March 29, 2010

TSTF-10-03
PROJ0753

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

SUBJECT: Transmittal of TSTF-505, Revision 0, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b"

Enclosed for NRC review is TSTF-505, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b." TSTF-505 is applicable to all reactor types.

This Traveler culminates over ten years of effort by the industry and the NRC to develop risk informed Technical Specifications. It implements Risk Informed Technical Specification Task Force (RITSTF) Initiative 4b, "Risk Informed Completion Times With Configuration Risk Management Program or Maintenance Rule Backstop," which is the most comprehensive and sweeping change to Technical Specifications since the development of the Improved Standard Technical Specifications (ISTS). It is also the largest and most complex Traveler proposed by the TSTF. Therefore, we request a meeting with the NRC early in the review process to discuss the Traveler and the design decisions made while developing this change.

We request that NRC review of the TSTF-505 be granted a fee waiver pursuant to the provisions of 10 CFR 170.11. Specifically, the request is to support NRC generic regulatory improvements (risk managed technical specifications), in accordance with 10 CFR 170.11(a)(1)(iii). This request is consistent with the NRC letter to A. R. Pietrangelo on this subject dated January 10, 2003.

Should you have any questions, please do not hesitate to contact us.

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Enclosure

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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 CLIIP?: Yes

Correction or Improvement: Improvement

NRC Fee Status: Exempt

Benefit: Provides Longer Completion Time

See attached.

Revision History

OG Revision 0 Revision Status: Active

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: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 28-Mar-10

NRC Review Information

NRC Received Date: 28-Mar-10

Affected Technical Specifications

1.3	Completion Times	NUREG(s)- 1430 Only
	Change Description: new Example 1.3-8	

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LCO 3.3.1	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Table 3.3.1-1	
Action 3.3.1.A	RPS Instrumentation		NUREG(s)- 1430 Only
Action 3.3.1.A Bases	RPS Instrumentation		NUREG(s)- 1430 Only
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:	New Condition	
Action 3.3.1.C	RPS Instrumentation		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
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 3.3.3.A	RPS-RTM		NUREG(s)- 1430 Only
Action 3.3.3.A Bases	RPS-RTM		NUREG(s)- 1430 Only

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Action 3.3.3.B	RPS-RTM Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.3.B	RPS-RTM Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.3.B Bases	RPS-RTM Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.3.B Bases	RPS-RTM Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.3.C	RPS-RTM Change Description: Renamed D	NUREG(s)- 1430 Only
Action 3.3.3.C Bases	RPS-RTM Change Description: Renamed D	NUREG(s)- 1430 Only
Action 3.3.4.A	CRD Trip Devices	NUREG(s)- 1430 Only
Action 3.3.4.A Bases	CRD Trip Devices	NUREG(s)- 1430 Only
Action 3.3.4.B	CRD Trip Devices	NUREG(s)- 1430 Only
Action 3.3.4.B Bases	CRD Trip Devices	NUREG(s)- 1430 Only
Action 3.3.4.C	CRD Trip Devices	NUREG(s)- 1430 Only
Action 3.3.4.C Bases	CRD Trip Devices	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 Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.5.B	ESFAS Instrumentation Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.5.B Bases	ESFAS Instrumentation Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.5.B Bases	ESFAS Instrumentation Change Description: New Condition	NUREG(s)- 1430 Only
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
Action 3.3.6.B	ESFAS Manual Initiation Change Description: Renamed C	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 Bases	ESFAS Manual Initiation Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.3.6.B Bases	ESFAS Manual Initiation Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.3.7.A	ESFAS Automatic Actuation Logic	NUREG(s)- 1430 Only
Action 3.3.7.A Bases	ESFAS Automatic Actuation Logic	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 3.3.10.A	Intermediate Range Neutron Flux	NUREG(s)- 1430 Only
Action 3.3.10.A Bases	Intermediate Range Neutron Flux	NUREG(s)- 1430 Only
Action 3.3.10.B	Intermediate Range Neutron Flux	NUREG(s)- 1430 Only
Action 3.3.10.B Bases	Intermediate Range Neutron Flux	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: New Condition	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 Bases	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

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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
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: 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 3.3.15.A	RB Purge Isolation - High Radiation	NUREG(s)- 1430 Only

