 Be in MODE 3. <u>AND</u> CB.2 Be in MODE 4.	6 hours 12 hours
[DG. Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	DG.1 Enter LCO 3.0.3.	Immediately]

Comment: This change is only applicable if use of the RICT in MODE 4 is justified. Condition A has an immediate CT and Condition C is a default Condition, and both are excluded .

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

-----NOTE-----

An RHR train may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned to the ECCS mode of operation.

APPLICABILITY: MODE 4.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to ECCS high head subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Required ECCS residual heat removal (RHR) subsystem inoperable.	A.1 Initiate action to restore required ECCS RHR subsystem to OPERABLE status.	Immediately]
B. Required ECCS [high head subsystem] inoperable.	B.1 Restore required ECCS [high head subsystem] to OPERABLE status.	1 hour <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
C. Required Action and associated Completion Time [of Condition B] not met.	C.1 Be in MODE 5.	24 hours

Comment: While Condition A represents a variable outside its limit, the RWST could be substituted as a surrogate in an RICT calculation. Condition C is a default Condition and is excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Refueling Water Storage Tank (RWST)

LCO 3.5.4 The RWST shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RWST boron concentration not within limits. <u>OR</u> RWST borated water temperature not within limits.	A.1 Restore RWST to OPERABLE status.	8 hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. RWST inoperable for reasons other than Condition A.	B.1 Restore RWST to OPERABLE status.	1 hour <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

Comment: Condition A is a variable and is therefore excluded. Condition B is a default Condition and is therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Seal Injection Flow

LCO 3.5.5 Reactor coolant pump seal injection flow [resistance] shall be \leq [40] gpm with [centrifugal charging pump discharge header] pressure \geq [2480] psig and the [charging flow] control valve full open or \geq [0.2117] ft/gpm² or within the limits of Figure 3.5.5-1].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Seal injection flow [resistance] not within limit.	A.1 Adjust manual seal injection throttle valves to give a flow [resistance] within limit.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

Comment: Condition B and C are default Conditions and are therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.6 Boron Injection Tank (BIT)

LCO 3.5.6 The BIT shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. BIT inoperable.	A.1 Restore BIT to OPERABLE status.	1 hour <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Borate to SDM specified in COLR. <u>AND</u> B.3 Restore BIT to OPERABLE status.	6 hours 6 hours 7 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 4.	12 hours

Containment (Atmospheric, Subatmospheric, Ice Condenser, and Dual)

3.6.1

Comment: No changes made. Condition A represents a loss of function and Condition B is the Default Condition. NRC has not approved RICT changes to the Completion Time for an inoperable containment. Therefore changes are not proposed.

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment (Atmospheric, Subatmospheric, Ice Condenser, and Dual)

LCO 3.6.1 Containment shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment inoperable.	A.1 Restore containment to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.1 Perform required visual examinations and leakage rate testing except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.1.2 [Verify containment structural integrity in accordance with the Containment Tendon Surveillance Program.	In accordance with the Containment Tendon Surveillance Program]

Containment Air Locks (Atmospheric, Subatmospheric, Ice Condenser, and Dual)

3.6.2

Comment: RAs A.3 and B.3 require the periodic performance of an action. Condition D is a default Condition. RA C.1 has a "immediately" CT. Therefore these are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks (Atmospheric, Subatmospheric, Ice Condenser, and Dual)

LCO 3.6.2 [Two] containment air lock[s] shall be OPERABLE.

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

ACTIONS

-----NOTES-----

1. Entry and exit is permissible to perform repairs on the affected air lock components.
 2. Separate Condition entry is allowed for each air lock.
 3. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when air lock leakage results in exceeding the overall containment leakage rate.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more containment air locks with one containment air lock door inoperable.</p>	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls [if both air locks are inoperable]. <hr style="border-top: 1px dashed black;"/> <p>A.1 Verify the OPERABLE door is closed in the affected air lock.</p> <p><u>AND</u></p>	<p>1 hour</p>

Containment Air Locks (Atmospheric, Subatmospheric, Ice Condenser, and Dual)
3.6.2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2 Lock the OPERABLE door closed in the affected air lock.</p> <p><u>AND</u></p> <p>A.3 -----NOTE----- Air lock doors in high radiation areas may be verified locked closed by administrative means. ----- Verify the OPERABLE door is locked closed in the affected air lock.</p>	<p>24 hours</p> <p>Once per 31 days</p>
<p>B. One or more containment air locks with containment air lock interlock mechanism inoperable.</p>	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit of containment is permissible under the control of a dedicated individual. <p>-----</p> <p>B.1 Verify an OPERABLE door is closed in the affected air lock.</p> <p><u>AND</u></p>	<p>1 hour</p>

Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)
3.6.3

Comment: RAs A.2, C.2, E.2 and E.3 require the periodic performance of an action. Condition F is a default Condition. Therefore these are excluded. In Conditions D and E, the valves can be substituted as surrogates for leakage (a variable).

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
<p>A. -----NOTE----- Only applicable to penetration flow paths with two [or more] containment isolation valves. ----- One or more penetration flow paths with one containment isolation valve inoperable [for reasons other than Condition[s] D [and E]].</p>	<p>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.</p> <p style="text-align: center;"><u>AND</u></p>	<p>4 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)
3.6.3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days <u>following isolation</u> for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p>

Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)
3.6.3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable to penetration flow paths with two [or more] containment isolation valves. ----- One or more penetration flow paths with two [or more] containment isolation valves inoperable [for reasons other than Condition[s] D [and E]].</p>	<p>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.</p>	<p>1 hour <u>IOR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>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.</p>	<p>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. <u>AND</u></p>	<p>72 hours <u>IOR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>

Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)
3.6.3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>C.2</p> <p>-----NOTES-----</p> <p>1. Isolation devices in high radiation areas may be verified by use of administrative means.</p> <p>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</p> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days <u>[following isolation]</u></p>
<p>D. [One or more shield building bypass leakage [or purge valve leakage] not within limit.</p>	<p>D.1 Restore leakage within limit.</p>	<p>4 hours for shield building bypass leakage</p> <p><u>[OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p><u>AND</u></p> <p>24 hours for purge valve leakage]</p> <p><u>[OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>E. [One or more penetration flow paths</p>	<p>E.1 Isolate the affected penetration flow path by</p>	<p>24 hours</p>

Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)
3.6.3

with one or more containment purge valves not within purge valve leakage limits.	use of at least one [closed and de-activated automatic valve, closed manual valve, or blind flange]. <u>AND</u>	<u>IOR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
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Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)
3.6.3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>E.2</p> <p>-----NOTES-----</p> <p>1. Isolation devices in high radiation areas may be verified by use of administrative means.</p> <p>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</p> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p> <p><u>AND</u></p> <p>E.3 Perform SR 3.6.3.7 for the resilient seal purge valves closed to comply with Required Action E.1.</p>	<p>Once per 31 days <u>[following isolation]</u> for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p> <p>Once per [92] days] <u>[following isolation]</u></p>
<p>F. Required Action and associated Completion Time not met.</p>	<p>F.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>F.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Containment Pressure (Atmospheric, Dual, and Ice Condenser)
3.6.4A

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.4A Containment Pressure (Atmospheric, Dual, and Ice Condenser)

LCO 3.6.4A Containment pressure shall be $\geq [-0.3]$ psig and $\leq [+1.5]$ psig.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment pressure not within limits.	A.1 Restore containment pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4A.1 Verify containment pressure is within limits.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.4B Containment Pressure (Subatmospheric)

LCO 3.6.4B Containment air partial pressure shall be \geq [9.0] psia and within the acceptable operation range shown on Figure 3.6.4B-1.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment air partial pressure not within limits.	A.1 Restore containment air partial pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4B.1 Verify containment air partial pressure is within limits.	12 hours

Containment Air Temperature (Atmospheric and Dual)
3.6.5A

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.5A Containment Air Temperature (Atmospheric and Dual)

LCO 3.6.5A Containment average air temperature shall be \leq [120] $^{\circ}$ F.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limit.	A.1 Restore containment average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5A.1 Verify containment average air temperature is within limit.	24 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.5B Containment Air Temperature (Ice Condenser)

LCO 3.6.5B Containment average air temperature shall be:

- a. $\geq [85]^{\circ}\text{F}$ and $\leq [110]^{\circ}\text{F}$ for the containment upper compartment and
- b. $\geq [100]^{\circ}\text{F}$ and $\leq [120]^{\circ}\text{F}$ for the containment lower compartment.

-----NOTE-----
 The minimum containment average air temperature in MODES 2, 3, and 4 may be reduced to $[60]^{\circ}\text{F}$.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limits.	A.1 Restore containment average air temperature to within limits.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5B.1	Verify containment upper compartment average air temperature is within limits.	24 hours

Containment Air Temperature (Subatmospheric)
3.6.5C

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.5C Containment Air Temperature (Subatmospheric)

LCO 3.6.5C Containment average air temperature shall be $\geq [86]^{\circ}\text{F}$ and $\leq [120]^{\circ}\text{F}$.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limits.	A.1 Restore containment average air temperature to within limits.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5C.1 Verify containment average air temperature is within limits.	24 hours

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6A

Comment: Conditions B and F are default Conditions. Therefore these Conditions are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.6A Containment Spray and Cooling Systems (Atmospheric and Dual) (Credit taken for iodine removal by the Containment Spray System)

LCO 3.6.6A Two containment spray trains and [two] containment cooling trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours <u>IOR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 84 hours
C. One [required] containment cooling train inoperable.	C.1 Restore [required] containment cooling train to OPERABLE status.	7 days <u>IOR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6A

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Two [required] containment cooling trains inoperable.</p>	<p>D.1 Restore one [required] containment cooling train to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[E. ----- NOTE -----</u> <u>Not applicable when second containment spray train or three or more containment spray or cooling trains intentionally made inoperable.</u> <u>-----</u></p> <p><u>Two containment spray trains inoperable.</u></p> <p><u>OR</u></p> <p><u>Any combination of three or more containment spray and cooling trains inoperable.</u></p>	<p><u>E.1 Restore containment spray trains and containment cooling trains to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>EE-2</u> Required Action and associated Completion Time of Condition C, <u>D</u> [or D <u>E</u>] not met.</p>	<p><u>EE-2.1</u> Be in MODE 3.</p> <p><u>AND</u></p> <p><u>EE-2.2</u> Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6A

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>LG. Two containment spray trains inoperable.</p> <p><u>OR</u></p> <p>Any combination of three or more trains inoperable.</p>	<p>EG.1 Enter LCO 3.0.3.</p>	<p>Immediately]</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.6A.1 Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.</p>	<p>31 days</p>
<p>SR 3.6.6A.2 Operate each [required] containment cooling train fan unit for ≥ 15 minutes.</p>	<p>31 days</p>
<p>SR 3.6.6A.3 Verify each [required] containment cooling train cooling water flow rate is $\geq [700]$ gpm.</p>	<p>31 days</p>
<p>SR 3.6.6A.4 Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.</p>	<p>In accordance with the Inservice Testing Program</p>
<p>SR 3.6.6A.5 Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	<p>[18] months</p>

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6B

Comment: condition G is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.6B Containment Spray and Cooling Systems (Atmospheric and Dual (Credit not taken for iodine removal by the Containment Spray System)

LCO 3.6.6B Two containment spray trains and [two] containment cooling trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	7 days [OR] In accordance with the Risk Informed Completion Time Program]
B. One [required] containment cooling train inoperable.	B.1 Restore [required] containment cooling train to OPERABLE status.	7 days [OR] In accordance with the Risk Informed Completion Time Program]
C. Two containment spray trains inoperable.	C.1 Restore one containment spray train to OPERABLE status.	72 hours [OR] In accordance with the Risk Informed Completion Time

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6B

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Program]
D. One containment spray train and one [required] containment cooling train inoperable.	D.1 Restore containment spray train to OPERABLE status. <u>OR</u> D.2 Restore [required] containment cooling train to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program] 72 hours [OR In accordance with the Risk Informed Completion Time Program]

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6B

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two [required] containment cooling trains inoperable.	E.1 Restore one [required] containment cooling train to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 5.	6 hours 36 hours
[F. Any combination of three or more trains inoperable.	F.1 Enter LCO 3.0.3.	Immediately]
[G. Any combination of three or more trains inoperable.	G.1 Restore trains to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program]
H Required Action and associated Completion Time of Condition A, B, C, D, E, [or G] not met.	H.1 Be in MODE 3. AND H.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
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Comment: Condition C is a default Condition and is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.6C Containment Spray System (Ice Condenser)

LCO 3.6.6C Two containment spray trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One containment spray train inoperable.</p>	<p>A.1 Restore containment spray train to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. ----- NOTE ----- Not applicable when second containment spray train intentionally made inoperable. ----- Two containment spray trains inoperable.</p>	<p>B.1 Restore containment spray trains to OPERABLE status.</p>	<p>1 hour</p> <p>OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time not met.</p>	<p>CB..1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CB..2 Be in MODE 5.</p>	<p>6 hours</p> <p>84 hours</p>

Comment: Condition C is a default Condition and is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.6D Quench Spray (QS) System (Subatmospheric)

LCO 3.6.6D Two QS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One QS train inoperable.	A.1 Restore QS train to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when second QS train intentionally made inoperable. ----- Two QS trains inoperable.	B.1 Restore QS trains to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program]
CB. Required Action and associated Completion Time not met.	CB. .1 Be in MODE 3. <u>AND</u> CB. .2 Be in MODE 5.	6 hours 36 hours

Comment: Condition G is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.6E Recirculation Spray (RS) System (Subatmospheric)

LCO 3.6.6E Four RS subsystems [and a casing cooling tank] shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RS subsystem inoperable.	A.1 Restore RS subsystem to OPERABLE status.	7 days [OR] In accordance with the Risk Informed Completion Time Program]
B. Two RS subsystems inoperable in one train.	B.1 Restore one RS subsystem to OPERABLE status.	72 hours [OR] In accordance with the Risk Informed Completion Time Program]
C. [Two inside RS subsystems inoperable.	C.1 Restore one RS subsystem to OPERABLE status.	72 hours] [OR] In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. [Two outside RS subsystems inoperable.	D.1 Restore one RS subsystem to OPERABLE status.	72 hours] [OR In accordance with the Risk Informed Completion Time Program]
E. [Casing cooling tank inoperable.	E.1 Restore casing cooling tank to OPERABLE status.	72 hours] [OR In accordance with the Risk Informed Completion Time Program]
[F. ----- NOTE ----- Not applicable when Three or more RS subsystems intentionally made inoperable. ----- Three or more RS subsystems inoperable.	F.1 Restore RS subsystems to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program]
[G. Three or more RS subsystems inoperable.	G.1 Enter LCO 3.0.3.	Immediately]
H. Required Action and associated Completion Time not met	H.1 Be in MODE 3. <u>AND</u> H.2 Be in MODE 5.	6 hours 84 hours

Spray Additive System (Atmospheric, Subatmospheric, Ice Condenser, and Dual)

3.6.7

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.7 Spray Additive System (Atmospheric, Subatmospheric, Ice Condenser, and Dual)

LCO 3.6.7 The Spray Additive System shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spray Additive System inoperable.	A.1 Restore Spray Additive System to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.7.1 Verify each spray additive manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.7.2 Verify spray additive tank solution volume is \geq [2568] gal and \leq [4000] gal.	184 days
SR 3.6.7.3 Verify spray additive tank [NaOH] solution concentration is \geq [30]% and \leq [32]% by weight.	184 days

Shield Building (Dual and Ice Condenser)

3.6.8

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.8 Shield Building (Dual and Ice Condenser)

LCO 3.6.8 The shield building shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield building inoperable.	A.1 Restore shield building to OPERABLE status.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.8.1 [Verify annulus negative pressure is > [5] inches water gauge.	12 hours]
SR 3.6.8.2 Verify one shield building access door in each access opening is closed.	31 days
SR 3.6.8.3 [Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the shield building.	During shutdown for SR 3.6.1.1 Type A tests]

HMS (Atmospheric, Ice Condenser, and Dual)

3.6.9

Comment: Condition A already has a 30 day CT. RA B.1 represents a surveillance type repeated action and is excluded. Condition C is a default Condition and is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.9 Hydrogen Mixing System (HMS) (Atmospheric, Ice Condenser, and Dual)

LCO 3.6.9 [Two] HMS trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One HMS train inoperable.	A.1 Restore HMS train to OPERABLE status.	30 days
B. Two HMS trains inoperable.	B.1 Verify by administrative means that the hydrogen control function is maintained. <u>AND</u> B.2 Restore one HMS train to OPERABLE status.	1 hour <u>AND</u> Once per 12 hours thereafter 7 days <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

Comment: Condition D is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.10 Hydrogen Ignition System (HIS) (Ice Condenser)

LCO 3.6.10 Two HIS trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One HIS train inoperable.	A.1 Restore HIS train to OPERABLE status. <u>OR</u> A.2 Perform SR 3.6.10.1 on the OPERABLE train.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program] Once per 7 days
B. One containment region with no OPERABLE hydrogen ignitor.	B.1 Restore one hydrogen ignitor in the affected containment region to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[C. ----- NOTE ----- Not applicable when second HIS train intentionally made inoperable. ----- Two HIS trains	C.1 Restore HIS trains to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time

CONDITION	REQUIRED ACTION	COMPLETION TIME
inoperable.		Program]
DC.. Required Action and associated Completion Time not met.	DC..1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.10.1 Energize each HIS train power supply breaker and verify ≥ [32] ignitors are energized in each train.	92 days

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.11 Iodine Cleanup System (ICS) (Atmospheric and Subatmospheric)

LCO 3.6.11 Two ICS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ICS train inoperable.	A.1 Restore ICS train to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.11.1 Operate each ICS train for [\geq 10 continuous hours with heaters operating or (for systems without heaters) \geq 15 minutes].	31 days
SR 3.6.11.2 Perform required ICS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.11.3 Verify each ICS train actuates on an actual or simulated actuation signal.	[18] months

Vacuum Relief Valves (Atmospheric and Ice Condenser)

3.6.12

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.12 Vacuum Relief Valves (Atmospheric and Ice Condenser)

LCO 3.6.12 [Two] vacuum relief lines shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One vacuum relief line inoperable.	A.1 Restore vacuum relief line to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.12.1 Verify each vacuum relief line is OPERABLE in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.13 Shield Building Air Cleanup System (SBACS) (Dual and Ice Condenser)

LCO 3.6.13 Two SBACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SBACS train inoperable.	A.1 Restore SBACS train to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.13.1 Operate each SBACS train for [\geq 10 continuous hours with heaters operating or (for systems without heaters) \geq 15 minutes].	31 days
SR 3.6.13.2 Perform required SBACS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.13.3 Verify each SBACS train actuates on an actual or simulated actuation signal.	[18] months

Comment: Condition C is a default Condition and is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.14 Air Return System (ARS) (Ice Condenser)

LCO 3.6.14 Two ARS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ARS train inoperable.	A.1 Restore ARS train to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when second ARS train intentionally made inoperable. ----- Two ARS trains inoperable.	B.1 Restore ARS trains to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program]
CB. Required Action and associated Completion Time not met.	CB. .1 Be in MODE 3. <u>AND</u> CB. .2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

Comment: Condition B is a default Condition and is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.15 Ice Bed (Ice Condenser)

LCO 3.6.15 The ice bed shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Ice bed inoperable.	A.1 Restore ice bed to OPERABLE status.	48 hours <u>[OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.15.1 Verify maximum ice bed temperature is $\leq [27]^{\circ}\text{F}$.	12 hours

Comment: RA B.1 requires the periodic performance of an action. Conditions C and D are default Conditions. Therefore they are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.16 Ice Condenser Doors (Ice Condenser)

LCO 3.6.16 The ice condenser inlet doors, intermediate deck doors, and top deck [doors] shall be OPERABLE and closed.

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

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each ice condenser door.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more ice condenser inlet doors inoperable due to being physically restrained from opening.</p>	<p>A.1 Restore inlet door to OPERABLE status.</p>	<p>1 hour</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>B. One or more ice condenser doors inoperable for reasons other than Condition A or not closed.</p>	<p>B.1 Verify maximum ice bed temperature is $\leq [27]^{\circ}\text{F}$.</p> <p><u>AND</u></p> <p>B.2 Restore ice condenser door to OPERABLE status and closed positions.</p>	<p>Once per 4 hours</p> <p>14 days</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition B not met.	C.1 Restore ice condenser door to OPERABLE status and closed positions.	48 hours
D. Required Action and associated Completion Time of Condition A or C not met.	D.1 Be in MODE 3.	6 hours
	<u>AND</u> D.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.16.1	Verify all inlet doors indicate closed by the Inlet Door Position Monitoring System.	12 hours
SR 3.6.16.2	Verify, by visual inspection, each intermediate deck door is closed and not impaired by ice, frost, or debris.	7 days
SR 3.6.16.3	Verify, by visual inspection, each inlet door is not impaired by ice, frost, or debris.	[3 months during first year after receipt of license] <u>AND</u> [18] months
SR 3.6.16.4	Verify torque required to cause each inlet door to begin to open is \leq [675] in-lb.	[3 months during first year after receipt of license] <u>AND</u> [18] months
SR 3.6.16.5	Perform a torque test on [a sampling of \geq 25% of the] inlet doors.	[3 months during first year after

Comment: Condition C is a default Condition and is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.17 Divider Barrier Integrity (Ice Condenser)

LCO 3.6.17 Divider barrier integrity shall be maintained.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- For this action, separate Condition entry is allowed for each personnel access door or equipment hatch. -----</p> <p>One or more personnel access doors or equipment hatches open or inoperable, other than for personnel transit entry.</p>	<p>A.1 Restore personnel access doors and equipment hatches to OPERABLE status and closed positions.</p>	<p>1 hour</p> <p><u>[OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>B. Divider barrier seal inoperable.</p>	<p>B.1 Restore seal to OPERABLE status.</p>	<p>1 hour</p> <p><u>[OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>C. Required Action and associated Completion Time not met.</p>	<p>C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Containment Recirculation Drains (Ice Condenser)

3.6.18

Comment: Condition C is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.18 Containment Recirculation Drains (Ice Condenser)

LCO 3.6.18 The ice condenser floor drains and the refueling canal drains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. ----- NOTE ----- Not applicable when more than one ice condenser floor drains intentionally made inoperable. -----</p> <p>One [or more] ice condenser floor drain[s] inoperable.</p>	<p>A.1 Restore ice condenser floor drain to OPERABLE status.</p>	<p>1 hour</p> <p><u>[OR]</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. ----- NOTE ----- Not applicable when more than one refuelling canal drains intentionally made inoperable. -----</p> <p>One [or more] refueling canal drain[s] inoperable.</p>	<p>B.1 Restore refueling canal drain to OPERABLE status.</p>	<p>1 hour</p> <p><u>[OR]</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. Required Action and associated Completion Time not met.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: Conditions A and B do not specify a restoration requirement and are excluded. Condition C is a default Condition and is excluded.

MSSVs
3.7.1

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 [Five] MSSVs per steam generator shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each MSSV.

-----REVIEWER'S NOTE-----

The * noted text is required for units that are licensed to operate at partial power with a positive Moderator Temperature Coefficient (MTC).

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more steam generators with one MSSV inoperable [and the Moderator Temperature Coefficient (MTC) zero or negative at all power levels]*.	A.1 Reduce THERMAL POWER to ≤ [72] % RTP.	4 hours
B. One or more steam generators with two or more MSSVs inoperable. [OR One or more steam generators with one MSSV inoperable and the MTC positive at any power level.]*	B.1 Reduce THERMAL POWER to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs. <u>AND</u>	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 -----NOTE----- Only required in MODE 1. ----- Reduce the Power Range Neutron Flux - High reactor trip setpoint to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs.	36 hours
C. Required Action and associated Completion Time not met. <u>OR</u> One or more steam generators with \geq [4] MSSVs inoperable.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.1.1 -----NOTE----- Only required to be performed in MODES 1 and 2. ----- Verify each required MSSV lift setpoint per Table 3.7.1-2 in accordance with the Inservice Testing Program. Following testing, lift setting shall be within $\pm 1\%$.	In accordance with the Inservice Testing Program

Comment: Required Action D.1 is not a "restore" function and Required Action D.2 is a periodic performance. Both are excluded. Conditions B and E are default Conditions and are excluded.

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 [Four] MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when all MSIVs are closed [and de-activated].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	[8] hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
<u>[C ----- NOTE ----- Not applicable when two or more MSIVs intentionally made inoperable. ----- Two or more MSIVs inoperable in MODE 1.</u>	<u>C.1 Restore MSIVs to OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<u>ED. -----NOTE----- ---- Separate Condition entry</u>	<u>DE.1 Close MSIV.</u> <u>AND</u>	[8] hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>is allowed for each MSIV. ----- One or more MSIVs inoperable in MODE 2 or 3.</p>	<p>DC.2 Verify MSIV is closed.</p>	<p>Once per 7 days</p>
<p>ED.1 Required Action and associated Completion Time of Condition [C or D] not met.</p>	<p>ED.1 Be in MODE 3. <u>AND</u> DE.2 Be in MODE 4.</p>	<p>6 hours 12 hours</p>

Comment: Conditions A, B, C, and D to not specify a restoration action and are excluded. Condition E is a default Condition and is excluded.

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulation Valves (MFRVs) and [Associated Bypass Valves]

LCO 3.7.3 [Four] MFIVs, [four] MFRVs, [and associated bypass valves] shall be OPERABLE.

APPLICABILITY: MODES 1, [and 2] [2, and 3] except when MFIV, MFRV, [or associated bypass valve] is closed and [de-activated] [or isolated by a closed manual valve].

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFIVs inoperable.	A.1 Close or isolate MFIV.	[72] hours
	<u>AND</u> A.2 Verify MFIV is closed or isolated.	Once per 7 days
B. One or more MFRVs inoperable.	B.1 Close or isolate MFRV.	[72] hours
	<u>AND</u> B.2 Verify MFRV is closed or isolated.	Once per 7 days
C. [One or more [MFRV or preheater] bypass valves inoperable.	C.1 Close or isolate bypass valve.	[72] hours
	<u>AND</u> C.2 Verify bypass valve is closed or isolated.	Once per 7 days]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two valves in the same flow path inoperable.	D.1 Isolate affected flow path.	8 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. [<u>AND</u> E.2 Be in MODE 4.	6 hours 12 hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.3.1 Verify the isolation time of each MFIV, MFRV[, and associated bypass valve] is≤[7] seconds.	In accordance with the Inservice Testing Program
SR 3.7.3.2 Verify each MFIV, MFRV[, and associated bypass valves] actuates to the isolation position on an actual or simulated actuation signal.	[18] months

Comment: Condition C is a default Condition and is excluded.

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Dump Valves (ADVs)

LCO 3.7.4 [Three] ADV lines shall be 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. One required ADV line inoperable.	A.1 Restore required ADV line to OPERABLE status.	7 days <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Two or more required ADV lines inoperable.	B.1 Restore all but one ADV line to OPERABLE status.	24 hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	6 hours [24] hours

Comment: Condition D is a default Condition and has an implied "restore" with an immediate Completion Time and is excluded. Conditions E and F have immediate CTs and are excluded.

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 [Three] AFW trains shall be OPERABLE.

-----NOTE-----
[Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.]

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

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable [when entering MODE 1.]

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. [One steam supply to turbine driven AFW pump inoperable.</p> <p><u>OR</u></p> <p>-----NOTE----- Only applicable if MODE 2 has not been entered following refueling. -----</p> <p>One turbine driven AFW pump inoperable in MODE 3 following refueling.</p>	<p>A.1 Restore affected equipment to OPERABLE status.</p>	<p>7 days]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One AFW train inoperable in MODE 1, 2, or 3 [for reasons other than Condition A].</p>	<p>B.1 Restore AFW train to OPERABLE status.</p>	<p>72 hours</p> <p>[OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[C. ----- NOTE ----- Not applicable when second AFW train intentionally made inoperable. ----- Two AFW trains inoperable in MODE 1, 2, or 3.]</p>	<p>C.1 Restore AFW trains to OPERABLE status.</p>	<p>1 hour</p> <p>OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>DC. Required Action and associated Completion Time for Condition A for, [B] [or C] not met.</p> <p>[OR</p> <p>Two AFW trains inoperable in MODE 1, 2, or 3.]</p>	<p>DC.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CD.2 [Be in MODE 4.</p>	<p>6 hours</p> <p>[18] hours]</p>
<p>ED. [Three] AFW trains inoperable in MODE 1, 2, or 3.</p>	<p>D.1E1 -----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ----- Initiate action to restore one AFW train to</p>	<p>Immediately]</p>

	OPERABLE status.	
FE. Required AFW train inoperable in MODE 4.	FE.1 Initiate action to restore AFW train to OPERABLE status.	Immediately

Comment: RA A.1 requires the periodic performance of an action, and Condition B is a default Condition. Therefore these are excluded.

CST
3.7.6

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST shall be 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 inoperable.	<p>A.1 Verify by administrative means OPERABILITY of backup water supply.</p> <p><u>AND</u></p> <p>A.2 Restore CST to OPERABLE status.</p>	<p>4 hours</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>7 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
B. Required Action and associated Completion Time not met.	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 4, without reliance on steam generator for heat removal.</p>	<p>6 hours</p> <p>[24] hours</p>

Comment: Condition C is a default Condition and is excluded.

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One CCW train inoperable.</p>	<p>A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by CCW. ----- Restore CCW train to OPERABLE status.</p>	<p>72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. ----- NOTE ----- Not applicable when second CCW train intentionally made inoperable. ----- Two CCW trains inoperable.</p>	<p>B.1 Restore CCW trains to OPERABLE status.</p>	<p>1 hour OR In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and</p>	<p>CB.1 Be in MODE 3.</p>	<p>6 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
associated Completion Time [of Condition A] not met.	<u>AND</u> BC.2 Be in MODE 5.	36 hours

Comment: Condition C is a default Condition and is excluded.

3.7 PLANT SYSTEMS

3.7.8 Service Water System (SWS)

LCO 3.7.8 Two SWS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One SWS train inoperable.</p>	<p>A.1 -----NOTES----- 1. Enter applicable and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by SWS. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by SWS. ----- Restore SWS train to OPERABLE status.</p>	<p>72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. ----- NOTE ----- Not applicable when</p>	<p>B.1 Restore SWS trains to OPERABLE status.</p>	<p>1 hour</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>second SWS train intentionally made inoperable.</p> <p>-----</p> <p>Two SWS trains inoperable.</p>		<p>OR</p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time [of Condition A] not met.</p>	<p>CB.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CB.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: RA B.1 requires the periodic performance of an action and Condition D is a default Condition. Therefore these are excluded.

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. [One or more cooling towers with one cooling tower fan inoperable.</p>	<p>A.1 Restore cooling tower fan(s) to OPERABLE status.</p>	<p>7 days] <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>-----REVIEWER'S NOTE----- The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit. ----- [B. [Water temperature of the UHS > [90]°F and ≤ []°F.</p>	<p>B.1 Verify water temperature of the UHS is ≤ [90]°F averaged over the previous 24 hour period.</p>	<p>Once per hour]</p>
<p>[C. ----- NOTE ----- Not applicable when UHS intentionally made inoperable. -----</p>	<p>C.1 Restore UHS to OPERABLE status.</p>	<p>1 hour OR In accordance with</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>UHS inoperable [for reasons other than Condition A or B.]</p>		<p>the Risk Informed Completion Time Program]</p>
<p>DC. [Required Action and associated Completion Time [of Condition A or B] not met.]</p> <p>[<u>OR</u>]</p> <p>UHS inoperable [for reasons other than Condition A or B].]</p>	<p>CD.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CD.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Filtration System (CREFS)

LCO 3.7.10 Two CREFS trains shall be OPERABLE.

-----NOTE-----
 The control room boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable.	A.1 Restore CREFS train to OPERABLE status.	7 days
B. Two CREFS trains inoperable due to inoperable control room boundary in MODE 1, 2, 3, or 4.	B.1 Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	D.1 -----NOTE----- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] ----- Place OPERABLE CREFS train in emergency mode. <u>OR</u> D.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately Immediately
E. Two CREFS trains inoperable [in MODE 5 or 6, or] during movement of [recently] irradiate fuel assemblies.	E.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
F. Two CREFS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.10.1 Operate each CREFS train for [\geq 10 continuous hours with the heaters operating or (for systems without heaters) \geq 15 minutes].	31 days

Comment: Condition A already has a CT of 30 days. Condition C is a default Condition. Condition D and E are outside the applicability of the Traveler. Therefore these Conditions are excluded

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Temperature Control System (CREATCS)

LCO 3.7.11 Two CREATCS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREATCS train inoperable.	A.1 Restore CREATCS train to OPERABLE status.	30 days
<u>[B. ----- NOTE ----- Not applicable when second CREATCS train intentionally made inoperable. ----- Two CREATCS trains inoperable in MODE 1, 2, 3 or 4.</u>	<u>B.1 Restore CREATCS trains to OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<u>CB-2</u> Required Action and associated Completion Time of Condition A <u>[or B]</u> not met in MODE 1, 2, 3, or 4.	<u>CB-2.1</u> Be in MODE 3. <u>AND</u> <u>CB-2.2</u> Be in MODE 5.	6 hours 36 hours
<u>DC-2</u> Required Action and associated Completion Time of Condition A not met [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	<u>CD.1</u> Place OPERABLE CREATCS train in operation. <u>OR</u> <u>CD.2</u> Suspend movement of [recently] irradiated fuel	Immediately Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
	assemblies.	
ED.2 Two CREATCS trains inoperable [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	ED.2 1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
FE . Two CREATCS trains inoperable in MODE 1, 2, 3, or 4.	FE .1 Enter LCO 3.0.3.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.11.1 Verify each CREATCS train has the capability to remove the assumed heat load.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.12 Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)

LCO 3.7.12 Two ECCS PREACS trains shall be OPERABLE.

-----NOTE-----
The ECCS pump room boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECCS PREACS train inoperable.	A.1 Restore ECCS PREACS train to OPERABLE status.	7 days
B. Two ECCS PREACS trains inoperable due to inoperable ECCS pump room boundary.	B.1 Restore ECCS pump room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.13 Fuel Building Air Cleanup System (FBACS)

LCO 3.7.13 Two FBACS trains shall be OPERABLE.

-----NOTE-----
The fuel building boundary may be opened intermittently under administrative control.

APPLICABILITY: [MODES 1, 2, 3, and 4,]
During movement of [recently] irradiated fuel assemblies in the fuel building.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One FBACS train inoperable.	A.1 Restore FBACS train to OPERABLE status.	7 days
B. Two FBACS trains inoperable due to inoperable fuel building boundary in MODE 1, 2, 3, or 4.	B.1 Restore fuel building boundary to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. [Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.</p> <p><u>OR</u></p> <p>Two FBACS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours]</p>
<p>D. Required Action and associated Completion Time [of Condition A] not met during movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>D.1 Place OPERABLE FBACS train in operation.</p> <p><u>OR</u></p> <p>D.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>Immediately</p> <p>Immediately</p>
<p>E. Two FBACS trains inoperable during movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>E.1 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.13.1 Operate each FBACS train for ≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].</p>	<p>31 days</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.14 Penetration Room Exhaust Air Cleanup System (PREACS)

LCO 3.7.14 Two PREACS trains shall be OPERABLE.

-----NOTE-----
The penetration room boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One PREACS train inoperable.	A.1 Restore PREACS train to OPERABLE status.	7 days
B. Two PREACS trains inoperable due to inoperable penetration room boundary.	B.1 Restore penetration room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.14.1 Operate each PREACS train for [\geq 10 continuous hours with heaters operating or (for systems without heaters) \geq 15 minutes].	31 days

Comment: No changes included.
The LCO is on variables and there is
no obvious system surrogate that
could be used to model the variables.

3.7 PLANT SYSTEMS

3.7.15 Fuel Storage Pool Water Level

LCO 3.7.15 The fuel storage pool water level shall be \geq 23 ft over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool water level not within limit.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of irradiated fuel assemblies in the fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.15.1 Verify the fuel storage pool water level is \geq 23 ft above the top of the irradiated fuel assemblies seated in the storage racks.	7 days

Comment: No changes included.
The LCO is on variables and there is
no obvious system surrogate that
could be used to model the variables.

3.7 PLANT SYSTEMS

3.7.16 [Fuel Storage Pool Boron Concentration]

LCO 3.7.16 The fuel storage pool boron concentration shall be \geq [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
	<u>AND</u>	
	A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately
<u>OR</u>		
A.2.2 Initiate action to perform a fuel storage pool verification.	Immediately	

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.7 PLANT SYSTEMS

3.7.17 [Spent Fuel Pool Storage]

LCO 3.7.17 The combination of initial enrichment and burnup of each fuel assembly stored in [Region 2] shall be within the Acceptable [Burnup Domain] of Figure 3.7.17-1 or in accordance with Specification 4.3.1.1.

APPLICABILITY: Whenever any fuel assembly is stored in [Region 2] of the spent fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Initiate action to move the noncomplying fuel assembly from [Region 2].	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.17.1 Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.17-1 or Specification 4.3.1.1.	Prior to storing the fuel assembly in [Region 2]

Comment: No changes included.
The LCO is on variables and there is
no obvious system surrogate that
could be used to model the variables.

3.7 PLANT SYSTEMS

3.7.18 Secondary Specific Activity

LCO 3.7.18 The specific activity of the secondary coolant shall be $\leq [0.10] \mu\text{Ci/gm}$
DOSE EQUIVALENT I-131.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Specific activity not within limit.	A.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.18.1 Verify the specific activity of the secondary coolant is $\leq [0.10] \mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.	31 days

Comment: RAs A.1 and B.1 specify the periodic performance of an action, RAs A.2, B.2 and C.1 declare another component inoperable, RA B.3 performs OPERABILITY determination and performance of a surveillance. Condition H is a default Condition. Therefore these Conditions are excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System,
- b. Two diesel generators (DGs) capable of supplying the onsite Class 1E power distribution subsystem(s), and
- [c. Automatic load sequencers for Train A and Train B.]

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

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for [required] OPERABLE offsite circuit.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	

		<u>Program]</u>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Two [required] offsite circuits inoperable.</p>	<p>C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore one [required] offsite circuit to OPERABLE status.</p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required features</p> <p>24 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>D. One [required] offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One [required] DG inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition D is entered with no AC power source to any train. -----</p> <p>D.1 Restore [required] offsite circuit to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore [required] DG to OPERABLE status.</p>	<p>12 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>12 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time</u></p>

		<u>Program]</u>
E. Two [required] DGs inoperable.	E.1 Restore one [required] DG to OPERABLE status.	2 hours <u>[OR</u> <u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program]</u>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----REVIEWER'S NOTE----- This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event.</p> <p>-----</p> <p>F. [One [required] [automatic load sequencer] inoperable.</p>	<p>F.1 Restore [required] [automatic load sequencer] to OPERABLE status.</p>	<p>[12] hours]</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[G.----- NOTE -----</u> <u>Not applicable when three or more [required] AC sources intentionally made inoperable.</u></p> <p>-----</p> <p><u>Three or more [required] AC sources inoperable.</u></p>	<p><u>G.1 Restore [required] inoperable AC sources to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>HG.</u> Required Action and associated Completion Time of Condition A, B, C, D, E, or[F] <u>[or G]</u> not met.</p>	<p><u>HG.1</u> Be in MODE 3.</p> <p><u>AND</u></p> <p><u>GH.2</u> Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p><u>IH.</u> Three or more [required] AC sources inoperable.</p>	<p><u>IH.1</u> Enter LCO 3.0.3.</p>	<p>Immediately]</p>

SURVEILLANCE REQUIREMENTS

Comment: No changes made.
Outside the applicability of the
Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown" and
- b. One diesel generator (DG) capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s) with no offsite power available inoperable.</p> <p><u>OR</u></p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>A.2.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>B. One required DG inoperable.</p>	<p>B.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.4 Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.2.1 -----NOTE----- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and [SR 3.8.1.18]. ----- For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources - Operating," except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.19, and SR 3.8.1.20, are applicable.	In accordance with applicable SRs

Comment: No changes made. The final action is to declare the EDG inoperable and a RICT is available for that Condition.

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel level < [33,000] gal and > [28,285] gal in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory < [500] gal and > [425] gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates to within limits.	7 days
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with starting air receiver pressure < [225] psig and ≥ [125] psig.	E.1 Restore starting air receiver pressure to ≥ [225] psig.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.</p>	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains \geq [33,000] gal of fuel.	31 days
SR 3.8.3.2	Verify lubricating oil inventory is \geq [500] gal.	31 days
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is \geq [225] psig.	31 days
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	[31] days

Comment: RA A.2 requires the performance of a periodic action. Condition E is a default Condition. These Conditions are therefore excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One [or two] battery charger[s on one train] inoperable.</p>	<p>A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.</p> <p><u>AND</u></p> <p>A.2 Verify battery float current ≤ [2] amps.</p> <p><u>AND</u></p> <p>A.3 Restore battery charger[s] to OPERABLE status.</p>	<p>2 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>Once per [12] hours</p> <p>7 days</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. One [or two] batter[y][ies on one train] inoperable.</p>	<p>B.1 Restore batter[y][ies] to OPERABLE status.</p>	<p>[2] hours]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Program]
C. One DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 Restore DC electrical power subsystem to OPERABLE status.	[2] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[D. ----- NOTE ----- Not applicable when second DC electrical power subsystem intentionally made inoperable. ----- Two DC electrical power subsystems inoperable.	D.1 Restore at least one DC electrical power subsystem to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
ED. Required Action and Associated Completion Time not met.	ED. .1 Be in MODE 3. <u>AND</u> DE. .2 Be in MODE 5.	6 hours 36 hours

Comment: No changes made.
Outside the applicability of the
Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 [DC electrical power subsystem shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One DC electrical power subsystem shall be OPERABLE.]

-----REVIEWER'S NOTE-----
This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only one DC electrical power subsystem to be OPERABLE. Action A the bracketed optional wording in Condition B are also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem support as is required for power operating conditions.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
[A. One [or two] battery charger[s on one train] inoperable. <u>AND</u> The redundant train battery and charger[s] OPERABLE.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. <u>AND</u> A.2 Verify battery float current ≤ [2] amps. <u>AND</u>	2 hours Once per [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.3 Restore battery charger[s] to OPERABLE status.	7 days]
<p>B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required Actions and associated Completion Time of Condition A not met].</p>	<p>B.1 Declare affected required feature(s) inoperable.</p> <p><u>OR</u></p> <p>B.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

Comment: No changes made. The final action is to declare the battery inoperable and a RICT is available for that Condition.

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

-----REVIEWER'S NOTE-----
 Licensees must implement a program, as specified in Specification 5.5.17, to monitor battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications."

LCO 3.8.6 Battery parameters for Train A and Train B batteries shall be within limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] batter[y][ies on one train] with one or more battery cells float voltage < [2.07] V.	A.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	A.2 Perform SR 3.8.6.1.	2 hours
	<u>AND</u>	
	A.3 Restore affected cell voltage ≥ [2.07] V.	24 hours
B. One [or two] batter[y][ies on one train] with float current > [2] amps.	B.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	B.2 Restore battery float current to ≤ [2] amps.	[12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of plates. -----</p> <p>C. One [or two] batter[y][ies on one train] with one or more cells electrolyte level less than minimum established design limits.</p>	<p>-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. -----</p> <p>C.1 Restore electrolyte level to above top of plates. <u>AND</u> C.2 Verify no evidence of leakage. <u>AND</u> C.3 Restore electrolyte level to greater than or equal to minimum established design limits.</p>	<p>8 hours</p> <p>12 hours</p> <p>31 days</p>
<p>D. One [or two] batter[y][ies on one train] with pilot cell electrolyte temperature less than minimum established design limits.</p>	<p>D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.</p>	<p>12 hours</p>
<p>E. One or more batteries in redundant trains with battery parameters not within limits.</p>	<p>E.1 Restore battery parameters for batteries in one train to within limits.</p>	<p>2 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p> <p><u>OR</u></p> <p>One [or two] batter[y][ies on one train] with one or more battery cells float voltage < [2.07] V and float current > [2] amps.</p>	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 -----NOTE----- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. -----</p> <p>Verify each battery float current is \leq [2] amps.</p>	7 days
SR 3.8.6.2 Verify each battery pilot cell voltage is \geq [2.07] V.	31 days
SR 3.8.6.3 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	31 days
SR 3.8.6.4 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	31 days

Comment: Condition C is a default Condition and is excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The required Train A and Train B inverters shall be OPERABLE.

-----NOTE-----
 [[One/two] inverter[s] may be disconnected from [its/their] associated DC bus for ≤ 24 hours to perform an equalizing charge on [its/their] associated [common] battery, provided:

- a. The associated AC vital bus(es) [is/are] energized from [its/their] [Class 1E constant voltage source transformers] [inverter using internal AC source], and
- b. All other AC vital buses are energized from their associated OPERABLE inverters.]

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] inverter inoperable.	A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any AC vital bus de-energized. ----- Restore inverter to OPERABLE status.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>[B. ----- NOTE ----- Not applicable when two or more [required] inverters intentionally made inoperable. ----- Two or more [required] inverters inoperable.</p>	<p>B.1 Restore inverters to OPERABLE status.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time not met.</p>	<p>CB..1 Be in MODE 3. <u>AND</u></p>	<p>6 hours</p>

Comment: No changes made. Outside the applicability of the Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 [Inverters shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One] inverter[s] shall be OPERABLE.]

-----REVIEWER'S NOTE-----
 This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only [one] inverter to be OPERABLE. The "[or more]" optional wording in Condition A is also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem/inverter support as is required for power operating conditions.

APPLICABILITY: MODES 5 and 6,
 During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
 LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or more] [required] inverter[s] inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<p style="text-align: center;"><u>OR</u></p> <p>A.2.1 Suspend CORE ALTERATIONS.</p> <p style="text-align: center;"><u>AND</u></p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies. <u>AND</u>	Immediately
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. <u>AND</u>	Immediately
	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.8.1 Verify correct inverter voltage, [frequency,] and alignments to required AC vital buses.	7 days

Comment: Condition E is a default Condition and is therefore excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more AC electrical power distribution subsystems inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC trains made inoperable by inoperable power distribution subsystems. -----</p> <p>A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>8 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One or more AC vital buses inoperable.</p>	<p>B.1 Restore AC vital bus subsystem(s) to OPERABLE status.</p>	<p>2 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>C. One or more DC electrical power distribution subsystems</p>	<p>C.1 Restore DC electrical power distribution subsystem(s) to</p>	<p>2 hours <u>IOR</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
inoperable.	OPERABLE status.	In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>[D. ----- NOTE ----- Not applicable when Two or more electrical power distribution subsystems intentionally made inoperable. ----- Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.</p>	<p>D..1 Restore electrical power distribution subsystems to OPERABLE status to restore safety function.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>ED. Required Action and associated Completion Time not met.</p>	<p>ED..1 Be in MODE 3. <u>AND</u> ED..2 Be in MODE 5.</p>	<p>6 hours 36 hours</p>
<p>[FE. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.</p>	<p>FE..1 Enter LCO 3.0.3.</p>	<p>Immediately]</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.9.1 Verify correct breaker alignments and voltage to [required] AC, DC, and AC vital bus electrical power distribution subsystems.</p>	<p>7 days</p>

Comment: No changes made.
Outside the applicability of the
Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portion of AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>	

5.5 Programs and Manuals

5.5.16 Containment Leakage Rate Testing Program (continued)

1. Containment leakage rate acceptance criterion is $\leq 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60 L_a$ for the Type B and C tests and [$< 0.75 L_a$ for Option A Type A tests] [$\leq 0.75 L_a$ for Option B Type A tests].
2. Air lock testing acceptance criteria are:
 - a) Overall air lock leakage rate is $\leq [0.05 L_a]$ when tested at $\geq P_a$.
 - b) For each door, leakage rate is $\leq [0.01 L_a]$ when pressurized to $[\geq 10 \text{ psig}]$.
- e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.
- f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] including the following:

- a. Actions to restore battery cells with float voltage $< [2.13] \text{ V}$, and
- b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

[5.5.18 **Risk Informed Completion Time Program**

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

- a. The RICT may not exceed 30 days;

----- REVIEWER'S NOTE -----
The Risk Informed Completion Time is only applicable in MODES supported by the Licensees PRA. Licensee's applying the RICT Program to MODES other than Modes 1 and 2 must demonstrate that they have

the capability to calculate a RICT in those MODES or that the risk indicated by their MODE 1 and 2 PRA model is bounding with respect to the lower MODE conditions.

- b. A RICT may only be utilized in MODE 1, 2 [, and 3, and MODE 4 while relying on steam generators for heat removal];
 - c. When a RICT is being used, any plant configuration change within the scope of the Risk Informed Completion Time Program must be considered for the effect on the RICT.
 - 1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.
 - 2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.
 - 3. Revising the RICT is not required if the plant configuration change would lower plant risk and would result in a longer RICT.
 - d. Use of a RICT is not permitted for voluntary entry into a configuration which represents a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE.
 - e. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more of the trains are considered "PRA functional" as defined in Section 2.3.1 of NEI 06-09.]
-

BASES

ACTIONS

-----REVIEWER'S NOTE-----
In Table 3.3.1-1, Functions 11.a and 11.b were not included in the generic evaluations approved in either WCAP-10271, as supplemented, WCAP-15376, or WCAP-14333. In order to apply the WCAP-10271, as supplemented, and WCAP-15376 or WCAP-14333 TS relaxations to plant specific Functions not evaluated generically, licensees must submit plant specific evaluations for NRC review and approval.

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 3.3.1-1.

In the event a channel's Trip Setpoint is found nonconservative with respect to the Allowable Value, or the transmitter, instrument loop, signal processing electronics, or bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition(s) entered for the protection Function(s) affected.

When the number of inoperable channels in a trip Function exceed those specified in one or other related Conditions associated with a trip Function, then the unit is outside the safety analysis. Therefore, LCO 3.0.3 must be immediately entered if applicable in the current MODE of operation.

-----REVIEWER'S NOTE-----
Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A.1

Condition A applies to all RTS protection Functions. Condition A addresses the situation where one or more required channels or trains for one or more Functions are inoperable at the same time. The Required Action is to refer to Table 3.3.1-1 and to take the Required Actions for the protection functions affected. The Completion Times are those from the referenced Conditions and Required Actions.

BASES

ACTIONS (continued)

B.1 and B.2

Condition B applies to the Manual Reactor Trip in MODE 1 or 2. This action addresses the train orientation of the SSPS for this Function. With one channel inoperable, the inoperable channel must be restored to OPERABLE status within 48 hours for in accordance with the Risk Informed Completion Time Program. In this Condition, the remaining OPERABLE channel is adequate to perform the safety function.

The Completion Time of 48 hours is reasonable considering that there are two automatic actuation trains and another manual initiation channel OPERABLE, and the low probability of an event occurring during this interval.

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1

With two Reactor Manual Trip channels inoperable the Required Action is to restore the inoperable channels to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second Manual Reactor Trip channel is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one Manual Reactor Trip channel is inoperable for any reason and the second Manual Reactor Trip channel is found to be inoperable, or if both Manual Reactor Trip channels are found to be inoperable at the same time.]

If the Manual Reactor Trip Function cannot be restored to OPERABLE status within the allowed 48 hour Completion Time, the unit must be brought to a MODE in which the requirement does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 additional hours (54 hours total time). The 6 additional hours to reach MODE 3 is reasonable, based on operating experience, to reach MODE 3 from full power operation in an orderly manner and without challenging unit systems. With the unit in MODE 3, ACTION C would apply to any

~~inoperable Manual Reactor Trip Function if the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted. C.1, C.2.1, and C.2.2~~

D.1

Condition GD applies to the following reactor trip Functions in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted:

- Manual Reactor Trip,
- RTBs,
- RTB Undervoltage and Shunt Trip Mechanisms, and
- Automatic Trip Logic.

This action addresses the train orientation of the SSPS for these Functions. With one channel or train inoperable, the inoperable channel or train must be restored to OPERABLE status within 48 hours. ~~If the affected Function(s) cannot be restored to OPERABLE status within the allowed 48-hour Completion Time, the unit must be placed in a MODE in [or in accordance with the Risk Informed Completion Time Program].~~

BASES

ACTIONS (continued)

~~which the requirement does not apply. To achieve this status, action must be initiated within the same 48 hours to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour. The additional hour provides sufficient time to accomplish the action in an orderly manner. With rods fully inserted and the Rod Control System incapable of rod withdrawal, these Functions are no longer required.~~

The Completion Time 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 occurring during this interval.

~~----- REVIEWER'S NOTE -----
Condition E is only applicable to plants that have adopted a Risk Informed Completion Time Program.
-----~~

~~[E.1~~

~~With two channels or trains inoperable the Required Action is to restore at the inoperable channels or trains to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable channels or trains. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.~~

~~The Condition is modified by a Note stating it is not applicable when the second channel or train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one channel or train is inoperable for any reason and the second channel or train is found to be inoperable, or if both channels or trains are found to be inoperable at the same time.]~~

~~FD.1.1, DF.1.2, DF.2.1, Dand F.2.2, and D.3~~

Condition ~~DE~~ applies to the Power Range Neutron Flux - High Function.

The NIS power range detectors provide input to the Rod Control System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in

WCAP-14333-P-A (Ref. 8). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to $\leq 75\%$ RTP within 78 hours [or in accordance with the Risk Informed Completion Time Program]. Reducing the power level prevents operation of the core with radial power distributions beyond the design limits. With one of the NIS power range detectors inoperable, 1/4 of the radial power distribution monitoring capability is lost.

As an alternative to the above actions, the inoperable channel can be placed in the tripped condition within 72 hours [or in accordance with the Risk Informed Completion Time Program] and the QPTR monitored once every 12 hours as per SR 3.2.4.2, QPTR verification. Calculating QPTR every 12 hours compensates for the lost monitoring capability due to the inoperable NIS power range channel and allows continued unit operation at power levels $< 75\%$ RTP. The 12 hour Frequency is consistent with LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)."

BASES

ACTIONS (continued)

~~As an alternative to the above Actions, the plant must be placed in a MODE where this Function is no longer required OPERABLE. Seventy-eight hours are allowed to place the plant in MODE 3. The 78 hour Completion Time includes 72 hours for channel corrective maintenance, and an additional 6 hours for the MODE reduction as required by Required Action D.3. This is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. If Required Actions cannot be completed within their allowed Completion Times, LCO 3.0.3 must be entered.~~

[The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypass condition for up to 12 hours while performing routine surveillance testing of other channels. The Note also allows placing the inoperable channel in the bypass condition to allow setpoint adjustments of other channels when required to reduce the setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified in Reference 8.]

-----REVIEWER'S NOTE-----

The below text should be used for plants with installed bypass test capability:

The Required Actions are modified by a Note that allows placing one channel in bypass for 12 hours while performing routine surveillance testing, and setpoint adjustments when a setpoint reduction is required by other Technical Specifications. The 12 hour time limit is justified in Reference 8.

Required Action ~~DF~~.2.2 has been modified by a Note which only requires SR 3.2.4.2 to be performed if the Power Range Neutron Flux input to QPTR becomes inoperable. Failure of a component in the Power Range Neutron Flux Channel which renders the High Flux Trip Function inoperable may not affect the capability to monitor QPTR. As such, determining QPTR using this movable incore detectors once per 12 hours may not be necessary.

----- REVIEWER'S NOTE -----

Condition G is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[G.1

With two or more Power Range Neutron Flux - High channels inoperable, the Required Action is to restore the inoperable channels to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more Power Range Neutron Flux - High channels are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one Power Range Neutron Flux - High channel is inoperable for any reason and additional Power Range Neutron Flux - High channels are found to be inoperable, or if two or more Power Range Neutron Flux - High channels are found to be inoperable at the same time.]

BASES

ACTIONS (continued)

EH.1 and E.2

Condition EH applies to the following reactor trip Functions:

- Power Range Neutron Flux - Low,
- Overtemperature ΔT ,
- Overpower ΔT ,
- Power Range Neutron Flux - High Positive Rate,
- Power Range Neutron Flux - High Negative Rate,
- Pressurizer Pressure - High,
- SG Water Level - Low Low, and
- SG Water Level - Low coincident with Steam Flow/Feedwater Flow Mismatch.

A known inoperable channel must be placed in the tripped condition within 72 hours [or in accordance with the Risk Informed Completion Time Program]. Placing the channel in the tripped condition results in a partial trip condition requiring only one-out-of-two logic for actuation of the two-out-of-three trips and one-out-of-three logic for actuation of the two-out-of-four trips. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 8.

~~If the inoperable channel cannot be placed in the trip condition within the specified Completion Time, the unit must be placed in a MODE where these Functions are not required OPERABLE. An additional 6 hours is allowed to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to place the unit in 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 placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 8.]

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----
The below text should be used for plants with installed bypass test capability:

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 9.

----- REVIEWER'S NOTE -----
Condition I is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[F.I.1

With two or more channels inoperable the Required Action is to restore at sufficient channels to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more channels are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one channel is inoperable for any reason and additional channels are found to be inoperable, or if two or more channels are found to be inoperable at the same time.]

J.1 and FJ.2

Condition FJ applies to the Intermediate Range Neutron Flux trip when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint and one channel is inoperable. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. If THERMAL POWER is greater than the P-6 setpoint but less than the P-10 setpoint, 24 hours is allowed to reduce THERMAL POWER below the P-6 setpoint or increase to THERMAL POWER above the P-10 setpoint. The NIS Intermediate Range Neutron Flux channels must be OPERABLE when the power level is above the capability of the source range, P-6, and below the capability of the power range, P-10. If THERMAL POWER is greater than the P-10 setpoint, the

NIS power range detectors perform the monitoring and protection functions and the intermediate range is not required. The Completion Times allow for a slow and controlled power adjustment above P-10 or below P-6 and take into account the redundant capability afforded by the redundant OPERABLE channel, and the low probability of its failure during this period. This action does not require the inoperable channel to be tripped because the Function uses one-out-of-two logic. Tripping one channel would trip the reactor. Thus, the Required Actions specified in this Condition are only applicable when channel failure does not result in reactor trip.

GK.1 and GK.2

Condition ~~GK~~ applies to two inoperable Intermediate Range Neutron Flux trip channels in MODE 2 when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint. Required Actions specified in this Condition are only applicable when channel failures do not result in reactor trip. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. With no intermediate range channels OPERABLE, the Required Actions are to suspend operations involving positive reactivity additions immediately. This will preclude any power level increase since there are no

BASES

ACTIONS (continued)

OPERABLE Intermediate Range Neutron Flux channels. The operator must also reduce THERMAL POWER below the P-6 setpoint within two hours. Below P-6, the Source Range Neutron Flux channels will be able to monitor the core power level. The Completion Time of 2 hours will allow a slow and controlled power reduction to less than the P-6 setpoint and takes into account the low probability of occurrence of an event during this period that may require the protection afforded by the NIS Intermediate Range Neutron Flux trip.

Required Action GK.1 is modified by a Note to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SDM.

HL.1

Condition HL applies to one inoperable Source Range Neutron Flux trip channel when in MODE 2, below the P-6 setpoint, and performing a reactor startup. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the two channels inoperable, operations involving positive reactivity additions shall be suspended immediately.

This will preclude any power escalation. With only one source range channel OPERABLE, core protection is severely reduced and any actions that add positive reactivity to the core must be suspended immediately.

Required Action HL.1 is modified by a Note to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SDM.

IM.1

Condition IM applies to two inoperable Source Range Neutron Flux trip channels when in MODE 2, below the P-6 setpoint, and in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With both source range channels inoperable, the RTBs must be opened immediately. With the RTBs open, the core is in a more stable condition.

BASES

ACTIONS (continued)

J.1, J.2.1, and J.2.2

N.1

Condition JN applies to one inoperable source range channel in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the source range channels inoperable, 48 hours is allowed to restore it to an OPERABLE status. ~~If the channel cannot be returned to an OPERABLE status, action must be initiated within the same 48 hours to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~

KO.1 and KO.2

~~If the Required Action and associated Completion Time of Condition D, [E.] or N are not met, the unit must be placed in a MODE in which the requirement does not apply. To achieve this status, action must be initiated immediately to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within 1 hour. A Completion Time of 1 hour provides sufficient time to accomplish the action in an orderly manner. With rods fully inserted and the Rod Control System incapable of rod withdrawal, these Functions are no longer required.~~
Condition K

P.1

Condition P applies to the following reactor trip Functions:

- Pressurizer Pressure - Low,
- Pressurizer Water Level - High,
- Reactor Coolant Flow – Low,
- Undervoltage RCPs, and
- Underfrequency RCPs.

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 72 hours (Ref. 8) ~~for in accordance with the~~

Risk Informed Completion Time Program]. For the Pressurizer Pressure - Low, Pressurizer Water Level - High, Undervoltage RCPs, and Underfrequency RCPs trip Functions, placing the channel in the tripped condition when above the P-7 setpoint results in a partial trip condition requiring only one additional channel to initiate a reactor trip. For the Reactor Coolant Flow - Low trip Function, placing the channel in the tripped condition when above the P-8 setpoint results in a partial trip condition requiring only one additional channel in the same loop to initiate a reactor trip. For the latter trip Function, two tripped channels in two RCS loops are required to

BASES

ACTIONS (continued)

initiate a reactor trip when below the P-8 setpoint and above the P-7 setpoint. 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. There is insufficient heat production to generate DNB conditions below the P-7 setpoint. The 72 hours allowed to place the channel in the tripped condition is justified in Reference 8. ~~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.~~

Allowance of this time interval takes into consideration the redundant capability provided by the remaining redundant 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 KL.

[The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 8.]

-----REVIEWER'S NOTE-----
The below text should be used for plants with installed bypass test capability:

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 8.

----- REVIEWER'S NOTE -----
Condition Q is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[LQ.1

With two or more channels inoperable the Required Action is to restore sufficient channels to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more channels are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one channel is inoperable for any reason and additional channels are found to be inoperable, or if two or more channels are found to be inoperable at the same time.]

R.1

If the Required Action and L-2 associated Completion Time of Condition P [or Q] is not met, 6 hours is allowed to reduce THERMAL POWER to below P-7.

S.1

Condition L_S 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 [or in accordance with the Risk Informed Completion Time Program]. The [6] hours allowed to restore the channel to OPERABLE.~~

~~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~~

BASES

ACTIONS (continued)

~~status and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are~~status is justified in Reference 11.

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 11.

----- REVIEWER'S NOTE -----
Condition T is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[MT.1

With two RCP Breaker Position (Single Loop) channels inoperable the Required Action is to restore the inoperable channels to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second Reactor Coolant Pump Breaker Position (Single Loop) channel is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one Reactor Coolant Pump Breaker Position (Single Loop) channel is inoperable for any reason and the second Reactor Coolant Pump Breaker Position (Single Loop) channel is found to be inoperable, or if two Reactor Coolant Pump Breaker Position (Single Loop) channels are found to be inoperable at the same time.]

U.1

If the Required Action and associated Completion Time of Condition S [or T] is not met, THERMAL POWER must be reduced below the P-8 setpoint within 4 hours. 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. M-2The 4 hours to reduce THERMAL POWER to below the P-8 setpoint is justified in Reference 11.

V.1

Condition MV applies to the RCP Breaker Position (Two Loops) reactor trip Function. There is one breaker position device per RCP breaker. With one channel inoperable, the inoperable channel must be placed in trip within [6] hours. ~~If [or in accordance with the Risk Informed Completion Time Program]. The [6] hours allowed to place the channel cannot be placed in trip within the [6] hours, then THERMAL POWER must be reduced below the P-7 setpoint within the next 6 hours is justified in Reference 11.~~

~~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-7 setpoint because other RTS Functions provide core protection below the P-7 setpoint. The [6] hours allowed to place the channel in trip and the 6 additional hours allowed to reduce THERMAL POWER to below the P-7 setpoint are justified in Reference 11.~~

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 11.

N

----- REVIEWER'S NOTE -----
Condition W is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[W.1

With two or more RCP Breaker Position (Two Loops Loop) channels inoperable the Required Action is to restore sufficient inoperable channels to OPERABLE status to restore function within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when when the second Reactor Coolant Pump Breaker Position (Two Loops) channel is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one RCP Breaker Position (Two Loops Loop) channel is inoperable for any reason and additional RCP Breaker Position (Two Loops Loop) channels are found to be inoperable, or if two or more RCP Breaker Position (Two Loops Loop) channels are found to be inoperable at the same time.]

X.1

If the Required Action and associated Completion Time of Condition V [or W] is not met, THERMAL POWER must be reduced below the P-7 setpoint within 6 hours. 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-7 setpoint because other RTS Functions provide core protection below the P-7 setpoint.N-2 The 6 hours to reduce THERMAL POWER to below the P-7 setpoint is justified in Reference 11.

Y.1

Condition NY 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 72 hours [or in accordance with the Risk Informed Completion Time Program]. 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 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 8. ~~Four hours is allowed for reducing power.~~

BASES

ACTIONS (continued)

[The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 8.]

-----REVIEWER'S NOTE-----

The below text should be used for plants with installed bypass test capability:

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 8.

----- REVIEWER'S NOTE -----

Condition Z is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[QZ.1

With two or more Turbine Trip channels inoperable the Required Action is to restore sufficient inoperable channels to OPERABLE status to reduce total inoperable channels to one within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more Turbine Trip channels are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one Turbine Trip channel is inoperable for any reason and additional Turbine Trip channels are found to be inoperable, or if two or more Turbine Trip channels are found to be inoperable at the same time.

]

AA.1

If the Required Action and Q.2 associated Completion Time of Condition Y [or Z] is not met, THERMAL POWER must be reduced below the P-9 setpoint within 4 hours. This places the unit in a MODE where the LCO is no longer applicable.

BB.1

Condition ~~QBB~~ 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, 24 hours are allowed to restore the train to OPERABLE status ~~(Required Action O.1) or the unit must be placed in MODE 3 within the next 6 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ The Completion Time of 24 hours (Required Action O.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 24 hours allowed to restore the inoperable RTS Automatic Trip Logic train to OPERABLE status is justified in Reference 8. ~~The Completion Time of 6 hours (Required Action O.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. [The [4] hour time limit for testing the RTS Automatic Trip logic train may include testing the RTB also, if both the Logic test and RTB test are conducted within the [4] hour time limit. The [4] hour time limit is justified in Reference 8.]

-----REVIEWER'S NOTE-----
The below text should replace the bracketed information in the previous paragraph if WCAP-14333 and WCAP-15376 are being incorporated:

The [4] hour time limit for the RTS Automatic Trip Logic train testing is greater than the 2 hour time limit for the RTBs, which the logic train

BASES

ACTIONS (continued)

supports. The longer time limit for the logic train ([4] hours) is acceptable based on Reference 12

----- REVIEWER'S NOTE -----
Condition CC is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[PCC.1 and P.2

With two trains inoperable the Required Action is to restore the inoperable trains to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable trains. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if a train is inoperable for any reason and the second train is found to be inoperable, or if two trains are found to be inoperable at the same time.]

DD.1

----- REVIEWER'S NOTE -----
WCAP-14333-P-A, Rev. 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," and the associated TSTF (TSTF-418) and WCAP-15376-P, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," and the associated TSTF (TSTF-411) both modify Condition P-DD.

WCAP-14333-P-A, Rev. 1 and the associated TSTF-418 provide a Completion Time for Required Action PDD.1 of 1 hour ~~and Required Action P.2 of 7 hours.~~ WCAP-14333-P-A, Rev. 1 contains three Notes to TS 3.3.1 Condition P-DD. Note 1 states, "One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE." Note 2 states, "One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE." WCAP-14333-P-A, Rev. 1 also adds a third Note, which states: "One RTB train may be bypassed for up

to [4] hours for concurrent surveillance testing of the RTB and automatic trip logic, provided the other train is OPERABLE.”

WCAP-15376-P and the associated TSTF-411 provide a Completion Time for Required Action PDD.1 of 24 hours ~~and Required Action P.2 of 30 hours~~. WCAP-15376-P relaxes the time that an RTB train may be bypassed for surveillance testing from 2 hours to 4 hours, and deletes Notes 2 and 3 that are added by WCAP-14333-P-A, Rev. 1.

Implementation of TS 3.3.1, Condition PDD:

1. If WCAP-14333-P-A, Rev. 1 is implemented without implementing WCAP-15376-P, the Completion Time for Required Action PDD.1 will be 1 hour ~~and for Required Action P.2 will be 7 hours.~~ Condition PDD will contain the three Notes as discussed above, with 2 hours to bypass an RTB train for surveillance testing in Note 1.
2. If WCAP-15376-P is implemented without implementing WCAP-14333-P-A, Rev. 1, the Completion Time for Required Action PDD.1 will be 24 hours ~~and for Required Action P.2 will be 30 hours.~~ Condition PDD will only contain one Note (Note 1 as discussed in the first

BASES

ACTIONS (continued)

paragraph above), with 4 hours to bypass an RTB train for surveillance testing in the Note.

3. If WCAP-14333-P-A, Rev. 1, and WCAP-15376-P are both implemented, follow the direction for Item 2, above.

Use the following Bases if WCAP-14333-P-A, Rev. 1 is adopted without adopting WCAP-15376-P:

Condition **PDD** 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~~. [Alternatively, a 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 can be determined in accordance with the Risk Informed 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 results in Condition C entry while an RTB is inoperable. Time Program.]

The Required Actions have been modified by three Notes. Note 1 allows one channel to be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE. Note 1 applies to RTB testing that is performed independently from the corresponding automatic trip logic testing. Note 2 allows one RTB to be bypassed for up to 2 hours for maintenance if the other RTP train is OPERABLE. The 2 hour time limit is justified in Reference 9. Note 3 applies to RTB testing that is performed concurrently with the corresponding automatic trip logic test. For concurrent testing of the automatic trip logic and RTB, one RTB train may be bypassed for up to [4] hours provided the other train is OPERABLE. The [4] hour time limit is approved by Reference 8.

Use the following Bases if WCAP-15376-P is adopted without adopting WCAP-14333-P-A, Rev. 1 or if both are adopted:

Condition **PDD** 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, 24 hours is allowed for train corrective maintenance to restore the train to OPERABLE status ~~or the unit must~~. [Alternatively, a Completion Time can be placed determined in MODE 3 within the next 6 hours accordance with the Risk Informed Completion Time Program.] The 24 hour Completion Time is justified in Reference 13. ~~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.~~

BASES

ACTIONS (continued)

~~Placing the unit in MODE 3 results in Condition C entry while an RTB is inoperable.~~

The Required Actions have been modified by a Note. The Note allows one train to be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. The 4 hour time limit is justified in Reference 13.

~~----- REVIEWER'S NOTE -----
Condition EE is only applicable to plants that have adopted a Risk Informed Completion Time Program.
-----~~

~~[QEE.1 and Q.2~~

~~With two RTB trains inoperable the Required Action is to restore the inoperable trains to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable trains. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.~~

~~The Condition is modified by a Note stating it is not applicable when the second RTB train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if an RTB train is inoperable for any reason and the second RTB train is found to be inoperable, or if two RTB trains are found to be inoperable at the same time.]~~

~~FF.1~~

~~Condition QFF applies to the P-6 and P-10 interlocks. With one or more channels 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 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.~~

~~RGG.1 and R.2~~

Condition ~~RGG~~ applies to the P-7, P-8, P-9, and P-13 interlocks. With one or more channels 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.~~

~~HH.1~~

~~If the Required Action and associated Completion Time of Condition GG is not met, the unit must be placed in MODE 2 within 6 hours. 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.~~

BASES

ACTIONS (continued)

SII.1 and S.2

Condition SII 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). 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. With the unit in MODE 3, ACTION C would apply to any inoperable RTB trip mechanism.~~ [or in accordance with the Risk Informed Completion Time Program] 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 PDD.

The Completion Time of 48 hours for Required Action SII.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.

----- REVIEWER'S NOTE -----
Condition JJ is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[JJ.1

With one trip mechanism inoperable for two or more RTBs, the Required Action is to restore all but one inoperable trip mechanisms to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the trip mechanisms. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when one trip mechanism for two or more RTBs is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if the trip mechanisms for two or more RTBs are inoperable for any reason and additional trip mechanisms for two or more RTBs are

found to be inoperable, or if two or more trip mechanisms for two or more RTBs are found to be inoperable at the same time.]

KK.1

If the Required Action and associated Completion Time of Condition B, [C.] F, [G.] H, [I.] BB, [CC], DD, [EE], FF, II [or JJ] is not met, the unit must be placed in MODE 3 within 6 hours. 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. With the unit in MODE 3, ACTION D would apply to any inoperable RTB, RTB trip mechanism, or to any inoperable Manual Reactor Trip Function if the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

SURVEILLANCE
REQUIREMENTS

-----REVIEWER'S NOTE-----
In Table 3.3.1-1, Functions 11.a and 11.b were not included in the generic evaluations approved in either WCAP-10271, as supplemented, or WCAP-14333. In order to apply the WCAP-10271, as supplemented, and WCAP-14333 TS relaxations to plant specific Functions not evaluated generically, licensees must submit plant specific evaluations for NRC review and approval.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

c. Engineered Safety Feature Actuation System Interlocks - T_{avg} - Low Low, P-12

On increasing reactor coolant temperature, the P-12 interlock reinstates SI on High Steam Flow Coincident With Steam Line Pressure - Low or Coincident With T_{avg} - Low Low and provides an arming signal to the Steam Dump System. On decreasing reactor coolant temperature, the P-12 interlock allows the operator to manually block SI on High Steam Flow Coincident With Steam Line Pressure - Low or Coincident with T_{avg} - Low Low. On a decreasing temperature, the P-12 interlock also removes the arming signal to the Steam Dump System to prevent an excessive cooldown of the RCS due to a malfunctioning Steam Dump System.

Since T_{avg} is used as an indication of bulk RCS temperature, this Function meets redundancy requirements with one OPERABLE channel in each loop. In three loop units, these channels are used in two-out-of-three logic. In four loop units, they are used in two-out-of-four logic.

This Function must be OPERABLE in MODES 1, 2, and 3 when a secondary side break or stuck open valve could result in the rapid depressurization of the steam lines. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because there is insufficient energy in the secondary side of the unit to have an accident.

The ESFAS instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

ACTIONS

-----REVIEWER'S NOTE-----
In Table 3.3.2-1, Functions 7.b and 7.c were not included in the generic evaluations approved in either WCAP-10271, as supplemented, WCAP-15376 or WCAP-14333. In order to apply the WCAP-10271, as supplemented, and WCAP-15376 or WCAP-14333 TS relaxations to plant specific Functions not evaluated generically, licensees must submit plant specific evaluations for NRC review and approval.

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.2-1.

BASES

ACTIONS (continued)

In the event a channel's Trip Setpoint is found nonconservative with respect to the Allowable Value, or the transmitter, instrument Loop, signal processing electronics, or bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition(s) entered for the protection Function(s) affected. When the Required Channels in Table 3.3.2-1 are specified (e.g., on a per steam line, per loop, per SG, etc., basis), then the Condition may be entered separately for each steam line, loop, SG, etc., as appropriate.

When the number of inoperable channels in a trip function exceed those specified in one or other related Conditions associated with a trip function, then the unit is outside the safety analysis. Therefore, LCO 3.0.3 should be immediately entered if applicable in the current MODE of operation.

-----REVIEWER'S NOTE-----
 Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A.1

Condition A applies to all ESFAS protection functions.

Condition A addresses the situation where one or more channels or trains for one or more Functions are inoperable at the same time. The Required Action is to refer to Table 3.3.2-1 and to take the Required Actions for the protection functions affected. The Completion Times are those from the referenced Conditions and Required Actions.

~~B.1, B.2.1, and B.2.2~~

Condition B applies to manual initiation of:

- SI,
- Containment Spray,
- Phase A Isolation, and
- Phase B Isolation.

BASES

ACTIONS (continued)

This action addresses the train orientation of the SSPS for the functions listed above. If a channel or train is inoperable, 24 hours is allowed to return it to an OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ Note that for containment spray and Phase B isolation, failure of one or both channels in one train renders the train inoperable. Condition B, therefore, encompasses both situations. The specified Completion Time is reasonable considering that there are two automatic actuation trains and another manual initiation train OPERABLE for each Function, and the low probability of an event occurring during this interval. ~~If the train cannot be restored to OPERABLE status, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (54 hours total time) and in MODE 5 within an additional 30 hours (84 hours total time). The allowable 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.~~

----- REVIEWER'S NOTE -----

Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1, C.2]

With two channels or trains inoperable the Required Action is to restore the inoperable channels or trains to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable channels or trains. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable if the second channel or train is intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one channel or train is inoperable for any reason and the second channel or train is found to be inoperable, or if two channels or trains are found to be inoperable at the same time.]

D.1

Condition ~~GD~~ applies to the automatic actuation logic and actuation relays for the following functions:

- SI,
- Containment Spray,
- Phase A Isolation,
- Phase B Isolation, and
- Automatic Switchover to Containment Sump.

This action addresses the train orientation of the SSPS and the master and slave relays. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 8. The specified Completion Time is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. ~~If the train cannot be restored to OPERABLE status, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within~~

BASES

ACTIONS (continued)

~~an additional 6 hours (30 hours total time) and in MODE 5 within an additional 30 hours (60 hours total time). The 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.~~

The Required Actions are modified by a Note that allows one train to be bypassed for up to [4] hours for surveillance testing, provided the other train is OPERABLE. This allowance is based on the reliability analysis assumption of WCAP-10271-P-A (Ref. 9) that 4 hours is the average time required to perform train surveillance.

----- REVIEWER'S NOTE -----
Condition E is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[DE.1, D.2]

With two trains inoperable the Required Action is to restore the inoperable trains to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable trains. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when second train is intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one channel is inoperable for any reason and the second channel is found to be inoperable, or if two channels are found to be inoperable at the same time.]

E.1

Condition ~~D~~F applies to:

- Containment Pressure - High 1,
- Pressurizer Pressure - Low (two, three, and four loop units),
- Steam Line Pressure - Low,
- Steam Line Differential Pressure - High,

Engineered Safety Feature Actuation System (ESFAS) Instrumentation
B 3.3.2

- High Steam Flow in Two Steam Lines Coincident With T_{avg} - Low Low or Coincident With Steam Line Pressure - Low,
- Containment Pressure - High 2,
- Steam Line Pressure - Negative Rate - High,
- High Steam Flow Coincident With Safety Injection Coincident With T_{avg} - Low Low,
- High High Steam Flow Coincident With Safety Injection,
- High Steam Flow in Two Steam Lines Coincident With T_{avg} - Low Low,
- SG Water level - Low Low (two, three, and four loop units), and
- [SG Water level - High High (P-14) (two, three, and four loop units).]

BASES

ACTIONS (continued)

If one channel is inoperable, 72 hours are allowed to restore the channel to OPERABLE status or to place it in the tripped condition. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ Generally this Condition applies to functions that operate on two-out-of-three logic. Therefore, failure of one channel places the Function in a two-out-of-two configuration. One channel must be tripped to place the Function in a one-out-of-three configuration that satisfies redundancy requirements. The 72 hours allowed to restore the channel to OPERABLE status or to place it in the tripped condition is justified in Reference 8.

~~Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 72 hours requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 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. In MODE 4, these Functions are no longer required OPERABLE.~~

[The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 12 hours for surveillance testing of other channels. The 12 hours allowed for testing, are justified in Reference 8.]

-----REVIEWER'S NOTE-----

The below text should be used for plants with installed bypass test capability:

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 8.

----- REVIEWER'S NOTE -----

Condition G is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[E.G. 1, E.2.]

With two or more channels inoperable or one channel inoperable in more than one loop, steam line, or steam generator the Required Action is to restore sufficient channels to OPERABLE status within 1, and E.2.2 hour. The 1 hour Completion Time is acceptable because it minimizes risk

while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more required channels or one channel in more than one loop, steam line, or steam generator are intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one channel is inoperable for any reason and additional channels are found to be inoperable, or if two or more channels are found to be inoperable at the same time.]

H.1

Condition ~~E~~H applies to:

- Containment Spray Containment Pressure - High 3 (High, High) (two, three, and four loop units), and
- Containment Phase B Isolation Containment Pressure - High 3 (High, High).

BASES

ACTIONS (continued)

None of these signals has input to a control function. Thus, two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel. This is undesirable because a single failure would then cause spurious containment spray initiation. Spurious spray- actuation is undesirable because of the cleanup problems presented. Therefore, these channels are designed with two-out-of-four logic so that a failed channel may be bypassed rather than tripped. Note that one channel may be bypassed and still satisfy the single failure criterion. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray.

To avoid the inadvertent actuation of containment spray and Phase B containment isolation, the inoperable channel should not be placed in the tripped condition. Instead it is bypassed. Restoring the channel to OPERABLE status, or -placing the inoperable channel in the bypass condition within 72 hours, is sufficient to assure that the Function remains OPERABLE and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The Completion Time is further justified based on the low probability of an event occurring during this interval. ~~Failure to restore the inoperable channel to OPERABLE status, or place it in the bypassed condition within 6 hours, requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 72 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. In MODE 4, these Functions are no longer required OPERABLE.~~

[The Required Actions are modified by a Note that allows one additional channel to be bypassed for up to 12 hours for surveillance testing. Placing a second channel in the bypass condition for up to 12 hours for testing purposes is acceptable based on the results of Reference 8.]

-----REVIEWER'S NOTE-----
The below text should be used for plants with installed bypass test capability:

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 12 hour time limit is justified in Reference 8.

----- REVIEWER'S NOTE -----

Condition I is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[I.1

With two or more Containment Pressure channels inoperable the Required Action is to restore sufficient inoperable Containment Pressure channel(s) to OPERABLE status within 1 hour to restore the Containment Pressure instrumentation function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second Containment Pressure channel is intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one Containment Pressure channel is inoperable for any reason and additional Containment Pressure channels are found to be inoperable, or if two or more Containment Pressure channels are found to be inoperable at the same time.]

BASES

ACTIONS (continued)

F.1, F.2.1, and F.2.2J.1

Condition FJ applies to:

- Manual Initiation of Steam Line Isolation,
- Loss of Offsite Power,
- Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low, and
- P-4 Interlock.

For the Manual Initiation and the P-4 Interlock Functions, this action addresses the train orientation of the SSPS. For the Loss of Offsite Power Function, this action recognizes the lack of manual trip provision for a failed channel. For the AFW System pump suction transfer channels, this action recognizes that placing a failed channel in trip during operation is not necessarily a conservative action. Spurious trip of this function could align the AFW System to a source that is not immediately capable of supporting pump suction. If a train or channel is inoperable, 48 hours is allowed to return it to OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Program.]~~ The specified Completion Time is reasonable considering the nature of these Functions, the available redundancy, and the low probability of an event occurring during this interval. ~~If the Function cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.~~

----- REVIEWER'S NOTE -----
Condition K is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[GK.1, G.2.

With two or more required channels or two trains inoperable the Required Action is to restore the inoperable channels or trains to OPERABLE status within ~~1, and G.2.2~~ hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable channels or trains. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more required channels or the second train are intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one required channel or train is inoperable for any reason and additional required channels or a second train are found to be inoperable, or if two or more required channels or two trains are found to be inoperable at the same time.]

L.1

Condition ~~GL~~ applies to the automatic actuation logic and actuation relays for the Steam Line Isolation [,Turbine Trip and Feedwater Isolation,] and AFW actuation Functions.

BASES

ACTIONS (continued)

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 8. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. ~~If the train cannot be returned to OPERABLE status, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 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. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.~~

The Required Actions are modified by a Note that allows one train to be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 9) assumption that 4 hours is the average time required to perform channel surveillance.

----- REVIEWER'S NOTE -----
Condition M is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[M.1

~~With two trains inoperable the Required Action is to restore the inoperable trains to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable trains. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.~~

~~The Condition is modified by a Note stating it is not applicable when the second train is intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one train is inoperable for any reason and the second train is found to be inoperable, or if two trains are found to be inoperable at the same time.]~~

[~~HN.1 and H.2~~]

Condition ~~HN~~ applies to the automatic actuation logic and actuation relays for the Turbine Trip and Feedwater Isolation Function.

This action addresses the train orientation of the SSPS and the master and slave relays for this Function. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status ~~or the unit must be placed in MODE 3 within the following 6 hours.. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ The 24 hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference 8. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. ~~The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. These Functions are no longer required in MODE 3. Placing the unit in MODE 3 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above..~~

BASES

ACTIONS (continued)

The Required Actions are modified by a Note that allows one train to be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 9) assumption that 4 hours is the average time required to perform channel surveillance.]

----- REVIEWER'S NOTE -----
Condition O is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[O.1 and I.2

With two trains inoperable the Required Action is to restore the inoperable trains to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the inoperable trains. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second train is intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one train is inoperable for any reason and the second train is found to be inoperable, or if two trains are found to be inoperable at the same time.]

P.1

Condition ~~I~~P applies to:

- [SG Water Level - High High (P-14) (two, three, and four loop units), and]
- Undervoltage Reactor Coolant Pump.

If one channel is inoperable, 72 hours are allowed to restore one channel to OPERABLE status or to place it in the tripped condition. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ If placed in the tripped condition, the Function is then in a partial trip condition where one-out-of-two or one-out-of-three logic will result in actuation. ~~Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 72 hours requires the unit to be placed in MODE 3 within the following 6 hours. The allowed Completion Time of 78 hours is~~

Engineered Safety Feature Actuation System (ESFAS) Instrumentation
B 3.3.2

~~reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, these Functions are no longer required OPERABLE.~~

[The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to [12] hours for surveillance testing of other channels. The 72 hours allowed to place the inoperable channel in the tripped condition, and the 12 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 8.]

-----REVIEWER'S NOTE-----
The below text should be used for plants with installed bypass test capability:

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The 72 hours allowed to place the inoperable channel in the tripped condition, and the 12 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 8.

----- REVIEWER'S NOTE -----
Condition Q is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[Q.1

With two or more channels inoperable the Required Action is to restore sufficient channels to OPERABLE status within 1 hour to restore the safety function and reduce the number of inoperable channels to no more than one. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the two or more channels are intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one channel is inoperable for any reason and additional channels are found to be inoperable, or if two or more channels trains are found to be inoperable at the same time.]

BASES

ACTIONS (continued)

JR.1 and J.2

Condition **JR** applies to the AFW pump start on trip of all MFW pumps.

This action addresses the train orientation of the SSPS for the auto start function of the AFW System on loss of all MFW pumps. The OPERABILITY of the AFW System must be assured by allowing automatic start of the AFW System pumps. If a channel is inoperable, 48 hours are allowed to return it to an OPERABLE status. ~~If the function cannot be returned to an OPERABLE status, 6 hours are allowed to place the unit in MODE 3. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above.~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The allowance of 48 hours to return the train to an OPERABLE status is justified in Reference 9.

----- REVIEWER'S NOTE -----

Condition S is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[KS.1, K.2.1,

With two or more Main Feedwater Pumps trip channels inoperable the Required Action is to restore sufficient inoperable channels to OPERABLE status to restore the safety function and ~~K.2.2~~ have no more than one channel inoperable within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more Main Feedwater Pumps trip channels are intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one Main Feedwater Pumps trip channel is inoperable for any reason and additional Main Feedwater Pumps trip channels are found to be inoperable, or if two or more Main Feedwater Pumps trip channels are found to be inoperable at the same time.]

I.1

Condition **KT** applies to:

- RWST Level - Low Low Coincident with Safety Injection, and
- RWST Level - Low Low Coincident with Safety Injection and Coincident with Containment Sump Level - High.

RWST Level - Low Low Coincident With SI and Coincident With Containment Sump Level - High provides actuation of switchover to the containment sump. Note that this Function requires the bistables to energize to perform their required action. The failure of up to two channels will not prevent the operation of this Function. However, placing a failed channel in the tripped condition could result in a premature switchover to the sump, prior to the injection of the minimum volume from the RWST. Placing the inoperable channel in bypass results in a two-out-of-three logic configuration, which satisfies the requirement to allow another failure without disabling actuation of the switchover when required. Restoring the channel to OPERABLE status or placing the inoperable channel in the bypass condition within [6] hours is sufficient to ensure that the Function remains OPERABLE, and minimizes the time that the Function may be in a partial trip condition (assuming the

BASES

ACTIONS (continued)

~~inoperable channel has failed high). The [6] hour Completion Time is justified in Reference 10. If the channel cannot be returned to OPERABLE status or placed in the bypass condition within 6 hours, the unit must be brought to MODE 3 within the following [6] hours and MODE 5 within the next 30 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. In MODE 5, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.~~

[The Required Actions are modified by a Note that allows placing a second channel in the bypass condition for up to [4] hours for surveillance testing. The total of [12] hours to reach MODE 3 and [4] hours for a second channel to be bypassed is acceptable based on the results of Reference 10.]

-----REVIEWER'S NOTE-----
The below text should be used for plants with installed bypass test capability:

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing routine surveillance testing. The channel to be tested can be tested in bypass with the inoperable channel also in bypass. The total of [12] hours to reach MODE 3 and [4] hours for a second channel to be bypassed is acceptable based on the results of Reference 10.

----- REVIEWER'S NOTE -----
Condition U is only applicable to plants that have adopted a Risk Informed Completion Time Program.

~~[LU.1, L.2.1,~~

~~With two or more channels inoperable the Required Action is to restore sufficient inoperable channels to OPERABLE status to restore the safety function and L.2.2 have no more than one channel inoperable within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.~~

~~The Condition is modified by a Note stating it is not applicable when two or more channels are intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or~~

components from service. The Required Action is only applicable if one channel is inoperable for any reason and additional channels are found to be inoperable, or if two or more channels are found to be inoperable at the same time.]

V.1

Condition LV applies to the P-11 and P-12 [and P-14] interlocks.

With one or more channels inoperable, the operator must verify that the interlock is in the required state for the existing unit condition. This action manually accomplishes the function of the interlock. Determination must be made within 1 hour [or in accordance with the Risk Informed Completion Time Program]. The 1 hour Completion Time is equal to the time allowed by LCO 3.0.3 to initiate shutdown actions in the event of a complete loss of ESFAS function. ~~If the interlock is not in the required state (or placed in the required state) for the existing unit condition, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 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. Placing the unit in MODE 4 removes all requirements for OPERABILITY of these interlocks.~~

W.1

If the Required Action and associated Completion Time of Condition B, [C,] D, [E,] T or [U] is not met, the unit must be placed in a MODE in which the LCO does not apply. This is accomplished by placing the unit in MODE 3 within 6 hours and 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. In MODE 4, these Functions are no longer required OPERABLE.

X.1

If the Required Action and associated Completion Time of Condition F, [G,] H, [I,] J, [K,] L, [M] or V is not met, the unit must be placed in MODE 3 within 6 hours and 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. In MODE 4, these Functions are no longer required OPERABLE.

Y.1

If the Required Action and associated Completion Time of Condition N, [O,] P, [Q,] R or [S] is not met, the unit must be placed in MODE 3 within 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, these Functions are no longer required OPERABLE.

BASES

ACTIONS (continued)

Because the required channels are specified on a per bus basis, the Condition may be entered separately for each bus as appropriate.

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in the LCO. The Completion Time(s) of the inoperable channel(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 LOP DG start Functions with one loss of voltage or one degraded voltage channel per bus inoperable.

If one channel is inoperable, Required Action A.1 requires that channel to be placed in trip within [6] hours for in accordance with the Risk Informed Completion Time Program. With a channel in trip, the LOP DG start instrumentation channels are configured to provide a one-out-of-three logic to initiate a trip of the incoming offsite power.

A Note is added to allow bypassing an inoperable channel for up to [4] hours for surveillance testing of other channels. This allowance is made where bypassing the channel does not cause an actuation and where at least two other channels are monitoring that parameter.

The specified Completion Time and time allowed for bypassing one channel are reasonable considering the Function remains fully OPERABLE on every bus and the low probability of an event occurring during these intervals.

B.1

Condition B applies when more than one loss of voltage or more than one degraded voltage channel per bus are inoperable.

Required Action B.1 requires restoring all but one channel per bus to OPERABLE status. The 1 hour Completion Time should allow ample time to repair most failures and takes into account the low probability of an event requiring an LOP start occurring during this interval. Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

BASES

ACTIONS (continued)

C.1

Condition C applies to each of the LOP DG start Functions when the Required Action and associated Completion Time for Condition A or B are not met.

In these circumstances the Conditions specified in LCO 3.8.1, "AC Sources - Operating," or LCO 3.8.2, "AC Sources - Shutdown," for the DG made inoperable by failure of the LOP DG start instrumentation are required to be entered immediately. The actions of those LCOs provide for adequate compensatory actions to assure unit safety.

SURVEILLANCE
REQUIREMENTSSR 3.3.5.1

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. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit 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.

The Frequency is based on operating experience that demonstrates 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.

BASES

ACTIONS (continued)

A.1

With one train of the BDPS OPERABLE, Required Action A.1 requires that the inoperable train must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining the BDPS train is adequate to provide protection. The 72 hour Completion Time is based on the BDPS Function and is consistent with Engineered Safety Feature Actuation System Completion Times for loss of one redundant train. Also, the remaining OPERABLE train provides continuous indication of core power status to the operator, has an alarm function, and sends a signal to both trains of the BDPS to assure system actuation.

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program. If Condition B is not incorporated, Condition C includes the condition of "Two trains inoperable."

[B.1 and B.2

With two trains inoperable, the initial action (Required Action B.1) is to suspend all operations involving positive reactivity additions immediately. This includes withdrawal of control or shutdown rods and intentional boron dilution. A Completion Time of 1 hour or in accordance with the Risk Informed Completion Time Program is provided to restore the inoperable trains to OPERABLE status.

The Condition is modified by a Note stating it is not applicable when the second train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Actions are only applicable if train is inoperable for any reason and the second train is found to be inoperable, or if both trains are found to be inoperable at the same time.]

CB.1, CB.2.1, CB.2.2.1, and CB.2.2.2

With [two trains inoperable, or] the Required Action and associated Completion Time of Condition A [or B] not met, the initial action (Required Action BC.1) is to suspend all operations involving positive reactivity additions immediately. This includes withdrawal of control or shutdown rods and intentional boron dilution. A Completion Time of 1 hour is provided to restore one train to OPERABLE status.