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Action 3.3.15.A Bases	RB Purge Isolation - High Radiation	NUREG(s)- 1430 Only
Action 3.3.16.A	Control Room Isolation - High Radiation	NUREG(s)- 1430 Only
Action 3.3.16.A Bases	Control Room Isolation - High Radiation	NUREG(s)- 1430 Only
Action 3.3.17.C	PAM Instrumentation	NUREG(s)- 1430 Only
Action 3.3.17.C Bases	PAM Instrumentation	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.A	Pressurizer	NUREG(s)- 1430 Only
Action 3.4.9.A Bases	Pressurizer	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
Action 3.4.10.A Bases	Pressurizer Safety Valves	NUREG(s)- 1430 Only
Action 3.4.14.A	RCS PIV Leakage	NUREG(s)- 1430 Only
Action 3.4.14.A Bases	RCS PIV Leakage	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 3.4.15.C	RCS PIV Leakage Change Description: Renamed D	NUREG(s)- 1430 Only
Action 3.4.15.C	RCS PIV Leakage Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.4.15.C Bases	RCS PIV Leakage Change Description: Renamed D	NUREG(s)- 1430 Only
Action 3.4.15.C Bases	RCS PIV Leakage Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.4.15.D	RCS PIV Leakage Change Description: Deleted	NUREG(s)- 1430 Only
Action 3.4.15.D Bases	RCS PIV Leakage Change Description: Deleted	NUREG(s)- 1430 Only
Action 3.4.17.A	SG Tube Integrity	NUREG(s)- 1430 Only

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Action 3.4.17.A Bases	SG Tube Integrity		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:	Deleted	
Action 3.5.1.D Bases	CFTs		NUREG(s)- 1430 Only
	Change Description:	Deleted	
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:	Deleted	
Action 3.5.2.D Bases	ECCS - Operating		NUREG(s)- 1430 Only
	Change Description:	Deleted	
Action 3.5.3.B	ECCS - Shutdown		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.5.3.B Bases	ECCS - Shutdown		NUREG(s)- 1430 Only
	Change Description:	New Condition	

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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 3.6.4.A	Containment Pressure	NUREG(s)- 1430 Only
Action 3.6.4.A Bases	Containment Pressure	NUREG(s)- 1430 Only
Action 3.6.5.A	Containment Air Temperature	NUREG(s)- 1430 Only
Action 3.6.5.A Bases	Containment Air Temperature	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

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Action 3.6.6.F	Containment Spray and Cooling Systems Change Description: Renamed G	NUREG(s)- 1430 Only
Action 3.6.6.F	Containment Spray and Cooling Systems Change Description: New Condition	NUREG(s)- 1430 Only
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: Deleted	NUREG(s)- 1430 Only
Action 3.6.6.G Bases	Containment Spray and Cooling Systems Change Description: Deleted	NUREG(s)- 1430 Only
Action 3.6.7.A	Spray Additive System	NUREG(s)- 1430 Only
Action 3.6.7.A Bases	Spray Additive System	NUREG(s)- 1430 Only
Action 3.7.1.A	MSSVs	NUREG(s)- 1430 Only
Action 3.7.1.A Bases	MSSVs	NUREG(s)- 1430 Only
Action 3.7.1.B	MSSVs Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.7.1.B	MSSVs Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.7.1.B Bases	MSSVs Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.7.1.B Bases	MSSVs Change Description: Renamed C	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: Renamed D	NUREG(s)- 1430 Only
Action 3.7.2.C	MSIVs Change Description: New Condition	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

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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 3.7.3.A	[MFSVs, MFCVs, and Associated SFCVs]	NUREG(s)- 1430 Only
Action 3.7.3.A Bases	[MFSVs, MFCVs, and Associated SFCVs]	NUREG(s)- 1430 Only
Action 3.7.3.B	[MFSVs, MFCVs, and Associated SFCVs]	NUREG(s)- 1430 Only
Action 3.7.3.B Bases	[MFSVs, MFCVs, and Associated SFCVs]	NUREG(s)- 1430 Only
Action 3.7.3.C	[MFSVs, MFCVs, and Associated SFCVs]	NUREG(s)- 1430 Only
Action 3.7.3.C Bases	[MFSVs, MFCVs, and Associated SFCVs]	NUREG(s)- 1430 Only
Action 3.7.3.D	[MFSVs, MFCVs, and Associated SFCVs]	NUREG(s)- 1430 Only
Action 3.7.3.D Bases	[MFSVs, MFCVs, and Associated SFCVs]	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: Renamed D	NUREG(s)- 1430 Only
Action 3.7.5.C	EFW System Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.7.5.D	EFW System Change Description: Renamed E	NUREG(s)- 1430 Only
Action 3.7.5.E	EFW System Change Description: Renamed F	NUREG(s)- 1430 Only
Action 3.7.6.A	CST	NUREG(s)- 1430 Only
Action 3.7.6.A Bases	CST	NUREG(s)- 1430 Only