Required Action C.2.1 requires that at least one of the inoperable BDPS trains be restored in 1 hour [or in accordance with the Risk Informed

Completion Time Program]. As an alternate to restoring one train to OPERABLE status (Required Action **BC.2.1**), Required Action **BC.2.2.1** requires valves listed in LCO 3.9.2 (Required Action A.2) to be secured to prevent the flow of unborated water into the RCS. Once it is recognized that two trains of the BDPS are inoperable, the operators will be aware of the possibility of a boron dilution, and the 1 hour Completion Time is adequate to complete the requirements of LCO 3.9.2.

Required Action **BC.2.2.2** accompanies Required Action **BC.2.2.1** to verify the SDM according to SR 3.1.1.1 within 1 hour and once per 12 hours thereafter. This backup action is intended to confirm that no unintended boron dilution has occurred while the BDPS was inoperable, and that the required SDM has been maintained. The specified Completion Time takes into consideration sufficient time for the initial determination of SDM and other information available in the control room related to SDM.

Required Action **BC.1** is modified by a Note which permits plant temperature changes provided the temperature change is accounted for in the calculated SDM. Introduction of temperature changes, including temperature increases when a positive MTC exists, must be evaluated to ensure they do not result in a loss of required SDM.

BASES

ACTIONS

A.1

If one [required] RCS loop is inoperable, redundancy for heat removal is lost. The Required Action is restoration of the required RCS loop to OPERABLE status within the Completion Time of 72 hours [or in accordance with the Risk Informed Completion Time Program]. This time allowance is a justified period to be without the redundant, nonoperating loop because a single loop in operation has a heat transfer capability greater than that needed to remove the decay heat produced in the reactor core and because of the low probability of a failure in the remaining loop occurring during this period.

B.1

If restoration for Required Action A.1 is not possible within 72 hours, the unit must be brought to MODE 4. In MODE 4, the unit may be placed on the Residual Heat Removal System. The additional Completion Time of 12 hours is compatible with required operations to achieve cooldown and depressurization from the existing plant conditions in an orderly manner and without challenging plant systems.

[C.1 and C.2

If one required RCS loop is not in operation, and the Rod Control System is capable of rod withdrawal, the Required Action is either to restore the required RCS loop to operation or to place the Rod Control System in a condition incapable of rod withdrawal (e.g., de-energize all CRDMs by opening the RTBs or de-energizing the motor generator (MG) sets). When the Rod Control System is capable of rod withdrawal, it is postulated that a power excursion could occur in the event of an inadvertent control rod withdrawal. This mandates having the heat transfer capacity of two RCS loops in operation. If only one loop is in operation, the Rod Control System must be rendered incapable of rod withdrawal. The Completion Times of 1 hour, to restore the required RCS loop to operation or defeat the Rod Control System is adequate to perform these operations in an orderly manner without exposing the unit to risk for an undue time period. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

D.1, D.2, and D.3

If [two] [required] RCS loops are inoperable or a required RCS loop is not in operation, except as during conditions permitted by the Note in the LCO section, the Rod Control System must be placed in a condition incapable of rod withdrawal (e.g., all CRDMs must be de-energized by opening the RTBs or de-energizing the MG sets). All operations involving introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 must be suspended, and action to restore one of the RCS loops to OPERABLE status and operation must be initiated. Boron dilution requires forced circulation for proper mixing, and opening the RTBs or de-energizing the MG sets removes the possibility of an inadvertent rod withdrawal. Suspending the introduction of coolant into the RCS of coolant with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core, however coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Time reflects the importance of maintaining operation for heat removal. The action to restore must be continued until one loop is restored to OPERABLE status and operation.

SURVEILLANCE
REQUIREMENTSSR 3.4.5.1

This SR requires verification every 12 hours that the required loops are in operation. Verification includes flow rate, temperature, and pump status monitoring, which help ensure that forced flow is providing heat removal. The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RCS loop performance.

SR 3.4.5.2

SR 3.4.5.2 requires verification of SG OPERABILITY. SG OPERABILITY is verified by ensuring that the secondary side narrow range water level is \geq [17]% for required RCS loops. If the SG secondary side narrow range water level is $<$ [17]%, the tubes may become uncovered and the associated loop may not be capable of providing the heat sink for removal of the decay heat. The 12 hour Frequency is considered adequate in view of other indications available in the control room to alert the operator to a loss of SG level.

BASES

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, A.2, A.3, and A.4

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 bring the plant to a MODE in which the LCO does not apply. To achieve this status, within 6 hours the unit must be brought to MODE 3 with all rods fully inserted and incapable of withdrawal. Additionally, the unit must be brought to MODE 4 within 12 hours. This takes the unit out of the applicable MODES.

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 [or in accordance with the Risk Informed Completion Time Program]. 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.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1]

With two [required] groups of pressurizer heaters is inoperable, the Required Action is to restore the [required] inoperable pressurizer heaters to OPERABLE status within 1 hour to regain this safety function, prior to initiating actions to place the plant in a MODE or other specified condition in which the LCO does not apply. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second [required] group of pressurizer heaters is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [required] group of pressurizer heaters is inoperable for any reason and the second [required] group of pressurizer heaters is found to be inoperable, or if two [required] groups of pressurizer heaters are found to be inoperable at the same time.]

DG.1 and GD.2

If ~~one [or two]~~ group[s] 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
REQUIREMENTSSR 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 safety analyses assumption of ensuring that

BASES

APPLICABILITY (continued)

The LCO is not applicable in MODE 4 when any RCS cold leg temperatures are \leq [275°F] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR] or in MODE 5 because LTOP is provided. Overpressure protection is not required in MODE 6 with reactor vessel head detensioned.

The Note allows entry into MODES 3 and 4 with the lift settings outside the LCO limits. This permits testing and examination of the safety valves at high pressure and temperature near their normal operating range, but only after the valves have had a preliminary cold setting. The cold setting gives assurance that the valves are OPERABLE near their design condition. Only one valve at a time will be removed from service for testing. The [54] hour exception is based on 18 hour outage time for each of the [three] valves. The 18 hour period is derived from operating experience that hot testing can be performed in this timeframe.

ACTIONS

A.1

With one pressurizer safety valve inoperable, restoration must take place within 15 minutes [for in accordance with the Risk Informed Completion Time Program](#). The Completion Time of 15 minutes reflects the importance of maintaining the RCS Overpressure Protection System. An inoperable safety valve coincident with an RCS overpressure event could challenge the integrity of the pressure boundary.

B.1 and B.2

If the Required Action of A.1 cannot be met within the required Completion Time or if two or more pressurizer safety valves are inoperable, 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 4 with any RCS cold leg temperatures \leq [275°F] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR] within [24] 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. With any RCS cold leg temperatures at or below [275°F] [Low Temperature Overpressure (LTOP) arming temperature specified in the PTLR], overpressure protection is provided by the LTOP System. The change from MODE 1, 2, or 3 to MODE 4 reduces the RCS energy (core power and pressure), lowers the potential for large pressurizer surges, and thereby removes the need for overpressure protection by [three] pressurizer safety valves.

BASES

APPLICABILITY In MODES 1, 2, and 3, the PORV and its block valve are required to be OPERABLE to limit the potential for a small break LOCA through the flow path. The most likely cause for a PORV small break LOCA is a result of a pressure increase transient that causes the PORV to open. Imbalances in the energy output of the core and heat removal by the secondary system can cause the RCS pressure to increase to the PORV opening setpoint. The most rapid increases will occur at the higher operating power and pressure conditions of MODES 1 and 2. The PORVs are also required to be OPERABLE in MODES 1, 2, and 3 for manual actuation to mitigate a steam generator tube rupture event.

Pressure increases are less prominent in MODE 3 because the core input energy is reduced, but the RCS pressure is high. Therefore, the LCO is applicable in MODES 1, 2, and 3. The LCO is not applicable in MODES 4, 5, and 6 with the reactor vessel head in place when both pressure and core energy are decreased and the pressure surges become much less significant. LCO 3.4.12 addresses the PORV requirements in these MODES.

ACTIONS Note 1 has been added to clarify that all pressurizer PORVs and block valves are treated as separate entities, each with separate Completion Times (i.e., the Completion Time is on a component basis).

-----REVIEWER'S NOTE-----
 The bracketed options in Conditions B, C, E, and F are to accommodate plants with three PORVs and associated block valves.

A.1

PORVs may be inoperable and capable of being manually cycled (e.g., excessive seat leakage). In this condition, either the PORVs must be restored or the flow path isolated within 1 hour. The associated block valve is required to be closed, but power must be maintained to the associated block valve, since removal of power would render the block valve inoperable. This permits operation of the plant until the next refueling outage (MODE 6) so that maintenance can be performed on the PORVs to eliminate the problem condition.

Quick access to the PORV for pressure control can be made when power remains on the closed block valve. The Completion Time of 1 hour is based on plant operating experience that has shown that minor problems can be corrected or closure accomplished in this time period.

BASES

ACTIONS (continued)

B.1, B.2, and B.3

If one [or two] PORV[s] is inoperable and not capable of being manually cycled, it must be either restored, or isolated by closing the associated block valve and removing the power to the associated block valve. The Completion Times of 1 hour are reasonable, based on challenges to the PORVs during this time period, and provide the operator adequate time to correct the situation. If the inoperable valve cannot be restored to OPERABLE status, it must be isolated within the specified time of 1 hour. Because there is at least one PORV that remains OPERABLE, an additional 72 hours is provided to restore the inoperable PORV to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the PORV cannot be restored within this additional time, the plant must be brought to a MODE in which the LCO does not apply, as required by Condition D.

C.1 and C.2

If one [or two] block valve(s) are inoperable, then it is necessary to either restore the block valve(s) to OPERABLE status within the Completion Time of 1 hour or place the associated PORV in manual control. The prime importance for the capability to close the block valve(s) is to isolate a stuck open PORV. Therefore, if the block valve(s) cannot be restored to OPERABLE status within 1 hour, the Required Action is to place the PORV in manual control to preclude its automatic opening for an overpressure event and to avoid the potential for a stuck open PORV at a time that the block valve(s) are inoperable. The Completion Time of 1 hour is reasonable, based on the small potential for challenges to the system during this time period, and provides the operator time to correct the situation. Because at least one PORV remains OPERABLE, the operator is permitted a Completion Time of 72 hours to restore the inoperable block valve(s) to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The time allowed to restore the block valve(s) is based upon the Completion Time for restoring an inoperable PORV in Condition B, since the PORVs may not be capable of mitigating an event if the inoperable block valve(s) are not full open. If the block valve(s) are restored within the Completion Time of 72 hours, the PORV may be restored to automatic operation. If it cannot be restored within this additional time, the plant must be brought to a MODE in which the LCO does not apply, as required by Condition D.

BASES

ACTIONS (continued)

The Required Actions C.1 and C.2 are modified by a Note stating that the Required Actions do not apply if the sole reason for the block valve being declared inoperable is as a result of power being removed to comply with other Required Actions. In this event, the Required Actions for inoperable PORV(s) (which require the block valve power to be removed once it is closed) are adequate to address the condition. While it may be desirable to also place the PORV(s) in manual control, this may not be possible for all causes of Condition B or E entry with PORV(s) inoperable and not capable of being manually cycled (e.g., as a result of failed control power fuse(s) or control switch malfunctions(s)).

D.1 and D.2

If the Required Action of Condition A, B, or C is not met, then 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. In MODES 4 and 5, automatic PORV OPERABILITY may be required. See LCO 3.4.12.

----- REVIEWER'S NOTE -----
Plants that have adopted a Risk Informed Completion Time Program utilize Required Action E.3 ("Restore inoperable PORVs to OPERABLE status." Otherwise, utilize the shutdown requirements in Required Actions E.3 and E.4.

E.1, E.2, [and] E.3[, and E.4]

If more than one PORV is inoperable and not capable of being manually cycled, it is necessary to either restore at least one valve within the Completion Time of 1 hour [or in accordance with the Risk Informed Completion Time Program], or isolate the flow path by closing and removing the power to the associated block valves. The Completion Time of 1 hour is reasonable, based on the small potential for challenges to the system during this time and provides the operator time to correct the situation. [If no PORVs are restored within the Completion Time, then 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. In MODES 4 and 5, automatic PORV OPERABILITY may be required. See LCO 3.4.12.

BASES

ACTIONS (continued)

F.1

If two [or three] block valve(s) are inoperable, it is necessary to restore at least one block valve within 2 hours [or in accordance with the Risk Informed Completion Time Program]. The Completion Time is reasonable, based on the small potential for challenges to the system during this time and provide the operator time to correct the situation.

Required Action F.1 is modified by a Note stating that the Required Action does not apply if the sole reason for the block valve being declared inoperable is a result of power being removed to comply with other Required Actions. In this event, the Required Actions for inoperable PORV(s) (which require the block valve power to be removed once it is closed) are adequate to address the condition. While it may be desirable to also place the PORV(s) in manual control, this may not be possible for all causes of Condition B or E entry with PORV(s) inoperable and not capable of being manually cycled (e.g., as a result of failed control power fuse(s) or control switch malfunctions(s)).

G.1 and G.2

If the Required Action of Condition [E or] F is not met, then 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. In MODES 4 and 5, automatic PORV OPERABILITY may be required. See LCO 3.4.12.

SURVEILLANCE
REQUIREMENTSSR 3.4.11.1

Block valve cycling verifies that the valve(s) can be opened and closed if needed. The basis for the Frequency of 92 days is the ASME Code (Ref. 3).

This SR is modified by two Notes. Note 1 modifies this SR by stating that it is not required to be performed with the block valve closed in accordance with the Required Actions of this LCO. Opening the block valve in this condition increases the risk of an unisolable leak from the RCS since the PORV is already inoperable. Note 2 modifies this SR to allow entry into and operation in MODE 3 prior to performing the SR. This allows the test to be performed in MODE 3 under operating

BASES

ACTIONS (continued)

[Required Action A.2 specifies that the double isolation barrier of two valves be restored by closing some other valve qualified for isolation or restoring one leaking PIV. The 72 hour Completion Time after exceeding the limit considers the time required to complete the Action and the low probability of a second valve failing during this time period.

[or]

The 72 hour Completion Time after exceeding the limit allows for the restoration of the leaking PIV to OPERABLE status. This timeframe considers the time required to complete this Action and the low probability of a second valve failing during this period.]

-----REVIEWER'S NOTE-----
Two options are provided for Required Action A.2. The second option (72 hour restoration) is appropriate if isolation of a second valve would place the unit in an unanalyzed condition.

B.1 and B.2

If leakage cannot be reduced, [the system can not be isolated,] or the other Required Actions accomplished, 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 MODE 3 within 6 hours and MODE 5 within 36 hours. This Action may reduce the leakage and also reduces the potential for a LOCA outside the containment. 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

The inoperability of the RHR autoclosure interlock renders the RHR suction isolation valves incapable of isolating in response to a high pressure condition and preventing inadvertent opening of the valves at RCS pressures in excess of the RHR systems design pressure. If the RHR autoclosure interlock is inoperable, operation may continue as long as the affected RHR suction penetration is closed by at least one closed manual or deactivated automatic valve within 4 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** This Action accomplishes the purpose of the autoclosure function.

BASES

ACTIONS

A.1

If the boron concentration of one accumulator is not within limits, it must be returned to within the limits within 72 hours for in accordance with the Risk Informed Completion Time Program. In this Condition, ability to maintain subcriticality or minimum boron precipitation time may be reduced. The boron in the accumulators contributes to the assumption that the combined ECCS water in the partially recovered core during the early reflooding phase of a large break LOCA is sufficient to keep that portion of the core subcritical. One accumulator below the minimum boron concentration limit, however, will have no effect on available ECCS water and an insignificant effect on core subcriticality during reflood. Boiling of ECCS water in the core during reflood concentrates boron in the saturated liquid that remains in the core. In addition, current analysis techniques demonstrate that the accumulators do not discharge following a large main steam line break for the majority of plants. Even if they do discharge, their impact is minor and not a design limiting event. Thus, 72 hours is allowed to return the boron concentration to within limits.

B.1

If one accumulator is inoperable for a reason other than boron concentration, the accumulator must be returned to OPERABLE status within 24 hours for in accordance with the Risk Informed Completion Time Program. In this Condition, the required contents of three accumulators cannot be assumed to reach the core during a LOCA. Due to the severity of the consequences should a LOCA occur in these conditions, the 24 hour Completion Time to open the valve, remove power to the valve, or restore the proper water volume or nitrogen cover pressure ensures that prompt action will be taken to return the inoperable accumulator to OPERABLE status. The Completion Time minimizes the potential for exposure of the plant to a LOCA under these conditions. The 24 hours allowed to restore an inoperable accumulator to OPERABLE status is justified in WCAP-15049-A, Rev. 1 (Ref. 4).

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1 and C.2

With two or more accumulators inoperable the Required Action is to restore sufficient inoperable accumulators to OPERABLE status within 1 hour to regain this safety function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient accumulators. Alternately, a Completion Time can be

determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more accumulators are intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one accumulator is inoperable for any reason and additional accumulators are found to be inoperable, or if two or more accumulators are found to be inoperable at the same time.]

D.1 and D.2

If the accumulator[(s)] cannot be returned to OPERABLE status within the associated 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 MODE 3 within 6 hours and RCS pressure reduced to ≤ 1000 psig 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.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition E is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[E].1

If more than one accumulator is inoperable, the plant is in a condition outside the accident analyses; therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE
REQUIREMENTSSR 3.5.1.1

Each accumulator valve should be verified to be fully open every 12 hours. This verification ensures that the accumulators are available for injection and ensures timely discovery if a valve should be less than fully open. If an isolation valve is not fully open, the rate of injection to the RCS would be reduced. Although a motor operated valve position should not change with power removed, a closed valve could result in not meeting accident analyses assumptions. This Frequency is considered reasonable in view of other administrative controls that ensure a mispositioned isolation valve is unlikely.

SR 3.5.1.2 and SR 3.5.1.3

Every 12 hours, borated water volume and nitrogen cover pressure are verified for each accumulator. This Frequency is sufficient to ensure adequate injection during a LOCA. Because of the static design of the accumulator, a 12 hour Frequency usually allows the operator to identify changes before limits are reached. Operating experience has shown this Frequency to be appropriate for early detection and correction of off normal trends.

SR 3.5.1.4

The boron concentration should be verified to be within required limits for each accumulator every 31 days since the static design of the accumulators limits the ways in which the concentration can be changed. The 31 day Frequency is adequate to identify changes that could occur from mechanisms such as stratification or inleakage. Sampling the affected accumulator within 6 hours after a 1% volume increase will identify whether inleakage has caused a reduction in boron concentration to below the required limit. It is not necessary to verify boron concentration if the added water inventory is from the refueling water

BASES

APPLICABILITY (continued)

This LCO is only applicable in MODE 3 and above. Below MODE 3, the SI signal setpoint is manually bypassed by operator control, and system functional requirements are relaxed as described in LCO 3.5.3, "ECCS - Shutdown."

In MODES 5 and 6, plant conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation - High Water Level," and LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level."

ACTIONS

A.1

With one or more trains inoperable and at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available, the inoperable components must be returned to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The 72 hour Completion Time is based on an NRC reliability evaluation (Ref. 5) and is a reasonable time for repair of many ECCS components.

An ECCS train is inoperable if it is not capable of delivering design flow to the RCS. Individual components are inoperable if they are not capable of performing their design function or supporting systems are not available.

The LCO requires the OPERABILITY of a number of independent subsystems. Due to the redundancy of trains and the diversity of subsystems, the inoperability of one component in a train does not render the ECCS incapable of performing its function. Neither does the inoperability of two different components, each in a different train, necessarily result in a loss of function for the ECCS. This allows increased flexibility in plant operations under circumstances when components in opposite trains are inoperable.

An event accompanied by a loss of offsite power and the failure of an EDG can disable one ECCS train until power is restored. A reliability analysis (Ref. 5) has shown that the impact of having one full ECCS train inoperable is sufficiently small to justify continued operation for 72 hours.

BASES

ACTIONS (continued)

Reference 6 describes situations in which one component, such as an RHR crossover valve, can disable both ECCS trains. With one or more component(s) inoperable such that 100% of the flow equivalent to a single OPERABLE ECCS train is not available, the facility is in a condition outside the accident analysis. Therefore, ~~LCO 3.0.3~~ Condition B must be immediately entered.

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

~~[B.1 and B.2~~

~~If the inoperable trains cannot be returned to OPERABLE status within the associated 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 MODE 3 within 6 hours and 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 A is applicable with one or more trains inoperable. The allowed Completion Time is based on the assumption that at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train is available. With less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available, the facility is in a condition outside of the accident analyses and flow must be restored to 100% of the ECCS flow equivalent to a single OPERABLE ECCS train within the 1 hour Completion Time, or a Completion Time determined under the Risk Informed Completion Time Program. The Completion Time is based on the need to restore the ECCS flow to within the safety analysis assumptions.

The Condition is modified by a Note stating it is not applicable when the second ECCS train is intentionally made inoperable. The Required Actions are not intended for voluntary removal of redundant systems or components from service. The Required Actions are only applicable if one ECCS train is inoperable for any reason and the second ECCS train is found to be inoperable, or if two ECCS trains are found to be inoperable at the same time.]

C.1 and C.2

If the inoperable trains cannot be returned to OPERABLE status or the ECCS flow equivalent cannot be returned to 100 % of the ECCS flow equivalent to a single OPERABLE ECCS train within the associated 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 MODE 3 within 6 hours and 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.

----- REVIEWER'S NOTE -----
 Condition D is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[D.1

Condition A is applicable with one or more trains inoperable. The allowed Completion Time is based on the assumption that at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train is available. With less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available, the facility is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE
REQUIREMENTSSR 3.5.2.1

Verification of proper valve position ensures that the flow path from the ECCS pumps to the RCS is maintained. Misalignment of these valves could render both ECCS trains inoperable. Securing these valves in position by removal of power or by key locking the control in the correct position ensures that they cannot change position as a result of an active failure or be inadvertently misaligned. These valves are of the type, described in Reference 6, that can disable the function of both ECCS trains and invalidate the accident analyses. A 12 hour Frequency is considered reasonable in view of other administrative controls that will ensure a mispositioned valve is unlikely.

BASES

LCO (continued)

This LCO is modified by a Note that allows an RHR train to be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned (remote or local) to the ECCS mode of operation and not otherwise inoperable. This allows operation in the RHR mode during MODE 4.

APPLICABILITY

In MODES 1, 2, and 3, the OPERABILITY requirements for ECCS are covered by LCO 3.5.2.

In MODE 4 with RCS temperature below 350°F, one OPERABLE ECCS train is acceptable without single failure consideration, on the basis of the stable reactivity of the reactor and the limited core cooling requirements.

In MODES 5 and 6, plant conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation - High Water Level," and LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level."

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable ECCS high head subsystem when entering MODE 4. There is an increased risk associated with entering MODE 4 from MODE 5 with an inoperable ECCS high head subsystem and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

With no ECCS RHR subsystem OPERABLE, the plant is not prepared to respond to a loss of coolant accident or to continue a cooldown using the RHR pumps and heat exchangers. The Completion Time of immediately to initiate actions that would restore at least one ECCS RHR subsystem to OPERABLE status ensures that prompt action is taken to restore the required cooling capacity. Normally, in MODE 4, reactor decay heat is removed from the RCS by an RHR loop. If no RHR loop is OPERABLE for this function, reactor decay heat must be removed by some alternate method, such as use of the steam generators. The alternate means of heat removal must continue until the inoperable RHR loop components can be restored to operation so that decay heat removal is continuous.

BASES

ACTIONS (continued)

With both RHR pumps and heat exchangers inoperable, it would be unwise to require the plant to go to MODE 5, where the only available heat removal system is the RHR. Therefore, the appropriate action is to initiate measures to restore one ECCS RHR subsystem and to continue the actions until the subsystem is restored to OPERABLE status.

B.1

With no ECCS high head subsystem OPERABLE, due to the inoperability of the centrifugal charging pump or flow path from the RWST, the plant is not prepared to provide high pressure response to Design Basis Events requiring SI. The 1 hour Completion Time to restore at least one ECCS high head subsystem to OPERABLE status ensures that prompt action is taken to provide the required cooling capacity or to initiate actions to place the plant in MODE 5, where an ECCS train is not required.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1

When the Required Actions of Condition B cannot be completed within the required Completion Time, a controlled shutdown should be initiated. Twenty-four hours is a reasonable time, based on operating experience, to reach MODE 5 in an orderly manner and without challenging plant systems or operators.

SURVEILLANCE
REQUIREMENTSSR 3.5.3.1

The applicable Surveillance descriptions from Bases 3.5.2 apply.

REFERENCES

The applicable references from Bases 3.5.2 apply.

BASES

APPLICABLE SAFETY ANALYSES (continued)

transfer from the core to the injected water for the small break LOCA and higher containment pressures due to reduced containment spray cooling capacity. For the containment response following an MSLB, the lower limit on boron concentration and the upper limit on RWST water temperature are used to maximize the total energy release to containment.

The RWST satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The RWST ensures that an adequate supply of borated water is available to cool and depressurize the containment in the event of a Design Basis Accident (DBA), to cool and cover the core in the event of a LOCA, to maintain the reactor subcritical following a DBA, and to ensure adequate level in the containment sump to support ECCS and Containment Spray System pump operation in the recirculation mode.

To be considered OPERABLE, the RWST must meet the water volume, boron concentration, and temperature limits established in the SRs.

APPLICABILITY

In MODES 1, 2, 3, and 4, RWST OPERABILITY requirements are dictated by ECCS and Containment Spray System OPERABILITY requirements. Since both the ECCS and the Containment Spray System must be OPERABLE in MODES 1, 2, 3, and 4, the RWST must also be OPERABLE to support their operation. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation - High Water Level," and LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level."

ACTIONS

A.1

With RWST boron concentration or borated water temperature not within limits, they must be returned to within limits within 8 hours for in accordance with the Risk Informed Completion Time Program. Under these conditions neither the ECCS nor the Containment Spray System can perform its design function. Therefore, prompt action must be taken to restore the tank to OPERABLE condition. The 8 hour limit to restore the RWST temperature or boron concentration to within limits was developed considering the time required to change either the boron concentration or temperature and the fact that the contents of the tank are still available for injection.

BASES

ACTIONS (continued)

B.1

With the RWST inoperable for reasons other than Condition A (e.g., water volume), it must be restored to OPERABLE status within 1 hour for in accordance with the Risk Informed Completion Time Program.

In this Condition, neither the ECCS nor the Containment Spray System can perform its design function. Therefore, prompt action must be taken to restore the tank to OPERABLE status or to place the plant in a MODE in which the RWST is not required. The short time limit of 1 hour to restore the RWST to OPERABLE status is based on this condition simultaneously affecting redundant trains.

C.1 and C.2

If the RWST cannot be returned to OPERABLE status within the associated 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
REQUIREMENTSSR 3.5.4.1

The RWST borated water temperature should be verified every 24 hours to be within the limits assumed in the accident analyses band. This Frequency is sufficient to identify a temperature change that would approach either limit and has been shown to be acceptable through operating experience.

The SR is modified by a Note that eliminates the requirement to perform this Surveillance when ambient air temperatures are within the operating limits of the RWST. With ambient air temperatures within the band, the RWST temperature should not exceed the limits.

BASES

APPLICABILITY In MODES 1, 2, and 3, the BIT OPERABILITY requirements are consistent with those of LCO 3.5.2, "ECCS - Operating."

In MODES 4, 5, and 6, the respective accidents are less severe, so the BIT is not required in these lower MODES.

ACTIONS

A.1

If the required volume is not present in the BIT, both the hot leg recirculation switchover time analysis and the boron precipitation analysis would not be met. Under these conditions, prompt action must be taken to restore the volume to above its required limit to declare the tank OPERABLE, or the plant must be placed in a MODE in which the BIT is not required.

The BIT boron concentration is considered in the hot leg recirculation switchover time analysis, the boron precipitation analysis, and the reactivity analysis for an MSLB. If the concentration were not within the required limits, these analyses could not be relied on. Under these conditions, prompt action must be taken to restore the concentration to within its required limits, or the plant must be placed in a MODE in which the BIT is not required.

The BIT temperature limit is established to ensure that the solution does not reach the boric acid crystallization point. If the temperature of the solution drops below the minimum, prompt action must be taken to raise the temperature and declare the tank OPERABLE, or the plant must be placed in a MODE in which the BIT is not required.

The 1 hour Completion Time to restore the BIT to OPERABLE status is consistent with other Completion Times established for loss of a safety function and ensures that the plant will not operate for long periods outside of the safety analyses. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

B.1, B.2, and B.3

When Required Action A.1 cannot be completed within the required Completion Time, a controlled shutdown should be initiated. Six hours is a reasonable time, based on operating experience, to reach MODE 3 from full power conditions and to be borated to the required SDM without challenging plant systems or operators. Borating to the required SDM assures that the plant is in a safe condition, without need for any additional boration.

BASES

ACTIONS (continued)

OPERABLE door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the containment during the short time in which the OPERABLE door is expected to be open. After each entry and exit, the OPERABLE door must be immediately closed. If ALARA conditions permit, entry and exit should be via an OPERABLE air lock.

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

In the event the air lock leakage results in exceeding the overall containment leakage rate, Note 3 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1, "Containment."

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

With one air lock door in one or more containment air locks inoperable, the OPERABLE door must be verified closed (Required Action A.1) in each affected containment air lock. This ensures that a leak tight containment barrier is maintained by the use of an OPERABLE air lock door. This action must be completed within 1 hour. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires containment be restored to OPERABLE status within 1 hour.

In addition, the affected air lock penetration must be isolated by locking closed the OPERABLE air lock door within the 24 hour Completion Time. The 24 hour Completion Time is reasonable for locking the OPERABLE air lock door, considering the OPERABLE door of the affected air lock is being maintained closed.

Required Action A.3 verifies that an air lock with an inoperable door has been isolated by the use of a locked and closed OPERABLE air lock door. This ensures that an acceptable containment leakage boundary is maintained. The Completion Time of once per 31 days is based on engineering judgment and is considered adequate in view of the low likelihood of a locked door being mispositioned and other administrative controls. Required Action A.3 is modified by a Note that applies to air lock doors located in high radiation areas and allows these doors to be

BASES

ACTIONS (continued)

verified locked 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 the door, once it has been verified to be in the proper position, is small.

The Required Actions have been modified by two Notes. Note 1 ensures that only the Required Actions and associated Completion Times of Condition C are required if both doors in the same air lock are inoperable. With both doors in the same air lock inoperable, an OPERABLE door is not available to be closed. Required Actions C.1 and C.2 are the appropriate remedial actions. The exception of Note 1 does not affect tracking the Completion Time from the initial entry into Condition A; only the requirement to comply with the Required Actions. Note 2 allows use of the air lock for entry and exit for 7 days under administrative controls if both air locks have an inoperable door. This 7 day restriction begins when the second air lock is discovered inoperable. Containment entry may be required on a periodic basis to perform Technical Specifications (TS) Surveillances and Required Actions, as well as other activities on equipment inside containment that are required by TS or activities on equipment that support TS-required equipment. This Note is not intended to preclude performing other activities (i.e., non-TS required activities) if the containment is entered, using the inoperable air lock, to perform an allowed activity listed above. This allowance is acceptable due to the low probability of an event that could pressurize the containment during the short time that the OPERABLE door is expected to be open.

B.1, B.2, and B.3

With an air lock interlock mechanism inoperable in one or more air locks, the Required Actions and associated Completion Times are consistent with those specified in Condition A.

The Required Actions have been modified by two Notes. Note 1 ensures that only the Required Actions and associated Completion Times of Condition C are required if both doors in the same air lock are inoperable. With both doors in the same air lock inoperable, an OPERABLE door is not available to be closed. Required Actions C.1 and C.2 are the appropriate remedial actions. Note 2 allows entry into and exit from containment under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs the function of the interlock).

BASES

ACTIONS (continued)

Required Action B.3 is modified by a Note that applies to air lock doors located in high radiation areas and allows these doors to be verified locked 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 the door, once it has been verified to be in the proper position, is small.

C.1, C.2, and C.3

With one or more air locks inoperable for reasons other than those described in Condition A or B, Required Action C.1 requires action to be initiated immediately to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable, since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour (per LCO 3.6.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Required Action C.2 requires that one door in the affected containment air lock must be verified to be closed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires that containment be restored to OPERABLE status within 1 hour.

Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour Completion Time [\[or in accordance with the Risk Informed Completion Time Program\]](#). The specified time period is considered reasonable for restoring an inoperable air lock to OPERABLE status, assuming that at least one door is maintained closed in each affected air lock.

D.1 and D.2

If the inoperable containment air lock cannot be restored to OPERABLE status 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.

BASES

ACTIONS (continued)

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.

In the event the isolation valve 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.

----- REVIEWER'S NOTE -----
 The bracketed phrase "following isolation" in the Completion Times for Required Actions A.2, C.2, E.2, and E.3 is only applicable to plants that have adopted a Risk Informed Completion Time Program.

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 failure. Isolation barriers that meet this criterion are a closed and deactivated 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 [or in accordance with the Risk Informed Completion Time Program]. 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

Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual)
B 3.6.3

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

BASES

ACTIONS (continued)

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 isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days [following isolation] 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 [or more] containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides the appropriate actions.

Required Action A.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. 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 [or more] containment isolation valves in one or more penetration flow paths inoperable, [except for purge valve or shield building bypass leakage not within limit,] the affected penetration flow path must be isolated within 1 hour [or in accordance with the Risk Informed Completion Time Program]. 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

BASES

ACTIONS (continued)

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.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two [or more] 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 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. A check valve may not be used to isolate the affected penetration flow path. Required Action C.1 must be completed within the 72 hour Completion Time [or in accordance with the Risk Informed Completion Time Program]. 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 [following isolation] 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.

BASES

ACTIONS (continued)

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. The closed system must meet the requirements of Ref. 3. 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 two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

[D.1

With the shield building bypass leakage rate (SR 3.6.3.11) [or purge valve leakage rate (SR 3.6.3.7)] not within limit, the assumptions of the safety analyses are not met. Therefore, the leakage must be restored to within limit. 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 for shield building bypass leakage 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. [The 24 hour Completion time for purge valve leakage is acceptable considering the purge valves remain closed so that a gross breach of the containment does not exist.] [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----

[The bracketed options provided in ACTION D reflect options in plant design and options in adopting the associated leakage rate Surveillances.

The options (in both ACTION D and ACTION E) for purge valve leakage, are based primarily on the design - if leakage rates can be measured separately for each purge valve, ACTION E is intended to apply. This would be required to be able to implement Required Action E.3. Should the design allow only for leak testing both purge valves simultaneously, then the Completion Time for ACTION D should include the "24 hours for purge valve leakage" and ACTION E should be eliminated.]]

[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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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 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 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.

BASES

ACTIONS (continued)

For the containment purge valve with resilient seal that is isolated in accordance with Required Action E.1, SR 3.6.3.7 must be performed at least once every [92] days [following isolation]. This assures 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 3.6.3.7, 184 days, is based on an NRC initiative, Generic Issue B-20 (Ref. 4). 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 [92] days [following isolation] was chosen and has been shown to be acceptable based on operating experience.

Required Action E.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned.]

F.1 and F.2

If the Required Actions and associated Completion Times 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.

SURVEILLANCE
REQUIREMENTS[SR 3.6.3.1

Each [42] inch containment purge valve is required to be verified sealed closed at 31 day intervals. This Surveillance is designed to ensure that a gross breach of containment is not caused by an inadvertent or spurious 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 Spray and Cooling Systems (Atmospheric and Dual)
B 3.6.6A

BASES

LCO

During a DBA, a minimum of one containment cooling train and one containment spray train are required to maintain the containment peak pressure and temperature below the design limits (Ref. 7). 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 trains must be OPERABLE. Therefore, in the event of an accident, at least one train in each system operates, assuming 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 RWST 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 System and the Containment Cooling System 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 [\[or in accordance with the Risk Informed Completion Time Program\]](#). 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 removal capability afforded by the Containment Spray System, reasonable time for repairs, and low probability of a DBA occurring during this period.

BASES

ACTIONS (continued)

B.1 and B.2

If the inoperable containment spray train cannot be restored to OPERABLE status 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 84 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. The extended interval to reach MODE 5 allows additional time for attempting restoration of the containment spray train and is reasonable when considering the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

C.1

With one of the required containment cooling trains inoperable, the inoperable required containment cooling train must be restored to OPERABLE status within 7 days [\[or in accordance with the Risk Informed Completion Time Program\]](#). The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs. The 7 day Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System and the low probability of DBA occurring during this period.

D.1

With two required containment cooling trains inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours [\[or in accordance with the Risk Informed Completion Time Program\]](#). The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System, the iodine removal function of the Containment Spray System, and the low probability of DBA occurring during this period.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition E is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[E.1 and E.2

~~If the Required Action and associated Completion Time of Condition C or D of this LCO 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.~~

F.1

With two containment spray trains or any combination of three or more containment spray and cooling trains inoperable, sufficient containment spray trains and/or containment cooling trains must be restored to OPERABLE status so that no more than one containment spray train or two containment cooling trains are inoperable within one hour or in accordance with the Risk Informed Completion Time Program. The allowed Completion Time provides a short time to restore the trains to OPERABLE, before proceeding with a plant shutdown required by Condition F.

The Condition is modified by a Note stating it is not applicable when two containment spray trains or any combination of three or more containment spray and cooling trains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one containment spray train or a combination of two containment spray and cooling trains are inoperable for any reason and a second containment spray train or additional containment spray or cooling trains are found to be inoperable, or if two containment spray trains or any combination of three or more containment spray and cooling trains are found to be inoperable at the same time.]

F.1 and F.2

If the Required Action and associated Completion Time of Condition C, D [or E] are not met, the plant must be brought to a MODE in which the

Containment Spray and Cooling Systems (Atmospheric and Dual)
B 3.6.6A

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.

----- REVIEWER'S NOTE -----

Condition G is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[G.1

With two containment spray trains or any combination of three or more containment spray and cooling trains inoperable, the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE
REQUIREMENTS

SR 3.6.6A.1

Verifying the correct alignment for manual, power operated, and automatic valves in the containment spray flow path provides assurance that the proper flow paths will exist for Containment Spray System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these were verified to be in the correct position prior to locking, sealing, or securing. This SR does not require any testing or valve manipulation. Rather, it involves verification that those valves outside containment (only check valves are inside containment) and capable of potentially being mispositioned are in the correct position.

SR 3.6.6A.2

Operating each [required] containment cooling train fan unit for ≥ 15 minutes ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. The 31 day Frequency was developed considering the known reliability of the fan units and controls, the two train redundancy available, and the low probability of significant degradation of the containment cooling train occurring between surveillances. It has also been shown to be acceptable through operating experience.

Containment Spray and Cooling Systems (Atmospheric and Dual)
B 3.6.6B

BASES

LCO (continued)

Each Containment Cooling System typically includes demisters, cooling coils, dampers, 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 System and the Containment Cooling System are not required to be OPERABLE in MODES 5 and 6.

ACTIONS

A.1

If one containment spray train is inoperable, it must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing at least 100% of the heat removal needs (for the condition of one containment spray train inoperable) after an accident. The 7 day Completion Time was chosen in light of the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System and the low probability of DBA occurring during this period.

B.1

If one of the required containment cooling trains is inoperable, it must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing at least 100% of the heat removal needs (for the Condition of one containment cooling train inoperable) after an accident. The 7 day Completion Time was chosen based on the same reasons as given in Required Action A.1.

C.1

With two of the required containment spray trains inoperable, one must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was chosen in light of the redundant heat removal capabilities afforded by

Containment Spray and Cooling Systems (Atmospheric and Dual)
B 3.6.6B

combinations of the Containment Spray System and Containment Cooling System, reasonable time for repairs, and low probability of DBA occurring during this period.

BASES

ACTIONS (continued)

D.1 and D.2

If one required containment spray train is inoperable and one of the required containment cooling trains is inoperable, the inoperable containment spray train or the inoperable containment cooling train must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was chosen based on the same reasons as those given in Required Action C.1.

E.1

If two required containment cooling trains are inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was chosen based on the same reasons as those given in Required Action C.1.

----- REVIEWER'S NOTE -----
Condition F is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[F.1

With any combination of three or more containment spray and containment cooling trains inoperable, the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.]

----- REVIEWER'S NOTE -----
Condition G is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[G.1

With any combination of three or more containment spray and containment cooling trains inoperable, sufficient containment spray trains

Containment Spray and Cooling Systems (Atmospheric and Dual)
B 3.6.6B

and/or containment cooling trains must be restored to OPERABLE status so that no more than one containment spray train or two containment cooling trains are inoperable. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when three or more trains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if two trains are inoperable for any reason and additional trains are found to be inoperable, or if three or more trains are found to be inoperable at the same time.]

H.1 and H.2

If any of the Required Actions or associated Completion Times for Condition A, B, C, D, E [or F] of this LCO 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.

~~the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.~~

BASES

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 System.

In MODES 5 and 6, the probability and consequences of these events are reduced because of the pressure and temperature limitations of these MODES. Thus, the Containment Spray System is not required to be OPERABLE in MODE 5 or 6.

ACTIONS

A.1

With one containment spray train inoperable, the affected train must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing 100% of the heat removal and iodine removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal and iodine removal capabilities afforded by the OPERABLE train and the low probability of a DBA occurring during this period.

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1 and B.2

With two containment spray trains inoperable, the action is to restore the inoperable containment spray trains to OPERABLE status within one hour or in accordance with the Risk Informed Completion Time Program. The allowed Completion Time provides a short time to restore the train to OPERABLE, before proceeding with a plant shutdown required by Condition C.

The Condition is modified by a Note stating it is not applicable when two containment spray trains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one containment spray train is inoperable for any reason and a second containment spray trains is found to be inoperable, or if two containment spray trains are found to be inoperable at the same time.]

C.1 and C.2

If the affected containment spray train cannot be restored to OPERABLE status 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 84 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. The extended interval to reach MODE 5 allows additional time and is reasonable when considering that the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

SURVEILLANCE
REQUIREMENTS

SR 3.6.6C.1

Verifying the correct alignment of manual, power operated, and automatic valves, excluding check valves, in the Containment Spray System provides assurance that the proper flow path exists for Containment Spray System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since they were verified in the correct position prior to being secured. This SR does not require any testing or valve manipulation. Rather, it involves verification that those valves outside containment and capable of potentially being mispositioned, are in the correct position.

BASES

ACTIONS

A.1

If one QS train is inoperable, it must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing 100% of the heat removal and iodine removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal and iodine removal capabilities afforded by the OPERABLE train and the low probability of a DBA occurring during this period.

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1-and B.2

With two QS trains inoperable, the inoperable QS trains must be restored to OPERABLE status within one hour or in accordance with the Risk Informed Completion Time Program. The allowed Completion Time provides a short time to restore the train to OPERABLE, before proceeding with a plant shutdown required by Condition C.

The Condition is modified by a Note stating it is not applicable when two QS trains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one QS train is inoperable for any reason and a second QS train is found to be inoperable, or if two QS trains are found to be inoperable at the same time.]

C.1 and C.2

If the Required Action and associated Completion Time 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.

SURVEILLANCE
REQUIREMENTSSR 3.6.6D.1

Verifying the correct alignment of manual, power operated, and automatic valves, excluding check valves, in the QS System provides assurance

BASES

APPLICABLE SAFETY ANALYSES (continued)

backpressure. For these calculations, the containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the calculated transient containment pressures in accordance with 10 CFR 50, Appendix K (Ref. 3).

The RS System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

During a DBA, one train (two subsystems) of the RS System is required to provide the minimum heat removal capability assumed in the safety analysis. To ensure that this requirement is met, four RS subsystems [and a casing cooling tank] must be OPERABLE. This will ensure that at least one train will operate assuming the worst case single failure occurs, which is in the ESF power supply.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause an increase in containment pressure and temperature requiring the operation of the RS System.

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 RS System is not required to be OPERABLE in MODE 5 or 6.

ACTIONS

A.1

With one of the RS subsystems inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing at least 100% of the heat removal needs (i.e., 150% when one RS subsystem is inoperable) after an accident. The 7 day Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the RS and QS systems and the low probability of a DBA occurring during this period.

B.1

With two of the required RS subsystems inoperable in the same train, at least one of the inoperable RS subsystems must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capability afforded by the OPERABLE subsystems, a reasonable amount of time for repairs, and the low probability of a DBA occurring during this period.

BASES

ACTIONS (continued)

[C.1

With two inside RS subsystems inoperable, at least one of the inoperable subsystems must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing 100% of the heat removal needs after an accident. The 72 hour Completion Time was chosen based on the same reasons as given in Required Action B.1.]

[D.1

With two outside RS subsystems inoperable, at least one of the inoperable subsystems must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing 100% of the heat removal needs after an accident. The 72 hour Completion Time was chosen based on the same reasons as given in Required Action B.1.]

[E.1

With the casing cooling tank inoperable, the NPSH available to the outside RS subsystem pumps may not be sufficient. The inoperable casing cooling tank must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing 100% of the heat removal needs after an accident. The 72 hour Completion Time was chosen based on the same reasons as given in Required Action B.1.]

----- REVIEWER'S NOTE -----
Condition F is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[F.1

With three or more RS subsystems inoperable, RS trains must be restored to OPERABLE status within one hour or in accordance with the Risk Informed Completion Time Program so that no more than 2 RS subsystems are inoperable. The allowed Completion Time provides a short time to restore the trains to OPERABLE, before proceeding with a plant shutdown required by Condition H.

The Condition is modified by a Note stating it is not applicable when three or more RS subsystems are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if two RS subsystems are inoperable for any reason and an additional RS subsystem is found to be inoperable, or if three or more RS subsystems are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----

Condition G is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[G.1

With three or more RS subsystems inoperable, the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.]

H.1 and FH.2

If the inoperable RS subsystem(s) or the casing cooling tank cannot be restored to OPERABLE status 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 84 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. The extended interval to reach MODE 5 allows additional time and is reasonable considering that the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

BASES

ACTIONS (continued)

G-1

~~With three or more RS subsystems inoperable, the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.~~

SURVEILLANCE
REQUIREMENTSSR 3.6.6E.1

Verifying that the casing cooling tank solution temperature is within the specified tolerances provides assurance that the water injected into the suction of the outside RS pumps will increase the NPSH available as per design. The 24 hour Frequency of this SR was developed considering operating experience related to the parameter variations and instrument drift during the applicable MODES. Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal condition.

SR 3.6.6E.2

Verifying the casing cooling tank contained borated water volume provides assurance that sufficient water is available to support the outside RS subsystem pumps during the time they are required to operate. The 7 day Frequency of this SR was developed considering operating experience related to the parameter variations and instrument drift during the applicable MODES. Furthermore, the 7 day Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal condition.

SR 3.6.6E.3

Verifying the boron concentration of the solution in the casing cooling tank provides assurance that borated water added from the casing cooling tank to RS subsystems will not dilute the solution being recirculated in the containment sump. The 7 day Frequency of this SR was developed considering the known stability of stored borated water and the low probability of any source of diluting pure water.

BASES

APPLICABILITY	<p>In MODES 1 and 2, the two HMS trains ensure the capability to prevent localized hydrogen concentrations above the flammability limit of 4.1 volume percent in containment assuming a worst case single active failure.</p> <p>In MODE 3 or 4, both the hydrogen production rate and the total hydrogen produced after a LOCA would be less than that calculated for the DBA LOCA. Also, because of the limited time in these MODES, the probability of an accident requiring the HMS is low. Therefore, the HMS is not required in MODE 3 or 4.</p> <p>In MODES 5 and 6, the probability and consequences of a LOCA or steam line break (SLB) are reduced due to the pressure and temperature limitations in these MODES. Therefore, the HMS is not required in these MODES.</p>
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ACTIONS

A.1

With one HMS train inoperable, the inoperable train must be restored to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE HMS train is adequate to perform the hydrogen mixing function. However, the overall reliability is reduced because a single failure in the OPERABLE train could result in reduced hydrogen mixing capability. The 30 day Completion Time is based on the availability of the other HMS train, the small probability of a LOCA or SLB occurring (that would generate an amount of hydrogen that exceeds the flammability limit), the amount of time available after a LOCA or SLB (should one occur) for operator action to prevent hydrogen accumulation from exceeding the flammability limit, and the availability of the Containment Spray System and Hydrogen Purge System.

B.1 and B.2

-----REVIEWER'S NOTE-----
 This Condition is only allowed for units with an alternate hydrogen control system acceptable to the technical staff.

With two HMS trains inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The alternate hydrogen control capabilities are provided by [the containment Hydrogen Purge System/ Hydrogen Ignitor System/ HMS/ Containment Air Dilution System/ Containment Inerting System]. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----
 The following is to be used if a non-Technical Specification alternate hydrogen control function is used to justify this Condition: In addition, the alternate hydrogen control system capability must be verified once per 12 hours thereafter to ensure its continued availability.

[Both] the [initial] verification [and all subsequent verifications] may be performed as an administrative check, by examining logs or other information to determine the availability of the alternate hydrogen control system. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of the alternate hydrogen control system. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two HMS trains inoperable for up to 7 days for in accordance with the Risk Informed Completion Time Program. Seven days is a reasonable time to allow two HMS trains to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit.

C.1

If an inoperable HMS train cannot be restored to OPERABLE status 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. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTSSR 3.6.9.1

Operating each HMS train for ≥ 15 minutes ensures that each train is OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan and/or motor failure, or excessive vibration can be detected for corrective action. The 92 day Frequency is consistent with Inservice Testing Program Surveillance Frequencies, operating experience, the known reliability of the fan motors and controls, and the two train redundancy available.

BASES

APPLICABILITY Requiring OPERABILITY in MODES 1 and 2 for the HIS ensures its immediate availability after safety injection and scram actuated on a LOCA initiation. In the post accident environment, the two HIS subsystems are required to control the hydrogen concentration within containment to near its flammability limit of 4.1 v/o assuming a worst case single failure. This prevents overpressurization of containment and damage to safety related equipment and instruments located within containment.

In MODES 3 and 4, both the hydrogen production rate and the total hydrogen production after a LOCA would be significantly less than that calculated for the DBA LOCA. Also, because of the limited time in these MODES, the probability of an accident requiring the HIS is low. Therefore, the HIS is not required in MODES 3 and 4.

In MODES 5 and 6, the probability and consequences of a LOCA are reduced due to the pressure and temperature limitations of these MODES. Therefore, the HIS is not required to be OPERABLE in MODES 5 and 6.

ACTIONS A.1 and A.2

With one HIS train inoperable, the inoperable train must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program] or the OPERABLE train must be verified OPERABLE frequently by performance of SR 3.6.10.1. The 7 day Completion Time is based on the low probability of the occurrence of a degraded core event that would generate hydrogen in amounts equivalent to a metal water reaction of 75% of the core cladding, the length of time after the event that operator action would be required to prevent hydrogen accumulation from exceeding this limit, and the low probability of failure of the OPERABLE HIS train. Alternative Required Action A.2, by frequent surveillances, provides assurance that the OPERABLE train continues to be OPERABLE.

B.1

Condition B is one containment region with no OPERABLE hydrogen ignitor. Thus, while in Condition B, or in Conditions A and B simultaneously, there would always be ignition capability in the adjacent containment regions that would provide redundant capability by flame propagation to the region with no OPERABLE ignitors.

Required Action B.1 calls for the restoration of one hydrogen ignitor in each region to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The 7 day Completion Time is based on the same reasons given under Required Action A.1.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

C.1

With two HIS trains inoperable the Required Action is to restore the inoperable HIS trains to OPERABLE status within 1 hour to regain a method of hydrogen detection. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two HIS trains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one HIS train is inoperable for any reason and a second HIS train is found to be inoperable, or if two HIS trains are found to be inoperable at the same time.]

D.1

The unit must be placed in a MODE in which the LCO does not apply if the HIS subsystem(s) cannot be restored to OPERABLE status within the associated Completion Time. This is done by placing the unit in at least MODE 3 within 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

SR 3.6.10.1

This SR confirms that \geq [32] of 33 hydrogen ignitors can be successfully energized in each train. The ignitors are simple resistance elements. Therefore, energizing provides assurance of OPERABILITY. The allowance of one inoperable hydrogen ignitor is acceptable because, although one inoperable hydrogen ignitor in a region would compromise redundancy in that region, the containment regions are interconnected so that ignition in one region would cause burning to progress to the others (i.e., there is overlap in each hydrogen ignitor's effectiveness between regions). The Frequency of 92 days has been shown to be acceptable through operating experience.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The analysis for minimum internal containment pressure (i.e., maximum external differential containment pressure) assumes inadvertent simultaneous actuation of both the ARS and the Containment Spray System. The containment vacuum relief valves are designed to accommodate inadvertent actuation of either or both systems.

The modeled ARS actuation from the containment analysis is based upon a response time associated with exceeding the containment pressure High-High signal setpoint to achieving full ARS air flow. A delayed response time initiation provides conservative analyses of peak calculated containment temperature and pressure responses. The ARS total response time of 600 seconds consists of the built in signal delay.

The ARS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

In the event of a DBA, one train of the ARS with the Hydrogen Skimmer System is required to provide the minimum air recirculation for heat removal and hydrogen mixing assumed in the safety analyses. To ensure this requirement is met, two trains of the ARS with the Hydrogen Skimmer System must be OPERABLE. This will ensure that at least one train will operate, assuming the worst case single failure occurs, which is in the ESF power supply.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause an increase in containment pressure and temperature requiring the operation of the ARS. Therefore, the LCO is applicable in MODES 1, 2, 3, and 4.

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 ARS is not required to be OPERABLE in these MODES.

ACTIONS

A.1

If one of the required trains of the ARS is inoperable, it must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing 100% of the flow and hydrogen skimming needs after an accident. The 72 hour Completion Time was developed taking into account the redundant flow and hydrogen skimming capability of the OPERABLE ARS train and the low probability of a DBA occurring in this period.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1 and B.2

With two ARS trains inoperable the Required Action is to restore the inoperable ARS trains to OPERABLE status within 1 hour to restore containment atmosphere control. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second ARS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one ARS train is inoperable for any reason and a second ARS train is found to be inoperable, or if two ARS trains are found to be inoperable at the same time.]

C.1 and C.2

If the ARS train(s) cannot be restored to OPERABLE status 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 3.6.14.1

Verifying that each ARS fan starts on an actual or simulated actuation signal, after a delay \geq [9.0] minutes and \leq [11.0] minutes, and operates for \geq 15 minutes is sufficient to ensure that all fans are OPERABLE and that all associated controls and time delays are functioning properly. It also ensures that blockage, fan and/or motor failure, or excessive vibration can be detected for corrective action. The [92] day Frequency was developed considering the known reliability of fan motors and controls and the two train redundancy available.

BASES

APPLICABLE SAFETY ANALYSES (continued)

In addition to calculating the overall peak containment pressures, the DBA analyses include calculation of the transient differential pressures that occur across subcompartment walls during the initial blowdown phase of the accident transient. The internal containment walls and structures are designed to withstand these local transient pressure differentials for the limiting DBAs.

The ice bed satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The ice bed LCO requires the existence of the required quantity of stored ice, appropriate distribution of the ice and the ice bed, open flow paths through the ice bed, and appropriate chemical content and pH of the stored ice. The stored ice functions to absorb heat during the blowdown phase and long term phase of a DBA, thereby limiting containment air temperature and pressure. The chemical content and pH of the stored ice provide core SDM (boron content) and remove radioactive iodine from the containment atmosphere when the melted ice is recirculated through the ECCS and the Containment Spray System, respectively.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause an increase in containment pressure and temperature requiring the operation of the ice bed. Therefore, the LCO is applicable in MODES 1, 2, 3, and 4.

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 ice bed is not required to be OPERABLE in these MODES.

ACTIONS

A.1

If the ice bed is inoperable, it must be restored to OPERABLE status within 48 hours [\[or in accordance with the Risk Informed Completion Time Program\]](#). The Completion Time was developed based on operating experience, which confirms that due to the very large mass of stored ice, the parameters comprising OPERABILITY do not change appreciably in this time period. Because of this fact, the Surveillance Frequencies are long (months), except for the ice bed temperature, which is checked every 12 hours. If a degraded condition is identified, even for temperature, with such a large mass of ice it is not possible for the degraded condition to significantly degrade further in a 48 hour period. Therefore, 48 hours is a reasonable amount of time to correct a degraded condition before initiating a shutdown.

BASES

ACTIONS (continued)

B.1 and B.2

If the ice bed cannot be restored to OPERABLE status 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
REQUIREMENTSSR 3.6.15.1

Verifying that the maximum temperature of the ice bed is $\leq [27]^{\circ}\text{F}$ ensures that the ice is kept well below the melting point. The 12 hour Frequency was based on operating experience, which confirmed that, due to the large mass of stored ice, it is not possible for the ice bed temperature to degrade significantly within a 12 hour period and was also based on assessing the proximity of the LCO limit to the melting temperature.

Furthermore, the 12 hour Frequency is considered adequate in view of indications in the control room, including the alarm, to alert the operator to an abnormal ice bed temperature condition. This SR may be satisfied by use of the Ice Bed Temperature Monitoring System.

SR 3.6.15.2

Ice mass determination methodology is designed to verify the total as-found (pre-maintenance) mass of ice in the ice bed, and the appropriate distribution of that mass, using a random sampling of individual baskets. The random sample will include at least 30 baskets from each of three defined Radial Zones (at least 90 baskets total). Radial Zone A consists of baskets located in rows [7, 8, and 9] (innermost rows adjacent to the crane wall), Radial Zone B consists of baskets located in rows [4, 5, and 6] (middle rows of the ice bed), and Radial Zone C consists of baskets located in rows [1, 2, and 3] (outermost rows adjacent to the containment vessel).

The Radial Zones chosen include the row groupings nearest the inside and outside walls of the ice bed and the middle rows of the ice bed. These groupings facilitate the statistical sampling plan by creating sub-populations of ice baskets that have similar mean mass and sublimation characteristics.

BASES

LCO (continued)

through melting and sublimation. The doors must be OPERABLE to ensure the proper opening of the ice condenser in the event of a DBA. OPERABILITY includes being free of any obstructions that would limit their opening, and for the inlet doors, being adjusted such that the opening and closing torques are within limits. The ice condenser doors function with the ice condenser to limit the pressure and temperature that could be expected following a DBA.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause an increase in containment pressure and temperature requiring the operation of the ice condenser doors. Therefore, the LCO is applicable in MODES 1, 2, 3, and 4.

The probability and consequences of these events in MODES 5 and 6 are reduced due to the pressure and temperature limitations of these MODES. Therefore, the ice condenser doors are not required to be OPERABLE in these MODES.

ACTIONS

A Note provides clarification that, for this LCO, separate Condition entry is allowed for each ice condenser door.

A.1

If one or more ice condenser inlet doors are inoperable due to being physically restrained from opening, the door(s) must be restored to OPERABLE status within 1 hour [\[for in accordance with the Risk Informed Completion Time Program\]](#). The Required Action is necessary to return operation to within the bounds of the containment analysis. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1, "Containment," which requires containment to be restored to OPERABLE status within 1 hour.

B.1 and B.2

If one or more ice condenser doors are determined to be partially open or otherwise inoperable for reasons other than Condition A or if a door is found that is not closed, it is acceptable to continue unit operation for up to 14 days [\[for in accordance with the Risk Informed Completion Time Program\]](#), provided the ice bed temperature instrumentation is monitored once per 4 hours to ensure that the open or inoperable door is not allowing enough air leakage to cause the maximum ice bed temperature to approach the melting point. The Frequency of 4 hours is based on the fact that temperature changes cannot occur rapidly in the ice bed

BASES

ACTIONS (continued)

because of the large mass of ice involved. The 14 day Completion Time is based on long term ice storage tests that indicate that if the temperature is maintained below [27]°F, there would not be a significant loss of ice from sublimation. If the maximum ice bed temperature is > [27]°F at any time, the situation reverts to Condition C and a Completion Time of 48 hours is allowed to restore the inoperable door to OPERABLE status or enter into Required Actions D.1 and D.2. Ice bed temperature must be verified to be within the specified Frequency as augmented by the provisions of SR 3.0.2. If this verification is not made, Required Actions D.1 and D.2, not Required Action C.1, must be taken. Entry into Condition B is not required due to personnel standing on or opening an intermediate deck or upper deck door for short durations to perform required surveillances, minor maintenance such as ice removal, or routine tasks such as system walkdowns.

C.1

If Required Actions B.1 or B.2 are not met, the doors must be restored to OPERABLE status and closed positions within 48 hours. The 48 hour Completion Time is based on the fact that, with the very large mass of ice involved, it would not be possible for the temperature to decrease to the melting point and a significant amount of ice to melt in a 48 hour period. Condition C is entered from Condition B only when the Completion Time of Required Action B.2 is not met or when the ice bed temperature has not been verified at the required frequency.

D.1 and D.2

If the ice condenser doors cannot be restored to OPERABLE status 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.

BASES

LCO (continued)

requirement that the doors be closed is made to allow personnel transit entry through the divider barrier. The basis of this exception is the assumption that, for personnel transit, the time during which a door is open will be short (i.e., shorter than the Completion Time of 1 hour for Condition A). The divider barrier functions with the ice condenser to limit the pressure and temperature that could be expected following a DBA.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause an increase in containment pressure and temperature requiring the integrity of the divider barrier. Therefore, the LCO is applicable in MODES 1, 2, 3, and 4.

The probability and consequences of these events in MODES 5 and 6 are low due to the pressure and temperature limitations of these MODES. As such, divider barrier integrity is not required in these MODES.

ACTIONS

A.1

If one or more personnel access doors or equipment hatches are inoperable or open, except for personnel transit entry, 1 hour is allowed to restore the door(s) and equipment hatches to OPERABLE status and the closed position. The 1 hour Completion Time is consistent with LCO 3.6.1, "Containment," which requires that containment be restored to OPERABLE status within 1 hour. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

Condition A has been modified by a Note to provide clarification that, for this LCO, separate Condition entry is allowed for each personnel access door or equipment hatch.

B.1

If the divider barrier seal is inoperable, 1 hour is allowed to restore the seal to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 1 hour Completion Time is consistent with LCO 3.6.1, which requires that containment be restored to OPERABLE status within 1 hour.

BASES

ACTIONS (continued)

C.1 and C.2

If divider barrier integrity cannot be restored to OPERABLE status 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
REQUIREMENTSSR 3.6.17.1

Verification, by visual inspection, that all personnel access doors and equipment hatches between the upper and lower containment compartments are closed provides assurance that divider barrier integrity is maintained prior to the reactor being taken from MODE 5 to MODE 4. This SR is necessary because many of the doors and hatches may have been opened for maintenance during the shutdown.

SR 3.6.17.2

Verification, by visual inspection, that the personnel access door and equipment hatch seals, sealing surfaces, and alignments are acceptable provides assurance that divider barrier integrity is maintained. This inspection cannot be made when the door or hatch is closed. Therefore, SR 3.6.17.2 is required for each door or hatch that has been opened, prior to the final closure. Some doors and hatches may not be opened for long periods of time. Those that use resilient materials in the seals must be opened and inspected at least once every 10 years to provide assurance that the seal material has not aged to the point of degraded performance. The Frequency of 10 years is based on the known resiliency of the materials used for seals, the fact that the openings have not been opened (to cause wear), and operating experience that confirms that the seals inspected at this Frequency have been found to be acceptable.

BASES

APPLICABILITY (continued)

The probability and consequences of these events in MODES 5 and 6 are low due to the pressure and temperature limitations of these MODES. As such, the containment recirculation drains are not required to be OPERABLE in these MODES.

ACTIONS

----- REVIEWER'S NOTE -----
The bracketed phrase "or more" and the bracketed second paragraph in the Bases for Conditions A and B are only applicable to plants that have adopted a Risk Informed Completion Time Program.

A.1

If one [or more] ice condenser floor drain is inoperable, 1 hour is allowed to restore the drain(s) to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The Required Action is necessary to return operation to within the bounds of the containment analysis. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1, "Containment," which requires that containment be restored to OPERABLE status within 1 hour.

[The Condition is modified by a Note stating it is not applicable when more than one ice condenser floor drains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one ice condenser floor drain is inoperable for any reason and additional ice condenser floor drains are found to be inoperable, or if two or more ice condenser floor drains are found to be inoperable at the same time.]

B.1

If one [or more] refueling canal drain is inoperable, 1 hour is allowed to restore the drain(s) to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The Required Action is necessary to return operation to within the bounds of the containment analysis. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1, which requires that containment be restored to OPERABLE status in 1 hour.

[The Condition is modified by a Note stating it is not applicable when more than one refueling canal drains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant

systems or components from service. The Required Action is only applicable if one refueling canal drain is inoperable for any reason and additional refueling canal drains are found to be inoperable, or if two or more refueling canal drains are found to be inoperable at the same time.
]

C.1 and C.2

If the affected drain(s) cannot be restored to OPERABLE status 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.

BASES

APPLICABLE SAFETY ANALYSES (continued)

- c. A break downstream of the MSIVs will be isolated by the closure of the MSIVs.
- d. Following a steam generator tube rupture, closure of the MSIVs isolates the ruptured steam generator from the intact steam generators to minimize radiological releases.
- e. The MSIVs are also utilized during other events such as a feedwater line break. This event is less limiting so far as MSIV OPERABILITY is concerned.

The MSIVs satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO requires that [four] MSIVs in the steam lines be OPERABLE. The MSIVs are considered OPERABLE when the isolation times are within limits, and they close on an isolation actuation signal.

This LCO provides assurance that the MSIVs will perform their design safety function to mitigate the consequences of accidents that could result in offsite exposures comparable to the 10 CFR 100 (Ref. 4) limits or the NRC staff approved licensing basis.

APPLICABILITY

The MSIVs must be OPERABLE in MODE 1, and in MODES 2 and 3 except when closed and de-activated, when there is significant mass and energy in the RCS and steam generators. When the MSIVs are closed, they are already performing the safety function.

In MODE 4, normally most of the MSIVs are closed, and the steam generator energy is low.

In MODE 5 or 6, the steam generators do not contain much energy because their temperature is below the boiling point of water; therefore, the MSIVs are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

ACTIONS

A.1

With one MSIV inoperable in MODE 1, action must be taken to restore OPERABLE status within [8] hours [for in accordance with the Risk Informed Completion Time Program](#). Some repairs to the MSIV can be made with the unit hot. The [8] hour Completion Time is reasonable, considering the low probability of an accident occurring during this time period that would require a closure of the MSIVs.

BASES

ACTIONS (continued)

The [8] hour Completion Time is greater than that normally allowed for containment isolation valves because the MSIVs are valves that isolate a closed system penetrating containment. These valves differ from other containment isolation valves in that the closed system provides an additional means for containment isolation.

B.1

If the MSIV cannot be restored to OPERABLE status within [8] hours, 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 MODE 2 within 6 hours and Condition C would be entered. The Completion Times are reasonable, based on operating experience, to reach MODE 2 and to close the MSIVs in an orderly manner and without challenging unit systems.

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1 and C.2

With two or more MSIVs inoperable the Required Action is to restore at sufficient required inoperable MSIVs to OPERABLE status within 1 hour to regain a method of main steam line isolation. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient MSIVs. Alternately, a Completion time can be determined in accordance with the Risk Informed Completion time Program.

The Condition is modified by a Note stating it is not applicable when two or more MSIVs are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one MSIV is inoperable for any reason and additional MSIVs are found to be inoperable, or if two or more MSIVs are found to be inoperable at the same time.]

D.1 and D.2

Condition GD is modified by a Note indicating that separate Condition entry is allowed for each MSIV.

Since the MSIVs are required to be OPERABLE in MODES 2 and 3, the inoperable MSIVs may either be restored to OPERABLE status or closed. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis.

The [8] hour Completion Time is consistent with that allowed in Condition A.

For inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, the inoperable MSIVs must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of MSIV status indications available in the control room, and other administrative controls, to ensure that these valves are in the closed position.

BASES

ACTIONS (continued)

DE.1 and DE.2

If the MSIV[(s)] cannot be restored to OPERABLE status or are not closed 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 at least in 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 MODE 2 conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE
REQUIREMENTSSR 3.7.2.1

This SR verifies that MSIV closure time is \leq [4.6] seconds. The MSIV isolation time is assumed in the accident and containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. The MSIVs should not be tested at power, since even a part stroke exercise increases the risk of a valve closure when the unit is generating power. As the MSIVs are not tested at power, they are exempt from the ASME Code (Ref. 5), requirements during operation in MODE 1 or 2.

The Frequency is in accordance with the Inservice Testing Program.

This test is conducted in MODE 3 with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

SR 3.7.2.2

This SR verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. The Frequency of MSIV testing is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

BASES

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

In MODE 5 or 6, an SGTR is not a credible event.

ACTIONSA.1

With one required ADV line inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The 7 day Completion Time allows for the redundant capability afforded by the remaining OPERABLE ADV lines, a nonsafety grade backup in the Steam Bypass System, and MSSVs.

B.1

With two or more ADV lines inoperable, action must be taken to restore all but one ADV line to OPERABLE status. Since the block valve can be closed to isolate an ADV, some repairs may be possible with the unit at power. The 24 hour Completion Time is reasonable to repair inoperable ADV lines, based on the availability of the Steam Bypass System and MSSVs, and the low probability of an event occurring during this period that would require the ADV lines. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

If the ADV lines 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 upon steam generator for heat removal, within [24] 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.

BASES

APPLICABILITY	<p>In MODES 1, 2, and 3, the AFW System is required to be OPERABLE in the event that it is called upon to function when the MFW is lost. In addition, the AFW System is required to supply enough makeup water to replace the steam generator secondary inventory, lost as the unit cools to MODE 4 conditions.</p> <p>In MODE 4 the AFW System may be used for heat removal via the steam generators.</p> <p>In MODE 5 or 6, the steam generators are not normally used for heat removal, and the AFW System is not required.</p>
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ACTIONS

-----REVIEWER'S NOTE-----

The LCO 3.0.4.b Note prohibits application of the LCO 3.0.4.b exception when entering MODE 1 if the plant does not depend on AFW for startup. If the plant does depend on AFW for startup, the Note should state, "LCO 3.0.4.b is not applicable."

A Note prohibits the application of LCO 3.0.4.b to an inoperable AFW train [when entering MODE 1]. There is an increased risk associated with [entering a MODE or other specified condition in the Applicability] [entering MODE 1] with an AFW train inoperable and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

[A.1]

If one of the two steam supplies to the turbine driven AFW train is inoperable, or if a turbine driven pump is inoperable while in MODE 3 immediately following refueling, action must be taken to restore the inoperable equipment to an OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The 7 day Completion Time is reasonable, based on the following reasons:

- a. For the inoperability of a steam supply to the turbine driven AFW pump, the 7 day Completion Time is reasonable since there is a redundant steam supply line for the turbine driven pump.
- b. For the inoperability of a turbine driven AFW pump while in MODE 3 immediately subsequent to a refueling, the 7 day Completion Time is reasonable due to the minimal decay heat levels in this situation.

BASES

ACTIONS (continued)

- c. For both the inoperability of a steam supply line to the turbine driven pump and an inoperable turbine driven AFW pump while in MODE 3 immediately following a refueling outage, the 7 day Completion Time is reasonable due to the availability of redundant OPERABLE motor driven AFW pumps, and due to the low probability of an event requiring the use of the turbine driven AFW pump.

Condition A is modified by a Note which limits the applicability of the Condition to when the unit has not entered MODE 2 following a refueling. Condition A allows one AFW train to be inoperable for 7 days vice the 72 hour Completion Time in Condition B. This longer Completion Time is based on the reduced decay heat following refueling and prior to the reactor being critical.]

B.1

With one of the required AFW trains (pump or flow path) inoperable in MODE 1, 2, or 3 [for reasons other than Condition A], action must be taken to restore OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. This Condition includes the loss of two steam supply lines to the turbine driven AFW pump. The 72 hour Completion Time is reasonable, based on redundant capabilities afforded by the AFW System, time needed for repairs, and the low probability of a DBA occurring during this time period.

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1 and C.2

With two AFW trains are inoperable in MODE 1, 2, or 3, the Required Action is to restore the inoperable AFW trains to OPERABLE status within 1 hour to regain a method of decay heat removal. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second AFW train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one

AFW train is inoperable for any reason and a second AFW train is found to be inoperable, or if two AFW trains are found to be inoperable at the same time.

In MODE 4 with two AFW trains inoperable, operation is allowed to continue because only one motor driven pump AFW train is required in accordance with the Note that modifies the LCO. Although not required, the unit may continue to cool down and initiate RHR.]

----- REVIEWER'S NOTE -----

The second condition in Condition D, "Two AFW trains inoperable in MODE 1, 2, or 3," is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

D.1

When Required Action A.1-~~or~~, [B.1] [or C.1] cannot be completed within the required Completion Time, [or if two AFW trains are inoperable in MODE 1, 2, or 3,] 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 [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.

~~In MODE 4 with two AFW trains inoperable, operation is allowed to continue because only one motor driven pump AFW train is required in accordance with the Note that modifies the LCO. Although not required, the unit may continue to cool down and initiate RHR.~~

BASES

ACTIONS (continued)

DE.1

If all [three] AFW trains are inoperable in MODE 1, 2, or 3, the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting a cooldown with nonsafety related equipment. In such a condition, the unit should not be perturbed by any action, including a power change, that might result in a trip. The seriousness of this condition requires that action be started immediately to restore one AFW train to OPERABLE status.

Required Action DE.1 is modified by a Note indicating that all required MODE changes or power reductions are suspended until one AFW train is restored to OPERABLE status. In this case, LCO 3.0.3 is not applicable because it could force the unit into a less safe condition.

EF.1

In MODE 4, either the reactor coolant pumps or the RHR loops can be used to provide forced circulation. This is addressed in LCO 3.4.6, "RCS Loops - MODE 4." With one required AFW train inoperable, action must be taken to immediately restore the inoperable train to OPERABLE status. The immediate Completion Time is consistent with LCO 3.4.6.

SURVEILLANCE
REQUIREMENTSSR 3.7.5.1

Verifying the correct alignment for manual, power operated, and automatic valves in the AFW System water and steam supply flow paths provides assurance that the proper flow paths will exist for AFW 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 Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.

BASES

ACTIONS

A.1 and A.2

If the CST is not OPERABLE, 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. Additionally, verifying the backup water supply every 12 hours is adequate to ensure the backup water supply continues to be available. 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 [24] 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
REQUIREMENTSSR 3.7.6.1

This SR verifies that the CST contains the required volume of cooling water. (The required CST volume may be single value or a function of RCS conditions.) 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. Also, the 12 hour Frequency is considered adequate in view of other indications in the control room, including alarms, to alert the operator to abnormal deviations in the CST level.

REFERENCES

1. FSAR, Section [9.2.6].
2. FSAR, Chapter [6].
3. FSAR, Chapter [15].

BASES

APPLICABILITY (continued)

In MODE 5 or 6, the OPERABILITY requirements of the CCW System are determined by the systems it supports.

ACTIONS

A.1

Required Action A.1 is modified by a Note indicating that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," be entered if an inoperable CCW train results in an inoperable RHR loop. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

If one CCW train is inoperable, action must be taken to restore OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining OPERABLE CCW train is adequate to perform the heat removal function. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this period.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1 and B.2

With two CCW trains inoperable the Required Action is to restore the inoperable CCW trains to OPERABLE status within 1 hour to regain a heat sink for safety related components. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second CCW train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CCW train is inoperable for any reason and a second CCW train is found to be inoperable, or if two CCW trains are found to be inoperable at the same time.]

C.1 and C.2

If the CCW train(s) 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 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 3.7.7.1**

This SR is modified by a Note indicating that the isolation of the CCW flow to individual components may render those components inoperable but does not affect the OPERABILITY of the CCW System.

Verifying the correct alignment for manual, power operated, and automatic valves in the CCW flow path provides assurance that the proper flow paths exist for CCW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves are verified to be in the correct position prior to locking,

BASES

APPLICABLE SAFETY ANALYSES (continued)

number of CCW and RHR System trains that are operating. One SWS train is sufficient to remove decay heat during subsequent operations in MODES 5 and 6. This assumes a maximum SWS temperature of [95]°F occurring simultaneously with maximum heat loads on the system.

The SWS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two SWS trains are required to be OPERABLE to provide the required redundancy to ensure that the system functions to remove post accident heat loads, assuming that the worst case single active failure occurs coincident with the loss of offsite power.

An SWS train is considered OPERABLE during MODES 1, 2, 3, and 4 when:

- a. The pump is OPERABLE and
- b. The associated piping, valves, heat exchanger, and instrumentation and controls required to perform the safety related function are OPERABLE.

APPLICABILITY

In MODES 1, 2, 3, and 4, the SWS is a normally operating system that is required to support the OPERABILITY of the equipment serviced by the SWS and required to be OPERABLE in these MODES.

In MODES 5 and 6, the OPERABILITY requirements of the SWS are determined by the systems it supports.

ACTIONS

A.1

If one SWS train is inoperable, action must be taken to restore OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. 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 OPERABLE 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 and Required Actions of LCO 3.8.1, "AC Sources - Operating," should be entered if an 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 decay heat removal train. This is an exception to

BASES

ACTIONS (continued)

LCO 3.0.6 and ensures the proper actions are taken for these components. 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.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1 and B.2]

With two SWS trains inoperable, the Required Action is to restore the inoperable SWS trains to OPERABLE status within 1 hour to regain a heat sink for safety related components. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second SWS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one SWS train is inoperable for any reason and a second SWS train is found to be inoperable, or if two SWS trains are found to be inoperable at the same time.]

C.1 and C.2

If the SWS train(s) 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 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
REQUIREMENTSSR 3.7.8.1

This SR is modified by a Note indicating that the isolation of the SWS components or systems may render those components inoperable, but does not affect the OPERABILITY of the SWS.

BASES

APPLICABLE SAFETY ANALYSES	<p>The UHS is the sink for heat removed from the reactor core following all accidents and anticipated operational occurrences in which the unit is cooled down and placed on residual heat removal (RHR) operation. For units that use UHS as the normal heat sink for condenser cooling via the Circulating Water System, unit operation at full power is its maximum heat load. Its maximum post accident heat load occurs 20 minutes after a design basis loss of coolant accident (LOCA). Near this time, the unit switches from injection to recirculation and the containment cooling systems and RHR are required to remove the core decay heat.</p> <p>The operating limits are based on conservative heat transfer analyses for the worst case LOCA. Reference 1 provides the details of the assumptions used in the analysis, which include worst expected meteorological conditions, conservative uncertainties when calculating decay heat, and worst case single active failure (e.g., single failure of a manmade structure). The UHS is designed in accordance with Regulatory Guide 1.27 (Ref. 2), which requires a 30 day supply of cooling water in the UHS.</p>
	<p>The UHS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).</p>
LCO	<p>The UHS is required to be OPERABLE and is considered OPERABLE if it contains a sufficient volume of water at or below the maximum temperature that would allow the SWS to operate for at least 30 days following the design basis LOCA without the loss of net positive suction head (NPSH), and without exceeding the maximum design temperature of the equipment served by the SWS. To meet this condition, the UHS temperature should not exceed [90°F] and the level should not fall below [562 ft mean sea level] during normal unit operation.</p>
APPLICABILITY	<p>In MODES 1, 2, 3, and 4, the UHS is required to support the OPERABILITY of the equipment serviced by the UHS and required to be OPERABLE in these MODES.</p> <p>In MODE 5 or 6, the OPERABILITY requirements of the UHS are determined by the systems it supports.</p>
ACTIONS	<p>[<u>A.1</u></p> <p>If one or more cooling towers have one fan inoperable (i.e., up to one fan per cooling tower inoperable), action must be taken to restore the inoperable cooling tower fan(s) to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program].</p>

BASES

ACTIONS (continued)

The 7 day Completion Time is reasonable based on the low probability of an accident occurring during the 7 days that one cooling tower fan is inoperable (in one or more cooling towers), the number of available systems, and the time required to reasonably complete the Required Action.]

[B.1

-----REVIEWER'S NOTE-----
The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit.

With water temperature of the UHS > [90]°F, the design basis assumption associated with initial UHS temperature are bounded provided the temperature of the UHS averaged over the previous 24 hour period is ≤ [90]°F. With the water temperature of the UHS > [90]°F, long term cooling capability of the ECCS loads and DGs may be affected. Therefore, to ensure long term cooling capability is provided to the ECCS loads when water temperature of the UHS is > [90]°F, Required Action B.1 is provided to more frequently monitor the water temperature of the UHS and verify the temperature is ≤ [90]°F when averaged over the previous 24 hour period. The once per hour Completion Time takes into consideration UHS temperature variations and the increased monitoring frequency needed to ensure design basis assumptions and equipment limitations are not exceeded in this condition. If the water temperature of the UHS exceeds [90]°F when averaged over the previous 24 hour period or the water temperature of the UHS exceeds []°F, Condition C must be entered immediately.]

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program. If Condition C is not used, use the phrase "UHS inoperable [for reasons other than Condition A or B]" in Condition D.

[C.1

With the UHS inoperable [for reasons other than Condition -A -or -B], the Required Action is to restore the UHS to OPERABLE status within 1 hour to regain a heat sink for safety related components. The 1 hour Completion Time is acceptable because it minimizes risk while allowing

time for restoration of the UHS. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the UHS is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if the UHS is found to be inoperable.]

[CD.1 and CD.2

If the Required Actions and Completion Times of Condition [A, B, or CB] are not met, [or the UHS is inoperable for reasons other than Condition A [or B]], 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 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.]

BASES

LCO (continued)

The CREATCS is considered to be OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both trains. These components include the heating and cooling coils and associated temperature control instrumentation. In addition, the CREATCS must be operable to the extent that air circulation can be maintained.

APPLICABILITY

In MODES 1, 2, 3, 4, [5, and 6,] and during movement of [recently] irradiated fuel assemblies, the CREATCS must be OPERABLE to ensure that the control room temperature will not exceed equipment operational requirements following isolation of the control room. [The CREATCS is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days), due to radioactive decay.]

[In MODE 5 or 6,] CREATCS may not be required for those facilities that do not require automatic control room isolation.

ACTIONS

A.1

With one CREATCS train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CREATCS train is adequate to maintain the control room temperature within limits. However, the overall reliability is reduced because a single failure in the OPERABLE CREATCS train could result in loss of CREATCS function. The 30 day Completion Time is based on the low probability of an event requiring control room isolation, the consideration that the remaining train can provide the required protection, and that alternate safety or nonsafety related cooling means are available.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1

With two CREATCS trains inoperable, the Required Action is to restore the inoperable CREATCS trains to OPERABLE status within 1 hour to regain temperature control for the control room following isolation of the control room. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second CREATCS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CREATCS train is inoperable for any reason and a second CREATCS train is found to be inoperable, or if two CREATCS trains are found to be inoperable at the same time.]

CB.1 and CB.2

In MODE 1, 2, 3, or 4, if the inoperable CREATCS train~~(s)~~ cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes the risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 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.

BASES

ACTIONS (continued)

DC.1 and DC.2

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel, if the inoperable CREATCS train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CREATCS train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that active failures will be readily detected.

An alternative to Required Action DC.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

ED.1

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, with two CREATCS trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

----- REVIEWER'S NOTE -----
Condition F is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

EF.1

If both CREATCS trains are inoperable in MODE 1, 2, 3, or 4, the control room CREATCS may not be capable of performing its intended function. Therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE
REQUIREMENTSSR 3.7.11.1

This SR verifies that the heat removal capability of the system is sufficient to remove the heat load assumed in the [safety analyses] in the control room. This SR consists of a combination of testing and calculations. The [18] month Frequency is appropriate since significant degradation of the CREATCS is slow and is not expected over this time period.

REFERENCES

1. FSAR, Section [6.4].

BASES

LCO (continued)

Proper sequencing of loads, [including tripping of nonessential loads,] is a required function for DG OPERABILITY.

The AC sources in one train must be separate and independent (to the extent possible) of the AC sources in the other train. For the DGs, separation and independence are complete.

For the offsite AC sources, separation and independence are to the extent practical. A circuit may be connected to more than one ESF bus, with fast transfer capability to the other circuit OPERABLE, and not violate separation criteria. A circuit that is not connected to an ESF bus is required to have OPERABLE fast transfer interlock mechanisms to at least two ESF buses to support OPERABILITY of that circuit.

APPLICABILITY

The AC sources [and sequencers] are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

The AC power requirements for MODES 5 and 6 are covered in LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable DG. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----
 The turbine driven auxiliary feedwater pump is only required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor or turbine driven auxiliary feedwater pump(s) is not by itself capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

A.2

Required Action A.2, which only applies if the train cannot be powered from an offsite source, is intended to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of safety function of critical redundant required features. These features are powered from the redundant AC electrical power train. This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, may not be included.

The Completion Time for Required Action A.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. The train has no offsite power supplying it loads and
- b. A required feature on the other train is inoperable.

If at any time during the existence of Condition A (one offsite circuit inoperable) a redundant required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

Discovering no offsite power to one train of the onsite Class 1E Electrical Power Distribution System coincident with one or more inoperable required support or supported features, or both, that are associated with the other train that has offsite power, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

BASES

ACTIONS (continued)

The remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to Train A and Train B of the onsite Class 1E Distribution System. The 24 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

A.3

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition A for a period that should not exceed 72 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.1

To ensure a highly reliable power source remains with an inoperable DG, it is necessary to verify the availability of the offsite circuits on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions and Required Actions must then be entered.

-----REVIEWER'S NOTE-----

The turbine driven auxiliary feedwater pump is only required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor or turbine driven auxiliary feedwater pump(s) is not by itself capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

BASES

ACTIONS (continued)

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related trains. This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, are not included. Redundant required feature failures consist of inoperable features associated with a train, redundant to the train that has an inoperable DG.

The Completion Time for Required Action B.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. An inoperable DG exists and
- b. A required feature on the other train (Train A or Train B) is inoperable.

If at any time during the existence of this Condition (one DG inoperable) a required feature subsequently becomes inoperable, this Completion Time would begin to be tracked.

Discovering one required DG inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE DG, results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently is Acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

In this Condition, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

BASES

ACTIONS (continued)

B.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of OPERABLE DG(s). If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on other DG(s), the other DG(s) would be declared inoperable upon discovery and Condition E of LCO 3.8.1 would be entered. Once the failure is repaired, the common cause failure no longer exists, and Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on the remaining DG(s), performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of that DG.

In the event the inoperable DG is restored to OPERABLE status prior to completing either B.3.1 or B.3.2, the [plant corrective action program] will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in Condition B.

According to Generic Letter 84-15 (Ref. 7), [24] hours is reasonable to confirm that the OPERABLE DG(s) is not affected by the same problem as the inoperable DG.

B.4

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition B for a period that should not exceed 72 hours.

In Condition B, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

Required Action C.1, which applies when two offsite circuits are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required safety functions. The Completion Time for this failure of

redundant required features is reduced to 12 hours from that allowed for one train without offsite power (Required Action A.2). The rationale for

BASES

ACTIONS (continued)

the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are powered from redundant AC safety trains. This includes motor driven auxiliary feedwater pumps. Single train features, such as turbine driven auxiliary pumps, are not included in the list.

The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action the Completion Time only begins on discovery that both:

- a. All required offsite circuits are inoperable and
- b. A required feature is inoperable.

If at any time during the existence of Condition C (two offsite circuits inoperable) a required feature becomes inoperable, this Completion Time begins to be tracked.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition C for a period that should not exceed 24 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

Because of the normally high availability of the offsite sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more DGs inoperable. However, two factors tend to decrease the severity of this level of degradation:

- a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure and

- b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

BASES

ACTIONS (continued)

With both of the required offsite circuits inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient. In fact, a simultaneous loss of offsite AC sources, a LOCA, and a worst case single failure were postulated as a part of the design basis in the safety analysis. Thus, the 24 hour Completion Time provides a period of time to effect restoration of one of the offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

According to Reference 6, with the available offsite AC sources, two less than required by the LCO, operation may continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source is restored within 24 hours, power operation continues in accordance with Condition A.

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable, resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no AC source to any train, the Conditions and Required Actions for LCO 3.8.9, "Distribution Systems - Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of one offsite circuit and one DG, without regard to whether a train is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized train.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition D for a period that should not exceed 12 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

In Condition D, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than that in Condition C (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 12 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

BASES

ACTIONS (continued)

E.1

With Train A and Train B DGs inoperable, there are no remaining standby AC sources. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources are available to power the minimum required ESF functions. Since the offsite electrical power system is the only source of AC power for this level of degradation, the risk associated with continued operation for a very short time could be less than that associated with an immediate controlled shutdown (the immediate shutdown could cause grid instability, which could result in a total loss of AC power). Since any inadvertent generator trip could also result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

According to Reference 6, with both DGs inoperable, operation may continue for a period that should not exceed 2 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

[E.1

The sequencer(s) is an essential support system to [both the offsite circuit and the DG associated with a given ESF bus]. [Furthermore, the sequencer is on the primary success path for most major AC electrically powered safety systems powered from the associated ESF bus.] Therefore, loss of an [ESF bus sequencer] affects every major ESF system in the [division]. The [12] hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining sequencer OPERABILITY. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** This time period also ensures that the probability of an accident (requiring sequencer OPERABILITY) occurring during periods when the sequencer is inoperable is minimal.

This Condition is preceded by a Note that allows the Condition to be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads under any conditions. Implicit in this Note is the concept that the Condition must be retained if any sequencer failure mode results in the inability to start all or part of the safety loads when required, regardless of power availability, or results in overloading the offsite power circuit to a safety bus during an event and thereby causes its failure. Also implicit in

the Note, is that the Condition is not applicable to any train that does not have a sequencer.]

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----

Condition G is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[G.1 and G.2]

With three or more [required] AC sources inoperable the Required Action is to restore enough of the required inoperable AC sources to OPERABLE status within 1 hour to regain some level of redundancy in the AC electrical power supplies. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient AC electrical power supplies. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when three or more [required] AC sources are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if two [required] AC sources are inoperable for any reason and additional [required] AC sources are found to be inoperable, or if three or more [required] AC sources are found to be inoperable at the same time.]

H.1 and H.2

If the inoperable AC electric power sources cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

----- REVIEWER'S NOTE -----

Condition I is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[H.1]

Condition ~~H~~I corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this

severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown.]

**SURVEILLANCE
REQUIREMENTS**

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, in accordance with 10 CFR 50, Appendix A, GDC 18 (Ref. 8). Periodic component tests are supplemented by extensive functional tests during refueling outages (under simulated accident conditions). The SRs for demonstrating the OPERABILITY of the DGs are in accordance with the recommendations of Regulatory Guide 1.9 (Ref. 3), Regulatory Guide 1.108 (Ref. 9), and Regulatory Guide 1.137 (Ref. 10), as addressed in the FSAR.

Where the SRs discussed herein specify voltage and frequency tolerances, the following is applicable. The minimum steady state output voltage of [3740] V is 90% of the nominal 4160 V output voltage. This value, which is specified in ANSI C84.1 (Ref. 11), allows for voltage drop to the terminals of 4000 V motors whose minimum operating voltage is specified as 90% or 3600 V. It also allows for voltage drops to motors and other equipment down through the 120 V level where minimum operating voltage is also usually specified as 90% of name plate rating. The specified maximum steady state output voltage of [4756] V is equal to the maximum operating voltage specified for 4000 V motors. It ensures that for a lightly loaded distribution system, the voltage at the terminals of 4000 V motors is no more than the maximum rated operating

BASES

LCO The DC electrical power subsystems, each subsystem consisting of [two] batteries, battery charger [for each battery] and the corresponding control equipment and interconnecting cabling supplying power to the associated bus within the train are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any train DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4).

An OPERABLE DC electrical power subsystem requires all required batteries and respective chargers to be operating and connected to the associated DC bus(es).

APPLICABILITY The DC electrical power sources are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure safe unit operation and to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment integrity and other vital functions are maintained in the event of a postulated DBA.

The DC electrical power requirements for MODES 5 and 6 are addressed in the Bases for LCO 3.8.5, "DC Sources - Shutdown."

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

Condition A represents one train with one [or two] battery chargers inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring a fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours. **[or in accordance with the Risk Informed Completion Time Program]**. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within [12] hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----
A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).

A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a premature shutdown with its own attendant risk.

If established battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

If the charger is operating in the current limit mode after 2 hours that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action A.2).

Required Action A.2 requires that the battery float current be verified as less than or equal to [2] amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial [12] hour period the battery float current is not less than or equal to [2] amps this indicates there may be additional battery problems and the battery must be declared inoperable.

BASES

ACTIONS (continued)

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

B.1

-----REVIEWER'S NOTE-----
 The 2 hour Completion Times of Required Actions B.1 and C.1 are in brackets. Any licensee wishing to request a longer Completion Time will need to demonstrate that the longer Completion Time is appropriate for the plant in accordance with the guidance in Regulatory Guide (RG) 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications."

Condition B represents one train with one [or two] batter[y][ies] inoperable. With one [or two] batter[y][ies] inoperable, the DC bus is being supplied by the OPERABLE battery charger[s]. Any event that results in a loss of the AC bus supporting the battery charger[s] will also result in loss of DC to that train. Recovery of the AC bus, especially if it is due to a loss of offsite power, will be hampered by the fact that many of the components necessary for the recovery (e.g., diesel generator control and field flash, AC load shed and diesel generator output circuit breakers, etc.) likely rely upon the batter[y][ies]. In addition the energization transients of any DC loads that are beyond the capability of the battery charger[s] and normally require the assistance of the batter[y][ies] will not be able to be brought online. The [2] hour limit allows sufficient time to effect restoration of an inoperable battery given that the majority of the conditions that lead to battery inoperability (e.g., loss of battery charger, battery cell voltage less than [2.07] V, etc.) are identified in Specifications 3.8.4, 3.8.5, and 3.8.6 together with additional specific Completion Times. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

C.1

Condition C represents one train with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected train. The 2 hour limit is consistent with the allowed time for an inoperable DC distribution system train. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

If one of the required DC electrical power subsystems is inoperable for reasons other than Condition A or B (e.g., inoperable battery charger and associated inoperable battery), the remaining DC electrical power subsystem has the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst- case single failure could, however, result in the loss of minimum necessary DC electrical subsystems to mitigate a worst case accident, continued power operation should not exceed 2 hours. The 2 hour Completion Time is based on Regulatory Guide 1.93 (Ref. 7) and reflects a reasonable time to assess unit status as a function of the inoperable DC electrical power subsystem and, if the DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown.

----- REVIEWER'S NOTE -----
Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1 and D.2

With two DC electrical power subsystems inoperable, the Required Action is to restore at least one of the required inoperable DC electrical power subsystems to OPERABLE status within 1 hour to regain control power for the AC emergency power system. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one DC electrical power subsystem. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second DC electrical power subsystem is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one DC electrical power subsystem is inoperable for any

reason and a second DC electrical power subsystem is found to be inoperable, or if two DC electrical power subsystem are found to be inoperable at the same time.]

E.1 and E.2

If the inoperable DC electrical power subsystem(s) cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems. The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

BASES

ACTIONS

A.1

With a required inverter inoperable, its associated AC vital bus becomes inoperable until it is [manually] re-energized from its [Class 1E constant voltage source transformer or inverter using internal AC source].

For this reason a Note has been included in Condition A requiring the entry into the Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating." This ensures that the vital bus is re-energized within 2 hours.

Required Action A.1 allows 24 hours to fix the inoperable inverter and return it to service. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 24 hour limit is based upon engineering judgment, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. This has to be balanced against the risk of an immediate shutdown, along with the potential challenges to safety systems such a shutdown might entail. When the AC vital bus is powered from its constant voltage source, it is relying upon interruptible AC electrical power sources (offsite and onsite). The uninterruptible inverter source to the AC vital buses is the preferred source for powering instrumentation trip setpoint devices.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1 and B.2

With two or more [required] inverters inoperable the Required Action is to restore at least one of the [required] inverters to OPERABLE status within 1 hour to regain AC electrical power to the vital buses. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one [required] inverter. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more [required] inverters are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [required] inverter is inoperable for any reason and additional [required] inverters are found to be inoperable, or if two or more [required] inverters are found to be inoperable at the same time.]

C.1 and C.2

If the inoperable devices or components cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

LCO (continued)

In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, if they exist, must be open. This prevents any electrical malfunction in any power distribution subsystem from propagating to the redundant subsystem, that could cause the failure of a redundant subsystem and a loss of essential safety function(s). If any tie breakers are closed, the affected redundant electrical power distribution subsystems are considered inoperable. This applies to the onsite, safety related redundant electrical power distribution subsystems. It does not, however, preclude redundant Class 1E 4.16 kV buses from being powered from the same offsite circuit.

APPLICABILITY

The electrical power distribution subsystems are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Electrical power distribution subsystem requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.10, "Distribution Systems - Shutdown."

ACTIONS

A.1

With one or more Train A and B required AC buses, load centers, motor control centers, or distribution panels (except AC vital buses), in one train inoperable and a loss of function has not occurred, the remaining AC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required AC buses, load centers, motor control centers, and distribution panels must be restored to OPERABLE status within 8 hours [or in accordance with the Risk Informed Completion Time Program].

BASES

ACTIONS (continued)

Condition A worst scenario is one train without AC power (i.e., no offsite power to the train and the associated DG inoperable). In this Condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operator's attention be focused on minimizing the potential for loss of power to the remaining train by stabilizing the unit, and on restoring power to the affected train. The 8 hour time limit before requiring a unit shutdown in this Condition is acceptable because of:

- a. The potential for decreased safety if the unit operator's attention is diverted from the evaluations and actions necessary to restore power to the affected train, to the actions associated with taking the unit to shutdown within this time limit and
- b. The potential for an event in conjunction with a single failure of a redundant component in the train with AC power.

Required Action A.1 is modified by a Note that requires the applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," to be entered for DC trains made inoperable by inoperable power distribution subsystems. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. Inoperability of a distribution system can result in loss of charging power to batteries and eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems.

B.1

With one or more AC vital buses inoperable, and a loss of function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the minimum [required] ESF functions not being supported. Therefore, the required AC vital bus must be restored to OPERABLE status within 2 hours by powering the bus from the associated [inverter via inverted DC, inverter using internal AC source, or Class 1E constant voltage transformer]. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source are nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining vital buses and restoring power to the affected vital bus.

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate vital AC power, that would have the Required Action Completion Times shorter than 2 hours if declared inoperable, is acceptable because of:

- a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) and not allowing stable operations to continue,
- b. The potential for decreased safety by requiring entry into numerous Applicable Conditions and Required Actions for components without adequate vital AC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train, and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time takes into account the importance to safety of restoring the AC vital bus to OPERABLE status, the redundant capability afforded by the other OPERABLE vital buses, and the low probability of a DBA occurring during this period.

C.1

With one or more DC buses or distribution panels inoperable, and a loss of function has not yet occurred, the remaining DC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystem could result in the minimum required ESF functions not being supported. Therefore, the [required] DC buses and distribution panels must be restored to OPERABLE status within 2 hours by powering the bus from the associated battery or charger.

[Alternatively, a Completion Time can be determined in accordance with
the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

Condition C represents one or more DC buses or distribution panels without adequate DC power; potentially both with the battery significantly degraded and the associated charger nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining trains and restoring power to the affected train.

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components that would be without power. Taking exception to LCO 3.0.2 for components without adequate DC power, which would have Required Action Completion Times shorter than 2 hours, is acceptable because of:

- a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) while allowing stable operations to continue,
- b. The potential for decreased safety by requiring entry into numerous applicable Conditions and Required Actions for components without DC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train, and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for DC buses is consistent with Regulatory Guide 1.93 (Ref. 3).

----- REVIEWER'S NOTE -----
 Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1 and D.2

With two or more electrical power distribution subsystems inoperable that result in a loss of safety function, the Required Action is to restore sufficient electrical power distribution subsystems within 1 hour to restore safety function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient electrical power distribution subsystems. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the two or more electrical power distribution subsystems are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one electrical power distribution subsystem is inoperable for any reason and a second electrical power distribution subsystem is found to be inoperable, or if two or more electrical power distribution subsystems are found to be inoperable at the same time.]

E.1 and E.2

If the inoperable distribution subsystem(s) cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition F is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[FE.1

Condition **FE** corresponds to a level of degradation in the electrical power distribution system that causes a required safety function to be lost. When more than one inoperable electrical power distribution subsystem results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.]

SURVEILLANCE
REQUIREMENTSSR 3.8.9.1

This Surveillance verifies that the [required] AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [15].
3. Regulatory Guide 1.93, December 1974.

----- Reviewer's Note -----
 Example 1.3-8 is only applicable to plants that have adopted the Risk Informed Completion Time Program.

[

EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. ---- NOTE ----- Not applicable when second subsystem intentionally made inoperable. ----- Two subsystems inoperable.	B.1 Restore subsystems to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

When a subsystem is declared inoperable, Condition A is entered. The 7 day Completion Time may be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a Risk Informed Completion Time (RICT) that may be used to complete the Required Action beyond the 7 day Completion Time. The RICT cannot exceed 30 days. After the 7 day Completion Time has expired, the

subsystem must be restored to OPERABLE status within the RICT or Condition C must also be entered.

If a second subsystem is declared inoperable, Condition B may also be entered. The Condition is modified by a Note stating it is not applicable if the second subsystem is intentionally made inoperable. The Required Actions of Condition B are not intended for voluntary removal of redundant subsystems from service. The Required Action is only applicable if one subsystem is inoperable for any reason and the second subsystem is found to be inoperable, or if both subsystems are found to be inoperable at the same time. If Condition B is applicable, at least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. The licensee may be able to apply a RICT to extend the Completion Time beyond 1 hour if the requirements of the Risk Informed Completion Time Program are met. If two subsystems are inoperable and Condition B is not applicable (i.e., the second subsystem was intentionally made inoperable), LCO 3.0.3 is entered as there is no applicable Condition.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

If the 7 day Completion Time clock of Condition A or the 1 hour Completion Time clock of Condition B have expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition C is entered, Conditions A, B, and C are exited, and therefore, the Required Actions of Condition C may be terminated.]

IMMEDIATE When "Immediately" is used as a Completion Time, the Required Action
COMPLETION TIME should be pursued without delay and in a controlled manner.

Comment: Required Actions A.1, B.1, D.2.1 and E.2.1 allow placing a channel in bypass. Condition C and Required Actions D.1 and E.1 are not "restore" functions. Conditions F and G are default Conditions. These Conditions and Required Actions are excluded.

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: According to Table 3.3.1-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each RPS 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>	<u>OR</u> In accordance with the Risk Informed Completion Time Program]
	A.2.2 [Place affected trip unit in trip.	48 hours] <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. One or more Functions with two RPS trip units or associated instrument channels inoperable except for Condition C	B.1 Place one trip unit in bypass and place the other trip unit in trip. <u>AND</u>	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
(excore channel not calibrated with incore detectors).	B.2 Restore one trip unit to OPERABLE status.	[48] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with one or more power range excor channels not calibrated with the incore detectors.	C.1 Perform SR 3.3.1.3.	24 hours
	<u>OR</u> C.2 Restrict THERMAL POWER to $\leq 90\%$ RTP.	24 hours
D. One or more Functions with one automatic bypass removal channel inoperable.	D.1 Disable bypass channel.	1 hour
	<u>OR</u> D.2.1 Place affected trip units in bypass or trip.	1 hour
	<u>AND</u> D.2.2.1 Restore bypass removal channel and affected trip units to OPERABLE status.	[48] hours <u>OR</u>
	<u>OR</u> D.2.2.2 [Place affected trip units in trip.	48 hours] <u>OR</u> In accordance with the Risk Informed Completion Time Program]
E. One or more Functions with two automatic bypass removal channels inoperable.	E.1 Disable bypass channels. <u>OR</u>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>E.2.1 [Place one affected trip unit in bypass and place the other in trip for each affected trip Function.</p> <p><u>AND</u></p> <p>E.2.2 Restore one automatic bypass removal channel and the associated trip unit to OPERABLE status for each affected trip Function.</p>	<p>1 hour</p> <p>[48] hours]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>F. Required Action and associated Completion Time not met for Axial Power Distribution and Loss of Load Trip Functions.</p>	<p>F.1 Reduce THERMAL POWER to < 15% RTP.</p>	<p>6 hours</p>
<p>G. Required Action and associated Completion Time not met except for Axial Power Distribution or Loss of Load Trip Functions.</p>	<p>G.1 Be in MODE 3.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.1-1 to determine which SR shall be performed for each RPS Function.

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.1 Perform a CHANNEL CHECK of each RPS instrument channel except Loss of Load.</p>	<p>12 hours</p>

Comment: No changes made. Outside the applicability of the Traveler.

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 and bypass removal channels shall be OPERABLE.

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. <u>AND</u>	1 hour
	A.2.1 Restore channel to OPERABLE status. <u>OR</u>	[48] hours
	A.2.2 [Place affected trip unit in trip.	48 hours]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two Power Rate of Change - High trip units or associated instrument channel inoperable.	B.1 Place one trip unit in bypass and place the other trip unit in trip. <u>AND</u> B.2 [Restore one trip unit to OPERABLE status.	1 hour 48 hours]
C. One automatic bypass removal channel inoperable.	C.1 Disable bypass channel. <u>OR</u> C.2.1 Place affected trip unit in bypass or trip. <u>AND</u> C.2.2.1 Restore bypass removal channel and affected trip unit to OPERABLE status. <u>OR</u> C.2.2.2 [Place affected trip units in trip.	1 hour 1 hour [48] hours 48 hours]
D. Two automatic bypass removal channels inoperable.	D.1 Disable bypass channels. <u>OR</u> D.2.1 Place one affected trip unit in bypass and place the other in trip. <u>AND</u>	1 hour 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2.2 Restore one bypass channel and the associated trip unit to OPERABLE status.	[48] hours
E. Required Action and associated Completion Time not met.	E.1 Open all RTCBs.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform a CHANNEL CHECK of each wide range power channel.	12 hours
SR 3.3.2.2	Perform a CHANNEL FUNCTIONAL TEST on the Power Rate of Change trip function.	92 days
SR 3.3.2.3	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.	92 days
SR 3.3.2.4	<p>-----NOTE-----</p> <p>Neutron detectors are excluded from CHANNEL CALIBRATION.</p> <p>-----</p> <p>Perform a CHANNEL CALIBRATION, including bypass removal functions with Allowable Value \leq [2.6] dpm.</p>	[18] months

Comment: Required Action B.1, C.1, and D.1 are not "restore" functions. Condition C is outside the applicability of the Traveler, Condition D contains an "Immediately" Completion Time and Condition E is a default Condition. Therefore these Conditions are excluded.

3.3.3 Reactor Protective System (RPS) Logic and Trip Initiation (Analog)

LCO 3.3.3 Six channels of RPS Matrix Logic, four channels of RPS Initiation Logic, [four] channels of reactor trip circuit breakers (RTCBs), and [four] channels of Manual Trip shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5, with any RTCBs closed and any control element assemblies capable of being withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One Matrix Logic channel inoperable.</p> <p><u>OR</u></p> <p>Three Matrix Logic channels inoperable due to a common power source failure de-energizing three matrix power supplies.</p>	<p>A.1 Restore channel(s) to OPERABLE status.</p>	<p>48 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.</p>	<p>B.1 Open the affected RTCBs.</p>	<p>1 hour</p>
<p>C. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.</p>	<p>C.1 Open the affected RTCBs.</p>	<p>48 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two channels of Manual Trip, RTCBs, or Initiation Logic affecting the same trip leg inoperable.	D.1 Open the affected RTCBs.	Immediately
E. Required Action and associated Completion Time of Condition A, B, or D not met. <u>OR</u> 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. <u>AND</u> 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 RTCB channel.	[31] days
SR 3.3.3.2 Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel.	[92] days
SR 3.3.3.3 Perform a CHANNEL FUNCTIONAL TEST on each RPS Manual Trip channel.	Once within 7 days prior to each reactor startup

Comment: Required Actions A.1, C.1, D.1, E.2.1 and F.2.1 placing a channel in bypass and are excluded. Required Actions E.1 and F.1 are not "restore" functions. Condition G is a default Condition. Therefore all changes to this Specification are excluded.

og)
3.4

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 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. ----- NOTE ----- Not applicable when two or more CSAS trip units or associated instruments intentionally made inoperable. ----- Two or more CSAS trip units or associated instruments inoperable.	B.1 Restore trip units or instruments to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
CB. One or more Functions with one ESFAS trip unit or associated instrument channel (except CSAS) inoperable.	CB.1 Place affected trip unit in bypass or trip. <u>AND</u> CB.2.1 Restore channel to OPERABLE status. <u>OR</u>	1 hour [48] hours <u>OR</u>

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>CB.2.2 [Place affected trip unit in trip.</p>	<p>In accordance with the Risk Informed Completion Time Program]</p> <p>48 hours]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>DC. One or more Functions with two ESFAS trip units or associated instrument channels (except CSAS) inoperable.</p>	<p>DC.1 Place one trip unit in bypass and place the other trip unit in trip.</p> <p><u>AND</u></p> <p>DC.2 Restore one trip unit to OPERABLE status.</p>	<p>1 hour</p> <p>[48] hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>ED. One or more Functions with one automatic bypass removal channel inoperable.</p>	<p>ED.1 Disable bypass channel.</p> <p><u>OR</u></p> <p>ED.2.1 Place affected trip units in bypass or trip.</p> <p><u>AND</u></p> <p>ED.2.2.1 Restore bypass removal channel and affected trip units to OPERABLE status.</p> <p><u>OR</u></p> <p>ED.2.2.2 [Place affected trip units in trip.</p>	<p>1 hour</p> <p>1 hour</p> <p>[48] hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>48 hours]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>FE. One or more Functions with two automatic</p>	<p>FE.1 Disable bypass channels.</p>	<p>1 hour</p>

<p>bypass removal channels inoperable.</p>	<p><u>OR</u></p> <p>FE.2.1 Place one affected trip unit in bypass and place the other in trip for each affected ESFAS Function.</p> <p><u>AND</u></p>	<p>1 hour</p>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	FE.2.2 [Restore one bypass channel and the associated trip unit to OPERABLE status for each affected trip Function.	48 hours] IOR In accordance with the Risk Informed Completion Time Program]
GF.Required Action and associated Completion Time not met.	GF.1 Be in MODE 3. <u>AND</u>	6 hours
	GF.2 Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform a CHANNEL CHECK of each ESFAS instrument channel.	12 hours
SR 3.3.4.2	Perform a CHANNEL FUNCTIONAL TEST of each ESFAS instrument channel.	[92] days
SR 3.3.4.3	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.	Once within 92 days prior to each reactor startup
SR 3.3.4.4	Perform a CHANNEL CALIBRATION of each ESFAS instrument channel, including bypass removal functions.	[18] months
SR 3.3.4.5	Verify ESF RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

Comment: Conditions C and F are default Conditions and are therefore excluded.

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 <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when second AFAS Manual Trip or Actuation Logic channel intentionally made inoperable. ----- Two AFAS Manual Trip or Actuation Logic channels inoperable.	B.1 Restore channels to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
CB. [Two AFAS Manual Trip or Actuation Logic channels inoperable. <u>OR</u>	CB.1 Be in MODE 3. <u>AND</u> CB.2 Be in MODE 4.	6 hours [12] hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>Required Action and associated Completion Time of Condition A [or B] not met.</p>		
<p>DG. One or more Functions with one Manual Trip or Actuation Logic channel inoperable except AFAS.</p>	<p>DG.1 Restore channel to OPERABLE status.</p>	<p>48 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>[E. ----- NOTE ----- Not applicable when second Manual Trip or Actuation Logic channel intentionally made inoperable. ----- One or more Functions with two Manual Trip or Actuation Logic channel inoperable except AFAS.</p>	<p>E.1 Restore channels to OPERABLE status.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>FD. [One or more Functions with two Manual Trip or Actuation Logic channel inoperable except AFAS.</p> <p>OR]</p> <p>Required Action and associated Completion Time of Condition D [or E-] not met.</p>	<p>FD.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>FD.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours]</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.5.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 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. <p>-----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.</p>	<p>[92] days</p>
<p>SR 3.3.5.2</p> <p>Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.</p>	<p>[18] months</p>

Comment: Required Actions A.1 and B.2.1 allow placing a channel in bypass. Required Action B.1 requires declaring another system inoperable. Condition D is a default Condition and is therefore excluded.

3.3.6 Diesel Generator (DG) - Loss of Voltage Start (LOVS) (Analog)

LCO 3.3.6 [Four] channels of Loss of Voltage Function and [four] channels of Degraded Voltage Function auto-initiation instrumentation per DG shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per DG inoperable.	A.1 Place channel in bypass or trip.	1 hour
	<u>AND</u>	
	A.2.1 Restore channel to OPERABLE status.	[48] hours
	<u>OR</u>	<u>OR</u>
	A.2.2 [Place the channel in trip.	48 hours] <u>OR</u> In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with two channels per DG inoperable.	B.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation. <u>OR</u>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.1 Place one channel in bypass and the other channel in trip. <u>AND</u> B.2.2 Restore one channel to OPERABLE status.	1 hour [48] hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
C. One or more Functions with more than two channels inoperable.	C.1 Restore all but two channels to OPERABLE status.	1 hour <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met.	D.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.6.1 [Perform CHANNEL CHECK.	12 hours]
SR 3.3.6.2 Perform CHANNEL FUNCTIONAL TEST.	[92] days

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

CRIS (Analog)
3.3.8

3.3 INSTRUMENTATION

3.3.8 Control Room Isolation Signal (CRIS) (Analog)

LCO 3.3.8 One CRIS channel shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. CRIS Manual Trip, Actuation Logic, or [one or more required channels of particulate/iodine or gaseous] radiation monitors inoperable in MODE 1, 2, 3, or 4.</p>	<p>A.1 -----NOTE----- Place Control Room Emergency Air Cleanup System (CREACS) in toxic gas protection mode if automatic transfer to toxic gas protection mode inoperable. ----- Place one CREACS train in emergency radiation protection mode.</p>	<p>1 hour</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.</p>	<p>6 hours 36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. CRIS Manual Trip, Actuation Logic, or [one or more required channels of particulate/iodine or gaseous] radiation monitors inoperable [in MODE 5 or 6], during movement of [recently] irradiated fuel assemblies.</p>	<p>C.1 -----NOTE----- Place CREACS in toxic gas protection mode if automatic transfer to toxic gas protection mode inoperable. ----- Place one CREACS train in emergency radiation protection mode.</p> <p><u>OR</u></p> <p>C.2.1 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>C.2.2 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----- Suspend positive reactivity additions.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.8.1 Perform a CHANNEL CHECK on the required control room radiation monitor channel.</p>	<p>12 hours</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.9 Chemical and Volume Control System (CVCS) Isolation Signal (Analog)

LCO 3.3.9 Four channels of West Penetration Room/Letdown Heat Exchanger Room pressure sensing and two Actuation Logic channels shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Actuation Logic channel inoperable.	A.1 Restore the channel to OPERABLE status.	48 hours
B. One CVCS isolation instrument channel inoperable.	B.1 Place the channel in bypass or trip.	1 hour
	<u>AND</u>	
	B.2.1 Restore the channel to OPERABLE status.	48 hours
	<u>OR</u>	
	B.2.2 Place the channel in trip.	48 hours
C. Two CVCS isolation instrument channels inoperable.	C.1 Place one channel in bypass and place the other channel in trip.	1 hour
	<u>AND</u>	
	C.2 Restore one channel to OPERABLE status.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two Actuation Logic channels inoperable. <u>OR</u> Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	<u>AND</u> D.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.9.1 Perform a CHANNEL CHECK.	12 hours
SR 3.3.9.2 -----NOTES----- 1. Testing of Actuation Logic shall include the 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 each CVCS isolation channel with setpoints in accordance with the following Allowable Values: West Penetration Room Pressure - High ≤ .5 psig Letdown Heat Exchanger Room Pressure - High ≤ .5 psig	31 days

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

SBFAS (Analog)
3.3.10

3.3 INSTRUMENTATION

3.3.10 Shield Building Filtration Actuation Signal (SBFAS) (Analog)

LCO 3.3.10 Two channels of SBFAS automatic and two channels of Manual Trip shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Manual Trip or Actuation Logic channel inoperable.	A.1 Restore the channel to OPERABLE status.	48 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.10.1 Perform a CHANNEL FUNCTIONAL TEST on each SBFAS automatic actuation channel.	[92] days
SR 3.3.10.2 Perform a CHANNEL FUNCTIONAL TEST on each SBFAS Manual Trip channel.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.11 Post Accident Monitoring (PAM) Instrumentation (Analog)

LCO 3.3.11 The PAM instrumentation for each Function in Table 3.3.11-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.5.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.11-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.11-1.	E.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	E.2 Be in MODE 4.	12 hours
F. [As required by Required Action D.1 and referenced in Table 3.3.11-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately]

SURVEILLANCE REQUIREMENTS

-----NOTE-----

These SRs apply to each PAM instrumentation Function in Table 3.3.11-1.

SURVEILLANCE	FREQUENCY
SR 3.3.11.1 Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.11.2 -----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	[18] months

Comment: No changes made. Required Action A.1 already has a 30 day CT. Condition B is a default Condition.

Remote Shutdown System (Analog)
3.3.12

3.3 INSTRUMENTATION

3.3.12 Remote Shutdown System (Analog)

LCO 3.3.12 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Functions to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.12.1	[Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days]
SR 3.3.12.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] months

Comment: No changes made.
Outside the applicability of the
Traveler.

3.3 INSTRUMENTATION

3.3.13 [Logarithmic] Power Monitoring Channels (Analog)

LCO 3.3.13 Two channels of [logarithmic] power level monitoring instrumentation shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5, with the reactor trip circuit breakers open or Control Element Assembly (CEA) Drive System not capable of CEA withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required channel(s) inoperable.</p>	<p>A.1 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----- Suspend all operations involving positive reactivity additions.</p> <p><u>AND</u></p> <p>A.2 Perform SDM verification in accordance with SR 3.1.1.1.</p>	<p>Immediately</p> <p>4 hours</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p>

Comment: Required Actions A.1, B.1 and C.2.1 placing a channel in bypass and are excluded. RAs A.2 and C.2.2 Completion Times are not time based. Required Actions C.1, D.1, E.1 and F.1 are not "restore" functions. Condition G is a default Condition. Therefore all changes to this Specification are excluded.

3.3.1 Reactor Protective System (RPS) Instrumentation - Operating (Digital)

LCO 3.3.1 Four RPS trip and bypass removal channels for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each RPS Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one automatic RPS trip channel inoperable.	A.1 Place channel in bypass or trip.	1 hour
	<u>AND</u> A.2 Restore channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
B. One or more Functions with two automatic RPS trip channels inoperable.	B.1 Place one channel in bypass and the other in trip.	1 hour
C. One or more Functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel.	1 hour
	<u>OR</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Place affected automatic trip channel in bypass or trip. <u>AND</u> C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
D. One or more Functions with two automatic bypass removal channels inoperable.	D.1 Disable bypass channels. <u>OR</u> D.2 Place one affected automatic trip channel in bypass and place the other in trip.	1 hour 1 hour
E. One or more core protection calculator (CPC) channels with a cabinet high temperature alarm.	E.1 Perform CHANNEL FUNCTIONAL TEST on affected CPC.	12 hours
F. One or more CPC channels with three or more autorestarts during a 12 hour period.	F.1 Perform CHANNEL FUNCTIONAL TEST on affected CPC.	24 hours
G. Required Action and associated Completion Time not met.	G.1 Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.3 Restore battery charger[s] to OPERABLE status.	7 days]
<p>B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met].</p> <p><u>OR</u></p>	<p>B.1 Declare affected required feature(s) inoperable.</p> <p><u>OR</u></p> <p>B.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

CEACs (Digital)
3.3.3

3.3 INSTRUMENTATION

3.3.3 Control Element Assembly Calculators (CEACs) (Digital)

LCO 3.3.3 Two CEACs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CEAC inoperable.	A.1 Perform SR 3.1.4.1. <u>AND</u> A.2 Restore CEAC to OPERABLE status.	Once per 4 hours 7 days
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Both CEACs inoperable.	B.1 Verify the departure from nucleate boiling ratio requirement of LCO 3.2.4, "Departure from Nucleate Boiling Ratio (DNBR)," is met [and the Reactor Power Cutback System is disabled]. <u>AND</u>	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.2 Verify all full length and part length control element assembly (CEA) groups are fully withdrawn and maintained fully withdrawn, except during Surveillance testing pursuant to SR 3.1.4.3 [or for control, when CEA group #6 may be inserted to a maximum of 127.5 inches].</p> <p><u>AND</u></p> <p>B.3 Verify the "RSPT/CEAC Inoperable" addressable constant in each core protection calculator (CPC) is set to indicate that both CEACs are inoperable.</p> <p><u>AND</u></p> <p>B.4 Verify the Control Element Drive Mechanism Control System is placed in "OFF" and maintained in "OFF," except during CEA motion permitted by Required Action B.2.</p> <p><u>AND</u></p> <p>B.5 Perform SR 3.1.4.1.</p>	<p>4 hours</p> <p>4 hours</p> <p>4 hours</p> <p>Once per 4 hours</p>
C. Receipt of a CPC channel B or C cabinet high temperature alarm.	C.1 Perform CHANNEL FUNCTIONAL TEST on affected CEAC(s).	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or two CEACs with three or more auto restarts during a 12 hour period.	D.1 Perform CHANNEL FUNCTIONAL TEST on affected CEAC.	24 hours
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform a CHANNEL CHECK.	12 hours
SR 3.3.3.2	Check the CEAC auto restart count.	12 hours
SR 3.3.3.3	Perform a CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.3.4	Perform a CHANNEL CALIBRATION.	[18] months
SR 3.3.3.5	Perform a CHANNEL FUNCTIONAL TEST.	[18] months
SR 3.3.3.6	Verify the isolation characteristics of each CEAC isolation amplifier and each optical isolator for CEAC to CPC data transfer.	[18] months

Comment: Required Action B.1 is not a "restore" function. Condition C is outside the applicability of the Traveler, Condition D contains an "Immediately" Completion Time and Condition E is a default Condition. Therefore these Conditions are excluded.

3.3.4 Reactor Protective System (RPS) Logic and Trip Initiation (Digital)

LCO 3.3.4 Six channels of RPS Matrix Logic, four channels of RPS Initiation Logic, [four channels of reactor trip circuit breakers (RTCBs),] and four channels of Manual Trip shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5, with any RTCBs closed and any control element assemblies capable of being withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One Matrix Logic channel inoperable.</p> <p><u>OR</u></p> <p>Three Matrix Logic channels inoperable due to a common power source failure de-energizing three matrix power supplies.</p>	A.1 Restore channel(s) to OPERABLE status.	<p>48 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
B. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1 Open the affected RTCBs.	1 hour
C. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1 Open the affected 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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, or D not met. <u>OR</u> One or more Functions with more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel inoperable for reasons other than Condition A or D.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Open all RTCBs.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.4.1 Perform a CHANNEL FUNCTIONAL TEST on each RTCB channel.	[31] days
SR 3.3.4.2 Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel.	[92] days
SR 3.3.4.3 Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB.	[18] months
SR 3.3.4.4 Perform a CHANNEL FUNCTIONAL TEST on each RPS Manual Trip channel.	Once within 7 days prior to each reactor startup

Comment: Required Actions A.1, B.1, C.2.1, and D.2 allow placing a channel in bypass. RAs A.2 and C.2.2 Completion Times are not time based. Required Actions C.1 and D.1 are not "restore" functions. Condition E is a default Condition. Therefore all changes to this Specification are excluded.

3.3.5 Engineered Safety Features Actuation System (ESFAS) Instrumentation (Digital)

LCO 3.3.5 Four ESFAS trip and bypass removal channels for each Function in Table 3.3.5-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each ESFAS Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one automatic ESFAS trip channel inoperable.	A.1 Place channel in bypass or trip. <u>AND</u> A.2 Restore channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
B. One or more Functions with two automatic ESFAS trip channels inoperable.	B.1 Place one channel in bypass and the other in trip.	1 hour
C. One or more Functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel. <u>OR</u>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Place affected automatic trip channel in bypass or trip. <u>AND</u> C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
D. One or more Functions with two automatic bypass removal channels inoperable.	D.1 Disable bypass channels. <u>OR</u> D.2 Place one affected automatic trip channel in bypass and place the other in trip.	1 hour 1 hour
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	6 hours [12] hours

Comment: RA C.1 contains an "Immediately" Completion Time and Conditions F and G are default Conditions. Therefore these are excluded.

3.3 INSTRUMENTATION

3.3.6 Engineered Safety Features Actuation System (ESFAS) Logic and Manual Trip (Digital)

LCO 3.3.6 Six channels of ESFAS Matrix Logic, four channels of ESFAS Initiation Logic, two channels of Actuation Logic, and two channels of Manual Trip shall be OPERABLE for each Function in Table 3.3.6-1.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----NOTE----- This action also applies when three Matrix Logic channels are inoperable due to a common power source failure de-energizing three matrix power supplies. ----- One or more Functions with one Matrix Logic channel inoperable.	A.1 Restore channel to OPERABLE status.	48 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
B. One or more Functions with one Manual Trip or Initiation Logic channel inoperable.	B.1 Restore channel to OPERABLE status.	48 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

<p>FE. [Two Actuation Logic channels inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Conditions, for Containment Spray Actuation Signal, Main Steam Isolation Signal, or Emergency Feedwater Actuation Signal not met.</p>	<p>FE.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>FE.2 Be in MODE 4.</p>	<p>6 hours</p> <p>[12] hours</p>
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Comment: The end state of all the actions is to declare the associated DG inoperable. Therefore, this specification is excluded.

3.3 INSTRUMENTATION

3.3.7 Diesel Generator (DG) - Loss of Voltage Start (LOVS) (Digital)

LCO 3.3.7 [Four] channels of Loss of Voltage Function and [four] channels of Degraded Voltage Function auto-initiation instrumentation per DG shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.2,
"AC Sources - Shutdown."

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per DG inoperable.	A.1 Place channel in bypass or trip	1 hour
	<u>AND</u>	
	A.2 Restore channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
B. One or more Functions with two channels per DG inoperable.	B.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation.	1 hour
	<u>OR</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Place one channel in bypass and the other channel in trip.	1 hour
C. One or more Functions with more than two channels inoperable.	C.1 Restore all but two channels to OPERABLE status.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.7.1 [Perform CHANNEL CHECK.	12 hours]
SR 3.3.7.2 Perform CHANNEL FUNCTIONAL TEST.	[92] days

Comment: No changes made. Condition A contains an "Immediately" Completion Time, Condition B is a default Condition and Condition C is outside the applicability of the Traveler.

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 movement of [recently] 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.

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. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. CPIS Manual Trip, Actuation Logic, or one or more required channels of radiation monitors inoperable during movement of [recently] irradiated fuel assemblies within containment.	C.1 Place and maintain containment purge and exhaust valves in closed position.	Immediately
	<u>OR</u> C.2 Suspend movement of [recently] irradiated fuel assemblies in containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform a CHANNEL CHECK on required containment area and gaseous radiation monitor channel.	12 hours
SR 3.3.8.2	Perform a CHANNEL CHECK on required containment particulate and iodine radiation monitor channel.	7 days
SR 3.3.8.3	<p>-----NOTE----- Only required to be met in MODES 1, 2, 3, and 4. -----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on each required containment radiation monitor channel. Verify setpoint [Allowable Value] is in accordance with the following:</p> <p>Containment Gaseous Monitor: ≤ [2X background] Containment Particulate Monitor: ≤ [2X background] Containment Area Gamma Monitor: ≤ [325 mR/hr]</p>	92 days

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.9 Control Room Isolation Signal (CRIS) (Digital)

LCO 3.3.9 One CRIS channel shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. CRIS Manual Trip, Actuation Logic, or [one or more required channels of particulate/iodine or gaseous] radiation monitors inoperable in MODE 1, 2, 3, or 4.</p>	<p>A.1 -----NOTE----- Place Control Room Emergency Air Cleanup System (CREACS) in toxic gas protection mode if automatic transfer to toxic gas protection mode inoperable. ----- Place one CREACS train in emergency radiation protection mode.</p>	<p>1 hour</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.</p>	<p>6 hours 36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. CRIS Manual Trip, Actuation Logic, or required particulate/iodine or gaseous radiation monitors inoperable [in MODE 5 or 6], or during movement of [recently] irradiated fuel assemblies.	C.1 -----NOTE----- Place CREACS in toxic gas protection mode if automatic transfer to toxic gas protection mode inoperable. -----	Immediately
	Place one CREACS train in emergency radiation protection mode.	
	<u>OR</u>	
	C.2.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	C.2.2 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. -----	Immediately
Suspend positive reactivity additions.		

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.9.1 Perform a CHANNEL CHECK on the required control room radiation monitor channel.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

FHIS (Digital)
3.3.10

3.3 INSTRUMENTATION

3.3.10 Fuel Handling Isolation Signal (FHIS) (Digital)

LCO 3.3.10 One FHIS channel shall be OPERABLE.

APPLICABILITY: [MODES 1, 2, 3, and 4,]
During movement of [recently] irradiated fuel in the fuel building.

ACTIONS

-----NOTE-----

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Actuation Logic, Manual Trip, or [one or more required channels of particulate/iodine and gaseous] radiation monitors inoperable in MODE 1, 2, 3, or 4.	A.1 Place one OPERABLE Fuel Building Air Cleanup System (FBACS) train in operation.	1 hour]
B. [Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours]
C. Actuation Logic, Manual Trip, or [one or more required channels of particulate/iodine and gaseous] radiation monitors inoperable during movement of [recently] irradiated fuel assemblies.	C.1 Place one OPERABLE FBACS train in operation. <u>OR</u> C.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately Immediately

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.11 Post Accident Monitoring (PAM) Instrumentation (Digital)

LCO 3.3.11 The PAM instrumentation for each Function in Table 3.3.11-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.5.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.11-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.11-1.	E.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	E.2 Be in MODE 4.	12 hours
F. [As required by Required Action D.1 and referenced in Table 3.3.11-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately]

SURVEILLANCE REQUIREMENTS

-----NOTE-----

These SRs apply to each PAM instrumentation Function in Table 3.3.11-1.

SURVEILLANCE	FREQUENCY
SR 3.3.11.1 Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.11.2 -----NOTE----- Neutron detectors are excluded from the CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	[18] months

Comment: No changes made. Required Action A.1 already has a 30 day CT. Condition B is a default Condition.

Remote Shutdown System (Digital)
3.3.12

3.3 INSTRUMENTATION

3.3.12 Remote Shutdown System (Digital)

LCO 3.3.12 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Functions to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.12.1	[Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days]
SR 3.3.12.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] months

Comment: No changes made. Outside the applicability of the Traveler.

3.3 INSTRUMENTATION

3.3.13 [Logarithmic] Power Monitoring Channels (Digital)

LCO 3.3.13 Two channels of [logarithmic] power level monitoring instrumentation shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5, with the reactor trip circuit breakers open or Control Element Assembly (CEA) Drive System not capable of CEA withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required channels inoperable.</p>	<p>A.1 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----- Suspend all operations involving positive reactivity additions.</p> <p><u>AND</u></p> <p>A.2 Perform SDM verification in accordance with SR 3.1.1.1.</p>	<p>Immediately</p> <p>4 hours</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p>

Comment: No Changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow [Departure from Nucleate Boiling (DNB)] Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified below:

- a. Pressurizer pressure \geq [2025] psia and \leq [2275] psia,
- b. RCS cold leg temperature (T_c) \geq [535] $^{\circ}$ F and \leq [558] $^{\circ}$ F for $<$ [70]% RTP or \geq [544] $^{\circ}$ F and \leq [588] $^{\circ}$ F for \geq [70]% RTP, and
- c. RCS total flow rate \geq [148 E6] lb/hour.

APPLICABILITY: MODE 1.

-----NOTE-----
Pressurizer pressure limit does not apply during:

- a. THERMAL POWER ramp $>$ 5% RTP per minute or
 - b. THERMAL POWER step $>$ 10% RTP.
-

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer pressure or RCS flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours

RCS Pressure, Temperature, and Flow [DNB] Limits
3.4.1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. RCS cold leg temperature not within limits.	C.1 Restore cold leg temperature to within limits.	2 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Reduce THERMAL POWER to \leq [30]% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure \geq [2025] psia and \leq [2275] psia.	12 hours
SR 3.4.1.2	Verify RCS cold leg temperature \geq [535] $^{\circ}$ F and \leq [558] $^{\circ}$ F for $<$ [70]% RTP or \geq [544] $^{\circ}$ F and \leq [558] $^{\circ}$ F for \geq [70]% RTP.	12 hours
SR 3.4.1.3	-----NOTE----- Only required to be met in MODE 1. ----- Verify RCS total flow rate \geq [148 E6] lb/hour.	12 hours
SR 3.4.1.4	-----NOTE----- Not required to be performed until [24] hours after \geq [90]% RTP. ----- Verify by precision heat balance that RCS total flow rate within limits specified in the COLR.	[18] months

Comment: No Changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

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 $\geq [520]^{\circ}\text{F}$.

APPLICABILITY: MODE 1 with T_{avg} in one or more RCS loops $< [535]^{\circ}\text{F}$,
MODE 2 with T_{avg} in one or more RCS loops $< [535]^{\circ}\text{F}$ and $K_{eff} \geq 1.0$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{avg} in one or more RCS loops not within limit.	A.1 Be in MODE 2 with $K_{eff} < 1.0$.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop $\geq [520]^{\circ}\text{F}$.	12 hours

Comment: Non-compliance with the "in operation" of this Specification will cause an automatic reactor trip. There is an implied "restore" action with an "Immediately" Completion Time. Since the Risk Informed Completion Time cannot be applied to a Required Action with an "Immediately" Completion Time, no changes are applied.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops - MODES 1 and 2

LCO 3.4.4 Two RCS loops shall be OPERABLE and in operation.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO not met.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.4.1 Verify each RCS loop is in operation.	12 hours

Comment: This change is only applicable if use of the RICT in MODE 3 is justified. Condition B is a default Condition and RAs C.1 and C.2 contain an "Immediately" in the Completion Times, and are therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

LCO 3.4.5 [Two] RCS loops shall be OPERABLE and one RCS loop shall be in operation.

-----NOTE-----

All reactor coolant pumps may be removed from operation for ≤ 1 hour per 8 hour period, provided:

- a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
-

APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RCS loop inoperable.	A.1 Restore RCS loop to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours
C. Two RCS loops inoperable. <u>OR</u>	C.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
Required RCS loop not in operation.	than required to meet SDM of LCO 3.1.1. <u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.5.1 Verify one RCS loop is in operation.	12 hours
SR 3.4.5.2 Verify secondary side water level in each steam generator \geq [25]%. -----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. -----	12 hours
SR 3.4.5.3 Verify correct breaker alignment and indicated power available to each required pump.	7 days

Comment: No changes made. The immediate CTs of RAs A.1, B.1 and B.2 are excluded. The RA A.2 places the unit in a Condition outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops - MODE 4

LCO 3.4.6 Two loops or trains consisting of any combination of RCS loops and shutdown cooling (SDC) trains shall be OPERABLE and one loop or train shall be in operation.

-----NOTES-----

1. All reactor coolant pumps (RCPs) and SDC pumps may be removed from operation for ≤ 1 hour per 8 hour period, provided:
 - a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
2. No RCP shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless:
 - a. Pressurizer water level is $< [60]\%$ or
 - b. Secondary side water temperature in each steam generator (SG) is $< [100]^\circ\text{F}$ above each of the RCS cold leg temperatures.

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required loop inoperable.	A.1 Initiate action to restore a second loop or train to OPERABLE status. <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2 -----NOTE----- Only required to be met if SDC train is OPERABLE. -----</p> <p>Be in MODE 5.</p>	24 hours
<p>B. Two required loops or trains inoperable.</p> <p><u>OR</u></p> <p>Required loop or train not in operation.</p>	<p>B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>B.2 Initiate action to restore one loop or train to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.6.1 Verify required RCS loop or SDC train is in operation.</p>	12 hours
<p>SR 3.4.6.2 Verify secondary side water level in required SG(s) is \geq [25]%. -----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. -----</p>	12 hours
<p>SR 3.4.6.3</p> <p>Verify correct breaker alignment and indicated power available to each required pump.</p>	7 days

<p>Comment: Outside the applicability of the Traveler.</p>
--

<p>RCS Loops - MODE 5, Loops Filled 3.4.7</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 One shutdown cooling (SDC) train shall be OPERABLE and in operation and either:

- a. One additional SDC train shall be OPERABLE or
- b. The secondary side water level of each steam generator (SG) shall be \geq [25%].

-----NOTES-----

1. The SDC pump of the train in operation may be removed from operation for \leq 1 hour per 8 hour period provided:
 - a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - b. Core outlet temperature is maintained at \geq 10°F below saturation temperature.
 2. One SDC train may be inoperable for up to 2 hours for surveillance testing provided that the other SDC train is OPERABLE and in operation.
 3. No reactor coolant pump (RCP) shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless:
 - a. The pressurizer water level is $<$ [60]% or
 - b. The secondary side water temperature in each SG is $<$ [100]°F above each of the RCS cold leg temperatures.
 4. All SDC trains may not be in operation during planned heatup to MODE 4 when at least one RCS loop is in operation.
-

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required SDC train inoperable.</p> <p><u>AND</u></p> <p>One SDC train OPERABLE.</p>	<p>A.1 Initiate action to restore a second SDC train to OPERABLE status.</p> <p><u>OR</u></p> <p>A.2 Initiate action to restore required SGs secondary side water level to within limit.</p>	<p>Immediately</p> <p>Immediately</p>
<p>B. One or more required SGs with secondary side water level not within limit.</p> <p><u>AND</u></p> <p>One SDC train OPERABLE.</p>	<p>B.1 Initiate action to restore a second SDC train to OPERABLE status.</p> <p><u>OR</u></p> <p>B.2 Initiate action to restore required SGs secondary side water level to within limit.</p>	<p>Immediately</p> <p>Immediately</p>
<p>C. No required SDC trains OPERABLE.</p> <p><u>OR</u></p> <p>Required SDC train not in operation.</p>	<p>C.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>C.2 Initiate action to restore one SDC train to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p>

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two shutdown cooling (SDC) trains shall be OPERABLE and one SDC train shall be in operation.

-----NOTES-----

1. All SDC pumps may be removed from operation for ≤ 15 minutes when switching from one train to another provided:
 - [a. The core outlet temperature is maintained $> 10^\circ\text{F}$ below saturation temperature,]
 - b. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - c. No draining operations to further reduce the RCS water volume are permitted.

2. One SDC train may be inoperable for ≤ 2 hours for surveillance testing provided the other SDC train is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required SDC train inoperable.	A.1 Initiate action to restore SDC train to OPERABLE status.	Immediately

Comment: There is an implied “restore” action with an “Immediately” completion Time for Condition A. Since the RIST cannot be applied to a Required Action with an “Immediately” Completion Time, no changes are applied. Condition D is a default Condition and is excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

- a. Pressurizer water level < [60]% and
- b. [Two groups of] pressurizer heaters OPERABLE with the capacity [of each group] ≥ [150] kW [and capable of being powered from an emergency power supply].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Be in MODE 3 with reactor trip breakers open.	6 hours
	<u>AND</u> A.2 Be in MODE 4.	[12] hours
B. One [required] group of pressurizer heaters inoperable.	B.1 Restore [required] group of pressurizer heaters to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[C. ----- NOTE ----- Not applicable when second group of [required] pressurizer heaters intentionally made inoperable. ----- Two [required] group of pressurizer heaters inoperable.	C.1 Restore [required] group of pressurizer heaters to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
DC. Required Action and associated Completion Time of Condition B [or C] not met.	DC.1 Be in MODE 3. <u>AND</u> DC.2 Be in MODE 4.	6 hours [12] hours

Comment: Condition B is either a default Condition or one that has an implied "restore" with an immediate Completion Time, and is therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 [Two] pressurizer safety valves shall be OPERABLE with lift settings \geq [2475] psia and \leq [2525] psia.

APPLICABILITY: MODES 1, 2, and 3, MODE 4 with all RCS cold leg temperatures greater than the LTOP enable temperature specified in the PTLR.

-----NOTE-----

The lift settings are not required to be within LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for [36] hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met. <u>OR</u> Two [or more] pressurizer safety valves inoperable.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR.	6 hours [24] hours

Comment: Condition A and RAs B.1, B.2, C.1, E.1 and E.2 contain actions that will not result in plant shutdown and Condition D and G are default Conditions. Therefore these are excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
 Separate Condition entry is allowed for each PORV and each block valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more PORVs inoperable and capable of being manually cycled.	A.1 Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable and not capable of being manually cycled.	B.1 Close associated block valve.	1 hour
	<u>AND</u>	
	B.2 Remove power from associated block valve.	1 hour
	<u>AND</u>	
	B.3 Restore PORV to OPERABLE status.	72 hours
		<u>[OR</u> In accordance with the Risk Informed Completion Time Program]
C. One block valve inoperable.	C.1 Place associated PORV in manual control.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Restore block valve to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	6 hours [12] hours
E. Two PORVs inoperable and not capable of being manually cycled.	E.1 Close associated block valves. <u>AND</u> E.2 Remove power from associated block valves. <u>AND</u> <u>[E.3</u> Be in MODE 3. <u>AND</u> E.4 Be in MODE 4. <u>[E.3</u> Restore PORVs to OPERABLE status.	1 hour 1 hour 6 hours [12] hours] <u>1 hour</u> <u>OR</u> In accordance with the Risk Informed Completion Time Program]
F. Two block valves	F.1 Restore at least one block	2 hours

inoperable.	valve to OPERABLE status.	<u>IOR</u> In accordance with the Risk Informed Completion Time Program]
G. Required Action and associated Completion Time of Condition [E or] F not met.	G.1 Be in MODE 3. <u>AND</u> G.2 Be in MODE 4.	6 hours [12] hours

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.12 An LTOP System shall be OPERABLE with a maximum of one high pressure safety injection (HPSI) pump and one charging pump capable of injecting into the RCS and the safety injection tanks (SITs) isolated, and:

-----NOTES-----

1. [Two charging pumps] may be made capable of injecting for ≤ 1 hour for pump swap operations.
 2. SIT may be unisolated when SIT pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.
-
- a. Two OPERABLE power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR or
 - b. The RCS depressurized and an RCS vent of $\geq [1.3]$ square inches.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is less than or equal to the LTOP enable temperature specified in the PTLR, MODE 5, MODE 6 when the reactor vessel head is on.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to PORVs when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Two or more HPSI pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of one HPSI pump capable of injecting into the RCS.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two or more charging pumps capable of injecting into the RCS.	B.1 Initiate action to verify a maximum of one charging pump capable of injecting into the RCS.	Immediately
C. A SIT not isolated when SIT pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	C.1 Isolate affected SIT.	1 hour
D. Required Action and associated Completion Time of Condition C not met.	D.1 Increase RCS cold leg temperature to > [175]°F. <u>OR</u> D.2 Depressurize affected SIT to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours 12 hours
E. One required PORV inoperable in MODE 4.	E.1 Restore required PORV to OPERABLE status.	7 days
F. One required PORV inoperable in MODE 5 or 6.	F.1 Restore required PORV to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two required PORVs inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A, [B], D, E, or F not met.</p> <p><u>OR</u></p> <p>LTOP System inoperable for any reason other than Condition A, [B], C, D, E, or F.</p>	<p>G.1 Depressurize RCS and establish RCS vent of $\geq [1.3]$ square inches.</p>	<p>12 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify a maximum of one HPSI pump is capable of injecting into the RCS.	12 hours
SR 3.4.12.2	Verify a maximum of one charging pump is capable of injecting into the RCS.	12 hours
SR 3.4.12.3	Verify each SIT is isolated.	12 hours
SR 3.4.12.4	Verify required RCS vent $\geq [1.3]$ square inches is open.	<p>12 hours for unlocked open vent valve(s)</p> <p><u>AND</u></p> <p>31 days for other vent path(s)</p>

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE,
- b. 1 gpm unidentified LEAKAGE,
- c. 10 gpm identified LEAKAGE, and
- d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Pressure boundary LEAKAGE exists. <u>OR</u> Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

Comment: Condition A represents a variable outside its limit,.
Condition B is a default Condition and is therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14 Leakage from each RCS PIV shall be within limits.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the shutdown cooling (SDC) flow path when in,
or during the transition to or from, the SDC mode of operation.

ACTIONS

NOTES

1. Separate Condition entry is allowed for each flow path.
2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>-----NOTE----- Each valve used to satisfy Required Action A.1 and Required Action A.2 must have been verified to meet SR 3.4.14.1 and be on the RCS pressure boundary [or the high pressure portion of the system]. -----</p> <p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.</p> <p><u>AND</u></p>	<p>4 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 [Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve. [or] Restore RCS PIV to within limits.	72 hours]
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours
C. [Shutdown Cooling (SDC) System autoclosure interlock function inoperable.	C.1 Isolate the affected penetration by use of one closed manual or deactivated automatic valve.	4 hours] <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

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,
- 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.	A.1 -----NOTE----- Not required until 12 hours after establishment of steady state operation. ----- Perform SR 3.4.13.1. <u>AND</u> A.2 Restore containment sump monitor to OPERABLE status.	 Once per 24 hours 30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. [Required containment atmosphere radioactivity monitor inoperable. <u>AND</u> Required containment air cooler condensate flow rate monitor inoperable.	D.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status. <u>OR</u> D.2 Restore required containment air cooler condensate flow rate monitor to OPERABLE status.	30 days 30 days]
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours
F. All required monitors inoperable.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.15.1 Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	[12] hours
SR 3.4.15.2 Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitor.	92 days
SR 3.4.15.3 Perform CHANNEL CALIBRATION of the required containment sump monitor.	[18] months

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that can be used to model the variables.

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}) $\geq 500^{\circ}F$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 $\mu Ci/gm$.	-----NOTE----- LCO 3.0.4.c is applicable. -----	Once per 4 hours
	A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1. <u>AND</u> A.2 Restore DOSE EQUIVALENT I-131 to within limit.	
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> DOSE EQUIVALENT I-131 in the unacceptable region of Figure 3.4.16-1.	B.1 Be in MODE 3 with $T_{avg} < 500^{\circ}F$.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Gross specific activity of the reactor coolant not within limit.	C.1 Be in MODE 3 with $T_{avg} < 500^{\circ}F$.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.16.1 Verify reactor coolant gross specific activity $\leq 100/\bar{E}$ $\mu Ci/gm$.	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 $\leq 1.0 \mu Ci/gm$.	14 days <u>AND</u> Between 2 and 6 hours after THERMAL POWER change of $\geq 15\%$ RTP within a 1 hour period
SR 3.4.16.3 -----NOTE----- Not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. ----- Determine \bar{E} from a sample taken in MODE 1 after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.	184 days

Comment: No changes made.
Test exceptions are excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Special Test Exception (STE)-RCS Loops

LCO 3.4.17 The requirements of LCO 3.4.4, "RCS Loops - MODES 1 and 2," and the listed requirements of LCO 3.3.1, "Reactor Protective System (RPS) Instrumentation - Operating," for the [(Analog) RC flow low, thermal margin or low pressure, and asymmetric steam generator transient protective trip functions] [(Digital) high log power, high local power density, low departure from nucleate boiling ratio protective trip functions] may be suspended provided:

- a. THERMAL POWER \leq 5% RTP and
- b. The reactor trip setpoints of the OPERABLE power level channels are set \leq 20% RTP.

APPLICABILITY: MODE 2, during startup and PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. THERMAL POWER not within limit.	A.1 Open reactor trip breakers.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify THERMAL POWER \leq 5% RTP.	1 hour
SR 3.4.17.2	Perform a CHANNEL FUNCTIONAL TEST on each logarithmic power level and linear power level neutron flux monitoring channel.	12 hours prior to initiating startup or PHYSICS TESTS

Comment: While Condition A represents a variable outside the limit, the Safety Injection Tank could be substituted as a surrogate in an RICT calculation. Condition D is a default Condition and is therefore excluded.

SITs
3.5.1

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Safety Injection Tanks (SITs)

LCO 3.5.1 [Four] SITs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with pressurizer pressure ≥ [700] psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One SIT inoperable due to boron concentration not within limits.</p> <p><u>OR</u></p> <p>One SIT inoperable due to the inability to verify level or pressure.</p>	<p>A.1 Restore SIT to OPERABLE status.</p>	<p>72 hours</p> <p><u>[OR]</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>B. One SIT inoperable for reasons other than Condition A.</p>	<p>B.1 Restore SIT to OPERABLE status.</p>	<p>24 hours</p> <p><u>[OR]</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[C. ----- NOTE -----</u> <u>Not applicable when two or more SITs intentionally made inoperable.</u> <u>-----</u> <u>Two or more SITs inoperable.</u></p>	<p><u>C.1 Restore SITs to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
DG. Required Action and associated Completion Time [of Condition A or B] not met.	DG.1 Be in MODE 3. <u>AND</u> DG.2 Reduce pressurizer pressure to < [700] psia.	6 hours 2 hours
ED. Two or more SITs inoperable.	D.1 Enter LCO 3.0.3.	Immediately]

Comment: Condition D is a default Condition and is therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS - Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with pressurizer pressure \geq [1700] psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----REVIEWER'S NOTE----- The adoption of this Condition is contingent upon implementation of a program to perform a contemporaneous assessment of the overall impact on safety of proposed plant configurations prior to performing and during performance of maintenance activities that remove equipment from service. -----</p> <p>A. One LPSI subsystem inoperable.</p>	<p>A.1 Restore subsystem to OPERABLE status.</p>	<p>7 days</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One or more trains inoperable for reasons other than Condition A.</p>	<p>B.1 Restore train(s) to OPERABLE status.</p>	<p>72 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
[ED. Less than 100% of the ECCS flow equivalent to a single OPERABLE train available.	ED.1 Enter LCO 3.0.3.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY												
SR 3.5.2.1	[Verify the following valves are in the listed position with power to the valve operator removed [and key locked in position]. <table border="1"> <thead> <tr> <th><u>Valve Number</u></th> <th><u>Position</u></th> <th><u>Function</u></th> </tr> </thead> <tbody> <tr> <td>[]</td> <td>[]</td> <td>[]</td> </tr> <tr> <td>[]</td> <td>[]</td> <td>[]</td> </tr> <tr> <td>[]</td> <td>[]</td> <td>[]</td> </tr> </tbody> </table>	<u>Valve Number</u>	<u>Position</u>	<u>Function</u>	[]	[]	[]	[]	[]	[]	[]	[]	[]	12 hours]
<u>Valve Number</u>	<u>Position</u>	<u>Function</u>												
[]	[]	[]												
[]	[]	[]												
[]	[]	[]												
SR 3.5.2.2	Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days												
SR 3.5.2.3	[Verify ECCS piping is full of water.	31 days]												
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program												
SR 3.5.2.5	[Verify each charging pump develops a flow of \geq [36] gpm at a discharge pressure of \geq [2200] psig.	In accordance with the Inservice Testing Program]												

Comment: This change is only applicable if use of the RICT in MODE 3 and 4 is justified. Condition B is a default Condition, and therefore is excluded

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One high pressure safety injection (HPSI) train shall be OPERABLE.

APPLICABILITY: MODE 3 with pressurizer pressure < [1700] psia,
MODE 4.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to ECCS High Pressure Safety Injection subsystem when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required HPSI train inoperable.	A.1 Restore required HPSI train to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 5.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.3.1 The following SRs are applicable: [SR 3.5.2.1] SR 3.5.2.6 SR 3.5.2.2 SR 3.5.2.7 [SR 3.5.2.3] [SR 3.5.2.9]	In accordance with applicable SRs

Comment: While Condition A represents a variable outside its limit, the RWT could be substituted as a surrogate in an RICT calculation. Condition C is a default Condition and is excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Refueling Water Tank (RWT)

LCO 3.5.4 The RWT shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. RWT boron concentration not within limits.</p> <p><u>OR</u></p> <p>RWT borated water temperature not within limits.</p>	<p>A.1 Restore RWT to OPERABLE status.</p>	<p>8 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. RWT inoperable for reasons other than Condition A.</p>	<p>B.1 Restore RWT to OPERABLE status</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. Required Action and associated Completion Time not met.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Trisodium Phosphate (TSP)

LCO 3.5.5 The TSP baskets shall contain \geq [291] ft³ of active TSP.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TSP not within limits.	A.1 Restore TSP to within limits.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.5.1 Verify the TSP baskets contain \geq [291] ft ³ of trisodium phosphate.	[18] months
SR 3.5.5.2 Verify that a sample from the TSP baskets provides adequate pH adjustment of RWT water.	[18] months

Comment: No changes made. Condition A represents a loss of function and Condition B is the Default Condition. NRC has not approved RICT changes to the Completion Time for an inoperable containment. Therefore changes are not proposed.

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment (Atmospheric and Dual)

LCO 3.6.1 Containment shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment inoperable.	A.1 Restore containment to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.1 Perform required visual examinations and leakage rate testing except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.1.2 [Verify containment structural integrity in accordance with the Containment Tendon Surveillance Program.	In accordance with the Containment Tendon Surveillance Program]

Comment: Conditions A and B contain mitigating actions and require the periodic performance of actions. Condition D is a default Condition. RA C.1 has a "immediately" CT and C.2 is a periodic verification. Therefore these are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks (Atmospheric and Dual)

LCO 3.6.2 [Two] containment air lock[s] shall be OPERABLE.

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

ACTIONS

-----NOTES-----

1. Entry and exit is permissible to perform repairs on the affected air lock components.
 2. Separate Condition entry is allowed for each air lock.
 3. 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
<p>A. One or more containment air locks with one containment air lock door inoperable.</p>	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls [if both air locks are inoperable]. <p>-----</p> <p>A.1 Verify the OPERABLE door is closed in the affected air lock.</p> <p><u>AND</u></p>	<p>1 hour</p>

Comment: RAs A.2, B.2, D.2, F.2 and F.3 require the periodic performance of an action. Condition G is a default Condition. Therefore these are excluded. In Conditions E and F, the valves can be substituted as surrogates for leakage (a variable).

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
<p>A. -----NOTE----- Only applicable to the [containment sump supply valves to the ECCS and containment spray pumps]. ----- One or more penetration flow paths with one containment isolation valve inoperable.</p>	<p>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.</p> <p><u>AND</u></p>	<p>4 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation] for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p>
<p>[B. -----NOTE----- Only applicable to penetration flow paths with two [or more] containment isolation valves. -----</p> <p>One or more penetration flow paths with one containment isolation valve inoperable [for reasons other than Condition[s] A, E, [and F]].</p>	<p>B.1</p> <p>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.</p> <p><u>AND</u></p>	<p>[7 days]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

Containment Isolation Valves (Atmospheric and Dual)
3.6.3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation] for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment]</p>
<p>C. -----NOTE-----</p> <p>Only applicable to penetration flow paths with two [or more] containment isolation valves.</p> <p>-----</p> <p>One or more penetration flow paths with two [or more] containment isolation valves inoperable [for reasons other than Condition[s] E [and F]].</p>	<p>C.1</p> <p>Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

Containment Isolation Valves (Atmospheric and Dual)
3.6.3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. -----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.</p>	<p>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.</p> <p><u>AND</u></p> <p>D.2 -----NOTES----- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ----- Verify the affected penetration flow path is isolated.</p>	<p>72 hours for those penetrations that do not meet the 7 day criteria</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>7 days for those penetrations that meet the 7 day criteria</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>Once per 31 days [following isolation]</p>

Containment Isolation Valves (Atmospheric and Dual)
3.6.3

<p>E. [One or more secondary containment bypass leakage [or purge valve leakage] not within limit.</p>	<p>E.1 Restore leakage within limit.</p>	<p>4 hours for secondary containment bypass leakage</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>24 hours for purge valve leakage]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
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Containment Isolation Valves (Atmospheric and Dual)
3.6.3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.</p>	<p>F.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].</p> <p><u>AND</u></p> <p>F.2 -----NOTES----- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ----- Verify the affected penetration flow path is isolated.</p> <p><u>AND</u></p>	<p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>Once per 31 days [following isolation] for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p>

Containment Isolation Valves (Atmospheric and Dual)
3.6.3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	F.3 Perform SR 3.6.3.6 for the resilient seal purge valves closed to comply with Required Action F.1.	Once per [] days] [following isolation]
G. Required Action and associated Completion Time not met.	G.1 Be in MODE 3. <u>AND</u> G.2 Be in MODE 5.	6 hours 36 hours

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 in high radiation areas may be verified by use of administrative means. ----- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	31 days

Containment Pressure (Atmospheric and Dual)

3.6.4

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure (Atmospheric and Dual)

LCO 3.6.4 Containment pressure shall be [Dual: > 14.375 psia and < 27 inches water gauge] [or] [Atmospheric: ≥ -0.3 psig and $\leq +1.5$ psig].

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment pressure not within limits.	A.1 Restore containment pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.1 Verify containment pressure is within limits.	12 hours

Containment Air Temperature (Atmospheric and Dual)

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6.5

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature (Atmospheric and Dual)

LCO 3.6.5 Containment average air temperature shall be $\leq [120]^{\circ}\text{F}$.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limit.	A.1 Restore containment average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5.1 Verify containment average air temperature is within limit.	24 hours

Comment: Conditions B and G are default Conditions. Therefore these Conditions are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.6A Containment Spray and Cooling Systems (Atmospheric and Dual)
(Credit taken for iodine removal by the Containment Spray System)

LCO 3.6.6A Two containment spray trains and two containment cooling trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	[7] days <u>[OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 84 hours
C. One containment cooling train inoperable.	C.1 Restore containment cooling train to OPERABLE status.	7 days <u>[OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
D. One containment spray and one containment cooling train inoperable.	D.1 Restore containment spray train to OPERABLE status.	72 hours

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6A

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p><u>OR</u></p> <p>D.2 Restore containment cooling train to OPERABLE status.</p>	<p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>72 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6A

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two containment cooling trains inoperable.	E.1 Restore one containment cooling train to OPERABLE status.	72 hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<p><u>[F. ----- NOTE -----</u> <u>Not applicable when second containment spray train or three or more containment spray or cooling trains intentionally made inoperable.</u> <u>-----</u></p> <p><u>Two containment spray trains inoperable.</u></p> <p><u>OR</u></p> <p><u>Any combination of three or more containment spray and cooling trains inoperable.</u></p>	F.1 <u>Restore containment spray trains and containment cooling trains to OPERABLE status.</u>	1 hour <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<u>GF.</u> Required Action and associated Completion Time of Condition C, D, E, <u>[or F]-E</u> not met.	<u>GF.1</u> Be in MODE 3. <u>AND</u> <u>GF.2</u> Be in MODE 5.	6 hours 36 hours
<u>[HG.</u> Two containment spray trains inoperable. <u>OR</u> Any combination of three	G.1 Enter LCO 3.0.3.	Immediately <u>]</u>

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6A

or more trains inoperable.		
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SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6A.1	Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.6A.2	Operate each containment cooling train fan unit for ≥ 15 minutes.	31 days
SR 3.6.6A.3	Verify each containment cooling train cooling water flow rate is $\geq [2000]$ gpm to each fan cooler.	31 days

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6B

Comment: Condition G is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.6B Containment Spray and Cooling Systems (Atmospheric and Dual) (Credit not taken for iodine removal by the Containment Spray System)

LCO 3.6.6B Two containment spray trains and two containment cooling trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	7 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
B. One containment cooling train inoperable.	B.1 Restore containment cooling train to OPERABLE status.	7 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
C. Two containment spray trains inoperable.	C.1 Restore one containment spray train to OPERABLE status.	72 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6B

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One containment spray train and one containment cooling train inoperable.</p>	<p>D.1 Restore containment spray train to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore containment cooling train to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

Containment Spray and Cooling Systems (Atmospheric and Dual)
3.6.6B

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two containment cooling trains inoperable.	E.1 Restore one containment cooling train to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[F. ----- NOTE ----- Not applicable when three or more trains intentionally made inoperable. ----- Any combination of three or more trains inoperable.	F.1 Restore trains to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
GF. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	GF.1 Be in MODE 3. <u>AND</u> GF.2 Be in MODE 5.	6 hours 36 hours
[HG. Any combination of three or more trains inoperable.	HG.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.6B.1 Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days

Spray Additive System (Atmospheric and Dual)

3.6.7

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.7 Spray Additive System (Atmospheric and Dual)

LCO 3.6.7 The Spray Additive System shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spray Additive System inoperable.	A.1 Restore Spray Additive System to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify each spray additive manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.7.2	Verify spray additive tank solution volume is \geq [816] gal [90%] and \leq [896] gal [100%].	184 days
SR 3.6.7.3	Verify spray additive tank [N ₂ H ₄] solution concentration is \geq [33]% and \leq [35]% by weight.	184 days

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.8 Shield Building Exhaust Air Cleanup System (SBEACS) (Dual)

LCO 3.6.8 Two SBEACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SBEACS train inoperable.	A.1 Restore train to OPERABLE status.	7 days
B. Required Action and Associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.8.1 Operate each SBEACS train for [≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.6.8.2 Perform required SBEACS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.8.3 Verify each SBEACS train actuates on an actual or simulated actuation signal.	[18] months

Comment: Condition A already has a 30 day CT. RA B.1 represents a surveillance type repeated action and is excluded. Condition C is a default Condition and is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.9 Hydrogen Mixing System (HMS) (Atmospheric and Dual)

LCO 3.6.9 [Two] HMS trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One HMS train inoperable.	A.1 Restore HMS train to OPERABLE status.	30 days
B. [Two HMS trains inoperable.	B.1 Verify by administrative means that the hydrogen control function is maintained. <u>AND</u> B.2 Restore one HMS train to OPERABLE status.	1 hour <u>AND</u> Once every 12 hours thereafter 7 days] <u>OR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.10 Iodine Cleanup System (ICS) (Atmospheric and Dual)

LCO 3.6.10 [Two] ICS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ICS train inoperable.	A.1 Restore ICS train to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.10.1 Operate each ICS train for ≥ 10 continuous hours with heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.6.10.2 Perform required ICS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.10.3 Verify each ICS train actuates on an actual or simulated actuation signal.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.11 Shield Building (Dual)

LCO 3.6.11 Shield building shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield building inoperable.	A.1 Restore shield building to OPERABLE status.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.11.1	Verify annulus negative pressure is > [5] inches water gauge.	12 hours
SR 3.6.11.2	Verify one shield building access door in each access opening is closed.	31 days
SR 3.6.11.3	Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the shield building.	During shutdown for SR 3.6.1.1 Type A tests

Vacuum Relief Valves (Dual)

3.6.12

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.12 Vacuum Relief Valves (Dual)

LCO 3.6.12 Two vacuum relief lines shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One vacuum relief line inoperable.	A.1 Restore vacuum relief line to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.12.1 Verify each vacuum relief line OPERABLE in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program

Comment: Condition A does not specify a restoration requirement and is excluded.
 Condition B is a default Condition and is excluded.

MSSVs
 3.7.1

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 The MSSVs shall be OPERABLE as specified in Table 3.7.1-1 and Table 3.7.1-2.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required MSSVs inoperable.	A.1 Reduce power to less than or equal to the applicable % RTP listed in Table 3.7.1-1.	4 hours
	<u>AND</u> A.2 Reduce the [variable overpower trip - high] setpoint [ceiling] in accordance with Table 3.7.1-1.	36 hours
B. Required Action and associated Completion Time not met. <u>OR</u> One or more steam generators with less than [two] MSSVs OPERABLE.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	[12] hours

Comment: Required Action D.1 is not a "restore" function and Required Action D.2 is a periodic performance. Both are excluded. Conditions B and E are default Conditions and are excluded.

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 [Two] MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when all MSIVs are closed [and de-activated].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	[8] hours <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
B. Required Action and Associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
<u>[C ----- NOTE -----</u> <u>Not applicable when two or more MSIVs intentionally made inoperable.</u> <u>-----</u> <u>Two or more MSIVs inoperable in MODE 1.</u>	<u>C.1 Restore MSIVs to OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<u>DE.</u> -----NOTE----- ---- Separate Condition entry is allowed for each MSIV.	<u>DE.1</u> Close MSIV. <u>AND</u> <u>DE.2</u> Verify MSIV is closed.	[8] hours Once per 7 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----</p> <p>One or more MSIVs inoperable in MODE 2 or 3.</p>		
<p><u>ED</u>. Required Action and associated Completion Time of Condition [<u>C</u> or <u>D</u> not met.</p>	<p><u>ED</u>.1 Be in MODE 3.</p> <p><u>AND</u></p> <p><u>ED</u>.2 Be in MODE 4.</p>	<p>6 hours</p> <p>[12] hours</p>

Comment: Condition C is a default Condition and is excluded.

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Dump Valves (ADVs)

LCO 3.7.4 [Two] ADV lines shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ADV line inoperable.	A.1 Restore ADV line to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Two or more [required] ADV lines inoperable.	B.1 Restore all but one ADV line to OPERABLE status.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. [<u>AND</u> C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	6 hours [24] hours]

Comment: Condition D is a default Condition and has an implied “restore” with an immediate Completion Time and is excluded. Conditions E and F have immediate CTs and are excluded.

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 [Three] AFW trains shall be OPERABLE.

-----NOTE-----
Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.

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

ACTIONS
-----NOTE-----
LCO 3.0.4.b is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. [One steam supply to turbine driven AFW pump inoperable.</p> <p><u>OR</u></p> <p>-----NOTE----- Only applicable if MODE 2 has not been entered following refueling. -----</p> <p>One turbine driven AFW pump inoperable in MODE 3 following refueling.</p>	<p>A.1 Restore affected equipment to OPERABLE status.</p>	<p>7 days]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One AFW train inoperable [for reasons other than Condition A] in MODE 1, 2, or 3.</p>	<p>B.1 Restore AFW train to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[C. ----- NOTE ----- Not applicable when second AFW train intentionally made inoperable. ----- Two AFW trains inoperable in MODE 1, 2, or 3.]</p>	<p>C.1 Restore at least one AFW train to OPERABLE status.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>DC. Required Action and associated Completion Time of Condition A, [or B] [or C] not met.</p> <p><u>OR</u></p> <p>{Two} AFW trains inoperable in MODE 1, 2, or 3.]</p>	<p>DC.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>DC.2 Be in MODE 4.</p>	<p>6 hours</p> <p>[18] hours</p>
<p>ED. [[Three] AFW trains inoperable in MODE 1, 2, or 3.</p>	<p>ED.1 -----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ----- Initiate action to restore one AFW train to OPERABLE</p>	<p>Immediately]</p>

	status.	
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>FE. Required AFW train inoperable in MODE 4.</p>	<p>FE.1 -----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ----- Initiate action to restore one AFW train to OPERABLE status.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.5.1 Verify each AFW manual, power operated, and automatic valve in each water flow path and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	<p>31 days</p>
<p>SR 3.7.5.2 -----NOTE----- Not required to be performed for the turbine driven AFW pump until [24] hours after reaching [800] psig in the steam generators. ----- Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.</p>	<p>In accordance with the Inservice Testing Program</p>

Comment: RA A.1 requires the periodic performance of an action, and Condition B is a default Condition. Therefore these are excluded.

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST shall be 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 inoperable.	A.1 Verify OPERABILITY of backup water supply. <u>AND</u> A.2 Restore CST to OPERABLE status.	4 hours <u>AND</u> Once per 12 hours thereafter 7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4 without reliance on steam generator for heat removal.	6 hours [24] hours

SURVEILLANCE REQUIREMENTS

Comment: Condition C is a default Condition and is excluded.

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CCW train inoperable.	A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for shutdown cooling made inoperable by CCW. ----- Restore CCW train to OPERABLE status.	72 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
<u>[B. Two CCW trains inoperable.</u>	<u>B.1 Restore at least one CCW train to OPERABLE status.</u>	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
<u>CB. Required Action and associated Completion Time of Condition A not met.</u>	<u>CB.1 Be in MODE 3.</u> <u>AND</u> <u>CB.2 Be in MODE 5.</u>	6 hours 36 hours

Comment: Condition C is a default Condition and is excluded.

3.7 PLANT SYSTEMS

3.7.8 Service Water System (SWS)

LCO 3.7.8 Two SWS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One SWS train inoperable.</p>	<p>A.1 -----NOTES----- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by SWS. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for shutdown cooling made inoperable by SWS. ----- Restore SWS train to OPERABLE status.</p>	<p>72 hours <u>[OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[B. ----- NOTE -----</u> <u>Not applicable when second SWS train intentionally made</u></p>	<p><u>B.1 Restore at least one SWS train to OPERABLE status.</u></p>	<p><u>1hour</u> <u>OR</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<u>inoperable.</u> <hr style="border-top: 1px dashed red;"/> <u>Two SWS trains inoperable.</u>		<u>In accordance with the Risk Informed Completion Time Program]</u>
<u>CB.</u> Required Action and associated Completion Time of Condition A not met.	<u>CB.1</u> Be in MODE 3. AND <u>CB.2</u> Be in MODE 5.	6 hours 36 hours

Comment: RA B.1 requires the periodic performance of an action and Condition D is a default Condition. Therefore these are excluded.

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. [One or more cooling towers with one cooling tower fan inoperable.</p>	<p>A.1 Restore cooling tower fan(s) to OPERABLE status.</p>	<p>7 days] <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>-----REVIEWER'S NOTE----- The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit. ----- B. [Water temperature of the UHS > [90]°F and ≤ []°F.</p>	<p>B.1 Verify water temperature of the UHS is ≤ [90]°F averaged over the previous 24 hour period.</p>	<p>Once per hour]</p>
<p>[C. ----- NOTE ----- Not applicable when UHS intentionally made inoperable. ----- UHS inoperable [for reasons other than</p>	<p>C.1 Restore UHS to OPERABLE status.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
Condition A or B.]		
<p>DG. [Required Action and associated Completion Time of Condition A or B not met.]</p> <p><u>[OR]</u></p> <p>UHS inoperable [for reasons other than Condition A or B].]</p>	<p>DG.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>DG.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

Comment: Condition C is a default Condition and therefore excluded.

3.7 PLANT SYSTEMS

3.7.10 Essential Chilled Water (ECW)

LCO 3.7.10 [Two] ECW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECW train inoperable.	A.1 Restore ECW train to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when second ECW train intentionally made inoperable. ----- [Two] ECW trains inoperable.	C.1 Restore at least one ECW train to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
CB . Required Action and associated Completion Time not met.	CB .1 Be in MODE 3. <u>AND</u> CB .2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACS)

LCO 3.7.11 Two CREACS trains shall be OPERABLE.

-----NOTE-----
The control room boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREACS train inoperable.	A.1 Restore CREACS train to OPERABLE status.	7 days
B. Two CREACS trains inoperable due to inoperable control room boundary in MODE 1, 2, 3, or 4.	B.1 Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met [in MODES 5 and 6, or] during movement of [recently] irradiated fuel assemblies.	D.1 -----NOTE----- Place in toxic gas protection mode if automatic transfer to toxic gas mode inoperable. ----- Place OPERABLE CREACS train in emergency radiation protection mode. <u>OR</u> D.2 Suspend movement of [recently] irradiated fuel assemblies.	 Immediately Immediately
E. Two CREACS trains inoperable [in MODES 5 and 6, or] during movement of [recently] irradiated fuel assemblies.	E.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
F. Two CREACS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Operate each CREACS train for [≥ 10 continuous hours with heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days

Comment: Condition A already has a CT of 30 days. Condition C is a default Condition. Condition D and E are outside the applicability of the Traveler. Therefore these Conditions are excluded

3.7 PLANT SYSTEMS

3.7.12 Control Room Emergency Air Temperature Control System (CREATCS)

LCO 3.7.12 Two CREATCS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREATCS train inoperable.	A.1 Restore CREATCS train to OPERABLE status.	30 days
<u>B. ----- NOTE -----</u> <u>Not applicable when second CREATCS train intentionally made inoperable.</u> <u>-----</u> <u>Two CREATCS trains inoperable in MODE 1, 2, 3 or 4.</u>	<u>B.1 Restore at least one CREATCS train to OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<u>CB.</u> Required Action and associated Completion Time of Condition A <u>[or B]</u> not met in MODE 1, 2, 3, or 4.	<u>CB.1</u> Be in MODE 3. <u>AND</u> <u>CB.2</u> Be in MODE 5.	6 hours 36 hours
<u>DC.</u> Required Action and associated Completion Time of Condition A not met [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	<u>DC.1</u> Place OPERABLE CREATCS train in operation. <u>OR</u> <u>DC.2</u> Suspend movement of [recently] irradiated fuel assemblies.	Immediately Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
<u>ED</u> . Two CREATCS trains inoperable [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	<u>ED</u> .1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
[FE. Two CREATCS trains inoperable in MODE 1, 2, 3, or 4.	FE.1 Enter LCO 3.0.3.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.12.1 Verify each CREATCS train has the capability to remove the assumed heat load.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

ECCS PREACS
3.7.13

3.7 PLANT SYSTEMS

3.7.13 Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)

LCO 3.7.13 Two ECCS PREACS trains shall be OPERABLE.

-----NOTE-----
The ECCS pump room boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECCS PREACS train inoperable.	A.1 Restore ECCS PREACS train to OPERABLE status.	7 days
B. Two ECCS PREACS trains inoperable due to inoperable ECCS pump room boundary.	B.1 Restore ECCS pump room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.14 Fuel Building Air Cleanup System (FBACS)

LCO 3.7.14 Two FBACS trains shall be OPERABLE.

-----NOTE-----

The fuel building boundary may be opened intermittently under administrative control.

APPLICABILITY: [MODES 1, 2, 3, and 4,]
During movement of [recently] irradiated fuel assemblies in the fuel building.

ACTIONS

-----NOTE-----

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One FBACS train inoperable.	A.1 Restore FBACS train to OPERABLE status.	7 days
B. Two FBACS trains inoperable due to inoperable fuel building boundary in MODE 1, 2, 3, or 4.	B.1 Restore fuel building boundary to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. [Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.</p> <p><u>OR</u></p> <p>Two FBACS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours]</p>
<p>D. Required Action and Associated Completion Time [of Condition A] not met during movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>D.1 Place OPERABLE FBACS train in operation.</p> <p><u>OR</u></p> <p>D.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>Immediately</p> <p>Immediately</p>
<p>E. Two FBACS trains inoperable during movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>E.1 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.14.1 Operate each FBACS train for ≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].</p>	<p>31 days</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

PREACS
3.7.15

3.7 PLANT SYSTEMS

3.7.15 Penetration Room Exhaust Air Cleanup System (PREACS)

LCO 3.7.15 Two PREACS trains shall be OPERABLE.

-----NOTE-----

The penetration room boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One PREACS train inoperable.	A.1 Restore PREACS train to OPERABLE status.	7 days
B. Two PREACS trains inoperable due to inoperable penetration room boundary.	B.1 Restore penetration room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.15.1 Operate each PREACS train for [≥ 10 continuous hours with the heater operating or (for systems without heaters) ≥ 15 minutes].	31 days

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables. Also, outside the applicability of the change.

3.7 PLANT SYSTEMS

3.7.16 Fuel Storage Pool Water Level

LCO 3.7.16 The fuel storage pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool water level not within limit.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of irradiated fuel assemblies in fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.16.1 Verify the fuel storage pool water level is ≥ 23 ft above the top of irradiated fuel assemblies seated in the storage racks.	7 days

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

Fuel Storage Pool Boron Concentration
3.7.17

3.7 PLANT SYSTEMS

3.7.17 Fuel Storage Pool Boron Concentration

LCO 3.7.17 The fuel storage pool boron concentration shall be \geq [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
	<u>AND</u>		
	A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.		Immediately
<u>OR</u>			
A.2.2 Initiate action to perform a fuel storage pool verification.	Immediately		

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

Spent Fuel Pool Storage
3.7.18

3.7 PLANT SYSTEMS

3.7.18 Spent Fuel Pool Storage

LCO 3.7.18 The combination of initial enrichment and burnup of each fuel assembly stored in [Region 2] shall be within the acceptable [burnup domain] of Figure 3.7.18-1 [or in accordance with Specification 4.3.1.1].

APPLICABILITY: Whenever any fuel assembly is stored in [Region 2] of the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Initiate action to move the noncomplying fuel assembly from [Region 2].	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.18.1 Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.18-1 or Specification 4.3.1.1.	Prior to storing the fuel assembly in [Region 2]

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

Secondary Specific Activity
3.7.19

3.7 PLANT SYSTEMS

3.7.19 Secondary Specific Activity

LCO 3.7.19 The specific activity of the secondary coolant shall be $\leq [0.10] \mu\text{Ci/gm}$
DOSE EQUIVALENT I-131.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Specific activity not within limit.	A.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.19.1 Verify the specific activity of the secondary coolant is within limit.	[31] days

Comment: RAs A.1 and B.1 specify the periodic performance of an action, RAs A.2, B.2 and C.1 declare another component inoperable, RA B.3 performs OPERABILITY determination and performance of a surveillance. Condition H is a default Condition. Therefore these Conditions are excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System,
- b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System, and
- [c. Automatic load sequencers for Train A and Train B.]

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

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for [required] OPERABLE offsite circuit.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.3 Restore [required] offsite circuit to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>B. One [required] DG inoperable.</p>	<p>B.1 Perform SR 3.8.1.1 for the OPERABLE [required] offsite circuit(s).</p> <p><u>AND</u></p> <p>B.2 Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>B.3.1 Determine OPERABLE DG(s) is not inoperable due to common cause failure.</p> <p><u>OR</u></p> <p>B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s).</p> <p><u>AND</u></p> <p>B.4 Restore [required] DG to OPERABLE status.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p> <p>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</p> <p>[24] hours</p> <p>[24] hours</p> <p>72 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed</u></p>

		<u>Completion Time Program]</u>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Two [required] offsite circuits inoperable.</p>	<p>C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore one [required] offsite circuit to OPERABLE status.</p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)</p> <p>24 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>D. One [required] offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One [required] DG inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition D is entered with no AC power source to any train. -----</p> <p>D.1 Restore [required] offsite circuits to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore [required] DG to OPERABLE status.</p>	<p>12 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>12 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time</u></p>

		<u>Program]</u>
E. Two [required] DGs inoperable.	E.1 Restore one [required] DG to OPERABLE status.	2 hours <u>[OR</u> <u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program]</u>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. -----NOTE----- [This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event. ----- One [required] [automatic load sequencer] inoperable.</p>	<p>F.1 Restore [required] [automatic load sequencer] to OPERABLE status.</p>	<p>[12] hours] <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[G.----- NOTE ----- Not applicable when three or more [required] AC sources intentionally made inoperable. ----- Three or more [required] AC sources inoperable.</u></p>	<p><u>G.1 Restore [required] inoperable AC sources to OPERABLE status.</u></p>	<p><u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>HG.</u> Required Action and associated Completion Time of Condition A, B, C, D, E, or [F] <u>[or G]</u> not met.</p>	<p><u>HG.1</u> Be in MODE 3. <u>AND</u> <u>HG.2</u> Be in MODE 5.</p>	<p>6 hours 36 hours</p>
<p><u>[H.</u> Three or more [required] AC sources inoperable.</p>	<p>H.1 Enter LCO 3.0.3.</p>	<p>Immediately]</p>

SURVEILLANCE REQUIREMENTS

Comment: No changes made.
Outside the applicability of the
Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems Shutdown" and
- b. One diesel generator (DG) capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s) with no offsite power available inoperable.</p> <p><u>OR</u></p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>A.2.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>A.2.3 Suspend operations involving positive reactivity additions that could result in a loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>B. One required DG inoperable.</p>	<p>B.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.4 Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1</p> <p>-----NOTE----- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and [SR 3.8.1.18].</p> <p>-----</p> <p>For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources - Operating," except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.19, and SR 3.8.1.20, are applicable.</p>	<p>In accordance with applicable SRs</p>

Comment: No changes made. The final action is to declare the EDG inoperable and a RICT is available for that Condition in LCO 3.8.1.

Diesel Fuel Oil, Lube Oil, and Starting Air
3.8.3

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel level < [33,000] gal and > [28,285] gal in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory < [500] gal and > [425] gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limits.	C.1 Restore fuel oil total particulates to within limits.	7 days
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with starting air receiver pressure < [225] psig and \geq [125] psig.	E.1 Restore starting air receiver pressure to \geq [225] psig.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.</p>	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains \geq [33,000] gal of fuel.	31 days
SR 3.8.3.2	Verify lubricating oil inventory is \geq [500] gal.	31 days
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is \geq [225] psig.	31 days
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	[31] days

Comment: RA A.2 requires the performance of a periodic action. Condition E is a default Condition. These Conditions are therefore excluded.

DC Sources - Operating
3.8.4

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One [or two] battery charger[s on one train] inoperable.</p>	<p>A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.</p> <p><u>AND</u></p> <p>A.2 Verify battery float current ≤ [2] amps.</p> <p><u>AND</u></p> <p>A.3 Restore battery charger[s] to OPERABLE status.</p>	<p>2 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>Once per [12] hours</p> <p>7 days</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One [or two] batter[y][ies on one train] inoperable.</p>	<p>B.1 Restore batter[y][ies] to OPERABLE status.</p>	<p>[2] hours]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Completion Time Program]
C. One DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 Restore DC electrical power subsystem to OPERABLE status.	[2] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[D. ----- NOTE ----- Not applicable when second DC electrical power subsystem intentionally made inoperable. ----- Two DC electrical power subsystems inoperable.	D.1 Restore at least one DC electrical power subsystem to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
ED. Required Action and Associated Completion Time not met.	ED.1 Be in MODE 3. <u>AND</u> ED.2 Be in MODE 5.	6 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.3 Restore battery charger[s] to OPERABLE status.	7 days]
<p>B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met].</p> <p><u>OR</u></p>	<p>B.1 Declare affected required feature(s) inoperable.</p> <p><u>OR</u></p> <p>B.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2.2 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

Comment: No changes made. The final action is to declare the battery inoperable and a RICT is available for that Condition in LCO 3.8.4.

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

-----REVIEWER'S NOTE-----

Licenseses must implement a program, as specified in Specification 5.5.17, to monitor battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications."

LCO 3.8.6 Battery parameters for the Train A and Train B batteries shall be within limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] batter[y][ies on one train] with one or more battery cells float voltage < [2.07] V.	A.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	A.2 Perform SR 3.8.6.1.	2 hours
	<u>AND</u>	
	A.3 Restore affected cell voltage \geq [2.07] V.	24 hours
B. One [or two] batter[y][ies on one train] with float current > [2] amps.	B.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	B.2 Restore battery float current to \leq [2] amps.	[12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of plates. -----</p> <p>C. One [or two] batter[y][ies on one train] with one or more cells electrolyte level less than minimum established design limits.</p>	<p>-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. -----</p> <p>C.1 Restore electrolyte level to above top of plates. <u>AND</u> C.2 Verify no evidence of leakage. <u>AND</u> C.3 Restore electrolyte level to greater than or equal to minimum established design limits.</p>	<p>8 hours</p> <p>12 hours</p> <p>31 days</p>
<p>D. One [or two] batter[y][ies on one train] with pilot cell electrolyte temperature less than minimum established design limits.</p>	<p>D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.</p>	<p>12 hours</p>
<p>E. One or more batteries in redundant trains with battery parameters not within limits.</p>	<p>E.1 Restore battery parameters for batteries in one train to within limits.</p>	<p>2 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p> <p><u>OR</u></p> <p>One [or two] batter[y][ies on one train] with one or more battery cells float voltage < [2.07] V and float current > [2] amps.</p>	<p>F.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 -----NOTE----- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. ----- Verify each battery float current is ≤ [2] amps.</p>	<p>7 days</p>
<p>SR 3.8.6.2 Verify each battery pilot cell voltage is ≥ [2.07] V.</p>	<p>31 days</p>
<p>SR 3.8.6.3 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.</p>	<p>31 days</p>
<p>SR 3.8.6.4 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.</p>	<p>31 days</p>

Comment: Condition C is a default Condition and is excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The required Train A and Train B inverters shall be OPERABLE.

-----NOTE-----
 [[One/two] inverter[s] may be disconnected from [its/their] associated DC bus for ≤ 24 hours to perform an equalizing charge on [its/their] associated [common] battery, provided:

- a. The associated AC vital bus(es) [is/are] energized from [its/their] [Class 1E constant voltage source transformers] [inverter using internal AC source] and
- b. All other AC vital buses are energized from their associated OPERABLE inverters.]

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] inverter inoperable.	A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating," with any vital bus de-energized. ----- Restore inverter to OPERABLE status.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when two or more [required]	B.1 Restore inverters to OPERABLE status.	1 hour <u>OR</u>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>inverters intentionally made inoperable. ----- Two or more [required] inverters inoperable.</p>		<p>In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time not met.</p>	<p>CB.1 Be in MODE 3. <u>AND</u> CB.2 Be in MODE 5.</p>	<p>6 hours 36 hours</p>

Comment: No changes made.
Outside the applicability of the
Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 [Inverter(s) shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One] inverter[s] shall be OPERABLE.]

-----REVIEWER'S NOTE-----
This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only [one] inverter to be OPERABLE. The "[or more]" optional wording in Condition A is also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem/inverter support as is required for power operating conditions.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or more] [required] inverter[s] inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<p style="text-align: center;"><u>OR</u></p> <p>A.2.1 Suspend CORE ALTERATIONS.</p> <p style="text-align: center;"><u>AND</u></p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies. <u>AND</u>	Immediately
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. <u>AND</u>	Immediately
	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.8.1 Verify correct inverter voltage, [frequency,] and alignments to required AC vital buses.	7 days

Comment: Condition E is a default Condition and is therefore excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more AC electrical power distribution subsystems inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC trains made inoperable by inoperable power distribution subsystems. -----</p> <p>A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>8 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One or more AC vital buses inoperable.</p>	<p>B.1 Restore AC vital bus subsystem(s) to OPERABLE status.</p>	<p>2 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. One or more DC electrical power distribution subsystems inoperable.</p>	<p>C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>2 hours</p> <p><u>IOR</u></p> <p>In accordance with</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>[D. ----- NOTE ----- Not applicable when Two or more electrical power distribution subsystems intentionally made inoperable. ----- Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.</p>	<p>D..1 Restore electrical power distribution subsystems to OPERABLE status to restore safety function.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>ED. Required Action and associated Completion Time not met.</p>	<p>ED..1 Be in MODE 3. <u>AND</u> ED..2 Be in MODE 5.</p>	<p>6 hours 36 hours</p>
<p>[FE. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.</p>	<p>FE..1 Enter LCO 3.0.3.</p>	<p>Immediately]</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.9.1 Verify correct breaker alignments and voltage to [required] AC, DC, and AC vital bus electrical power distribution subsystems.</p>	<p>7 days</p>

Comment: No changes made.
Outside the applicability of the
Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portion of AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>	

5.5 Programs and Manuals

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] including the following

- a. Actions to restore battery cells with float voltage < [2.13] V, and
- b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

[5.5.18 Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

- a. The RICT may not exceed 30 days;

----- REVIEWER'S NOTE -----
 The Risk Informed Completion Time is only applicable in MODES supported by the Licensees PRA. Licensee's applying the RICT Program to MODES other than Modes 1 and 2 must demonstrate that they have the capability to calculate a RICT in those MODES or that the risk indicated by their MODE 1 and 2 PRA model is bounding with respect to the lower MODE conditions.

- b. A RICT may only be utilized in MODE 1, 2 [, and 3, and MODE 4 while relying on steam generators for heat removal];
- c. When a RICT is being used, any plant configuration change within the scope of the Risk Informed Completion Time Program must be considered for the effect on the RICT.
 1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.
 2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.
 3. Revising the RICT is not required If the plant configuration change would lower plant risk and would result in a longer RICT.

- d. Use of a RICT is not permitted for voluntary entry into a configuration which represents a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE.
 - e. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more of the trains are considered "PRA functional" as defined in Section 2.3.1 of NEI 06-09.]
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BASES

ACTIONS (continued)

A Note has been added to the ACTIONS to clarify the application of the Completion Time rules. The Conditions of this Specification may be entered independently for each Function. The Completion Times of each inoperable Function will be tracked separately for each Function, starting from the time the Condition was entered.