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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:	Renamed C	
Action 3.7.7.B	CCW System		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.7.B Bases	CCW System		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.7.B Bases	CCW System		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
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	
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 3.7.10.A	CREVS		NUREG(s)- 1430 Only
Action 3.7.10.A Bases	CREVS		NUREG(s)- 1430 Only
Action 3.7.10.B	CREVS		NUREG(s)- 1430 Only

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Action 3.7.10.B Bases	CREVS		NUREG(s)- 1430 Only
Action 3.7.10.C	CREVS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.10.C	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.7.10.C Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.10.C Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.7.10.D	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.7.10.D Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.7.10.E	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed F	
Action 3.7.10.E Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed F	
Action 3.7.10.F	CREVS		NUREG(s)- 1430 Only
	Change Description:	Deleted	
Action 3.7.10.F Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Deleted	
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:	New Condition	
Action 3.7.11.B Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Renamed C	
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	

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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:	Deleted	
Action 3.7.11.E Bases	CREVS		NUREG(s)- 1430 Only
	Change Description:	Deleted	
Action 3.7.12.A	EVS		NUREG(s)- 1430 Only
Action 3.7.12.A Bases	EVS		NUREG(s)- 1430 Only
Action 3.7.12.B	EVS		NUREG(s)- 1430 Only
Action 3.7.12.B Bases	EVS		NUREG(s)- 1430 Only
Action 3.7.12.C	EVS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.12.C	EVS		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.7.12.C Bases	EVS		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.7.12.C Bases	EVS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.13.A	FSPVS		NUREG(s)- 1430 Only
Action 3.7.13.A Bases	FSPVS		NUREG(s)- 1430 Only
Action 3.7.13.B	FSPVS		NUREG(s)- 1430 Only
Action 3.7.13.B Bases	FSPVS		NUREG(s)- 1430 Only
Action 3.7.13.C	FSPVS		NUREG(s)- 1430 Only
	Change Description:	New Condition	
Action 3.7.13.C	FSPVS		NUREG(s)- 1430 Only
	Change Description:	Renamed D	
Action 3.7.13.D	FSPVS		NUREG(s)- 1430 Only
	Change Description:	Renamed E	
Action 3.7.13.E	FSPVS		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

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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
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: 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.H	AC Sources - Operating Change Description: Deleted	NUREG(s)- 1430 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Deleted	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: Renamed E	NUREG(s)- 1430 Only

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Action 3.8.4.D	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1430 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: Renamed E	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
Action 3.8.7.B	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1430 Only
Action 3.8.7.B	Inverters - Operating Change Description: New Condition	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: New Condition	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 Bases	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.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

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

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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	
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	

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Action 3.3.1.O	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed BB	
Action 3.3.1.O	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	
Action 3.3.1.O Bases	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	New Condition	
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:	New Condition	
Action 3.3.1.R	RTS Instrumentation		NUREG(s)- 1431 Only
	Change Description:	Renamed GG	
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	

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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	
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	

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Action 3.3.1.KK	RTS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.3.1.KK Bases	RTS Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
LCO 3.3.2	ESFAS Instrumentation Change Description: Table 3.3.2-1	NUREG(s)- 1431 Only
Action 3.3.2.B	ESFAS Instrumentation	NUREG(s)- 1431 Only
Action 3.3.2.B Bases	ESFAS Instrumentation	NUREG(s)- 1431 Only
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: Renamed H	NUREG(s)- 1431 Only
Action 3.3.2.E Bases	ESFAS Instrumentation Change Description: New Condition	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

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Action 3.3.2.G Bases	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.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
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

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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
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 3.3.3.C	PAM Instrumentation	NUREG(s)- 1431 Only
Action 3.3.3.C Bases	PAM Instrumentation	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