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). With one channel in bypass, no additional random failure of a single channel could spuriously trip the reactor and a valid trip signal can still trip the reactor. With one channel in trip, an additional random failure of a single channel could spuriously trip the reactor. Therefore, it is preferable to place an inoperable channel in bypass rather than trip.

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 **[or in accordance with the Risk Informed Completion Time Program]** (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.

BASES

ACTIONS (continued)

B.1 and B.2

Condition B applies to the failure of two channels in any 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 actions for the failed channels while ensuring that the risk involved in operating with the failed channels is acceptable. With one channel of protective instrumentation bypassed, the RPS is in a two-out-of-three logic; but with another channel failed, the RPS may be operating in a two-out-of-two logic. This is outside the assumptions made in the analyses and should be corrected. To correct the problem, the second channel is placed in trip. This places the RPS in a one-out-of-two logic. If any of the other OPERABLE channels receives a trip signal, the reactor will trip.

One channel should be restored to OPERABLE status within [48] hours [or in accordance with the Risk Informed Completion Time Program] for reasons similar to those stated under Condition A. After one channel is restored to OPERABLE status, the provisions of Condition A still apply to the remaining inoperable channel. Therefore, the channel that is still inoperable after completion of Required Action B.2 must be placed in trip if more than [48] hours have elapsed since the initial channel failure.

C.1 and C.2

The excore detectors are used to generate the internal ASI used as an input to the TM/LP and APD - High trips. Incore detectors provide a more accurate measurement of ASI. If one or more excore detectors cannot be calibrated to match incore detectors, power is restricted or reduced during subsequent operations because of increased uncertainty associated with using uncalibrated excore detectors.

The Completion Time of 24 hours is adequate to perform the SR while minimizing the risk of operating in an unsafe condition.

BASES

ACTIONS (continued)

D.1, D.2.1, D.2.2.1, and D.2.2.2

Condition D applies to one automatic bypass removal channel inoperable. If the bypass removal channel for any operating bypass cannot be restored to OPERABLE status, the associated RPS channel may be considered OPERABLE only if the bypass is not in effect. Otherwise, the affected RPS channel must be declared inoperable, as in Condition A, and the bypass either removed or the bypass removal channel repaired. The Bases for Required Actions and Completion Times are the same as discussed for Condition A.

E.1, E.2.1, and E.2.2

Condition E applies to two inoperable automatic bypass removal channels. If the bypass removal channels cannot be restored to OPERABLE status, the associated RPS channel may be considered OPERABLE only if the bypass is not in effect. Otherwise, the affected RPS channels must be declared inoperable, as in Condition B, and the bypass either removed or the bypass removal channel repaired. Also, Required Action E.2.2 provides for the restoration of the one affected automatic trip channel to OPERABLE status within the rules of Completion Time specified under Condition B. Completion Times are consistent with Condition B.

F.1

Condition F is entered when the Required Action and associated Completion Time of Conditions A, B, C, D, or E are not met for the Axial Power Distribution and Loss of Load Trip Functions.

If the Required Actions associated with these Conditions cannot be completed within the required Completion Times, the reactor must be brought to a MODE in which the Required Actions do not apply. The allowed Completion Time of 6 hours to reduce THERMAL POWER to < 15% RTP is reasonable, based on operating experience, to decrease power to < 15% RTP from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

A.1

Condition A applies if one Matrix Logic channel is inoperable or three Matrix Logic channels are inoperable due to a common power source failure de-energizing three matrix power supplies, in any applicable MODE. Loss of a single vital instrument bus will de-energize one of the two matrix power supplies in up to three matrices. This is considered a single matrix failure, providing the matrix relays associated with the failed power supplies de-energize as required.

Failure of the matrix relays to de-energize in all three affected matrices could, when combined with trip channel bypassing of bistable relay contacts in the other matrices, result in loss of RPS function.

The channel must be restored to OPERABLE status within 48 hours [or in accordance with the Risk Informed Completion Time Program]. 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 the 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.

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.

BASES

ACTIONS (continued)

[A.1

Condition A applies to one CSAS Containment Pressure - High channel inoperable. CSAS logic is identical to that of the other ESFAS Functions; however, the inadvertent actuation of a CSAS is undesirable, since it may damage equipment inside containment. For this reason, placing the inoperable channel in trip is not an option as it is in Conditions B and C.]

[For those plants in which the SIAS is required for a complete CSAS actuation, Condition B for one ESFAS channel inoperable and Condition C for two ESFAS channels inoperable may be preferable to Condition A.

If one CSAS channel is inoperable, operation is allowed to continue, providing the inoperable channel is placed in bypass within 1 hour. The Completion Time of 1 hour allotted to bypass 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.]

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1

With two or more CSAS trip units or associated instruments inoperable the Required Action is to restore sufficient trip units or associated instruments to OPERABLE status within 1 hour to restore the Containment Spray Actuation System initiation Function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient channels to restore initiation Function. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more CSAS trip units or associated instruments are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CSAS trip unit or associated instrument is inoperable for any reason and additional CSAS trip units or associated instruments are found to be inoperable, or if two or more CSAS trip units or associated instruments are found to be inoperable at the same time.]

CB.1, CB.2.1, and CB.2.2

Condition ~~C-B~~ applies to the failure of a single channel of one or more input parameters in 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
5. Recirculation Actuation Signal
Refueling Water Tank Level - Low
6. Auxiliary Feedwater Actuation Signal
Steam Generator Level - Low
Steam Generator Pressure Difference - High

BASES

ACTIONS (continued)

ESFAS coincidence logic is normally two-out-of-four. If one ESFAS channel is inoperable, startup or power operation is allowed to continue as long as action is taken to restore the design level of redundancy.

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 ~~C-B~~.1). With one channel in bypass, no additional random failure of a single channel could spuriously trip the reactor and a valid trip signal can still trip the reactor. With one channel in trip, an additional random failure of a single channel could spuriously trip the reactor. Therefore, it is preferable to place an inoperable channel in bypass rather than trip.

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 [or in accordance with the Risk Informed Completion Time Program] (Required Action ~~C-B~~.2.1 or ~~C-B~~.2.2). Required Action ~~C-B~~.2.1 restores the full capability of the function. Required Action ~~C-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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

~~DE~~.1 and ~~DE~~.2

Condition ~~D-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

BASES

ACTIONS (continued)

5. Recirculation Actuation Signal
Refueling Water Tank Level - Low
6. Auxiliary Feedwater Actuation Signal
Steam Generator Level - Low
Steam Generator Pressure Difference - High

With two inoperable channels, one channel should be placed in bypass, and the other channel should be placed in trip within the 1 hour Completion Time. With one channel of protective instrumentation bypassed, the ESFAS Function is in two-out-of-three logic, but with another channel failed the ESFAS may be operating with a two-out-of-two logic. This is outside the assumptions made in the analyses and should be corrected. To correct the problem, the second channel is placed in trip. This places the ESFAS in a one-out-of-two logic. If any of the other OPERABLE channels receives a trip signal, ESFAS actuation will occur.

One of the failed channels should be restored to OPERABLE status within [48] hours, for reasons similar to those stated under Condition C [or in accordance with the Risk Informed Completion Time Program]-B. After one channel is restored to OPERABLE status, the provisions of Condition C-B still apply to the remaining inoperable channel. Therefore, the channel that is still inoperable after completion of Required Action D-G.2 must be placed in trip if more than [48] hours has elapsed since the initial channel failure. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

ED.1, ED.2.1, ED.2.2.1, and ED.2.2.2

Condition E-D applies to the failure of one bypass removal channel.

The bypass removal channels consist of four sensor subsystems and two actuation subsystems. Condition E-D applies to failures in one of the four sensor subsystems, including sensors, bistables, and associated equipment. Failures in the actuation subsystems, including the manual bypass key switches, are considered Actuation Logic failures and are addressed in LCO 3.3.5.

In Condition E-D, it is permissible to continue operation with one bypass permissive removal channel failed, providing the bypass is disabled (Required Action E-D.1). This can be accomplished by removing the bypass with the manual bypass key switch, which disables the bypass in both trains. Since the bypass Function must be manually enabled, the bypass permissive Function will not by itself cause an undesired bypass insertion.

BASES

ACTIONS (continued)

Alternatively, the bypass may be disabled by defeating the bypass permissive input in one of the four channels to the two-out-of-four bypass removal logic, placing the bypass removal feature in one-out-of-three logic. Thus, any of the remaining three channels is capable of removing the bypass feature when the bypass enable conditions are no longer valid.

If the bypass removal feature in the inoperable channel cannot be defeated, actions to address the inoperability of the affected automatic trip channel must be taken. Required Action ~~E-D~~.2.1, Required Action ~~E-D~~.2.2.1, and Required Action ~~E-D~~.2.2.2 are equivalent to the Required Actions for a single automatic trip channel failure (Condition ~~C-B~~). The 1 hour and [48] hour Completion Times have the same bases as discussed for Condition ~~C-B~~. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

~~FE~~.1, ~~FE~~.2.1, and ~~FE~~.2.2

Condition ~~F-E~~ applies to two inoperable bypass removal channels. The bypass removal channels consist of four sensor subsystems and two actuation subsystems. This Condition applies to failures in two of the four sensor subsystems. With two of the four sensor subsystems failed in a nonconservative direction (enabling the bypass Function), the bypass removal feature is in two-out-of-two logic. Failures in the actuation subsystems, including the manual bypass key switches, are considered Actuation Logic failures and are addressed in LCO 3.3.5.

In Condition ~~F-E~~, it is permissible to continue operation with two bypass permissive channels failed, providing the bypasses are disabled in a similar manner as discussed for Condition ~~E-D~~.

If the failed bypasses cannot be disabled, actions to address the inoperability of the affected automatic trip channels must be taken. Required Action ~~F-E~~.2.1 and Required Action ~~F-E~~.2.2 are equivalent to the Required Actions for a two automatic trip channel failure (Condition ~~D-G~~). Also similar to Condition ~~D-G~~, after one set of inoperable channels is restored, the provisions of Condition ~~E-D~~ still apply to the remaining inoperable channel, with the Completion Time measured from the point of the initial bypass channel failure. The 1 hour and [48] hour Completion Times have the same bases as discussed for Condition ~~D-G~~. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

BASES

ACTIONS (continued)

GF.1 and GF.2

If the Required Actions and associated Completion Times of Condition A, B, C, D, **E**, or ~~F-E~~ 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 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

The SRs for any particular ESFAS Function are found in the SRs column of Table 3.3.4-1 for that Function. Most functions are subject to CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, CHANNEL CALIBRATION, and response time testing.

-----REVIEWER'S NOTE-----

In order for a unit to take credit for topical reports as the basis for justifying Frequencies, topical reports should be supported by an NRC staff Safety Evaluation Report that establishes the acceptability of each topical report for that unit.

SR 3.3.4.1

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 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 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. If the channels are normally off scale during

BASES

APPLICABILITY (continued)

In MODES 4, 5, and 6, automatic actuation of ESFAS Functions is not required, because adequate time is available for plant operators to evaluate plant conditions and respond by manually operating the ESF components if required. ESFAS Manual Trip capability is required for Functions other than AFAS in MODE 4 even though automatic actuation is not required. Because of the large number of components actuated on each ESFAS, actuation is simplified by the use of the Manual Trip push buttons. Manual Trip of AFAS is not required in MODE 4 because AFW or shutdown cooling will already be in operation in this MODE.

The ESFAS Actuation Logic must be OPERABLE in the same MODES as the Automatic and Manual Trips. In MODE 4, only the portion of the ESFAS logic responsible for the required Manual Trip must be OPERABLE.

In MODES 5 and 6, ESFAS initiated systems are either reconfigured or disabled for shutdown cooling operation. Accidents in these MODES are slow to develop and would be mitigated by manual operation of individual components.

ACTIONS

When the number of inoperable channels in a trip Function exceeds those specified in any related Condition associated with the same trip Function, then the plant is outside the safety analysis. Therefore, LCO 3.0.3 should be immediately entered, if applicable in the current MODE of operation.

A Note has been added to the ACTIONS to clarify the application of the Completion Time rules. The Conditions of this Specification may be entered independently for each Function in Table 3.3.5-1 in the LCO. Completion Times for the inoperable channel of a Function will be tracked separately.

A.1

Condition A applies to one AFAS Manual Trip or AFAS Actuation Logic channel inoperable. It is identical to Condition ~~D-C~~ for the other ESFAS Functions, except for the shutdown track imposed by Condition ~~F-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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1

If two AFAS Manual Trip or Actuation Logic channels are inoperable, the Required Action is to restore at least one channel to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one channel. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second AFAS Manual Trip or Actuation Logic channel is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one AFAS Manual Trip or Actuation Logic channel is inoperable for any reason and a second AFAS Manual Trip or Actuation Logic channel is found to be inoperable, or if two AFAS Manual Trip or Actuation Logic channels are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----
 The bracketed portions of Condition C are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

CB.1 and CB.2

If [two Manual Trip or Actuation Logic channels are inoperable or] the Required Action and associated Completion Time of Condition -A [or B] 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.

DC.1

Condition ~~D-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 ~~F-D~~ requires entry into MODE 5, where the LCO does not apply to the affected Functions. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

E.1

If one or more Functions have two Manual Trip or Actuation Logic channels inoperable except AFAS, the Required Action is to restore the Functions to OPERABLE status within 1 hour to restore Manual Trip or Actuation Logic Function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the Manual Trip or Actuation Function Logic Function. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second Manual Trip or Actuation Logic channel is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one Manual Trip or Actuation Logic channel is inoperable for any reason and a second Manual Trip or Actuation Logic channel is found to be inoperable, or if two Manual Trip or Actuation Logic channels are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----
The bracketed portions of Condition F are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

~~F-D~~.1 and ~~F-D~~.2

Condition ~~F-D~~ is entered when [one or more Functions have two Manual Trip or Actuation Logic channels inoperable except AFAS or] the Required Action and associated Completion Time of Condition ~~D~~ [or ~~E-G~~] are not met. If Required Action ~~D-G~~.1 [or ~~E.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.

BASES

APPLICABILITY The DG - LOVS actuation Function is required in MODES 1, 2, 3, and 4 because ESF Functions are designed to provide protection in these MODES. Actuation in MODE 5 or 6 is required whenever the required DG must be OPERABLE, so that it can perform its function on a loss of power or degraded power to the vital bus.

ACTIONS A LOVS channel is inoperable when it does not satisfy the OPERABILITY criteria for the channel's Function. 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 plant specific setpoint analysis. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. Determination of setpoint drift is generally made during the performance of a CHANNEL FUNCTIONAL TEST when the instrument is set up for adjustment to bring it within specification. If the actual trip setpoint is not within the Allowable Value, the channel is inoperable and the appropriate Conditions must be entered.

In the event a channel's trip setpoint is found nonconservative with respect to the Allowable Value, or the channel is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition entered. The required channels are specified on a per DG basis.

When the number of inoperable channels in a trip Function exceeds those specified in any related Condition associated with the same trip Function, then the plant is outside the safety analysis. Therefore, LCO 3.0.3 should be entered immediately if applicable in the current MODE of operation.

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this LCO may be entered independently for each Function. 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, A.2.1, and A.2.2

Condition A applies if one channel is inoperable for one or more Functions per DG bus.

If the channel cannot be restored to OPERABLE status, the affected channel should either be bypassed or tripped within 1 hour (Required Action A.1).

BASES

ACTIONS (continued)

Placing this channel in either Condition ensures that logic is in a known configuration. In trip, the LOVS Logic is one-out-of-three. In bypass, the LOVS Logic is two-out-of-three. The 1 hour Completion Time is sufficient to perform these Required Actions.

Once Required Action A.1 has been complied with, Required Action A.2.1 allows [48] hours to repair the inoperable channel for those plants that have not demonstrated sufficient channel to channel independence on this Function. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the channel cannot be restored to OPERABLE status, it must be tripped in accordance with Required Action A.2.2. The time allowed to repair or trip the channel is reasonable to repair the affected channel while ensuring that the risk involved in operating with the inoperable channel is acceptable. The [48] hour Completion Time is based upon operating experience, which has demonstrated that a random failure of a second channel is a rare event during any given [48] hour period. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

B.1, B.2.1, and B.2.2

Condition B applies if two channels are inoperable for one or more Functions per DG.

If the channel cannot be restored to OPERABLE status within 1 hour, the Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation are required to be entered. Alternatively, one affected channel is required to be bypassed and the other is tripped, in accordance with Required Action B.2.1. This places the Function in one-out-of-two logic. The 1 hour Completion Time is sufficient to perform the Required Actions.

Once Required Action B.2.1 has been complied with, Required Action B.2.2 allows [48] hours to repair the bypassed or inoperable channel. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

After one channel is restored to OPERABLE status, the provisions of Condition A still apply to the remaining inoperable channel. Therefore, the channel that is still inoperable after completion of Required Action B.2.2 shall be placed in trip if more than [48] hours have elapsed since the initial channel failure. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

C.1

Condition C applies when more than two undervoltage or Degraded Voltage channels on a single bus are inoperable.

Required Action C.1 requires all but two channels to be restored to OPERABLE status within 1 hour [or in accordance with the Risk Informed Completion Time Program]. With more than two channels inoperable, the logic is not capable of providing a DG - LOVS signal for valid Loss of Voltage or Degraded Voltage conditions. The 1 hour Completion Time is reasonable to evaluate and take action to correct the degraded condition in an orderly manner and takes into account the low probability of an event requiring LOVS occurring during this interval.

D.1

Condition D applies if the Required Actions and associated Completion Times are not met.

Required Action D.1 ensures that Required Actions for the affected DG inoperabilities are initiated. Depending upon plant MODE, the actions specified in LCO 3.8.1, "AC Sources - Operating," or LCO 3.8.2 are required immediately.

SURVEILLANCE REQUIREMENTS

The following SRs apply to each DG - LOVS Function.

[SR 3.3.6.1

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 indicated output of the potential transformers that feed the LOVS undervoltage relays. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two channels could be an indication of excessive 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 that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

BASES

LCO (continued)

Manual Trip push buttons are also provided at the reactor trip switchgear (locally) in case the control room push buttons become inoperable or the control room becomes uninhabitable. These are not part of the RPS and cannot be credited in fulfilling the LCO OPERABILITY requirements. Furthermore, LCO ACTIONS need not be entered due to failure of a local Manual Trip.

APPLICABILITY

The RPS Logic, RTCBs, and Manual Trip are required to be OPERABLE in any MODE when the CEAs are capable of being withdrawn off the bottom of the core (i.e., RTCBs closed and power available to the CEDMs). This ensures that the reactor can be tripped when necessary, but allows for maintenance and testing when the reactor trip is not needed.

In MODES 3, 4, and 5 with the RTCBs open, the CEAs are not capable of withdrawal and these Functions do not have to be OPERABLE. However, two logarithmic power level channels must be OPERABLE to ensure proper indication of neutron population and to indicate a boron dilution event. This is addressed in LCO 3.3.13, "[Logarithmic] Power Monitoring Channels."

ACTIONS

When the number of inoperable channels in a trip Function exceeds that specified in any related Condition associated with the same trip Function, then the plant is outside the safety analysis. Therefore, LCO 3.0.3 is immediately entered if applicable in the current MODE of operation.

A.1

Condition A applies if one Matrix Logic channel is inoperable or three Matrix Logic channels are inoperable due to a common power source failure de-energizing three matrix power supplies in any applicable MODE. Loss of a single vital instrument bus will de-energize one of the two matrix power supplies in up to three matrices. This is considered a single matrix failure, providing the matrix relays associated with the failed power supplies de-energize as required.

The channel must be restored to OPERABLE status within 48 hours [or in accordance with the Risk Informed Completion Time Program]. 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.

BASES

ACTIONS (continued)

A Note has been added to the ACTIONS to clarify the application of the Completion Time rules. The Conditions of this Specification may be entered independently for each Function. The Completion Time for the inoperable channel 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 if one Matrix Logic channel is inoperable. Since matrix power supplies in a given matrix (e.g., AB, BC, etc.) are common to all ESFAS Functions, a single power supply failure may affect more than one matrix.

Failures of individual bistables and their relays are considered measurement channel failures. This section describes failures of the Matrix Logic not addressed in the above, such as the failure of matrix relay power supplies, or the failure of the trip channel bypass contact in the bypass condition. Loss of a single vital bus will de-energize one of the two power supplies in each of three matrices. This will result in two initiation circuits de-energizing, reducing the ESFAS Actuation Logic to a one-out-of-two logic in both trains.

This Condition has been modified by a Note stating that for the purposes of this LCO, de-energizing up to three matrix power supplies due to a single failure, such as loss of a vital instrument bus, is to be treated as a single matrix channel failure, providing the affected matrix relays de-energize as designed. Although each of the six matrices within an ESFAS Function uses separate power supplies, the matrices for the different ESFAS Functions share power supplies. Thus, failure of a matrix power supply may force entry into the Condition specified for each of the affected ESFAS Functions.

The channel must be restored to OPERABLE status within 48 hours **[or in accordance with the Risk Informed Completion Time Program]**. This provides the operator with 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 period. If the channel cannot be restored to OPERABLE status with 48 hours, Condition E is entered.

BASES

ACTIONS (continued)

B.1

Condition B applies to one Manual Trip or Initiation Logic channel inoperable.

The channel must be restored to OPERABLE status within 48 hours [or in accordance with the Risk Informed Completion Time Program].

Operating experience has demonstrated that the probability of a random failure in a second channel is low during any given 48 hour period.

Failure of a single Initiation Logic channel may open one contact affecting both Actuation Logic channels. For the purposes of this Specification, the Actuation Logic is not inoperable. This prevents the need to enter LCO 3.0.3 in the event of an Initiation Logic channel failure. The Actions differ from those involving one RPS manual channel inoperable, because in the case of the RPS, opening RTCBs can be easily performed and verified. Opening an initiation relay contact is more difficult to verify, and subsequent shorting of the contact is always possible.

C.1 and C.2

Condition C applies to the failure of both Initiation Logic channels affecting the same trip leg.

In this case, the Actuation Logic channels are not inoperable, since they are in one-out-of-two logic and capable of performing as required. This obviates the need to enter LCO 3.0.3 in the event of a matrix or vital bus power failure.

Both Initiation Logic channels in the same trip leg will de-energize if a matrix power supply or vital instrument bus is lost. This will open the Actuation Logic contacts, satisfying the Required Action to open at least one set of contacts in the affected trip leg. Indefinite operation in this condition is prohibited because of the difficulty of ensuring the contacts remain open under all conditions. Thus, the channel must be restored to OPERABLE status within 48 hours [or in accordance with the Risk Informed Completion Time Program]. This provides the operator with 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 channel is low during any given 48 hour period. If the channel cannot be restored to OPERABLE status with 48 hours, Condition E is entered.

BASES

ACTIONS (continued)

Of greater concern is the failure of the initiation circuit in a nontrip condition, e.g., due to two initiation relay failures. With one failed, there is still the redundant contact in the trip leg of each Actuation Logic. With both failed in a nontrip condition, the ESFAS Function is lost in the affected train. To prevent this, immediate opening of at least one contact in the affected trip leg is required. If the required contact has not opened, as indicated by annunciation or trip leg current lamps, Manual Trip of the affected trip leg contacts may be attempted. Caution must be exercised, since depressing the wrong ESFAS push buttons may result in an ESFAS actuation.

D.1

Condition D applies to Actuation Logic.

With one Actuation Logic channel inoperable, automatic actuation of one train of ESF may be inhibited. The remaining train provides adequate protection in the event of Design Basis Accidents, but the single failure criterion may be violated. For this reason operation in this condition is restricted.

The channel must be restored to OPERABLE status within 48 hours **[or in accordance with the Risk Informed Completion Time Program]**.

Operating experience has demonstrated that the probability of a random failure in the Actuation Logic of the second train is low during a given 48 hour period.

Failure of a single Initiation Logic channel, matrix channel power supply, or vital instrument bus may open one or both contacts in the same trip leg in both Actuation Logic 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.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition E is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[E.1

With two Actuation Logic channels inoperable, the Required Action is to restore at least one channel to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one channel. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second Actuation Logic channel is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one Actuation Logic channel is inoperable for any reason and a second Actuation Logic channel is found to be inoperable, or if two Actuation Logic channels are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----
 The bracketed portion of Condition F is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

FE.1 and FE.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.

----- REVIEWER'S NOTE -----
 The bracketed portion of Condition G is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

GF.1 and GF.2

If [two associated Actuation Logic channels are inoperable, or 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.

SURVEILLANCE
REQUIREMENTSSR 3.3.6.1

A CHANNEL FUNCTIONAL TEST is performed every [92] days to ensure the entire channel will perform its intended function when needed. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

BASES

ACTIONS

A.1

If one RCS loop is inoperable, redundancy for forced flow heat removal is lost. The Required Action is restoration of the RCS loop to OPERABLE status within a Completion Time of 72 hours [or in accordance with the Risk Informed Completion Time Program]. This time allowance is a justified period to be without the redundant, nonoperating loop because a single loop in operation has a heat transfer capability greater than that needed to remove the decay heat produced in the reactor core.

B.1

If restoration for Required Action A.1 is not possible within 72 hours, the unit must be placed in MODE 4 within 12 hours. In MODE 4, the plant may be placed on the SDC System. The Completion Time of 12 hours is compatible with required operation to achieve cooldown and depressurization from the existing plant conditions in an orderly manner and without challenging plant systems.

C.1 and C.2

If two RCS loops are inoperable or a required RCS loop is not in operation, except as provided in Note 1 in the LCO section, all operations involving introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 must be suspended. Action to restore one RCS loop to OPERABLE status and operation shall be initiated immediately and continued until one RCS loop is restored to OPERABLE status and operation. Suspending the introduction of coolant into the RCS of coolant with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core, however coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operation. The immediate Completion Times reflect the importance of maintaining operation for decay heat removal.

SURVEILLANCE
REQUIREMENTSSR 3.4.5.1

This SR requires verification every 12 hours that one RCS loop is in operation. Verification includes flow rate, temperature, and pump status monitoring, which help ensure that forced flow is providing heat removal. The 12 hour interval has been shown by operating practice to be sufficient to regularly assess degradation and verify operation within safety analyses assumptions. In addition, control room indication and alarms will normally indicate loop status.

BASES

ACTIONS (continued)

Six hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. Further pressure and temperature reduction to MODE 4 brings the plant to a MODE where the LCO is not applicable. The 12 hour time to reach the nonapplicable MODE is reasonable based on operating experience for that evolution.

B.1

If one [required] group of pressurizer heaters is inoperable, restoration is required within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The Completion Time ~~of 72~~ hours is reasonable considering 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.

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1

With two [required] groups of pressurizer heaters is inoperable, the Required Action is to restore the [required] inoperable pressurizer heaters to OPERABLE status within 1 hour to regain this safety function, prior to initiating actions to place the plant in a MODE or other specified condition in which the LCO does not apply. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second [required] group of pressurizer heaters is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [required] group of pressurizer heaters is inoperable for any reason and the second [required] group of pressurizer heaters is found to be inoperable, or if two [required] groups of pressurizer heaters are found to be inoperable at the same time.]

DG.1 and DG.2

If ~~one~~-[required] group[s] of pressurizer heaters ~~are~~is inoperable and cannot be restored within 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 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 safety systems. Similarly, the Completion Time of [12] hours is reasonable, based on operating experience, to reach MODE 4 from full power in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

SR 3.4.9.1

This Surveillance ensures that during steady state operation, pressurizer water 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 12 hour interval has been shown by operating practice to be sufficient to regularly assess the level for any deviation and verify that operation is within safety analyses assumptions. Alarms are also available for early detection of abnormal level indications.

BASES

ACTIONS

A.1

With one pressurizer safety valve inoperable, restoration must take place within 15 minutes [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 15 minutes reflects the importance of maintaining the RCS overpressure protection system. An inoperable safety valve coincident with an RCS overpressure event could challenge the integrity of the RCPB.

B.1 and B.2

If the Required Action cannot be met within the required Completion Time or if two or more pressurizer safety valves are inoperable, 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 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR within [24] hours. The 6 hours allowed is reasonable, based on operating experience, to reach MODE 3 from full power without challenging plant systems. Similarly, the [24] hours allowed is reasonable, based on operating experience, to reach MODE 4 without challenging plant systems. With any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR, overpressure protection is provided by LTOP. The change from MODE 1, 2, or 3 to MODE 4 reduces the RCS energy (core power and pressure), lowers the potential for large pressurizer surges, and thereby removes the need for overpressure protection by [two] pressurizer safety valves.

SURVEILLANCE
REQUIREMENTSSR 3.4.10.1

SRs are specified in the Inservice Testing Program. Pressurizer safety valves are to be tested in accordance with the requirements of the ASME Code (Ref. 1), which provides the activities and the Frequency necessary to satisfy the SRs. No additional requirements are specified.

The pressurizer safety valve setpoint is \pm [3]% for OPERABILITY; however, the valves are reset to \pm 1% during the Surveillance to allow for drift.

REFERENCES

1. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

ACTIONS (continued)

a small break LOCA. For these reasons, the block valve may be closed but the Action requires power be maintained to the valve. This Condition is only intended to permit operation of the plant for a limited period of time not to exceed the next refueling outage (MODE 6) so that maintenance can be performed on the PORVs to eliminate the problem condition. The PORVs should normally be available for automatic mitigation of overpressure events and should be returned to OPERABLE status prior to entering startup (MODE 2).

Quick access to the PORV for pressure control can be made when power remains on the closed block valve. The Completion Time of 1 hour is based on plant operating experience that minor problems can be corrected or closure can be accomplished in this time period.

B.1, B.2, and B.3

If one PORV is inoperable and not capable of being manually cycled, it must either be isolated, by closing the associated block valve and removing the power from the block valve, or restored to OPERABLE status. The Completion Time of 1 hour is reasonable, based on challenges to the PORVs during this time period, and provides the operator adequate time to correct the situation. If the inoperable valve cannot be restored to OPERABLE status, it must be isolated within the specified time of 1 hour. Because there is at least one PORV that remains OPERABLE, an additional 72 hours is provided to restore the inoperable PORV to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

If one block valve is inoperable, then it must be restored to OPERABLE status, or the associated PORV placed in manual control. The prime importance for the capability to close the block valve is to isolate a stuck open PORV. Therefore, if the block valve cannot be restored to OPERABLE status within 1 hour, the Required Action is to place the PORV in manual control to preclude its automatic opening for an overpressure event and to avoid the potential for a stuck open PORV at a time that the block valve is inoperable. The Completion Times of 1 hour are reasonable based on the small potential for challenges to the system during this time period and provide the operator time to correct the situation. Because at least one PORV remains OPERABLE, the operator is permitted a Completion Time of 72 hours to restore the inoperable block valve to OPERABLE status. [Alternatively, a Completion Time can

be determined in accordance with the Risk Informed Completion Time Program.] The time allowed to restore the block

BASES

ACTIONS (continued)

valve is based upon the Completion Time for restoring an inoperable PORV in Condition B since the PORVs are not capable of automatically mitigating an overpressure event when placed in manual control. If the block valve is restored within the Completion Time of 72 hours, the power will be restored and the PORV restored to OPERABLE status.

D.1 and D.2

If the Required Action cannot be met within the associated Completion Time, 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 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.

----- REVIEWER'S NOTE -----
Plants that have adopted a Risk Informed Completion Time Program utilize Required Action E.3 ("Restore inoperable PORVs to OPERABLE status." Otherwise, utilize the shutdown requirements in Required Actions E.3 and E.4.

E.1, E.2, [and] E.3, and E.4

If more than one PORV is inoperable and not capable of being manually cycled, it is necessary to either restore at least one valve within the Completion Time of 1 hour [or in accordance with the Risk Informed Completion Time Program] or isolate the flow path by closing and removing the power to the associated block valves. The Completion Time of 1 hour is reasonable based on the small potential for challenges to the system during this time and provides the operator time to correct the situation. If one PORV is restored and one PORV remains inoperable, then the plant will be in Condition B with the time clock started at the original declaration of having two PORVs inoperable. [If no PORVs are restored within the Completion Time, then 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 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 plant systems. Similarly, the Completion Time of 12 hours to reach MODE 4 is reasonable, considering that a plant can cool down within that time frame on one safety system train.] In

MODES 4 and 5, maintaining PORV OPERABILITY may be required.
See LCO 3.4.12.

BASES

ACTIONS (continued)

F.1

If two block valves are inoperable, it is necessary to restore at least one block valve to OPERABLE status within 2 hours [or in accordance with the Risk Informed Completion Time Program]. The Completion Time is reasonable based on the small potential for challenges to the system during this time and provides the operator time to correct the situation.

G.1 and G.2

If the Required Actions and associated Completion Times of Condition [E or] F are not met, then the plant must be brought to a MODE in which the LCO does not apply. The plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 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 safety systems. Similarly, the Completion Time of 12 hours to reach MODE 4 is reasonable considering that a plant can cool down within that time frame on one safety system train. In MODES 4 and 5, maintaining PORV OPERABILITY may be required. See LCO 3.4.12.

SURVEILLANCE REQUIREMENTS

SR 3.4.11.1

Block valve cycling verifies that it can be closed if necessary. The basis for the Frequency of [92 days] is the ASME Code (Ref. 3).

This SR is modified by two Notes. Note 1 modifies this SR by stating that this SR is not required to be performed with the block valve closed in accordance with the Required Actions of this LCO. Opening the block valve in this condition increases the risk of an unisolable leak from the RCS since the PORV is already inoperable. Note 2 modifies this SR to allow entry into and operation in MODE 3 prior to performing the SR. This allows the test to be performed in MODE 3 under operating temperature and pressure conditions, prior to entering MODE 1 or 2. [In accordance with Reference 4, administrative controls require this test be performed in MODE 3 or 4 to adequately simulate operating temperature and pressure effects on PORV operation.]

SR 3.4.11.2

SR 3.4.11.2 requires complete cycling of each PORV. PORV cycling demonstrates its function. The Frequency of [18] months is based on a typical refueling cycle and industry accepted practice.

BASES

ACTIONS (continued)

[Required Action A.2 specifies that the double isolation barrier of two valves be restored by closing some other valve qualified for isolation or restoring one leaking PIV. The 72 hour Completion Time after exceeding the limit considers the time required to complete the action and the low probability of a second valve failing during this time period.

or

The 72 hour Completion Time after exceeding the limit allows for the restoration of the leaking PIV to OPERABLE status. This timeframe considers the time required to complete this Action and the low probability of a second valve failing during this period.]

-----REVIEWER'S NOTE-----
Two options are provided for Required Action A.2. The second option (72 hour restoration) is appropriate if isolation of a second valve would place the unit in an unanalyzed condition.

B.1 and B.2

If leakage cannot be reduced [the system isolated] or other Required Actions accomplished, 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 5 within 36 hours. This Action reduces the leakage and also reduces the potential for a LOCA outside the containment. 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

The inoperability of the SDC autoclosure interlock renders the SDC suction isolation valves incapable of: isolating in response to a high pressure condition and preventing inadvertent opening of the valves at RCS pressures in excess of the SDC systems design pressure. If the SDC autoclosure interlock is inoperable, operation may continue as long as the affected SDC suction penetration is closed by at least one closed manual or deactivated automatic valve within 4 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] This Action accomplishes the purpose of the autoclosure function.

BASES

ACTIONS

A.1

If the boron concentration of one SIT is not within limits, it must be returned to within the limits within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In this condition, ability to maintain subcriticality or minimum boron precipitation time may be reduced, but the reduced concentration effects on core subcriticality during reflood are minor. Boiling of the ECCS water in the core during reflood concentrates the boron in the saturated liquid that remains in the core. In addition, the volume of the SIT is still available for injection. Since the boron requirements are based on the average boron concentration of the total volume of three SITs, the consequences are less severe than they would be if an SIT were not available for injection. Thus, 72 hours is allowed to return the boron concentration to within limits.

The combination of redundant level and pressure instrumentation for any single SIT provides sufficient information so that it is not worthwhile to always attempt to correct drift associated with one instrument, with the resulting radiation exposures during entry into containment, as there is sufficient time to repair one in the event that a second one became inoperable. Because these instruments do not initiate a safety action, it is reasonable to extend the allowable outage time for them. While technically inoperable, the SIT will be available to fulfill its safety function during this time and, thus, this Completion Time results in a negligible increase in risk.

B.1

If one SIT is inoperable, for reasons other than boron concentration or the inability to verify level or pressure, the SIT must be returned to OPERABLE status within 24 hours [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the required contents of three SITs cannot be assumed to reach the core during a LOCA as is assumed in Appendix K (Ref. 5).

CE NPSD-994 (Ref. 6) provides a series of deterministic and probabilistic findings that support the 24 hour Completion Time as having no affect on risk as compared to shorter periods for restoring the SIT to OPERABLE status.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1

With two or more SITs inoperable, the Required Action is to restore sufficient SITs to OPERABLE status within 1 hour to regain this safety function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient SITs to regain safety function. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more SITs are intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one SIT is inoperable for any reason and additional SITs are found to be inoperable, or if two or more SITs are found to be inoperable at the same time.]

D.1 and D.2
and C.2

If the SIT[(s)] cannot be restored to OPERABLE status within the associated 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 pressurizer pressure reduced to < 700 psia 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.

----- REVIEWER'S NOTE -----
Condition E is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[E.D.1

If more than one SIT is inoperable, the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE

SR 3.5.1.1

BASES

APPLICABILITY In MODES 1 and 2, and in MODE 3 with RCS pressure \geq 1700 psia, the ECCS OPERABILITY requirements for the limiting Design Basis Accident (DBA) large break LOCA are based on full power operation. Although reduced power would not require the same level of performance, the accident analysis does not provide for reduced cooling requirements in the lower MODES. The HPSI pump performance is based on the small break LOCA, which establishes the pump performance curve and has less dependence on power. The charging pump performance requirements are based on a small break LOCA. The requirements of MODES 2 and 3, with RCS pressure \geq 1700 psia, are bounded by the MODE 1 analysis.

The ECCS functional requirements of MODE 3, with RCS pressure $<$ 1700 psia, and MODE 4 are described in LCO 3.5.3, "ECCS - Shutdown."

In MODES 5 and 6, unit conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.4, "Shutdown Cooling (SDC) and Coolant Circulation - High Water Level," and LCO 3.9.5, "Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level."

ACTIONS

A.1

With one LPSI subsystem inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this condition, the remaining OPERABLE ECCS train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure to the remaining LPSI subsystem could result in loss of ECCS function. The 7 day Completion Time is reasonable to perform corrective maintenance on the inoperable LPSI subsystem. The 7 day Completion Time is based on the findings of the deterministic and probabilistic analysis in Reference 6. Reference 6 concluded that extending the Completion Time to 7 days for an inoperable LPSI train provides plant operational flexibility while simultaneously reducing overall plant risk. This is because the risks incurred by having the LPSI train unavailable for a longer time at power will be substantially offset by the benefits associated with avoiding unnecessary plant transitions and by reducing risk during plant shutdown operations.

BASES

ACTIONS (continued)

B.1

If one or more trains are inoperable except for reasons other than Condition A (one LPSI subsystem inoperable) and at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train is available, the inoperable components must be returned to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The 72 hour Completion Time is based on an NRC study (Ref. 4) using a reliability evaluation and is a reasonable amount of time to effect many repairs.

An ECCS train is inoperable if it is not capable of delivering the design flow to the RCS. The individual components are inoperable if they are not capable of performing their design function, or if supporting systems are not available.

The LCO requires the OPERABILITY of a number of independent subsystems. Due to the redundancy of trains and the diversity of subsystems, the inoperability of one component in a train does not render the ECCS incapable of performing its function. Neither does the inoperability of two different components, each in a different train, necessarily result in a loss of function for the ECCS. This allows increased flexibility in plant operations when components in opposite trains are inoperable.

An event accompanied by a loss of offsite power and the failure of an emergency DG can disable one ECCS train until power is restored. A reliability analysis (Ref. 4) has shown that the impact with one full ECCS train inoperable is sufficiently small to justify continued operation for 72 hours.

Reference 5 describes situations in which one component, such as a shutdown cooling total flow control valve, can disable both ECCS trains. With one or more components inoperable, such that 100% of the equivalent flow to a single OPERABLE ECCS train is not available, the facility is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be immediately entered.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1

Condition B is applicable with one or more trains inoperable for reasons other than Condition A. The allowed Completion Time is based on the assumption that at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train is available. With less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available, the facility is in a condition outside of the accident analyses and flow must be restored to 100% of the ECCS flow equivalent to a single OPERABLE ECCS train within the 1 hour Completion Time, or a Completion Time determined under the Risk Informed Completion Time Program,. The Completion Time is based on the need to restore the ECCS flow to within the safety analysis assumptions.

The Condition is modified by a Note stating it is not applicable when the second ECCS train is intentionally made inoperable. The Required Actions are not intended for voluntary removal of redundant systems or components from service. The Required Actions are only applicable if one ECCS train is inoperable for any reason and the second ECCS train is found to be inoperable, or if two ECCS trains are found to be inoperable at the same time.]

DC.1 and DC.2

If the inoperable train cannot be restored to OPERABLE status within the associated 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 pressurizer pressure reduced to < 1700 psia within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems.

----- REVIEWER'S NOTE -----
 Condition E is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[ED.1

Condition **EB** is applicable with one or more trains inoperable. The allowed Completion Time is based on the assumption that at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train is available. With less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available, the facility is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.]

**SURVEILLANCE
REQUIREMENTS****SR 3.5.2.1**

Verification of proper valve position ensures that the flow path from the ECCS pumps to the RCS is maintained. Misalignment of these valves could render both ECCS trains inoperable. Securing these valves in position by removing power or by key locking the control in the correct position ensures that the valves cannot be inadvertently misaligned or change position as the result of an active failure. These valves are of the type described in Reference 5, which can disable the function of both ECCS trains and invalidate the accident analysis. A 12 hour Frequency is considered reasonable in view of other administrative controls ensuring that a mispositioned valve is an unlikely possibility.

SR 3.5.2.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking,

BASES

LCO (continued)

With RCS pressure < 1700 psia, one HPSI pump is acceptable without single failure consideration, based on the stable reactivity condition of the reactor and the limited core cooling requirements. The low pressure safety injection (LPSI) pumps may therefore be released from the ECCS train for use in shutdown cooling (SDC). In MODE 4 with RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR, a maximum of one HPSI pump is allowed to be OPERABLE in accordance with LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System."

APPLICABILITY

In MODES 1, 2, and 3 with RCS pressure \geq 1700 psia, the OPERABILITY requirements for ECCS are covered by LCO 3.5.2.

In MODE 3 with RCS pressure < 1700 psia and in MODE 4, one OPERABLE ECCS train is acceptable without single failure consideration, based on the stable reactivity condition of the reactor and the limited core cooling requirements.

In MODES 5 and 6, unit conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.4, "Shutdown Cooling (SDC) and Coolant Circulation - High Water Level," and LCO 3.9.5, "Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level."

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable ECCS High Pressure Safety Injection subsystem. There is an increased risk associated with entering MODE 4 from MODE 5 with an inoperable ECCS High Pressure Safety Injection subsystem and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

With no HPSI pump OPERABLE, the unit is not prepared to respond to a loss of coolant accident. The 1 hour Completion Time to restore at least one HPSI train to OPERABLE status ensures that prompt action is taken to restore the required cooling capacity or to initiate actions to place the unit in MODE 5, where an ECCS train is not required. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

APPLICABILITY In MODES 1, 2, 3, and 4, the RWT OPERABILITY requirements are dictated by the ECCS and Containment Spray System OPERABILITY requirements. Since both the ECCS and the Containment Spray System must be OPERABLE in MODES 1, 2, 3, and 4, the RWT must be OPERABLE to support their operation.

Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.4, "Shutdown Cooling (SDC) and Coolant Circulation - High Water Level," and LCO 3.9.5, "Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level."

ACTIONS

A.1

With RWT boron concentration or borated water temperature not within limits, it must be returned to within limits within 8 hours [or in accordance with the Risk Informed Completion Time Program]. In this condition neither the ECCS nor the Containment Spray System can perform their design functions; therefore, prompt action must be taken to restore the tank to OPERABLE condition. The allowed Completion Time of 8 hours to restore the RWT to within limits was developed considering the time required to change boron concentration or temperature and that the contents of the tank are still available for injection.

B.1

With RWT borated water volume not within limits, it must be returned to within limits within 1 hour [or in accordance with the Risk Informed Completion Time Program]. In this condition, neither the ECCS nor Containment Spray System can perform their design functions; therefore, prompt action must be taken to restore the tank to OPERABLE status or to place the unit in a MODE in which these systems are not required. The allowed Completion Time of 1 hour to restore the RWT to OPERABLE status is based on this condition simultaneously affecting multiple redundant trains.

C.1 and C.2

If the RWT cannot be restored to OPERABLE status within the associated 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.

BASES

ACTIONS (continued)

B.1, B.2, and B.3

With an air lock interlock mechanism inoperable in one or more air locks, the Required Actions and associated Completion Times are consistent with those specified in Condition A.

The Required Actions have been modified by two Notes. Note 1 ensures that only the Required Actions and associated Completion Times of Condition C are required if both doors in the same air lock are inoperable. With both doors in the same air lock inoperable, an OPERABLE door is not available to be closed. Required Actions C.1 and C.2 are the appropriate remedial actions. Note 2 allows entry into and exit from containment under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs the function of the interlock).

Required Action B.3 is modified by a Note that applies to air lock doors located in high radiation areas and allows these doors to be verified locked 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 the door, once it has been verified to be in the proper position, is small.

C.1, C.2, and C.3

With one or more air locks inoperable for reasons other than those described in Condition A or B, Required Action C.1 requires action to be initiated immediately to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour (per LCO 3.6.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Required Action C.2 requires that one door in the affected containment air lock must be verified to be closed. This action must be completed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires that containment be restored to OPERABLE status within 1 hour.

BASES

ACTIONS (continued)

Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour Completion Time **[or in accordance with the Risk Informed Completion Time Program]**. The specified time period is considered reasonable for restoring an inoperable air lock to OPERABLE status, assuming that at least one door is maintained closed in each affected air lock.

D.1 and D.2

If the inoperable containment air lock cannot be restored to OPERABLE status 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
REQUIREMENTSSR 3.6.2.1

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of the Containment Leakage Rate Testing Program. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during initial air lock and containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is required by the Containment Leakage Rate Testing Program.

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR requiring the results to be evaluated against the acceptance criteria which is applicable to SR 3.6.1.1. This ensures that air lock leakage is properly accounted for in determining the combined Type B and C containment leakage rate.

BASES

ACTIONS (continued)

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.

----- REVIEWER'S NOTE -----
 The bracketed phrase "following isolation" in the Completion Times for Required Actions A.2, B.2, D.2, F.2 and F.3 is only applicable to plants that have adopted a Risk Informed Completion Time Program.

A.1 and A.2

In the event one containment isolation valve in one or more penetration flow paths is 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 containment isolation 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 containment. Required Action A.1 must be completed within the 4 hour Completion Time [or in accordance with the Risk Informed Completion Time Program]. 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 (Refs. 4 and 5).

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 [following isolation] 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.

BASES

ACTIONS (continued)

Condition A has been modified by a Note indicating that this Condition is only applicable to [the containment sump supply valves to the ECCS and containment spray pumps].

-----REVIEWER'S NOTE-----
Condition A is only applicable to the containment isolation valves that do not meet the conditions to extend the Completion Time to 7 days.

Required Action A.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. 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

-----REVIEWER'S NOTE-----
Adoption of the 7 day Completion Time is contingent on the conditions identified in Reference 4.

1. Individual licensees requesting CIV Completion Time relaxations should state in their plant-specific application that they have verified that the Joint Applications Report (JAR) results apply to their plant. Licensees should verify that the relaxed Completion Times will only apply to penetrations analyzed to meet the risk guidelines of Regulatory Guide 1.177 and fall within the 14 containment penetration configurations considered in the JAR. Any other containment penetration configurations not analyzed in the JAR must be supported by a plant-specific analysis. Licensee submittals must retain the current Completion Times for the three configurations that were not analyzed in the JAR: containment sump supply valves to the ECCS and containment spray systems pumps, valves associated with the main feedwater system, and main steam isolation valves.

BASES

ACTIONS (continued)

2. Licensees should provide sufficient quantitative or qualitative substantiation to demonstrate that external events will not affect the results of the analysis supporting the extended Completion Times.
3. Licensees should state that they have verified acceptable PRA quality as described in Regulatory Guide 1.177.
4. Licensees should require verification of the operability of the remaining CIV(s) in a penetration flow path before entering the extended Completion Time for corrective maintenance. The JAR assumes that the penetrations remain physically intact in MODES in which these valves are to be operable during corrective maintenance. Licensees should describe in their plant specific application how the affected penetration will remain physically intact, or state that the penetration will be isolated so as to not permit a release to the outside environment.
5. The licensee should consider the additive nature of multiple failed CIVs, and the possibility of entering multiple AOTs and verify that these situations will result in risks consistent with the incremental conditional core damage probability (ICCDP) and incremental large early release probability (ICLERP) guidelines so that defense-in-depth for the safety systems will be maintained.

[B.1 and B.2

In the event one containment isolation valve in one or more penetration flow paths is inoperable, [except for Condition A and 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 flange, and a check valve with flow through the valve secured. For penetrations isolated in accordance with Required Action B.1, the device used to isolate the penetration should be the closest available one to containment. Required Action B.1 must be completed within the [7 day] Completion Time [or in accordance with the Risk Informed Completion Time Program]. The [7 day] 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 (References 3 and 4).

BASES

ACTIONS (continued)

For affected penetration flow paths that cannot be restored to OPERABLE status within the [7 day] 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 that those isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days [following isolation] 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 B has been modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two [or more] containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition D provides appropriate actions.

Required Action B.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is small.]

BASES

ACTIONS (continued)

C.1

With two [or more] 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 [or in accordance with the Risk Informed Completion Time Program]. 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 C.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action B.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 C is modified by a Note indicating this Condition is only applicable to penetration flow paths with two [or more] containment isolation valves. Condition B of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.

D.1 and D.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 D.1 must be completed within the [72] hour Completion Time for those penetrations that do not meet the 7 day Completion Time criteria and [7 days] for penetrations that do meet the 7 day Completion Time criteria. [Alternatively, Completion Times can be determined in accordance with the Risk Informed Completion Time Program.] 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

BASES

ACTIONS (continued)

penetration is isolated in accordance with Required Action D.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 [following isolation] 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.

Condition D 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. The closed system must meet the requirements of Reference 4. This Note is necessary since this Condition is written to specifically address those penetration flow paths in a closed system.

Required Action D.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

[E.1

With the secondary containment bypass leakage rate (SR 3.6.3.9) [or purge valve leakage rate (SR 3.6.3.6)] not within limit, the assumptions of the safety analysis are not met. Therefore, the leakage must be restored to within limit. 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 for secondary

BASES

ACTIONS (continued)

containment bypass leakage 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. [The 24 hour Completion Time for purge valve leakage is acceptable considering the purge valves remain closed so that a gross breach of containment does not exist.] **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

-----REVIEWER'S NOTE-----

[The bracketed options provided in ACTION E reflect options in plant design and options in adopting the associated leakage rate Surveillances.

The options (in both ACTION E and ACTION F for purge valve leakage, are based primarily on the design - if leakage rates can be measured separately for each purge valve, ACTION F is intended to apply. This would be required to be able to implement Required Action F.3. Should the design allow only for leak testing both purge valves simultaneously, then the Completion Time for ACTION E should include the "24 hours for purge valve leakage" and ACTION F should be eliminated.]]

[F.1, F.2, and F.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 F.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. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

In accordance with Required Action F.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

BASES

ACTIONS (continued)

containment 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 not performed within the previous 92 days [following isolation]" 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 F.1, SR 3.6.3.6 must be performed at least once every [92] days [following isolation]. This assures 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 3.6.3.6, 184 days, is based on an NRC initiative, Generic Issue B-20 (Ref. 6). 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 [92] days [following isolation] was chosen and has been shown to be acceptable based on operating experience.

Required Action F.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned.]

G.1 and G.2

If the Required Actions and associated Completion Times 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.

Containment Spray and Cooling Systems (Atmospheric and Dual)
B 3.6.6A

BASES

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

-----REVIEWER'S NOTE-----

Utilization of the 7 day Completion Time for Required Action A.1 is dependent on the licensee adopting CE NPSD-1045-A (Ref. 6) and meeting the requirements of the Topical Report and the associated Safety Evaluation. Otherwise, a 72 hour Completion Time applies.

With one containment spray train inoperable, the inoperable containment spray train must be restored to OPERABLE status within [7] days for in accordance with the Risk Informed Completion Time Program. In this Condition, the remaining OPERABLE spray and cooling trains are adequate to perform the iodine removal and containment cooling functions. The [7] day Completion Time takes into account the redundant heat removal capability afforded by the Containment Spray System, reasonable time for repairs, and the findings of Ref. 6.

B.1 and B.2

If the inoperable containment spray train cannot be restored to OPERABLE status 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 84 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. The extended interval to reach MODE 5 allows additional time for the restoration of the containment spray train and is reasonable when considering that the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

BASES

ACTIONS (continued)

C.1

With one required containment cooling train inoperable, the inoperable containment cooling train must be restored to OPERABLE status within 7 days [\[or in accordance with the Risk Informed Completion Time Program\]](#). The remaining OPERABLE containment spray and cooling components provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 7 day Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System and the low probability of a DBA occurring during this period.

D.1 and D.2

With one containment spray and one containment cooling train inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours [\[or in accordance with the Risk Informed Completion Time Program\]](#). The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System, the iodine removal function of the Containment Spray System, and the low probability of a DBA occurring during this period.

E.1

With two required containment cooling trains inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours [\[or in accordance with the Risk Informed Completion Time Program\]](#). The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System, the iodine removal function of the Containment Spray System, and the low probability of a DBA occurring during this period.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition F is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[F.1

With two containment spray trains or any combination of three or more Containment Spray System and Containment Cooling System trains inoperable, sufficient containment spray trains and/or containment cooling trains must be restored to OPERABLE status so that no more than one containment spray train or two containment cooling trains are inoperable within one hour or in accordance with the Risk Informed Completion Time Program. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient trains.

The Condition is modified by a Note stating it is not applicable when two containment spray trains or any combination of three or more containment spray and cooling trains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one containment spray train or a combination of two containment spray and cooling trains are inoperable for any reason and a second containment spray train or additional containment spray or cooling trains are found to be inoperable, or if two containment spray trains or any combination of three or more containment spray and cooling trains are found to be inoperable at the same time.]

GF.1 and GF.2

If the Required Actions and associated Completion Times of Condition C, D, E. [or FE] of this LCO 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.

----- REVIEWER'S NOTE -----
Condition H is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[HG.1

Containment Spray and Cooling Systems (Atmospheric and Dual)
B 3.6.6A

With two containment spray trains or any combination of three or more Containment Spray System and Containment Cooling System trains inoperable, the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE
REQUIREMENTSSR 3.6.6A.1

Verifying the correct alignment for manual, power operated, and automatic valves in the containment spray flow path provides assurance that the proper flow paths will exist for Containment Spray System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to being secured. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This SR does not require any testing or valve manipulation. Rather, it involves verifying that those valves outside containment and capable of potentially being mispositioned are in the correct position.

SR 3.6.6A.2

Operating each containment cooling train fan unit for ≥ 15 minutes ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected and corrective action taken. The 31 day Frequency of this SR was developed considering the known reliability of the fan units and controls, the two train redundancy available, and the low probability of a significant degradation of the containment cooling train occurring between surveillances and has been shown to be acceptable through operating experience.

Containment Spray and Cooling Systems (Atmospheric and Dual)
B 3.6.6B

BASES

APPLICABLE SAFETY ANALYSES (continued)

The modeled Containment Cooling System actuation from the containment analysis is based on the unit specific response time associated with exceeding the CCAS to achieve full Containment Cooling System air and safety grade cooling water flow.

The Containment Spray System and the Containment Cooling System satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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). 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 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 7 days [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing greater than 100% of the heat removal needs (for the condition of one containment spray train inoperable) after an accident. The 7 day

BASES

ACTIONS (continued)

Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System and the low probability of a DBA occurring during this period.

B.1

With one required containment cooling train inoperable, the inoperable containment cooling train must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing greater than 100% of the heat removal needs (for the condition of one containment cooling train inoperable) after an accident. The 7 day Completion Time was developed based on the same reasons as those for Required Action A.1.

C.1

With two required containment spray trains inoperable, one of the required containment spray trains must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing greater than 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System and the low probability of a DBA occurring during this period.

D.1 and D.2

With one required containment spray train inoperable and one of the required containment cooling trains inoperable, the inoperable containment spray train or the inoperable containment cooling train must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed based on the same reasons as those for Required Action C.1.

BASES

ACTIONS (continued)

E.1

With two containment cooling trains inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The components in this degraded condition are capable of providing greater than 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed based on the same reasons as those for Required Action C.1.

----- REVIEWER'S NOTE -----

Condition F is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[F.1

With any combination of three or more Containment Spray System and Containment Cooling System trains inoperable, sufficient containment spray trains and/or containment cooling trains must be restored to OPERABLE status so that no more than one containment spray train or two containment cooling trains are inoperable within one hour or in accordance with the Risk Informed Completion Time Program. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient trains.

The Condition is modified by a Note stating it is not applicable when three or more trains are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if two trains are inoperable for any reason and additional trains are found to be inoperable, or if three or more trains are found to be inoperable at the same time.]

GF.1 and GF.2

If any of the Required Actions and associated Completion Times of this LCO 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.

Containment Spray and Cooling Systems (Atmospheric and Dual)
B 3.6.6B

----- REVIEWER'S NOTE -----

Condition H is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

IHG.1

With any combination of three or more Containment Spray System and Containment Cooling System trains inoperable, the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE
REQUIREMENTS

SR 3.6.6B.1

Verifying the correct alignment for manual, power operated, and automatic valves, excluding check valves, in the Containment Spray System provides assurance that the proper flow path exists for Containment Spray System operation. This SR also does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct positions prior to being secured. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This SR does not require any testing or valve manipulation. Rather, it involves verification that those valves outside containment and capable of potentially being mispositioned, are in the correct position.

BASES

ACTIONS

A.1

With one HMS train inoperable, the inoperable train must be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on the availability of the other HMS train, the small probability of a LOCA or SLB occurring (that would generate an amount of hydrogen that exceeds the flammability limit), the amount of time available after a LOCA or SLB (should one occur) for operator action to prevent hydrogen accumulation from exceeding the flammability limit, and the availability of the Containment Spray System and Hydrogen Purge System.

B.1 and B.2

-----REVIEWER'S NOTE-----
This Condition is only allowed for units with an alternate hydrogen control system acceptable to the technical staff.

With two HMS inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The alternate hydrogen control capabilities are provided by [the containment Hydrogen Purge System/Hydrogen Ignitor System/HMS/Containment Air Dilution System/Containment Inerting System]. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist.

-----REVIEWER'S NOTE-----
The following is to be used if a non-Technical Specification alternate hydrogen control function is used to justify this Condition. In addition, the alternate hydrogen control system capability must be verified every 12 hours thereafter to ensure its continued availability.

[Both] the [initial] verification [and all subsequent verifications] may be performed as an administrative check, by examining logs or other information to determine the availability of the alternate hydrogen control system. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of the alternate hydrogen control system. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two HMS trains inoperable for up to 7 days [or in accordance with the Risk Informed Completion Time Program]. Seven days is a reasonable time to allow two HMS trains to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit.

BASES

ACTIONS

A.1

With one MSIV inoperable in MODE 1, time is allowed to restore the component to OPERABLE status. Some repairs can be made to the MSIV with the unit hot. The [8] hour Completion Time is reasonable, considering the probability of an accident occurring during the time period that would require closure of the MSIVs. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

The [8] hour Completion Time is greater than that normally allowed for containment isolation valves because the MSIVs are valves that isolate a closed system penetrating containment. These valves differ from other containment isolation valves in that the closed system provides an additional means for containment isolation.

B.1

If the MSIV cannot be restored to OPERABLE status within [8] hours, 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 MODE 2 within 6 hours and Condition C would be entered. The Completion Time is reasonable, based on operating experience, to reach MODE 2, and close the MSIVs in an orderly manner and without challenging unit systems.

----- REVIEWER'S NOTE -----
Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1, C.2.1, and C.2.2

With two or more MSIVs inoperable, the Required Action is to restore sufficient required MSIVs to OPERABLE status within 1 hour to regain a method of main steam line isolation. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient required MSIVs. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more MSIVs are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one MSIV is inoperable for any reason and additional MSIVs are found to be

inoperable, or if two or more MSIVs are found to be inoperable at the same time.]

D.1 and D.2

Condition ~~D-C~~ is modified by a Note indicating that separate Condition entry is allowed for each MSIV.

Since the MSIVs are required to be OPERABLE in MODES 2 and 3, the inoperable MSIVs may either be restored to OPERABLE status or closed. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis.

The [8] hour Completion Time is consistent with that allowed in Condition ~~A-~~

Inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, MSIV status indications available in the control room, and other administrative controls, to ensure these valves are in the closed position.

BASES

ACTIONS (continued)

~~E-D.1~~ and ~~E-D.2~~

If the MSIVs cannot be restored to OPERABLE status, or closed, 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 within [12] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from MODE 2 conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE
REQUIREMENTSSR 3.7.2.1

This SR verifies that the closure time of each MSIV is \leq [4.6] seconds. The MSIV isolation time is assumed in the accident and containment analyses. This SR is normally performed upon returning the unit to operation following a refueling outage. The MSIVs should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. As the MSIVs are not tested at power, they are exempt from the ASME Code (Ref. 5), requirements during operation in MODES 1 and 2.

The Frequency for this SR is in accordance with the Inservice Testing Program.

This test is conducted in MODE 3, with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, in order to establish conditions consistent with those under which the acceptance criterion was generated.

SR 3.7.2.2

This SR verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. The Frequency of MSIV testing is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

BASES

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

In MODES 5 and 6, an SGTR is not a credible event.

ACTIONS

A.1

With one required ADV line inoperable, action must be taken to restore the OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The 7 day Completion Time takes into account the redundant capability afforded by the remaining OPERABLE ADV lines, and a nonsafety grade backup in the Steam Bypass System and MSSVs.

B.1

With [two] or more [required] ADV lines inoperable, action must be taken to restore [one] of the ADV lines to OPERABLE status. As the block valve can be closed to isolate an ADV, some repairs may be possible with the unit at power. The 24 hour Completion Time is reasonable to repair inoperable ADV lines, based on the availability of the Steam Bypass System and MSSVs, and the low probability of an event occurring during this period that requires the ADV lines. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

If the ADV lines 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 upon the steam generator for heat removal, within [24] 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
REQUIREMENTSSR 3.7.4.1

To perform a controlled cooldown of the RCS, the ADVs must be able to be opened and throttled through their full range. This SR ensures the ADVs are tested through a full control cycle at least once per fuel cycle. Performance of inservice testing or use of an ADV during a unit cooldown may satisfy this requirement. Operating experience has shown that these components usually pass the SR when performed at the [18] month

BASES

APPLICABILITY	<p>In MODES 1, 2, and 3, the AFW System is required to be OPERABLE and to function in the event that the MFW is lost. In addition, the AFW System is required to supply enough makeup water to replace steam generator secondary inventory, lost as the unit cools to MODE 4 conditions.</p> <p>In MODE 4, the AFW System may be used for heat removal via the steam generator.</p> <p>In MODES 5 and 6, the steam generators are not normally used for decay heat removal, and the AFW System is not required.</p>
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ACTIONS	<p>A Note prohibits the application of LCO 3.0.4.b to an inoperable AFW train. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an AFW train inoperable and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.</p>
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[A.1

If one of the two steam supplies to the turbine driven AFW pumps is inoperable, or if a turbine driven pump is inoperable while in MODE 3 immediately following refueling, action must be taken to restore the inoperable equipment to an OPERABLE status within 7 days **[or in accordance with the Risk Informed Completion Time Program]**. The 7 day Completion Time is reasonable based on the following reasons:

- a. For the inoperability of a steam supply to the turbine driven AFW pump, the 7 day Completion Time is reasonable since there is a redundant steam supply line for the turbine driven pump.
- b. For the inoperability of a turbine driven AFW pump while in MODE 3 immediately subsequent to a refueling outage, the 7 day Completion Time is reasonable due to the minimal decay heat levels in this situation.
- c. For both the inoperability of a steam supply line to the turbine driven pump and an inoperable turbine driven AFW pump while in MODE 3 immediately following a refueling outage, the 7 day Completion Time is reasonable due to the availability of redundant OPERABLE motor driven AFW pumps; and due to the low probability of an event requiring the use of the turbine driven AFW pump.

BASES

ACTIONS (continued)

Condition A is modified by a Note which limits the applicability of the Condition to when the unit has not entered MODE 2 following a refueling. Condition A allows one AFW train to be inoperable for 7 days vice the 72 hour Completion Time in Condition B. This longer Completion Time is based on the reduced decay heat following refueling and prior to the reactor being critical.]

B.1

With one of the required AFW trains (pump or flow path) inoperable, action must be taken to restore OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. This Condition includes the loss of two steam supply lines to the turbine driven AFW pump. The 72 hour Completion Time is reasonable based on the redundant capabilities afforded by the AFW System, the time needed for repairs, and the low probability of a DBA event occurring during this period. Two AFW pumps and flow paths remain to supply feedwater to the steam generators.

----- REVIEWER'S NOTE -----

Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[C.1 and C.2

With two AFW trains are inoperable in MODE 1, 2, or 3, the Required Action is to restore at least one of the AFW trains to OPERABLE status within 1 hour to regain a method of decay heat removal. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one AFW train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second AFW train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one AFW train is inoperable for any reason and a second AFW train is found to be inoperable, or if two AFW trains are found to be inoperable at the same time.

In MODE 4 with two AFW trains inoperable, operation is allowed to continue because only one motor driven pump AFW train is required in

accordance with the Note that modifies the LCO. Although not required, the unit may continue to cool down and initiate SDC.]

D.1 and D.2

When either Required Action A.1, B.1 or C-B.1 cannot be completed within the required Completion Time, ~~for if two AFW trains are inoperable in MODES 1, 2, and 3~~, 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 [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.

~~In MODE 4, with [two AFW trains inoperable in MODES 1, 2, and 3], operation is allowed to continue because only one motor driven AFW pump is required in accordance with the Note that modifies the LCO. Although it is not required, the unit may continue to cool down and start the SDC.~~

BASES

ACTIONS (continued)

ED.1

Required Action ~~E-D~~.1 is modified by a Note indicating that all required MODE changes or power reductions are suspended until one AFW train is restored to OPERABLE status.

With all [three] AFW trains inoperable in MODES 1, 2, and 3, the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting a cooldown with nonsafety grade equipment. In such a condition, the unit should not be perturbed by any action, including a power change, that might result in a trip. The seriousness of this condition requires that action be started immediately to restore one AFW train to OPERABLE status. LCO 3.0.3 is not applicable, as it could force the unit into a less safe condition.

FE.1

Required Action ~~F-E~~.1 is modified by a Note indicating that all required MODE changes or power reductions are suspended until one AFW train is restored to OPERABLE status.

With one AFW train inoperable, action must be taken to immediately restore the inoperable train to OPERABLE status or to immediately verify, by administrative means, the OPERABILITY of a second train. LCO 3.0.3 is not applicable, as it could force the unit into a less safe condition.

In MODE 4, either the reactor coolant pumps or the SDC loops can be used to provide forced circulation as discussed in LCO 3.4.6, "RCS Loops - MODE 4."

SURVEILLANCE
REQUIREMENTSSR 3.7.5.1

Verifying the correct alignment for manual, power operated, and automatic valves in the AFW water and steam supply flow paths provides assurance that the proper flow paths exist for AFW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves 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 Surveillance does not require any testing or valve manipulations; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position.

BASES

ACTIONS

A.1 and A.2

If the CST is not OPERABLE, 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 must be returned to OPERABLE status within 7 days, as the backup supply may be performing this function in addition to its normal functions. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. Additionally, verifying the backup water supply every 12 hours is adequate to ensure the backup water supply continues to be available. 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 [24] 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
REQUIREMENTSSR 3.7.6.1

This SR verifies that the CST contains the required volume of cooling water. (This level \geq [350,000] gallons.) 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 alarms, to alert the operator to abnormal CST level deviations.

BASES

ACTIONS

A.1

Required Action A.1 is modified by a Note indicating the requirement of entry into the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for SDC made inoperable by CCW. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

With one CCW train inoperable, action must be taken to restore OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining OPERABLE CCW train is adequate to perform the heat removal function. 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 period.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1-and-B.2

With two CCW trains inoperable, the Required Action is to restore at least one of the required CCW trains to OPERABLE status within 1 hour to regain a heat sink for safety related components. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second CCW train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CCW train is inoperable for any reason and a second CCW train is found to be inoperable, or if two CCW trains are found to be inoperable at the same time.]

C.1 and C.2

If the CCW train(s) 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 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 3.7.7.1

Verifying the correct alignment for manual, power operated, and automatic valves in the CCW flow path provides assurance that the proper flow paths exist for CCW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves 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 Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in their correct position.

This SR is modified by a Note indicating that the isolation of the CCW components or systems may render those components inoperable but does not affect the OPERABILITY of the CCW System.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

BASES

APPLICABLE SAFETY ANALYSES (continued)

number of CCW and SDC System trains that are operating. One SWS train is sufficient to remove decay heat during subsequent operations in MODES 5 and 6. This assumes that a maximum SWS temperature of 95°F occurring simultaneously with maximum heat loads on the system.

The SWS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two SWS trains are required to be OPERABLE to provide the required redundancy to ensure that the system functions to remove post accident heat loads, assuming the worst single active failure occurs coincident with the loss of offsite power.

An SWS train is considered OPERABLE when:

- a. The associated pump is OPERABLE and
- b. The associated piping, valves, heat exchanger, and instrumentation and controls required to perform the safety related function are OPERABLE.

APPLICABILITY

In MODES 1, 2, 3, and 4, the SWS System is a normally operating system, which is required to support the OPERABILITY of the equipment serviced by the SWS and required to be OPERABLE in these MODES.

In MODES 5 and 6, the OPERABILITY requirements of the SWS are determined by the systems it supports.

ACTIONS

A.1

With one SWS train inoperable, action must be taken to restore OPERABLE status within 72 hours [\[or in accordance with the Risk Informed Completion Time Program\]](#). 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.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1 and B.2

With two SWS trains inoperable, the Required Action is to restore at least one of the required SWS trains to OPERABLE status within 1 hour to regain a heat sink for safety related components. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second SWS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one SWS train is inoperable for any reason and a second SWS train is found to be inoperable, or if two SWS trains are found to be inoperable at the same time.]

C.1 and C.2

If the SWS train~~(s)~~ 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 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 Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position.

BASES

ACTIONS

[A.1

If one or more cooling towers have one fan inoperable (i.e., up to one fan per cooling tower inoperable), action must be taken to restore the inoperable cooling tower fan(s) to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program].

The 7 day Completion Time is reasonable, based on the low probability of an accident occurring during the 7 days that one cooling tower fan is inoperable, the number of available systems, and the time required to complete the action.]

[B.1

-----REVIEWER'S NOTE-----
The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit.

With water temperature of the UHS > [90]°F, the design basis assumption associated with initial UHS temperature are bounded provided the temperature of the UHS averaged over the previous 24 hour period is ≤ [90]°F. With the water temperature of the UHS > [90]°F, long term cooling capability of the ECCS loads and DGs may be affected. Therefore, to ensure long term cooling capability is provided to the ECCS loads when water temperature of the UHS is > [90]°F, Required Action B.1 is provided to more frequently monitor the water temperature of the UHS and verify the temperature is ≤ [90]°F when averaged over the previous 24 hour period. The once per hour Completion Time takes into consideration UHS temperature variations and the increased monitoring frequency needed to ensure design basis assumptions and equipment limitations are not exceeded in this condition. If the water temperature of the UHS exceeds [90]°F when averaged over the previous 24 hour period or the water temperature of the UHS exceeds []°F, Condition C must be entered immediately.]

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition C is only applicable to plants that have adopted a Risk Informed Completion Time Program. If Condition C is not used, use the phrase "UHS inoperable [for reasons other than Condition A or B]" in Condition D.

[C.1

With the UHS inoperable [for reasons other than Condition A or B], the Required Action is to restore the UHS to OPERABLE status within 1 hour to regain a heat sink for safety related components. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of the UHS. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

The Condition is modified by a Note stating it is not applicable when the UHS is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if the UHS is found to be inoperable.]

[DG.1 and DG.2

If the Required Actions or Completion Times of Conditions [A, B, or CB] are not met, [or the UHS is inoperable [for reasons other than Condition A or B]], 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 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 3.7.9.1

This SR verifies adequate long term (30 days) cooling can be maintained. The level specified also ensures sufficient NPSH is available for operating the SWS pumps. The 24 hour Frequency is based on operating experience related to the trending of the parameter variations during the applicable MODES. This SR verifies that the UHS water level is \geq [562] ft [mean sea level].]

[SR 3.7.9.2

BASES

LCO	<p>[Two] ECW trains are required to be OPERABLE to provide the required redundancy to ensure that the system functions to remove post accident heat loads, assuming the worst single failure.</p> <p>An ECW train is considered OPERABLE when:</p> <ul style="list-style-type: none"> a. The associated pump and surge tank are OPERABLE and b. The associated piping, valves, heat exchanger, refrigeration unit, and instrumentation and controls required to perform the safety related function are OPERABLE. <p>The isolation of the ECW from other components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the ECW System.</p>
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APPLICABILITY	<p>In MODES 1, 2, 3, and 4, the ECW System is required to be OPERABLE when a LOCA or other accident would require ESF operation.</p> <p>In MODES 5 and 6, potential heat loads are smaller and the probability of accidents requiring the ECW System is low.</p>
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ACTIONS	<p><u>A.1</u></p> <p>If one ECW train is inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this condition, one OPERABLE ECW train is adequate to perform the cooling function. The 7 day Completion Time is reasonable, based on the low probability of an event occurring during this time, the 100% capacity OPERABLE ECW train, and the redundant availability of the normal HVAC System.</p> <p style="text-align: center;">----- REVIEWER'S NOTE -----</p> <p>Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.</p> <p style="text-align: center;">-----</p> <p><u>[B.1]</u></p> <p>With [two] ECW trains inoperable, the Required Action is to restore at least one train to OPERABLE status within 1 hour to regain a heat sink for safety related air handling systems. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.</p>
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The Condition is modified by a Note stating it is not applicable when the second ECW train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one ECW train is inoperable for any reason and a second ECW train is found to be inoperable, or if two ECW trains are found to be inoperable at the same time.]

CB.1 and C-B.2

If the ECW train(s) 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 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.

BASES

APPLICABILITY In MODES 1, 2, 3, 4, [5, and 6,] and during movement of [recently] irradiated fuel assemblies [(i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)], the CREATCS must be OPERABLE to ensure that the control room temperature will not exceed equipment OPERABILITY requirements following isolation of the control room.

In MODES 5 and 6, CREATCS may not be required for those facilities which do not require automatic control room isolation.

ACTIONS

A.1

With one CREATCS train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CREATCS train is adequate to maintain the control room temperature within limits. The 30 day Completion Time is reasonable, based on the low probability of an event occurring requiring control room isolation, consideration that the remaining train can provide the required capabilities, and the alternate safety or nonsafety related cooling means that are available.

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1

With two CREATCS trains inoperable, the Required Action is to restore at least one of the required CREATCS trains to OPERABLE status within 1 hour to regain temperature control for the control room following isolation of the control room. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second CREATCS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CREATCS train is inoperable for any reason and a second CREATCS train is found to be inoperable, or if two CREATCS trains are found to be inoperable at the same time.]

CB.1 and CB.2

In MODE 1, 2, 3, or 4, when Required Action A.1 or B.1 cannot be completed within the required Completion Time, the unit must be placed in a MODE that minimizes the accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 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.

[~~DC.1~~ and ~~DC.2~~

In MODE 5 or 6, or during movement of [recently] irradiated fuel assemblies, when Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE CREATCS train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

An alternative to Required Action ~~D-C.1~~ is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies to a safe position.]

BASES

ACTIONS (continued)

[ED.1

In [MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, with two CREATCS trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.]

----- REVIEWER'S NOTE -----
 Condition F is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[FE.1

If both CREATCS trains are inoperable in MODE 1, 2, 3, or 4, the CREATCS may not be capable of performing the intended function and the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.]

SURVEILLANCE
REQUIREMENTSSR 3.7.12.1

This SR verifies that the heat removal capability of the system is sufficient to meet design requirements. This SR consists of a combination of testing and calculations. An [18] month Frequency is appropriate, since significant degradation of the CREATCS is slow and is not expected over this time period.

REFERENCES

1. FSAR, Section [6.4].

BASES

LCO (continued)

Proper sequencing of loads, [including tripping of nonessential loads,] is a required function for DG OPERABILITY.

The AC sources in one train must be separate and independent (to the extent possible) of the AC sources in the other train. For the DGs, separation and independence are complete.

For the offsite AC sources, separation and independence are to the extent practical. A circuit may be connected to more than one ESF bus, with fast transfer capability to the other circuit OPERABLE, and not violate separation criteria. A circuit that is not connected to an ESF bus is required to have OPERABLE fast transfer interlock mechanisms to at least two ESF buses to support OPERABILITY of that circuit.

APPLICABILITY

The AC sources [and sequencers] are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

The AC power requirements for MODES 5 and 6 are covered in LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable DG. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

To ensure a highly reliable power source remains with the one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----

The turbine driven auxiliary feedwater pump is only required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor or turbine driven auxiliary feedwater pump(s) is not by itself capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

A.2

Required Action A.2, which only applies if the train cannot be powered from an offsite source, is intended to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of safety function of critical redundant required features. These features are powered from the redundant AC electrical power train. This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, may not be included.

The Completion Time for Required Action A.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. The train has no offsite power supplying its loads and
- b. A required feature on the other train is inoperable.

If at any time during the existence of Condition A (one offsite circuit inoperable) a redundant required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

BASES

ACTIONS (continued)

Discovering no offsite power to one train of the onsite Class 1E Electrical Power Distribution System coincident with one or more inoperable required support or supported features, or both, that are associated with the other train that has offsite power, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

The remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to Train A and Train B of the onsite Class 1E Distribution System. The 24 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

A.3

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition A for a period that should not exceed 72 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.1

To ensure a highly reliable power source remains with an inoperable DG, it is necessary to verify the availability of the offsite circuits on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions and Required Actions must then be entered.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----
 The turbine driven auxiliary feedwater pump is only required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor or turbine driven auxiliary feedwater pump(s) is not by itself capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related trains. This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, are not included. Redundant required feature failures consist of inoperable features with a train, redundant to the train that has an inoperable DG.

The Completion Time for Required Action B.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. An inoperable DG exists and
- b. A required feature on the other train is inoperable.

If at any time during the existence of this Condition (one DG inoperable) a required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

BASES

ACTIONS (continued)

Discovering one required DG inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE DG, results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently, is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

In this Condition, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of OPERABLE DGs. If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on other DG(s), the other DG(s) would be declared inoperable upon discovery and Condition E of LCO 3.8.1 would be entered. Once the failure is repaired, the common cause failure no longer exists and Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on the remaining DG(s), performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of that DG.

In the event the inoperable DG is restored to OPERABLE status prior to completing either B.3.1 or B.3.2, the [plant corrective action program] will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in Condition B.

According to Generic Letter 84-15 (Ref. 7), [24] hours is reasonable to confirm that the OPERABLE DG(s) is not affected by the same problem as the inoperable DG.

BASES

ACTIONS (continued)

B.4

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition B for a period that should not exceed 72 hours.

In Condition B, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

Required Action C.1, which applies when two offsite circuits are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required safety functions. The Completion Time for this failure of redundant required features is reduced to 12 hours from that allowed for one train without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are powered from redundant AC safety trains. This includes motor driven auxiliary feedwater pumps. Single train features, such as turbine driven auxiliary pumps, are not included in the list.

The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. All required offsite circuits are inoperable and
- b. A required feature is inoperable.

BASES

ACTIONS (continued)

If at any time during the existence of Condition C (two offsite circuits inoperable) and a required feature becomes inoperable, this Completion Time begins to be tracked.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition C for a period that should not exceed 24 hours. This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

Because of the normally high availability of the offsite sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more DGs inoperable. However, two factors tend to decrease the severity of this level of degradation:

- a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure and
- b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

With both of the required offsite circuits inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient. In fact, a simultaneous loss of offsite AC sources, a LOCA, and a worst case single failure were postulated as a part of the design basis in the safety analysis. Thus, the 24 hour Completion Time provides a period of time to effect restoration of one of the offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

According to Reference 6, with the available offsite AC sources, two less than required by the LCO, operation may continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source is restored within 24 hours, power operation continues in accordance with Condition A.

BASES

ACTIONS (continued)

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no AC source to any train, the Conditions and Required Actions for LCO 3.8.9, "Distribution Systems - Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of one offsite circuit and one DG without regard to whether a train is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized train.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition D for a period that should not exceed 12 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

In Condition D, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than that in Condition C (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 12 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

E.1

With Train A and Train B DGs inoperable, there are no remaining standby AC sources. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources are available to power the minimum required ESF functions. Since the offsite electrical power system is the only source of AC power for this level of degradation, the risk associated with continued operation for a short time could be less than that associated with an immediate controlled shutdown (the immediate shutdown could cause grid instability, which could result in a total loss of AC power). Since any inadvertent generator trip could also result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk

associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

BASES

ACTIONS (continued)

According to Regulatory Guide 1.93 (Ref. 6), with both DGs inoperable, operation may continue for a period that should not exceed 2 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

[F.1

The sequencer(s) is an essential support system to [both the offsite circuit and the DG associated with a given ESF bus]. [Furthermore, the sequencer is on the primary success path for most major AC electrically powered safety systems powered from the associated ESF bus.] Therefore, loss of an [ESF bus sequencer] affects every major ESF system in the [division]. The [12] hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining sequencer OPERABILITY. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** This time period also ensures that the probability of an accident (requiring sequencer OPERABILITY) occurring during periods when the sequencer is inoperable is minimal.

This Condition is preceded by a Note that allows the Condition to be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads under any conditions. Implicit in this Note is the concept that the Condition must be retained if any sequencer failure mode results in the inability to start all or part of the safety loads when required, regardless of power availability, or results in overloading the offsite power circuit to a safety bus during an event, thereby causing its failure. Also implicit in the Note, is that the Condition is not applicable to any train that does not have a sequencer.]

----- REVIEWER'S NOTE -----
Condition G is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[G.1 and G.2

With three or more [required] AC sources inoperable, the Required Action is to restore enough of the required inoperable AC sources to OPERABLE status within 1 hour to regain some level of redundancy in the AC electrical power supplies. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of

sufficient AC sources. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when three or more [required] AC sources are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if two [required] AC sources are inoperable for any reason and additional [required] AC sources are found to be inoperable, or if three or more [required] AC sources are found to be inoperable at the same time.]

H.1 and H.2

If the inoperable AC electrical power sources cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition I is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

I.H.1

Condition **IH** corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown.

SURVEILLANCE
REQUIREMENTS

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, in accordance with 10 CFR 50, Appendix A, GDC 18 (Ref. 8). Periodic component tests are supplemented by extensive functional tests during refueling outages (under simulated accident conditions). The SRs for demonstrating the OPERABILITY of the DGs are in accordance with the recommendations of Regulatory Guide 1.9 (Ref. 3), Regulatory Guide 1.108 (Ref. 9), and Regulatory Guide 1.137 (Ref. 10), as addressed in the FSAR.

Where the SRs discussed herein specify voltage and frequency tolerances, the following is applicable. The minimum steady state output voltage of [3740] V is 90% of the nominal 4160 V output voltage. This value, which is specified in ANSI C84.1-1982 (Ref. 11), allows for voltage drop to the terminals of 4000 V motors whose minimum operating voltage is specified as 90% or 3600 V. It also allows for voltage drops to motors and other equipment down through the 120 V level where minimum operating voltage is also usually specified as 80% of name plate rating. The specified maximum steady state output voltage of [4756] V is equal to the maximum operating voltage specified for 4000 V motors. It ensures that for a lightly loaded distribution system, the voltage at the terminals of 4000 V motors is no more than the maximum rated operating voltages. The specified minimum and maximum frequencies of the DG are 58.8 Hz and 61.2 Hz, respectively. These values are equal to $\pm 2\%$ of the 60 Hz nominal frequency and are derived from the recommendations given in Regulatory Guide 1.9 (Ref. 3).

BASES

LCO The DC electrical power subsystems, each subsystem consisting of [two] batteries, battery charger [for each battery] and the corresponding control equipment and interconnecting cabling supplying power to the associated bus within the train are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any train DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4).

An OPERABLE DC electrical power subsystem requires all required batteries and respective chargers to be operating and connected to the associated DC bus(es).

APPLICABILITY The DC electrical power sources are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure safe unit operation and to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment integrity and other vital functions are maintained in the event of a postulated DBA.

The DC electrical power requirements for MODES 5 and 6 are addressed in the Bases for LCO 3.8.5, "DC Sources - Shutdown."

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

Condition A represents one train with one [or two] battery chargers inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring a fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours [or in accordance with the Risk Informed Completion Time Program]. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within [12] hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----

A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).

A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a premature shutdown with its own attendant risk.

If established battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

If the charger is operating in the current limit mode after 2 hours that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action A.2).

Required Action A.2 requires that the battery float current be verified as less than or equal to [2] amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial [12] hour period the battery float current is not less than or equal to [2] amps this indicates there may be additional battery problems and the battery must be declared inoperable.

BASES

ACTIONS (continued)

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

B.1

-----REVIEWER'S NOTE-----
The 2 hour Completion Times of Required Actions B.1 and C.1 are in brackets. Any licensee wishing to request a longer Completion Time will need to demonstrate that the longer Completion Time is appropriate for the plant in accordance with the guidance in Regulatory Guide (RG) 1.177, "An Approach for Plant-Specific, Risk-Informed Decision Making: Technical Specifications."

Condition B represents one train with one [or two] batter[y][ies] inoperable. With one [or two] batter[y][ies] inoperable, the DC bus is being supplied by the OPERABLE battery charger[s]. Any event that results in a loss of the AC bus supporting the battery charger[s] will also result in loss of DC to that train. Recovery of the AC bus, especially if it is due to a loss of offsite power, will be hampered by the fact that many of the components necessary for the recovery (e.g., diesel generator control and field flash, AC load shed and diesel generator output circuit breakers, etc.) likely rely upon the batter[y][ies]. In addition the energization transients of any DC loads that are beyond the capability of the battery charger[s] and normally require the assistance of the batter[y][ies] will not be able to be brought online. The [2] hour limit allows sufficient time to effect restoration of an inoperable battery given that the majority of the conditions that lead to battery inoperability (e.g., loss of battery charger, battery cell voltage less than [2.07] V, etc.) are identified in Specifications 3.8.4, 3.8.5, and 3.8.6 together with additional specific completion times. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

BASES

ACTIONS (continued)

C.1

Condition C represents one train with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected train. The 2 hour limit is consistent with the allowed time for an inoperable DC distribution system train. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

If one of the required DC electrical power subsystems is inoperable for reasons other than Condition A or B (e.g., inoperable battery charger and associated inoperable battery), the remaining DC electrical power subsystem has the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary DC electrical subsystems to mitigate a worst case accident, continued power operation should not exceed 2 hours. The 2 hour Completion Time is based on Regulatory Guide 1.93 (Ref. 7) and reflects a reasonable time to assess unit status as a function of the inoperable DC electrical power subsystem and, if the DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown.

----- REVIEWER'S NOTE -----
Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1 and D.2

With two DC electrical power subsystems inoperable, the Required Action is to restore at least one of the required DC electrical power subsystems to OPERABLE status within 1 hour to regain control power for the AC emergency power system. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required DC electrical power subsystem. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second DC electrical power subsystem is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one DC electrical power subsystem is inoperable for any

reason and a second DC electrical power subsystem is found to be inoperable, or if two DC electrical power subsystem are found to be inoperable at the same time.]

E.1 and E.2

If the inoperable DC electrical power subsystem(s) cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems. The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a

BASES

ACTIONS

A.1

With a required inverter inoperable, its associated AC vital bus becomes inoperable until it is [manually] re-energized from its [Class 1E constant voltage source transformer or inverter using internal AC source].

Required Action A.1 is modified by a Note, which states to enter the applicable conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition A is entered with one AC vital bus de-energized. This ensures the vital bus is re-energized within 2 hours.

Required Action A.1 allows 24 hours to fix the inoperable inverter and return it to service. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 24 hour limit is based upon engineering judgment, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. This has to be balanced against the risk of an immediate shutdown, along with the potential challenges to safety systems such a shutdown might entail. When the AC vital bus is powered from its constant voltage source, it is relying upon interruptible AC electrical power sources (offsite and onsite). The uninterruptible inverter source to the AC vital buses is the preferred source for powering instrumentation trip setpoint devices.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1 and B.2

With two required inverters inoperable, the Required Action is to restore at least one of the required inverters to OPERABLE status within 1 hour to regain AC electrical power to the vital buses. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required inverter. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more [required] inverters are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [required] inverter is inoperable for any reason and additional [required] inverters are found to be inoperable, or if two or more [required] inverters are found to be inoperable at the same time.]

C.1 and C.2

If the inoperable devices or components cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE
REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation of the RPS and ESFAS connected to the AC vital buses. The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions.

BASES

LCO (continued)

In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, if they exist, must be open. This prevents any electrical malfunction in any power distribution subsystem from propagating to the redundant subsystem, which could cause the failure of a redundant subsystem and a loss of essential safety function(s). If any tie breakers are closed, the affected redundant electrical power distribution subsystems are considered inoperable. This applies to the onsite, safety related redundant electrical power distribution subsystems. It does not, however, preclude redundant Class 1E 4.16 kV buses from being powered from the same offsite circuit.

APPLICABILITY

The electrical power distribution subsystems are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Electrical power distribution subsystem requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.10, "Distribution Systems - Shutdown."

ACTIONS

A.1

With one or more Train A and B required AC buses, load centers, motor control centers, or distribution panels (except AC vital buses), in one train inoperable and a loss of function has not occurred, the remaining AC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required AC buses, load centers, motor control centers, and distribution panels must be restored to OPERABLE status within 8 hours [or in accordance with the Risk Informed Completion Time Program].

BASES

ACTIONS (continued)

Condition A worst scenario is one train without AC power (i.e., no offsite power to the train and the associated DG inoperable). In this condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operator's attention be focused on minimizing the potential for loss of power to the remaining train by stabilizing the unit, and on restoring power to the affected train. The 8 hour time limit before requiring a unit shutdown in this condition is acceptable because of:

- a. The potential for decreased safety if the unit operator's attention is diverted from the evaluations and actions necessary to restore power to the affected train, to the actions associated with taking the unit to shutdown within this time limit and
- b. The potential for an event in conjunction with a single failure of a redundant component in the train with AC power.

Required Action A.1 is modified by a Note that requires the applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," to be entered for DC trains made inoperable by inoperable power distribution subsystems. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. Inoperability of a distribution system can result in loss of charging power to batteries and eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems.

B.1

With one or more AC vital buses inoperable, and a loss of function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the minimum required ESF functions not being supported. Therefore, the [required] AC vital bus must be restored to OPERABLE status within 2 hours by powering the bus from the associated [inverter via inverted DC, inverter using internal AC source, or Class 1E constant voltage transformer]. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source are nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining vital buses, and restoring power to the affected vital bus.

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate vital AC power, which would have the Required Action Completion Times shorter than 2 hours if declared inoperable, is acceptable because of:

- a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) and not allowing stable operations to continue,
- b. The potential for decreased safety by requiring entry into numerous Applicable Conditions and Required Actions for components without adequate vital AC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train, and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time takes into account the importance to safety of restoring the AC vital bus to OPERABLE status, the redundant capability afforded by the other OPERABLE vital buses, and the low probability of a DBA occurring during this period.

C.1

With one or more DC buses or distribution panels inoperable, and a loss of function has not yet occurred, the remaining DC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystem could result in the minimum required ESF functions not being supported. Therefore, the [required] DC buses and distribution panels must be restored to OPERABLE status within 2 hours by powering the bus from the associated battery or charger.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

Condition C represents one or more DC buses or distribution panels without adequate DC power; potentially both with the battery significantly degraded and the associated charger nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining trains and restoring power to the affected train.

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components which would be without power. Taking exception to LCO 3.0.2 for components without adequate DC power, which would have Required Action Completion Times shorter than 2 hours, is acceptable because of:

- a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) while allowing stable operations to continue,
- b. The potential for decreased safety by requiring entry into numerous applicable Conditions and Required Actions for components without DC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train, and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for DC buses is consistent with Regulatory Guide 1.93 (Ref. 3).

----- REVIEWER'S NOTE -----
 Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1 and D.2

With two or more electrical power distribution subsystems inoperable that result in a loss of safety function, the Required Action is to restore sufficient electrical power distribution subsystems within 1 hour to restore safety function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of safety function. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the two or more electrical power distribution subsystems are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one electrical power distribution subsystem is inoperable for any reason and a second electrical power distribution subsystem is found to be inoperable, or if two or more electrical power distribution subsystems are found to be inoperable at the same time.]

E.1 and E.2

If the inoperable distribution subsystem(s) cannot be restored to OPERABLE status 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 experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition F is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[FE.1

Condition ~~E~~-F corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. When more than one inoperable electrical power distribution subsystem results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.]

SURVEILLANCE
REQUIREMENTSSR 3.8.9.1

This Surveillance verifies that the AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [15].
3. Regulatory Guide 1.93, December 1974.

----- Reviewer's Note -----
 Example 1.3-8 is only applicable to plants that have adopted the Risk Informed Completion Time Program.

[EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. ---- NOTE ---- Not applicable when second subsystem intentionally made inoperable. ----- Two subsystems inoperable.	B.1 Restore subsystems to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

When a subsystem is declared inoperable, Condition A is entered. The 7 day Completion Time may be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a Risk Informed Completion Time (RICT) that may be used to complete the Required Action beyond the 7 day Completion Time. The RICT cannot exceed 30 days. After the 7 day Completion Time has expired, the

subsystem must be restored to OPERABLE status within the RICT or Condition C must also be entered.

If a second subsystem is declared inoperable, Condition B may also be entered. The Condition is modified by a Note stating it is not applicable if the second subsystem is intentionally made inoperable. The Required Actions of Condition B are not intended for voluntary removal of redundant subsystems from service. The Required Action is only applicable if one subsystem is inoperable for any reason and the second subsystem is found to be inoperable, or if both subsystems are found to be inoperable at the same time. If Condition B is applicable, at least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. The licensee may be able to apply a RICT to extend the Completion Time beyond 1 hour if the requirements of the Risk Informed Completion Time Program are met. If two subsystems are inoperable and Condition B is not applicable (i.e., the second subsystem was intentionally made inoperable), LCO 3.0.3 is entered as there is no applicable Condition.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

If the 7 day Completion Time clock of Condition A or the 1 hour Completion Time clock of Condition B have expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition C is entered, Conditions A, B, and C are exited, and therefore, the Required Actions of Condition C may be terminated.]

IMMEDIATE When "Immediately" is used as a Completion Time, the Required Action
COMPLETION TIME should be pursued without delay and in a controlled manner.

Comment: While Condition A represents a variable outside the limit, the SLC subsystem could be substituted as a surrogate in an RICT calculation. Condition D is a default Condition and is therefore excluded.

SLC System
3.1.7

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Concentration of boron in solution not within limits but > [] .	A.1 Restore concentration of boron in solution to within limits.	72 hours] <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
B. One SLC subsystem inoperable [for reasons other than Condition A].	B.1 Restore SLC subsystem to OPERABLE status.	7 days <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
C. Two SLC subsystems inoperable [for reasons other than Condition A].	C.1 Restore one SLC subsystem to OPERABLE status.	8 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	12 hours

Comment: Conditions E, F and G apply to the default Condition (Condition D) and are excluded.

3.3 INSTRUMENTATION

3.3.1.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1.1 The RPS instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip. <u>OR</u>	12 hours [OR In accordance with the Risk Informed Completion Time Program]
	A.2 Place associated trip system in trip.	12 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One or more Functions with one or more required channels inoperable in both trip systems.	B.1 Place channel in one trip system in trip. <u>OR</u>	6 hours [OR In accordance with the Risk Informed Completion Time Program]
	B.2 Place one trip system in	6 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
	trip.	<u>IOR</u> In accordance with the Risk Informed Completion Time Program]
C. One or more Functions with RPS trip capability not maintained.	C.1 Restore RPS trip capability.	1 hour <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1 Reduce THERMAL POWER to < [30]% RTP.	4 hours
F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1 Be in MODE 2.	6 hours
G. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1 Be in MODE 3.	12 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS Function.
 2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains RPS trip capability.
-

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	12 hours

Comment: Condition B contains an "Immediately" CT. Condition C is a default Condition and Conditions D and E are outside the applicability of the Traveler. These Conditions are therefore excluded.

SRM Instrumentation
3.3.1.2

3.3 INSTRUMENTATION

3.3.1.2 Source Range Monitor (SRM) Instrumentation

LCO 3.3.1.2 The SRM instrumentation in Table 3.3.1.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.2-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required SRMs inoperable in MODE 2 with intermediate range monitors (IRMs) on Range 2 or below.	A.1 Restore required SRMs to OPERABLE status.	4 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. [Three] required SRMs inoperable in MODE 2 with IRMs on Range 2 or below.	B.1 Suspend control rod withdrawal.	Immediately
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3.	12 hours
D. One or more required SRMs inoperable in MODE 3 or 4.	D.1 Fully insert all insertable control rods. <u>AND</u> D.2 Place reactor mode switch in the shutdown position.	1 hour 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more required SRMs inoperable in MODE 5.	E.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u> E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----

Refer to Table 3.3.1.2-1 to determine which SRs apply for each applicable MODE or other specified conditions.

SURVEILLANCE	FREQUENCY
SR 3.3.1.2.1 Perform CHANNEL CHECK.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

Control Rod Block Instrumentation
3.3.2.1

3.3 INSTRUMENTATION

3.3.2.1 Control Rod Block Instrumentation

LCO 3.3.2.1 The control rod block instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2.1-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One rod block monitor (RBM) channel inoperable.	A.1 Restore RBM channel to OPERABLE status.	24 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two RBM channels inoperable.	B.1 Place one RBM channel in trip.	1 hour
C. Rod worth minimizer (RWM) inoperable during reactor startup.	C.1 Suspend control rod movement except by scram. <u>OR</u> C.2.1.1 Verify ≥ 12 rods withdrawn. <u>OR</u>	Immediately Immediately

Feedwater and Main Turbine High Water Level Trip Instrumentation

3.3.2.2

Comment: Condition C is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.2.2 Feedwater and Main Turbine High Water Level Trip Instrumentation

LCO 3.3.2.2 [Three] channels of feedwater and main turbine high water level trip instrumentation shall be OPERABLE.

APPLICABILITY: THERMAL POWER ≥ [25]% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One feedwater and main turbine high water level trip channel inoperable.	A.1 Place channel in trip.	7 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
B. Two or more feedwater and main turbine high water level trip channels inoperable.	B.1 Restore feedwater and main turbine high water level trip capability.	2 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 -----NOTE----- Only applicable if inoperable channel is the result of inoperable feedwater pump [valve] or main turbine stop valve. ----- Remove affected feedwater	4 hours

Feedwater and Main Turbine High Water Level Trip Instrumentation
3.3.2.2

CONDITION	REQUIRED ACTION	COMPLETION TIME
	pump(s) and main turbine valve(s) from service. <u>OR</u>	

Feedwater and Main Turbine High Water Level Trip Instrumentation
3.3.2.2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Reduce THERMAL POWER to < [25]% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided feedwater and main turbine high water level trip capability is maintained.

SURVEILLANCE	FREQUENCY
SR 3.3.2.2.1 [Perform CHANNEL CHECK.	24 hours]
SR 3.3.2.2.2 Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.2.2.3 Perform CHANNEL CALIBRATION. The Allowable Value shall be \leq [58.0] inches.	[18] months
SR 3.3.2.2.4 Perform LOGIC SYSTEM FUNCTIONAL TEST including [valve] actuation.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.3.1 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3.1 The PAM instrumentation for each Function in Table 3.3.3.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.5.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one required channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours
F. [As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately]

SURVEILLANCE REQUIREMENTS

-----NOTE-----

These SRs apply to each Function in Table 3.3.3.1-1.

SURVEILLANCE	FREQUENCY
SR 3.3.3.1.1 Perform CHANNEL CHECK.	31 days
SR 3.3.3.1.2 Perform CHANNEL CALIBRATION.	[18] months

Comment: No changes made.
 Condition A already has a 30 day
 CT and Condition B is a default
 Condition.

3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.3.2.1 [Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days]
SR 3.3.3.2.2 Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] months
SR 3.3.3.2.3 Perform CHANNEL CALIBRATION for each required instrumentation channel.	[18] months

Comment: Condition C is a default Condition and is therefore excluded. Required Action B.2 is not a "restore" function and is excluded.

3.3 INSTRUMENTATION

3.3.4.1 End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation

- LCO 3.3.4.1
- a. Two channels per trip system for each EOC-RPT instrumentation Function listed below shall be OPERABLE:
 - 1. Turbine Stop Valve (TSV) - Closure and
 - 2. Turbine Control Valve (TCV) Fast Closure, Trip Oil Pressure - Low.
 - [OR
 - b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for inoperable EOC-RPT as specified in the COLR are made applicable.]

APPLICABILITY: THERMAL POWER > [30]% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Restore channel to OPERABLE status.	72 hours
	<p style="text-align: center;"><u>OR</u></p> <p style="text-align: center;">A.2 -----NOTE----- Not applicable if inoperable channel is the result of an inoperable breaker. -----</p> <p style="text-align: center;">Place channel in trip.</p>	<p style="color: red;"><u>OR</u></p> <p style="color: red;">In accordance with the Risk Informed Completion Time Program]</p> <p style="text-align: right;">72 hours</p> <p style="color: red;"><u>OR</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One or more Functions with EOC-RPT trip capability not maintained.</p> <p><u>AND</u></p> <p>[MCPR limit for inoperable EOC-RPT not made applicable.]</p>	<p>B.1 Restore EOC-RPT trip capability.</p> <p><u>OR</u></p> <p>[B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.]</p>	<p>2 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>[2 hours]</p>
<p>C. Required Action and associated Completion Time not met.</p>	<p>C.1 -----NOTE----- Only applicable if inoperable channel is the result of an inoperable RPT breaker. ----- Remove the affected recirculation pump from service.</p> <p><u>OR</u></p> <p>C.2 Reduce THERMAL POWER to < [30]% RTP.</p>	<p>4 hours</p> <p>4 hours</p>

SURVEILLANCE REQUIREMENTS

-----NOTE-----
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains EOC-RPT trip capability.

SURVEILLANCE	FREQUENCY

Comment: Condition D is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.4.2 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

LCO 3.3.4.2 Two channels per trip system for each ATWS-RPT instrumentation Function listed below shall be OPERABLE:

- a. Reactor Vessel Water Level - Low Low, Level 2 and
- b. Reactor Steam Dome Pressure - High.

APPLICABILITY: MODE 1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more channels inoperable.</p>	<p>A.1 Restore channel to OPERABLE status.</p> <p><u>OR</u></p>	<p>14 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
	<p>A.2 -----NOTE----- Not applicable if inoperable channel is the result of an inoperable breaker. -----</p> <p>Place channel in trip.</p>	<p>14 days'</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

Comment: Condition A has an "Immediately" CT. RAs B.1, B.2, C.1, D.1, E.1 F.1 and G.1 declare another component inoperable. RA D.2.2 is not a "Restore" function. Condition H is a default Condition. Therefore these items are excluded.

3.3 INSTRUMENTATION

3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

LCO 3.3.5.1 The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. ----- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. <u>AND</u>	1 hour from discovery of loss of initiation capability for feature(s) in both divisions

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.2 -----NOTE----- Only applicable for Functions 3.a and 3.b. -----</p> <p>Declare High Pressure Coolant Injection (HPCI) System inoperable.</p> <p><u>AND</u></p> <p>B.3 Place channel in trip.</p>	<p>1 hour from discovery of loss of HPCI initiation capability</p> <p>24 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>C.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.c, 2.c, 2.d, and 2.f. -----</p> <p>Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore channel to OPERABLE status.</p>	<p>1 hour from discovery of loss of initiation capability for feature(s) in both divisions</p> <p>24 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>D.1 -----NOTE----- Only applicable if HPCI pump suction is not aligned to the suppression pool. -----</p> <p>Declare HPCI System inoperable.</p> <p><u>AND</u></p> <p>D.2.1 Place channel in trip.</p> <p><u>OR</u></p> <p>D.2.2 Align the HPCI pump suction to the suppression pool.</p>	<p>1 hour from discovery of loss of HPCI initiation capability</p> <p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>24 hours</p>
<p>E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>E.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.d and 2.g. -----</p> <p>Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.</p> <p><u>AND</u></p> <p>E.2 Restore channel to OPERABLE status.</p>	<p>1 hour from discovery of loss of initiation capability for subsystems in both divisions</p> <p>7 days</p> <p><u>OR</u></p>

		In accordance with the Risk Informed Completion Time Program]
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>F.1 Declare Automatic Depressurization System (ADS) valves inoperable.</p> <p><u>AND</u></p> <p>F.2 Place channel in trip.</p>	<p>1 hour from discovery of loss of ADS initiation capability in both trip systems</p> <p>96 hours from discovery of inoperable channel concurrent with HPCI or reactor core isolation cooling (RCIC) inoperable</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>8 days</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>G.1 -----NOTE----- Only applicable for Functions 4.c, 4.e, 4.f, 4.g, 5.c, 5.e, 5.f, and 5.g. -----</p> <p>Declare ADS valves inoperable.</p>	<p>1 hour from discovery of loss of ADS initiation capability in both trip systems</p>

	<p><u>AND</u></p> <p>G.2 Restore channel to OPERABLE status.</p>	<p>96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>8 days</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.	H.1 Declare associated supported feature(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 3.c, 3.f, and 3.g; and (b) for up to 6 hours for Functions other than 3.c, 3.f, and 3.g provided the associated Function or the redundant Function maintains ECCS initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.5.1.3	[Calibrate the trip unit.	[92] days]
SR 3.3.5.1.4	[Perform CHANNEL CALIBRATION.	92 days]
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
SR 3.3.5.1.7	Verify the ECCS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

Comment: Condition A has an "Immediately" CT, RAs B.1 and D.1 declare another component inoperable and Condition E is a default Condition. Required Action D.2.2 is not a "restore" function. Therefore these are excluded.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.2 The RCIC System instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > [150] psig.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1 Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	<u>AND</u>	
	B.2 Place channel in trip.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1 Restore channel to OPERABLE status.	24 hours [OR In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</p>	<p>D.1 -----NOTE----- Only applicable if RCIC pump suction is not aligned to the suppression pool. -----</p> <p>Declare RCIC System inoperable.</p> <p><u>AND</u></p> <p>D.2.1 Place channel in trip.</p> <p><u>OR</u></p> <p>D.2.2 Align RCIC pump suction to the suppression pool.</p>	<p>1 hour from discovery of loss of RCIC initiation capability</p> <p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>24 hours</p>
<p>E. Required Action and associated Completion Time of Condition B, C, or D not met.</p>	<p>E.1 Declare RCIC System inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.5.2-1 to determine which SRs apply for each RCIC Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 5; and (b) for up to 6 hours for Functions 1, 3, and 4 provided the associated Function maintains RCIC initiation capability.

Comment: Conditions D through J apply to the default Condition (Condition C) and are excluded.

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

LCO 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

NOTES

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, 6.b, 7.a, and 7.b <u>IOR</u> In accordance with the Risk Informed Completion Time Program] <u>AND</u> 24 hours for Functions other than Functions 2.a, 2.b, 6.b, 7.a, and 7.b <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
B. One or more automatic	B.1 Restore isolation capability.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
Functions with isolation capability not maintained.		<u>IOR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL). <u>OR</u> D.2.1 Be in MODE 3. <u>AND</u> D.2.2 Be in MODE 4.	12 hours 12 hours 36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1 Isolate the affected penetration flow path(s).	24 hours
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1. <u>OR</u> Required Action and associated Completion Time for Condition F or G not met.	H.1 Be in MODE 3. <u>AND</u> H.2 Be in MODE 4.	12 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1 Declare associated standby liquid control subsystem (SLC) inoperable.	1 hour
	<u>OR</u>	
	I.2 Isolate the Reactor Water Cleanup System.	1 hour
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1 Initiate action to restore channel to OPERABLE status.	Immediately
	<u>OR</u>	
	J.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.	Immediately

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability.

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.1.2 Perform CHANNEL FUNCTIONAL TEST.	[92] days

Secondary Containment Isolation Instrumentation

3.3.6.2

Comment: Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.6.2 Secondary Containment Isolation Instrumentation

LCO 3.3.6.2 The secondary containment isolation instrumentation for each Function in Table 3.3.6.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	12 hours for Function 2 <u>AND</u> 24 hours for Functions other than Function 2
B. One or more automatic Functions with secondary containment isolation capability not maintained.	B.1 Restore secondary containment isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1.1 Isolate the associated [zone(s)]. <u>OR</u> C.1.2 Declare associated secondary containment isolation valves inoperable. <u>AND</u>	1 hour 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Place the associated standby gas treatment (SGT) subsystem(s) in operation.	1 hour
	<u>OR</u>	
	C.2.2 Declare associated SGT subsystem(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains secondary containment isolation capability.

SURVEILLANCE	FREQUENCY
SR 3.3.6.2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2.2 Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.6.2.3 [Calibrate the trip unit.	[92] days]
SR 3.3.6.2.4 [Perform CHANNEL CALIBRATION.	92 days]
SR 3.3.6.2.5 Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.6.2.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

Comment: The CT for RA B.1 is not time based and Condition E is a default Condition. Therefore these are excluded.

3.3 INSTRUMENTATION

3.3.6.3 Low-Low Set (LLS) Instrumentation

LCO 3.3.6.3 The LLS valve instrumentation for each Function in Table 3.3.6.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One LLS valve inoperable due to inoperable channel(s).	A.1 Restore channel(s) to OPERABLE status.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. One or more safety/relief valves (S/RVs) with one Function 3 channel inoperable.	B.1 Restore tailpipe pressure switches to OPERABLE status.	Prior to entering MODE 2 or 3 from MODE 4
C. -----NOTE----- Separate Condition entry is allowed for each S/RV. ----- One or more S/RVs with two Function 3 channels inoperable.	C.1 Restore one tailpipe pressure switch to OPERABLE status.	[14] days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[D. ----- NOTE ----- Not applicable when two or more LLS valves intentionally made inoperable due to inoperable channels.	D.1 Restore channels to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
----- Two or more LLS valves inoperable due to inoperable channels.		Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>ED. Required Action and associated Completion Time [of Condition A, B, or C] not met.</p> <p>[<u>OR</u></p> <p>Two or more LLS valves inoperable due to inoperable channels.]</p>	<p>ED..1 Declare the associated LLS valve(s) inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.6.3-1 to determine which SRs apply for each Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains LLS initiation capability.

SURVEILLANCE	FREQUENCY
<p>SR 3.3.6.3.1 Perform CHANNEL CHECK.</p>	<p>12 hours</p>
<p>SR 3.3.6.3.2 Perform CHANNEL FUNCTIONAL TEST for portion of the channel outside primary containment.</p>	<p>[92] days</p>
<p>SR 3.3.6.3.3 -----NOTE----- Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment. ----- Perform CHANNEL FUNCTIONAL TEST for portions of the channel inside primary containment.</p>	<p>[92] days</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.7.1 [Main Control Room Environmental Control (MCREC)] System Instrumentation

LCO 3.3.7.1 The [MCREC] System instrumentation for each Function in Table 3.3.7.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.7.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.7.1-1 for the channel.	Immediately
B. [As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	B.1 Declare associated [MCREC] subsystem inoperable.	1 hour from discovery of loss of [MCREC] initiation capability in both trip systems 24 hours]
	<u>AND</u> B.2 Place channel in trip.	
C. As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	C.1 Declare associated [MCREC] subsystem inoperable.	1 hour from discovery of loss of [MCREC] initiation capability in both trip systems 6 hours
	<u>AND</u> C.2 Place channel in trip.	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 -----NOTE----- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] -----	
	Place the associated [MCREC] subsystem(s) in the [pressurization] mode of operation.	1 hour
	<u>OR</u>	
	D.2 -----NOTE----- Only applicable to Function 3 channels. -----	
	Isolate associated main steam line (MSL).	1 hour
	<u>OR</u>	
	D.3 Declare associated [MCREC] subsystem inoperable.	1 hour

Comment: Condition B is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Declare associated diesel generator (DG) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.8.1-1 to determine which SRs apply for each LOP Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 2 hours provided the associated Function maintains DG initiation capability.

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

RPS Electric Power Monitoring
3.3.8.2

3.3 INSTRUMENTATION

3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

LCO 3.3.8.2 Two RPS electric power monitoring assemblies shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.

APPLICABILITY: MODES 1, 2, and 3,
MODES 4 and 5 [with any control rod withdrawn from a core cell containing one or more fuel assemblies].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both inservice power supplies with one electric power monitoring assembly inoperable.	A.1 Remove associated inservice power supply(s) from service.	72 hours
B. One or both inservice power supplies with both electric power monitoring assemblies inoperable.	B.1 Remove associated inservice power supply(s) from service.	1 hour
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. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5 [with any control rod withdrawn from a core cell containing one or more fuel assemblies].	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2.1 [Initiate action to restore one electric power monitoring assembly to OPERABLE status for inservice power supply(s) supplying required instrumentation.	Immediately]
	<u>OR</u>	
	D.2.2 [Initiate action to isolate the Residual Heat Removal Shutdown Cooling System.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.8.2.1 -----NOTE----- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. ----- Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.8.2.2 Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage $\leq [132]$ V. b. Undervoltage $\geq [108]$ V, with time delay set to [zero]. c. Underfrequency $\geq [57]$ Hz, with time delay set to [zero].	[18] months
SR 3.3.8.2.3 Perform a system functional test.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 Recirculation Loops Operating

LCO 3.4.1 Two recirculation loops with matched flows shall be in operation,

OR

[One recirculation loop may be in operation provided the following limits are applied when the associated LCO is applicable:

- a. LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," single loop operation limits [specified in the COLR],
- b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," single loop operation limits [specified in the COLR], and
- c. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," Function 2.b (Average Power Range Monitors Flow Biased Simulated Thermal Power - High), Allowable Value of Table 3.3.1.1-1 is reset for single loop operation.]

APPLICABILITY: MODES 1 and 2.

ACTIONS

-----REVIEWER'S NOTE-----

Refer to the following topical reports for the resolution for the Stability Technical Specifications:

- Enhanced Option 1A NEDO-32339 Supplement 4
- Option 1D NEDO-31760 Supplement 1 and NEDO-32465
- GE-Option III NEDC-32410 and NEDC-32410 Supplement 1
- ABB Option III CENPD-400 Rev. 1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>No recirculation loops in operation.</p>	<p>B.1 Be in MODE 3.</p>	<p>12 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.1.1</p> <p>-----NOTE-----</p> <p>Not required to be performed until 24 hours after both recirculation loops are in operation.</p> <p>-----</p> <p>Verify recirculation loop jet pump flow mismatch with both recirculation loops in operation is:</p> <p>a. ≤ [10]% of rated core flow when operating at < [70]% of rated core flow and</p> <p>b. ≤ [5]% of rated core flow when operating at ≥ [70]% of rated core flow.</p>	<p>24 hours</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

Jet Pumps
3.4.2

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 Jet Pumps

LCO 3.4.2 All jet pumps shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more jet pumps inoperable.	A.1 Be in MODE 3.	12 hours

Comment: Condition C is a default Condition and is therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 Safety/Relief Valves (S/RVs)

LCO 3.4.3 The safety function of [11] S/RVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [One [or two] [required] S/RV[s] inoperable.	A.1 Restore the [required] S/RV[s] to OPERABLE status.	14 days] <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when [three] or more [required] S/RVs intentionally made inoperable. ----- [Three] or more [required] S/RVs inoperable.	B.1 Restore the [required] S/RV[s] to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
CB.[Required Action and associated Completion Time of Condition A [or B] not met.] <u>OR</u> [Three] or more [required] S/RVs inoperable.]	CB.1 Be in MODE 3. <u>AND</u> CB.2 Be in MODE 4.	12 hours 36 hours

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Operational LEAKAGE

LCO 3.4.4 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE,
- b. ≤ 5 gpm unidentified LEAKAGE, [and]
- c. $\leq [30]$ gpm total LEAKAGE averaged over the previous 24 hour period, and
- [d. ≤ 2 gpm increase in unidentified LEAKAGE within the previous [4] hour period in MODE 1.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Unidentified LEAKAGE not within limit. <u>OR</u> Total LEAKAGE not within limit.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Unidentified LEAKAGE increase not within limit.	B.1 Reduce LEAKAGE to within limits.	4 hours
	<u>OR</u> B.2 Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. <u>OR</u> Pressure boundary LEAKAGE exists.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.4.1 Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	8 hours

Comment: Condition A represents a variable outside its limit. Condition B is a default Condition and is therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.5 The leakage from each RCS PIV shall be within limit.

APPLICABILITY: MODES 1 and 2,
MODE 3, except valves in the residual heat removal (RHR) shutdown cooling flow path when in, or during the transition to or from, the shutdown cooling mode of operation.

ACTIONS

-----NOTES-----

1. Separate Condition entry is allowed for each flow path.
 2. Enter applicable Conditions and Required Actions for systems made inoperable by PIVs.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>-----NOTE----- Each valve used to satisfy Required Action A.1 and Required Action A.2 must have been verified to meet SR 3.4.5.1 and be in the reactor coolant pressure boundary [or the high pressure portion of the system]. -----</p> <p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, de-activated automatic, or check valve.</p> <p><u>AND</u></p>	<p>4 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.5.1 -----NOTE----- Not required to be performed in MODE 3. ----- Verify equivalent leakage of each RCS PIV is ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm, at an RCS pressure $\geq []$ and $\leq []$ psig.	[In accordance with the Inservice Testing Program or [18] months]

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Leakage Detection Instrumentation

LCO 3.4.6 The following RCS leakage detection instrumentation shall be OPERABLE:

- a. Drywell floor drain sump monitoring system, [and]
- b. One channel of either primary containment atmospheric particulate or atmospheric gaseous monitoring system, and
- [c. Primary containment air cooler condensate flow rate monitoring system.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell floor drain sump monitoring system inoperable.	A.1 Restore drywell floor drain sump monitoring system to OPERABLE status.	30 days
B. Required primary containment atmospheric monitoring system inoperable.	B.1 Analyze grab samples of primary containment atmosphere.	Once per 12 hours 30 days]
	<u>AND</u> B.2 [Restore required primary containment atmospheric monitoring system to OPERABLE status.	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. [Primary containment air cooler condensate flow rate monitoring system inoperable.	C.1 -----NOTE----- Not applicable when required primary containment atmospheric monitoring system is inoperable. ----- Perform SR 3.4.6.1.	Once per 8 hours]
D. [Required primary containment atmospheric monitoring system inoperable. <u>AND</u> Primary containment air cooler condensate flow rate monitoring system inoperable.	D.1 Restore required primary containment atmospheric monitoring system to OPERABLE status. <u>OR</u> D.2 Restore primary containment air cooler condensate flow rate monitoring system to OPERABLE status.	30 days 30 days]
E. Required Action and associated Completion Time of Condition A, B, [C, or D] not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	12 hours 36 hours
F. All required leakage detection systems inoperable.	F.1 Enter LCO 3.0.3.	Immediately

Comment: No changes included. The LCO is on variables and there are no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Specific Activity

LCO 3.4.7 The specific activity of the reactor coolant shall be limited to DOSE EQUIVALENT I-131 specific activity $\leq [0.2] \mu\text{Ci/gm}$.

APPLICABILITY: MODE 1,
MODES 2 and 3 with any main steam line not isolated.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor coolant specific activity $> [0.2] \mu\text{Ci/gm}$ and $\leq 4.0 \mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.	-----NOTE----- LCO 3.0.4.c is applicable. -----	
	A.1 Determine DOSE EQUIVALENT I-131. <u>AND</u> A.2 Restore DOSE EQUIVALENT I-131 to within limits.	Once per 4 hours 48 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Reactor Coolant specific activity $> [4.0] \mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.	B.1 Determine DOSE EQUIVALENT I-131. <u>AND</u>	Once per 4 hours
	B.2.1 Isolate all main steam lines.	12 hours
	<u>OR</u> B.2.2.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2.2.2 Be in MODE 4.	36 hours

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown

LCO 3.4.8 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

- NOTES-----
1. Both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation for up to 2 hours per 8 hour period.
 2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.
-

APPLICABILITY: MODE 3, with reactor steam dome pressure < [the RHR cut in permissive pressure].

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each RHR shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Initiate action to restore RHR shutdown cooling subsystem(s) to OPERABLE status.	Immediately
	<u>AND</u>	
	A.2 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour
	<u>AND</u>	

RHR Shutdown Cooling System - Hot Shutdown
3.4.8

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.3 Be in MODE 4.	24 hours
B. No RHR shutdown cooling subsystem in operation. <u>AND</u> No recirculation pump in operation.	B.1 Initiate action to restore one RHR shutdown cooling subsystem or one recirculation pump to operation. <u>AND</u> B.2 Verify reactor coolant circulation by an alternate method. <u>AND</u> B.3 Monitor reactor coolant temperature and pressure.	Immediately 1 hour from discovery of no reactor coolant circulation <u>AND</u> Once per 12 hours thereafter Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1 -----NOTE----- Not required to be met until 2 hours after reactor steam dome pressure is < [the RHR cut in permissive pressure]. ----- Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	12 hours

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown

LCO 3.4.9 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

-----NOTES-----

1. Both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation for up to 2 hours per 8 hour period.
 2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.
-

APPLICABILITY: MODE 4.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour <u>AND</u> Once per 24 hours thereafter
B. No RHR shutdown cooling subsystem in operation. <u>AND</u> No recirculation pump in operation.	B.1 Verify reactor coolant circulating by an alternate method. <u>AND</u>	1 hour from discovery of no reactor coolant circulation <u>AND</u> Once per 12 hours thereafter

RHR Shutdown Cooling System - Cold Shutdown
3.4.9

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.9.1 Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	12 hours

Comment: No changes made. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.10 RCS pressure, RCS temperature, RCS heatup and cooldown rates, and the recirculation pump starting temperature requirements shall be maintained within the limits specified in the PTLR.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Required Action A.2 shall be completed if this Condition is entered. ----- Requirements of the LCO not met in MODES 1, 2, and 3.</p>	<p>A.1 Restore parameter(s) to within limits. <u>AND</u> A.2 Determine RCS is acceptable for continued operation.</p>	<p>30 minutes 72 hours</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.</p>	<p>12 hours 36 hours</p>
<p>C. -----NOTE----- Required Action C.2 shall be completed if this Condition is entered. ----- Requirements of the LCO not met in other than MODES 1, 2, and 3.</p>	<p>C.1 Initiate action to restore parameter(s) to within limits. <u>AND</u> C.2 Determine RCS is acceptable for operation.</p>	<p>Immediately Prior to entering MODE 2 or 3</p>

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Reactor Steam Dome Pressure

LCO 3.4.11 The reactor steam dome pressure shall be \leq [1020] psig.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor steam dome pressure not within limit.	A.1 Restore reactor steam dome pressure to within limit.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.11.1 Verify reactor steam dome pressure is \leq [1020] psig.	12 hours

Comment: Conditions B, H, and J are default Conditions and RA C.1 contains an "Immediately" CT and are therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of [seven] safety/relief valves shall be OPERABLE.

-----NOTE-----
Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than [the Residual Heat Removal (RHR) cut in permissive pressure] in MODE 3, if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure \leq [150] psig.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to HPCI.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One low pressure ECCS injection/spray subsystem inoperable.</p> <p><u>OR</u></p> <p>One LPCI pump in both LPCI subsystems inoperable.</p>	<p>A.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.</p>	<p>7 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours
C. HPCI System inoperable.	C.1 Verify by administrative means RCIC System is OPERABLE.	Immediately
	<u>AND</u> C.2 Restore HPCI System to OPERABLE status.	14 days <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
D. HPCI System inoperable. <u>AND</u> Condition A entered.	D.1 Restore HPCI System to OPERABLE status.	72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
	D.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
E. One ADS valve inoperable.	E.1 Restore ADS valve to OPERABLE status.	14 days

		<p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
--	--	--

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. One ADS valve inoperable.</p> <p><u>AND</u></p> <p>Condition A entered.</p>	<p>F.1 Restore ADS valve to OPERABLE status.</p> <p><u>OR</u></p> <p>F.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.</p>	<p>72 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>72 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[G.----- NOTE ----- Not applicable when two or more ADS valves intentionally made inoperable. ----- Two or more ADS valves inoperable.</p>	<p>G.1 Restore ADS valves to OPERABLE status.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>HG. [Two or more ADS valves inoperable.</p> <p><u>OR</u>]</p> <p>Required Action and associated Completion Time of Condition -C, D, E, [F, or -GF] not met.</p>	<p>GH.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>HG.2 Reduce reactor steam dome pressure to ≤ [150] psig.</p>	<p>12 hours</p> <p>36 hours</p>
<p>[I. ----- NOTE ----- Not applicable when two or more low pressure</p>	<p>I.1 Restore low pressure ECCS injection/spray subsystems and ADS</p>	<p>1 hour</p> <p><u>OR</u></p>

<p>ECCS injection/spray subsystems or ADS valves intentionally made inoperable.</p> <p>-----</p> <p>Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A.</p> <p><u>OR</u></p> <p>HPCI System and one or more ADS valves inoperable.</p>	<p>valves to OPERABLE status.</p>	<p>In accordance with the Risk Informed Completion Time Program]</p>
<p>J. [Required Action and associated Completion Time of Condition I not met.]</p> <p>H. [Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A.</p> <p><u>OR</u></p> <p>HPCI System and one or more ADS valves inoperable.]</p>	<p>JH.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

Comment: Outside the applicability of the Traveler.

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.2 ECCS - Shutdown

LCO 3.5.2 Two low pressure ECCS injection/spray subsystems shall be OPERABLE.

-----NOTE-----
One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODE 4,
MODE 5, except with the spent fuel storage pool gates removed and water level \geq [23 ft] over the top of the reactor pressure vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
C. Two required ECCS injection/spray subsystems inoperable.	C.1 Initiate action to suspend OPDRVs. <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Restore one ECCS injection/spray subsystem to OPERABLE status.	4 hours
D. Required Action C.2 and associated Completion Time not met.	D.1 Initiate action to restore [secondary] containment to OPERABLE status. <u>AND</u> D.2 [Initiate action to restore one standby gas treatment subsystem to OPERABLE status. <u>AND</u> D.3 Initiate action to restore isolation capability in each required [secondary] containment penetration flow path not isolated.	Immediately Immediately] Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.2.1 Verify, for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is \geq [12 ft 2 inches].	12 hours

Comment: Condition B is a default Condition and is therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > [150] psig.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to RCIC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCIC System inoperable.	A.1 Verify by administrative means High Pressure Coolant Injection System is OPERABLE.	Immediately
	<u>AND</u> A.2 Restore RCIC System to OPERABLE status.	14 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Reduce reactor steam dome pressure to ≤ [150] psig.	36 hours

Comment: No changes made. Condition A represents a loss of function and Condition B is the Default Condition. NRC has not approved RICT changes to the Completion Time for an inoperable containment. Therefore changes are not proposed.

3.6 CONTAINMENT SYSTEMS

3.6.1.1 Primary Containment

LCO 3.6.1.1 Primary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment inoperable.	A.1 Restore primary containment to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.1.1 Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.3 -----NOTE----- Air lock doors in high radiation areas or areas with limited access due to inerting may be verified locked closed by administrative means. ----- Verify the OPERABLE door is locked closed.</p>	<p>Once per 31 days</p>
<p>B. Primary containment air lock interlock mechanism inoperable.</p>	<p>-----NOTES----- 1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the air lock are inoperable and Condition C is entered. 2. Entry into and exit from containment is permissible under the control of a dedicated individual. ----- B.1 Verify an OPERABLE door is closed. <u>AND</u> B.2 Lock an OPERABLE door closed. <u>AND</u></p>	<p>1 hour 24 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.3 -----NOTE----- Air lock doors in high radiation areas or areas with limited access due to inerting may be verified locked closed by administrative means. ----- Verify an OPERABLE door is locked closed.	Once per 31 days
C. Primary containment air lock inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate primary containment overall leakage rate per LCO 3.6.1.1, using current air lock test results. <u>AND</u> C.2 Verify a door is closed. <u>AND</u> C.3 Restore air lock to OPERABLE status.	Immediately 1 hour 24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	12 hours 36 hours

Comment: RAs A.2, C.2, E.2 and E.3 specify the periodic performance of an action and Conditions F, G, and H are default Conditions. Therefore they are excluded.

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 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
<p>A. -----NOTE----- Only applicable to penetration flow paths with two [or more] PCIVs. ----- One or more penetration flow paths with one PCIV inoperable [for reasons other than Condition[s] D [and E]].</p>	<p>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.</p> <p><u>AND</u></p>	<p>4 hours except for main steam line</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>8 hours for main steam line</p> <p><u>OR</u></p> <p>In accordance with</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation] for isolation devices outside primary containment</p> <p><u>AND</u></p> <p>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, for isolation devices inside primary containment</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable to penetration flow paths with two [or more] PCIVs. ----- One or more penetration flow paths with two [or more] PCIVs inoperable [for reasons other than Condition[s] D [and E]].</p>	<p>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.</p>	<p>1 hour <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>C. -----NOTE----- Only applicable to penetration flow paths with only one PCIV. ----- One or more penetration flow paths with one PCIV inoperable [for reasons other than Condition[s] D [and E]].</p>	<p>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.</p> <p><u>AND</u></p>	<p>[4] hours except for excess flow check valves (EFCVs) and penetrations with a closed system <u>[OR]</u> In accordance with the Risk Informed Completion Time Program] <u>AND</u> 72 hours for EFCVs and penetrations with a closed system <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>C.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. [One or more [secondary containment bypass leakage rate,] [MSIV leakage rate,] [purge valve leakage rate,] [hydrostatically tested line leakage rate,] [or] [EFCV leakage rate] not within limit.</p>	<p>D.1 Restore leakage rate to within limit.</p>	<p>[4 hours for hydrostatically tested line leakage [not on a closed system]]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>[4 hours for secondary containment bypass leakage]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>[8 hours for MSIV leakage]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>[24 hours for purge valve leakage]</p> <p><u>IOR</u></p> <p>In accordance with</p>

		<p>the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>[72 hours for hydrostatically tested line leakage [on a closed system] [and EFCV leakage]]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>E. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.</p>	<p>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].</p> <p><u>AND</u></p>	<p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>E.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p> <p><u>AND</u></p> <p>E.3 Perform SR 3.6.1.3.7 for the resilient seal purge valves closed to comply with Required Action E.1.</p>	<p>Once per 31 days [following isolation] for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 or 3 from MODE 4 if not performed within the previous 92 days for isolation devices inside containment</p> <p>Once per [92] days] [following isolation]</p>
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met in MODE 1, 2, or 3.</p>	<p>F.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>F.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. [Required Action and associated Completion Time of Condition A, B, C, D, or E not met for PCIV(s) required to be OPERABLE during movement of [recently] irradiated fuel assemblies in [secondary] containment.</p>	<p>G.1 -----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>Suspend movement of [recently] irradiated fuel assemblies in [secondary] containment.</p>	<p>Immediately]</p>
<p>H. [Required Action and associated Completion Time of Condition A, B, C, D, or E not met for PCIV(s) required to be OPERABLE during MODE 4 or 5 or during operations with a potential for draining the reactor vessel (OPDRVs).</p>	<p>H.1 Initiate action to suspend OPDRVs.</p> <p><u>OR</u></p> <p>H.2 Initiate action to restore valve(s) to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately]</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Drywell Pressure

LCO 3.6.1.4 Drywell pressure shall be [\leq 0.75 psig].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell pressure not within limit.	A.1 Restore drywell pressure to within limit.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.4.1 Verify drywell pressure is within limit.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Drywell Air Temperature

LCO 3.6.1.5 Drywell average air temperature shall be $\leq [135]^{\circ}\text{F}$.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell average air temperature not within limit.	A.1 Restore drywell average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.5.1 Verify drywell average air temperature is within limit.	24 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

LLS Valves
3.6.1.6

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Low-Low Set (LLS) Valves

LCO 3.6.1.6 The LLS function of [four] safety/relief valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One LLS valve inoperable.	A.1 Restore LLS valve to OPERABLE status.	14 days
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two or more LLS valves inoperable.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours

Reactor Building-to-Suppression Chamber Vacuum Breakers

3.6.1.7

Comment: Required Actions A.1 and B.1 are not "restore" actions. Condition E is a default Condition. All are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.1.7 Reactor Building-to-Suppression Chamber Vacuum Breakers

LCO 3.6.1.7 Each reactor building-to-suppression chamber vacuum breaker shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each line.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more lines with one reactor building-to-suppression chamber vacuum breaker not closed.	A.1 Close the open vacuum breaker.	72 hours
B. One or more lines with two reactor building-to-suppression chamber vacuum breakers not closed.	B.1 Close one open vacuum breaker.	1 hour
C. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	C.1 Restore the vacuum breaker(s) to OPERABLE status.	72 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
D. Two [or more] lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for	D.1 Restore all vacuum breakers in [one] line to OPERABLE status.	1 hour <u>IOR</u> In accordance with

Reactor Building-to-Suppression Chamber Vacuum Breakers
3.6.1.7

CONDITION	REQUIRED ACTION	COMPLETION TIME
opening.		the Risk Informed Completion Time Program]

Reactor Building-to-Suppression Chamber Vacuum Breakers
3.6.1.7

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and Associated Completion Time not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	E.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.7.1 -----NOTES----- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. ----- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.7.2 Perform a functional test of each vacuum breaker.	[92] days
SR 3.6.1.7.3 Verify the opening setpoint of each vacuum breaker is \leq [0.5] psid.	[18] months

Suppression Chamber-to-Drywell Vacuum Breakers

3.6.1.8

Comment: Condition C is a default Condition and is therefore excluded.
 Required Action B.1 is not a "restore" function and is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.1.8 Suppression Chamber-to-Drywell Vacuum Breakers

LCO 3.6.1.8 [Nine] suppression chamber-to-drywell vacuum breakers shall be OPERABLE for opening.

AND

[Twelve] suppression chamber-to-drywell vacuum breakers shall be closed, except when performing their intended function.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required suppression chamber-to-drywell vacuum breaker inoperable for opening.	A.1 Restore one vacuum breaker to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. One suppression chamber-to-drywell vacuum breaker not closed.	B.1 Close the open vacuum breaker.	2 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

MSIV LCS
3.6.1.9

3.6 CONTAINMENT SYSTEMS

3.6.1.9 Main Steam Isolation Valve (MSIV) Leakage Control System (LCS)

LCO 3.6.1.9 Two MSIV LCS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV LCS subsystem inoperable.	A.1 Restore MSIV LCS subsystem to OPERABLE status.	30 days
B. Two MSIV LCS subsystems inoperable.	B.1 Restore one MSIV LCS subsystem to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1	Operate each MSIV LCS blower \geq [15] minutes.	31 days
SR 3.6.1.9.2	Verify electrical continuity of each inboard MSIV LCS subsystem heater element circuitry.	31 days

Suppression Pool Average Temperature

Comment: Suppression Pool Average Temperature is a variable. Therefore, the specification is excluded.

3.6.2.1

3.6 CONTAINMENT SYSTEMS

3.6.2.1 Suppression Pool Average Temperature

LCO 3.6.2.1 Suppression pool average temperature shall be:

- a. $\leq [95]^{\circ}\text{F}$ [when any OPERABLE intermediate range monitor (IRM) channel is $> [25/40]$ divisions of full scale on Range 7] [with THERMAL POWER $> 1\%$ RTP] and no testing that adds heat to the suppression pool is being performed,
- b. $\leq [105]^{\circ}\text{F}$ [when any OPERABLE IRM channel is $> [25/40]$ divisions of full scale on Range 7] [with THERMAL POWER $> 1\%$ RTP] and testing that adds heat to the suppression pool is being performed, and
- c. $\leq [110]^{\circ}\text{F}$ [when all OPERABLE IRM channels are $\leq [25/40]$ divisions of full scale on Range 7] [with THERMAL POWER $\leq 1\%$ RTP].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Suppression pool average temperature $> [95]^{\circ}\text{F}$ but $\leq [110]^{\circ}\text{F}$.</p> <p><u>AND</u></p> <p>[Any OPERABLE IRM channel $> [25/40]$ divisions of full scale on Range 7] [THERMAL POWER $> 1\%$ RTP].</p> <p><u>AND</u></p> <p>Not performing testing that adds heat to the suppression pool.</p>	<p>A.1 Verify suppression pool average temperature $\leq [110]^{\circ}\text{F}$.</p> <p><u>AND</u></p> <p>A.2 Restore suppression pool average temperature to $\leq [95]^{\circ}\text{F}$.</p>	<p>Once per hour</p> <p>24 hours</p>

Suppression Pool Average Temperature
3.6.2.1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Suppression pool average temperature > [120]°F.	E.1 Depressurize the reactor vessel to < [200] psig.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	[36 hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.2.1.1 Verify suppression pool average temperature is within the applicable limits.	24 hours <u>AND</u> 5 minutes when performing testing that adds heat to the suppression pool

Comment: Suppression Pool Water Level is a variable.
Therefore, the specification is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be \geq [12 ft 2 inches] and \leq [12 ft 6 inches].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool water level not within limits.	A.1 Restore suppression pool water level to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.2.2.1 Verify suppression pool water level is within limits.	24 hours

Comment: Condition C is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

LCO 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]
B. Two RHR suppression pool cooling subsystems inoperable.	B.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

Comment: Condition C is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2.4 Residual Heat Removal (RHR) Suppression Pool Spray

LCO 3.6.2.4 Two RHR suppression pool spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool spray subsystem inoperable.	A.1 Restore RHR suppression pool spray subsystem to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]
B. Two RHR suppression pool spray subsystems inoperable.	B.1 Restore one RHR suppression pool spray subsystem to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.2.5 Drywell-to-Suppression Chamber Differential Pressure

LCO 3.6.2.5 The drywell pressure shall be maintained \geq [1.5] psid above the pressure of the suppression chamber.

APPLICABILITY: MODE 1 during the time period:

- a. From [24] hours after THERMAL POWER is $>$ [15]% RTP following startup, to
- b. [24] hours prior to reducing THERMAL POWER to $<$ [15]% RTP prior to the next scheduled reactor shutdown.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell-to-suppression chamber differential pressure not within limit.	A.1 Restore differential pressure to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to \leq [15]% RTP.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.2.5.1 Verify drywell-to-suppression chamber differential pressure is within limit.	12 hours

Comment: Condition A already has a 30 day CT, RA B.1 contains a periodic performance of an action, and Condition C is a default Condition. These are therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.3.1 [Drywell Cooling System Fans]

LCO 3.6.3.1 Two [drywell cooling system fans] shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] [drywell cooling system fan] inoperable.	A.1 Restore [required] [drywell cooling system fan] to OPERABLE status.	30 days
B. Two [required] [drywell cooling system fans] inoperable.	B.1 Verify by administrative means that the hydrogen control function is maintained. <u>AND</u> B.2 Restore one [required] [drywell cooling system fan] to OPERABLE status.	1 hour <u>AND</u> Once per 12 hours thereafter 7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Primary Containment Oxygen Concentration

LCO 3.6.3.2 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODE 1 during the time period:

- a. From [24] hours after THERMAL POWER is > [15]% RTP following startup, to
- b. [24] hours prior to reducing THERMAL POWER to < [15]% RTP prior to the next scheduled reactor shutdown.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1 Restore oxygen concentration to within limit.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to \leq [15]% RTP.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.2.1 Verify primary containment oxygen concentration is within limits.	7 days

Comment: Condition A already has a 30 day CT, RA B.1 requires periodic performance of an action and Condition C is a default Condition. Therefore these are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.3.3 Containment Atmosphere Dilution (CAD) System

LCO 3.6.3.3 Two CAD subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CAD subsystem inoperable.	A.1 Restore CAD subsystem to OPERABLE status.	30 days
B. [Two CAD subsystems inoperable.	B.1 Verify by administrative means that the hydrogen control function is maintained. <u>AND</u> B.2 Restore one CAD subsystem to OPERABLE status.	1 hour <u>AND</u> Once per 12 hours thereafter 7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.4.1 [Secondary] Containment

LCO 3.6.4.1 The [secondary] containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of [recently] irradiated fuel assemblies in the [secondary] containment,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Secondary] containment inoperable in MODE 1, 2, or 3.	A.1 Restore [secondary] containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours
C. [Secondary] containment inoperable during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.	C.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.	Immediately
	<u>AND</u> C.2 Initiate action to suspend OPDRVs.	Immediately

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

SCIVs
3.6.4.2

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 [recently] irradiated fuel assemblies in the [secondary] containment,
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. <u>AND</u>	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	Once per 31 days
<p>B. -----NOTE-----</p> <p>Only applicable to penetration flow paths with two isolation valves.</p> <p>-----</p> <p>One or more penetration flow paths with two SCIVs inoperable.</p>	<p>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.</p>	4 hours
<p>C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.	D.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.	Immediately
	<u>AND</u> D.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.2.1 -----NOTES----- 1. Valves and blind flanges 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 that is not locked, sealed, or otherwise secured and 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, 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

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

SGT System
3.6.4.3

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 [Two] SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of [recently] irradiated fuel assemblies in the
[secondary] containment,
During operations with a potential for draining the reactor vessel
(OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours
C. Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.	-----NOTE----- LCO 3.0.3 is not applicable. ----- C.1 Place OPERABLE SGT subsystem in operation. <u>OR</u> C.2.1 Suspend movement of [recently] irradiated fuel assemblies in [secondary] containment. <u>AND</u>	Immediately Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.2 Initiate action to suspend OPDRVs.	Immediately
D. Two SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately
E. Two SGT subsystems inoperable during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.	E.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of [recently] irradiated fuel assemblies in [secondary] containment.	Immediately
	<u>AND</u> E.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.3.1 Operate each SGT subsystem for \geq [10] continuous hours [with heaters operating].	31 days
SR 3.6.4.3.2 Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3 Verify each SGT subsystem actuates on an actual or simulated initiation signal.	[18] months

Comment: Condition A already has a 30 day CT and Condition E is a default Condition. Therefore they are excluded.

3.7 PLANT SYSTEMS

3.7.1 Residual Heat Removal Service Water (RHRSW) System

LCO 3.7.1 Two RHRSW subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHRSW pump inoperable.	A.1 Restore RHRSW pump to OPERABLE status.	30 days
B. One RHRSW pump in each subsystem inoperable.	B.1 Restore one RHRSW pump to OPERABLE status.	7 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
C. One RHRSW subsystem inoperable for reasons other than Condition A.	C.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown," for [RHR shutdown cooling] made inoperable by RHRSW System. ----- Restore RHRSW subsystem to OPERABLE status.	7 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Both RHRSW subsystems inoperable for reasons other than Condition B.	D.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.4.8 for [RHR shutdown cooling] made inoperable by RHRSW System. ----- Restore one RHRSW subsystem to OPERABLE status.	[8] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.1.1 Verify each RHRSW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	31 days

Comment: Condition A already has a 30 day CT, RA D.1 specifies a periodic performance of an action and Condition G is a default Condition. Therefore these are excluded.

3.7 PLANT SYSTEMS

3.7.2 [Plant Service Water (PSW)] System and [Ultimate Heat Sink (UHS)]

LCO 3.7.2 Two [PSW] subsystems and [UHS] shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [PSW] pump inoperable.	A.1 Restore [PSW] pump to OPERABLE status.	30 days
B. One [PSW] pump in each subsystem inoperable.	B.1 Restore one [PSW] pump to OPERABLE status.	7 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
C. [One or more cooling towers with one cooling tower fan inoperable.	C.1 Restore cooling tower fan(s) to OPERABLE status.	7 days] <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
-----REVIEWER'S NOTE----- The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit. -----	D.1 Verify water temperature of the UHS is ≤ [90]°F averaged over the previous 24 hour period.	Once per hour]

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. [Water temperature of the UHS > [90]°F and ≤ []°F.		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. One [PSW] subsystem inoperable for reasons other than Condition[s] A [and C].</p>	<p>E.1 -----NOTES----- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for diesel generator made inoperable by [PSW]. 2. Enter applicable Conditions and Required Actions of LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown," for [RHR shutdown cooling] made inoperable by [PSW]. ----- Restore the [PSW] subsystem to OPERABLE status.</p>	<p>72 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>F. ----- NOTE ----- Not applicable when second [PSW] subsystem or [UHS] intentionally made inoperable. ----- Both [PSW] subsystems inoperable for reasons other than Condition[s] B [and C]. <u>[OR]</u></p>	<p>F.1 Restore [PSW] subsystems and [UHS] to OPERABLE status.</p>	<p>1 hour <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]</p>

<p>[UHS] inoperable for reasons other than Condition C [or D].]</p>		
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>GF. Required Action and associated Completion Time of Condition A, B [orD] [or F] not met.</p> <p>[<u>OR</u></p> <p>Both [PSW] subsystems inoperable for reasons other than Condition[s] B [and C].</p> <p>[<u>OR</u></p> <p>[UHS] inoperable for reasons other than Condition C [or D].]]</p>	<p>GF.1 Be in MODE 3.</p> <p><u>AND</u></p>	12 hours
	<p>GF.2 Be in MODE 4.</p>	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.2.1 [Verify the water level of each [PSW] cooling tower basin is \geq [] ft.	24 hours]
SR 3.7.2.2 [Verify the water level [in each PSW pump well of the intake structure] is \geq [60.1] ft [mean sea level].	24 hours]
SR 3.7.2.3 [Verify the average water temperature of [UHS] is \leq []°F.	24 hours]
SR 3.7.2.4 [Operate each [PSW] cooling tower fan for \geq [15] minutes.	31 days]

Comment: No changes made.
The default Condition is to declare
the DG inoperable.

3.7 PLANT SYSTEMS

3.7.3 Diesel Generator (DG) [1B] Standby Service Water (SSW) System

LCO 3.7.3 The DG [1B] SSW System shall be OPERABLE.

APPLICABILITY: When DG [1B] is required to be OPERABLE.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DG [1B] SSW System inoperable.	A.1 Align cooling water to DG [1B] from a Unit [1] plant service water (PSW) subsystem.	8 hours
	<u>AND</u>	
	A.2 Verify cooling water is aligned to DG [1B] from a Unit [1] PSW subsystem.	Once per 31 days
	<u>AND</u>	
	A.3 Restore DG [1B] SSW System to OPERABLE status.	60 days
B. Required Action and associated Completion Time not met.	B.1 Declare DG [1B] inoperable.	Immediately

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be calculated for this Specification. Therefore, it is not included in TSTF-505.

[MCREC] System
3.7.4

3.7 PLANT SYSTEMS

3.7.4 [Main Control Room Environmental Control (MCREC)] System

LCO 3.7.4 Two [MCREC] subsystems shall be OPERABLE.

-----NOTE-----

The main control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, and 3,
During movement of [recently] irradiated fuel assemblies in the
[secondary] containment,
During operations with a potential for draining the reactor vessel
(OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [MCREC] subsystem inoperable.	A.1 Restore [MCREC] subsystem to OPERABLE status.	7 days
B. Two [MCREC] subsystems inoperable due to inoperable control room boundary in MODE 1, 2, or 3.	B.1 Restore control room boundary to OPERABLE status.	24 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
	<u>AND</u> C.2 Be in MODE 4.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>D.1 -----NOTE----- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] -----</p> <p>Place OPERABLE [MCREC] subsystem in [pressurization] mode.</p> <p><u>OR</u></p> <p>D.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.</p> <p><u>AND</u></p> <p>D.2.2 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>E. Two [MCREC] subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.</p>	<p>E.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two [MCREC] subsystems inoperable during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.	-----NOTE----- LCO 3.0.3 is not applicable. -----	Immediately
	F.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.	
	<u>AND</u>	
	F.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each [MCREC] subsystem for ≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.7.4.2	Perform required [MCREC] filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.4.3	Verify each [MCREC] subsystem actuates on an actual or simulated initiation signal.	[18] months
SR 3.7.4.4	[Verify each [MCREC] subsystem can maintain a positive pressure of $\geq [0.1]$ inches water gauge relative to the [turbine building] during the [pressurization] mode of operation at a flow rate of $\leq [400]$ cfm.	[18] months on a STAGGERED TEST BASIS]

Comment: Condition A already has a 30 day CT, Condition C is a default Condition and Conditions D and E are outside the applicability of the Traveler. Therefore these are excluded.

3.7 PLANT SYSTEMS

3.7.5 [Control Room Air Conditioning (AC)] System

LCO 3.7.5 Two [control room AC] subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of [recently] irradiated fuel assemblies in the [secondary] containment,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [control room AC] subsystem inoperable.	A.1 Restore [control room AC] subsystem to OPERABLE status.	30 days
<u>[B. ----- NOTE ----- Not applicable when second [control room AC] subsystem intentionally made inoperable. ----- Two [control room AC] subsystems inoperable in MODE 1, 2, or 3.</u>	<u>B.1 Restore at least one [control room AC] subsystem to OPERABLE status.</u>	<u>1 hour OR In accordance with the Risk Informed Completion Time Program]</u>
<u>CB.</u> Required Action and associated Completion Time of Condition A <u>[or B]</u> not met in MODE 1, 2, or 3.	<u>CB.1</u> Be in MODE 3. <u>AND</u> <u>CB.2</u> Be in MODE 4.	12 hours 36 hours
<u>DG.</u> Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel	-----NOTE----- LCO 3.0.3 is not applicable. ----- <u>DG.1</u> Place OPERABLE [control	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
assemblies in the [secondary] containment or during OPDRVs.	<u>OR</u> room AC] subsystem in operation.	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>DC.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.</p> <p><u>AND</u></p> <p>DC.2.2 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p>
<p>DE. Two [control room AC] subsystems inoperable in MODE 1, 2, or 3.</p>	<p>DE.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>
<p>EE. Two [control room AC] subsystems inoperable during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>EE.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.</p> <p><u>AND</u></p> <p>EE.2 Initiate actions to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.5.1 Verify each [control room AC] subsystem has the capability to remove the assumed heat load.</p>	<p>[18] months</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

Main Condenser Offgas
3.7.6

3.7 PLANT SYSTEMS

3.7.6 Main Condenser Offgas

LCO 3.7.6 The gross gamma activity rate of the noble gases measured at [the main condenser evacuation system pretreatment monitor station] shall be \leq [240] mCi/second [after decay of 30 minutes].

APPLICABILITY: MODE 1,
MODES 2 and 3 with any [main steam line not isolated and] steam jet air ejector (SJAE) in operation.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Gross gamma activity rate of the noble gases not within limit.	A.1 Restore gross gamma activity rate of the noble gases to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1 [Isolate all main steam lines.	12 hours]
	<u>OR</u>	
	B.2 Isolate SJAE.	12 hours
	<u>OR</u>	
	B.3.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	B.3.2 Be in MODE 4.	36 hours

Comment: Condition B is a default Condition and is therefore excluded.

3.7 PLANT SYSTEMS

3.7.7 The Main Turbine Bypass System

LCO 3.7.7 The Main Turbine Bypass System shall be OPERABLE.

OR

The following limits are made applicable:

- [a. LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," limits for an inoperable Main Turbine Bypass System, as specified in the [COLR]; and]
- [b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for an inoperable Main Turbine Bypass System, as specified in the [COLR].]

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Requirements of the LCO not met or Main Turbine Bypass System inoperable].	A.1 [Satisfy the requirements of the LCO or restore Main Turbine Bypass System to OPERABLE status].	2 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

Comment: Outside the applicability of the Traveler.

3.7 PLANT SYSTEMS

3.7.8 Spent Fuel Storage Pool Water Level

LCO 3.7.8 The spent fuel storage pool water level shall be \geq [23] ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the spent fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel storage pool water level not within limit.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of irradiated fuel assemblies in the spent fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.8.1 Verify the spent fuel storage pool water level is \geq [23] ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	7 days

Comment: RAs A.1 and B.1 specify the periodic performance of an action, RAs A.2, B.2 and C.1 declare another component inoperable, RA B.3 performs OPERABILITY determination and performance of a surveillance. Condition H is a default Condition. Therefore these Conditions are excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System,
- b. [Three] diesel generators (DGs), and
- [c. Three automatic sequencers.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE [required] offsite circuit.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Declare required feature(s) with no offsite power available inoperable when the redundant required feature(s) are inoperable.	24 hours from discovery of no offsite power to one division concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.3 Restore [required] offsite circuit to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>B. One [required] DG inoperable.</p>	<p>B.1 Perform SR 3.8.1.1 for OPERABLE [required] offsite circuit(s).</p> <p><u>AND</u></p> <p>B.2 Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required feature(s) are inoperable.</p> <p><u>AND</u></p> <p>B.3.1 Determine OPERABLE DG(s) are not inoperable due to common cause failure.</p> <p><u>OR</u></p> <p>B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s).</p> <p><u>AND</u></p> <p>B.4 Restore [required] DG to OPERABLE status.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p> <p>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</p> <p>[24] hours</p> <p>[24] hours</p> <p>72 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed</u></p>

		<u>Completion Time</u> <u>Program]</u>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Two [required] offsite circuits inoperable.</p>	<p>C.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore one [required] offsite circuit to OPERABLE status.</p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)</p> <p>24 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>D. One [required] offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One [required] DG inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition D is entered with no AC power source to any division. -----</p> <p>D.1 Restore [required] offsite circuit to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore [required] DG to OPERABLE status.</p>	<p>12 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>12 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

E. Two [or three] [required] DGs inoperable.	E.1 Restore one [required] DG to OPERABLE status.	2 hours <u>IOR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. [One [required] [automatic load sequencer] inoperable.	<p>-----REVIEWER'S NOTE----- This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event.</p> <p>-----</p> F.1 Restore [required] [automatic load sequencer] to OPERABLE status.	[12] hours] <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<p><u>[G.----- NOTE -----</u> <u>Not applicable when three or more [required] AC sources intentionally made inoperable.</u> <u>-----</u> <u>Three or more [required] AC sources inoperable [for reasons other than Condition E].</u></p>	<u>G.1 Restore [required] AC sources [for reasons other than Condition E] to OPERABLE status.</u>	<u>1 hour</u> <u>OR</u> <u>In accordance with the Risk Informed Completion Time Program]</u>
<p>HG. Required Action and associated Completion Time of Condition A, B, C, D, E, or [F], <u>[or G]</u> not met.</p>	<p>HG.1 Be in MODE 3. <u>AND</u> HG.2 Be in MODE 4.</p>	12 hours 36 hours
<p>[IH. Three or more [required] AC sources inoperable [for reasons other than Condition E].</p>	<p>HI.1 Enter LCO 3.0.3.</p>	Immediately]

Comment: Outside the applicability of the Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown" and
- b. One diesel generator (DG) capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODES 4 and 5,
During movement of [recently] irradiated fuel assemblies in the [secondary] containment.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required offsite circuit inoperable.</p>	<p>-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.10, with one required division de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s), with no offsite power available, inoperable.</p> <p><u>OR</u></p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>A.2.2 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.</p> <p><u>AND</u></p> <p>A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).</p> <p><u>AND</u></p> <p>A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
B. One required DG inoperable.	<p>B.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2 Suspend movement of [recently] irradiated fuel assemblies in [secondary] containment.</p> <p><u>AND</u></p> <p>B.3 Initiate action to suspend OPDRVs.</p> <p><u>AND</u></p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.4 Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1</p> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, [SR 3.8.1.18], and SR 3.8.1.19. 2. SR 3.8.1.12 and SR 3.8.1.19 are not required to be met when associated ECCS subsystem(s) are not required to be OPERABLE per LCO 3.5.2, "ECCS-Shutdown." <p style="text-align: center;">-----</p> <p>For AC sources required to be OPERABLE the SRs of Specification 3.8.1, except SR 3.8.1.8, SR 3.8.1.17, and SR 3.8.1.20, are applicable.</p>	<p>In accordance with applicable SRs</p>

Comment: No change made. End state is declaring the EDG inoperable.

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel oil level < [33,000] gal and > [28,285] gal in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory < [500] gal and > [425] gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates to within limit.	7 days
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more DGs with starting air receiver pressure < [225] psig and \geq [125] psig.	E.1 Restore starting air receiver pressure to \geq [225] psig.	48 hours
F. Required Action and associated Completion Time not met. <u>OR</u> One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains \geq [33,000] gal of fuel.	31 days
SR 3.8.3.2	Verify lube oil inventory is \geq [500] gal.	31 days
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is \geq [225] psig.	31 days

Comment: RA A.2 specifies the periodic performance of an action, Condition D is a default Condition and Condition E declares another component inoperable. Therefore they are excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 The [Division 1 and Division 2 station service, and DG 1B, 2A, and 2C] DC electrical power subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] battery charger[s] on one division] inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	<u>AND</u>	<u>IOR</u> In accordance with the Risk Informed Completion Time Program]
	A.2 Verify battery float current ≤ [2] amps.	Once per [12] hours
	<u>AND</u>	
	A.3 Restore battery charger[s] to OPERABLE status.	7 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
[B. One [or two] batter[y][ies] on one division] inoperable.	B.1 Restore batter[y][ies] to OPERABLE status.	[2] hours] <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 Restore DC electrical power subsystem to OPERABLE status.	[2] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
<p>[D. ----- NOTE ----- Not applicable when second DC electrical power subsystem intentionally made inoperable. -----</p> <p>Two DC electrical power subsystems inoperable.</p>	D.1 Restore at least one DC electrical power subsystem to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ED. Required Action and Associated Completion Time of Condition A[, B, C, [or DG] not met for station service DC subsystem.	ED.1 Be in MODE 3.	12 hours
	<u>AND</u> ED.2 Be in MODE 4.	36 hours
FE. [Required Action and associated Completion Time of Condition A[, B, or C] not met for DG DC subsystem.	FE.1 Declare associated DG inoperable.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	7 days
SR 3.8.4.2 Verify each required battery charger supplies \geq [400 amps for station service subsystems, and \geq 100 amps for DG subsystems] at greater than or equal to the minimum established float voltage for \geq [4] hours. <u>OR</u> Verify each battery charger can recharge the battery to the fully charged state within [24] hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	[18 months]

Comment: Outside the applicability of the Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 [DC electrical power subsystems shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One DC electrical power subsystem shall be OPERABLE.]

-----REVIEWER'S NOTE-----
 This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only one DC electrical power subsystem to be OPERABLE. Action A and the bracketed optional wording in Condition B are also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem support as is required for power operating conditions.

APPLICABILITY: MODES 4 and 5,
 During movement of [recently] irradiated fuel assemblies in the [secondary] containment.

ACTIONS

-----NOTE-----
 LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>[A. One [or two] battery charger[s] on one division] inoperable.</p> <p><u>AND</u></p> <p>The redundant division battery and charger[s] OPERABLE.</p>	<p>A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.</p> <p><u>AND</u></p>	<p>2 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Verify battery float current \leq [2] amps. <u>AND</u> A.3 Restore battery charger[s] to OPERABLE status.	Once per [12] hours 7 days]
B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A. <u>OR</u> Required Action and associated Completion Time of Condition A not met.]	B.1 Declare affected required feature(s) inoperable. <u>OR</u> B.2.1 Suspend CORE ALTERATIONS. <u>AND</u> B.2.2 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment. <u>AND</u> B.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel. <u>AND</u> B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately Immediately Immediately Immediately

Comment: No change made. End state is declaring the associated battery inoperable.

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

-----REVIEWER'S NOTE-----

Licenseses must implement a program, as specified in Specification 5.5.14, to monitor battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications."

LCO 3.8.6 Battery parameters for the [station service and DG] batteries shall be within limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] batter[y][ies on one division] with one or more battery cells float voltage < [2.07] V.	A.1 Perform SR 3.8.4.1. <u>AND</u>	2 hours
	A.2 Perform SR 3.8.6.1. <u>AND</u>	2 hours
	A.3 Restore affected cell voltage ≥ [2.07] V.	24 hours
B. One [or two] batter[y][ies on one division] with float current > [2] amps.	B.1 Perform SR 3.8.4.1. <u>AND</u>	2 hours
	B.2 Restore battery float current to ≤ [2] amps.	[12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of plates. -----</p> <p>C. One [or two] batter[y][ies on one division] with one or more cells electrolyte level less than minimum established design limits.</p>	<p>-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. -----</p> <p>C.1 Restore electrolyte level to above top of plates. <u>AND</u> C.2 Verify no evidence of leakage. <u>AND</u> C.3 Restore electrolyte level to greater than or equal to minimum established design limits.</p>	<p>8 hours</p> <p>12 hours</p> <p>31 days</p>
<p>D. One [or two] batter[y][ies on one division] with pilot cell electrolyte temperature less than minimum established design limits.</p>	<p>D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.</p>	<p>12 hours</p>
<p>E. One or more batteries in redundant divisions with battery parameters not within limits.</p>	<p>E.1 Restore battery parameters for batteries in one division to within limits.</p>	<p>2 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p> <p><u>OR</u></p> <p>One [or two] batter[y][ies on one division] with one or more battery cells float voltage < [2.07] V and float current > [2] amps.</p>	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 -----NOTE----- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. -----</p> <p>Verify each battery float current is \leq [2] amps.</p>	7 days
SR 3.8.6.2 Verify each battery pilot cell voltage is \geq [2.07] V.	31 days
SR 3.8.6.3 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	31 days
SR 3.8.6.4 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	31 days

Comment: Condition C is a default Condition and is therefore excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The [Division 1] and [Division 2] inverters shall be OPERABLE.

-----NOTE-----

[One/two] inverter[s] may be disconnected from [its/their] associated DC bus for ≤ [24] hours to perform an equalizing charge on [its/their] associated [common] battery, provided:

- a. The associated AC vital bus[es] [is/are] energized from [its/their] [Class 1E constant voltage transformers] [inverter using internal AC source] and
- b. All other AC vital buses are energized from their associated OPERABLE inverters.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] inverter inoperable.	A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any AC vital bus de-energized. ----- Restore inverter to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when two	B.1 Restore inverters to OPERABLE status.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>[or more] [required] inverters intentionally made inoperable. ----- Two [or more][required] inverters inoperable.</p>		<p><u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time not met.</p>	<p>CB.1 Be in MODE 3. <u>AND</u> CB.2 Be in MODE 4.</p>	<p>12 hours 36 hours</p>

Comment: Outside the applicability of the Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 [Inverter(s) shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One] inverter[s] shall be OPERABLE.]

-----REVIEWER'S NOTE-----
 This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only [one] inverter to be OPERABLE. The "[or more]" optional wording in Condition A is also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem/inverter support as is required for power operating conditions.

APPLICABILITY: MODES 4 and 5,
 During movement of [recently] irradiated fuel assemblies in the [secondary] containment.

ACTIONS

-----NOTE-----
 LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or more] [required] inverter[s] inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<p style="text-align: center;"><u>OR</u></p> A.2.1 Suspend CORE ALTERATIONS. <p style="text-align: center;"><u>AND</u></p>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [secondary] containment.</p> <p><u>AND</u></p> <p>A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.</p> <p><u>AND</u></p> <p>A.2.4 Initiate action to restore [required] inverters to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.8.1 Verify correct inverter voltage, [frequency,] and alignments to [required] AC vital buses.</p>	<p>7 days</p>

Comment: Condition E is a default Condition, and Condition F declares another component inoperable. Therefore they are excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 [Division 1] and [Division 2] AC, DC, [and AC vital bus] electrical power distribution subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more AC electrical power distribution subsystems inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC divisions made inoperable by inoperable power distribution subsystems. -----</p> <p>A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>8 hours <u>[OR]</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>B. [One or more AC vital buses inoperable.</p>	<p>B.1 Restore AC vital bus distribution subsystem(s) to OPERABLE status.</p>	<p>2 hours] <u>[OR]</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>C. One or more [station service] DC electrical power distribution subsystems inoperable.</p>	<p>C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>2 hours <u>[OR]</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		<u>In accordance with the Risk Informed Completion Time Program]</u>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>[D. ----- NOTE -----</u> <u>Not applicable when two</u> <u>or more electrical power</u> <u>distribution subsystems</u> <u>intentionally made</u> <u>inoperable.</u> <u>-----</u></p> <p><u>Two or more electrical</u> <u>power distribution</u> <u>subsystems inoperable</u> <u>that result in a loss of</u> <u>function.</u></p>	<p><u>D.1 Restore electrical power</u> <u>distribution subsystems to</u> <u>OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with</u> <u>the Risk Informed</u> <u>Completion Time</u> <u>Program.]</u></p>
<p><u>ED.</u> Required Action and associated Completion Time of Condition A, B, C. <u>[or ED]</u> not met.</p>	<p><u>ED.1</u> Be in MODE 3.</p> <p><u>AND</u></p> <p><u>ED.2</u> Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>
<p><u>FE.</u> [One or more DG DC electrical power distribution subsystems inoperable.</p>	<p><u>FE.1</u> Declare associated DG(s) inoperable.</p>	<p>Immediately]</p>
<p><u>[FG.</u> Two or more electrical power distribution subsystems inoperable that result in a loss of function.</p>	<p><u>FG.1</u> Enter LCO 3.0.3.</p>	<p>Immediately.]</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.9.1 Verify correct breaker alignments and voltage to [required] AC, DC, [and AC vital bus] electrical power distribution subsystems.</p>	<p>7 days</p>

Comment: Outside the applicability of the Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portions of the AC, DC, [and AC vital bus] electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 4 and 5,
During movement of [recently] irradiated fuel assemblies in the [secondary] containment.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, [or AC vital bus] electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u> A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [secondary] containment. <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate actions to restore required AC, DC, [and AC vital bus] electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>	
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.10.1 Verify correct breaker alignments and voltage to required AC, DC, [and AC vital bus] electrical power distribution subsystems.	7 days

5.5 Programs and Manuals

5.5.14 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] of the following:

- a. Actions to restore battery cells with float voltage < [2.13] V, and
- b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

[5.5.15 Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

- a. The RICT may not exceed 30 days;

----- REVIEWER'S NOTE -----
 The Risk Informed Completion Time is only applicable in MODES supported by the Licensees PRA. Licensee's applying the RICT Program to MODES other than Modes 1 and 2 must demonstrate that they have the capability to calculate a RICT in those MODES or that the risk indicated by their MODE 1 and 2 PRA model is bounding with respect to the lower MODE conditions.

- b. A RICT may only be utilized in MODE 1, 2 [, and MODE 3 while relying on the main condenser for heat removal];
- c. When a RICT is being used, any plant configuration change within the scope of the Risk Informed Completion Time Program must be considered for the effect on the RICT.
 1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.
 2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

3. Revising the RICT is not required If the plant configuration change would lower plant risk and would result in a longer RICT.
 - d. Use of a RICT is not permitted for voluntary entry into a configuration which represents a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE.
 - e. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more of the trains are considered "PRA functional" as defined in Section 2.3.1 of NEI 06-09.]
-

BASES

LCO The OPERABILITY of the SLC System provides backup capability for reactivity control independent of normal reactivity control provisions provided by the control rods. The OPERABILITY of the SLC System is based on the conditions of the borated solution in the storage tank and the availability of a flow path to the RPV, including the OPERABILITY of the pumps and valves. Two SLC subsystems are required to be OPERABLE; each contains an OPERABLE pump, an explosive valve, and associated piping, valves, and instruments and controls to ensure an OPERABLE flow path.

APPLICABILITY In MODES 1 and 2, shutdown capability is required. In MODES 3 and 4, control rods are not able to be withdrawn since the reactor mode switch is in shutdown and a control rod block is applied. This provides adequate controls to ensure that the reactor remains subcritical. In MODE 5, only a single control rod can be withdrawn from a core cell containing fuel assemblies. Demonstration of adequate SDM (LCO 3.1.1, "SHUTDOWN MARGIN (SDM)") ensures that the reactor will not become critical. Therefore, the SLC System is not required to be OPERABLE when only a single control rod can be withdrawn.

ACTIONS

A.1

If the boron solution concentration is less than the required limits for mitigation but greater than the concentration required for cold shutdown (original licensing basis), the concentration must be restored to within limits in 72 hours [or in accordance with the Risk Informed Completion Time Program]. It is not necessary under these conditions to enter Condition C for both SLC subsystems inoperable since they are capable of performing their original design basis function. Because of the low probability of an event and the fact that the SLC System capability still exists for vessel injection under these conditions, the allowed Completion Time of 72 hours is acceptable and provides adequate time to restore concentration to within limits.

B.1

If one SLC subsystem is inoperable for reasons other than Condition A, the inoperable subsystem must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this condition, the remaining OPERABLE subsystem is adequate to perform the shutdown function. However, the overall reliability is reduced because a single failure in the remaining OPERABLE subsystem could result in reduced SLC System shutdown capability. The 7 day Completion Time is based on the availability of an OPERABLE subsystem capable of performing the intended SLC System function and the low probability of a Design Basis Accident (DBA) or severe transient

occurring concurrent with the failure of the Control Rod Drive (CRD)
System to shut down the plant.

BASES

ACTIONS (continued)

C.1

If both SLC subsystems are inoperable for reasons other than Condition A, at least one subsystem must be restored to OPERABLE status within 8 hours [or in accordance with the Risk Informed Completion Time Program]. The allowed Completion Time of 8 hours is considered acceptable given the low probability of a DBA or transient occurring concurrent with the failure of the control rods to shut down the reactor.

D.1

If any Required Action and associated Completion Time is 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 MODE 3 within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTSSR 3.1.7.1, SR 3.1.7.2, and SR 3.1.7.3

SR 3.1.7.1 through SR 3.1.7.3 are 24 hour Surveillances verifying certain characteristics of the SLC System (e.g., the volume and temperature of the borated solution in the storage tank), thereby ensuring SLC System OPERABILITY without disturbing normal plant operation. These Surveillances ensure that the proper borated solution volume and temperature, including the temperature of the pump suction piping, are maintained. Maintaining a minimum specified borated solution temperature is important in ensuring that the boron remains in solution and does not precipitate out in the storage tank or in the pump suction piping. The temperature versus concentration curve of Figure 3.1.7-2 ensures that a 10°F margin will be maintained above the saturation temperature. The 24 hour Frequency is based on operating experience and has shown there are relatively slow variations in the measured parameters of volume and temperature.

SR 3.1.7.4 and SR 3.1.7.6

SR 3.1.7.4 verifies the continuity of the explosive charges in the injection valves to ensure that proper operation will occur if 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 and has demonstrated the reliability of the explosive charge continuity.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

There is no Allowable Value for this Function since the channels are mechanically actuated based solely on the position of the push buttons.

Four channels of Manual Scram with two channels in each trip system arranged in a one-out-of-two logic are available and required to be OPERABLE in MODES 1 and 2, and in MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies, since these are the MODES and other specified conditions when control rods are withdrawn.

ACTIONS

-----REVIEWER'S NOTE-----
Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A Note has been provided to modify the ACTIONS related to RPS instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable RPS instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable RPS instrumentation channel.

A.1 and A.2

Because of the diversity of sensors available to provide trip signals and the redundancy of the RPS design, an allowable out of service time of 12 hours has been shown to be acceptable (Ref. 10) to permit restoration of any inoperable channel to OPERABLE status. However, this out of service time is only acceptable provided the associated Function's inoperable channel is in one trip system and the Function still maintains RPS trip capability (refer to Required Actions B.1, B.2, and C.1 Bases). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel or the associated trip

BASES

ACTIONS (continued)

system must be placed in the tripped condition per Required Actions A.1 and A.2. Placing the inoperable channel in trip (or the associated trip system in trip) would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternatively, if it is not desired to place the channel (or trip system) in trip (e.g., as in the case where placing the inoperable channel in trip would result in a full scram), Condition D must be entered and its Required Action taken.

B.1 and B.2

Condition B exists when, for any one or more Functions, at least one required channel is inoperable in each trip system. In this condition, provided at least one channel per trip system is OPERABLE, the RPS still maintains trip capability for that Function, but cannot accommodate a single failure in either trip system.

Required Actions B.1 and B.2 limit the time the RPS scram logic, for any Function, would not accommodate single failure in both trip systems (e.g., one-out-of-one and one-out-of-one arrangement for a typical four channel Function). The reduced reliability of this logic arrangement was not evaluated in Reference 10 for the 12 hour Completion Time. Within the 6 hour allowance, the associated Function will have all required channels OPERABLE or in trip (or any combination) in one trip system.

Completing one of these Required Actions restores RPS to a reliability level equivalent to that evaluated in Reference 10, which justified a 12 hour allowable out of service time as presented in Condition A. The trip system in the more degraded state should be placed in trip or, alternatively, all the inoperable channels in that trip system should be placed in trip (e.g., a trip system with two inoperable channels could be in a more degraded state than a trip system with four inoperable channels if the two inoperable channels are in the same Function while the four inoperable channels are all in different Functions). The decision of which trip system is in the more degraded state should be based on prudent judgment and take into account current plant conditions (i.e., what MODE the plant is in). If this action would result in a scram or RPT, it is permissible to place the other trip system or its inoperable channels in trip.

BASES

ACTIONS (continued)

The 6 hour Completion Time is judged acceptable based on the remaining capability to trip, the diversity of the sensors available to provide the trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of a scram. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

Alternately, if it is not desired to place the inoperable channels (or one trip system) in trip (e.g., as in the case where placing the inoperable channel or associated trip system in trip would result in a scram [or RPT]), Condition D must be entered and its Required Action taken.

C.1

Required Action C.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same trip system for the same Function result in the Function not maintaining RPS trip capability. A Function is considered to be maintaining RPS trip capability when sufficient channels are OPERABLE or in trip (or the associated trip system is in trip), such that both trip systems will generate a trip signal from the given Function on a valid signal. For the typical Function with one-out-of-two taken twice logic and the IRM and APRM Functions, this would require both trip systems to have one channel OPERABLE or in trip (or the associated trip system in trip). For Function 5 (Main Steam Isolation Valve - Closure), this would require both trip systems to have each channel associated with the MSIVs in three main steam lines (not necessarily the same main steam lines for both trip systems) OPERABLE or in trip (or the associated trip system in trip).

For Function 8 (Turbine Stop Valve - Closure), this would require both trip systems to have three channels, each OPERABLE or in trip (or the associated trip system in trip).

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

D.1

Required Action D.1 directs entry into the appropriate Condition referenced in Table 3.3.1.1-1. The applicable Condition specified in the Table is Function and MODE or other specified condition dependent and may change as the Required Action of a previous Condition is completed. Each time an inoperable channel has not met any Required Action of Condition A, B, or C and the associated Completion Time has expired, Condition D will be entered for that channel and provides for transfer to the appropriate subsequent Condition.

E.1, F.1, and G.1

If the channel(s) is not restored to OPERABLE status or placed in trip (or the associated trip system placed in trip) within the allowed Completion Time, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. The allowed Completion Times are reasonable, based on operating experience, to reach the specified condition from full power conditions in an orderly manner and without challenging plant systems. In addition, the Completion Time of Required Action E.1 is consistent with the Completion Time provided in LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)."

H.1

If the channel(s) is not restored to OPERABLE status or placed in trip (or the associated trip system placed in trip) within the allowed Completion Time, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by immediately initiating action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core and are, therefore, not required to be inserted. Action must continue until all insertable control rods in core cells containing one or more fuel assemblies are fully inserted.

SURVEILLANCE
REQUIREMENTS

-----REVIEWER'S NOTE-----
Certain Frequencies are based on approved topical reports. In order for a licensee to use these Frequencies, the licensee must justify the Frequencies as required by the staff SER for the topical report.

BASES

APPLICABILITY The SRMs are required to be OPERABLE in MODES 2, 3, 4, and 5 prior to the IRMs being on scale on Range 3 to provide for neutron monitoring. In MODE 1, the APRMs provide adequate monitoring of reactivity changes in the core; therefore, the SRMs are not required. In MODE 2, with IRMs on Range 3 or above, the IRMs provide adequate monitoring and the SRMs are not required.

ACTIONS A.1 and B.1

In MODE 2, with the IRMs on Range 2 or below, SRMs provide the means of monitoring core reactivity and criticality. With any number of the required SRMs inoperable, the ability to monitor neutron flux is degraded. Therefore, a limited time is allowed to restore the inoperable channels to OPERABLE status.

Provided at least one SRM remains OPERABLE, Required Action A.1 allows 4 hours to restore the required SRMs to OPERABLE status. This time is reasonable because there is adequate capability remaining to monitor the core, there is limited risk of an event during this time, and there is sufficient time to take corrective actions to restore the required SRMs to OPERABLE status or to establish alternate IRM monitoring capability. During this time, control rod withdrawal and power increase is not precluded by this Required Action. Having the ability to monitor the core with at least one SRM, proceeding to IRM Range 3 or greater (with overlap verified by SR 3.3.1.1.1), and thereby exiting the Applicability of this LCO, is acceptable for ensuring adequate core monitoring and allowing continued operation. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

With three required SRMs inoperable, Required Action B.1 allows no positive changes in reactivity (control rod withdrawal must be immediately suspended) due to inability to monitor the changes. Required Action A.1 still applies and allows 4 hours to restore monitoring capability prior to requiring control rod insertion. This allowance is based on the limited risk of an event during this time, provided that no control rod withdrawals are allowed, and the desire to concentrate efforts on repair, rather than to immediately shut down, with no SRMs OPERABLE.

C.1

In MODE 2, if the required number of SRMs is not restored to OPERABLE status within the allowed Completion Time, the reactor shall be placed in MODE 3. With all control rods fully inserted, the core is in its least reactive state with the most margin to criticality. The allowed Completion Time of 12 hours is reasonable, based on operating

experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

D.1 and D.2

With one or more required SRMs inoperable in MODE 3 or 4, the neutron flux monitoring capability is degraded or nonexistent. The requirement to fully insert all insertable control rods ensures that the reactor will be at its minimum reactivity level while no neutron monitoring capability is available. Placing the reactor mode switch in the shutdown position prevents subsequent control rod withdrawal by maintaining a control rod block. The allowed Completion Time of 1 hour is sufficient to accomplish the Required Action, and takes into account the low probability of an event requiring the SRM occurring during this interval. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

E.1 and E.2

With one or more required SRM channels inoperable in MODE 5, the ability to detect local reactivity changes in the core during refueling is degraded. CORE ALTERATIONS must be immediately suspended and action must be immediately initiated to insert all insertable control rods in core cells containing one or more fuel assemblies. Suspending CORE ALTERATIONS prevents the two most probable causes of reactivity changes, fuel loading and control rod withdrawal, from occurring. Inserting all insertable control rods ensures that the reactor will be at its minimum reactivity given that fuel is present in the core. Suspension of CORE ALTERATIONS shall not preclude completion of the movement of a component to a safe, conservative position.

Action (once required to be initiated) to insert control rods must continue until all insertable rods in core cells containing one or more fuel assemblies are inserted.

SURVEILLANCE
REQUIREMENTS

The SRs for each SRM Applicable MODE or other specified conditions are found in the SRs column of Table 3.3.1.2-1.

SR 3.3.1.2.1 and SR 3.3.1.2.3

Performance of the CHANNEL CHECK 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 another channel. It is based on the assumption that instrument channels monitoring the same parameter should read

BASES

ACTIONS

A Note has been provided to modify the ACTIONS related to feedwater and main turbine high water level trip instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable feedwater and main turbine high water level trip instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable feedwater and main turbine high water level trip instrumentation channel.

A.1

With one channel inoperable, the remaining two OPERABLE channels can provide the required trip signal. However, overall instrumentation reliability is reduced because a single failure in one of the remaining channels concurrent with feedwater controller failure, maximum demand event, may result in the instrumentation not being able to perform its intended function. Therefore, continued operation is only allowed for a limited time with one channel inoperable. If the inoperable channel cannot be restored to OPERABLE status within the Completion Time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue with no further restrictions. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in a feedwater or main turbine trip), Condition C must be entered and its Required Action taken.

The Completion Time of 7 days is based on the low probability of the event occurring coincident with a single failure in a remaining OPERABLE channel. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

B.1

With two or more channels inoperable, the feedwater and main turbine high water level trip instrumentation cannot perform its design function (feedwater and main turbine high water level trip capability is not maintained). Therefore, continued operation is only permitted for a 2 hour period [or in accordance with the Risk Informed Completion Time Program], during which feedwater and main turbine high water level trip capability must be restored. The trip capability is considered maintained when sufficient channels are OPERABLE or in trip such that the feedwater and main turbine high water level trip logic will generate a trip signal on a valid signal. This requires two channels to each be OPERABLE or in trip. If the required channels cannot be restored to OPERABLE status or placed in trip, Condition C must be entered and its Required Action taken.

The 2 hour Completion Time is sufficient for the operator to take corrective action, and takes into account the likelihood of an event requiring actuation of feedwater and main turbine high water level trip instrumentation occurring during this period. It is also consistent with the 2 hour Completion Time provided in LCO 3.2.2 for Required Action A.1, since this instrumentation's purpose is to preclude a MCPR violation.

C.1 and C.2

With the required channels not restored to OPERABLE status or placed in trip, THERMAL POWER must be reduced to < 25% RTP within 4 hours. Alternatively, the affected feedwater pump(s) and affected main turbine valve(s) may be removed from service since this performs the intended function of the instrumentation. As discussed in the Applicability section of the Bases, operation below 25% RTP results in sufficient margin to the required limits, and the feedwater and main turbine high water level trip instrumentation is not required to protect fuel integrity during the feedwater controller failure, maximum demand event. The allowed Completion Time of 4 hours is based on operating experience to reduce THERMAL POWER to < 25% RTP from full power conditions in an orderly manner and without challenging plant systems.

Required Action C.1 is modified by a Note which states that the Required Action is only applicable if the inoperable channel is the result of an inoperable feedwater pump [valve] or main turbine stop valve. The Note clarifies the situations under which the associated Required Action would be the appropriate Required Action.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

This protection is required consistent with the safety analysis whenever THERMAL POWER is > 30% RTP. Below 30% RTP, the Reactor Vessel Steam Dome Pressure - High and the APRM Fixed Neutron Flux - High Functions of the RPS are adequate to maintain the necessary safety margins.

ACTIONS

-----REVIEWER'S NOTE-----
 Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A Note has been provided to modify the ACTIONS related to EOC-RPT instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable EOC-RPT instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable EOC-RPT instrumentation channel.

A.1 and A.2

With one or more required channels inoperable, but with EOC-RPT trip capability maintained (refer to Required Actions B.1 and B.2 Bases), the EOC-RPT System is capable of performing the intended function. However, the reliability and redundancy of the EOC-RPT instrumentation is reduced such that a single failure in the remaining trip system could result in the inability of the EOC-RPT System to perform the intended function. Therefore, only a limited time is allowed to restore compliance with the LCO. Because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of an EOC-RPT, 72 hours is provided to restore the inoperable channels (Required Action A.1) [or apply the EOC-RPT

BASES

ACTIONS (continued)

inoperable MCPR limit]. Alternately, the inoperable channels may be placed in trip (Required Action A.2) since this would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. As noted in Required Action A.2, placing the channel in trip with no further restrictions is not allowed if the inoperable channel is the result of an inoperable breaker, since this may not adequately compensate for the inoperable breaker (e.g., the breaker may be inoperable such that it will not open).

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an RPT), or if the inoperable channel is the result of an inoperable breaker, Condition C must be entered and its Required Actions taken.

B.1 and B.2

Required Actions B.1 and B.2 are intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in the Function not maintaining EOC-RPT trip capability. A Function is considered to be maintaining EOC-RPT trip capability when sufficient channels are OPERABLE or in trip, such that the EOC-RPT System will generate a trip signal from the given Function on a valid signal and both recirculation pumps can be tripped. This requires two channels of the Function in the same trip system, to each be OPERABLE or in trip, and the associated EOC-RPT breakers to be OPERABLE or in trip. Alternately, Required Action B.2 requires the MCPR limit for inoperable EOC-RPT, as specified in the COLR, to be applied. This also restores the margin to MCPR assumed in the safety analysis.

The 2 hour Completion Time is sufficient time for the operator to take corrective action, and takes into account the likelihood of an event requiring actuation of the EOC-RPT instrumentation during this period. It is also consistent with the 2 hour Completion Time provided in LCO 3.2.2 for Required Action A.1, since this instrumentation's purpose is to preclude a MCPR violation. [Alternatively, a Completion Time of Required Action B.1 can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

C.1 and C.2

With any Required Action and associated Completion Time not met, THERMAL POWER must be reduced to < 30% RTP within 4 hours. Alternately, the associated recirculation pump may be removed from service, since this performs the intended function of the instrumentation. The allowed Completion Time of 4 hours is reasonable, based on operating experience, to reduce THERMAL POWER to < 30% RTP from full power conditions in an orderly manner and without challenging plant systems.

Required Action C.1 is modified by a Note which states that the Required Action is only applicable if the inoperable channel is the result of an inoperable RPT breaker. The Note clarifies the situations under which the associated Required Action would be the appropriate Required Action.

SURVEILLANCE
REQUIREMENTS

-----REVIEWER'S NOTE-----
Certain Frequencies are based on approved topical reports. In order for a licensee to use these Frequencies, the licensee must justify the Frequencies as required by the staff SER for the topical report.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains EOC-RPT trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 5) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the recirculation pumps will trip when necessary.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The Reactor Steam Dome Pressure - High signals are initiated from four pressure transmitters that monitor reactor steam dome pressure. Four channels of Reactor Steam Dome Pressure - High, with two channels in each trip system, are available and are required to be OPERABLE to ensure that no single instrument failure can preclude an ATWS-RPT from this Function on a valid signal. The Reactor Steam Dome Pressure - High Allowable Value is chosen to provide an adequate margin to the ASME Section III Code Service Level C allowable Reactor Coolant System pressure.

ACTIONS

A Note has been provided to modify the ACTIONS related to ATWS-RPT instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable ATWS-RPT instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable ATWS-RPT instrumentation channel.

A.1 and A.2

With one or more channels inoperable, but with ATWS-RPT capability for each Function maintained (refer to Required Actions B.1 and C.1 Bases), the ATWS-RPT System is capable of performing the intended function. However, the reliability and redundancy of the ATWS-RPT instrumentation is reduced, such that a single failure in the remaining trip system could result in the inability of the ATWS-RPT System to perform the intended function. Therefore, only a limited time is allowed to restore the inoperable channels to OPERABLE status. Because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of ATWS-RPT, 14 days is provided to restore the inoperable channel (Required Action A.1). Alternately, the inoperable channel may be placed in trip (Required Action A.2), since this would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. As noted, placing the channel in trip with no further restrictions is not allowed if the inoperable channel is the result of an

BASES

ACTIONS (continued)

inoperable breaker, since this may not adequately compensate for the inoperable breaker (e.g., the breaker may be inoperable such that it will not open). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel would result in an RPT), or if the inoperable channel is the result of an inoperable breaker, Condition D must be entered and its Required Actions taken.

B.1

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in the Function not maintaining ATWS-RPT trip capability. A Function is considered to be maintaining ATWS-RPT trip capability when sufficient channels are OPERABLE or in trip such that the ATWS-RPT System will generate a trip signal from the given Function on a valid signal, and both recirculation pumps can be tripped. This requires two channels of the Function in the same trip system to each be OPERABLE or in trip, and the recirculation pump drive motor breakers to be OPERABLE or in trip.

The 72 hour Completion Time is sufficient for the operator to take corrective action (e.g., restoration or tripping of channels) and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period and that one Function is still maintaining ATWS-RPT trip capability. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1

Required Action C.1 is intended to ensure that appropriate Actions are taken if multiple, inoperable, untripped channels within both Functions result in both Functions not maintaining ATWS-RPT trip capability. The description of a Function maintaining ATWS-RPT trip capability is discussed in the Bases for Required Action B.1 above.

The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS

-----REVIEWER'S NOTE-----
 Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A Note has been provided to modify the ACTIONS related to ECCS instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable ECCS instrumentation channels provide appropriate compensatory measures for separate inoperable Condition entry for each inoperable ECCS instrumentation channel.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.1-1. The applicable Condition referenced in the Table is Function dependent. Each time a channel is discovered inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1, B.2, and B.3

Required Actions B.1 and B.2 are intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in redundant automatic initiation capability being lost for the feature(s). Required Action B.1 features would be those that are initiated by Functions 1.a, 1.b, 2.a, and 2.b (e.g., low pressure ECCS). The Required Action B.2 system would be HPCI. For Required Action B.1, redundant automatic initiation capability is lost if (a) two Function 1.a channels are inoperable and untripped in the same trip system, (b) two Function 2.a channels are inoperable and untripped in the same trip system, (c) two Function 1.b channels are inoperable and untripped in the same system, or (d) two Function 2.b channels are inoperable and untripped in the same trip system. For low pressure

BASES

ACTIONS (continued)

ECCS, since each inoperable channel would have Required Action B.1 applied separately (refer to ACTIONS Note), each inoperable channel would only require the affected portion of the associated system of low pressure ECCS and DGs to be declared inoperable. However, since channels in both associated low pressure ECCS subsystems (e.g., both CS subsystems) are inoperable and untripped, and the Completion Times started concurrently for the channels in both subsystems, this results in the affected portions in the associated low pressure ECCS and DGs being concurrently declared inoperable.

For Required Action B.2, redundant automatic initiation capability is lost if two Function 3.a or two Function 3.b channels are inoperable and untripped in the same trip system. In this situation (loss of redundant automatic initiation capability), the 24 hour allowance of Required Action B.3 is not appropriate and the feature(s) associated with the inoperable, untripped channels must be declared inoperable within 1 hour. As noted (Note 1 to Required Action B.1), Required Action B.1 is only applicable in MODES 1, 2, and 3. In MODES 4 and 5, the specific initiation time of the low pressure ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of initiation capability for 24 hours (as allowed by Required Action B.3) is allowed during MODES 4 and 5. There is no similar Note provided for Required Action B.2 since HPCI instrumentation is not required in MODES 4 and 5; thus, a Note is not necessary.

Notes are also provided (Note 2 to Required Action B.1 and the Note to Required Action B.2) to delineate which Required Action is applicable for each Function that requires entry into Condition B if an associated channel is inoperable. This ensures that the proper loss of initiation capability check is performed. Required Action B.1 (the Required Action for certain inoperable channels in the low pressure ECCS subsystems) is not applicable to Function 2.e, since this Function provides backup to administrative controls ensuring that operators do not divert LPCI flow from injecting into the core when needed. Thus, a total loss of Function 2.e capability for 24 hours is allowed, since the LPCI subsystems remain capable of performing their intended function.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action B.1, the Completion Time only begins upon discovery that a redundant feature in the same

BASES

ACTIONS (continued)

system (e.g., both CS subsystems) cannot be automatically initiated due to inoperable, untripped channels within the same Function as described in the paragraph above. For Required Action B.2, the Completion Time only begins upon discovery that the HPCI System cannot be automatically initiated due to two inoperable, untripped channels for the associated Function in the same trip system. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 5) to permit restoration of any inoperable channel to OPERABLE status.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action B.3. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), Condition H must be entered and its Required Action taken.

C.1 and C.2

Required Action C.1 is intended to ensure that appropriate actions are taken if multiple, inoperable channels within the same Function result in redundant automatic initiation capability being lost for the feature(s). Required Action C.1 features would be those that are initiated by Functions 1.c, 2.c, 2.d, and 2.f (i.e., low pressure ECCS). Redundant automatic initiation capability is lost if either (a) two Function 1.c channels are inoperable in the same trip system, (b) two Function 2.c channels are inoperable in the same trip system, (c) two Function 2.d channels are inoperable in the same trip system, or (d) two or more Function 2.f channels are inoperable. In this situation (loss of redundant automatic initiation capability), the 24 hour allowance of Required Action C.2 is not appropriate and the feature(s) associated with the inoperable channels must be declared inoperable within 1 hour. Since each inoperable channel would have Required Action C.1 applied separately (refer to

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ACTIONS (continued)

ACTIONS Note), each inoperable channel would only require the affected portion of the associated system to be declared inoperable. However, since channels for both low pressure ECCS subsystems are inoperable (e.g., both CS subsystems), and the Completion Times started concurrently for the channels in both subsystems, this results in the affected portions in both subsystems being concurrently declared inoperable. For Functions 1.c, 2.d, and 2.f, the affected portions are the associated low pressure ECCS pumps. As noted (Note 1), Required Action C.1 is only applicable in MODES 1, 2, and 3. In MODES 4 and 5, the specific initiation time of the ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of automatic initiation capability for 24 hours (as allowed by Required Action C.2) is allowed during MODES 4 and 5.

Note 2 states that Required Action C.1 is only applicable for Functions 1.c, 2.c, 2.d, and 2.f. Required Action C.1 is not applicable to Functions 1.e, 2.h, and 3.g (which also require entry into this Condition if a channel in these Functions is inoperable), since they are the Manual Initiation Functions and are not assumed in any accident or transient analysis. Thus, a total loss of manual initiation capability for 24 hours (as allowed by Required Action C.2) is allowed. Required Action C.1 is also not applicable to Function 3.c (which also requires entry into this Condition if a channel in this Function is inoperable), since the loss of one channel results in a loss of the Function (two-out-of-two logic). This loss was considered during the development of Reference 5 and considered acceptable for the 24 hours allowed by Required Action C.2.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action C.1, the Completion Time only begins upon discovery that the same feature in both subsystems (e.g., both CS subsystems) cannot be automatically initiated due to inoperable channels within the same Function as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration of channels.

BASES

ACTIONS (continued)

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 5) to permit restoration of any inoperable channel to OPERABLE status.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, Condition H must be entered and its Required Action taken. The Required Actions do not allow placing the channel in trip since this action would either cause the initiation or it would not necessarily result in a safe state for the channel in all events.

D.1, D.2.1, and D.2.2

Required Action D.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic component initiation capability for the HPCI System. Automatic component initiation capability is lost if two Function 3.d channels or two Function 3.e channels are inoperable and untripped. In this situation (loss of automatic suction swap), the 24 hour allowance of Required Actions D.2.1 and D.2.2 is not appropriate and the HPCI System must be declared inoperable within 1 hour after discovery of loss of HPCI initiation capability. As noted, Required Action D.1 is only applicable if the HPCI pump suction is not aligned to the suppression pool, since, if aligned, the Function is already performed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action D.1, the Completion Time only begins upon discovery that the HPCI System cannot be automatically aligned to the suppression pool due to two inoperable, untripped channels in the same Function. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 5) to permit restoration of any inoperable channel to OPERABLE status.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per

Required Action D.2.1 or the suction source must be aligned to the suppression pool **within 24 hours** per Required Action D.2.2. Placing the |

BASES

ACTIONS (continued)

inoperable channel in trip performs the intended function of the channel (shifting the suction source to the suppression pool). Performance of either of these two Required Actions will allow operation to continue. If Required Action D.2.1 or D.2.2 is performed, measures should be taken to ensure that the HPCI System piping remains filled with water. Alternately, if it is not desired to perform Required Actions D.2.1 and D.2.2 (e.g., as in the case where shifting the suction source could drain down the HPCI suction piping), Condition H must be entered and its Required Action taken.

E.1 and E.2

Required Action E.1 is intended to ensure that appropriate actions are taken if multiple, inoperable channels within the Core Spray and Low Pressure Coolant Injection Pump Discharge Flow - Low Bypass Functions result in redundant automatic initiation capability being lost for the feature(s). For Required Action E.1, the features would be those that are initiated by Functions 1.d and 2.g (e.g., low pressure ECCS). Redundant automatic initiation capability is lost if (a) two Function 1.d channels are inoperable or (b) one or more Function 2.g channels associated with pumps in LPCI subsystem A and one or more Function 2.g channels associated with pumps in LPCI subsystem B are inoperable. Since each inoperable channel would have Required Action E.1 applied separately (refer to ACTIONS Note), each inoperable channel would only require the affected low pressure ECCS pump to be declared inoperable. However, since channels for more than one low pressure ECCS pump are inoperable, and the Completion Times started concurrently for the channels of the low pressure ECCS pumps, this results in the affected low pressure ECCS pumps being concurrently declared inoperable.

In this situation (loss of redundant automatic initiation capability), the 7 day allowance of Required Action E.2 is not appropriate and the subsystem associated with each inoperable channel must be declared inoperable within 1 hour. As noted (Note 1 to Required Action E.1), Required Action E.1 is only applicable in MODES 1, 2, and 3. In MODES 4 and 5, the specific initiation time of the ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of initiation capability for 7 days (as allowed by Required Action E.2) is allowed

BASES

ACTIONS (continued)

during MODES 4 and 5. A Note is also provided (Note 2 to Required Action E.1) to delineate that Required Action E.1 is only applicable to low pressure ECCS Functions. Required Action E.1 is not applicable to HPCI Function 3.f since the loss of one channel results in a loss of the Function (one-out-of-one logic). This loss was considered during the development of Reference 5 and considered acceptable for the 7 days allowed by Required Action E.2. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock."

For Required Action E.1, the Completion Time only begins upon discovery that a redundant feature in the same system (e.g., both CS subsystems) cannot be automatically initiated due to inoperable channels within the same Function as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration of channels.

If the instrumentation that controls the pump minimum flow valve is inoperable, such that the valve will not automatically open, extended pump operation with no injection path available could lead to pump overheating and failure. If there were a failure of the instrumentation, such that the valve would not automatically close, a portion of the pump flow could be diverted from the reactor vessel injection path, causing insufficient core cooling. These consequences can be averted by the operator's manual control of the valve, which would be adequate to maintain ECCS pump protection and required flow. Furthermore, other ECCS pumps would be sufficient to complete the assumed safety function if no additional single failure were to occur. The 7 day Completion Time of Required Action E.2 to restore the inoperable channel to OPERABLE status is reasonable based on the remaining capability of the associated ECCS subsystems, the redundancy available in the ECCS design, and the low probability of a DBA occurring during the allowed out of service time. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, Condition H must be entered and its Required Action taken. The Required Actions do not allow placing the channel in trip since this action would not necessarily result in a safe state for the channel in all events.

BASES

ACTIONS (continued)

F.1 and F.2

Required Action F.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within similar ADS trip system A and B Functions result in redundant automatic initiation capability being lost for the ADS. Redundant automatic initiation capability is lost if either (a) one Function 4.a channel and one Function 5.a channel are inoperable and untripped, (b) one Function 4.b channel and one Function 5.b channel are inoperable and untripped, or (c) one Function 4.d channel and one Function 5.d channel are inoperable and untripped.

In this situation (loss of automatic initiation capability), the 96 hour or 8 day allowance, as applicable, of Required Action F.2 is not appropriate and all ADS valves must be declared inoperable within 1 hour after discovery of loss of ADS initiation capability.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action F.1, the Completion Time only begins upon discovery that the ADS cannot be automatically initiated due to inoperable, untripped channels within similar ADS trip system Functions as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 8 days has been shown to be acceptable (Ref. 5) to permit restoration of any inoperable channel to OPERABLE status if both HPCI and RCIC are OPERABLE. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If either HPCI or RCIC is inoperable, the time is shortened to 96 hours. If the status of HPCI or RCIC changes such that the Completion Time changes from 8 days to 96 hours [or in accordance with the Risk Informed Completion Time Program], the 96 hours begins upon discovery of HPCI or RCIC inoperability. However, the total time for an inoperable, untripped channel cannot exceed 8 days. If the status of HPCI or RCIC changes such that the Completion Time changes from 96 hours to 8 days, the "time zero" for beginning the 8 day "clock" begins upon discovery of the inoperable, untripped channel. If the

BASES

ACTIONS (continued)

inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action F.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), Condition H must be entered and its Required Action taken.

G.1 and G.2

Required Action G.1 is intended to ensure that appropriate actions are taken if multiple, inoperable channels within similar ADS trip system Functions result in automatic initiation capability being lost for the ADS. Automatic initiation capability is lost if either (a) one Function 4.c channel and one Function 5.c channel are inoperable, (b) a combination of Function 4.e, 4.f, 5.e, and 5.f channels are inoperable such that channels associated with five or more low pressure ECCS pumps are inoperable, or (c) one or more Function 4.g channels and one or more Function 5.g channels are inoperable.

In this situation (loss of automatic initiation capability), the 96 hour or 8 day allowance, as applicable, of Required Action G.2 is not appropriate, and all ADS valves must be declared inoperable within 1 hour after discovery of loss of ADS initiation capability. The Note to Required Action G.1 states that Required Action G.1 is only applicable for Functions 4.c, 4.e, 4.f, 4.g, 5.c, 5.e, 5.f, and 5.g. Required Action G.1 is not applicable to Functions 4.h and 5.h (which also require entry into this Condition if a channel in these Functions is inoperable), since they are the Manual Initiation Functions and are not assumed in any accident or transient analysis. Thus, a total loss of manual initiation capability for 96 hours or 8 days (as allowed by Required Action G.2) is allowed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action G.1, the Completion Time only begins upon discovery that the ADS cannot be automatically initiated due to inoperable channels within similar ADS trip system Functions as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

BASES

ACTIONS (continued)

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 8 days has been shown to be acceptable (Ref. 5) to permit restoration of any inoperable channel to OPERABLE status if both HPCI and RCIC are OPERABLE (Required Action G.2). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If either HPCI or RCIC is inoperable, the time shortens to 96 hours [or in accordance with the Risk Informed Completion Time Program]. If the status of HPCI or RCIC changes such that the Completion Time changes from 8 days to 96 hours, the 96 hours begins upon discovery of HPCI or RCIC inoperability. However, the total time for an inoperable channel cannot exceed 8 days. If the status of HPCI or RCIC changes such that the Completion Time changes from 96 hours to 8 days, the "time zero" for beginning the 8 day "clock" begins upon discovery of the inoperable channel. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, Condition H must be entered and its Required Action taken. The Required Actions do not allow placing the channel in trip since this action would not necessarily result in a safe state for the channel in all events.

H.1

With any Required Action and associated Completion Time not met, the associated feature(s) may be incapable of performing the intended function, and the supported feature(s) associated with inoperable untripped channels must be declared inoperable immediately.

SURVEILLANCE
REQUIREMENTS

-----REVIEWER'S NOTE-----
Certain Frequencies are based on approved topical reports. In order for a licensee to use these Frequencies, the licensee must justify the Frequencies as required by the staff SER for the topical report.

As noted in the beginning of the SRs, the SRs for each ECCS instrumentation Function are found in the SRs column of Table 3.3.5.1-1. The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours as follows: (a) for Functions 3.c, 3.f, and 3.g; and (b) for Functions other than 3.c, 3.f, and 3.g provided the associated Function or redundant Function maintains ECCS initiation capability. Upon completion of the Surveillance, or expiration of the 6 hour

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Suppression pool water level signals are initiated from two level switches. The Allowable Value for the Suppression Pool Water Level - High Function is set low enough to ensure that RCIC will be aligned to take suction from the suppression pool before the water level reaches the point at which suppression design loads would be exceeded.

Two channels of Suppression Pool Water Level - High Function are available and are required to be OPERABLE when RCIC is required to be OPERABLE to ensure that no single instrument failure can preclude RCIC swap to suppression pool source. Refer to LCO 3.5.3 for RCIC Applicability Bases.

5. Manual Initiation

The Manual Initiation push button switch introduces a signal into the RCIC System initiation logic that is redundant to the automatic protective instrumentation and provides manual initiation capability. There is one push button for the RCIC System.

The Manual Initiation Function is not assumed in any accident or transient analyses in the FSAR. However, the Function is retained for overall redundancy and diversity of the RCIC function as required by the NRC in the plant licensing basis.

There is no Allowable Value for this Function since the channel is mechanically actuated based solely on the position of the push button. One channel of Manual Initiation is required to be OPERABLE when RCIC is required to be OPERABLE.

ACTIONS

-----REVIEWER'S NOTE-----
Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A Note has been provided to modify the ACTIONS related to RCIC System instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with

BASES

ACTIONS (continued)

Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable RCIC System instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable RCIC System instrumentation channel.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.2-1. The applicable Condition referenced in the Table is Function dependent. Each time a channel is discovered to be inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic initiation capability for the RCIC System. In this case, automatic initiation capability is lost if two Function 1 channels in the same trip system are inoperable and untripped. In this situation (loss of automatic initiation capability), the 24 hour allowance of Required Action B.2 is not appropriate, and the RCIC System must be declared inoperable within 1 hour after discovery of loss of RCIC initiation capability.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action B.1, the Completion Time only begins upon discovery that the RCIC System cannot be automatically initiated due to two inoperable, untripped Reactor Vessel Water Level - Low Low, Level 2 channels in the same trip system. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

BASES

ACTIONS (continued)

Because of the redundancy of sensors available to provide initiation signals and the fact that the RCIC System is not assumed in any accident or transient analysis, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 1) to permit restoration of any inoperable channel to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action B.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), Condition E must be entered and its Required Action taken.

C.1

A risk based analysis was performed and determined that an allowable out of service time of 24 hours (Ref. 1) is acceptable to permit restoration of any inoperable channel to OPERABLE status (Required Action C.1). A Required Action (similar to Required Action B.1) limiting the allowable out of service time, if a loss of automatic RCIC initiation capability exists, is not required. This Condition applies to the Reactor Vessel Water Level - High, Level 8 Function whose logic is arranged such that any inoperable channel will result in a loss of automatic RCIC initiation capability. As stated above, this loss of automatic RCIC initiation capability was analyzed and determined to be acceptable. This Condition also applies to the Manual Initiation Function. Since this Function is not assumed in any accident or transient analysis, a total loss of manual initiation capability (Required Action C.1) for 24 hours is allowed. The Required Action does not allow placing a channel in trip since this action would not necessarily result in a safe state for the channel in all events.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D.1, D.2.1, and D.2.2

Required Action D.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in automatic component initiation capability being lost for the feature(s). For Required Action D.1, the RCIC System is the only associated feature. In this case, automatic initiation capability is lost if two Function 3 channels or two Function 4 channels are inoperable and

BASES

ACTIONS (continued)

untripped. In this situation (loss of automatic suction swap), the 24 hour allowance of Required Actions D.2.1 and D.2.2 is not appropriate, and the RCIC System must be declared inoperable within 1 hour from discovery of loss of RCIC initiation capability. As noted, Required Action D.1 is only applicable if the RCIC pump suction is not aligned to the suppression pool since, if aligned, the Function is already performed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action D.1, the Completion Time only begins upon discovery that the RCIC System cannot be automatically aligned to the suppression pool due to two inoperable, untripped channels in the same Function. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the redundancy of sensors available to provide initiation signals and the fact that the RCIC System is not assumed in any accident or transient analysis, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 1) to permit restoration of any inoperable channel to OPERABLE status. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action D.2.1, which performs the intended function of the channel (shifting the suction source to the suppression pool). Alternatively, Required Action D.2.2 allows the manual alignment of the RCIC suction to the suppression pool **within 24 hours**, which also performs the intended function. If Required Action D.2.1 or D.2.2 is performed, measures should be taken to ensure that the RCIC System piping remains filled with water. If it is not desired to perform Required Actions D.2.1 and D.2.2 (e.g., as in the case where shifting the suction source could drain down the RCIC suction piping), Condition E must be entered and its Required Action taken.

E.1

With any Required Action and associated Completion Time not met, the RCIC System may be incapable of performing the intended function, and the RCIC System must be declared inoperable immediately.

BASES

ACTIONS

-----REVIEWER'S NOTE-----
 Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

The ACTIONS are modified by two Notes. Note 1 allows penetration 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 communication with the control room. In this way, the penetration can be rapidly isolated when a need for primary containment isolation is indicated. Note 2 has been provided to modify the ACTIONS related to primary containment isolation instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable primary containment isolation instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable primary containment isolation instrumentation channel.

A.1

Because of the diversity of sensors available to provide isolation signals and the redundancy of the isolation design, an allowable out of service time of 12 hours for Functions 2.a, 2.b, and 6.b and 24 hours for Functions other than Functions 2.a, 2.b, and 6.b has been shown to be acceptable (Refs. 5 and 6) to permit restoration of any inoperable channel to OPERABLE status. This out of service time is only acceptable provided the associated Function is still maintaining isolation capability (refer to Required Action B.1 Bases). **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue with no further restrictions. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an isolation), Condition C must be entered and its Required Action taken.

BASES

ACTIONS (continued)

B.1

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in redundant automatic isolation capability being lost for the associated penetration flow path(s). The MSL Isolation Functions are considered to be maintaining isolation capability when sufficient channels are OPERABLE or in trip, such that both trip systems will generate a trip signal from the given Function on a valid signal. The other isolation functions are considered to be maintaining isolation capability when sufficient channels are OPERABLE or in trip, such that one trip system will generate a trip signal from the given Function on a valid signal. This ensures that one of the two PCIVs in the associated penetration flow path can receive an isolation signal from the given Function. For Functions 1.a, 1.b, 1.d, and 1.f, this would require both trip systems to have one channel OPERABLE or in trip. For Function 1.c, this would require both trip systems to have one channel, associated with each MSL, OPERABLE or in trip. For Functions 1.e and 1.g, each Function consists of channels that monitor several locations within a given area (e.g., different locations within the main steam tunnel area). Therefore, this would require both trip systems to have one channel per location OPERABLE or in trip. For Functions 2.a, 2.b, 2.d, 2.e, 3.b, 3.c, 4.b, 4.c, 5.e, and 6.b, this would require one trip system to have two channels, each OPERABLE or in trip. For Functions 2.c, 3.a, 3.d, 3.e, 3.f, 3.g, 3.h, 3.i, 4.a, 4.d, 4.e, 4.f, 4.g, 4.h, 4.i, 4.j, 5.a, 5.d, and 6.a, this would require one trip system to have one channel OPERABLE or in trip. For Functions 5.b and 5.c, each Function consists of channels that monitor several different locations. Therefore, this would require one channel per location to be OPERABLE or in trip (the channels are not required to be in the same trip system). The Condition does not include the Manual Initiation Functions (Functions 1.h, 2.d, 3.j, 4.k, and 5.f), since they are not assumed in any accident or transient analysis. Thus, a total loss of manual initiation capability for 24 hours (as allowed by Required Action A.1) is allowed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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LCO (continued)

calibration, process, and some of the instrument errors. The trip setpoints are then determined accounting for the remaining instrument errors (e.g., drift). The trip setpoints derived in this manner provide adequate protection because instrumentation uncertainties, process effects, calibration tolerances, instrument drift, and severe environment errors (for channels that must function in harsh environments as defined by 10 CFR 50.49) are accounted for.

The Tailpipe Pressure Switch Allowable Value is based on ensuring that a proper arming signal is sent to the LLS logic. That is, the pressure switch is initiated only when an S/RV has opened.

The Reactor Steam Dome Pressure - High was chosen to be the same as the Reactor Protection System (RPS) Reactor Steam Dome Pressure Allowable Value (LCO 3.3.1.1) because it would be expected that LLS would be needed for pressurization events. Providing LLS after a scram has been initiated would prevent false initiations of LLS at 100% power. The LLS valve open and close Allowable Values are based on the safety analysis performed in Reference 2.

APPLICABILITY

The LLS instrumentation is required to be OPERABLE in MODES 1, 2, and 3 since considerable energy is in the nuclear system and the S/RVs may be needed to provide pressure relief. If the S/RVs are needed, then the LLS function is required to ensure that the primary containment design basis is maintained. In MODES 4 and 5, the reactor pressure is low enough that the overpressure limit cannot be approached by assumed operational transients or accidents. Thus, LLS instrumentation and associated pressure relief is not required.

ACTIONS

-----REVIEWER'S NOTE-----
Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A.1

The failure of any reactor steam dome pressure instrument channel to provide the arming, S/RV opening and closing pressure setpoints for an individual LLS valve does not affect the ability of the other LLS S/RVs to perform their LLS function. A LLS valve is OPERABLE if the associated logic, (e.g., Logic A), has one Function 1 channel, two Function 2

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ACTIONS (continued)

channels, and three Function 3 channels OPERABLE. Therefore, 24 hours is provided to restore the inoperable channel(s) to OPERABLE status (Required Action A.1). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel(s) cannot be restored to OPERABLE status within the allowable out of service time, Condition D must be entered and its Required Action taken. The Required Actions do not allow placing the channel in trip since this action could result in an instrumented LLS valve actuation. The 24 hour Completion Time is considered appropriate because of the redundancy in the design (four LLS valves are provided and any one LLS valve can perform the LLS function) and the very low probability of multiple LLS instrumentation channel failures, which render the remaining LLS S/RVs inoperable, occurring together with an event requiring the LLS function during the 24 hour Completion Time. The 24 hour Completion Time is also based on the reliability analysis of Reference 3.

B.1

Although the LLS circuitry is designed so that operation of a single tailpipe pressure switch will result in arming both LLS logics in its associated division, each tailpipe pressure switch provides a direct input to only one LLS logic (e.g., Logic A). Since each LLS logic normally receives at least five S/RV pressure switch inputs (and also receives the other S/RV signals from the other logic in the same division by an arming signal), the LLS logic and instrumentation remains capable of performing its safety function if any S/RV tailpipe pressure switch instrument channel becomes inoperable. Therefore, it is acceptable for plant operation to continue with only one tailpipe pressure switch OPERABLE on each S/RV. However, this is only acceptable provided each LLS valve is OPERABLE. (Refer to Required Action A.1 and D.1 Bases).

Required Action B.1 requires restoration of the tailpipe pressure switches to OPERABLE status prior to entering MODE 2 or 3 from MODE 4 to ensure that all switches are OPERABLE at the beginning of a reactor startup (this is because the switches are not accessible during plant operation). The Required Actions do not allow placing the channel in trip since this action could result in a LLS valve actuation.

BASES

ACTIONS (continued)

C.1

A failure of two pressure switch channels associated with one S/RV tailpipe could result in the loss of the LLS function (i.e., multiple actuations of the S/RV would go undetected by the LLS logic). However, the S/RVs are organized in groups and, during an event, groups of S/RVs initially open (setpoints are at same settings for a total of 11 S/RVs in three groups). Therefore, it would be very unlikely that a single S/RV would be required to arm all the LLS logic. Therefore, it is acceptable to allow 14 days to restore one pressure switch of the associated S/RV to OPERABLE status (Required Action C.1). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] However, this allowable out of service time is only acceptable provided each LLS is OPERABLE (Refer to Required Action A.1 and D.1 Bases). If one inoperable tailpipe pressure switch cannot be restored to OPERABLE status within the allowable out of service time, Condition D must be entered and its Required Action taken. The Required Actions do not allow placing the channels in trip since this action could result in a LLS valve actuation.

A Note has been provided in the Condition to modify the Required Actions and Completion Times conventions related to LLS Function 3 channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable LLS Function 3 channels provide appropriate compensatory measures for separate inoperable Condition entry for each S/RV with inoperable tailpipe pressure switches.

----- REVIEWER'S NOTE -----
Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1

If two or more LLS valves are inoperable due to inoperable channels, the LLS valves may be incapable of performing their intended function. Therefore, sufficient channels must be restored so that at the most one LLS valve is inoperable due to inoperable channels. A LLS valve is OPERABLE if the associated logic (e.g., Logic A) has one Function 1

channel, two Function 2 channels, and three Function 3 channels OPERABLE.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of channels. Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more LLS valves are intentionally made inoperable due to inoperable channels.. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one LLS valve is inoperable due to channels made inoperable for any reason and additional LLS valves are found to be inoperable due to inoperable channels, or if two or more LLS valves are found to be inoperable due to inoperable channels at the same time.]

ED.1

If any Required Action and associated Completion Time of Conditions A, B, C, [or _DG] are not met, ~~or two or more LLS valves are inoperable due to inoperable channels, the LLS valves may be incapable of performing their intended function. Therefore,~~ the associated LLS valve must be declared inoperable immediately. ~~A LLS valve is OPERABLE if the associated logic (e.g., Logic A) has one Function 1 channel, two Function 2 channels, and three Function 3 channels OPERABLE.~~

BASES

ACTIONS

A Note has been provided to modify the ACTIONS related to LOP instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable LOP instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable LOP instrumentation channel.

A.1

With one or more channels of a Function inoperable, the Function is not capable of performing the intended function. Therefore, only 1 hour is allowed to restore the inoperable channel to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition B must be entered and its Required Action taken.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

B.1

If any Required Action and associated Completion Time are not met, the associated Function is not capable of performing the intended function. Therefore, the associated DG(s) is declared inoperable immediately. This requires entry into applicable Conditions and Required Actions of LCO 3.8.1 and LCO 3.8.2, which provide appropriate actions for the inoperable DG(s).

BASES

LCO The safety function of [11] S/RVs are required to be OPERABLE to satisfy the assumptions of the safety analysis (Refs. 1 and 2). The requirements of this LCO are applicable only to the capability of the S/RVs to mechanically open to relieve excess pressure when the lift setpoint is exceeded (safety function).

The S/RV setpoints are established to ensure that the ASME Code limit on peak reactor pressure is satisfied. The ASME Code specifications require the lowest safety valve setpoint to be at or below vessel design pressure (1250 psig) and the highest safety valve to be set so that the total accumulated pressure does not exceed 110% of the design pressure for overpressurization conditions. The transient evaluations in the FSAR are based on these setpoints, but also include the additional uncertainties of $\pm 1\%$ of the nominal setpoint drift to provide an added degree of conservatism.

Operation with fewer valves OPERABLE than specified, or with setpoints outside the ASME limits, could result in a more severe reactor response to a transient than predicted, possibly resulting in the ASME Code limit on reactor pressure being exceeded.

APPLICABILITY In MODES 1, 2, and 3, all S/RVs must be OPERABLE, since considerable energy may be in the reactor core and the limiting design basis transients are assumed to occur in these MODES. The S/RVs may be required to provide pressure relief to discharge energy from the core until such time that the Residual Heat Removal (RHR) System is capable of dissipating the core heat.

In MODE 4, decay heat is low enough for the RHR System to provide adequate cooling, and reactor pressure is low enough that the overpressure limit is unlikely to be approached by assumed operational transients or accidents. In MODE 5, the reactor vessel head is unbolted or removed and the reactor is at atmospheric pressure. The S/RV function is not needed during these conditions.

ACTIONS [A.1

With the safety function of one [or two] [required] S/RV[s] inoperable, the remaining OPERABLE S/RVs are capable of providing the necessary overpressure protection. Because of additional design margin, the ASME Code limits for the RCPB can also be satisfied with two S/RVs inoperable. However, the overall reliability of the pressure relief system is reduced because additional failures in the remaining OPERABLE S/RVs could result in failure to adequately relieve pressure during a limiting event. For this reason, continued operation is permitted for a limited time only.

BASES

ACTIONS (continued)

The 14 day Completion Time to restore the inoperable required S/RVs to OPERABLE status is based on the relief capability of the remaining S/RVs, the low probability of an event requiring S/RV actuation, and a reasonable time to complete the Required Action.] [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1

With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure. The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration. Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when [three] or more [required] S/RVs are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if [two] or more [required] S/RVs are inoperable for any reason and additional [required] S/RVs are found to be inoperable, or if [three] or more [required] S/RVs are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----
The bracketed portions of the discussion of Required Actions C.1 and C.2 are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

CB.1 and CB.2

[With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure.] If the safety function of the inoperable required S/RVs cannot be restored to OPERABLE status within the associated Completion Time of Required Action A.1 [or B.1, or if the safety function of [three] or more [required] S/RVs is inoperable], 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 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

**SURVEILLANCE
REQUIREMENTS**SR 3.4.3.1

This Surveillance requires that the [required] S/RVs will open at the pressures assumed in the safety analysis of Reference 1. The demonstration of the S/RV safe lift settings must be performed during shutdown, since this is a bench test, [to be done in accordance with the Inservice Testing Program]. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint is \pm [3]% for OPERABILITY; however, the valves are reset to \pm 1% during the Surveillance to allow for drift. [A Note is provided to allow up to [two] of the required [11] S/RVs to be physically replaced with S/RVs with lower setpoints. This provides operational flexibility which maintains the assumptions in the over-pressure analysis.]

The 18 month Frequency was selected because this Surveillance must be performed during shutdown conditions and is based on the time between refuelings.

BASES

LCO (continued)

As noted, LPCI subsystems may be considered OPERABLE during alignment and operation for decay heat removal when below the actual RHR cut in permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. Alignment and operation for decay heat removal includes when the required RHR pump is not operating or when the system is realigned from or to the RHR shutdown cooling mode. This allowance is necessary since the RHR System may be required to operate in the shutdown cooling mode to remove decay heat and sensible heat from the reactor. At these low pressures and decay heat levels, a reduced complement of ECCS subsystems should provide the required core cooling, thereby allowing operation of RHR shutdown cooling when necessary.

APPLICABILITY

All ECCS subsystems are required to be OPERABLE during MODES 1, 2, and 3, when there is considerable energy in the reactor core and core cooling would be required to prevent fuel damage in the event of a break in the primary system piping. In MODES 2 and 3, when reactor steam dome pressure is ≤ 150 psig, ADS and HPCI are not required to be OPERABLE because the low pressure ECCS subsystems can provide sufficient flow below this pressure. ECCS requirements for MODES 4 and 5 are specified in LCO 3.5.2, "ECCS - Shutdown."

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable HPCI subsystem 2. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable HPCI subsystem and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

If any one low pressure ECCS injection/spray subsystem is inoperable, or if one LPCI pump in both LPCI subsystems is inoperable, the inoperable subsystem(s) must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining OPERABLE subsystems provide adequate core cooling during a LOCA. However, overall ECCS reliability is reduced, because a single failure in one of the remaining OPERABLE subsystems, concurrent with a LOCA, may result in the ECCS not being able to perform its intended safety function. The 7 day Completion Time

BASES

ACTIONS (continued)

is based on a reliability study (Ref. 12) that evaluated the impact on ECCS availability, assuming various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowed outage times (i.e., Completion Times).

B.1 and B.2

If the inoperable low pressure ECCS subsystem cannot be restored to OPERABLE status within the associated 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 12 hours and to MODE 4 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.

C.1 and C.2

If the HPCI System is inoperable and the RCIC System is verified to be OPERABLE, the HPCI System must be restored to OPERABLE status within 14 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, adequate core cooling is ensured by the OPERABILITY of the redundant and diverse low pressure ECCS injection/spray subsystems in conjunction with ADS. Also, the RCIC System will automatically provide makeup water at most reactor operating pressures. Verification of RCIC OPERABILITY immediately is therefore required when HPCI is inoperable. This may be performed as an administrative check by examining logs or other information to determine if RCIC is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate the OPERABILITY of the RCIC System. If the OPERABILITY of the RCIC System cannot be verified, however, Condition G must be immediately entered. If a single active component fails concurrent with a design basis LOCA, there is a potential, depending on the specific failure, that the minimum required ECCS equipment will not be available. A 14 day Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience.

BASES

ACTIONS (continued)

D.1 and D.2

If any one low pressure ECCS injection/spray subsystem, or one LPCI pump in both LPCI subsystems, is inoperable in addition to an inoperable HPCI System, the inoperable low pressure ECCS injection/spray subsystem or the HPCI System must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In this Condition, adequate core cooling is ensured by the OPERABILITY of the ADS and the remaining low pressure ECCS subsystems. However, the overall ECCS reliability is significantly reduced because a single failure in one of the remaining OPERABLE subsystems concurrent with a design basis LOCA may result in the ECCS not being able to perform its intended safety function. Since both a high pressure system (HPCI) and a low pressure subsystem are inoperable, a more restrictive Completion Time of 72 hours is required to restore either the HPCI System or the low pressure ECCS injection/spray subsystem to OPERABLE status. This Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience.

E.1

The LCO requires seven ADS valves to be OPERABLE in order to provide the ADS function. Reference 13 contains the results of an analysis that evaluated the effect of one ADS valve being out of service. Per this analysis, operation of only six ADS valves will provide the required depressurization. However, overall reliability of the ADS is reduced, because a single failure in the OPERABLE ADS valves could result in a reduction in depressurization capability. Therefore, operation is only allowed for a limited time. The 14 day Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

F.1 and F.2

If any one low pressure ECCS injection/spray subsystem, or one LPCI pump in both LPCI subsystems, is inoperable in addition to one inoperable ADS valve, adequate core cooling is ensured by the OPERABILITY of HPCI and the remaining low pressure ECCS injection/spray subsystem. However, overall ECCS reliability is reduced because a single active component failure concurrent with a design basis

BASES

ACTIONS (continued)

LOCA could result in the minimum required ECCS equipment not being available. Since both a high pressure system (ADS) and a low pressure subsystem are inoperable, a more restrictive Completion Time of 72 hours is required to restore either the low pressure ECCS subsystem or the ADS valve to OPERABLE status. This Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

----- REVIEWER'S NOTE -----

Condition G is only applicable to plants that have adopted a Risk Informed Completion Time Program.

G.1

If two or more ADS valves are inoperable, the Required Action is to restore sufficient required inoperable ADS valves to OPERABLE status within 1 hour to regain the ADS safety function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient ADS valves. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more ADS valves are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one ADS valve is inoperable for any reason and additional ADS valves are found to be inoperable, or if two or more ADS valves are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----

The bracketed portions of Condition H are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

HG.1 and HG.2

If any Required Action and associated Completion Time of Condition C, D, E, [F, or G-F] is not met, [or if two or more ADS valves are inoperable,] the plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to ≤ 150 psig

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.

----- REVIEWER'S NOTE -----
Condition I is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[I.1

When multiple ECCS subsystems are inoperable, as stated in Condition I, the plant is in a condition outside of the accident analyses. The Required Action is to restore sufficient required ECCS subsystems to OPERABLE status within 1 hour to regain sufficient ECCS capability. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more low pressure ECCS injection/spray subsystems or ADS valves are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one low pressure ECCS injection/spray subsystems is inoperable for any reason and additional low pressure ECCS injection/spray subsystems are found to be inoperable, or if two or more low pressure ECCS injection/spray subsystems are found to be inoperable at the same time. Alternatively, the Required Action is only applicable if the HPCI system is inoperable for any reason and one or more ADS valves are found to be inoperable.]

----- REVIEWER'S NOTE -----
The first bracketed statement in Condition J is only applicable to plants that have not adopted a Risk Informed Completion Time Program. The second bracketed statement in Condition J is only applicable to plants that have adopted a Risk Informed Completion Time Program.

HJ.1

[When multiple ECCS subsystems are inoperable, as stated in Condition ~~JH~~, the plant is in a condition outside of the accident analyses, and.] ~~Therefore,~~ [If any Required Action and associated Completion Time of Condition I is not met,] LCO 3.0.3 must be entered immediately.

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge lines of the HPCI System, CS System, and LPCI subsystems full of water ensures that the ECCS

BASES

ACTIONS (continued)

A.1 and A.2

If the RCIC System is inoperable during MODE 1, or MODE 2 or 3 with reactor steam dome pressure > [150] psig, and the HPCI System is verified to be OPERABLE, the RCIC System must be restored to OPERABLE status within 14 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, loss of the RCIC System will not affect the overall plant capability to provide makeup inventory at high reactor pressure since the HPCI System is the only high pressure system assumed to function during a loss of coolant accident (LOCA). OPERABILITY of HPCI is therefore verified immediately when the RCIC System is inoperable. This may be performed as an administrative check, by examining logs or other information, to determine if HPCI is out of service for maintenance or other reasons. It does not mean it is necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the HPCI System. If the OPERABILITY of the HPCI System cannot be verified, however, Condition B must be immediately entered. For transients and certain abnormal events with no LOCA, RCIC (as opposed to HPCI) is the preferred source of makeup coolant because of its relatively small capacity, which allows easier control of the RPV water level. Therefore, a limited time is allowed to restore the inoperable RCIC to OPERABLE status.

The 14 day Completion Time is based on a reliability study (Ref. 3) that evaluated the impact on ECCS availability, assuming various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowed outage times (AOTs). Because of similar functions of HPCI and RCIC, the AOTs (i.e., Completion Times) determined for HPCI are also applied to RCIC.

B.1 and B.2

If the RCIC System cannot be restored to OPERABLE status within the associated Completion Time, or if the HPCI System is simultaneously inoperable, the plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to \leq [150] psig 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.

BASES

ACTIONS (continued)

Required Action B.3 is modified by a Note that applies to air lock doors located in high radiation areas or areas with limited access due to inerting and that allows these doors to be verified locked 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 of the door, once it has been verified to be in the proper position, is small.

C.1, C.2, and C.3

If the air lock is inoperable for reasons other than those described in Condition A or B, Required Action C.1 requires action to be immediately initiated to evaluate containment overall leakage rates using current air lock leakage test results. An evaluation is acceptable since it is overly conservative to immediately declare the primary containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), primary containment remains OPERABLE, yet only 1 hour (according to LCO 3.6.1.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Required Action C.2 requires that one door in the primary containment air lock must be verified closed. This action must be completed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.1.1, which require that primary containment be restored to OPERABLE status within 1 hour.

Additionally, the air lock must be restored to OPERABLE status within 24 hours [or in accordance with the Risk Informed Completion Time Program]. The 24 hour Completion Time is reasonable for restoring an inoperable air lock to OPERABLE status considering that at least one door is maintained closed in the air lock.

D.1 and D.2

If the inoperable primary containment air lock cannot be restored to OPERABLE status within the associated 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 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----

The bracketed phrase "following isolation" in the Completion Times for Required Actions A.2, C.2, E.2, and E.3 is only applicable to plants that have adopted a Risk Informed Completion Time Program.

A.1 and A.2

With one or more penetration flow paths with one PCIV inoperable, [except for secondary containment bypass leakage rate, MSIV leakage rate, purge valve leakage rate, or hydrostatically tested line leakage rate or EFCV leakage rate 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 deactivated automatic 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 valve to the primary containment. The Required Action must be completed within the 4 hour Completion Time (8 hours for main steam lines) [or in accordance with the Risk Informed Completion Time Program]. The Completion Time 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] 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.

For affected penetrations that have been isolated in accordance with Required Action A.1, the affected penetration flow path(s) 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, 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 containment and capable of potentially being mispositioned are in the correct position. The Completion Time of "once per 31 days [following isolation] for isolation devices outside primary containment" is appropriate because the devices are operated under administrative controls and the probability of their misalignment is low. For the devices inside primary containment, the time period specified "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 based on engineering judgment and is considered reasonable in view of the inaccessibility of the devices and other administrative controls ensuring that device misalignment is an unlikely possibility.

BASES

ACTIONS (continued)

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

Required Action A.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. 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 [or more] PCIVs inoperable, [except for secondary containment bypass leakage rate, MSIV leakage rate, purge valve leakage rate, or hydrostatically tested line leakage rate or EFCV leakage rate not within limit,] either the inoperable PCIVs must be restored to OPERABLE status or the affected penetration flow path must be isolated within 1 hour [or in accordance with the Risk Informed Completion Time Program]. 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.

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

BASES

ACTIONS (continued)

C.1 and C.2

With one or more penetration flow paths with one PCIV inoperable, [except for secondary containment bypass leakage rate, MSIV leakage rate, purge valve leakage rate, or hydrostatically tested line leakage rate or EFCV leakage rate not within limit,] 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.

-----REVIEWER'S NOTE-----
 The [4] hour Completion Time is left as 4 hours consistent with the Completion Time of Required Action A.1 for most penetrations; or a plant specific evaluation is provided for NRC review for cases other than for closed system penetrations and EFCVs (which have been reviewed and approved for 72 hours). If all penetrations are accepted for 72 hours, the Completion Time is simplified to state 72 hours.

The Completion Time 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The Completion Time of 72 hours for penetrations with a closed system 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The closed system must meet the requirements of Reference 5. The Completion Time of 72 hours for EFCVs is also 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 [following isolation] 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.

BASES

ACTIONS (continued)

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 [or more] PCIVs, Conditions A and B provide the appropriate Required Actions.

Required Action C.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is low.

[D.1

With the [secondary containment bypass leakage rate (SR 3.6.1.3.12),] [MSIV leakage rate (SR 3.6.1.3.13),] [purge valve leakage rate (SR 3.6.1.3.7),] [or] [hydrostatically tested line leakage rate (SR 3.6.1.3.14),] [or] [EFCV leakage rate (SR 3.6.1.3.10)] not within limit, the assumptions of the safety analysis may not be met. Therefore, the leakage must be restored to within limit. 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 to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time for hydrostatically tested line leakage [not on a closed system] and for secondary containment bypass leakage 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. For MSIV leakage, an 8 hour Completion Time is allowed. The Completion Time of 8 hours for MSIV leakage allows a period of time to restore the MSIVs to OPERABLE status given the fact the MSIV closure will result in isolation of the main steam line(s) and potential for plant shutdown. [The 24 hour Completion Time for

BASES

ACTIONS (continued)

purge valve leakage is acceptable considering the purge valves remain closed so that a gross breach of the containment does not exist.] [The 72 hour Completion Time for hydrostatically tested line leakage [on a closed system] is acceptable based on the available water seal expected to remain as a gaseous fission product boundary during the accident, and the associated closed system.] [The 72 hour Completion Time for EFCV leakage is acceptable based on the instrument and the small pipe diameter of the penetration (hence, reliability) to act as a penetration isolation boundary.] [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

-----REVIEWER'S NOTE-----

The bracketed options provided in ACTION D reflect options in plant design and options in adopting the associated leakage rate Surveillances.

The options (both in ACTION D and ACTION E) for purge valve leakage, are based primarily on the design. If leakage rates can be measured separately for each purge valve, ACTION E is intended to apply. This would be required to be able to implement Required Action E.3. Should the design allow only for leak testing both purge valves simultaneously, then the Completion Time for ACTION D should include the "24 hours for purge valve leakage" and ACTION E should be eliminated.

The option for EFCV is based on the acceptance criteria of SR 3.6.1.3.10. If the acceptance criteria is a specific leakage rate (e.g., 1 gph) then the Completion Time for ACTION D should include the "72 hours for EFCV leakage." If the acceptance criteria for SR 3.6.1.3.10 is non-specific (e.g., "actuates to the closed position") then there is no specific leakage criteria and the EFCV Completion Time is not adopted.

Similarly, adopting Completion Times for secondary containment bypass and/or hydrostatically tested lines is based on whether the associated SRs are adopted.

The additional bracketed options for whether the hydrostatically tested line is with or without a closed system is predicated on plant-specific design. If the design is such that there are not both types of hydrostatically tested lines (some with and some without closed systems), the specific 'closed system' wording can be removed and the appropriate 4 or 72 hour Completion Time retained. In the event there are both types, the clarifying wording remains and the brackets are removed.]

BASES

ACTIONS (continued)

[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. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

In accordance with Required Action E.2, this penetration flow path **[following isolation]** 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 3.6.1.3.7 must be performed at least once every [] days **[following isolation]**. 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 3.6.1.3.7 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 to be acceptable based on operating experience.

BASES

ACTIONS (continued)

Required Action E.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned.]

F.1 and F.2

If any Required Action and associated Completion Time cannot be met in MODE 1, 2, or 3, 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 12 hours and to MODE 4 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.

[G.1, H.1, and H.2

If any Required Action and associated Completion Time cannot be met, the unit must be placed in a condition in which the LCO does not apply. If applicable, movement of [recently] irradiated fuel assemblies must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe condition. Also, if applicable, action must be immediately initiated to suspend operations with a potential for draining the reactor vessel (OPDRVs) to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended and valve(s) are restored to OPERABLE status. If suspending an OPDRV would result in closing the residual heat removal (RHR) shutdown cooling isolation valves, an alternative Required Action is provided to immediately initiate action to restore the valve(s) to OPERABLE status. This allows RHR to remain in service while actions are being taken to restore the valve.]

BASES

LCO

All reactor building-to-suppression chamber vacuum breakers are required to be OPERABLE to satisfy the assumptions used in the safety analyses. The requirement ensures that the two vacuum breakers (vacuum breaker and air operated butterfly valve) in each of the two lines from the reactor building to the suppression chamber airspace are closed (except during testing or when performing their intended function). Also, the requirement ensures both vacuum breakers in each line will open to relieve a negative pressure in the suppression chamber.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause pressurization of primary containment. In MODES 1, 2, and 3, the Suppression Pool Spray System is required to be OPERABLE to mitigate the effects of a DBA. Excessive negative pressure inside primary containment could occur due to inadvertent initiation of this system. Therefore, the vacuum breakers are required to be OPERABLE in MODES 1, 2, and 3, when the Suppression Pool Spray System is required to be OPERABLE, to mitigate the effects of inadvertent actuation of the Suppression Pool Spray System.

Also, in MODES 1, 2, and 3, a DBA could result in excessive negative differential pressure across the drywell wall caused by the rapid depressurization of the drywell. The event that results in the limiting rapid depressurization of the drywell is the primary system rupture, which purges the drywell of air and fills the drywell free airspace with steam. Subsequent condensation of the steam would result in depressurization of the drywell. The limiting pressure and temperature of the primary system prior to a DBA occur in MODES 1, 2, and 3.

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, maintaining reactor building-to-suppression chamber vacuum breakers OPERABLE is not required in MODE 4 or 5.

ACTIONS

A Note has been added to provide clarification that, for the purpose of this LCO, separate Condition entry is allowed for each penetration flow path.

A.1

With one or more vacuum breakers not closed, the leak tight primary containment boundary may be threatened. Therefore, the inoperable vacuum breakers must be restored to OPERABLE status or the open vacuum breaker closed within 72 hours. The 72 hour Completion Time is

BASES

ACTIONS (continued)

consistent with requirements for inoperable suppression-chamber-to-drywell vacuum breakers in LCO 3.6.1.8, "Suppression-Chamber-to-Drywell Vacuum Breakers." The 72 hour Completion Time takes into account the redundancy capability afforded by the remaining breakers, the fact that the OPERABLE breaker in each of the lines is closed, and the low probability of an event occurring that would require the vacuum breakers to be OPERABLE during this period.

B.1

With one or more lines with two vacuum breakers not closed, primary containment integrity is not maintained. Therefore, one open vacuum breaker must be closed within 1 hour. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, "Primary Containment," which requires that primary containment be restored to OPERABLE status within 1 hour.

C.1

With one line with one or more vacuum breakers inoperable for opening, the leak tight primary containment boundary is intact. The ability to mitigate an event that causes a containment depressurization is threatened, however, if both vacuum breakers in at least one vacuum breaker penetration are not OPERABLE. Therefore, the inoperable vacuum breaker must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. This is consistent with the Completion Time for Condition A and the fact that the leak tight primary containment boundary is being maintained.

D.1

With two [or more] lines with one or more vacuum breakers inoperable for opening, the primary containment boundary is intact. However, in the event of a containment depressurization, the function of the vacuum breakers is lost. Therefore, all vacuum breakers in [one] line must be restored to OPERABLE status within 1 hour [or in accordance with the Risk Informed Completion Time Program]. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, which requires that primary containment be restored to OPERABLE status within 1 hour.

BASES

ACTIONS (continued)

E.1 and E.2

If all the vacuum breakers in [one] line cannot be closed or restored to OPERABLE status 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 12 hours and to MODE 4 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
REQUIREMENTSSR 3.6.1.7.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or control room indications of vacuum breaker position or by verifying a differential pressure of [0.5] psid is maintained between the reactor building and suppression chamber. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows reactor-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers. The second Note is included to clarify that vacuum breakers open due to an actual differential pressure are not considered as failing this SR.

SR 3.6.1.7.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The [92] day Frequency of this SR was developed based upon Inservice Testing Program requirements to perform valve testing at least once every [92] days.

BASES

APPLICABILITY (continued)

Also, in MODES 1, 2, and 3, a DBA could result in excessive negative differential pressure across the drywell wall, caused by the rapid depressurization of the drywell. The event that results in the limiting rapid depressurization of the drywell is the primary system rupture that purges the drywell of air and fills the drywell free airspace with steam.

Subsequent condensation of the steam would result in depressurization of the drywell. The limiting pressure and temperature of the primary system prior to a DBA occur in MODES 1, 2, and 3.

In MODES 4 and 5, the probability and consequences of these events are reduced by the pressure and temperature limitations in these MODES; therefore, maintaining suppression chamber-to-drywell vacuum breakers OPERABLE is not required in MODE 4 or 5.

ACTIONS

A.1

With one of the required vacuum breakers inoperable for opening (e.g., the vacuum breaker is not open and may be stuck closed or not within its opening setpoint limit, so that it would not function as designed during an event that depressurized the drywell), the remaining [eight] OPERABLE vacuum breakers are capable of providing the vacuum relief function. However, overall system reliability is reduced because a single failure in one of the remaining vacuum breakers could result in an excessive suppression chamber-to-drywell differential pressure during a DBA. Therefore, with one of the [nine] required vacuum breakers inoperable, 72 hours is allowed to restore at least one of the inoperable vacuum breakers to OPERABLE status so that plant conditions are consistent with those assumed for the design basis analysis. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 72 hour Completion Time is considered acceptable due to the low probability of an event in which the remaining vacuum breaker capability would not be adequate.

B.1

An open vacuum breaker allows communication between the drywell and suppression chamber airspace, and, as a result, there is the potential for suppression chamber overpressurization due to this bypass leakage if a LOCA were to occur. Therefore, the open vacuum breaker must be closed. A short time is allowed to close the vacuum breaker due to the low probability of an event that would pressurize primary containment. If vacuum breaker position indication is not reliable, an alternate method of verifying that the vacuum breakers are closed is to verify that a differential pressure of [0.5] psid between the suppression chamber and drywell is

maintained for 1 hour without makeup. The required 2 hour Completion Time is considered adequate to perform this test.

BASES

ACTIONS (continued)

C.1 and C.2

If the inoperable suppression chamber-to-drywell vacuum breaker cannot be closed or restored to OPERABLE status 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 12 hours and to MODE 4 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
REQUIREMENTSSR 3.6.1.8.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that a differential pressure of [0.5] psid between the suppression chamber and drywell is maintained for 1 hour without makeup. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience. This verification is also required within 2 hours after any discharge of steam to the suppression chamber from the safety/relief valves or any operation that causes the drywell-to-suppression chamber differential pressure to be reduced by \geq [0.5] psid.

A Note is added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.8.2

Each required vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The 31 day Frequency of this SR was developed, based on Inservice Testing Program requirements to perform valve testing at least once

BASES

LCO A limit that suppression pool water level be \geq [12 ft 2 inches] and \leq [12 ft 6 inches] is required to ensure that the primary containment conditions assumed for the safety analyses are met. Either the high or low water level limits were used in the safety analyses, depending upon which is more conservative for a particular calculation.

APPLICABILITY In MODES 1, 2, and 3, a DBA would cause significant loads on 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. The requirements for maintaining suppression pool water level within limits in MODE 4 or 5 is addressed in LCO 3.5.2, "ECCS-Shutdown."

ACTIONS

A.1

With suppression pool water level outside the limits, the conditions assumed for the safety analyses are not met. If water level is below the minimum level, the pressure suppression function still exists as long as main vents are covered, HPCI and RCIC turbine exhausts are covered, and S/RV quenchers are covered. If suppression pool water level is above the maximum level, protection against overpressurization still exists due to the margin in the peak containment pressure analysis and the capability of the Drywell Spray System. Therefore, continued operation for a limited time is allowed. The 2 hour Completion Time is sufficient to restore suppression pool water level to within limits. Also, it takes into account the low probability of an event impacting the suppression pool water level occurring during this interval. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

B.1 and B.2

If suppression pool water level cannot be restored to within limits 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 12 hours and to MODE 4 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.

BASES

LCO During a DBA, a minimum of one RHR suppression pool cooling subsystem is required to maintain the primary containment peak pressure and temperature below design limits (Ref. 1). To ensure that these requirements are met, two RHR suppression pool cooling subsystems must be OPERABLE with power from two safety related independent power supplies. Therefore, in the event of an accident, at least one subsystem is OPERABLE assuming the worst case single active failure. An RHR suppression pool cooling subsystem is OPERABLE when one of the pumps, the heat exchanger, and associated piping, valves, instrumentation, and controls are OPERABLE.

APPLICABILITY In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment and cause a heatup and pressurization of 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 RHR Suppression Pool Cooling System is not required to be OPERABLE in MODE 4 or 5.

ACTIONS

A.1

With one RHR suppression pool cooling subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining RHR suppression pool cooling subsystem is adequate to perform the primary containment cooling function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced primary containment cooling capability. The 7 day Completion Time is acceptable in light of the redundant RHR suppression pool cooling capabilities afforded by the OPERABLE subsystem and the low probability of a DBA occurring during this period.

B.1

With two RHR suppression pool cooling subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours [or in accordance with the Risk Informed Completion Time Program]. In this condition, there is a substantial loss of the primary containment pressure and temperature mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and the potential avoidance of a plant shutdown transient that could result in the need for the RHR suppression pool cooling subsystems to operate.

BASES

LCO In the event of a DBA, a minimum of one RHR suppression pool spray subsystem is required to mitigate potential bypass leakage paths and maintain the primary containment peak pressure below the design limits (Ref. 1). To ensure that these requirements are met, two RHR suppression pool spray subsystems must be OPERABLE with power from two safety related independent power supplies. Therefore, in the event of an accident, at least one subsystem is OPERABLE assuming the worst case single active failure. An RHR suppression pool spray subsystem is OPERABLE when one of the pumps, the heat exchanger, and associated piping, valves, instrumentation, and controls are OPERABLE.

APPLICABILITY In MODES 1, 2, and 3, a DBA could cause pressurization of 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, maintaining RHR suppression pool spray subsystems OPERABLE is not required in MODE 4 or 5.

ACTIONS

A.1

With one RHR suppression pool spray subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining OPERABLE RHR suppression pool spray subsystem is adequate to perform the primary containment bypass leakage mitigation function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced primary containment bypass mitigation capability. The 7 day Completion Time was chosen in light of the redundant RHR suppression pool spray capabilities afforded by the OPERABLE subsystem and the low probability of a DBA occurring during this period.

B.1

With both RHR suppression pool spray subsystems inoperable, at least one subsystem must be restored to OPERABLE status within 8 hours [or in accordance with the Risk Informed Completion Time Program]. In this Condition, there is a substantial loss of the primary containment bypass leakage mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and because alternative methods to remove heat from primary containment are available.

BASES

APPLICABILITY (continued)

In MODES 4 and 5, the probability and consequences of a LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, the [Drywell Cooling System fans] are not required in these MODES.

ACTIONS

A.1

With one [required] [Drywell Cooling System fan] inoperable, the inoperable fan must be restored to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE fan is adequate to perform the hydrogen mixing function. However, the overall reliability is reduced because a single failure in the OPERABLE fan could result in reduced hydrogen mixing capability. The 30 day Completion Time is based on the availability of the second fan, the low probability of the occurrence of a LOCA that would generate hydrogen in amounts capable of exceeding the flammability limit, the amount of time available after the event for operator action to prevent exceeding this limit, and the availability of the Containment Atmosphere Dilution System.

B.1 and B.2

-----REVIEWER'S NOTE-----
This Condition is only allowed for units with an alternate hydrogen control system acceptable to the technical staff.

With two [Drywell Cooling System fans] inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The alternate hydrogen control capabilities are provided by the [Primary Containment Inerting System or one subsystem of the Containment Atmosphere Dilution System]. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist.

-----REVIEWER'S NOTE-----
The following is to be used if a non-Technical Specification alternate hydrogen control function is used to justify this Condition: In addition, the alternate hydrogen control system capability must be verified once per 12 hours thereafter to ensure its continued availability.

BASES

ACTIONS (continued)

[Both] the [initial] verification [and all subsequent verifications] may be performed as an administrative check by examining logs or other information to determine the availability of the alternate hydrogen control system. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of the alternate hydrogen control system. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two [Drywell Cooling System fans] inoperable for up to 7 days [or in accordance with the Risk Informed Completion Time Program]. Seven days is a reasonable time to allow two [Drywell Cooling System fans] to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in amounts capable of exceeding the flammability limit.

C.1

If any Required Action and associated Completion Time 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 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTSSR 3.6.3.1.1

Operating each [required] [Drywell Cooling System fan] for ≥ 15 minutes ensures that each subsystem is OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. The 92 day Frequency is consistent with the Inservice Testing Program Frequencies, operating experience, the known reliability of the fan motors and controls, and the two redundant fans available.

BASES

ACTIONS (continued)

B.1 and B.2

-----REVIEWER'S NOTE-----
 This Condition is only allowed for plants with an alternate hydrogen control system acceptable to the technical staff.

With two CAD subsystems inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The alternate hydrogen control capabilities are provided by the [Primary Containment Inerting System or one hydrogen recombiner and one Drywell Cooling System fan]. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist.

-----REVIEWER'S NOTE-----
 The following is to be used if a non-Technical Specification alternate hydrogen control function is used to justify this Condition: In addition, the alternate hydrogen control system capability must be verified once per 12 hours thereafter to ensure its continued availability.

[Both] the [initial] verification [and all subsequent verifications] may be performed as an administrative check by examining logs or other information to determine the availability of the alternate hydrogen control system. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of the alternate hydrogen control system. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two CAD subsystems inoperable for up to 7 days. Seven days is a reasonable time to allow two CAD subsystems to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in amounts capable of exceeding the flammability limit.

With two CAD subsystems inoperable, one CAD subsystem must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The 7 day Completion Time is based on the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit, the amount of time available after the event for operator action to prevent exceeding this limit, and the availability of other hydrogen mitigating systems.

BASES

APPLICABILITY In MODES 1, 2, and 3, the RHRSW System is required to be OPERABLE to support the OPERABILITY of the RHR System for primary containment cooling (LCO 3.6.2.3, "Residual Heat Removal (RHR) Suppression Pool Cooling," and LCO 3.6.2.4, "Residual Heat Removal (RHR) Suppression Pool Spray") and decay heat removal (LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown"). The Applicability is therefore consistent with the requirements of these systems.

In MODES 4 and 5, the OPERABILITY requirements of the RHRSW System are determined by the systems it supports.

ACTIONSA.1

With one RHRSW pump inoperable, the inoperable pump must be restored to OPERABLE status within 30 days. With the unit in this condition, the remaining OPERABLE RHRSW pumps are adequate to perform the RHRSW heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced RHRSW capability. The 30 day Completion Time is based on the remaining RHRSW heat removal capability, including enhanced reliability afforded by manual cross connect capability, and the low probability of a DBA with concurrent worst case single failure.

B.1

With one RHRSW pump inoperable in each subsystem, if no additional failures occur in the RHRSW System, and the two OPERABLE pumps are aligned by opening the normally closed cross tie valves, then the remaining OPERABLE pumps and flow paths provide adequate heat removal capacity following a design basis LOCA. However, capability for this alignment is not assumed in long term containment response analysis and an additional single failure in the RHRSW System could reduce the system capacity below that assumed in the safety analysis. Therefore, continued operation is permitted only for a limited time. One inoperable pump is required to be restored to OPERABLE status within 7 days **[or in accordance with the Risk Informed Completion Time Program]**. The 7 day Completion Time for restoring one inoperable RHRSW pump to OPERABLE status is based on engineering judgment, considering the level of redundancy provided.

BASES

ACTIONS (continued)

C.1

Required Action C.1 is intended to handle the inoperability of one RHRSW subsystem for reasons other than Condition A. The Completion Time of 7 days is allowed to restore the RHRSW subsystem to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] With the unit in this condition, the remaining OPERABLE RHRSW subsystem is adequate to perform the RHRSW heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE RHRSW subsystem could result in loss of RHRSW function. The Completion Time is based on the redundant RHRSW capabilities afforded by the OPERABLE subsystem and the low probability of an event occurring requiring RHRSW during this period.

The Required Action is modified by a Note indicating that the applicable Conditions of LCO 3.4.8, be entered and Required Actions taken if the inoperable RHRSW subsystem results in inoperable [RHR shutdown cooling]. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

D.1

With both RHRSW subsystems inoperable for reasons other than Condition B (e.g., both subsystems with inoperable flow paths, or one subsystem with an inoperable pump and one subsystem with an inoperable flow path), the RHRSW System is not capable of performing its intended function. At least one subsystem must be restored to OPERABLE status within 8 hours [or in accordance with the Risk Informed Completion Time Program]. The 8 hour Completion Time for restoring one RHRSW subsystem to OPERABLE status, is based on the Completion Times provided for the RHR suppression pool cooling and spray functions.

The Required Action is modified by a Note indicating that the applicable Conditions of LCO 3.4.8, be entered and Required Actions taken if the inoperable RHRSW subsystem results in inoperable [RHR shutdown cooling]. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

BASES

ACTIONS

A.1

With one [PSW] pump inoperable in each subsystem, the inoperable pump must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE [PSW] pumps (even allowing for an additional single failure) are adequate to perform the [PSW] heat removal function; however, the overall reliability is reduced. The 30 day Completion Time is based on the remaining [PSW] heat removal capability to accommodate additional single failures, and the low probability of an event occurring during this time period.

B.1

With one [PSW] pump inoperable in each subsystem, one inoperable pump must be restored to OPERABLE status within 7 days **[or in accordance with the Risk Informed Completion Time Program]**. With the unit in this condition, the remaining OPERABLE [PSW] pumps are adequate to perform the [PSW] heat removal function; however, the overall reliability is reduced. The 7 day Completion Time is based on the remaining [PSW] heat removal capability to accommodate an additional single failure and the low probability of an event occurring during this time period.

[C.1]

If one or more cooling towers have one fan inoperable (i.e., up to one fan per cooling tower inoperable), action must be taken to restore the inoperable cooling tower fan(s) to OPERABLE status within 7 days **[or in accordance with the Risk Informed Completion Time Program]**. The 7 day Completion Time is based on the low probability of an accident occurring during the 7 days that one cooling tower fan is inoperable in one or more cooling towers, the number of available systems, and the time required to reasonably complete the Required Action.]

[D.1]

-----REVIEWER'S NOTE-----
The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit.

BASES

ACTIONS (continued)

With water temperature of the UHS > [90]°F, the design basis assumption associated with initial UHS temperature are bounded provided the temperature of the UHS averaged over the previous 24 hour period is ≤ [90]°F. With the water temperature of the UHS > [90]°F, long term cooling capability of the ECCS loads and DGs may be affected. Therefore, to ensure long term cooling capability is provided to the ECCS loads when water temperature of the UHS is > [90]°F, Required Action D.1 is provided to more frequently monitor the water temperature of the UHS and verify the temperature is ≤ [90]°F when averaged over the previous 24 hour period. The once per hour Completion Time takes into consideration UHS temperature variations and the increased monitoring frequency needed to ensure design basis assumptions and equipment limitations are not exceeded in this condition. If the water temperature of the UHS exceeds [90]°F when averaged over the previous 24 hour period or the water temperature of the UHS exceeds []°F, Condition F must be entered immediately.]

E.1

With one [PSW] subsystem inoperable for reasons other than Condition A and [Condition C] (e.g., inoperable flow path or both pumps inoperable in a loop), the [PSW] subsystem must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. With the unit in this condition, the remaining OPERABLE [PSW] subsystem is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE [PSW] subsystem could result in loss of [PSW] function.

The 72 hour Completion Time is based on the redundant [PSW] System capabilities afforded by the OPERABLE subsystem, the low probability of an accident occurring during this time period, and is consistent with the allowed Completion Time for restoring an inoperable DG.

Required Action E.1 is modified by two Notes indicating that the applicable Conditions of LCO 3.8.1, "AC Sources - Operating," LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown," be entered and Required Actions taken if the inoperable [PSW] subsystem results in an inoperable DG or RHR shutdown cooling subsystem, respectively. This is in accordance with LCO 3.0.6 and ensures the proper actions are taken for these components.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition F is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[F.1]

With both [PSW] subsystems inoperable for reasons other than Condition B and [Condition C], [or the [UHS] is determined inoperable for reasons other than Condition C or D], the Required Action is to restore the inoperable [PSW] subsystems or the [UHS] to OPERABLE status within 1 hour to regain a method to provide cooling water for the removal of heat from equipment. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient PSW subsystems or the UHS. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second [PSW] subsystem [or the [UHS] is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [PSW] subsystem is inoperable for any reason and a second [PSW] subsystem is found to be inoperable, or if two [PSW] subsystems are found to be inoperable at the same time. Alternatively, the Required Action is only applicable if the [UHS] is found to be inoperable.]

----- REVIEWER'S NOTE -----
 The bracketed phrase of Condition G which states "Both [PSW] subsystems are inoperable for reasons other than Condition[s] B and C], [OR [UHS] inoperable for reasons other than Condition C [or D],"and the corresponding bracketed Bases phrases are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

GF.1 and GF.2

If the [PSW] subsystem cannot be restored to OPERABLE status within the associated Completion Time of Condition A, B, [D,] [or F], [or both [PSW] subsystems are inoperable for reasons other than Condition B and [Condition C], [or the [UHS] is determined inoperable for reasons other than Condition C or D]] 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 12 hours and in MODE 4 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 3.7.2.1

This SR ensures adequate long term (30 days) cooling can be maintained. With the [UHS] water source below the minimum level, the affected [PSW] subsystem must be declared inoperable. The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.]

[SR 3.7.2.2

This SR verifies the water level [in each pump well of the intake structure] to be sufficient for the proper operation of the [PSW] pumps (net positive suction head and pump vortexing are considered in determining this limit). The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.]

[SR 3.7.2.3

Verification of the [UHS] temperature ensures that the heat removal capability of the [PSW] System is within the assumptions of the DBA analysis. The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.]

BASES

LCO Two independent and redundant subsystems of the [Control Room AC] System are required to be OPERABLE to ensure that at least one is available, assuming a single failure disables the other subsystem. Total system failure could result in the equipment operating temperature exceeding limits.

The [Control Room AC] System is considered OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both subsystems. These components include the cooling coils, fans, chillers, compressors, ductwork, dampers, and associated instrumentation and controls.

APPLICABILITY In MODE 1, 2, or 3, the [Control Room AC] System must be OPERABLE to ensure that the control room temperature will not exceed equipment OPERABILITY limits following control room isolation.

In MODES 4 and 5, the probability and consequences of a Design Basis Accident are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the [Control Room AC] System OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:

- a. During operations with a potential for draining the reactor vessel (OPDRVs) and
 - b. During movement of [recently] irradiated fuel assemblies in the [secondary] containment. [Due to radioactive decay, the Control Room AC System is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days).]
-

ACTIONS A.1

With one [control room AC] subsystem inoperable, the inoperable [control room AC] subsystem must be restored to OPERABLE status within 30 days. With the unit in this condition, the remaining OPERABLE [control room AC] subsystem is adequate to perform the control room air conditioning function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in loss of the control room air conditioning function. The 30 day Completion Time is based on the low probability of an event occurring requiring control room isolation, the consideration that the remaining subsystem can provide the required protection, and the availability of alternate safety and nonsafety cooling methods.

----- REVIEWER'S NOTE -----

Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1

If both [control room AC] subsystems are inoperable in MODE 1, 2, or 3, the [control room AC] System may not be capable of performing the intended function. With two [control room AC] subsystems inoperable, the Required Action is to restore at least one [control room AC] subsystem to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one [control room AC]. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second [control room AC] subsystem is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [control room AC] subsystem is inoperable for any reason and a second [control room AC] subsystem is found to be inoperable, or if two [control room AC] subsystems are found to be inoperable at the same time.]

BASES

ACTIONS (continued)

CB.1 and CB.2

In MODE 1, 2, or 3, if the inoperable [control room AC] subsystem[(s)] cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE that minimizes risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 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.

DG.1, DG.2.1, and DG.2.2

The Required Actions of Condition DG are modified by a Note indicating that LCO 3.0.3 does not apply. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of [recently] irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs, if Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE [control room AC] subsystem may be placed immediately in operation. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent actuation will occur, and that any active failure will be readily detected.

An alternative to Required Action DG.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, movement of [recently] irradiated fuel assemblies in the [secondary] containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
Condition E is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

DE.1

If both [control room AC] subsystems are inoperable in MODE 1, 2, or 3, the [Control Room AC] System may not be capable of performing the intended function. Therefore, LCO 3.0.3 must be entered immediately.]

EF.1 and EF.2

The Required Actions of Condition E-F are modified by a Note indicating that LCO 3.0.3 does not apply. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of [recently] irradiated fuel assemblies is not a sufficient reason to require a reactor shutdown.

During movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs, with two [control room AC] subsystems inoperable, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, handling of [recently] irradiated fuel in the [secondary] containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE
REQUIREMENTSSR 3.7.5.1

This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the [safety analyses]. The SR consists of a combination of testing and calculation. The [18] month Frequency is appropriate since significant degradation of the [Control Room AC] System is not expected over this time period.

REFERENCES

1. FSAR, Section [6.4].

BASES

LCO (continued)

POWER RATIO (MCPR") may be applied to allow this LCO to be met.] The APLHGR and MCPR limits for the inoperable Main Turbine Bypass System are specified in the COLR. An OPERABLE Main Turbine Bypass System requires the bypass valves to open in response to increasing main steam line pressure. This response is within the assumptions of the applicable analysis (Ref. 2).

APPLICABILITY

The Main Turbine Bypass System is required to be OPERABLE at $\geq 25\%$ RTP to ensure that the fuel cladding integrity Safety Limit and the cladding 1% plastic strain limit are not violated during the turbine generator load rejection transient. As discussed in the Bases for LCO 3.2.1 and LCO 3.2.2, sufficient margin to these limits exists at $< 25\%$ RTP. Therefore, these requirements are only necessary when operating at or above this power level.

ACTIONS

A.1

If the Main Turbine Bypass System is inoperable (one or more bypass valves inoperable), or the APLHGR and MCPR limits for an inoperable Main Turbine Bypass System, as specified in the COLR, are not applied, the assumptions of the design basis transient analysis may not be met. Under such circumstances, prompt action should be taken to restore the Main Turbine Bypass System to OPERABLE status or adjust the APLHGR and MCPR limits accordingly. The 2 hour Completion Time is reasonable, based on the time to complete the Required Action and the low probability of an event occurring during this period requiring the Main Turbine Bypass System.] [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program if the inoperability of the Main Turbine Bypass System is not the result of APLHGR or MCPR limit malfunctions.]

B.1

If the Main Turbine Bypass System cannot be restored to OPERABLE status or the APLHGR and MCPR limits for an inoperable Main Turbine Bypass System are not applied, THERMAL POWER must be reduced to $< 25\%$ RTP. As discussed in the Applicability section, operation at $< 25\%$ RTP results in sufficient margin to the required limits, and the Main Turbine Bypass System is not required to protect fuel integrity during the turbine generator load rejection transient. The 4 hour Completion Time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

BASES

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable DG. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the availability of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

A.2

Required Action A.2, which only applies if the division cannot be powered from an offsite source, is intended to provide assurance that an event with a coincident single failure of the associated DG does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related divisions (i.e., single division systems are not included). Redundant required features failures consist of inoperable features associated with a division redundant to the division that has no offsite power.

The Completion Time for Required Action A.2 is intended to allow time for the operator to evaluate and repair any discovered inoperabilities. This Completion Time also allows an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action the Completion Time only begins on discovery that both:

- a. The division has no offsite power supplying its loads and
- b. A required feature on the other division is inoperable.

BASES

ACTIONS (continued)

If, at any time during the existence of this Condition (one offsite circuit inoperable) a required feature subsequently becomes inoperable, this Completion Time would begin to be tracked.

Discovering no offsite power to one 4160 V ESF bus of the onsite Class 1E Power Distribution System coincident with one or more inoperable required support or supported features, or both, that are associated with any other ESF bus that has offsite power, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before the unit is subjected to transients associated with shutdown.

The remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection may have been lost for the required feature's function; however, function is not lost. The 24 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

A.3

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition A for a period that should not exceed 72 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the plant safety systems. In this condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and the low probability of a DBA occurring during this period.

BASES

ACTIONS (continued)

B.1

To ensure a highly reliable power source remains with one DG inoperable, it is necessary to verify the availability of the required offsite circuits on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions must then be entered.

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related divisions (i.e., single division systems are not included). Redundant required features failures consist of inoperable features associated with a division redundant to the division that has an inoperable DG.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action the Completion Time only begins on discovery that both:

- a. An inoperable DG exists and
- b. A required feature on the other division (Division 1 or 2) is inoperable.

If, at any time during the existence of this Condition (one DG inoperable), a required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

Discovering one required DG inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE DG[s] results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

BASES

ACTIONS (continued)

The remaining OPERABLE DGs and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and low probability of a DBA occurring during this period.

B.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of OPERABLE DGs. If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on other DG(s), they are declared inoperable upon discovery, and Condition E of LCO 3.8.1 is entered. Once the failure is repaired, and the common cause failure no longer exists, Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on the remaining DG(s), performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of those DGs.

In the event the inoperable DG is restored to OPERABLE status prior to completing either B.3.1 or B.3.2, the [plant corrective action program] will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in Condition B.

According to Generic Letter 84-15 (Ref. 7), [24] hours is a reasonable time to confirm that the OPERABLE DGs are not affected by the same problem as the inoperable DG.

B.4

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition B for a period that should not exceed 72 hours. In Condition B, the remaining OPERABLE DGs and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and low probability of a DBA occurring during this period. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

BASES

ACTIONS (continued)

C.1 and C.2

Required Action C.1 addresses actions to be taken in the event of inoperability of redundant required features concurrent with inoperability of two offsite circuits. Required Action C.1 reduces the vulnerability to a loss of function. The Completion Time for taking these actions is reduced to 12 hours from that allowed with one division without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety divisions are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are designed with redundant safety related divisions, (i.e., single division systems are not included in the list). Redundant required features failures consist of any of these features that are inoperable because any inoperability is on a division redundant to a division with inoperable offsite circuits.

The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. All required offsite circuits are inoperable and
- b. A required feature is inoperable.

If, at any time during the existence of this Condition (two offsite circuits inoperable), a required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition C for a period that should not exceed 24 hours. This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

Because of the normally high availability of the offsite sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more DGs inoperable. However, two factors tend to decrease the severity of this degradation level:

BASES

ACTIONS (continued)

- a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure and
- b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

With both of the required offsite circuits inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient. In fact, a simultaneous loss of offsite AC sources, a LOCA, and a worst case single failure were postulated as a part of the design basis in the safety analysis. Thus, the 24 hour Completion Time provides a period of time to effect restoration of one of the offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

According to Regulatory Guide 1.93 (Ref. 6), with the available offsite AC sources two less than required by the LCO, operation may continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source is restored within 24 hours, power operation continues in accordance with Condition A. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable, resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no AC source to any ESF bus, ACTIONS for LCO 3.8.9, "Distribution Systems - Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of the offsite circuit and one DG without regard to whether a division is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized division.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition D for a period that should not exceed 12 hours. In Condition D, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than

BASES

ACTIONS (continued)

that in Condition C (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 12 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and the low probability of a DBA occurring during this period. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

E.1

With two DGs inoperable, there is [one] remaining standby AC source. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources are available to power the minimum required ESF functions. Since the offsite electrical power system is the only source of AC power for the majority of ESF equipment at this level of degradation, the risk associated with continued operation for a very short time could be less than that associated with an immediate controlled shutdown. (The immediate shutdown could cause grid instability, which could result in a total loss of AC power.) Since any inadvertent unit generator trip could also result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation. According to Regulatory Guide 1.93 (Ref. 6), with both DGs inoperable, operation may continue for a period that should not exceed 2 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

[E.1

The sequencer(s) is an essential support system to [both the offsite circuit and the DG associated with a given ESF bus.] [Furthermore, the sequencer(s) is on the primary success path for most major AC electrically powered safety systems powered from the associated ESF bus.] Therefore, loss of an [ESF bus's sequencer] affects every major ESF System in the [division]. The [12] hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining sequencer OPERABILITY. This time period also ensures that the probability of an accident requiring sequencer OPERABILITY occurring during periods when the sequencer is inoperable is minimal. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

This Condition is preceded by a Note that allows the Condition to be deleted if the unit design is such that any sequencer failure mode only affects the ability of the associated DG to power its respective safety loads under any conditions. Implicit in this Note is the concept that the Condition must be retained if any sequencer failure mode results in the inability to start all or part of the safety loads when required regardless of power availability, or results in overloading the offsite power circuit to a safety bus during an event thereby causing its failure. Also implicit in the Note is that the Condition is not applicable to any division that does not have a sequencer.]

----- REVIEWER'S NOTE -----
 Condition G only applicable to plants that have adopted a Risk Informed Completion Time Program.

[G.1

Condition G corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. The Required Action is to restore sufficient required AC electrical power supplies to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient AC electrical power supplies. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when three or more [required] AC sources are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if two [required] AC sources are inoperable for any reason and additional [required] AC sources are found to be inoperable, or if three or more [required] AC sources are found to be inoperable at the same time.]

HG.1 and HG.2

If the inoperable AC electrical power sources cannot be restored to OPERABLE status within the associated 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 12 hours and to MODE 4 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.

----- REVIEWER'S NOTE -----

Condition I is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[HI.1

Condition HI corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown.]

SURVEILLANCE
REQUIREMENTS

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, in accordance with 10 CFR 50, GDC 18 (Ref. 8). Periodic component tests are supplemented by extensive functional tests during refueling outages (under simulated accident conditions). The SRs for demonstrating the OPERABILITY of the DGs are in accordance with the recommendations of Regulatory Guide 1.9 (Ref. 3), Regulatory Guide 1.108 (Ref. 9), and Regulatory Guide 1.137 (Ref. 10), as addressed in the FSAR.

BASES

LCO The DC electrical power subsystems - with: 1) each station service DC subsystem consisting of two 125 V batteries in series two battery chargers and the corresponding control equipment and interconnecting cabling supplying power to the associated bus, and 2) each DG DC subsystem consisting of one battery bank, one battery charger, and the corresponding control equipment and interconnecting cabling are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4).

APPLICABILITY The DC electrical power sources are required to be OPERABLE in MODES 1, 2, and 3 to ensure safe unit operation and to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment integrity and other vital functions are maintained in the event of a postulated DBA.

The DC electrical power requirements for MODES 4 and 5 are addressed in the Bases for LCO 3.8.5, "DC Sources - Shutdown."

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

Condition A represents one division with one [or two] battery chargers inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring a fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours [or in accordance with the Risk Informed Completion Time Program]. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within [12] hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----

A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).

A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a premature shutdown with its own attendant risk.

If established battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

If the charger is operating in the current limit mode after 2 hours that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action A.2).

Required Action A.2 requires that the battery float current be verified as less than or equal to [2] amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial [12] hour period the battery float current is not less than or equal to [2] amps this indicates there may be additional battery problems and the battery must be declared inoperable.

BASES

ACTIONS (continued)

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days [or in accordance with the Risk Informed Completion Time Program]. This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

B.1

-----REVIEWER'S NOTE-----
 The 2 hour Completion Times of Required Actions B.1 and C.1 are in brackets. Any licensee wishing to request a longer Completion Time will need to demonstrate that the longer Completion Time is appropriate for the plant in accordance with the guidance in Regulatory Guide (RG) 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications."

Condition B represents one division with one [or two] batter[y][ies] inoperable. With one [or two] batter[y][ies] inoperable, the DC bus is being supplied by the OPERABLE battery charger[s]. Any event that results in a loss of the AC bus supporting the battery charger[s] will also result in loss of DC to that division. Recovery of the AC bus, especially if it is due to a loss of offsite power, will be hampered by the fact that many of the components necessary for the recovery (e.g., diesel generator control and field flash, AC load shed and diesel generator output circuit breakers, etc.) likely rely upon the batter[y][ies]. In addition the energization transients of any DC loads that are beyond the capability of the battery charger[s] and normally require the assistance of the batter[y][ies] will not be able to be brought online. The [2] hour limit allows sufficient time to effect restoration of an inoperable battery given that the majority of the conditions that lead to battery inoperability (e.g., loss of battery charger, battery cell voltage less than [2.07] V, etc.) are identified in Specifications 3.8.4, 3.8.5, and 3.8.6 together with additional specific completion times. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

C.1

Condition C represents one division with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is therefore imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected division. The 2 hour limit is consistent with the allowed time for an inoperable DC Distribution System division. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

If one of the required DC electrical power subsystems is inoperable for reasons other than Condition A or B (e.g., inoperable battery charger and associated inoperable battery), the remaining DC electrical power subsystems have the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary DC electrical subsystems to mitigate a worst case accident, continued power operation should not exceed 2 hours. The 2 hour Completion Time is based on Regulatory Guide 1.93 (Ref. 7) and reflects a reasonable time to assess unit status as a function of the inoperable DC electrical power subsystem and, if the DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown.

----- REVIEWER'S NOTE -----
Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1

With two DC electrical power subsystems inoperable, the Required Action is to restore at least one of the required inoperable DC electrical power subsystems to OPERABLE status within 1 hour to regain control power for the AC emergency power system. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one DC electrical power subsystem. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second DC electrical power subsystem is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one DC electrical power subsystem is inoperable for any

reason and a second DC electrical power subsystem is found to be inoperable, or if two DC electrical power subsystem are found to be inoperable at the same time.]

ED.1 and ED.2

If the inoperable station service DC electrical power subsystem cannot be restored to OPERABLE status 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 12 hours and to MODE 4 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. The Completion Time to bring the unit to MODE 4 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

BASES

ACTIONS (continued)

FE.1

If the DG DC electrical power subsystem cannot be restored to OPERABLE status in the associated Completion Time, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable. This declaration also requires entry into applicable Conditions and Required Actions for an inoperable DG, LCO 3.8.1, "AC Sources - Operating."

SURVEILLANCE
REQUIREMENTSSR 3.8.4.1

Verifying battery terminal voltage while on float charge helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state while supplying the continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally charge the battery. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the minimum float voltage established by the battery manufacturer ([2.20] Vpc or [127.6] V at the battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life (expected to be approximately 20 years). The 7 day Frequency is consistent with manufacturer recommendations and IEEE-450 (Ref. 8).

SR 3.8.4.2

This SR verifies the design capacity of the battery chargers. According to Regulatory Guide 1.32 (Ref. 9), the battery charger supply is recommended to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensures that these requirements can be satisfied.

BASES

APPLICABILITY The inverters are required to be OPERABLE in MODES 1, 2, and 3 to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Inverter requirement for MODES 4 and 5 are covered in the Bases for LCO 3.8.8, "Inverters - Shutdown."

ACTIONS A.1

With a required inverter inoperable, its associated AC vital bus becomes inoperable until it is manually re-energized from its [Class 1E constant voltage source transformer or inverter using an internal AC source]. LCO 3.8.9 addresses this action; however, pursuant to LCO 3.0.6, these actions would not be entered even if the AC vital bus were de-energized. Therefore, the ACTIONS are modified by a Note to require the ACTIONS for LCO 3.8.9 be entered immediately. This ensures the vital bus is re-energized within 2 hours.

Required Action A.1 allows 24 hours to fix the inoperable inverter and return it to service. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 24 hour limit is based upon engineering judgment and takes into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. This risk has to be balanced against the risk of an immediate shutdown, along with the potential challenges to safety systems that such a shutdown might entail. When the AC vital bus is powered from its constant voltage source, it is relying upon interruptible AC electrical power sources (offsite and onsite). Similarly, the uninterruptible inverter source to the AC vital buses is the preferred source for powering instrumentation trip setpoint devices.

----- REVIEWER'S NOTE -----
Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1

With two [or more] [required] inverters inoperable, the Required Action is to restore sufficient [required] inverters to OPERABLE status within 1 hour to regain the normal power supplies to the vital buses. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient inverters. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two [or more] [required] inverters are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [required] inverter is inoperable for any reason and additional [required] inverters are found to be inoperable, or if two [or more] [required] inverters are found to be inoperable at the same time.]

CB.1 and CB.2

If the inoperable devices or components cannot be restored to OPERABLE status within the associated Completion Time, the unit 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 12 hours and to MODE 4 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 unit systems.

BASES

LCO (continued)

associated buses and distribution panels to be energized to their proper voltage from either the associated battery or charger. OPERABLE vital bus electrical power distribution subsystems require the associated buses to be energized to their proper voltage from the associated [inverter via inverted DC voltage, inverter using interval AC source, or Class 1E constant voltage transformer].

In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, if they exist, must be open. This prevents any electrical malfunction in any power distribution subsystem from propagating to the redundant subsystem, which could cause the failure of a redundant subsystem and a loss of essential safety function(s). If any tie breakers are closed, the affected redundant electrical power distribution subsystems are considered inoperable. This applies to the onsite, safety related, redundant electrical power distribution subsystems. It does not, however, preclude redundant Class IE 4.16 kV ESF buses from being powered from the same offsite circuit.

APPLICABILITY

The electrical power distribution subsystems are required to be OPERABLE in MODES 1, 2, and 3 to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Electrical power distribution subsystem requirements for MODES 4 and 5 are covered in the Bases for LCO 3.8.10, "Distribution Systems - Shutdown."

ACTIONS

A.1

With one or more Division 1 and 2 required AC buses, load centers, motor control centers, or distribution panels (except AC vital buses), in one division inoperable and a loss of function has not occurred, the remaining AC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single

BASES

ACTIONS (continued)

failure in the remaining power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required AC buses, load centers, motor control centers, and distribution panels must be restored to OPERABLE status within 8 hours.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

The Condition A worst scenario is one division without AC power (i.e., no offsite power to the division and the associated DG inoperable). In this Condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operators' attention be focused on minimizing the potential for loss of power to the remaining division by stabilizing the unit, and on restoring power to the affected division. The 8 hour time limit before requiring a unit shutdown in this Condition is acceptable because:

- a. There is a potential for decreased safety if the unit operators' attention is diverted from the evaluations and actions necessary to restore power to the affected division to the actions associated with taking the unit to shutdown within this time limit.
- b. The potential for an event in conjunction with a single failure of a redundant component in the division with AC power. (The redundant component is verified OPERABLE in accordance with Specification 5.5.12, "Safety Function Determination Program (SFDP).")

Required Action A.1 is modified by a Note that requires the applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," to be entered for DC divisions made inoperable by inoperable power distribution subsystems. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. Inoperability of a distribution system can result in loss of charging power to batteries and eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems.

[B.1

With one or more AC vital buses inoperable, and a loss of function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the

BASES

ACTIONS (continued)

minimum required ESF functions not being supported. Therefore, the required AC vital bus must be restored to OPERABLE status within 2 hours [or in accordance with the Risk Informed Completion Time Program] by powering the bus from the associated [inverter via inverted DC, inverter using internal AC source, or Class 1E constant voltage transformer].

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source are nonfunctioning. In this situation the plant is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the plant, minimizing the potential for loss of power to the remaining vital buses, and restoring power to the affected AC vital buses.

This 2 hour limit is more conservative than Completion Times allow for the majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate vital AC power, that would have Required Action Completion Times shorter than 2 hours if declared inoperable, is acceptable because of:

- [a. The potential for decreased safety when requiring a change in plant conditions (i.e., requiring a shutdown) while not allowing stable operations to continue,
- b. The potential for decreased safety when requiring entry into numerous applicable Conditions and Required Actions for components without adequate vital AC power, while not providing sufficient time for the operators to perform the necessary evaluations and actions to restore power to the affected division, and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time takes into account the importance to safety of restoring the AC vital bus to OPERABLE status, the redundant capability afforded by the other OPERABLE vital buses, and the low probability of a DBA occurring during this period.

BASES

ACTIONS (continued)

C.1

With one or more station service DC bus or distribution panel inoperable, and a loss of function has not yet occurred, the remaining DC electrical power distribution subsystem is capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystem could result in the minimum required ESF functions not being supported. Therefore, the required DC buses and distribution panels must be restored to OPERABLE status within 2 hours [or in accordance with the Risk Informed Completion Time Program] by powering the bus from the associated battery or charger.

Condition C represents one or more DC buses or distribution panels without adequate DC power, potentially with both the battery significantly degraded and the associated charger nonfunctioning. In this situation the plant is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the plant, minimizing the potential for loss of power to the remaining divisions, and restoring power to the affected division.

This 2 hour limit is more conservative than Completion Times allowed for the majority of components that would be without power. Taking exception to LCO 3.0.2 for components without adequate DC power, which would have Required Action Completion Times shorter than 2 hours, is acceptable because of:

- a. The potential for decreased safety when requiring a change in plant conditions (i.e., requiring a shutdown) while not allowing stable operations to continue,
- b. The potential for decreased safety when requiring entry into numerous applicable Conditions and Required Actions for components without DC power, while not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected division,
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for DC buses is consistent with Regulatory Guide 1.93 (Ref. 3).

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1

Condition D corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. When more than one AC or DC electrical power distribution subsystem are lost, and this results in the loss of a required function, the plant is in a condition outside the accident analysis. The Required Action is to restore sufficient electrical distribution systems to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient electrical distribution systems. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the two or more electrical power distribution subsystems are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one electrical power distribution subsystem is inoperable for any reason and a second electrical power distribution subsystem is found to be inoperable, or if two or more electrical power distribution subsystems are found to be inoperable at the same time.]

ED.1 and ED.2

If the inoperable distribution subsystem[(s)] cannot be restored to OPERABLE status within the associated Completion Time, the unit 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 12 hours and to MODE 4 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.

FE.1

With one or more DG DC buses inoperable, the associated DG(s) may be incapable of performing their intended functions. In this situation the DG(s) must be immediately declared inoperable. This action also

requires entry into applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating."

----- REVIEWER'S NOTE -----
 Condition G is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

[GF.1

Condition ~~F~~-G corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. When more than one AC or DC electrical power distribution subsystem is lost, and this results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.]