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Action 3.3.6.A	Containment Purge and Exhaust Isolation Instrumentation	NUREG(s)- 1431 Only
Action 3.3.6.A Bases	Containment Purge and Exhaust Isolation Instrumentation	NUREG(s)- 1431 Only
Action 3.3.7.A	CREFS Actuation Instrumentation	NUREG(s)- 1431 Only
Action 3.3.7.A Bases	CREFS Actuation Instrumentation	NUREG(s)- 1431 Only
Action 3.3.8.A	FBACS Actuation Instrumentation	NUREG(s)- 1431 Only
Action 3.3.8.A Bases	FBACS Actuation 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	NUREG(s)- 1431 Only
Action 3.3.9.B Bases	BDPS	NUREG(s)- 1431 Only
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: Renamed D	NUREG(s)- 1431 Only
Action 3.4.9.C	Pressurizer Change Description: New Condition	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

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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.A	RCS PIV Leakage	NUREG(s)- 1431 Only
Action 3.4.14.A Bases	RCS PIV Leakage	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 3.4.15.E	RCS Leakage Detection Instrumentation Change Description: Renamed F	NUREG(s)- 1431 Only
Action 3.4.15.E	RCS Leakage Detection Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.4.15.E Bases	RCS Leakage Detection Instrumentation Change Description: Renamed F	NUREG(s)- 1431 Only
Action 3.4.15.E Bases	RCS Leakage Detection Instrumentation Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.4.15.F	RCS Leakage Detection Instrumentation Change Description: Deleted	NUREG(s)- 1431 Only
Action 3.4.15.F Bases	RCS Leakage Detection Instrumentation Change Description: Deleted	NUREG(s)- 1431 Only
Action 3.4.20.A	SG Tube Integrity	NUREG(s)- 1431 Only
Action 3.4.20.A Bases	SG Tube Integrity	NUREG(s)- 1431 Only
Action 3.5.1.A	Accumulators	NUREG(s)- 1431 Only
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

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Action 3.5.1.C	Accumulators		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.5.1.C	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.C Bases	Accumulators		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.5.1.D	Accumulators		NUREG(s)- 1431 Only
	Change Description:	Deleted	
Action 3.5.1.D Bases	Accumulators		NUREG(s)- 1431 Only
	Change Description:	Deleted	
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:	Deleted	
Action 3.5.2.C Bases	ECCS - Operating		NUREG(s)- 1431 Only
	Change Description:	Deleted	
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
Action 3.5.4.B	RWST		NUREG(s)- 1431 Only
Action 3.5.4.B Bases	RWST		NUREG(s)- 1431 Only
Action 3.5.5.A	Seal Injection Flow		NUREG(s)- 1431 Only

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Action 3.5.5.A Bases	Seal Injection Flow	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 3.6.4A.A	Containment Pressure (Atmospheric, Dual, and Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.4B.A	Containment Pressure (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.4A.A Bases	Containment Pressure (Atmospheric, Dual, and Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.4B.A Bases	Containment Pressure (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.5A.A	Containment Air Temperature (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.5B.A	Containment Air Temperature (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.5C.A	Containment Air Temperature (Subatmospheric)	NUREG(s)- 1431 Only

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Action 3.6.5A.A Bases	Containment Air Temperature (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.5B.A Bases	Containment Air Temperature (Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.5C.A Bases	Containment Air Temperature (Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.6A.A	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6B.A	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
Action 3.6.6B.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
Action 3.6.6A.A Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
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 3.6.6B.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 3.6.6B.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: Renamed C	NUREG(s)- 1431 Only
Action 3.6.6C.B	Containment Spray System (Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.6D.B	QS System (Subatmospheric) Change Description: Renamed C	NUREG(s)- 1431 Only

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

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

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Action 3.6.6A.F Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Deleted	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 3.6.7.A	Spray Additive System (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.7.A Bases	Spray Additive System (Atmospheric, Subatmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
Action 3.6.8.A	Shield Building (Dual and Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.8.A Bases	Shield Building (Dual and Ice Condenser)	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 3.6.11.A	ICS (Atmospheric and Subatmospheric)	NUREG(s)- 1431 Only
Action 3.6.11.A Bases	ICS (Atmospheric and Subatmospheric)	NUREG(s)- 1431 Only