SURVEILLANCE
REQUIREMENTS

SR 3.8.9.1

This Surveillance verifies that the AC and DC, electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical buses are maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

----- Reviewer's Note -----
 Example 1.3-8 is only applicable to plants that have adopted the Risk Informed Completion Time Program.

[EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. ---- NOTE ---- Not applicable when second subsystem intentionally made inoperable. ----- Two subsystems inoperable.	B.1 Restore subsystems to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

When a subsystem is declared inoperable, Condition A is entered. The 7 day Completion Time may be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a Risk Informed Completion Time (RICT) that may be used to complete the Required Action beyond the 7 day Completion Time. The RICT cannot exceed 30 days. After the 7 day Completion Time has expired, the

subsystem must be restored to OPERABLE status within the RICT or Condition C must also be entered.

If a second subsystem is declared inoperable, Condition B may also be entered. The Condition is modified by a Note stating it is not applicable if the second subsystem is intentionally made inoperable. The Required Actions of Condition B are not intended for voluntary removal of redundant subsystems from service. The Required Action is only applicable if one subsystem is inoperable for any reason and the second subsystem is found to be inoperable, or if both subsystems are found to be inoperable at the same time. If Condition B is applicable, at least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. The licensee may be able to apply a RICT to extend the Completion Time beyond 1 hour if the requirements of the Risk Informed Completion Time Program are met. If two subsystems are inoperable and Condition B is not applicable (i.e., the second subsystem was intentionally made inoperable), LCO 3.0.3 is entered as there is no applicable Condition.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

If the 7 day Completion Time clock of Condition A or the 1 hour Completion Time clock of Condition B have expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition C is entered, Conditions A, B, and C are exited, and therefore, the Required Actions of Condition C may be terminated.]

IMMEDIATE When "Immediately" is used as a Completion Time, the Required Action
COMPLETION TIME should be pursued without delay and in a controlled manner.

Comment: While Condition A represents a variable outside its limit, the SLC subsystems could be substituted as a surrogate in an RICT calculation. Condition D is a default Condition and is therefore excluded.

SLC System
3.1.7

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Concentration of boron in solution not within limits but > [].	A.1 Restore concentration of boron in solution to within limits.	72 hours] <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
B. One SLC subsystem inoperable [for reasons other than Condition A].	B.1 Restore SLC subsystem to OPERABLE status.	7 days <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
C. Two SLC subsystems inoperable [for reasons other than Condition A].	C.1 Restore one SLC subsystem to OPERABLE status.	8 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	12 hours

Comment: Conditions E, F, G, H, and I apply to the default Condition (Condition D) and are excluded.

3.3 INSTRUMENTATION

3.3.1.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1.1 The RPS instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.1-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required channels inoperable.</p>	<p>A.1 Place channel in trip. <u>OR</u> A.2 Place associated trip system in trip.</p>	<p>12 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program] 12 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One or more Functions with one or more required channels inoperable in both trip systems.</p>	<p>B.1 Place channel in one trip system in trip. <u>OR</u></p>	<p>6 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Place one trip system in trip.	6 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
C. One or more Functions with RPS trip capability not maintained.	C.1 Restore RPS trip capability.	1 hour <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1 Reduce THERMAL POWER to < [40]% RTP.	4 hours
F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1 Reduce THERMAL POWER to < 25% RTP.	4 hours
G. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1 Be in MODE 2.	6 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1 Be in MODE 3.	12 hours
I. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	I.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

Comment: Condition B contains an "Immediately" CT. Condition C is a default Condition and Conditions D and E are outside the applicability of the Traveler. These Conditions are therefore excluded.

3.3 INSTRUMENTATION

3.3.1.2 Source Range Monitor (SRM) Instrumentation

LCO 3.3.1.2 The SRM instrumentation in Table 3.3.1.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.2-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required SRMs inoperable in MODE 2 with intermediate range monitors (IRMs) on Range 2 or below.	A.1 Restore required SRMs to OPERABLE status.	4 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. [Four] required SRMs inoperable in MODE 2 with IRMs on Range 2 or below.	B.1 Suspend control rod withdrawal.	Immediately
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3.	12 hours
D. One or more required SRMs inoperable in MODE 3 or 4.	D.1 Fully insert all insertable control rods. <u>AND</u> D.2 Place reactor mode switch in the shutdown position.	1 hour 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more required SRMs inoperable in MODE 5.	E.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u> E.2 Initiate action to insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----

Refer to Table 3.3.1.2-1 to determine which SRs apply for each applicable MODE or other specified conditions.

SURVEILLANCE	FREQUENCY
SR 3.3.1.2.1 Perform CHANNEL CHECK.	12 hours

Control Rod Block Instrumentation

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3.2.1

3.3 INSTRUMENTATION

3.3.2.1 Control Rod Block Instrumentation

LCO 3.3.2.1 The control rod block instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2.1-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more rod withdrawal limiter (RWL) channels inoperable.	A.1 Suspend control rod withdrawal.	Immediately
B. One or more rod pattern controller channels inoperable.	B.1 Suspend control rod movement except by scram.	Immediately
C. One or more Reactor Mode Switch - Shutdown Position channels inoperable.	C.1 Suspend control rod withdrawal.	Immediately
	<u>AND</u> C.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.3.1 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3.1 The PAM instrumentation for each Function in Table 3.3.3.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.5.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one required channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours
F. [As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately]

SURVEILLANCE REQUIREMENTS

-----NOTE-----

These SRs apply to each Function in Table 3.3.3.1-1.

SURVEILLANCE	FREQUENCY
SR 3.3.3.1.1 Perform CHANNEL CHECK.	31 days
SR 3.3.3.1.2 Perform CHANNEL CALIBRATION.	[18] months

Comment: No changes made. Condition A already has a 30 day CT and Condition B is a default Condition.

3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.3.2.1 [Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days]
SR 3.3.3.2.2 Verify each required control circuit and transfer switch is capable of performing the intended functions.	[18] months

Comment: Condition C is a default Condition and is therefore excluded. Required Action B.2 is not a "restore" function and is excluded.

3.3 INSTRUMENTATION

3.3.4.1 End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation

- LCO 3.3.4.1
- a. Two channels per trip system for each EOC-RPT instrumentation Function listed below shall be OPERABLE:
 - 1. Turbine Stop Valve (TSV) Closure, Trip Oil Pressure - Low and
 - 2. Turbine Control Valve (TCV) Fast Closure, Trip Oil Pressure - Low.
 - [OR
 - b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for inoperable EOC-RPT as specified in the COLR are made applicable.]

APPLICABILITY: THERMAL POWER \geq [40]% RTP with any recirculation pump in fast speed.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Restore channel to OPERABLE status.	72 hours
	<p><u>OR</u></p> <p>A.2 -----NOTE----- Not applicable if inoperable channel is the result of an inoperable breaker. -----</p> <p>Place channel in trip.</p>	<p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>72 hours</p> <p><u>OR</u></p> <p>In accordance with</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with EOC-RPT trip capability not maintained. <u>AND</u> [MCPR limit for inoperable EOC-RPT not made applicable.]	B.1 Restore EOC-RPT trip capability. <u>OR</u>	2 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
	[B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.	2 hours]
C. Required Action and associated Completion Time not met.	C.1 Remove the associated recirculation pump fast speed breaker from service. <u>OR</u>	4 hours
	C.2 Reduce THERMAL POWER to < [40]% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains EOC-RPT trip capability.

SURVEILLANCE	FREQUENCY
SR 3.3.4.1.1 Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.4.1.2 [Calibrate the trip units.	[92] days]

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met.	D.1 -----NOTE----- Only applicable if inoperable channel is the result of an inoperable RPT breaker. ----- Remove the affected recirculation pump from service. <u>OR</u> D.2 Be in MODE 2.	 6 hours 6 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----
 When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains ATWS-RPT trip capability.

SURVEILLANCE	FREQUENCY
SR 3.3.4.2.1 [Perform CHANNEL CHECK.	12 hours]
SR 3.3.4.2.2 Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.4.2.3 [Calibrate the trip units.	[92] days]

Comment: Condition A contains an "Immediately" CT. The following RAs declare another component inoperable: B.1, B.2, C.1, D.1, E.1, F.1 and G.1. RA D.2.2 is not a "Restore" function. Condition H is a default Condition. Therefore these are excluded.

3.3 INSTRUMENTATION

3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

LCO 3.3.5.1 The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.1-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.a, 1.b, 2.a and 2.b. ----- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. <u>AND</u>	1 hour from discovery of loss of initiation capability for feature(s) in both divisions

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.2 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 3.a and 3.b. -----</p> <p>Declare High Pressure Core Spray (HPCS) System inoperable.</p> <p><u>AND</u></p> <p>B.3 Place channel in trip.</p>	<p>1 hour from discovery of loss of HPCS initiation capability</p> <p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>C.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.c, 1.d, 2.c, and 2.d. -----</p> <p>Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore channel to OPERABLE status.</p>	<p>1 hour from discovery of loss of initiation capability for feature(s) in both divisions</p> <p>24 hours</p> <p><u>OR</u></p> <p>In accordance with</p>

		the Risk Informed Completion Time Program]
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>D.1 -----NOTE----- Only applicable if HPCS pump suction is not aligned to the suppression pool. -----</p> <p>Declare HPCS System inoperable.</p> <p><u>AND</u></p> <p>D.2.1 Place channel in trip.</p> <p><u>OR</u></p> <p>D.2.2 Align the HPCS pump suction to the suppression pool.</p>	<p>1 hour from discovery of loss of HPCS initiation capability</p> <p>24 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>24 hours</p>
<p>E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>E.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.e, 1.f, and 2.e. -----</p> <p>Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.</p> <p><u>AND</u></p> <p>E.2 Restore channel to OPERABLE status.</p>	<p>1 hour from discovery of loss of initiation capability for feature(s) in both divisions</p> <p>7 days</p> <p><u>IOR</u></p>

		In accordance with the Risk Informed Completion Time Program]
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>F.1 Declare Automatic Depressurization System (ADS) valves inoperable.</p> <p><u>AND</u></p> <p>F.2 Place channel in trip.</p>	<p>1 hour from discovery of loss of ADS initiation capability in both trip systems</p> <p>96 hours [or in accordance with the Risk Informed Completion Time Program] from discovery of inoperable channel concurrent with HPCS or reactor core isolation cooling (RCIC) inoperable</p> <p><u>AND</u></p> <p>8 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>G.1 -----NOTE----- Only applicable for Functions 4.c, 4.e, 4.f, 4.g, 5.c, 5.e, and 5.f. -----</p> <p>Declare ADS valves inoperable.</p> <p><u>AND</u></p> <p>G.2 Restore channel to OPERABLE status.</p>	<p>1 hour from discovery of loss of ADS initiation capability in both trip systems</p> <p>96 hours [or in accordance with the</p>

		<p>Risk Informed Completion Time Program] from discovery of inoperable channel concurrent with HPCS or RCIC inoperable</p> <p><u>AND</u></p> <p>8 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.	H.1 Declare associated supported feature(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 3.c, 3.f, 3.g, and 3.h; and (b) for up to 6 hours for Functions other than 3.c, 3.f, 3.g, and 3.h, provided the associated Function or the redundant Function maintains ECCS initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.5.1.3	[Calibrate the trip unit.	[92] days]
SR 3.3.5.1.4	[Perform CHANNEL CALIBRATION.	92 days]
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
SR 3.3.5.1.7	Verify the ECCS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

Comment: Condition A contains an "Immediately" CT. RAs B.1 and D.1 declare another component inoperable and Condition E is a default Condition. RA D.2.2 is not a "restore" function. Therefore these are excluded.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.2 The RCIC System instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > [150] psig.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1 Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	<u>AND</u> B.2 Place channel in trip.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1 Restore channel to OPERABLE status.	24 hours [OR In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</p>	<p>D.1 -----NOTE----- Only applicable if RCIC pump suction is not aligned to the suppression pool. -----</p> <p>Declare RCIC System inoperable.</p> <p><u>AND</u></p> <p>D.2.1 Place channel in trip.</p> <p><u>OR</u></p> <p>D.2.2 Align RCIC pump suction to the suppression pool.</p>	<p>1 hour from discovery of loss of RCIC initiation capability</p> <p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>24 hours</p>
<p>E. Required Action and associated Completion Time of Condition B, C, or D not met.</p>	<p>E.1 Declare RCIC System inoperable.</p>	<p>Immediately</p>

Comment: Condition C is a default Condition. Conditions D through K apply to the default Conditions. These are therefore excluded.

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

LCO 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

NOTES

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.b, 5.c, 5.d, and 5.e <u>IOR</u> In accordance with the Risk Informed Completion Time Program] <u>AND</u> 24 hours for Functions other than Functions 2.b, 5.c, 5.d, and 5.e <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
B. One or more automatic	B.1 Restore isolation capability.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
Functions with isolation capability not maintained.		<u>IOR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL).	12 hours
	<u>OR</u>	
	D.2.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	D.2.2 Be in MODE 4.	36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1 Isolate the affected penetration flow path(s).	24 hours
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1 Be in MODE 3.	12 hours
	<u>AND</u>	
<u>OR</u>	H.2 Be in MODE 4.	36 hours
Required Action and associated Completion Time of Condition F or G not met.		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1 Declare associated standby liquid control subsystem inoperable. <u>OR</u> I.2 Isolate the Reactor Water Cleanup System.	1 hour 1 hour
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1 Initiate action to restore channel to OPERABLE status. <u>OR</u> J.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.	Immediately Immediately
K. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	K.1 Isolate the affected penetration flow path(s). <u>OR</u> K.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment]. <u>AND</u> K.2.2 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately Immediately Immediately

Secondary Containment Isolation Instrumentation

3.3.6.2

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.6.2 Secondary Containment Isolation Instrumentation

LCO 3.3.6.2 The secondary containment isolation instrumentation for each Function in Table 3.3.6.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.2-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	12 hours for Function 2 <u>AND</u> 24 hours for Functions other than Function 2
B. One or more automatic Functions with secondary containment isolation capability not maintained.	B.1 Restore secondary containment isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1.1 Isolate the associated penetration flow path(s). <u>OR</u> C.1.2 Declare associated secondary containment isolation valves inoperable. <u>AND</u>	1 hour 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Place the associated standby gas treatment (SGT) subsystem(s) in operation.	1 hour
	<u>OR</u>	
	C.2.2 Declare associated SGT subsystem inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains secondary containment isolation capability.

SURVEILLANCE	FREQUENCY
SR 3.3.6.2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2.2 Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.6.2.3 [Calibrate the trip unit.	[92] days]
SR 3.3.6.2.4 Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.6.2.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

Comment: RA A.1 has an "immediately" Completion Time. RAs B.1 and C.1 declare other components inoperable and Condition D is a default Condition. Therefore these are excluded.

3.3 INSTRUMENTATION

3.3.6.3 Residual Heat Removal (RHR) Containment Spray System Instrumentation

LCO 3.3.6.3 The RHR Containment Spray System instrumentation for each Function in Table 3.3.6.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.6.3-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.6.3-1.	B.1 Declare associated RHR containment spray subsystem inoperable.	1 hour from discovery of loss of RHR containment spray initiation capability in both trip systems
	<u>AND</u> B.2 Place channel in trip.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. As required by Required Action A.1 and referenced in Table 3.3.6.3-1.</p>	<p>C.1 -----NOTE----- Only applicable for Functions 2 and 4. -----</p> <p>Declare associated RHR containment spray subsystem inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore channel to OPERABLE status.</p>	<p>1 hour from discovery of loss of RHR containment spray initiation capability in both trip systems</p> <p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>D. Required Action and associated Completion Time of Condition B or C not met.</p>	<p>D.1 Declare associated RHR containment spray subsystem inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.6.3-1 to determine which SRs apply for each RHR Containment Spray System Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains RHR containment spray initiation capability.

SURVEILLANCE	FREQUENCY

Comment: Condition A has an "Immediately" CT, RAs B.1 and C.1 declare other components inoperable and Condition D is a default Condition. These are therefore excluded.

3.3 INSTRUMENTATION

3.3.6.4 Suppression Pool Makeup (SPMU) System Instrumentation

LCO 3.3.6.4 The SPMU System instrumentation for each Function in Table 3.3.6.4-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.6.4-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.6.4-1.	B.1 Declare associated SPMU subsystem inoperable.	1 hour from discovery of loss of SPMU initiation capability in both trip systems
	<u>AND</u> B.2 Place channel in trip.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
C. As required by Required Action A.1 and referenced in Table 3.3.6.4-1.	C.1 -----NOTE----- Only applicable for Functions 3 and 6. -----	
	Declare associated SPMU	1 hour from discovery

CONDITION	REQUIRED ACTION	COMPLETION TIME
	subsystem inoperable. <u>AND</u>	of loss of SPMU initiation capability in both trip systems

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Restore channel to OPERABLE status.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 Declare associated SPMU subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.6.4-1 to determine which SRs apply for each SPMU Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains SPMU initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.6.4.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.4.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.6.4.3	[Calibrate the trip unit.	[92] days]
SR 3.3.6.4.4	[Perform CHANNEL CALIBRATION.	92 days]
SR 3.3.6.4.5	Perform CHANNEL CALIBRATION.	[18] months

Comment: Condition C is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.6.5 Relief and Low-Low Set (LLS) Instrumentation

LCO 3.3.6.5 Two relief and LLS instrumentation trip systems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One trip system inoperable.</p>	<p>A.1 Restore trip system to OPERABLE status.</p>	<p>7 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. ----- NOTE ----- Not applicable when second trip system intentionally made inoperable. ----- Two trip systems inoperable.</p>	<p>B.1 Restore trip system to OPERABLE status.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>CB. Required Action and associated Completion Time [of Condition A] not met.</p> <p>[<u>OR</u></p> <p>Two trip systems inoperable.]</p>	<p>CB.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>CB.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.3 INSTRUMENTATION

3.3.7.1 [Control Room Fresh Air (CRFA)] System Instrumentation

LCO 3.3.7.1 The [CRFA] System instrumentation for each Function in Table 3.3.7.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.7.1-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.7.1-1 for the channel.	Immediately
B. [As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	B.1 Declare associated [CRFA] subsystem inoperable.	1 hour from discovery of loss of [CRFA] initiation capability in both trip systems
	<u>AND</u> B.2 Place channel in trip.	24 hours]
C. [As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	C.1 Declare associated [CRFA] subsystem inoperable.	1 hour from discovery of loss of [CRFA] initiation capability in both trip systems
	<u>AND</u> C.2 Place channel in trip.	12 hours]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	D.1 Declare associated [CRFA] subsystem inoperable.	1 hour from discovery of loss of [CRFA] initiation capability in both trip systems
	<p style="text-align: center;"><u>AND</u></p> D.2 Place channel in trip.	
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1 -----NOTE----- Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable. ----- Place the associated [CRFA] subsystem in the [isolation] mode of operation.	1 hour
	<p style="text-align: center;"><u>OR</u></p> E.2 Declare associated [CRFA] subsystem inoperable.	

Comment: Condition B is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When the associated diesel generator (DG) is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.8.1-1 to determine which SRs apply for each LOP Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 2 hours provided the associated Function maintains DG initiation capability.

Comment: Conditions A and B are not "restore" actions. Condition C is a default Condition and Condition D is outside the applicability of the Traveler. They are therefore excluded.

3.3 INSTRUMENTATION

3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

LCO 3.3.8.2 Two RPS electric power monitoring assemblies shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.

APPLICABILITY: MODES 1, 2, and 3,
MODES 4 and 5 [with any control rod withdrawn from a core cell containing one or more fuel assemblies].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both inservice power supplies with one electric power monitoring assembly inoperable.	A.1 Remove associated inservice power supply(s) from service.	72 hours
B. One or both inservice power supplies with both electric power monitoring assemblies inoperable.	B.1 Remove associated inservice power supply(s) from service.	1 hour
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. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5 [with any control rod withdrawn from a core cell containing one or more fuel assemblies].	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2.1 Initiate action to restore one electric power monitoring assembly to OPERABLE status for inservice power supply(s) supplying required instrumentation. <u>OR</u> D.2.2 [Initiate action to isolate the Residual Heat Removal Shutdown Cooling System.	Immediately Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.8.2.1 -----NOTE----- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. ----- Perform CHANNEL FUNCTIONAL TEST.	184 days

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 Recirculation Loops Operating

LCO 3.4.1 Two recirculation loops with matched flows shall be in operation,

OR

[One recirculation loop may be in operation provided the following limits are applied when the associated LCO is applicable:

- a. LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," single loop operation limits [specified in the COLR],
- b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," single loop operation limits [specified in the COLR], and
- c. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," Function 2.b (Average Power Range Monitors Flow Biased Simulated Thermal Power - High), Allowable Value of Table 3.3.1.1-1 is reset for single loop operation.]

APPLICABILITY: MODES 1 and 2.

ACTIONS

-----REVIEWER'S NOTE-----

Refer to the following topical reports for the resolution for the Stability Technical Specifications:

- Enhanced Option 1A NEDO-32339 Supplement 4
- Option 1D NEDO-1760 Supplement 1 and NEDO-32465
- GE-Option III NEDC-32410 and NEDC-32410 Supplement 1
- ABB Option III CENPD-400 Rev. 1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> No recirculation loops in operation.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.1.1 -----NOTE----- Not required to be performed until 24 hours after both recirculation loops are in operation. ----- Verify recirculation loop jet pump flow mismatch with both recirculation loops in operation is: a. ≤ [10]% of rated core flow when operating at < [70]% of rated core flow and b. ≤ [5]% of rated core flow when operating at ≥ [70]% of rated core flow.	24 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 Flow Control Valves (FCVs)

LCO 3.4.2 A recirculation loop FCV shall be OPERABLE in each operating recirculation loop.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required FCVs inoperable.	A.1 Lock up the FCV.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify each FCV fails "as is" on loss of hydraulic pressure at the hydraulic unit.	[18] months
SR 3.4.2.2 Verify average rate of each FCV movement is: a. ≤ [11]% of stroke per second for opening and b. ≤ [11]% of stroke per second for closing.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 Jet Pumps

LCO 3.4.3 All jet pumps shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more jet pumps inoperable.	A.1 Be in MODE 3.	12 hours

Comment: Condition C is a default Condition and is therefore excluded.

S/RVs
3.4.4

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 Safety/Relief Valves (S/RVs)

LCO 3.4.4 The safety function of [seven] S/RVs shall be OPERABLE,
AND
The relief function of [seven] additional S/RVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [One [required] S/RV inoperable.	A.1 Restore [required] S/RV to OPERABLE status.	14 days] <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[B. ----- NOTE ----- Not applicable when two or more [required] S/RVs intentionally made inoperable. ----- [Two] or more [required] S/RVs inoperable.	B.1 Restore [required] S/RVs to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
CB. [Required Action and associated Completion Time [of Condition A] not met.] <u>OR</u> [Two] or more [required] S/RVs inoperable.]	CB.1 Be in MODE 3. <u>AND</u> CB.2 Be in MODE 4.	12 hours 36 hours

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Operational LEAKAGE

LCO 3.4.5 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE,
- b. ≤ 5 gpm unidentified LEAKAGE, [and]
- c. $\leq [30]$ gpm total LEAKAGE averaged over the previous 24 hour period, and
- [d. ≤ 2 gpm increase in unidentified LEAKAGE within the previous [4] hour period in MODE 1.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Unidentified LEAKAGE not within limit. <u>OR</u> Total LEAKAGE not within limit.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Unidentified LEAKAGE increase not within limit.	B.1 Reduced LEAKAGE to within limit.	4 hours
	<u>OR</u> B.2 Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. <u>OR</u> Pressure boundary LEAKAGE exists.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.5.1 Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	8 hours

Comment: Condition A represents a variable outside its limit,
Condition B is a default Condition and is therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.6 The leakage from each RCS PIV shall be within limit.

APPLICABILITY: MODES 1 and 2,
MODE 3, except valves in the residual heat removal (RHR) shutdown cooling flow path when in, or during the transition to or from, the shutdown cooling mode of operation.

ACTIONS

-----NOTES-----

1. Separate Condition entry is allowed for each flow path.
 2. Enter applicable Conditions and Required Actions for systems made inoperable by PIVs.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>-----NOTE----- Each valve used to satisfy Required Action A.1 and Required Action A.2 shall have been verified to meet SR 3.4.6.1 and be in the reactor coolant pressure boundary [or the high pressure portion of the system]. -----</p> <p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.</p> <p><u>AND</u></p>	<p>4 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.6.1 -----NOTE----- Not required to be performed in MODE 3. ----- Verify equivalent leakage of each RCS PIV is ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm, at an RCS pressure $\geq [1040]$ psig and $\leq [1060]$ psig.	[In accordance with Inservice Testing Program or [18] months]

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Leakage Detection Instrumentation

LCO 3.4.7 The following RCS leakage detection instrumentation shall be OPERABLE:

- a. Drywell floor drain sump monitoring system, [and]
- b. One channel of either drywell atmospheric particulate or atmospheric gaseous monitoring system, [and
- [c. Drywell air cooler condensate flow rate monitoring system.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell floor drain sump monitoring system inoperable.	A.1 Restore drywell floor drain sump monitoring system to OPERABLE status.	30 days
B. Required drywell atmospheric monitoring system inoperable.	B.1 Analyze grab samples of drywell atmosphere. <u>AND</u> B.2 [Restore required drywell atmospheric monitoring system to OPERABLE status.	Once per 12 hours 30 days]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. [Drywell air cooler condensate flow rate monitoring system inoperable.	<p>-----NOTE----- Not applicable when the required drywell atmospheric monitoring system is inoperable. -----</p> <p>C.1 Perform SR 3.4.7.1.</p>	Once per 8 hours]
D. [Required drywell atmospheric monitoring system inoperable. <u>AND</u> Drywell air cooler condensate flow rate monitoring system inoperable.	<p>D.1 Restore required drywell atmospheric monitoring system to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore drywell air cooler condensate flow rate monitoring system to OPERABLE status.</p>	30 days 30 days]
E. Required Action and associated Completion Time of Condition A, B, [C, or D] not met.	<p>E.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 4.</p>	12 hours 36 hours
F. All required leakage detection systems inoperable.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.7.1 Perform CHANNEL CHECK of required drywell atmospheric monitoring system.	12 hours

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Specific Activity

LCO 3.4.8 The specific activity of the reactor coolant shall be limited to DOSE EQUIVALENT I-131 specific activity Δ [0.2] $\mu\text{Ci/gm}$.

APPLICABILITY: MODE 1,
MODES 2 and 3 with any main steam line not isolated.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor coolant specific activity $>$ [0.2] $\mu\text{Ci/gm}$ and \leq 4.0 $\mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.	-----NOTE----- LCO 3.0.4.c is applicable. -----	
	A.1 Determine DOSE EQUIVALENT I-131. <u>AND</u> A.2 Restore DOSE EQUIVALENT I-131 to within limits.	Once per 4 hours 48 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Reactor coolant specific activity $>$ [4.0] $\mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.	B.1 Determine DOSE EQUIVALENT I-131. <u>AND</u>	Once per 4 hours
	B.2.1 Isolate all main steam lines. <u>OR</u>	12 hours
	B.2.2.1 Be in MODE 3. <u>AND</u>	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.2.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1 -----NOTE----- Only required to be performed in MODE 1. ----- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity is $\leq [0.2] \mu\text{Ci/gm}$.	7 days

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown

LCO 3.4.9 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

-----NOTES-----

1. Both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation for up to 2 hours per 8 hour period.
 2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for performance of Surveillances.
-

APPLICABILITY: MODE 3 with reactor steam dome pressure < [the RHR cut in permissive pressure].

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each RHR shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Initiate action to restore RHR shutdown cooling subsystem to OPERABLE status. <u>AND</u>	Immediately

Comment: Outside the applicability of the Traveler.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown

LCO 3.4.10 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

-----NOTES-----

1. Both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation for up to 2 hours per 8 hour period.
 2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.
-

APPLICABILITY: MODE 4.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each RHR shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour <u>AND</u> Once per 24 hours thereafter

RHR Shutdown Cooling System - Cold Shutdown
3.4.10

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. <u>AND</u> No recirculation pump in operation.	B.1 Verify reactor coolant circulating by an alternate method.	1 hour from discovery of no reactor coolant circulation <u>AND</u> Once per 12 hours thereafter
	<u>AND</u> B.2 Monitor reactor coolant temperature and pressure.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.10.1 Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	12 hours

Comment: No changes included. The LCO is on variables and there is no obvious system surrogate that could be used to model the variables.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Reactor Steam Dome Pressure

LCO 3.4.12 The reactor steam dome pressure shall be \leq [1045] psig.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor steam dome pressure not within limit.	A.1 Restore reactor steam dome pressure to within limit.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.12.1 Verify reactor steam dome pressure is \leq [1045] psig.	12 hours

Comment: Conditions D, H, and J are default Conditions and RA B.1 contains an "Immediately" CT and are therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of [eight] safety/relief valves shall be OPERABLE.

-----NOTE-----
 Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than [the residual heat removal cut in permissive pressure] in MODE 3, if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODE 1,
 MODES 2 and 3, except ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ [150] psig.

ACTIONS

-----NOTE-----
 LCO 3.0.4.b is not applicable to HPCS.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. High Pressure Core Spray (HPCS) System inoperable.	B.1 Verify by administrative means RCIC System is OPERABLE when RCIC is required to be OPERABLE. <u>AND</u>	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Restore HPCS System to OPERABLE status.	14 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two ECCS injection subsystems inoperable. <u>OR</u> One ECCS injection and one ECCS spray subsystem inoperable.	C.1 Restore one ECCS injection/spray subsystem to OPERABLE status.	72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	12 hours 36 hours
E. One ADS valve inoperable.	E.1 Restore ADS valve to OPERABLE status.	14 days <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
F. One ADS valve inoperable. <u>AND</u> One low pressure ECCS injection/spray subsystem inoperable.	F.1 Restore ADS valve to OPERABLE status. <u>OR</u> F.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program] 72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]

<p>[G. ----- NOTE ----- Not applicable when two or more ADS valves intentionally made inoperable. ----- Two or more ADS valves inoperable.</p>	<p>G.1 Restore ADS valves to OPERABLE status.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>HG. [Two or more ADS valves inoperable. <u>OR</u> Required Action and associated Completion Time of Condition E, [or] F, or G] not met.</p>	<p>HG.1 Be in MODE 3. <u>AND</u> HG.2 Reduce reactor steam dome pressure to ≤ [150] psig.</p>	<p>12 hours 36 hours</p>
<p>[I. ----- NOTE ----- Not applicable when HPCS or LPCS intentionally made inoperable when the other system is inoperable. ----- HPCS and low pressure core spray (LPCS) inoperable.</p>	<p>I.1 Restore HPCS or LPCS to OPERABLE status.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>[J. ----- NOTE ----- Not applicable when three or more ECCS injection/spray subsystems intentionally made inoperable. ----- Three or more ECCS injection/spray subsystems inoperable.</p>	<p>J1 Restore ECCS injection/spray subsystems to OPERABLE status.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>[K. ----- NOTE ----- Not applicable when</p>	<p>K.1 Restore HPCS System and ADS valves to OPERABLE</p>	<p>1 hour</p>

<p>HPCS or one or more ADS valves intentionally made inoperable when the other system is inoperable.</p> <p>-----</p> <p>HPCS System and one or more ADS valves inoperable.</p>	<p>status.</p>	<p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[L. ----- NOTE -----</p> <p>Not applicable when two or more ECCS injection/spray subsystems or one or more ADS valves intentionally made inoperable when the other system is inoperable.</p> <p>-----</p> <p>Two or more ECCS injection/spray subsystems and one or more ADS valves inoperable.</p>	<p>L.1 Restore ECCS injection/spray subsystems and ADS valves to OPERABLE status.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>HM. [Required Action and associated Completion Times of Condition I, J, K, or L not met.]</p> <p>[HPCS and low pressure core spray (LPCS) inoperable.</p> <p><u>OR</u></p> <p>Three or more ECCS injection/spray subsystems inoperable.</p> <p><u>OR</u></p> <p>HPCS System and one or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>Two or more ECCS injection/spray subsystems and one or more ADS valves inoperable.]</p>	<p>MH.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.1 Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.</p>	<p>31 days</p>

Comment: Outside the applicability of the Traveler.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.2 ECCS - Shutdown

LCO 3.5.2 Two ECCS injection/spray subsystems shall be OPERABLE.

-----NOTE-----

One low pressure coolant injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODE 4,
MODE 5 except with the upper containment [cavity to dryer] pool [gate] removed and water level \geq [22 ft 8 inches] over the top of the reactor pressure vessel flange.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to RCIC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
C. Two required ECCS injection/spray subsystems inoperable.	C.1 Initiate action to suspend OPDRVs.	Immediately
	<u>AND</u> C.2 Restore one ECCS injection/spray subsystem to OPERABLE status.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action C.2 and associated Completion Time not met.	D.1 Initiate action to restore [secondary containment] to OPERABLE status.	Immediately
	<u>AND</u>	
	D.2 [Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately]
	<u>AND</u>	
	D.3 Initiate action to restore isolation capability in each required [secondary containment] penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.2.1 Verify, for each required low pressure ECCS injection/spray subsystem, the suppression pool water level is \geq [12.67 ft].	12 hours
SR 3.5.2.2 Verify, for the required High Pressure Core Spray (HPCS) System, the: <ul style="list-style-type: none"> a. Suppression pool water level is \geq [12.67 ft] or b. Condensate storage tank water level is \geq [18 ft]. 	12 hours
SR 3.5.2.3 Verify, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days

Comment: RA A.1 contains an "Immediately" CT and Condition B is a default Condition and are therefore excluded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > [150] psig.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to RCIC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCIC System inoperable.	A.1 Verify by administrative means High Pressure Core Spray System is OPERABLE. <u>AND</u> A.2 Restore RCIC System to OPERABLE status.	Immediately 14 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Reduce reactor steam dome pressure to ≤ [150] psig.	12 hours 36 hours

Comment: No changes made. Condition A represents a loss of function and Condition B is the Default Condition. NRC has not approved RICT changes to the Completion Time for an inoperable containment. Therefore changes are not proposed.

3.6 CONTAINMENT SYSTEMS

3.6.1.1 Primary Containment

LCO 3.6.1.1 Primary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment inoperable.	A.1 Restore primary containment to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.1.1 Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2 [Verify primary containment structural integrity in accordance with the Primary Containment Tendon Surveillance Program.	In accordance with the Primary Containment Tendon Surveillance Program]

Comment: Conditions A and B contain mitigating actions and require the periodic performance of actions. Condition D is a default Condition. RA C.1 has a "immediately" CT and C.2 is a periodic verification. Therefore these are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.1.2 Primary Containment Air Locks

LCO 3.6.1.2 [Two] primary containment air locks shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTES-----

1. Entry and exit is permissible to perform repairs of the affected air lock components.
2. Separate Condition entry is allowed for each air lock.
3. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when air lock leakage results in exceeding overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more primary containment air locks with one primary containment air lock door inoperable.	-----NOTES----- 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls [if both air locks are inoperable]. -----	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.1 Verify the OPERABLE door is closed in the affected air lock.</p> <p><u>AND</u></p> <p>A.2 Lock the OPERABLE door closed in the affected air lock.</p> <p><u>AND</u></p> <p>A.3 -----NOTE----- Air lock doors in high radiation areas may be verified locked closed by administrative means. -----</p> <p>Verify the OPERABLE door is locked closed in the affected air lock.</p>	<p>1 hour</p> <p>24 hours</p> <p>Once per 31 days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One or more primary containment air locks with primary containment air lock interlock mechanism inoperable.</p>	<p>-----NOTES-----</p> <p>1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered.</p> <p>2. Entry into and exit from containment is permissible under the control of a dedicated individual.</p> <p>-----</p>	
	<p>B.1 Verify an OPERABLE door is closed in the affected air lock.</p>	<p>1 hour</p>
	<p><u>AND</u></p> <p>B.2 Lock an OPERABLE door closed in the affected air lock.</p>	<p>24 hours</p>
	<p><u>AND</u></p> <p>B.3 -----NOTE----- Air lock doors in high radiation areas may be verified locked closed by administrative means. -----</p> <p>Verify an OPERABLE door is locked closed in the affected air lock.</p>	<p>Once per 31 days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more primary containment air locks inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate primary containment overall leakage rate per LCO 3.6.1.1, using current air lock test results.	Immediately
	<u>AND</u>	
	C.2 Verify a door is closed in the affected air lock.	1 hour
D. Required Action and associated Completion Time not met.	<u>AND</u>	
	D.2 Be in MODE 4.	36 hours

AND

C.3 Restore air lock to OPERABLE status.

OR

24 hours

OR
In accordance with the Risk Informed Completion Time Program]

Comment: RAs A.2, C.2, E.2 and E.3 specify the periodic performance of an action, Condition F is a default Condition and Conditions G and H are outside applicability of the Traveler. Therefore they are excluded.

PCIVs
3.6.1.3

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 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
<p>A. -----NOTE----- Only applicable to penetration flow paths with two [or more] PCIVs. ----- One or more penetration flow paths with one PCIV inoperable [for reasons other than Condition[s] D [and E]].</p>	<p>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.</p> <p style="text-align: center;"><u>AND</u></p>	<p>4 hours except for main steam line</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>8 hours for main steam line</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation] for isolation devices outside primary containment, drywell, and steam tunnel</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days, for isolation devices inside primary containment, drywell, or steam tunnel</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable to penetration flow paths with two [or more] PCIVs. ----- One or more penetration flow paths with two [or more] PCIVs inoperable [for reasons other than Condition[s] D [and E]].</p>	<p>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.</p>	<p>1 hour <u>IOR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>C. -----NOTE----- Only applicable to penetration flow paths with only one PCIV. ----- One or more penetration flow paths with one PCIV inoperable [for reasons other than Condition[s] D [and E]].</p>	<p>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.</p> <p><u>AND</u></p> <p>C.2 -----NOTES----- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or</p>	<p>[4] hours except for penetrations with a closed system <u>IOR</u> In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>72 hours for penetrations with a closed system <u>IOR</u> In accordance with the Risk Informed Completion Time Program]</p>

	<p>otherwise secured may be verified by use of administrative means.</p> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation]</p>
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. [One or more [secondary containment bypass leakage rate,] [MSIV leakage rate,] [purge valve leakage rate,] [or] [hydrostatically tested line leakage rate] not within limit.</p>	<p>D.1 Restore leakage rate to within limit.</p>	<p>[4 hours for hydrostatically tested line leakage [not on a closed system]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>[4 hours for secondary containment bypass leakage]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>[8 hours for MSIV leakage]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>[24 hours for purge valve leakage]</p> <p><u>IOR</u></p> <p>In accordance with</p>

		<p>the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>[72 hours for hydrostatically tested line leakage] [on a closed system]]</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>E. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.</p>	<p>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].</p> <p><u>AND</u></p>	<p>24 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>E.2</p> <p>-----NOTES-----</p> <p>1. Isolation devices in high radiation areas may be verified by use of administrative means.</p> <p>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</p> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p> <p><u>AND</u></p> <p>E.3 Perform SR 3.6.1.3.6 for the resilient seal purge valves closed to comply with Required Action E.1.</p>	<p>Once per 31 days [following isolation] for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 or 3 from MODE 4 if not performed within the previous 92 days for isolation devices inside containment</p> <p>Once per [92] days [following isolation]</p>
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met in MODE 1, 2, or 3.</p>	<p>F.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>F.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. [Required Action and associated Completion Time of Condition A, B, C, D, or E not met for PCIV(s) required to be OPERABLE during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment].	G.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of [recently] irradiated fuel assemblies in [primary and secondary containment].	Immediately]
H. [Required Action and Associated Completion Time of Condition A, B, C, D, or E not met for PCIV(s) required to be OPERABLE during MODE 4 or 5 or during operations with a potential for draining the reactor vessel (OPDRVs).	H.1 Initiate action to suspend OPDRVs. <u>OR</u> H.2 Initiate action to restore valve(s) to OPERABLE status.	Immediately Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.3.1 -----NOTE----- [[Only required to be met in MODES 1, 2, and 3.] ----- Verify each [] inch primary containment purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition E of this LCO.	31 days]

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Primary Containment Pressure

LCO 3.6.1.4 Primary containment [to secondary containment differential] pressure shall be ≥ -0.1 psid and ≤ 1.0 psid].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment [to secondary containment differential] pressure not within limits.	A.1 Restore primary containment [to secondary containment differential] pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.4.1 Verify primary containment [to secondary containment differential] pressure is within limits.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

Primary Containment Air Temperature
3.6.1.5

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Primary Containment Air Temperature

LCO 3.6.1.5 Primary containment average air temperature shall be \leq [95]°F.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment average air temperature not within limit.	A.1 Restore primary containment average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.5.1 Verify primary containment average air temperature is within limit.	24 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Low-Low Set (LLS) Valves

LCO 3.6.1.6 The LLS function of [six] safety/relief valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One LLS valve inoperable.	A.1 Restore LLS valve to OPERABLE status.	14 days
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two or more LLS valves inoperable.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.6.1 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----- Verify each LLS valve opens when manually actuated.	[18] months [on a STAGGERED TEST BASIS for each valve solenoid]

Comment: Condition C is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.1.7 Residual Heat Removal (RHR) Containment Spray System

LCO 3.6.1.7 Two RHR containment spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR containment spray subsystem inoperable.	A.1 Restore RHR containment spray subsystem to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]
B. Two RHR containment spray subsystems inoperable.	B.1 Restore one RHR containment spray subsystem to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.1.8 Penetration Valve Leakage Control System (PVLCS)

LCO 3.6.1.8 [Two] PVLCS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One PVLCS subsystem inoperable.	A.1 Restore PVLCS subsystems to OPERABLE status.	30 days
B. [Two] PVLCS subsystems inoperable.	B.1 Restore one PVLCS subsystem to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.8.1 Verify air pressure in each subsystem is \geq [101] psig.	24 hours
SR 3.6.1.8.2 Perform a system functional test of each PVLCS subsystem.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

MSIV LCS
3.6.1.9

3.6 CONTAINMENT SYSTEMS

3.6.1.9 Main Steam Isolation Valve (MSIV) Leakage Control System (LCS)

LCO 3.6.1.9 Two MSIV LCS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV LCS subsystem inoperable.	A.1 Restore MSIV LCS subsystem to OPERABLE status.	30 days
B. Two MSIV LCS subsystems inoperable.	B.1 Restore one MSIV LCS subsystem to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.9.1 Operate each MSIV LCS blower \geq [15] minutes.	31 days
SR 3.6.1.9.2 Verify electrical continuity of each inboard MSIV LCS subsystem heater element circuitry.	31 days

Comment: Suppression Pool Average Temperature is a variable. Therefore, the specification is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2.1 Suppression Pool Average Temperature

LCO 3.6.2.1 Suppression pool average temperature shall be:

- a. $\leq [95]^{\circ}\text{F}$ [when any OPERABLE intermediate range monitor (IRM) channel is $> [25/40]$ divisions of full scale on Range 7] [with THERMAL POWER $> 1\%$ RTP], and no testing that adds heat to the suppression pool is being performed,
- b. $\leq [105]^{\circ}\text{F}$ [when any OPERABLE IRM channel is $> [25/40]$ divisions of full scale on Range 7] [with THERMAL POWER $> 1\%$ RTP], and testing that adds heat to the suppression pool is being performed, and
- c. $\leq [110]^{\circ}\text{F}$ [when all OPERABLE IRM channels are $\leq [25/40]$ divisions of full scale on Range 7] [with THERMAL POWER $\leq 1\%$ RTP].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Suppression pool average temperature $> [95]^{\circ}\text{F}$ but $\leq [110]^{\circ}\text{F}$.</p> <p><u>AND</u></p> <p>[Any OPERABLE IRM channel $> [25/40]$ divisions of full scale on Range 7] [THERMAL POWER $> 1\%$ RTP].</p> <p><u>AND</u></p> <p>Not performing testing that adds heat to the suppression pool.</p>	<p>A.1 Verify suppression pool average temperature is $\leq [110]^{\circ}\text{F}$.</p> <p><u>AND</u></p> <p>A.2 Restore suppression pool average temperature to $\leq [95]^{\circ}\text{F}$.</p>	<p>Once per hour</p> <p>24 hours</p>

Suppression Pool Average Temperature
3.6.2.1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Reduce THERMAL POWER [until all OPERABLE IRM channels are \leq [25/40] divisions of full scale on Range 7] [to \leq 1% RTP].</p>	<p>12 hours</p>
<p>C. Suppression pool average temperature > [105]°F.</p> <p><u>AND</u></p> <p>[Any OPERABLE IRM channel > [25/40] divisions of full scale on Range 7] [THERMAL POWER > 1% RTP].</p> <p><u>AND</u></p> <p>Performing testing that adds heat to the suppression pool.</p>	<p>C.1 Suspend all testing that adds heat to the suppression pool.</p>	<p>Immediately</p>
<p>D. Suppression pool average temperature > [110]°F but \leq [120]°F.</p>	<p>D.1 Place the reactor mode switch in the shutdown position.</p> <p><u>AND</u></p> <p>D.2 Verify suppression pool average temperature is \leq [120]°F.</p> <p><u>AND</u></p> <p>D.3 Be in MODE 4.</p>	<p>Immediately</p> <p>Once per 30 minutes</p> <p>36 hours</p>

Suppression Pool Average Temperature
3.6.2.1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Suppression pool average temperature > [120]°F.	E.1 Depressurize the reactor vessel to < [200] psig.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.2.1.1 Verify suppression pool average temperature is within the applicable limits.	24 hours <u>AND</u> 5 minutes when performing testing that adds heat to the suppression pool

Comment: Suppression Pool Water Level is a variable. Therefore, the specification is excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be \geq [18 ft 4.5 inches] and \leq [18 ft 9.75 inches]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool water level not within limits.	A.1 Restore suppression pool water level to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.2.2.1 Verify suppression pool water level is within limits.	24 hours

Comment: Condition C is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

LCO 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]
B. Two RHR suppression pool cooling subsystems inoperable.	B.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

Comment: Conditions A and B represents a variable outside the limit , but the SPMU system can be substituted as a surrogate. Condition E is a default Condition and is therefore excluded.

SPMU System
3.6.2.4

3.6 CONTAINMENT SYSTEMS

3.6.2.4 Suppression Pool Makeup (SPMU) System

LCO 3.6.2.4 Two SPMU subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Upper containment pool water level not within limit.	A.1 Restore upper containment pool water level to within limit.	4 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Upper containment pool water temperature not within limit.	B.1 Restore upper containment pool water temperature to within limit.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
C. One SPMU subsystem inoperable for reasons other than Condition A or B.	C.1 Restore SPMU subsystem to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[D. ----- NOTE ----- Not applicable when second SPMU subsystem intentionally	D.1 Restore SPMU subsystems to OPERABLE status.	1 hour <u>OR</u>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>made inoperable. -----</p> <p>Two SPMU subsystems inoperable for reasons other than Condition A or B.</p>		In accordance with the Risk Informed Completion Time Program]
<p>ED. Required Action and associated Completion Time not met.</p>	<p>ED.1 Be in MODE 3.</p> <p><u>AND</u></p>	12 hours
	<p>ED.2 Be in MODE 4.</p>	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify upper containment pool water level is \geq [23 ft 3 inches] above the pool bottom.	24 hours

Comment: Condition A already has a 30 day CT, RA B.1 requires the periodic performance of an action, and Condition C is a default Condition. Therefore they are excluded.

Primary Containment and Drywell Hydrogen Ignitors
3.6.3.1

3.6 CONTAINMENT SYSTEMS

3.6.3.1 Primary Containment and Drywell Hydrogen Ignitors

LCO 3.6.3.1 Two divisions of primary containment and drywell hydrogen ignitors shall be OPERABLE, each with > 90% of the associated ignitor assemblies OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One primary containment and drywell hydrogen ignitor division inoperable.	A.1 Restore primary containment and drywell hydrogen ignitor division to OPERABLE status.	30 days
B. Two primary containment and drywell hydrogen ignitor divisions inoperable.	<p>B.1 Verify by administrative means that the hydrogen control function is maintained.</p> <p><u>AND</u></p> <p>B.2 Restore one primary containment and drywell hydrogen ignitor division to OPERABLE status.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>7 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

Comment: Condition A already has a 30 day CT, RA B.1 requires the periodic performance of an action, and Condition C is a default Condition. Therefore they are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.3.2 [Drywell Purge System]

LCO 3.6.3.2 Two [drywell purge] subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [drywell purge] subsystem inoperable.	A.1 Restore [drywell purge] subsystem to OPERABLE status.	30 days
B. Two [drywell purge] subsystems inoperable.	B.1 Verify by administrative means that the hydrogen control function is maintained. <u>AND</u> B.2 Restore one [drywell purge] subsystem to OPERABLE status.	1 hour <u>AND</u> Once per 12 hours thereafter 7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

[Secondary Containment]
3.6.4.1

3.6 CONTAINMENT SYSTEMS

3.6.4.1 [Secondary Containment]

LCO 3.6.4.1 The [secondary containment] shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
[During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment],
During operations with a potential for draining the reactor vessel (OPDRVs).]

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Secondary containment] inoperable [in MODE 1, 2, or 3].	A.1 Restore [secondary containment] to OPERABLE status.	4 hours
B. Required Action and associated Completion Time [of Condition A] not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours
C. [[Secondary containment] inoperable during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs.	C.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment].	Immediately
	<u>AND</u> C.2 Initiate action to suspend OPDRVs.	Immediately]

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

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 [recently] irradiated fuel assemblies in the [primary or secondary containment],
 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. <u>AND</u>	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	Once per 31 days
<p>B. -----NOTE-----</p> <p>Only applicable to penetration flow paths with two isolation valves.</p> <p>-----</p> <p>One or more penetration flow paths with two SCIVs inoperable.</p>	<p>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.</p>	4 hours
<p>C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs.	D.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment].	Immediately
	<u>AND</u> D.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.2.1 -----NOTES----- 1. Valves and blind flanges 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 blind flange that is not locked, sealed, or otherwise secured and 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, automatic SCIV is within limits.	[In accordance with the Inservice Testing Program or 92 days]

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

SGT System
3.6.4.3

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment],
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours
C. Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs.	-----NOTE----- LCO 3.0.3 is not applicable. ----- C.1 Place OPERABLE SGT subsystem in operation. <u>OR</u> C.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment]. <u>AND</u>	Immediately Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.2 Initiate action to suspend OPDRVs.	Immediately
D. Two SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately
E. Two SGT subsystems inoperable during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs.	E.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment].	Immediately
	<u>AND</u> E.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.3.1 Operate each SGT subsystem for \geq [10] continuous hours [with heaters operating].	31 days
SR 3.6.4.3.2 Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3 Verify each SGT subsystem actuates on an actual or simulated initiation signal.	[18] months

Comment: Condition B is a default Condition and is therefore excluded.

Drywell
3.6.5.1

3.6 CONTAINMENT SYSTEMS

3.6.5.1 Drywell

LCO 3.6.5.1 The drywell shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell inoperable.	A.1 Restore drywell to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5.1.1 Verify bypass leakage is less than or equal to the bypass leakage limit. However, during the first unit startup following bypass leakage testing performed in accordance with this SR, the acceptance criterion is \leq [10%] of the drywell bypass leakage limit.	[18] months
SR 3.6.5.1.2 Visually inspect the exposed accessible interior and exterior surfaces of the drywell.	[40] months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Drywell air lock interlock mechanism inoperable.</p>	<p>-----NOTES-----</p> <p>1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the air lock are inoperable and Condition C is entered.</p> <p>2. Entry and exit is permissible under the control of a dedicated individual.</p> <p>-----</p> <p>B.1 Verify an OPERABLE door is closed.</p> <p><u>AND</u></p> <p>B.2 Lock an OPERABLE door closed.</p> <p><u>AND</u></p> <p>B.3 Verify by administrative means an OPERABLE door is locked closed.</p>	<p>1 hour</p> <p>24 hours</p> <p>Once per 31 days</p>
<p>C. Drywell air lock inoperable for reasons other than Condition A or B.</p>	<p>C.1 Initiate action to evaluate drywell overall leakage rate per LCO 3.6.5.1, "Drywell," using current air lock test results.</p> <p><u>AND</u></p> <p>C.2 Verify a door is closed.</p> <p><u>AND</u></p> <p>C.3 Restore air lock to OPERABLE status.</p>	<p>Immediately</p> <p>1 hour</p> <p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time</p>

		Program]
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	D.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5.2.1 -----NOTE----- Only required to be performed once after each closing. ----- Verify seal leakage rate is \leq [200] scfh when the gap between the door seals is pressurized to \geq [11.5] psig.	72 hours
SR 3.6.5.2.2 Verify drywell air lock seal air flask pressure is \geq [90] psig.	7 days
SR 3.6.5.2.3 -----NOTE----- Only required to be performed upon entry into drywell. ----- Verify only one door in the drywell air lock can be opened at a time.	18 months

Comment: The CT for RA A.2 is not a time-based CT and Condition C is a default Condition. Therefore they are excluded.

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. <u>AND</u>	8 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days</p>
<p>B. -----NOTE----- Only applicable to penetration flow paths with two isolation valves. -----</p> <p>One or more penetration flow paths with two drywell isolation valves inoperable.</p>	<p>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.</p>	<p>4 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. Required Action and associated Completion Time not met.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

Drywell Pressure
3.6.5.4

3.6 CONTAINMENT SYSTEMS

3.6.5.4 Drywell Pressure

LCO 3.6.5.4 Drywell-to-primary containment differential pressure shall be ≥ -0.26 psid and ≤ 2.0 psid].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell-to-primary containment differential pressure not within limits.	A.1 Restore drywell-to-primary containment differential pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5.4.1 Verify drywell-to-primary containment differential pressure is within limits.	12 hours

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.6 CONTAINMENT SYSTEMS

3.6.5.5 Drywell Air Temperature

LCO 3.6.5.5 Drywell average air temperature shall be $\leq [135]^{\circ}\text{F}$.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell average air temperature not within limit.	A.1 Restore drywell average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5.5.1 Verify drywell average air temperature is within limit.	24 hours

Comment: Required Action A.1 is not a "restore" action. Required Actions B.1 and C.1 have a 30 day CT, and Condition G is a default Condition. Therefore they are excluded.

3.6 CONTAINMENT SYSTEMS

3.6.5.6 Drywell Vacuum Relief System

LCO 3.6.5.6 [Two] drywell post-LOCA and [two] drywell purge vacuum relief subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----

Enter applicable Conditions and Required Actions of LCO 3.6.5.1, "Drywell," when inoperable drywell purge vacuum relief subsystem(s) results in exceeding overall drywell bypass leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----NOTE----- Separate Condition entry is allowed for each vacuum relief subsystem. ----- One or more vacuum relief subsystems not closed.	A.1 Close the subsystem.	4 hours
B. One or [two] drywell post-LOCA vacuum relief subsystems inoperable for reasons other than Condition A.	B.1 Restore drywell post-LOCA vacuum relief subsystem(s) to OPERABLE status.	30 days
C. One drywell purge vacuum relief subsystem inoperable for reasons other than Condition A.	C.1 Restore drywell purge vacuum relief subsystem to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. [Two] drywell purge vacuum relief subsystems inoperable for reasons other than Condition A.</p>	<p>D.1 Restore one drywell purge vacuum relief subsystem to OPERABLE status.</p>	<p>72 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>E. [Two] drywell post-LOCA vacuum relief subsystems inoperable for reasons other than Condition A.</p> <p><u>AND</u></p> <p>One drywell purge vacuum relief subsystem inoperable for reasons other than Condition A.</p>	<p>E.1 Restore one drywell post-LOCA vacuum relief or drywell purge vacuum relief subsystem to OPERABLE status.</p>	<p>72 hours</p> <p><u>IOR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[F. ----- NOTE ----- Not applicable when [two] drywell purge vacuum relief subsystems and one or [two] drywell post-LOCA vacuum relief subsystems intentionally made inoperable. -----</p> <p>[Two] drywell purge vacuum relief subsystems inoperable for reasons other than Condition A.</p> <p><u>AND</u></p> <p>One or [two] drywell post-LOCA vacuum relief subsystems</p>	<p>F.1 Restore drywell post-LOCA vacuum relief or drywell purge vacuum relief subsystems to OPERABLE status.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

inoperable for reasons other than Condition A.		
GF. Required Action and associated Completion Time [of Condition A, B, C, D, or E] not met.	FG.1 Be in MODE 3. <u>AND</u> GF.2 Be in MODE 4.	12 hours 36 hours
[GH. [Two] drywell purge vacuum relief subsystems inoperable for reasons other than Condition A. <u>AND</u> One or [two] drywell post-LOCA vacuum relief subsystems inoperable for reasons other than Condition A.	HG.1 Be in MODE 3. <u>AND</u> HG.2 Be in MODE 4.	12 hours 36 hours]

Comment: RA B.1 specifies the periodic performance of an action and Condition E is a default Condition. Therefore these are excluded.

3.7 PLANT SYSTEMS

3.7.1 [Standby Service Water (SSW)] System and [Ultimate Heat Sink (UHS)]

LCO 3.7.1 Division 1 and 2 [SSW] subsystems and [UHS] shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [One or more cooling towers with one cooling tower fan inoperable.	A.1 Restore cooling tower fan(s) to OPERABLE status.	7 days] <u>OR</u> In accordance with the Risk Informed Completion Time Program]
-----REVIEWER'S NOTE----- The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit. ----- B. [Water temperature of the UHS > [90]°F and ≤ []°F.	B.1 Verify water temperature of the UHS is ≤ [90]°F averaged over the previous 24 hour period.	Once per hour]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One [SSW] subsystem inoperable [for reasons other than Condition A].</p>	<p>C.1 -----NOTES----- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for diesel generator made inoperable by [SSW]. 2. Enter applicable Conditions and Required Actions of LCO 3.4.9, "Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown," for [RHR shutdown cooling] made inoperable by [SSW]. ----- Restore [SSW] subsystem to OPERABLE status.</p>	<p>72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>[D. ----- NOTE ----- Not applicable when second [SSW] subsystem [or [UHS]] intentionally made inoperable. ----- Both [SSW] subsystems inoperable [for reasons other than Condition A]. <u>OR</u></p>	<p>D.1 Restore [SSW] subsystems and [UHS] to OPERABLE status.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>

<p>[UHS] inoperable for reasons other than Condition A [or B].]</p>		
<p>ED. Required Action and associated Completion Time [of Condition A, [B] or C] not met.</p> <p><u>[OR</u></p> <p>Both [SSW] subsystems inoperable [for reasons other than Condition A].</p> <p>[<u>OR</u></p> <p>[UHS] inoperable for reasons other than Condition A [or B].]]</p>	<p>ED.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>ED.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

Comment: No changes made. The only Condition declares HPCS inoperable and contains an "Immediately" CT.

3.7 PLANT SYSTEMS

3.7.2 High Pressure Core Spray (HPCS) Service Water System (SWS)

LCO 3.7.2 The HPCS SWS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. HPCS SWS inoperable.	A.1 Declare HPCS System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify water level of the [a standby service water] cooling tower basin is \geq [7.25] ft.	24 hours
SR 3.7.2.2	<p>-----NOTE----- Isolation of flow to individual components does not render [HPCS SWS] System inoperable. -----</p> <p>Verify each HPCS SWS manual, power operated, and automatic valve in the flow path [servicing safety related systems or components], that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
SR 3.7.2.3	Verify the HPCS SWS actuates on an actual or simulated initiation signal.	[18] months

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

3.7 PLANT SYSTEMS

3.7.3 [Control Room Fresh Air (CRFA)] System

LCO 3.7.3 Two [CRFA] subsystems shall be OPERABLE.

-----NOTE-----
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, and 3,
During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment],
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [CRFA] subsystem inoperable.	A.1 Restore [CRFA] subsystem to OPERABLE status.	7 days
B. Two [CRFA] subsystems inoperable due to inoperable control room boundary in MODE 1, 2, or 3.	B.1 Restore control room boundary to OPERABLE status.	24 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
	<u>AND</u> C.2 Be in MODE 4.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>D.1 -----NOTE----- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] -----</p> <p>Place OPERABLE [CRFA] subsystem in [isolation] mode.</p> <p><u>OR</u></p> <p>D.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment].</p> <p><u>AND</u></p> <p>D.2.2 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>E. Two [CRFA] subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.</p>	<p>E.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two [CRFA] subsystems inoperable during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs.	-----NOTE----- LCO 3.0.3 is not applicable. -----	Immediately
	F.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment]. <u>AND</u> F.2 Initiate action to suspend OPDRVs.	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.3.1 Operate each [CRFA] subsystem for ≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.7.3.2 Perform required [CRFA] filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.3.3 Verify each [CRFA] subsystem actuates on an actual or simulated initiation signal.	[18] months
SR 3.7.3.4 [Verify each [CRFA] subsystem can maintain a positive pressure of $\geq []$ inches water gauge relative to [adjacent buildings] during the [isolation] mode of operation at a flow rate of $\leq []$ cfm.	[18] months on a STAGGERED TEST BASIS]

Comment: Condition A already has a 30 day CT, Condition C is a default Condition and Conditions D and E are outside the applicability of the Traveler. Therefore these are excluded.

[Control Room AC] System
3.7.4

3.7 PLANT SYSTEMS

3.7.4 [Control Room Air Conditioning (AC)] System

LCO 3.7.4 Two [control room AC] subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment],
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [control room AC] subsystem inoperable.	A.1 Restore [control room AC] subsystem to OPERABLE status.	30 days
[B. ----- NOTE ----- Not applicable when second [control room AC] subsystem intentionally made inoperable. ----- Two [control room AC] subsystems inoperable in MODE 1, 2, or 3.	B.1 Restore [control room AC] subsystem to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]
CB. Required Action and associated Completion Time of Condition -A [or B] not met in MODE 1, 2, or 3.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours
DG. Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel	-----NOTE----- LCO 3.0.3 is not applicable. ----- DG. 1 Place OPERABLE [control	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
assemblies in the [primary or secondary containment] or during OPDRVs.	<u>OR</u> room AC] subsystem in operation.	

Comment: A quantitative calculation of a Risk Informed Completion Time cannot be performed for this Specification. Therefore, it is not included in TSTF-505.

Main Condenser Offgas
3.7.5

3.7 PLANT SYSTEMS

3.7.5 Main Condenser Offgas

LCO 3.7.5 The gross gamma activity rate of the noble gases measured at [the offgas recombiner effluent] shall be \leq [380] mCi/second [after decay of 30 minutes].

APPLICABILITY: MODE 1, MODES 2 and 3 with any [main steam line not isolated and] steam jet air ejector (SJAE) in operation.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Gross gamma activity rate of the noble gases not within limit.	A.1 Restore gross gamma activity rate of the noble gases to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1 [Isolate all main steam lines. <u>OR</u> B.2 Isolate SJAE. <u>OR</u> B.3.1 Be in MODE 3. <u>AND</u> B.3.2 Be in MODE 4.	12 hours] 12 hours 12 hours 36 hours

Comment: Condition B is a default Condition and is therefore excluded.

3.7 PLANT SYSTEMS

3.7.6 Main Turbine Bypass System

LCO 3.7.6 The Main Turbine Bypass System shall be OPERABLE.

OR

The following limits are made applicable:

- [a. LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," limits for an inoperable Main Turbine Bypass System, as specified in the [COLR] and]
- [b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for an inoperable Main Turbine Bypass System, as specified in the [COLR].]

APPLICABILITY: THERMAL POWER \geq 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Requirements of the LCO not met or Main Turbine Bypass System inoperable.]	A.1 [Satisfy the requirements of the LCO or restore Main Turbine Bypass System to OPERABLE status.]	2 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

Comment: Outside the applicability of the Traveler.

3.7 PLANT SYSTEMS

3.7.7 Fuel Pool Water Level

LCO 3.7.7 The fuel pool water level shall be \geq [23] ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool and upper containment fuel storage pool racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the associated fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel pool water level not within limit.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of irradiated fuel assemblies in the associated fuel storage pool(s).	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.7.1 Verify the fuel pool water level is \geq [23] ft over the top of irradiated fuel assemblies seated in the storage racks.	7 days

Comment: RAs A.1 and B.1 specify the periodic performance of an action, RAs A.2, B.2 and C.1 declare another component inoperable, RA B.3 performs OPERABILITY determination and performance of a surveillance. Condition H is a default Condition. Therefore these Conditions are excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electric Power Distribution System,
- b. Three diesel generators (DGs), and
- [c. Three automatic sequencers.]

APPLICABILITY: MODES 1, 2, and 3.

-----NOTE-----
 [Division 3] AC electrical power sources are not required to be OPERABLE when High Pressure Core Spray System [2C Standby Service Water System] is inoperable.

ACTIONS

-----NOTE-----
 LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE [required] offsite circuit. <u>AND</u>	1 hour <u>AND</u> Once per 8 hours thereafter

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2 Declare required feature(s) with no offsite power available inoperable when the redundant required feature(s) are inoperable.</p> <p><u>AND</u></p> <p>A.3 Restore [required] offsite circuit to OPERABLE status.</p>	<p>24 hours from discovery of no offsite power to one division concurrent with inoperability of redundant required feature(s)</p> <p>72 hours</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p><u>AND</u></p> <p>24 hours from discovery of two divisions with no offsite power</p> <p><u>IOR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
B. One [required] DG inoperable.	<p>B.1 Perform SR 3.8.1.1 for OPERABLE [required] offsite circuit(s).</p> <p><u>AND</u></p> <p>B.2 Declare required feature(s), supported by the inoperable DG, inoperable when the</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p> <p>4 hours from discovery of Condition B</p>

	redundant required feature(s) are inoperable.	concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.3.1 Determine OPERABLE DG(s) are not inoperable due to common cause failure.</p> <p><u>OR</u></p> <p>B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s).</p> <p><u>AND</u></p> <p>B.4 Restore required DG to OPERABLE status.</p>	<p>[24] hours</p> <p>[24] hours</p> <p>72 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>C. Two [required] offsite circuits inoperable.</p>	<p>C.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore one [required] offsite circuit to OPERABLE status.</p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)</p> <p>24 hours</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One [required] offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One [required] DG inoperable.</p>	<p>-----NOTE-----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition D is entered with no AC power source to any [division].</p> <p>-----</p> <p>D.1 Restore [required] offsite circuit to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore [required] DG to OPERABLE status.</p>	<p>12 hours</p> <p><u>[OR]</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p>12 hours</p> <p><u>[OR]</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>E. Two [required] DGs inoperable.</p>	<p>E.1 Restore one [required] DG to OPERABLE status.</p>	<p>2 hours</p> <p><u>[OR]</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p> <p><u>OR</u></p> <p>24 hours if Division 3 DG is inoperable</p> <p><u>[OR]</u></p> <p><u>In accordance with the Risk Informed Completion Time</u></p>

		<u>Program]</u>
F. [One [required] [automatic load sequencer] inoperable.	<p>-----REVIEWER'S NOTE----- This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event. -----</p> <p>F.1 Restore [required] [automatic load sequencer] to OPERABLE status.</p>	<p>[12] hours]</p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>[G. ----- NOTE -----</u> <u>Not applicable when three or more [required] AC sources intentionally made inoperable.</u> <u>-----</u> <u>Three or more [required] AC sources inoperable.</u></p>	<p><u>G.1 Restore [required] AC sources to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<u>HG.</u> Required Action and associated Completion Time of Condition A, B, C, D, E, or [F], <u>or G</u> not met.	GH .1 Be in MODE 3.	12 hours
	<u>AND</u> HG .2 Be in MODE 4.	36 hours
IH . Three or more [required] AC sources inoperable.	IH .1 Enter LCO 3.0.3.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.1.1 Verify correct breaker alignment and indicated power availability for each [required] offsite circuit.	7 days
SR 3.8.1.2 -----NOTES----- 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. [2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.] ----- Verify each DG starts from standby conditions and achieves steady state voltage \geq [3744] V and \leq [4576] V and frequency \geq [58.8] Hz and \leq [61.2] Hz.	31 days

Comment: Outside the applicability of the Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

- LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:
- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown,"
 - b. One diesel generator (DG) capable of supplying one division of the Division 1 or 2 onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, and
 - c. One qualified circuit, other than the circuit in LCO 3.8.2.a, between the offsite transmission and the Division 3 onsite Class 1E electrical power distribution subsystem, or the Division 3 DG capable of supplying the Division 3 onsite Class 1E AC electrical power distribution subsystem when the Division 3 onsite Class 1E electrical power distribution subsystem is required by LCO 3.8.10.

APPLICABILITY: MODES 4 and 5,
During movement of [recently] irradiated fuel assemblies in the [primary or secondary] containment.

ACTIONS

-----NOTE-----

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO Item a. not met.	<p>-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.10, with one required division de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s) with no offsite power available inoperable.</p> <p><u>OR</u></p> <p>A.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>A.2.2 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary] containment.</p> <p><u>AND</u></p> <p>A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).</p> <p><u>AND</u></p> <p>A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. LCO Item b. not met.	B.1 Suspend CORE ALTERATIONS. <u>AND</u>	Immediately
	B.2 Suspend movement of [recently] irradiated fuel assemblies in [primary and secondary] containment. <u>AND</u>	Immediately
	B.3 Initiate action to suspend OPDRVs. <u>AND</u>	Immediately
	B.4 Initiate action to restore required DG to OPERABLE status.	Immediately
C. LCO Item c. not met.	C.1 Declare HPCS [and 2C Standby Service Water System] inoperable.	[72] hours

Comment: No change made. End state is declaring the EDG inoperable.

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more DGs with fuel oil level:</p> <p>1. For [DG 11 or 12], < [62,000] gal and ≥ [49,000] gal, and</p> <p>2. For [DG 13], < [41,200] gal and ≥ [33,500] gal.</p>	<p>A.1 Restore fuel oil level to within limits.</p>	<p>48 hours</p>
<p>B. One or more DGs with lube oil inventory:</p> <p>1. For [DG 11 or 12], < [] gal and ≥ [425] gal, and</p> <p>2. For [DG 13], < [] gal and ≥ [] gal.</p>	<p>B.1 Restore lube oil inventory to within limits.</p>	<p>48 hours</p>
<p>C. One or more DGs with stored fuel oil total particulates not within limit.</p>	<p>C.1 Restore fuel oil total particulates to within limit.</p>	<p>7 days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with starting air receiver pressure < [225] psig and ≥ [125] psig.	E.1 Restore starting air receiver pressure to ≥ [225] psig.	48 hours
F. Required Actions and associated Completion Time not met. <u>OR</u> One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.3.1 Verify each fuel oil storage tank contains: a. ≥ [62,000] gal of fuel for [DGs 11 and 12] and b. ≥ [41,200] gal of fuel for [DG 13].	31 days

Comment: RA A.2 specifies the periodic performance of an action, Condition E is a default Condition and Condition D declares another component inoperable. Therefore they are excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 The [Division 1], [Division 2], and [Division 3] DC electrical power subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] battery charger[s] on one division] inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
	<u>AND</u>	
	A.2 Verify battery float current ≤ [2] amps.	Once per [12] hours
	<u>AND</u>	
	A. 3 Restore battery charger[s] to OPERABLE status.	7 days <u>IOR</u> In accordance with the Risk Informed Completion Time Program]
[B. One [or two] batter[y][ies] on one division] inoperable.	B.1 Restore batter[y][ies] to OPERABLE status.	[2] hours] <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. [Division 1 or 2] DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 Restore [Division 1 and 2] DC electrical power subsystems to OPERABLE status.	[2] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
[D. ----- NOTE ----- Not applicable when [Division 1 and 2] DC electrical power subsystems intentionally made inoperable. ----- [Division 1 and 2] DC electrical power subsystems inoperable.	D.1 Restore DC electrical power subsystems to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
DE. [Division 3] DC electrical power subsystem inoperable for reasons other than Condition A [or B].	DE.1 Declare High Pressure Core Spray System [and 2C Standby Service Water System] inoperable.	Immediately
EF. Required Action and associated Completion Time not met.	EF.1 Be in MODE 3.	12 hours
	<u>AND</u> EF.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	7 days
SR 3.8.4.2	Verify each [required] battery charger supplies \geq [400] amps at greater than or equal to the minimum established float voltage for \geq [8] hours. <u>OR</u> Verify each battery charger can recharge the battery to the fully charged state within [24] hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	[18 months]

Comment: Outside the applicability of the Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 [DC electrical power subsystem(s) shall be OPERABLE to support the electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One DC electrical power subsystem shall be OPERABLE.]

-----REVIEWER'S NOTE-----
 This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only one DC electrical power subsystem to be OPERABLE. Action A and the bracketed optional wording in Condition B are also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem support as is required for power operating conditions.

APPLICABILITY: MODES 4 and 5,
 During movement of [recently] irradiated fuel assemblies in the [primary or secondary] containment.

ACTIONS

-----NOTE-----
 LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
[A. One [or two] battery charger[s on one division] inoperable. <u>AND</u> The redundant division battery and charger[s] OPERABLE.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. <u>AND</u> A.2 Verify battery float current ≤ [2] amps. <u>AND</u>	2 hours Once per [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.3 Restore battery charger[s] to OPERABLE status.	7 days]
<p>B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met.]</p>	<p>B.1 Declare affected required feature(s) inoperable.</p> <p><u>OR</u></p> <p>B.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2.2 Suspend movement of [recently] irradiated fuel assemblies in the [primary or secondary] containment.</p> <p><u>AND</u></p> <p>B.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.</p> <p><u>AND</u></p> <p>B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

Comment: No change made. End state is declaring the associated battery inoperable.

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

-----REVIEWER'S NOTE-----

Licenseses must implement a program, as specified in Specification 5.5.14, to monitor battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications."

LCO 3.8.6 Battery parameters for the [Division 1, 2, and 3] batteries shall be within limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] batter[y][ies on one division] with one or more battery cells float voltage < [2.07] V.	A.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	A.2 Perform SR 3.8.6.1.	2 hours
	<u>AND</u>	
	A.3 Restore affected cell voltage ≥ [2.07] V.	24 hours
B. One [or two] batter[y][ies on one division] with float current > [2] amps.	B.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	B.2 Restore battery float current to ≤ [2] amps.	[12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of plates. -----</p> <p>C. One [or two] batter[y][ies on one division] with one or more cells electrolyte level less than minimum established design limits.</p>	<p>-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. -----</p> <p>C.1 Restore electrolyte level to above top of plates. <u>AND</u> C.2 Verify no evidence of leakage. <u>AND</u> C.3 Restore electrolyte level to greater than or equal to minimum established design limits.</p>	<p>8 hours</p> <p>12 hours</p> <p>31 days</p>
<p>D. One [or two] batter[y][ies on one division] with pilot cell electrolyte temperature less than minimum established design limits.</p>	<p>D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.</p>	<p>12 hours</p>
<p>E. One or more batteries in redundant divisions with battery parameters not within limits.</p>	<p>E.1 Restore battery parameters for batteries in one division to within limits.</p>	<p>2 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p> <p><u>OR</u></p> <p>One [or two] batter[y][ies on one division] with one or more battery cells float voltage < [2.07] V and float current > [2] amps.</p>	<p>F.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 -----NOTE----- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. -----</p> <p>Verify each battery float current is \leq [2] amps.</p>	<p>7 days</p>
<p>SR 3.8.6.2 Verify each battery pilot cell voltage is \geq [2.07] V.</p>	<p>31 days</p>
<p>SR 3.8.6.3 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.</p>	<p>31 days</p>
<p>SR 3.8.6.4 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.</p>	<p>31 days</p>

Comment: Condition B declares another component inoperable, and Condition C is a default Condition. These are therefore excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The [Division 1], [Division 2], and [Division 3] inverters shall be OPERABLE.

-----NOTE-----
 [[One/two] inverter[s] may be disconnected from [its/their] associated DC bus for ≤ [24] hours to perform an equalizing charge on [its/their] associated [common] battery, provided:

- a. The associated AC vital bus[es] [is/are] energized from [its/their] [Class 1E constant voltage transformers] [inverter using internal AC source] and
- b. All other AC vital buses are energized from their associated OPERABLE inverters.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Division 1 or 2] inverter inoperable.	A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any AC vital bus de-energized. ----- Restore [Division 1 and 2] inverters to OPERABLE status.	24 hours <u>IOR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. ----- NOTE ----- Not applicable when [Division 1 and 2] inverters intentionally made inoperable. ----- [Division 1 and 2] inverters inoperable.</p>	<p>B.1 Restore inverters to OPERABLE status.</p>	<p>1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>BC.[[Division 3] inverter inoperable.</p>	<p>BC.1 Declare High Pressure Core Spray System [and 2C Standby Service Water System] inoperable.</p>	<p>Immediately]</p>
<p>GD. Required Action and associated Completion Time not met.</p>	<p>GD.1 Be in MODE 3. <u>AND</u> GD.2 Be in MODE 4.</p>	<p>12 hours 36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.7.1 Verify correct inverter voltage, [frequency,] and alignment to required AC vital buses.</p>	<p>7 days</p>

Comment: Outside the applicability of the Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 [Inverter(s) shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One] inverter[s] shall be OPERABLE.]

-----REVIEWER'S NOTE-----
 This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only [one] inverter to be OPERABLE. The "[or more]" optional wording in Condition A is also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem/inverter support as is required for power operating conditions.

APPLICABILITY: MODES 4 and 5,
 During movement of [recently] irradiated fuel assemblies in the [primary or secondary] containment.

ACTIONS

-----NOTE-----
 LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or more] [required] inverter[s] inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<p style="text-align: center;"><u>OR</u></p> <p>A.2.1 Suspend CORE ALTERATIONS.</p> <p style="text-align: center;"><u>AND</u></p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [primary or secondary] containment.</p> <p><u>AND</u></p> <p>A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.</p> <p><u>AND</u></p> <p>A.2.4 Initiate action to restore required inverters to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.8.1 Verify correct inverter voltage, [frequency,] and alignments to [required] AC vital buses.</p>	<p>7 days</p>

Comment: Condition E is a default Condition, and Condition F declares another component inoperable. Therefore they are excluded.

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 [Division 1], [Division 2], and [Division 3] AC, DC, [and AC vital bus] electrical power distribution subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more [Division 1 and 2] AC electrical power distribution subsystems inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC divisions made inoperable by inoperable power distribution subsystems. -----</p> <p>A.1 Restore [Division 1 and 2] AC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>8 hours <u>[OR]</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>B. [One or more [Division 1 and 2] AC vital buses inoperable.</p>	<p>B.1 Restore [Division 1 and 2] AC vital bus distribution subsystem(s) to OPERABLE status.</p>	<p>2 hours] <u>[OR]</u> <u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p>C. One or more [Division 1 and 2] DC electrical power distribution subsystems inoperable.</p>	<p>C.1 Restore [Division 1 and 2] DC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>2 hours <u>[OR]</u></p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
		<u>In accordance with the Risk Informed Completion Time Program]</u>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>D.</u> ----- NOTE ----- <u>Not applicable when two or more electrical power distribution subsystems intentionally made inoperable.</u> ----- <u>Two or more electrical power distribution subsystems inoperable that result in a loss of function.</u></p>	<p><u>D.1</u> <u>Restore electrical power distribution subsystems to OPERABLE status.</u></p>	<p><u>1 hour</u></p> <p><u>OR</u></p> <p><u>In accordance with the Risk Informed Completion Time Program]</u></p>
<p><u>ED.</u> Required Action and associated Completion Time of Condition A, B, or C, <u>[or D]</u> not met.</p>	<p><u>ED.1</u> Be in MODE 3.</p> <p><u>AND</u></p> <p><u>ED.2</u> Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>
<p><u>EE.</u> One or more [Division 3] AC, DC, or AC vital bus electrical power distribution subsystems inoperable.</p>	<p><u>EE.1</u> Declare High Pressure Core Spray System [and 2C Standby Service Water System] inoperable.</p>	<p>Immediately</p>
<p><u>GF.</u> Two or more electrical power distribution subsystems inoperable that result in a loss of function.</p>	<p><u>GF.1</u> Enter LCO 3.0.3.</p>	<p>Immediately]</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.9.1 Verify correct breaker alignments and voltage to [required] AC, DC, [and AC vital bus] electrical power distribution subsystems.</p>	<p>7 days</p>

Comment: Outside the applicability of the Traveler.

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portions of the Division 1, Division 2, and Division 3 AC, DC, [and AC vital bus] electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 4 and 5,
During movement of [recently] irradiated fuel assemblies in the [primary or secondary] containment.

ACTIONS

-----NOTE-----
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, [or AC vital bus] electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u> A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [primary or secondary] containment. <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.</p> <p><u>AND</u></p> <p>A.2.4 Initiate actions to restore [required] AC, DC, [and AC vital bus] electrical power distribution subsystems to OPERABLE status.</p> <p><u>AND</u></p> <p>A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.10.1 Verify correct breaker alignments and voltage to [required] AC, DC, [and AC vital bus] electrical power distribution subsystems.</p>	<p>7 days</p>

[5.5.15 Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

- a. The RICT may not exceed 30 days;

----- REVIEWER'S NOTE -----

The Risk Informed Completion Time is only applicable in MODES supported by the Licensees PRA. Licensee's applying the RICT Program to MODES other than Modes 1 and 2 must demonstrate that they have the capability to calculate a RICT in those MODES or that the risk indicated by their MODE 1 and 2 PRA model is bounding with respect to the lower MODE conditions.

- b. A RICT may only be utilized in MODE 1, 2 [, and MODE 3 while relying on the main condenser for heat removal];
- c. When a RICT is being used, any plant configuration change within the scope of the Risk Informed Completion Time Program must be considered for the effect on the RICT.
1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.
 2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.
 3. Revising the RICT is not required If the plant configuration change would lower plant risk and would result in a longer RICT.
- d. Use of a RICT is not permitted for voluntary entry into a configuration which represents a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE.
- e. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more of the trains are considered "PRA functional" as defined in Section 2.3.1 of NEI 06-09.]

BASES

LCO The OPERABILITY of the SLC System provides backup capability for reactivity control, independent of normal reactivity control provisions provided by the control rods. The OPERABILITY of the SLC System is based on the conditions of the borated solution in the storage tank and the availability of a flow path to the RPV, including the OPERABILITY of the pumps and valves. Two SLC subsystems are required to be OPERABLE, each containing an OPERABLE pump, an explosive valve and associated piping, valves, and instruments and controls to ensure an OPERABLE flow path.

APPLICABILITY In MODES 1 and 2, shutdown capability is required. In MODES 3 and 4, control rods are not able to be withdrawn since the reactor mode switch is in shutdown and a control rod block is applied. This provides adequate controls to ensure the reactor remains subcritical. In MODE 5, only a single control rod can be withdrawn from a core cell containing fuel assemblies. Demonstration of adequate SDM (LCO 3.1.1, "SHUTDOWN MARGIN (SDM)") ensures that the reactor will not become critical. Therefore, the SLC System is not required to be OPERABLE during these conditions, when only a single control rod can be withdrawn.

ACTIONS

A.1

If the boron solution concentration is less than the required limits for ATWS mitigation but greater than the concentration required for cold shutdown (original licensing basis), the concentration must be restored to within limits in 72 hours [or in accordance with the Risk Informed Completion Time Program]. It is not necessary under these conditions to enter Condition C for both SLC subsystems inoperable, since they are capable of performing their original design basis function. Because of the low probability of an ATWS event and that the SLC System capability still exists for vessel injection under these conditions, the allowed Completion Time of 72 hours is acceptable and provides adequate time to restore concentration to within limits.

B.1

If one SLC System subsystem is inoperable for reasons other than Condition A, the inoperable subsystem must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this condition, the remaining OPERABLE subsystem is adequate to perform the shutdown function. However, the overall reliability is reduced because a single failure in the remaining OPERABLE subsystem could result in reduced SLC System shutdown capability. The 7 day Completion Time is based on the availability of an OPERABLE subsystem capable of performing the intended SLC System function and the low probability of a Design Basis Accident (DBA) or severe transient

occurring concurrent with the failure of the Control Rod Drive System to shut down the plant.

BASES

ACTIONS (continued)

C.1

If both SLC subsystems are inoperable for reasons other than Condition A, at least one subsystem must be restored to OPERABLE status within 8 hours [or in accordance with the Risk Informed Completion Time Program]. The allowed Completion Time of 8 hours is considered acceptable, given the low probability of a DBA or transient occurring concurrent with the failure of the control rods to shut down the reactor.

D.1

If any Required Action and associated Completion Time is 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 MODE 3 within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTSSR 3.1.7.1, SR 3.1.7.2, and SR 3.1.7.3

SR 3.1.7.1 through SR 3.1.7.3 are 24 hour Surveillances, verifying certain characteristics of the SLC System (e.g., the volume and temperature of the borated solution in the storage tank), thereby ensuring the SLC System OPERABILITY without disturbing normal plant operation. These Surveillances ensure the proper borated solution and temperature, including the temperature of the pump suction piping, are maintained. Maintaining a minimum specified borated solution temperature is important in ensuring that the boron remains in solution and does not precipitate out in the storage tank or in the pump suction piping. The 24 hour Frequency of these SRs is based on operating experience that has shown there are relatively slow variations in the measured parameters of volume and temperature.

SR 3.1.7.4 and SR 3.1.7.6

SR 3.1.7.4 verifies the continuity of the explosive charges in the injection valves to ensure proper operation will occur if 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.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

There is one Manual Scram push button channel for each of the four RPS logic channels. In order to cause a scram it is necessary that at least one channel in each trip system be actuated.

There is no Allowable Value for this Function since the channels are mechanically actuated based solely on the position of the push buttons.

Four channels of Manual Scram with two channels in each trip system arranged in a one-out-of-two logic, are available and required to be OPERABLE in MODES 1 and 2, and in MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies, since these are the MODES and other specified conditions when control rods are withdrawn.

ACTIONS

-----REVIEWER'S NOTE-----
Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A Note has been provided to modify the ACTIONS related to RPS instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable RPS instrumentation channels provide appropriate compensatory measures for separate, inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable RPS instrumentation channel.

A.1 and A.2

Because of the diversity of sensors available to provide trip signals and the redundancy of the RPS design, an allowable out of service time of 12 hours has been shown to be acceptable (Ref. 10) to permit restoration of any inoperable channel to OPERABLE status. However, this out of service time is only acceptable provided the associated Function's inoperable channel is in one trip system and the Function still maintains RPS trip capability (refer to Required Actions B.1, B.2, and C.1 Bases).
[Alternatively, a Completion Time can be determined in accordance with

the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within

BASES

ACTIONS (continued)

the allowable out of service time, the channel or the associated trip system must be placed in the tripped condition per Required Actions A.1 and A.2. Placing the inoperable channel in trip (or the associated trip system in trip) would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel (or trip system) in trip (e.g., as in the case where placing the inoperable channel in trip would result in a full scram), Condition D must be entered and its Required Action taken.

B.1 and B.2

Condition B exists when, for any one or more Functions, at least one required channel is inoperable in each trip system. In this condition, provided at least one channel per trip system is OPERABLE, the RPS still maintains trip capability for that Function, but cannot accommodate a single failure in either trip system.

Required Actions B.1 and B.2 limit the time the RPS scram logic for any Function would not accommodate single failure in both trip systems (e.g., one-out-of-one and one-out-of-one arrangement for a typical four channel Function). The reduced reliability of this logic arrangement was not evaluated in Reference 10 for the 12 hour Completion Time. Within the 6 hour allowance, the associated Function will have all required channels either OPERABLE or in trip (or in any combination) in one trip system.

Completing one of these Required Actions restores RPS to an equivalent reliability level as that evaluated in Reference 10, which justified a 12 hour allowable out of service time as presented in Condition A. The trip system in the more degraded state should be placed in trip or, alternatively, all the inoperable channels in that trip system should be placed in trip (e.g., a trip system with two inoperable channels could be in a more degraded state than a trip system with four inoperable channels, if the two inoperable channels are in the same Function while the four inoperable channels are all in different Functions). The decision as to which trip system is in the more degraded state should be based on prudent judgment and current plant conditions (i.e., what MODE the plant is in). If this action would result in a scram or recirculation pump trip, it is permissible to place the other trip system or its inoperable channels in trip.

BASES

ACTIONS (continued)

The 6 hour Completion Time is judged acceptable based on the remaining capability to trip, the diversity of the sensors available to provide the trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of a scram. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

Alternately, if it is not desired to place the inoperable channels (or one trip system) in trip (e.g., as in the case where placing the inoperable channel or associated trip system in trip would result in a scram [or RPT]), Condition D must be entered and its Required Action taken.

C.1

Required Action C.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same trip system for the same Function result in the Function not maintaining RPS trip capability. A Function is considered to be maintaining RPS trip capability when sufficient channels are OPERABLE or in trip (or the associated trip system is in trip), such that both trip systems will generate a trip signal from the given Function on a valid signal. For the typical Function with one-out-of-two taken twice logic and the IRM and APRM Functions, this would require both trip systems to have one channel OPERABLE or in trip (or the associated trip system in trip). For Function 6 (Main Steam Isolation Valve - Closure), this would require both trip systems to have each channel associated with the MSIVs in three MSLs (not necessarily the same MSLs for both trip systems), OPERABLE or in trip (or the associated trip system in trip).

For Function 9 (Turbine Stop Valve Closure, Trip Oil Pressure - Low), this would require both trip systems to have three channels, each OPERABLE or in trip (or the associated trip system in trip).

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

D.1

Required Action D.1 directs entry into the appropriate Condition referenced in Table 3.3.1.1-1. The applicable Condition specified in the Table is Function and MODE or other specified condition dependent and may change as the Required Action of a previous Condition is completed. Each time an inoperable channel has not met any Required Action of Condition A, B, or C, and the associated Completion Time has expired, Condition D will be entered for that channel and provides for transfer to the appropriate subsequent Condition.

E.1, F.1, G.1, and H.1

If the channel(s) is not restored to OPERABLE status or placed in trip (or the associated trip system placed in trip) within the allowed Completion Time, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. The Completion Times are reasonable, based on operating experience, to reach the specified condition from full power conditions in an orderly manner and without challenging plant systems. In addition, the Completion Time of Required Action E.1 is consistent with the Completion Time provided in LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)."

I.1

If the channel(s) is not restored to OPERABLE status or placed in trip (or the associated trip system placed in trip) within the allowed Completion Time, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by immediately initiating action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core and are, therefore, not required to be inserted. Action must continue until all insertable control rods in core cells containing one or more fuel assemblies are fully inserted.

SURVEILLANCE
REQUIREMENTS

-----REVIEWER'S NOTE-----
Certain Frequencies are based on approved topical reports. In order for a licensee to use these Frequencies, the licensee must justify the Frequencies as required by the staff SER for the topical report.

BASES

LCO (continued)

flexibility in monitoring reactivity changes during fuel loading, since they can be positioned anywhere within the core during refueling. They must still meet the location requirements of SR 3.3.1.2.2, and all other required SRs for SRMs.

For an SRM channel to be considered OPERABLE, it must be providing neutron flux monitoring indication.

APPLICABILITY

The SRMs are required to be OPERABLE in MODES 2, 3, 4, and 5, prior to the IRMs being on scale on Range 3 to provide for neutron monitoring. In MODE 1, the APRMs provide adequate monitoring of reactivity changes in the core; therefore, the SRMs are not required. In MODE 2, with IRMs on Range 3 or above, the IRMs provide adequate monitoring and the SRMs are not required.

ACTIONS

A.1 and B.1

In MODE 2, with the IRMs on Range 2 or below, SRMs provide the means of monitoring core reactivity and criticality. With any number of the required SRMs inoperable, the ability to monitor is degraded. Therefore, a limited time is allowed to restore the inoperable channels to OPERABLE status.

Providing that at least one SRM remains OPERABLE, Required Action A.1 allows 4 hours to restore the required SRMs to OPERABLE status. This is a reasonable time since there is adequate capability remaining to monitor the core, limited risk of an event during this time, and sufficient time to take corrective actions to restore the required SRMs to OPERABLE status or to establish alternate IRM monitoring capability. During this time, control rod withdrawal and power increase are not precluded by this Required Action. Having the ability to monitor the core with at least one SRM, proceeding to IRM Range 3 or greater (with overlap verified by SR 3.3.1.1.1) and thereby exiting the Applicability of this LCO, is acceptable for ensuring adequate core monitoring and allowing continued operation. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

With four required SRMs inoperable, Required Action B.1 allows no positive changes in reactivity (control rod withdrawal must be immediately suspended) due to the inability to monitor the changes. Required Action A.1 still applies and allows 4 hours to restore monitoring capability prior to requiring control rod insertion. This allowance is based on the limited risk of an event during this time, provided that no control rod withdrawals are allowed, and the desire to concentrate efforts on repair, rather than to immediately shut down, with no SRMs OPERABLE.

BASES

ACTIONS (continued)

inoperable MCPR limit]. Alternately, the inoperable channels may be placed in trip (Required Action A.2) since this would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. As noted in Required Action A.2, placing the channel in trip with no further restrictions is not allowed if the inoperable channel is the result of an inoperable breaker, since this may not adequately compensate for the inoperable breaker (e.g., the breaker may be inoperable such that it will not open).

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an RPT), or if the inoperable channel is the result of an inoperable breaker, Condition C must be entered and its Required Actions taken.

B.1 and B.2

Required Actions B.1 and B.2 are intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in the Function not maintaining EOC-RPT trip capability. A Function is considered to be maintaining EOC-RPT trip capability when sufficient channels are OPERABLE or in trip, such that the EOC-RPT System will generate a trip signal from the given Function on a valid signal and both recirculation pumps can be tripped. This requires two channels of the Function, in the same trip system, to each be OPERABLE or in trip, and the associated EOC-RPT breakers to be OPERABLE or in trip. Alternatively, Required Action B.2 requires the MCPR limit for inoperable EOC-RPT, as specified in the COLR, to be applied. This also restores the margin to MCPR assumed in the safety analysis.

The 2 hour Completion Time is sufficient for the operator to take corrective action, and takes into account the likelihood of an event requiring actuation of the EOC-RPT instrumentation during this period. It is also consistent with the 2 hour Completion Time provided in LCO 3.2.2, Required Action A.1, since this instrumentation's purpose is to preclude a MCPR violation. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The Reactor Steam Dome Pressure - High signals are initiated from four pressure transmitters that monitor reactor steam dome pressure. Four channels of Reactor Steam Dome Pressure - High, with two channels in each trip system, are available and required to be OPERABLE to ensure that no single instrument failure can preclude an ATWS-RPT from this Function on a valid signal. The Reactor Steam Dome Pressure - High Allowable Value is chosen to provide an adequate margin to the ASME Section III Code Service Level C allowable Reactor Coolant System pressure.

ACTIONS

A Note has been provided to modify the ACTIONS related to ATWS-RPT instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable ATWS-RPT instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable ATWS-RPT instrumentation channel.

A.1 and A.2

With one or more channels inoperable, but with ATWS-RPT capability for each Function maintained (refer to Required Action B.1 and C.1 Bases), the ATWS-RPT System is capable of performing the intended function. However, the reliability and redundancy of the ATWS-RPT instrumentation is reduced, such that a single failure in the remaining trip system could result in the inability of the ATWS-RPT System to perform the intended function. Therefore, only a limited time is allowed to restore the inoperable channels to OPERABLE status. Because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of ATWS-RPT, 14 days is provided to restore the inoperable channel (Required Action A.1). Alternately, the inoperable channel may be placed in trip (Required Action A.2), since this would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. As noted, placing the channel in trip with no further restrictions is not allowed if the inoperable channel is the result of an

BASES

ACTIONS (continued)

inoperable breaker, since this may not adequately compensate for the inoperable breaker (e.g., the breaker may be inoperable such that it will not open). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If it is not desirable to place the channel in trip (e.g., as in the case where placing the inoperable channel would result in an RPT), or if the inoperable channel is the result of an inoperable breaker, Condition D must be entered and its Required Actions taken.

B.1

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in the Function not maintaining ATWS-RPT trip capability. A Function is considered to be maintaining ATWS-RPT trip capability when sufficient channels are OPERABLE or in trip such that the ATWS-RPT System will generate a trip signal from the given Function on a valid signal, and both recirculation pumps can be tripped. This requires two channels of the Function in the same trip system to each be OPERABLE or in trip, and the four motor breakers (two fast speed and two LFMG) to be OPERABLE or in trip.

The 72 hour Completion Time is sufficient for the operator to take corrective action (e.g., restoration or tripping of channels) and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period and the fact that one Function is still maintaining ATWS-RPT trip capability. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1

Required Action C.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within both Functions result in both Functions not maintaining ATWS-RPT trip capability. The description of a Function maintaining ATWS-RPT trip capability is discussed in the Bases for Required Action B.1, above.

The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

There is no Allowable Value for this Function since the channel is mechanically actuated based solely on the position of the push buttons. Four channels of the Manual Initiation Function (two channels per ADS trip system) are only required to be OPERABLE when the ADS is required to be OPERABLE. Refer to LCO 3.5.1 for ADS Applicability Bases.

ACTIONS

-----REVIEWER'S NOTE-----
 Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A Note has been provided to modify the ACTIONS related to ECCS instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable ECCS instrumentation channels provide appropriate compensatory measures for separate inoperable Condition entry for each inoperable ECCS instrumentation channel.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.1-1. The applicable Condition specified in the Table is Function dependent. Each time a channel is discovered to be inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1, B.2, and B.3

Required Actions B.1 and B.2 are intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function (or in some cases, within the same variable) result in redundant automatic initiation capability being lost for the feature(s). Required Action B.1 features would be those that are initiated by

BASES

ACTIONS (continued)

Functions 1.a, 1.b, 2.a, and 2.b (e.g., low pressure ECCS). The Required Action B.2 feature would be HPCS. For Required Action B.1, redundant automatic initiation capability is lost if either (a) one or more Function 1.a channels and one or more Function 2.a channels are inoperable and untripped, or (b) one or more Function 1.b channels and one or more Function 2.b channels are inoperable and untripped.

For Divisions 1 and 2, since each inoperable channel would have Required Action B.1 applied separately (refer to ACTIONS Note), each inoperable channel would only require the affected portion of the associated Division of low pressure ECCS and DG to be declared inoperable. However, since channels in both Divisions are inoperable and untripped, and the Completion Times started concurrently for the channels in both Divisions, this results in the affected portions in both Divisions of ECCS and DG being concurrently declared inoperable.

For Required Action B.2, redundant automatic initiation capability is lost if two Function 3.a or two Function 3.b channels are inoperable and untripped in the same trip system. In this situation (loss of redundant automatic initiation capability), the 24 hour allowance of Required Action B.3 is not appropriate and the feature(s) associated with the inoperable, untripped channels must be declared inoperable within 1 hour. As noted (Note 1 to Required Action B.1 and Required Action B.2), the two Required Actions are only applicable in MODES 1, 2, and 3. In MODES 4 and 5, the specific initiation time of the ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of initiation capability for 24 hours (as allowed by Required Action B.3) is allowed during MODES 4 and 5. Notes are also provided (Note 2 to Required Action B.1 and Required Action B.2) to delineate which Required Action is applicable for each Function that requires entry into Condition B if an associated channel is inoperable. This ensures that the proper loss of initiation capability check is performed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action B.1, the Completion Time only begins upon discovery that a redundant feature in both Divisions (e.g., any Division 1 ECCS and Division 2 ECCS) cannot be automatically initiated due to inoperable, untripped channels within the same variable as described in the paragraph above. For Required Action B.2, the Completion Time only begins upon discovery that the

BASES

ACTIONS (continued)

HPCS System cannot be automatically initiated due to two inoperable, untripped channels for the associated Function in the same trip system. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 4) to permit restoration of any inoperable channel to OPERABLE status.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action B.3. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), Condition H must be entered and its Required Action taken.

C.1 and C.2

Required Action C.1 is intended to ensure that appropriate actions are taken if multiple, inoperable channels within the same Function (or in some cases, within the same variable) result in redundant automatic initiation capability being lost for the feature(s). Required Action C.1 features would be those that are initiated by Functions 1.c, 1.d, 2.c, and 2.d (i.e., low pressure ECCS). For Functions 1.c and 2.c, redundant automatic initiation capability is lost if the Function 1.c and Function 2.c channels are inoperable. For Functions 1.d and 2.d, redundant automatic initiation capability is lost if two Function 1.d channels in the same trip system and two Function 2.d channels in the same trip system (but not necessarily the same trip system as the Function 1.d channels) are inoperable. Since each inoperable channel would have Required Action C.1 applied separately (refer to ACTIONS Note), each inoperable channel would only require the affected portion of the associated Division to be declared inoperable. However, since channels in both Divisions are inoperable, and the Completion Times started concurrently for the channels in both Divisions, this results in the affected portions in both Divisions being concurrently declared inoperable. For Functions 1.c and 2.c, the affected portions of the Division are LPCI A and LPCI B, respectively. For Functions 1.d and 2.d, the affected portions of the Division are the low pressure ECCS pumps (Divisions 1 and 2, respectively).

BASES

ACTIONS (continued)

In this situation (loss of redundant automatic initiation capability), the 24 hour allowance of Required Action C.2 is not appropriate and the feature(s) associated with the inoperable channels must be declared inoperable within 1 hour. As noted (Note 1), the Required Action is only applicable in MODES 1, 2, and 3. In MODES 4 and 5, the specific initiation time of the ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of automatic initiation capability for 24 hours (as allowed by Required Action C.2) is allowed during MODES 4 and 5.

Note 2 states that Required Action C.1 is only applicable for Functions 1.c, 1.d, 2.c, and 2.d. The Required Action is not applicable to Functions 1.g, 2.f, and 3.h (which also require entry into this Condition if a channel in these Functions is inoperable), since they are the Manual Initiation Functions and are not assumed in any accident or transient analysis. Thus, a total loss of manual initiation capability for 24 hours (as allowed by Required Action C.2) is allowed. Required Action C.1 is also not applicable to Function 3.c (which also requires entry into this Condition if a channel in this Function is inoperable), since the loss of one channel results in a loss of the Function (two-out-of-two logic). This loss was considered during the development of Reference 4 and considered acceptable for the 24 hours allowed by Required Action C.2.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action C.1, the Completion Time only begins upon discovery that the same feature in both Divisions (e.g., any Division 1 ECCS and Division 2 ECCS) cannot be automatically initiated due to inoperable channels within the same variable as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration of channels.

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 4) to permit restoration of any inoperable channel to OPERABLE status.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, Condition H must be entered and its Required Action taken. The Required Actions do not allow placing the channel in trip since this action would either cause the initiation or would not necessarily result in a safe state for the channel in all events.

BASES

ACTIONS (continued)

D.1, D.2.1, and D.2.2

Required Action D.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic component initiation capability for the HPCS System. Automatic component initiation capability is lost if two Function 3.d channels or two Function 3.e channels are inoperable and untripped. In this situation (loss of automatic suction swap), the 24 hour allowance of Required Actions D.2.1 and D.2.2 is not appropriate and the HPCS System must be declared inoperable within 1 hour after discovery of loss of HPCS initiation capability. As noted, the Required Action is only applicable if the HPCS pump suction is not aligned to the suppression pool, since, if aligned, the Function is already performed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action D.1, the Completion Time only begins upon discovery that the HPCS System cannot be automatically aligned to the suppression pool due to two inoperable, untripped channels in the same Function. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 4) to permit restoration of any inoperable channel to OPERABLE status.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action D.2.1 or the suction source must be aligned to the suppression pool within 24 hours per Required Action D.2.2. Placing the inoperable channel in trip performs the intended function of the channel (shifting the suction source to the suppression pool). Performance of either of these two Required Actions will allow operation to continue. If Required Action D.2.1 or Required Action D.2.2 is performed, measures should be taken to ensure that the HPCS System piping remains filled with water. Alternately, if it is not desired to perform Required Actions D.2.1 and D.2.2 (e.g., as in the case where shifting the suction source could drain down the HPCS suction piping), Condition H must be entered and its Required Action taken.

BASES

ACTIONS (continued)

E.1 and E.2

Required Action E.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the LPCS and LPCI Pump Discharge Flow - Low (Bypass) Functions result in redundant automatic initiation capability being lost for the feature(s). For Required Action E.1, the features would be those that are initiated by Functions 1.e, 1.f, and 2.e (e.g., low pressure ECCS). Redundant automatic initiation capability is lost if three of the four channels associated with Functions 1.e, 1.f, and 2.e are inoperable. Since each inoperable channel would have Required Action E.1 applied separately (refer to ACTIONS Note), each inoperable channel would only require the affected low pressure ECCS pump to be declared inoperable. However, since channels for more than one low pressure ECCS pump are inoperable, and the Completion Times started concurrently for the channels of the low pressure ECCS pumps, this results in the affected low pressure ECCS pumps being concurrently declared inoperable.

In this situation (loss of redundant automatic initiation capability), the 7 day allowance of Required Action E.2 is not appropriate and the feature(s) associated with each inoperable channel must be declared inoperable within 1 hour after discovery of loss of initiation capability for feature(s) in both Divisions. As noted (Note 1 to Required Action E.1), Required Action E.1 is only applicable in MODES 1, 2, and 3. In MODES 4 and 5, the specific initiation time of the low pressure ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of initiation capability for 7 days (as allowed by Required Action E.2) is allowed during MODES 4 and 5. A Note is also provided (Note 2 to Required Action E.1) to delineate that Required Action E.1 is only applicable to low pressure ECCS Functions. Required Action E.1 is not applicable to HPCS Functions 3.f and 3.g since the loss of one channel results in a loss of the Function (one-out-of-one logic). This loss was considered during the development of Reference 4 and considered acceptable for the 7 days allowed by Required Action E.2.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action E.1, the Completion Time only begins upon discovery that three channels of the variable (Pump Discharge Flow - Low) cannot be automatically initiated due to inoperable channels. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration of channels.

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ACTIONS (continued)

If the instrumentation that controls the pump minimum flow valve is inoperable such that the valve will not automatically open, extended pump operation with no injection path available could lead to pump overheating and failure. If there were a failure of the instrumentation such that the valve would not automatically close, a portion of the pump flow could be diverted from the reactor injection path, causing insufficient core cooling. These consequences can be averted by the operator's manual control of the valve, which would be adequate to maintain ECCS pump protection and required flow. Furthermore, other ECCS pumps would be sufficient to complete the assumed safety function if no additional single failure were to occur. The 7 day Completion Time of Required Action E.2 to restore the inoperable channel to OPERABLE status is reasonable based on the remaining capability of the associated ECCS subsystems, the redundancy available in the ECCS design, and the low probability of a DBA occurring during the allowed out of service time. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, Condition H must be entered and its Required Action taken. The Required Actions do not allow placing the channel in trip since this action would not necessarily result in a safe state for the channel in all events. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

F.1 and F.2

Required Action F.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within similar ADS trip system Functions result in automatic initiation capability being lost for the ADS. Automatic initiation capability is lost if either (a) more than one Function 4.a channel and one Function 5.a channel are inoperable and untripped, (b) one Function 4.b channel and one Function 5.b channel are inoperable and untripped, or (c) one Function 4.d channel and one Function 5.d channel are inoperable and untripped.

In this situation (loss of automatic initiation capability), the 96 hour or 8 day allowance, as applicable, of Required Action F.2 is not appropriate, and all ADS valves must be declared inoperable within 1 hour after discovery of loss of ADS initiation capability in both trip systems.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action F.1, the Completion Time only begins upon discovery that the ADS cannot be automatically initiated due to inoperable, untripped channels within similar ADS trip

BASES

ACTIONS (continued)

system Functions as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 8 days has been shown to be acceptable (Ref. 4) to permit restoration of any inoperable channel to OPERABLE status if both HPCS and RCIC are OPERABLE. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If either HPCS or RCIC is inoperable, the time is shortened to 96 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the status of HPCS or RCIC changes such that the Completion Time changes from 8 days to 96 hours, the 96 hours begins upon discovery of HPCS or RCIC inoperability. However, total time for an inoperable, untripped channel cannot exceed 8 days. If the status of HPCS or RCIC changes such that the Completion Time changes from 96 hours to 8 days, the "time zero" for beginning the 8 day "clock" begins upon discovery of the inoperable, untripped channel. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action F.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), Condition H must be entered and its Required Action taken.

G.1 and G.2

Required Action G.1 is intended to ensure that appropriate actions are taken if multiple, inoperable channels within similar ADS trip system Functions result in automatic initiation capability being lost for the ADS. Automatic initiation capability is lost if either (a) one Function 4.c channel and one Function 5.c channel are inoperable, (b) one or more Function 4.e channels and one or more Function 5.e channels are inoperable, (c) one or more Function 4.f channels and one or more Function 5.e channels are inoperable, or (d) one or more Function 4.g channels and one or more Function 5.f channels are inoperable.

In this situation (loss of automatic initiation capability), the 96 hour or 8 day allowance, as applicable, of Required Action G.2 is not appropriate, and all ADS valves must be declared inoperable within 1 hour after

discovery of loss of ADS initiation capability in both trip systems. The Note to Required Action G.1 states that Required Action G.1 is only

BASES

ACTIONS (continued)

applicable for Functions 4.c, 4.e, 4.f, 4.g, 5.c, 5.e, and 5.f. Required Action G.1 is not applicable to Functions 4.h and 5.g (which also require entry into this Condition if a channel in these Functions is inoperable), since they are the Manual Initiation Functions and are not assumed in any accident or transient analysis. Thus, a total loss of manual initiation capability for 96 hours or 8 days (as allowed by Required Action G.2) is allowed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action G.1, the Completion Time only begins upon discovery that the ADS cannot be automatically initiated due to inoperable channels within similar ADS trip system Functions, as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 8 days has been shown to be acceptable (Ref. 4) to permit restoration of any inoperable channel to OPERABLE status if both HPCS and RCIC are OPERABLE (Required Action G.2). **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** If either HPCS or RCIC is inoperable, the time is reduced to 96 hours. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** If the status of HPCS or RCIC changes such that the Completion Time changes from 8 days to 96 hours, the 96 hours begins upon discovery of HPCS or RCIC inoperability. However, total time for an inoperable channel cannot exceed 8 days. If the status of HPCS or RCIC changes such that the Completion Time changes from 96 hours to 8 days, the "time zero" for beginning the 8 day "clock" begins upon discovery of the inoperable channel. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, Condition H must be entered and its Required Action taken. The Required Actions do not allow placing the channel in trip since this action would not necessarily result in a safe state for the channel in all events.

BASES

ACTIONS (continued)

Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable RCIC System instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable RCIC System instrumentation channel.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.2-1 in the accompanying LCO. The applicable Condition referenced in the Table is Function dependent. Each time a channel is discovered to be inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic initiation capability for the RCIC System. In this case, automatic initiation capability is lost if two Function 1 channels in the same trip system are inoperable and untripped. In this situation (loss of automatic initiation capability), the 24 hour allowance of Required Action B.2 is not appropriate, and the RCIC System must be declared inoperable within 1 hour after discovery of loss of RCIC initiation capability.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action B.1, the Completion Time only begins upon discovery that the RCIC System cannot be automatically initiated due to two inoperable, untripped Reactor Vessel Water Level - Low Low, Level 2 channels in the same trip system. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

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ACTIONS (continued)

Because of the redundancy of sensors available to provide initiation signals and the fact that the RCIC System is not assumed in any accident or transient analysis, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 1) to permit restoration of any inoperable channel to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action B.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), Condition E must be entered and its Required Action taken.

C.1

A risk based analysis was performed and determined that an allowable out of service time of 24 hours (Ref. 1) is acceptable to permit restoration of any inoperable channel to OPERABLE status (Required Action C.1). A Required Action (similar to Required Action B.1), limiting the allowable out of service time if a loss of automatic RCIC initiation capability exists, is not required. This Condition applies to the Reactor Vessel Water Level - High, Level 8 Function, whose logic is arranged such that any inoperable channel will result in a loss of automatic RCIC initiation capability. As stated above, this loss of automatic RCIC initiation capability was analyzed and determined to be acceptable. This Condition also applies to the Manual Initiation Function. Since this Function is not assumed in any accident or transient analysis, a total loss of manual initiation capability (Required Action C.1) for 24 hours is allowed. The Required Action does not allow placing a channel in trip since this action would not necessarily result in the safe state for the channel in all events. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D.1, D.2.1, and D.2.2

Required Action D.1 is intended to ensure that appropriate actions are taken if multiple inoperable, untripped channels within the same Function result in automatic component initiation capability being lost for the feature(s). For Required Action D.1, the RCIC System is the only associated feature. In this case, automatic component initiation capability is lost if two Function 3 channels or two Function 4 channels are

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ACTIONS (continued)

inoperable and untripped. In this situation (loss of automatic suction swap), the 24 hour allowance of Required Actions D.2.1 and D.2.2 is not appropriate, and the RCIC System must be declared inoperable within 1 hour from discovery of loss of RCIC initiation capability. As noted, Required Action D.1 is only applicable if the RCIC pump suction is not aligned to the suppression pool since, if aligned, the Function is already performed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action D.1, the Completion Time only begins upon discovery that the RCIC System cannot be automatically aligned to the suppression pool due to two inoperable, untripped channels in the same Function. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the redundancy of sensors available to provide initiation signals and the fact that the RCIC System is not assumed in any accident or transient analysis, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 1) to permit restoration of any inoperable channel to OPERABLE status. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action D.2.1, which performs the intended function of the channel (shifting the suction source to the suppression pool). Alternatively, Required Action D.2.2 allows the manual alignment of the RCIC suction to the suppression pool **within 24 hours**, which also performs the intended function. If Required Action D.2.1 or D.2.2 is performed, measures should be taken to ensure that the RCIC System piping remains filled with water. If it is not desired to perform Required Actions D.2.1 and D.2.2 (e.g., as in the case where shifting the suction source could drain down the RCIC suction piping), Condition E must be entered and its Required Action taken.

E.1

With any Required Action and associated Completion Time not met, the RCIC System may be incapable of performing the intended function, and the RCIC System must be declared inoperable immediately.

BASES

ACTIONS (continued)

instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable primary containment isolation instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable primary containment isolation instrumentation channel.

A.1

Because of the diversity of sensors available to provide isolation signals and the redundancy of the isolation design, an allowable out of service time of 12 hours or 24 hours, depending on the Function, has been shown to be acceptable (Refs. 5 and 6) to permit restoration of any inoperable channel to OPERABLE status. This out of service time is only acceptable provided the associated Function is still maintaining isolation capability (refer to Required Action B.1 Bases). **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue with no further restrictions. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an isolation), Condition C must be entered and its Required Action taken.

B.1

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in redundant automatic isolation capability being lost for the associated penetration flow path(s). The MSL isolation Functions are considered to be maintaining isolation capability when sufficient channels are OPERABLE or in trip such that both trip systems will generate a trip signal from the given Function on a valid signal. The other isolation

BASES

ACTIONS (continued)

Functions are considered to be maintaining isolation capability when sufficient channels are OPERABLE or in trip such that one trip system will generate a trip signal from the given Function on a valid signal. This ensures that one of the two PCIVs in the associated penetration flow path can receive an isolation signal from the given Function. For Functions 1.a, 1.b, 1.d, 1.e, and 1.f, this would require both trip systems to have one channel OPERABLE or in trip. For Function 1.c, this would require both trip systems to have one channel, associated with each MSL, OPERABLE or in trip. For Functions 2.a, 2.b, 2.c, 2.d, 2.e, 2.f, 2.g, 3.d, 4.k, 5.c, 5.d, and 5.e, this would require one trip system to have two channels, each OPERABLE or in trip. For Functions 3.a, 3.b, 3.c, 3.e, 3.f, 3.g, 3.h, 3.i, 3.l, 3.m, 4.a, 4.b, 4.c, 4.d, 4.g, 4.h, 4.i, 4.j, and 4.l, this would require one trip system to have one channel OPERABLE or in trip. For Functions 3.j, 3.k, 4.e, 4.f, 5.a, and 5.b, each Function consists of channels that monitor several different locations. Therefore, this would require one channel per location to be OPERABLE or in trip (the channels are not required to be in the same trip system). The Condition does not include the Manual Initiation Functions (Functions 1.g, 2.h, 3.n, and 4.m), since they are not assumed in any accident or transient analysis. Thus, a total loss of manual initiation capability for 24 hours (as allowed by Required Action A.1) is allowed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

C.1

Required Action C.1 directs entry into the appropriate Condition referenced in Table 3.3.6.1-1. The applicable Condition specified in Table 3.3.6.1-1 is Function and MODE or other specified condition dependent and may change as the Required Action of a previous Condition is completed. Each time an inoperable channel has not met any Required Action of Condition A or B and the associated Completion Time has expired, Condition C will be entered for that channel and provides for transfer to the appropriate subsequent Condition.

BASES

ACTIONS

-----REVIEWER'S NOTE-----
 Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use the times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A Note has been provided to modify the ACTIONS related to RHR Containment Spray System instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable RHR Containment Spray System instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable RHR Containment Spray System instrumentation channel.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.6.3-1. The applicable Condition specified in the Table is Function dependent. Each time a channel is discovered inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Required Action B.1 is intended to ensure appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic initiation capability for the RHR Containment Spray System. Automatic initiation capability is lost if one Function 1 channel in both trip systems is inoperable and untripped, or one Function 3 channel in both trip systems is inoperable and untripped. In this situation (loss of automatic initiation capability), the 24 hour allowance of Required Action B.2 is not appropriate and the RHR Containment Spray System, made inoperable by RHR Containment Spray System instrumentation, must be declared inoperable within 1 hour after discovery of loss of RHR Containment Spray System initiation capability for both trip systems.

BASES

ACTIONS (continued)

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action B.1, the Completion Time only begins upon discovery that the RHR Containment Spray System cannot be automatically initiated due to inoperable, untripped channels within the same Function, as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the redundancy of sensors available to provide initiation signals, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 3) to permit restoration of any inoperable channel to OPERABLE status. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition, per Required Action B.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore the capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), Condition D must be entered and its Required Action taken.

C.1 and C.2

Required Action C.1 is intended to ensure appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in automatic initiation capability being lost for the RHR Containment Spray System. Automatic initiation capability is lost if two Function 2 channels or two Function 4 channels are inoperable. In this situation (loss of automatic initiation capability), the 24 hour allowance of Required Action C.2 is not appropriate and the associated RHR Containment Spray System must be declared inoperable within 1 hour after discovery of loss of RHR Containment Spray System initiation capability for both trip systems. As noted, Required Action C.1 is only applicable for Functions 2 and 4. The Required Action is not applicable to Function 5 (which also requires entry into this Condition if a channel in this Function is inoperable) since it is the Manual Initiation Function and is not assumed in any FSAR accident or transient analysis. Thus, a total loss of manual initiation capability for 24 hours (as allowed by Required Action C.2) is allowed.

BASES

ACTIONS (continued)

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action C.1, the Completion Time only begins upon discovery that the RHR Containment Spray System cannot be automatically initiated due to two inoperable channels within the same Function. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration of channels.

Because of the redundancy of sensors available to provide initiation signals, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 3) to permit restoration of any inoperable channel to OPERABLE status. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, Condition D must be entered and its Required Action taken. The Required Actions do not allow placing the channel in trip since this action could either cause the initiation or it would not necessarily result in a safe state for the channel in all events.

D.1

With any Required Action and associated Completion Time not met, the associated RHR containment spray subsystem may be incapable of performing the intended function and the RHR containment spray subsystem associated with inoperable untripped channels must be declared inoperable immediately.

SURVEILLANCE
REQUIREMENTS

-----REVIEWER'S NOTE-----
Certain Frequencies are based on approved topical reports. In order for a licensee to use these Frequencies, the licensee must justify the Frequencies as required by the staff SER for the topical report.

As noted at the beginning of the SRs, the SRs for each RHR Containment Spray System Function are located in the SRs column of Table 3.3.6.3-1.

The Surveillances are also modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains RHR containment spray initiation capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the

BASES

ACTIONS (continued)

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.6.4-1. The applicable Condition specified in the Table is Function dependent. Each time a channel is discovered inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Required Action B.1 is intended to ensure appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic initiation capability for the SPMU System. In this case, automatic initiation capability is lost if (a) one Function 1 channel in both trip systems is inoperable and untripped, (b) one Function 2 channel in both trip systems is inoperable and untripped, (c) one Function 4 channel in both trip systems is inoperable and untripped, or (d) one Function 5 channel in both trip systems is inoperable and untripped. In this situation (loss of automatic initiation capability), the 24 hour allowance of Required Action B.2 is not appropriate and the SPMU System must be declared inoperable within 1 hour after discovery of loss of SPMU initiation capability for both trip systems.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action B.1, the Completion Time only begins upon discovery that the SPMU System cannot be automatically initiated due to inoperable, untripped channels within the same Function as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the redundancy of sensors available to provide initiation signals, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 3) to permit restoration of any inoperable channel to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action B.2. Placing the inoperable channel in trip would conservatively compensate for the

BASES

ACTIONS (continued)

inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), Condition D must be entered and its Required Action taken.

C.1 and C.2

Required Action C.1 is intended to ensure appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic initiation capability for the SPMU System. In this case, automatic initiation capability is lost if two Function 3 channels or two Function 6 channels are inoperable. In this situation (loss of automatic initiation capability), the 24 hour allowance of Required Action C.2 is not appropriate and the SPMU System must be declared inoperable within 1 hour after discovery of loss of SPMU initiation capability for both trip systems. As noted, Required Action C.1 is only applicable for Functions 3 and 6. Required Action C.1 is not applicable to Function 7 (which also requires entry into this Condition if a channel in this Function is inoperable), since it is the Manual Initiation Function and is not assumed in any FSAR accident or transient analysis. Thus, a total loss of manual initiation capability for 24 hours (as allowed by Required Action C.2) is allowed.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action C.1, the Completion Time only begins upon discovery that the SPMU System cannot be automatically initiated due to two inoperable channels within the same Function. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration of channels.

Because of the redundancy of sensors available to provide initiation signals, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 3) to permit restoration of any inoperable channel to OPERABLE status. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]** If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, Condition D must be entered and its Required Action taken. The Required Actions do not allow placing the channel in trip since this action could either cause the initiation or it would not necessarily result in a safe state for the channel in all events.

The bracketed phrase in Condition C is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

CB.1 and CB.2

If the inoperable trip system is not restored to OPERABLE status within 7 days, [per Condition -A , or if two trip systems are inoperable,] then 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 12 hours and to MODE 4 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

-----REVIEWER'S NOTE-----
Certain Frequencies are based on approved topical reports. In order for a licensee to use these Frequencies, the licensee must justify the Frequencies as required by the staff SER for the topical report.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains relief or LLS initiation capability, as applicable. Upon completion of the

BASES

SURVEILLANCE REQUIREMENTS (continued)

Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 3) assumption of the average time required to perform channel surveillance. That analysis demonstrated the 6 hour testing allowance does not significantly reduce the probability that the relief and LLS valves will initiate when necessary.

SR 3.3.6.5.1

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 3.

SR 3.3.6.5.2

The calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in SR 3.3.6.5.3. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 3.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.5.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

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

SR 3.3.6.5.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed for S/RVs in LCO 3.4.4 and LCO 3.6.1.6 overlaps this Surveillance to provide complete testing of the assumed safety function. 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 at the 18 month Frequency.

REFERENCES

1. FSAR, Section [5.2.2].
 2. FSAR, Appendix 5A.
 3. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
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BASES

ACTIONS

A Note has been provided to modify the ACTIONS related to LOP instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable LOP instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable LOP instrumentation channel.

A.1

With one or more channels of a Function inoperable, the Function may not be capable of performing the intended function. Therefore, only 1 hour is allowed to restore the inoperable channel to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition B must be entered and its Required Action taken.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

B.1

If any Required Action and associated Completion Time is not met, the associated Function may not be capable of performing the intended function. Therefore, the associated DG(s) are declared inoperable immediately. This requires entry into applicable Conditions and Required Actions of LCO 3.8.1 and LCO 3.8.2, which provide appropriate actions for the inoperable DG(s).

BASES

APPLICABILITY In MODES 1, 2, and 3, the specified number of S/RVs must be OPERABLE since there may be considerable energy in the reactor core and the limiting design basis transients are assumed to occur. The S/RVs may be required to provide pressure relief to discharge energy from the core until such time that the Residual Heat Removal (RHR) System is capable of dissipating the heat.

In MODE 4, decay heat is low enough for the RHR System to provide adequate cooling, and reactor pressure is low enough that the overpressure limit is unlikely to be approached by assumed operational transients or accidents. In MODE 5, the reactor vessel head is unbolted or removed and the reactor is at atmospheric pressure. The S/RV function is not needed during these conditions.

ACTIONS

A.1

With the safety function of one [required] S/RV inoperable, the remaining OPERABLE S/RVs are capable of providing the necessary overpressure protection. Because of additional design margin, the ASME Code limits for the RCPB can also be satisfied with two S/RVs inoperable. However, the overall reliability of the pressure relief system is reduced because additional failures in the remaining OPERABLE S/RVs could result in failure to adequately relieve pressure during a limiting event. For this reason, continued operation is permitted for a limited time only.

The 14 day Completion Time to restore the inoperable required S/RVs to OPERABLE status is based on the relief capability of the remaining S/RVs, the low probability of an event requiring S/RV actuation, and a reasonable time to complete the Required Action. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[B.1]

With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure. The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration. Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more [required] S/RVs are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [required] S/RV is inoperable for any reason and additional [required] S/RVs are found to be inoperable, or if two or more [required] S/RVs are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----
The bracketed phrases in Condition C are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

CB.1 and CB.2

[With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure.] [If the inoperable required S/RV(s) cannot be restored to OPERABLE status within the associated Completion Time of Required Action -A.1 [or B.1] or if [two] or more [required] S/RVs are inoperable], 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 12 hours and to MODE 4 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.

BASES

APPLICABILITY All ECCS subsystems are required to be OPERABLE during MODES 1, 2, and 3 when there is considerable energy in the reactor core and core cooling would be required to prevent fuel damage in the event of a break in the primary system piping. In MODES 2 and 3, the ADS function is not required when pressure is ≤ 150 psig because the low pressure ECCS subsystems (LPCS and LPCI) are capable of providing flow into the RPV below this pressure. ECCS requirements for MODES 4 and 5 are specified in LCO 3.5.2, "ECCS - Shutdown."

ACTIONS A Note prohibits the application of LCO 3.0.4.b to an inoperable HPCS subsystem. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable HPCS subsystem and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

If any one low pressure ECCS injection/spray subsystem is inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining OPERABLE subsystems provide adequate core cooling during a LOCA. However, overall ECCS reliability is reduced because a single failure in one of the remaining OPERABLE subsystems concurrent with a LOCA may result in the ECCS not being able to perform its intended safety function. The 7 day Completion Time is based on a reliability study (Ref. 12) that evaluated the impact on ECCS availability by assuming that various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowed outage times (i.e., Completion Times).

B.1 and B.2

If the HPCS System is inoperable, and the RCIC System is verified to be OPERABLE (when RCIC is required to be OPERABLE), the HPCS System must be restored to OPERABLE status within 14 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, adequate core cooling is ensured by the OPERABILITY of the redundant and diverse low pressure ECCS injection/spray subsystems in conjunction with the ADS. Also, the RCIC System will automatically provide makeup water at most reactor operating pressures. Verification of RCIC OPERABILITY immediately is therefore required when HPCS is

BASES

ACTIONS (continued)

inoperable. This may be performed by an administrative check, by examining logs or other information to determine if RCIC is out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the RCIC System. However, if the OPERABILITY of the RCIC System cannot be verified and RCIC is required to be OPERABLE, Condition D must be immediately entered. If a single active component fails concurrent with a design basis LOCA, there is a potential, depending on the specific failure, that the minimum required ECCS equipment will not be available. A 14 day Completion Time is based on the results of a reliability study (Ref. 12) and has been found to be acceptable through operating experience.

C.1

With two ECCS injection subsystems inoperable or one ECCS injection and one ECCS spray subsystem inoperable, at least one ECCS injection/spray subsystem must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining OPERABLE subsystems provide adequate core cooling during a LOCA. However, overall ECCS reliability is reduced in this Condition because a single failure in one of the remaining OPERABLE subsystems concurrent with a design basis LOCA may result in the ECCS not being able to perform its intended safety function. Since the ECCS availability is reduced relative to Condition A, a more restrictive Completion Time is imposed. The 72 hour Completion Time is based on a reliability study, as provided in Reference 12.

D.1 and D.2

If any Required Action and associated Completion Time of Condition A, B, or C 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 12 hours and to MODE 4 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.

BASES

ACTIONS (continued)

E.1

The LCO requires eight ADS valves to be OPERABLE to provide the ADS function. Reference 13 contains the results of an analysis that evaluated the effect of one ADS valve being out of service. Per this analysis, operation of only seven ADS valves will provide the required depressurization. However, overall reliability of the ADS is reduced because a single failure in the OPERABLE ADS valves could result in a reduction in depressurization capability. Therefore, operation is only allowed for a limited time. The 14 day Completion Time is based on a reliability study (Ref. 12) and has been found to be acceptable through operating experience. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

F.1 and F.2

If any one low pressure ECCS injection/spray subsystem is inoperable in addition to one inoperable ADS valve, adequate core cooling is ensured by the OPERABILITY of HPCS and the remaining low pressure ECCS injection/spray subsystems. However, the overall ECCS reliability is reduced because a single active component failure concurrent with a design basis LOCA could result in the minimum required ECCS equipment not being available. Since both a high pressure (ADS) and low pressure subsystem are inoperable, a more restrictive Completion Time of 72 hours is required to restore either the low pressure ECCS injection/spray subsystem or the ADS valve to OPERABLE status. This Completion Time is based on a reliability study (Ref. 12) and has been found to be acceptable through operating experience. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

----- REVIEWER'S NOTE -----

Condition G is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[G.1

If two or more ADS valves are inoperable, the Required Action is to restore sufficient required inoperable ADS valves to OPERABLE status within 1 hour to regain the ADS safety function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient ADS valves. Alternately, a Completion Time can

be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when two or more ADS valves are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one ADS valve is inoperable for any reason and additional ADS valves are found to be inoperable, or if two or more ADS valves are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----
The bracketed portions of Condition H are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

HG.1 and HG.2

If any Required Action and associated Completion Time of Condition -E, [F or -GF] are not met [or if two or more ADS valves are inoperable], the plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to ≤ 150 psig 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.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Conditions I, J, K, and L are only applicable to plants that have adopted a Risk Informed Completion Time Program.

[I.1, J.1, K.1, and L.1

When multiple ECCS subsystems are inoperable, as stated in Condition I, J, K, or L, the plant is in a condition outside of the accident analyses. The Required Action is to restore sufficient required ECCS subsystems to OPERABLE status within 1 hour to regain sufficient ECCS capability. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

Condition I is modified by a Note stating it is not applicable when HPCS and LPCS are intentionally made inoperable when the other system is inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if HPCS is inoperable for any reason and LPCS is found to be inoperable, or if LPCS is inoperable for any reason and HPCS is found to be inoperable, or if HPCS and LPCS are found to be inoperable at the same time.

Condition J is modified by a Note stating it is not applicable when three or more ECCS injection/spray subsystems are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if two ECCS injection/spray subsystems are inoperable for any reason and additional ECCS injection/spray subsystems are found to be inoperable, or if three or more ECCS injection/spray subsystems are found to be inoperable at the same time.

Condition K is modified by a Note stating it is not applicable when HPCS and one or more ADS valves are intentionally made inoperable when the other system is inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if HPCS is inoperable for any reason and one or more ADS valves are found to be inoperable, or if one or more ADS valves are inoperable for any reason and HPCS is found to be inoperable, or if HPCS and one or more ADS valves are found to be inoperable at the same time.

Condition L is modified by a Note stating it is not applicable when two or more ECCS injection/spray subsystems and one or more ADS valves are intentionally made inoperable when the other system is inoperable. This Required Action is not intended for voluntary removal of redundant

systems or components from service. The Required Action is only applicable two or more ECCS injection/spray subsystems are inoperable for any reason and one or more ADS valves are found to be inoperable, or if one or more ADS valves are inoperable for any reason and two or more ECCS injection/spray subsystems are found to be inoperable, or if two or more ECCS injection/spray subsystems and one or more ADS valves are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----

The first bracketed condition in Condition M and the first bracketed sentence of the Required Action M.1 Bases are only applicable to plants that have adopted a Risk Informed Completion Time Program. The remaining conditions in Condition M and the second bracketed sentence in the Required Action M.1 Bases are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

MH.1

[If any Required Action and associated Completion Time of Condition I, J, K, or L is not met,] [When multiple ECCS subsystems are inoperable, as stated in Condition HM, the plant is in a condition outside of the accident analyses. Therefore,] LCO 3.0.3 must be entered immediately.

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge lines of the HPCS System, LPCS System, and LPCI subsystems full of water ensures that the systems will perform properly, injecting their full capacity into the RCS upon demand. This will also prevent a water hammer following an ECCS initiation signal. One acceptable method of ensuring the lines are full is to vent at the high points. The 31 day Frequency is based on operating experience, on the procedural controls governing system operation, and on the gradual nature of void buildup in the ECCS piping.

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves potentially capable of being mispositioned are in the correct position.

BASES

APPLICABLE SAFETY ANALYSES	The function of the RCIC System is to respond to transient events by providing makeup coolant to the reactor. The RCIC System is not an Engineered Safety Feature System and no credit is taken in the safety analyses for RCIC System operation. The RCIC System satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).
LCO	The OPERABILITY of the RCIC System provides adequate core cooling such that actuation of any of the ECCS subsystems is not required in the event of RPV isolation accompanied by a loss of feedwater flow. The RCIC System has sufficient capacity to maintain RPV inventory during an isolation event.
APPLICABILITY	The RCIC System is required to be OPERABLE in MODE 1, and MODES 2 and 3 with reactor steam dome pressure > 150 psig since RCIC is the primary non-ECCS water source for core cooling when the reactor is isolated and pressurized. In MODES 2 and 3 with reactor steam dome pressure ≤ 150 psig, and in MODES 4 and 5, RCIC is not required to be OPERABLE since the ECCS injection/spray subsystems can provide sufficient flow to the vessel.
ACTIONS	A Note prohibits the application of LCO 3.0.4.b to an inoperable RCIC System. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable RCIC System and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1 and A.2

If the RCIC System is inoperable during MODE 1, or MODES 2 or 3 with reactor steam dome pressure > 150 psig, and the HPCS System is verified to be OPERABLE, the RCIC System must be restored to OPERABLE status within 14 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, loss of the RCIC System will not affect the overall plant capability to provide makeup inventory at high RPV pressure since the HPCS System is the only high pressure system assumed to function during a loss of coolant accident (LOCA). OPERABILITY of the HPCS is therefore verified immediately when the RCIC System is inoperable. This may be performed as an administrative check, by examining logs or other information, to determine if the HPCS is out of service for maintenance or other reasons. Verification does not require performing the Surveillances needed to demonstrate the OPERABILITY of the HPCS System. If the OPERABILITY of the HPCS System cannot be verified, however,

BASES

ACTIONS (continued)

Condition B must be immediately entered. For transients and certain abnormal events with no LOCA, RCIC (as opposed to HPCS) is the preferred source of makeup coolant because of its relatively small capacity, which allows easier control of RPV water level. Therefore, a limited time is allowed to restore the inoperable RCIC to OPERABLE status.

The 14 day Completion Time is based on a reliability study (Ref. 3) that evaluated the impact on ECCS availability, assuming that various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowed outage times (AOTs). Because of the similar functions of the HPCS and RCIC, the AOTs (i.e., Completion Times) determined for the HPCS are also applied to RCIC.

B.1 and B.2

If the RCIC System cannot be restored to OPERABLE status within the associated Completion Time, or if the HPCS System is simultaneously inoperable, the plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to ≤ 150 psig 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 3.5.3.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge line of the RCIC System full of water ensures that the system will perform properly, injecting its full capacity into the Reactor Coolant System upon demand. This will also prevent a water hammer following an initiation signal. One acceptable method of ensuring the line is full is to vent at the high points. The 31 day Frequency is based on the gradual nature of void buildup in the RCIC piping, the procedural controls governing system operation, and operating experience.

BASES

ACTIONS (continued)

B.1, B.2, and B.3

With an air lock interlock mechanism inoperable in one or both primary containment air locks, the Required Actions and associated Completion Times are consistent with those specified in Condition A.

The Required Actions have been modified by two Notes. Note 1 ensures that only the Required Actions and associated Completion Times of Condition C are required if both doors in one air lock are inoperable. With both doors in the air lock inoperable, an OPERABLE door is not available to be closed. Required Actions C.1 and C.2 are the appropriate remedial actions. Note 2 allows entry into and exit from the primary containment under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs the function of the interlock).

Required Action B.3 is modified by a Note that applies to air lock doors located in high radiation areas and allows these doors to be verified locked 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 of the door, once it has been verified to be in the proper position, is small.

C.1, C.2, and C.3

With one or more air locks inoperable for reasons other than those described in Condition A or B, Required Action C.1 requires action to be immediately initiated to evaluate containment overall leakage rates using current air lock leakage test results. An evaluation is acceptable since it is overly conservative to immediately declare the primary containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed) primary containment remains OPERABLE, yet only 1 hour (according to LCO 3.6.1.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Required Action C.2 requires that one door in the affected primary containment air locks must be verified closed. This Required Action must be completed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.1.1, which require that primary containment be restored to OPERABLE status within 1 hour.

BASES

ACTIONS (continued)

Additionally, the air lock must be restored to OPERABLE status within 24 hours [or in accordance with the Risk Informed Completion Time Program]. The 24 hour Completion Time is reasonable for restoring an inoperable air lock to OPERABLE status considering that at least one door is maintained closed in each affected air lock.

D.1 and D.2

If the inoperable primary containment air lock cannot be restored to OPERABLE status within the associated 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 12 hours and to MODE 4 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 3.6.1.2.1

Maintaining primary containment air locks OPERABLE requires compliance with the leakage rate test requirements of the Primary Containment Leakage Rate Testing Program. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established [during initial air lock and primary containment OPERABILITY testing]. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall primary containment leakage rate. The Frequency is required by the Primary Containment Leakage Rate Testing Program.

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR, requiring the results to be evaluated against the acceptance criteria which is applicable to SR 3.6.1.1.1. This ensures that air lock leakage is properly accounted for in determining the combined Type B and C primary containment leakage rate.

BASES

LCO	<p>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.</p> <p>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).</p> <p>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 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.</p> <p>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.</p>
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APPLICABILITY	<p>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 are required to be OPERABLE, however, to prevent inadvertent reactor vessel draindown and release of radioactive material during a postulated fuel handling accident [involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)]. These valves are those whose associated instrumentation is required to be OPERABLE according to LCO 3.3.6.1, "Primary Containment Isolation Instrumentation." (This does not include the valves that isolate the associated instrumentation.)</p>
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----- REVIEWER'S NOTE -----

The bracketed phrase "following isolation" in the Completion Times for Required Actions A.2, C.2, E.2, and E.3 is only applicable to plants that have adopted a Risk Informed Completion Time Program.

ACTIONS	<p>The ACTIONS are modified by a Note allowing penetration flow path(s) [except for the [] inch primary containment purge valve flow path(s)] to</p>
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be unisolated intermittently under administrative controls. [The primary containment purge valve exception applies to primary containment purge valves that are not qualified to close under accident conditions.] These controls consist of stationing a dedicated operator at the controls of the

BASES

ACTIONS (continued)

valve, who is in continuous 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 containment purge line penetration and the fact that those penetrations exhaust directly from the primary 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 the exception to SR 3.6.1.3.1 and Note 2 to SR 3.6.1.3.2.

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 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 secondary containment bypass leakage rate, MSIV leakage rate, purge valve leakage rate, or hydrostatically tested line leakage rate 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

BASES

ACTIONS (continued)

Action must be completed within the 4 hour Completion Time (8 hours for main steam lines) [or in accordance with the Risk Informed Completion Time Program]. 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] 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.

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 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 [following isolation] 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 [or more] PCIVs. For penetration flow paths with one PCIV, Condition C provides appropriate Required Actions.

Required Action A.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by

BASES

ACTIONS (continued)

administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. 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 [or more] PCIVs inoperable, [except for secondary containment bypass leakage rate, MSIV leakage rate, purge valve leakage rate, or hydrostatically tested line leakage rate not within limit], either the inoperable PCIVs must be restored to OPERABLE status or the affected penetration flow path must be isolated within 1 hour [or in accordance with the Risk Informed Completion Time Program]. 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.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two [or more] 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, [except for secondary containment bypass leakage rate, MSIV leakage rate, purge valve leakage rate, or hydrostatically tested line leakage rate not within limit], 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.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----

The [4] hour Completion Time is left as 4 hours consistent with the Completion Time of Required Action A.1 for most penetrations; or a plant specific evaluation is provided for NRC review for cases other than for closed system penetrations and EFCVs (which have been reviewed and approved for 72 hours). If all penetrations are accepted for 72 hours, the Completion Time is simplified to state 72 hours.

The Completion Time 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 72 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The closed system must meet the requirements of Ref. 5. 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 [following isolation] 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 specifically to address those penetrations with a single PCIV.

Required Action C.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of

misalignment of these valves, once they have been verified to be in the proper position, is low.

BASES

ACTIONS (continued)

[D.1

With the [secondary containment bypass leakage rate (SR 3.6.1.3.9), MSIV leakage rate (SR 3.6.1.3.10), [purge valve leakage rate (SR 3.6.1.3.6),] [or] [hydrostatically tested line leakage rate (SR 3.6.1.3.11)], not within limit, the assumptions of the safety analysis are not met. Therefore, the leakage must be restored to within limit. 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 for hydrostatically tested line leakage [not on a closed system] and for secondary containment bypass leakage 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. For MSIV leakage, an 8 hour Completion Time is allowed. The Completion Time of 8 hours for MSIV leakage 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 potential for plant shutdown. [The 24 hour Completion Time for purge valve leakage is acceptable considering the purge valves remain closed so that a gross breach of the containment does not exist.] [The 72 hour Completion Time for hydrostatically tested line leakage [on a closed system] is acceptable based on the available water seal expected to remain as a gaseous fission product boundary during the accident [, and, in many cases, an associated closed system]. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

-----REVIEWER'S NOTE-----
The bracketed options provided in ACTION D reflect options in plant design and options in adopting the associated leakage rate Surveillances.

The options (both in ACTION D and ACTION E) for purge valve leakage, are based primarily on the design. If leakage rates can be measured separately for each purge valve, ACTION E is intended to apply. This would be required to be able to implement Required Action E.3. Should the design allow only for leak testing both purge valves simultaneously, then the Completion Time for ACTION D should include the "24 hours for purge valve leakage" and ACTION E should be eliminated.

BASES

ACTIONS (continued)

Adopting Completion Times for secondary containment bypass and/or hydrostatically tested lines is based on whether the associated SRs are adopted.

The additional bracketed options for whether the hydrostatically tested line is with or without a closed system is predicated on plant-specific design. If the design is such that there are not both types of hydrostatically tested lines (some with and some without closed systems), the specific 'closed system' wording can be removed and the appropriate 4 or 72 hour Completion Time retained. In the event there are both types, the clarifying wording remains and the brackets are removed.]

[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 3.6.1.3.6. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

In accordance with Required Action E.2, this penetration flow path [following isolation] 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.

BASES

ACTIONS (continued)

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 [following isolation]. 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.

Required Action E.2 is modified by two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned.]

F.1 and F.2

If any Required Action and associated Completion Time cannot be met in MODE 1, 2, or 3, 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 12 hours and to MODE 4 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.

[G.1, H.1, and H.2

If any Required Action and associated Completion Time cannot be met, the plant must be placed in a condition in which the LCO does not apply. If applicable, movement of [recently] irradiated fuel assemblies must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe condition. Also, if applicable, action must be immediately initiated to suspend operations with a potential for draining the reactor vessel (OPDRVs) to minimize the probability of a vessel draindown and subsequent potential for fission

BASES

ACTIONS (continued)

product release. Actions must continue until OPDRVs are suspended. If suspending the OPDRVs would result in closing the residual heat removal (RHR) shutdown cooling isolation valves, an alternative Required Action is provided to immediately initiate action to restore the valves to OPERABLE status. This allows RHR to remain in service while actions are being taken to restore the valve.]

SURVEILLANCE
REQUIREMENTS[SR 3.6.1.3.1

Each [] inch primary containment purge valve is required to be verified sealed closed at 31 day intervals. This SR is intended to apply to primary containment purge valves that are not fully qualified to open under accident conditions. This SR is designed to ensure that a gross breach of primary containment is not caused by an inadvertent or spurious opening of a primary 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. Primary containment purge valves that are sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leak tightness. The 31 day Frequency is a result of an NRC initiative, Generic Issue B-24, (Ref. 6) related to primary containment purge valve use during unit operations.

This SR allows a valve that is open under administrative controls to not meet the SR during the time the valve is open. Opening a purge valve under administrative controls is restricted to one valve in a penetration flow path at a given time (refer to discussion for Note 1 of the ACTIONS) in order to effect repairs to that valve. This allows one purge valve to be opened without resulting in a failure of the Surveillance and resultant entry into the ACTIONS for this purge valve, provided the stated restrictions are met. Condition E must be entered during this allowance, and the valve opened only as necessary for effecting repairs. Each purge valve in the penetration flow path may be alternately opened, provided one remains sealed closed, if necessary, to complete repairs on the penetration.

BASES

LCO During a DBA, a minimum of one RHR suppression pool cooling subsystem is required to maintain the primary containment peak pressure and temperature below the design limits (Ref. 1). To ensure that these requirements are met, two RHR suppression pool cooling subsystems must be OPERABLE with power from two safety related independent power supplies. Therefore, in the event of an accident, at least one subsystem is OPERABLE, assuming the worst case single active failure. An RHR suppression pool cooling subsystem is OPERABLE when the pump, two heat exchangers, and associated piping, valves, instrumentation, and controls are OPERABLE.

APPLICABILITY In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment and cause a heatup and pressurization of 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 RHR Suppression Pool Cooling System is not required to be OPERABLE in MODE 4 or 5.

ACTIONS

A.1

With one RHR suppression pool cooling subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining RHR suppression pool cooling subsystem is adequate to perform the primary containment cooling function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced primary containment cooling capability. The 7 day Completion Time is acceptable in light of the redundant RHR suppression pool cooling capabilities afforded by the OPERABLE subsystem and the low probability of a DBA occurring during this period.

B.1

With two RHR suppression pool cooling subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours. In this condition, there is a substantial loss of the primary containment pressure and temperature mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and the potential avoidance of a plant shutdown transient that could result in the need for the RHR suppression pool cooling subsystems to operate. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

LCO (continued)

failure. The SPMU System is OPERABLE when the upper containment pool water temperature is $\leq [125]^{\circ}\text{F}$, the water level is $\geq [23 \text{ ft } 3 \text{ inches}]$, gates are in the stored condition, the piping is intact, and the system valves are OPERABLE. The above temperature and water level conditions correspond to an SPMU System available dump volume of $\geq [36,380] \text{ ft}^3$.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause heatup and pressurization of 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, maintaining the SPMU System OPERABLE is not required in MODE 4 or 5.

ACTIONS

A.1

When upper containment pool water level is $< [23 \text{ ft } 3 \text{ inches}]$, the volume is inadequate to ensure that the suppression pool heat sink capability matches the safety analysis assumptions. A sufficient quantity of water is necessary to ensure long term energy sink capabilities of the suppression pool and maintain water coverage over the uppermost drywell vents. Loss of water volume has a relatively large impact on heat sink capability. Therefore, the upper containment pool water level must be restored to within limit within 4 hours [or in accordance with the Risk Informed Completion Time Program]. The 4 hour Completion Time is sufficient to provide makeup water to the upper containment pool to restore level within specified limit. Also, it takes into account the low probability of an event occurring that would require the SPMU System.

B.1

When upper containment pool water temperature is $> [125]^{\circ}\text{F}$, the heat absorption capacity is inadequate to ensure that the suppression pool heat sink capability matches the safety analysis assumptions. Increased temperature has a relatively smaller impact on heat sink capability. Therefore, the upper containment pool water temperature must be restored to within limit within 24 hours [or in accordance with the Risk Informed Completion Time Program]. The 24 hour Completion Time is sufficient to restore the upper containment pool to within the specified temperature limit. It also takes into account the low probability of an event occurring that would require the SPMU System.

BASES

ACTIONS (continued)

C.1

With one SPMU subsystem inoperable for reasons other than Condition A or B, the inoperable subsystem must be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The 7 day Completion Time is acceptable in light of the redundant SPMU System capabilities afforded by the OPERABLE subsystem and the low probability of a DBA occurring during this period.

----- REVIEWER'S NOTE -----

Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

D.1

With two SPMU subsystems inoperable, the Required Action is to restore at least one SPMU subsystem to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one subsystem. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second SPMU subsystem is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one SPMU subsystem is inoperable for any reason and a second SPMU subsystem is found to be inoperable, or if two SPMU subsystems are found to be inoperable at the same time.]

ED.1 and ED.2

If any Required Action and required Completion Time 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 12 hours and to MODE 4 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
REQUIREMENTSSR 3.6.2.4.1

BASES

ACTIONS

A.1

With one hydrogen ignitor division inoperable, the inoperable division must be restored to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE hydrogen ignitor division is adequate to perform the hydrogen burn function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced hydrogen control capability. The 30 day Completion Time is based on the low probability of the occurrence of a degraded core event that would generate hydrogen in amounts equivalent to a metal water reaction of 75% of the core cladding, the amount of time available after the event for operator action to prevent hydrogen accumulation from exceeding the flammability limit, and the low probability of failure of the OPERABLE hydrogen ignitor division.

B.1 and B.2

With two primary containment and drywell ignitor divisions inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist. The verification may be performed as an administrative check by examining logs or other information to determine the availability of the alternate hydrogen control capabilities. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of the alternate hydrogen control capabilities. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two ignitor divisions inoperable for up to 7 days [or in accordance with the Risk Informed Completion Time Program]. Seven days is a reasonable time to allow two ignitor divisions to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit.

C.1

If any Required Action and required Completion Time 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 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

BASES

APPLICABILITY (continued)

In MODES 4 and 5, the probability and consequences of a LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, the [Drywell Purge System] is not required in these MODES.

ACTIONS

A.1

With one [drywell purge] subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE subsystem is adequate to perform the drywell purge function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced drywell purge capability. The 30 day Completion Time is based on the availability of the second subsystem, the low probability of a LOCA that would generate hydrogen in amounts capable of exceeding the flammability limit, and the amount of time available after the event for operator action to prevent hydrogen accumulation from exceeding this limit.

B.1 and B.2

-----REVIEWER'S NOTE-----
This Condition is only allowed for units with an alternate hydrogen control system acceptable to the technical staff.

With two [drywell purge] subsystems inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The alternate hydrogen control capabilities are provided by [one division of the hydrogen ignitors]. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist.

-----REVIEWER'S NOTE-----
The following is to be used if a non-Technical Specification alternate hydrogen control function is used to justify this Condition: In addition, the alternate hydrogen control system capability must be verified once per 12 hours thereafter to ensure its continued availability.

BASES

ACTIONS (continued)

[Both] the [initial] verification may [and all subsequent verifications] may be performed as an administrative check by examining logs or other information to determine the availability of the alternate hydrogen control system. It does not mean to perform the surveillances needed to demonstrate OPERABILITY of the alternate hydrogen control system. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two [drywell purge] subsystems inoperable for up to 7 days [or in accordance with the Risk Informed Completion Time Program]. Seven days is a reasonable time to allow two [drywell purge] subsystems to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in amounts capable of exceeding the flammability limit.

C.1

If any Required Action and the required Completion Time 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 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTSSR 3.6.3.2.1

Operating each [drywell purge] subsystem for ≥ 15 minutes ensures that each subsystem is OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, compressor failure, or excessive vibration can be detected for corrective action. The 92 day Frequency is consistent with Inservice Testing Program Frequencies, operating experience, the known reliability of the compressor and controls, and the two redundant subsystems available.

[SR 3.6.3.2.2]

Verifying that each [drywell purge] subsystem flow rate is $\geq [500]$ scfm ensures that each subsystem is capable of maintaining drywell hydrogen concentrations below the flammability limit. 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 that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore,

BASES

APPLICABLE
SAFETY
ANALYSES

Analytical methods and assumptions involving the drywell are presented in Reference 1. The safety analyses assume that for a high energy line break inside the drywell, the steam is directed to the suppression pool through the horizontal vents where it is condensed. Maintaining the pressure suppression capability assures that safety analyses remain valid and that the peak LOCA temperature and pressure in the primary containment are within design limits.

The drywell satisfies Criteria 2 and 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Maintaining the drywell OPERABLE is required to ensure that the pressure suppression design functions assumed in the safety analyses are met. The drywell is OPERABLE if the drywell structural integrity is intact and the bypass leakage is within limits, except prior to the first startup after performing a required drywell bypass leakage test. At this time, the drywell bypass leakage must be \leq [10%] of the drywell bypass leakage limit.

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 of these MODES. Therefore, the drywell is not required to be OPERABLE in MODES 4 and 5.

ACTIONS

A.1

In the event the drywell is inoperable, it must be restored to OPERABLE status within 1 hour [or in accordance with the Risk Informed Completion Time Program]. The 1 hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining the drywell OPERABLE during MODES 1, 2, and 3. This time period also ensures that the probability of an accident (requiring drywell OPERABILITY) occurring during periods when the drywell is inoperable is minimal. Also, the Completion Time is the same as that applied to inoperability of the primary containment in LCO 3.6.1.1, "Primary Containment."

B.1 and B.2

If the drywell cannot be restored to OPERABLE status 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 12 hours and to MODE 4 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.

BASES

ACTIONS (continued)

B.1, B.2, and B.3

With the drywell air lock interlock mechanism inoperable, the Required Actions and associated Completion Times consistent with Condition A are applicable.

The Required Actions are modified by two Notes. Note 1 ensures only the Required Actions and associated Completion Times of Condition C are required if both doors in the air lock are inoperable. Note 2 allows entry and exit into the drywell under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs the function of the interlock).

C.1, C.2, and C.3

With the air lock inoperable for reasons other than those described in Condition A or B, Required Action C.1 requires action to be immediately initiated to evaluate drywell bypass leakage using current air lock test results. An evaluation is acceptable, since it is overly conservative to immediately declare the drywell inoperable if both doors in an air lock have failed a seal test or the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), drywell remains OPERABLE, yet only 1 hour (per LCO 3.6.5.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall drywell leakage rate can still be within limits.

Required Action C.2 requires that one door in the drywell air lock must be verified to be closed. This Required Action must be completed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.5.1, which requires that the drywell be restored to OPERABLE status within 1 hour.

Additionally, the air lock must be restored to OPERABLE status within 24 hours [or in accordance with the Risk Informed Completion Time Program]. The 24 hour Completion Time is reasonable for restoring an inoperable air lock to OPERABLE status, considering that at least one door is maintained closed in the air lock.

BASES

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.

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] ft² 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.

[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

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 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 two Notes. Note 1 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. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. 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] ft² 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. [Alternatively, a

Completion Time can be determined in accordance with the Risk
Informed Completion Time Program.]

BASES

ACTIONS (continued)

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 drywell isolation valve, Condition A provides the appropriate Required Actions.

C.1 and C.2

If any Required Action and associated Completion Time cannot be met, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 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 3.6.5.3.1

Each [] inch drywell purge isolation valve is required to be verified sealed closed at 31 day intervals. This Surveillance is intended to be used for drywell purge isolation valves that are not qualified to open under accident conditions. This SR is designed to ensure that a gross breach of drywell is not caused by an inadvertent or spurious drywell purge isolation valve opening. Detailed analysis of these [] inch drywell purge valves failed to conclusively demonstrate their ability to close during a LOCA in time to support drywell OPERABILITY. Therefore, these valves are required to be in sealed closed position during MODES 1, 2, and 3. These [] inch drywell purge valves that are sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leakage within limits. The Frequency is a result of the NRC resolution of Generic Issue B-24 (Ref. 3) related to purge valve use during unit operations.]

BASES

ACTIONS (continued)

D.1 and E.1

With [two] drywell purge vacuum relief subsystems inoperable or with [two] drywell post-LOCA and one drywell purge vacuum relief subsystems inoperable, for reasons other than being not closed, at least one inoperable subsystem must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. In these Conditions, only one [10] inch line remains available. The 72 hour Completion Time takes into account at least one vacuum relief subsystem is still OPERABLE, a reasonable time for repairs, and the low probability of an event requiring the vacuum relief subsystems to function occurring during this period.

----- REVIEWER'S NOTE -----

Condition F is only applicable to plants that have adopted a Risk Informed Completion Time Program.

F.1

With two drywell purge vacuum relief subsystems inoperable, for reasons other than being not closed, and one or two drywell post-LOCA vacuum relief subsystem(s) inoperable, for reasons other than being not closed, the Required Action is to restore sufficient subsystems to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient subsystems. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second drywell purge vacuum relief subsystem is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one drywell purge vacuum relief subsystem is inoperable for any reason and a second drywell purge vacuum relief subsystem is found to be inoperable, or if two drywell purge vacuum relief subsystems are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----

The bracketed portions of Condition G and Condition H, and the associated Bases, are only applicable to plants that have not adopted a Risk Informed Completion Time Program.

IGF.1, GF.2, HG.1, and HG.2

If the inoperable drywell vacuum relief subsystem(s) cannot be closed or restored to OPERABLE status within the required Completion Time, [or if two drywell purge vacuum relief subsystems are inoperable, for reasons other than being not closed, and one or two drywell post-LOCA vacuum relief subsystem(s) are inoperable, for reasons other than being not closed,] 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 12 hours and to MODE 4 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
REQUIREMENTSSR 3.6.5.6.1

Each vacuum breaker and its associated isolation valve is verified to be closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker or associated isolation valve position indication or by verifying that the vacuum breakers are closed when a differential pressure of [1.0] psid between the drywell and primary containment is maintained for 1 hour without makeup. The 7 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker or isolation valve status available to the plant personnel, and has been shown to be acceptable through operating experience.

BASES

LCO (continued)

A subsystem is considered OPERABLE when:

- a. The associated pump is OPERABLE,
- b. The associated [UHS] is OPERABLE, and
- c. The associated piping, valves, instrumentation, and controls required to perform the safety related function are OPERABLE.

OPERABILITY of the [UHS] is based on a maximum water temperature of [95]°F with OPERABILITY of each subsystem requiring a minimum basin water level at or above elevation [130 ft 3 inches] mean sea level (equivalent to an indicated level of \geq [7 ft 3 inches]) and four OPERABLE cooling tower fans.

The isolation of the [SSW] System to components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the [SSW] System.

OPERABILITY of the High Pressure Core Spray (HPCS) Service Water System (SWS) is addressed by LCO 3.7.2, "HPCS SWS."

APPLICABILITY

In MODES 1, 2, and 3, the [SSW] System and [UHS] are required to be OPERABLE to support OPERABILITY of the equipment serviced by the [SSW] System and [UHS], and are required to be OPERABLE in these MODES.

In MODES 4 and 5, the OPERABILITY requirements of the [SSW] System and [UHS] are determined by the systems they support.

ACTIONS

[A.1

If one or more cooling towers have one fan inoperable (i.e., up to one fan per cooling tower inoperable), action must be taken to restore the inoperable cooling tower fan(s) to OPERABLE status within 7 days **[or in accordance with the Risk Informed Completion Time Program]**.

The 7 day Completion Time is reasonable, based on the low probability of an accident occurring during the 7 days that one cooling tower fan is inoperable in one or more cooling towers, the number of available systems, and the time required to complete the Required Action.]

BASES

ACTIONS (continued)

[B.1

-----REVIEWER'S NOTE-----
 The []°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit.

With water temperature of the UHS > [90]°F, the design basis assumption associated with initial UHS temperature is bounded provided the temperature of the UHS averaged over the previous 24 hour period is ≤ [90]°F. With the water temperature of the UHS > [90]°F, long term cooling capability of the ECCS loads and DGs may be affected. Therefore, to ensure long term cooling capability is provided to the ECCS loads when water temperature of the UHS is > [90]°F, Required Action B.1 is provided to more frequently monitor the water temperature of the UHS and verify the temperature is ≤ [90]°F when averaged over the previous 24 hour period. The once per hour Completion Time takes into consideration UHS temperature variations and the increased monitoring frequency needed to ensure design basis assumptions and equipment limitations are not exceeded in this condition. If the water temperature of the UHS exceeds [90]°F when averaged over the previous 24 hour period or the water temperature of the UHS exceeds []°F, Condition D must be entered immediately.]

C.1

If one [SSW] subsystem is inoperable [for reasons other than Condition A], it must be restored to OPERABLE status within 72 hours **[or in accordance with the Risk Informed Completion Time Program]**. With the unit in this condition, the remaining OPERABLE [SSW] subsystem is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE [SSW] subsystem could result in loss of [SSW] function. The 72 hour Completion Time was developed taking into account the redundant capabilities afforded by the OPERABLE subsystem and the low probability of a DBA occurring during this period.

The Required Action is modified by two Notes indicating that the applicable Conditions of LCO 3.8.1, "AC Sources - Operating," and LCO 3.4.9, "Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown," be entered and the Required Actions taken if the inoperable [SSW] subsystem results in an inoperable DG or RHR shutdown cooling, respectively. This is in accordance with LCO 3.0.6 and ensures the proper actions are taken for these components.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

D.1

With both [SSW] subsystems inoperable for reasons other than Condition A, [or the [UHS] is inoperable for reasons other than Condition A or B], the Required Action is to restore the inoperable [SSW] subsystems or the [UHS] to OPERABLE status within 1 hour to regain a method to provide cooling water for the removal of heat from equipment. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient [SSW] subsystems or the [UHS]. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second [SSW] subsystem [or the [UHS]] is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [SSW] subsystem is inoperable for any reason and a second [SSW] subsystem is found to be inoperable, or if two [SSW] subsystems are found to be inoperable at the same time, [or if the [UHS] is found to be inoperable].]

----- REVIEWER'S NOTE -----
 The bracketed portions of Condition E is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

ED.1 and ED.2

If the [SSW] subsystem cannot be restored to OPERABLE status within the associated Completion Time[, or both [SSW] subsystems are inoperable [for reasons other than Condition A], or the [[UHS] is determined inoperable for reasons other than Condition A or B],] 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 12 hours and in MODE 4 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 [SR 3.7.1.1]

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.

B.1

If both [control room AC] subsystems are inoperable in MODE 1, 2, or 3, the [Control Room AC] System may not be capable of performing the intended function. With two [control room AC] subsystems inoperable, the Required Action is to restore at least one [control room AC] subsystem to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one [control room AC] subsystem. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the second [control room AC] subsystem is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one [control room AC] subsystem is inoperable for any reason and a second [control room AC] subsystem is found to be inoperable, or if two [control room AC] subsystems are found to be inoperable at the same time.]

----- REVIEWER'S NOTE -----
 The bracketed phrase "or B" in Condition C and the bracketed "(s)" in the Condition C Bases are only applicable to plants that have adopted a Risk Informed Completion Time Program.

CB.1 and CB.2

In MODE 1, 2, or 3, if the inoperable [control room AC] subsystem[(s)] cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE that minimizes risk. To achieve this status the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 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.

DG.1, DG.2.1, and DG.2.2

The Required Actions of Condition ~~D-C~~ are modified by a Note indicating that LCO 3.0.3 does not apply.

If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of [recently] irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs, if Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE [control room AC] subsystem may be placed immediately in operation. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent actuation will occur, and that any active failure will be readily detected.

An alternative to Required Action ~~D-C~~.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, movement of [recently] irradiated fuel assemblies in the [primary and secondary containment] must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

BASES

ACTIONS (continued)

----- REVIEWER'S NOTE -----
 Condition E is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

DE.1

If both [control room AC] subsystems are inoperable in MODE 1, 2, or 3, the [Control Room AC] System may not be capable of performing the intended function. Therefore, LCO 3.0.3 must be entered immediately.]

FE.1 and FE.2

The Required Actions of Condition EF.1 are modified by a Note indicating that LCO 3.0.3 does not apply. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of [recently] irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs with two [control room AC] subsystems inoperable, action must be taken to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, handling of [recently] irradiated fuel in the [primary or secondary containment] must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE
REQUIREMENTSSR 3.7.4.1

This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the [safety analyses]. The SR consists of a combination of testing and calculation. The [18] month Frequency is appropriate since significant degradation of the [Control Room AC] System is not expected over this time period.

REFERENCES

1. FSAR, Section [6.4].

BASES

LCO (continued)

An OPERABLE Main Turbine Bypass System requires the bypass valves to open in response to increasing main steam line pressure. This response is within the assumptions of the applicable analysis (Ref. 2). The APLHGR and MCPR limits for the inoperable Main Turbine Bypass System are specified in the COLR.

APPLICABILITY

The Main Turbine Bypass System is required to be OPERABLE at $\geq 25\%$ RTP to ensure that the fuel cladding integrity Safety Limit and the cladding 1% plastic strain limit are not violated during the feedwater controller failure, maximum demand event. As discussed in the Bases for LCO 3.2.1 and LCO 3.2.2, sufficient margin to these limits exists $< 25\%$ RTP. Therefore, these requirements are only necessary when operating at or above this power level.

ACTIONS

A.1

If the Main Turbine Bypass System is inoperable (one or more bypass valves inoperable), or the APLHGR and MCPR limits for an inoperable Main Turbine Bypass System, as specified in the COLR, are not applied, the assumptions of the design basis transient analysis may not be met. Under such circumstances, prompt action should be taken to restore the Main Turbine Bypass System to OPERABLE status or adjust the APLHGR and MCPR limits accordingly. The 2 hour Completion Time is reasonable, based on the time to complete the Required Action and the low probability of an event occurring during this period requiring the Main Turbine Bypass System. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]]

B.1

If the Main Turbine Bypass System cannot be restored to OPERABLE status or the APLHGR and MCPR limits for an inoperable Main Turbine Bypass System are not applied, THERMAL POWER must be reduced to $< 25\%$ RTP. As discussed in the Applicability section, operation at $< 25\%$ RTP results in sufficient margin to the required limits, and the Main Turbine Bypass System is not required to protect fuel integrity during the feedwater controller failure, maximum demand event. The 4 hour Completion Time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

BASES

ACTIONS (continued)

Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

A.3

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition A for a period that should not exceed 72 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

This Completion Time assumes sufficient offsite power remains to power the minimum loads needed to respond to analyzed events. In the event more than one division is without offsite power, this assumption is not met. Therefore, the optional Completion Time is specified. Should two or more divisions be affected, the 24 hour Completion Time is conservative with respect to the Regulatory Guide assumptions supporting a 24 hour Completion Time for both offsite circuits inoperable. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the plant safety systems. In this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E distribution system.

The Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.1

To ensure a highly reliable power source remains, it is necessary to verify the availability of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions must then be entered.

BASES

ACTIONS (continued)

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related divisions (i.e., single division systems are not included, although for this Required Action, Division 3 is considered redundant to Division 1 and 2 Emergency Core Cooling Systems (ECCS)). Redundant required features failures consist of inoperable features associated with a division redundant to the division that has an inoperable DG.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. An inoperable DG exists and
- b. A required feature on another division is inoperable.

If, at any time during the existence of this Condition (one DG inoperable), a required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

Discovering one required DG inoperable coincident with one or more required support or supported features, or both, that are associated with the OPERABLE DG(s), results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

The remaining OPERABLE DGs and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and low probability of a DBA occurring during this period.

BASES

ACTIONS (continued)

B.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of OPERABLE DGs. If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on other DGs, the other DGs are declared inoperable upon discovery, and Condition E of LCO 3.8.1 is entered. Once the failure is repaired, and the common cause failure no longer exists, Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on the remaining DG(s), performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of those DG(s).

In the event the inoperable DG is restored to OPERABLE status prior to completing either B.3.1 or B.3.2, the [plant corrective action program] will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in Condition B.

According to Generic Letter 84-15 (Ref. 7), [24] hours is reasonable time to confirm that the OPERABLE DG(s) are not affected by the same problem as the inoperable DG.

B.4

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition B for a period that should not exceed 72 hours. In Condition B, the remaining OPERABLE DGs and offsite circuits are adequate to supply electrical power to the onsite Class 1E distribution system. The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and low probability of a DBA occurring during this period. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

Required Action C.1 addresses actions to be taken in the event of concurrent failure of redundant required features. Required Action C.1 reduces the vulnerability to a loss of function. The Completion Time for taking these actions is reduced to 12 hours from that allowed with only one division without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable,

BASES

ACTIONS (continued)

based upon the assumption that two complete safety divisions are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These redundant required features do not include monitoring requirements, such as Post Accident Monitoring and Remote Shutdown. These features are designed with redundant safety related divisions (i.e., single division systems are not included in the list, although, for this Required Action, Division 3 is considered redundant to Division 1 and 2 ECCS). Redundant required features failures consist of any of these features that are inoperable, because any inoperability is on a division redundant to a division with inoperable offsite circuits.

The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. All required offsite circuits are inoperable and
- b. A required feature is inoperable.

If, at any time during the existence of this Condition (two offsite circuits inoperable), a required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition C for a period that should not exceed 24 hours. This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

Because of the normally high availability of the offsite sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more DGs inoperable. However, two factors tend to decrease the severity of this degradation level:

BASES

ACTIONS (continued)

- a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure and
- b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

With both of the required offsite circuits inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient. In fact, a simultaneous loss of offsite AC sources, a LOCA, and a worst case single failure were postulated as a part of the design basis in the safety analysis. Thus, the 24 hour Completion Time provides a period of time to effect restoration of one of the offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

According to Regulatory Guide 1.93 (Ref. 6), with the available offsite AC sources two less than required by the LCO, operation may continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source is restored within 24 hours, power operation continues in accordance with Condition A. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable, resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no AC source to any division, Actions for LCO 3.8.9, "Distribution Systems - Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of the offsite circuit and one DG without regard to whether a division is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized division.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition D for a period that should not exceed 12 hours. In Condition D, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the

BASES

ACTIONS (continued)

reliability of the power systems in this Condition may appear higher than that in Condition C (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 12 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and low probability of a DBA occurring during this period. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

E.1

With two DGs inoperable, there is one remaining standby AC source. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources are available to power the minimum required ESF functions. Since the offsite electrical power system is the only source of AC power for the majority of ESF equipment at this level of degradation, the risk associated with continued operation for a very short time could be less than that associated with an immediate controlled shutdown (the immediate shutdown could cause grid instability, which could result in a total loss of AC power). Since any inadvertent generator trip could also result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

According to Regulatory Guide 1.93 (Ref. 6), with both DGs inoperable, operation may continue for a period that should not exceed 2 hours. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] This Completion Time assumes complete loss of onsite (DG) AC capability to power the minimum loads needed to respond to analyzed events. In the event Division 3 DG in conjunction with Division 1 or 2 DG is inoperable, with Division 1 or 2 remaining, a significant spectrum of breaks would be capable of being responded to with onsite power. Even the worst case event would be mitigated to some extent - an extent greater than a typical two division design in which this condition represents complete loss of onsite power function. Given the remaining function, a 24 hour Completion Time is appropriate. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] At the end of this 24 hour period, Division 3 systems could be declared inoperable (see Applicability Note) and this Condition could be exited with only one required DG remaining inoperable. However, with a Division 1 or 2 DG remaining inoperable and the HPCS declared

inoperable, a redundant required feature failure exists, according to Required Action B.2.

BASES

ACTIONS (continued)

[F.1

The sequencer(s) is an essential support system to [both the offsite circuit and the DG associated with a given ESF bus.] [Furthermore, the sequencer(s) is on the primary success path for most major AC electrically powered safety systems powered from the associated ESF bus.] Therefore, loss of an [ESF bus's sequencer] affects every major ESF system in the [division]. The [12] hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining sequencer OPERABILITY. This time period also ensures that the probability of an accident requiring sequencer OPERABILITY occurring during periods when the sequencer is inoperable is minimal. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

This Condition is preceded by a Note that allows the Condition to be deleted if the plant design is such that any sequencer failure mode only affects the ability of the associated DG to power its respective safety loads under any conditions. Implicit in this Note is the concept that the Condition must be retained if any sequencer failure mode results in the inability to start all or part of the safety loads when required, regardless of power availability, or results in overloading the offsite power circuit to a safety bus during an event thereby causing its failure. Also implicit in the Note is the concept that the Condition is not applicable to any Division that does not have a sequencer [Division 3 does not normally have a sequencer in the circuitry].]

----- REVIEWER'S NOTE -----
Condition G only applicable to plants that have adopted a Risk Informed Completion Time Program.

[G.1

Condition G corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. The Required Action is to restore sufficient required AC electrical power supplies to OPERABLE status within 1 hour. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient required AC electrical power supplies. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when three or more [required] AC sources are intentionally made inoperable. This

Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if two [required] AC sources are inoperable for any reason and additional [required] AC sources are found to be inoperable, or if three or more [required] AC sources are found to be inoperable at the same time.]

HG.1 and HG.2

If the inoperable AC electrical power sources [and sequencers] cannot be restored to OPERABLE status within the associated 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 MODE 3 within 12 hours and to MODE 4 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.

----- REVIEWER'S NOTE -----
Condition I is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

IH.1

Condition **IH** corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown.]

BASES

SURVEILLANCE REQUIREMENTS

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, in accordance with 10 CFR 50, GDC 18 (Ref. 8). Periodic component tests are supplemented by extensive functional tests during refueling outages under simulated accident conditions. The SRs for demonstrating the OPERABILITY of the DGs are in accordance with the recommendations of Regulatory Guide 1.9 (Ref. 3), Regulatory Guide 1.108 (Ref. 9), and Regulatory Guide 1.137 (Ref. 10).

Where the SRs discussed herein specify voltage and frequency tolerances, the following summary is applicable. The minimum steady state output voltage of [3740] V is 90% of the nominal 4160 V output voltage. This value, which is specified in ANSI C84.1 (Ref. 11), allows for voltage drop to the terminals of 4000 V motors whose minimum operating voltage is specified as 90%, or 3600 V. It also allows for voltage drops to motors and other equipment down through the 120 V level where

BASES

LCO The DC electrical power subsystems, each subsystem consisting of one battery, one battery charger, and the corresponding control equipment and interconnecting cabling supplying power to the associated bus within the divisions, are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4).

APPLICABILITY The DC electrical power sources are required to be OPERABLE in MODES 1, 2, and 3 to ensure safe unit operation and to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment integrity and other vital functions are maintained in the event of a postulated DBA.

The DC electrical power requirements for MODES 4 and 5 are addressed in the Bases for LCO 3.8.5, "DC Sources - Shutdown."

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

Condition A represents one division with one [or two] battery chargers inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring a fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours **[or in accordance with the Risk Informed Completion Time Program]**. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within [12] hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability.

BASES

ACTIONS (continued)

-----REVIEWER'S NOTE-----
A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).

A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a premature shutdown with its own attendant risk.

If established battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

If the charger is operating in the current limit mode after 2 hours that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action A.2).

Required Action A.2 requires that the battery float current be verified as less than or equal to [2] amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial [12] hour period the battery float current is not less than or equal to [2] amps this indicates there may be additional battery problems and the battery must be declared inoperable.

BASES

ACTIONS (continued)

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days [or in accordance with the Risk Informed Completion Time Program]. This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

B.1

-----REVIEWER'S NOTE-----
 The 2 hour Completion Times of Required Actions B.1 and C.1 are in brackets. Any licensee wishing to request a longer Completion Time will need to demonstrate that the longer Completion Time is appropriate for the plant in accordance with the guidance in Regulatory Guide (RG) 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications."

Condition B represents one division with one [or two] batter[y][ies] inoperable. With one [or two] batter[y][ies] inoperable, the DC bus is being supplied by the OPERABLE battery charger[s]. Any event that results in a loss of the AC bus supporting the battery charger[s] will also result in loss of DC to that division. Recovery of the AC bus, especially if it is due to a loss of offsite power, will be hampered by the fact that many of the components necessary for the recovery (e.g., diesel generator control and field flash, AC load shed and diesel generator output circuit breakers, etc.) likely rely upon the batter[y][ies]. In addition the energization transients of any DC loads that are beyond the capability of the battery charger[s] and normally require the assistance of the batter[y][ies] will not be able to be brought online. The [2] hour limit allows sufficient time to effect restoration of an inoperable battery given that the majority of the conditions that lead to battery inoperability (e.g., loss of battery charger, battery cell voltage less than [2.07] V, etc.) are identified in Specifications 3.8.4, 3.8.5, and 3.8.6 together with additional specific completion times. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

C.1

Condition C represents one division with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected division. The 2 hour limit is consistent with the allowed time for an inoperable DC distribution system division. **[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]**

If one of the required [Division 1 or 2] DC electrical power subsystems is inoperable for reasons other than Condition A or B (e.g., inoperable battery charger and associated inoperable battery), the remaining DC electrical power subsystems have the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary DC electrical subsystems, continued power operation should not exceed 2 hours. The 2 hour Completion Time is based on Regulatory Guide 1.93 (Ref. 7) and reflects a reasonable time to assess unit status as a function of the inoperable DC electrical power subsystem and, if the DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown.

----- REVIEWER'S NOTE -----

Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1]

With the [Division 1 and Division 2] DC electrical power subsystems inoperable, the Required Action is to restore at least one of the required inoperable DC electrical power subsystems to OPERABLE status within 1 hour to regain control power for the AC emergency power system. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one DC electrical power subsystem. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the [Division 1 and 2] DC electrical power subsystems are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if the [Division 1] DC electrical power subsystem is

inoperable for any reason and the [Division 2] DC electrical power subsystem is found to be inoperable, or if the [Division 2] DC electrical power subsystem is inoperable for any reason and the [Division 1] DC electrical power subsystem is found to be inoperable, or if the [Division 1 and 2] DC electrical power subsystems are found to be inoperable at the same time.]

ED.1

With the Division 3 DC electrical power subsystem inoperable for reasons other than Condition A or B, the HPCS and 2C Standby Service Water System may be incapable of performing their intended functions and must be immediately declared inoperable. This declaration also requires entry into applicable Conditions and Required Actions of LCO 3.5.1, "ECCS - Operating," [and LCO 3.7.1, "Standby Service Water (SSW)] System and [Ultimate Heat Sink (UHS)"].

BASES

ACTIONS (continued)

FE.1 and FE.2

If the inoperable DC electrical power subsystem cannot be restored to OPERABLE status within the associated Completion Time, the unit 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 12 hours and to MODE 4 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. The Completion Time to bring the unit to MODE 4 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

SURVEILLANCE
REQUIREMENTSSR 3.8.4.1

Verifying battery terminal voltage while on float charge helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state while supplying the continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally charge the battery. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the minimum float voltage established by the battery manufacturer ([2.20] Vpc or [127.6] V at the battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life (expected to be approximately 20 years). The 7 day Frequency is consistent with manufacturer recommendations and IEEE-450 (Ref. 8).

SR 3.8.4.2

This SR verifies the design capacity of the battery chargers. According to Regulatory Guide 1.32 (Ref. 9), the battery charger supply is recommended to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensures that these requirements can be satisfied.

BASES

APPLICABILITY	<p>The inverters are required to be OPERABLE in MODES 1, 2, and 3 to ensure that:</p> <ul style="list-style-type: none"> a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA. <p>Inverter requirements for MODES 4 and 5 are covered in the Bases for LCO 3.8.8, "Inverters - Shutdown."</p>
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ACTIONS	<p><u>A.1</u></p> <p>With a required inverter inoperable, its associated AC vital bus becomes inoperable until it is manually re-energized from its [Class 1E constant voltage source transformer or inverter using internal AC source]. LCO 3.8.9 addresses this action; however, pursuant to LCO 3.0.6, these actions would not be entered even if the AC vital bus were de-energized. Therefore, the ACTIONS are modified by a Note stating that ACTIONS for LCO 3.8.9 must be entered immediately. This ensures the vital bus is re-energized within 2 hours.</p> <p>Required Action A.1 allows 24 hours to fix the inoperable inverter and return it to service. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 24 hour limit is based upon engineering judgment, taking into consideration the time required to repair an inverter and the additional risk to which the plant is exposed because of the inverter inoperability. This risk has to be balanced against the risk of an immediate shutdown, along with the potential challenges to safety systems that such a shutdown might entail. When the AC vital bus is powered from its constant voltage source, it is relying upon interruptible AC electrical power sources (offsite and onsite). The uninterruptible inverter source to the AC vital buses is the preferred source for powering instrumentation trip setpoint devices.</p> <p style="text-align: center;">----- REVIEWER'S NOTE -----</p> <p>Condition B is only applicable to plants that have adopted a Risk Informed Completion Time Program.</p> <p style="text-align: center;">-----</p> <p><u>[B.1]</u></p> <p>With two [Division 1 and 2] inverters inoperable, the Required Action is to restore the inverters to OPERABLE status within 1 hour to regain the</p>
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normal power supplies to the vital buses. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient inverters. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by a Note stating it is not applicable when the [Division 1 and 2] inverters are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if the [Division 1] inverter is inoperable for any reason and the [Division 2] inverter is found to be inoperable, or if the [Division 2] inverter is inoperable for any reason and the [Division 1] inverter is found to be inoperable, or if the [Division 1 and 2] inverters are found to be inoperable at the same time.]

CB.1

With the Division 3 inverter inoperable, the associated Division 3 ECCS subsystem may be incapable of performing intended function and must be immediately declared inoperable. This also requires entry into applicable Conditions and Required Actions for LCO 3.5.1, "ECCS - Operating."

BASES

ACTIONS (continued)

DG.1 and DG.2

If the inoperable devices or components cannot be restored to OPERABLE status within the associated 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 12 hours and to MODE 4 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 3.8.7.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation connected to the AC vital buses. The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions.

REFERENCES

1. FSAR, Chapter [8].
 2. FSAR, Chapter [6].
 3. FSAR, Chapter [15].
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BASES

LCO (continued)

In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, if they exist, must be open. This prevents any electrical malfunction in any power distribution subsystem from propagating to the redundant subsystem, which could cause the failure of a redundant subsystem and a loss of essential safety function(s). If any tie breakers are closed, the affected redundant electrical power distribution subsystems are considered inoperable. This applies to the onsite, safety related, redundant electrical power distribution subsystems. It does not, however, preclude redundant Class 1E 4.16 kV buses from being powered from the same offsite circuit.

APPLICABILITY

The electrical power distribution subsystems are required to be OPERABLE in MODES 1, 2, and 3 to ensure that:

- a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and
- b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained, in the event of a postulated DBA.

Electrical power distribution subsystem requirements for MODES 4 and 5 are covered in the Bases for LCO 3.8.10, "Distribution Systems - Shutdown."

ACTIONS

A.1

With one or more Division 1 and 2 required AC buses, load centers, motor control centers, or distribution panels (except AC vital buses), in one division inoperable and a loss of function has not occurred, the remaining AC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required AC buses, load centers, motor control centers, and distribution panels must be restored to OPERABLE status within 8 hours [or in accordance with the Risk Informed Completion Time Program].

BASES

ACTIONS (continued)

The Condition A worst scenario is one division without AC power (i.e., no offsite power to the division and the associated DG inoperable). In this Condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operators' attention be focused on minimizing the potential for loss of power to the remaining division by stabilizing the unit, and on restoring power to the affected division. The 8 hour time limit before requiring a unit shutdown in this Condition is acceptable because:

- a. There is potential for decreased safety if the unit operators' attention is diverted from the evaluations and actions necessary to restore power to the affected division to the actions associated with taking the unit to shutdown within this time limit.
- b. The potential for an event in conjunction with a single failure of a redundant component in the division with AC power. (The redundant component is verified OPERABLE in accordance with Specification 5.5.12, "Safety Function Determination Program (SFDP).")

Required Action A.1 is modified by a Note that requires the applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," to be entered for DC divisions made inoperable by inoperable power distribution subsystems. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. Inoperability of a distribution system can result in loss of charging power to batteries and eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems.

[B.1

With one or more Division 1 and 2 AC vital buses inoperable, and a loss of function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down and maintain the unit in the safe shutdown condition. Overall reliability is reduced, however, because an additional single failure could result in the minimum required ESF functions not being supported. Therefore, the required AC vital bus must be restored to OPERABLE status within 2 hours [or in accordance with the Risk Informed Completion Time Program] by powering the bus from the associated [inverter via inverted DC, inverter using internal AC source, or Class 1E constant voltage transformer].

BASES

ACTIONS (continued)

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source nonfunctioning. In this situation, the plant is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the plant, minimizing the potential for loss of power to the remaining vital buses, and restoring power to the affected vital bus.

This 2 hour limit is more conservative than Completion Times allowed for the majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate AC vital power, that would have Required Action Completion Times shorter than 2 hours if declared inoperable, is acceptable because of:

- [a. The potential for decreased safety when requiring a change in plant conditions (i.e., requiring a shutdown) while not allowing stable operations to continue,
- b. The potential for decreased safety when requiring entry into numerous applicable Conditions and Required Actions for components without adequate vital AC power, while not providing sufficient time for the operators to perform the necessary evaluations and actions to restore power to the affected division, and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time takes into account the importance to safety of restoring the AC vital bus to OPERABLE status, the redundant capability afforded by the other OPERABLE vital buses, and the low probability of a DBA occurring during this period.

C.1

With one or more Division 1 and 2 DC buses or distribution panels in one [division] inoperable, and a loss of function has not yet occurred, the remaining DC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required DC buses and distribution panels must be restored to OPERABLE status within 2 hours [or in accordance with the

Risk Informed Completion Time Program] by powering the bus from the associated battery or charger.

BASES

ACTIONS (continued)

Condition C represents one or more DC buses or distribution panels without adequate DC power, potentially with both the battery significantly degraded and the associated charger nonfunctioning. In this situation, the plant is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the plant, minimizing the potential for loss of power to the remaining divisions, and restoring power to the affected division.

This 2 hour limit is more conservative than Completion Times allowed for the majority of components that could be without power. Taking exception to LCO 3.0.2 for components without adequate DC power, that would have Required Action Completion Times shorter than 2 hours, is acceptable because of:

- a. The potential for decreased safety when requiring a change in plant conditions (i.e., requiring a shutdown) while not allowing stable operations to continue,
- b. The potential for decreased safety when requiring entry into numerous applicable Conditions and Required Actions for components without DC power while not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected division, and
- c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for DC buses is consistent with Regulatory Guide 1.93 (Ref. 3).

----- REVIEWER'S NOTE -----
 Condition D is only applicable to plants that have adopted a Risk Informed Completion Time Program.

[D.1]

Condition D corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. (Single division systems are not included, although for this Action, Division 3 is considered redundant to Division 1 and 2 ECCS.) When two or more inoperable electrical power distribution subsystems result in the loss of a required function, the plant is in a condition outside the accident analysis. The Required Action is to restore sufficient electrical distribution systems to OPERABLE status within 1 hour. The 1 hour Completion

Time is acceptable because it minimizes risk while allowing time for restoration of sufficient electrical distribution systems. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

The Condition is modified by a Note stating it is not applicable when the two or more electrical power distribution subsystems are intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one electrical power distribution subsystem is inoperable for any reason and a second electrical power distribution subsystem is found to be inoperable, or if two or more electrical power distribution subsystems are found to be inoperable at the same time.]

ED.1 and ED.2

If the inoperable electrical power distribution system(s) cannot be restored to OPERABLE status within the associated Completion Times, 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 12 hours and to MODE 4 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.

BASES

ACTIONS (continued)

FE.1

With the Division 3 electrical power distribution system inoperable, the Division 3 powered systems are not capable of performing their intended functions. Immediately declaring the high pressure core spray inoperable allows the ACTIONS of LCO 3.5.1, "ECCS - Operating," to apply appropriate limitations on continued reactor operation.

----- REVIEWER'S NOTE -----
 Condition G is only applicable to plants that have not adopted a Risk Informed Completion Time Program.

GF.1

Condition GF corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. (Single division systems are not included, although for this Action, Division 3 is considered redundant to Division 1 and 2 ECCS.) When two or more inoperable electrical power distribution subsystems result in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.]

SURVEILLANCE
REQUIREMENTSSR 3.8.9.1

Meeting this Surveillance verifies that the AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [15].
3. Regulatory Guide 1.93, December 1974.