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Action 3.6.11.B	ICS (Atmospheric and Subatmospheric) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.11.B	ICS (Atmospheric and Subatmospheric) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.11.B Bases	ICS (Atmospheric and Subatmospheric) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.11.B Bases	ICS (Atmospheric and Subatmospheric) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.12.A	Vacuum Relief Valves (Atmospheric and Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.12.A Bases	Vacuum Relief Valves (Atmospheric and Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.12.B	Vacuum Relief Valves (Atmospheric and Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.12.B	Vacuum Relief Valves (Atmospheric and Ice Condenser) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.12.B Bases	Vacuum Relief Valves (Atmospheric and Ice Condenser) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.12.B Bases	Vacuum Relief Valves (Atmospheric and Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.13.A	SBACS (Dual and Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.13.A Bases	SBACS (Dual and Ice Condenser)	NUREG(s)- 1431 Only
Action 3.6.13.B	SBACS (Dual and Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.6.13.B	SBACS (Dual and Ice Condenser) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.13.B Bases	SBACS (Dual and Ice Condenser) Change Description: Renamed C	NUREG(s)- 1431 Only
Action 3.6.13.B Bases	SBACS (Dual and 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
Action 3.6.14.B	ARS (Ice Condenser) Change Description: New Condition	NUREG(s)- 1431 Only

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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 3.7.1.A	MSSVs	NUREG(s)- 1431 Only
Action 3.7.1.A Bases	MSSVs	NUREG(s)- 1431 Only
Action 3.7.1.B	MSSVs	NUREG(s)- 1431 Only
Action 3.7.1.B Bases	MSSVs	NUREG(s)- 1431 Only
Action 3.7.1.C	MSSVs Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.7.1.C	MSSVs Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.7.1.C Bases	MSSVs Change Description: Renamed D	NUREG(s)- 1431 Only
Action 3.7.1.C Bases	MSSVs Change Description: New Condition	NUREG(s)- 1431 Only

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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: Renamed D	NUREG(s)- 1431 Only
Action 3.7.2.C	MSIVs Change Description: New Condition	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
Action 3.7.2.D	MSIVs Change Description: Renamed E	NUREG(s)- 1431 Only
Action 3.7.2.D Bases	MSIVs Change Description: Renamed E	NUREG(s)- 1431 Only
Action 3.7.3.A	MFIVs and MFRVs and [Associated Bypass Valves]	NUREG(s)- 1431 Only
Action 3.7.3.A Bases	MFIVs and MFRVs and [Associated Bypass Valves]	NUREG(s)- 1431 Only
Action 3.7.3.B	MFIVs and MFRVs and [Associated Bypass Valves]	NUREG(s)- 1431 Only
Action 3.7.3.B Bases	MFIVs and MFRVs and [Associated Bypass Valves]	NUREG(s)- 1431 Only
Action 3.7.3.C	MFIVs and MFRVs and [Associated Bypass Valves]	NUREG(s)- 1431 Only
Action 3.7.3.C Bases	MFIVs and MFRVs and [Associated Bypass Valves]	NUREG(s)- 1431 Only
Action 3.7.3.D	MFIVs and MFRVs and [Associated Bypass Valves]	NUREG(s)- 1431 Only
Action 3.7.3.D Bases	MFIVs and MFRVs and [Associated Bypass Valves]	NUREG(s)- 1431 Only
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

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Action 3.7.5.C	AFW System		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.5.C	AFW System		NUREG(s)- 1431 Only
	Change Description:	New Condition	
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
Action 3.7.7.B	CCW System		NUREG(s)- 1431 Only
	Change Description:	Renamed C	
Action 3.7.7.B	CCW System		NUREG(s)- 1431 Only
	Change Description:	New Condition	
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	

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Action 3.7.8.B Bases	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 3.7.9.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:	Renamed D	
Action 3.7.9.C	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 3.7.9.C Bases	UHS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.10.A	CREFS		NUREG(s)- 1431 Only
Action 3.7.10.A Bases	CREFS		NUREG(s)- 1431 Only
Action 3.7.10.B	CREFS		NUREG(s)- 1431 Only
Action 3.7.10.B Bases	CREFS		NUREG(s)- 1431 Only
Action 3.7.10.C	CREFS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.10.C	CREFS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.10.C Bases	CREFS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.10.C Bases	CREFS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.11.B	CREATCS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.11.B	CREATCS		NUREG(s)- 1431 Only
	Change Description:	Renamed C	
Action 3.7.11.B Bases	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.C	CREATCS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.11.C Bases	CREATCS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.11.D	CREATCS		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.7.11.D Bases	CREATCS		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.7.11.E	CREATCS		NUREG(s)- 1431 Only
	Change Description:	Deleted	
Action 3.7.11.E Bases	CREATCS		NUREG(s)- 1431 Only
	Change Description:	Deleted	
Action 3.7.12.A	ECCS PREACS		NUREG(s)- 1431 Only
Action 3.7.12.A Bases	ECCS PREACS		NUREG(s)- 1431 Only
Action 3.7.12.B	ECCS PREACS		NUREG(s)- 1431 Only
Action 3.7.12.B Bases	ECCS PREACS		NUREG(s)- 1431 Only
Action 3.7.12.C	ECCS PREACS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.12.C	ECCS PREACS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.12.C Bases	ECCS PREACS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.12.C Bases	ECCS PREACS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.13.A	FBACS		NUREG(s)- 1431 Only
Action 3.7.13.A Bases	FBACS		NUREG(s)- 1431 Only
Action 3.7.13.B	FBACS		NUREG(s)- 1431 Only
Action 3.7.13.B Bases	FBACS		NUREG(s)- 1431 Only
Action 3.7.13.C	FBACS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.13.C	FBACS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.13.C Bases	FBACS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	

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Action 3.7.13.C Bases	FBACS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.13.D	FBACS		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.7.13.D Bases	FBACS		NUREG(s)- 1431 Only
	Change Description:	Renamed E	
Action 3.7.13.E	FBACS		NUREG(s)- 1431 Only
	Change Description:	Renamed F	
Action 3.7.13.E Bases	FBACS		NUREG(s)- 1431 Only
	Change Description:	Renamed F	
Action 3.7.14.A	PREACS		NUREG(s)- 1431 Only
Action 3.7.14.A Bases	PREACS		NUREG(s)- 1431 Only
Action 3.7.14.B	PREACS		NUREG(s)- 1431 Only
Action 3.7.14.B Bases	PREACS		NUREG(s)- 1431 Only
Action 3.7.14.C	PREACS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.14.C	PREACS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
Action 3.7.14.C Bases	PREACS		NUREG(s)- 1431 Only
	Change Description:	New Condition	
Action 3.7.14.C Bases	PREACS		NUREG(s)- 1431 Only
	Change Description:	Renamed D	
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

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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: New Condition	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 Bases	AC Sources - Operating Change Description: New Condition	NUREG(s)- 1431 Only
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: Deleted	NUREG(s)- 1431 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Deleted	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: Renamed E	NUREG(s)- 1431 Only
Action 3.8.4.D Bases	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1431 Only
Action 3.8.7.A	Inverters - Operating	NUREG(s)- 1431 Only
Action 3.8.7.A Bases	Inverters - Operating	NUREG(s)- 1431 Only

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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
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: Deleted	NUREG(s)- 1431 Only
Action 3.8.9.E Bases	Distribution Systems - Operating Change Description: Deleted	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	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.A Bases	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only

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Action 3.3.1.A Bases	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.B	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.B	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.B Bases	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.B Bases	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.C	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.C	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.C Bases	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.C Bases	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.D	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.D	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.D Bases	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.D Bases	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.E	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.E	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.E Bases	RPS Instrumentation - Operating (Analog)	NUREG(s)- 1432 Only
Action 3.3.1.E Bases	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.F	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.1.F Bases	RPS Instrumentation - Operating (Digital)	NUREG(s)- 1432 Only
Action 3.3.3.A	CEACs (Digital)	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	CEACs (Digital)	NUREG(s)- 1432 Only
Action 3.3.3.A Bases	RPS Logic and Trip Initiation (Analog)	NUREG(s)- 1432 Only
Action 3.3.3.B	CEACs (Digital)	NUREG(s)- 1432 Only
Action 3.3.3.B	RPS Logic and Trip Initiation (Analog)	NUREG(s)- 1432 Only
Action 3.3.3.B Bases	CEACs (Digital)	NUREG(s)- 1432 Only
Action 3.3.3.B Bases	RPS Logic and Trip Initiation (Analog)	NUREG(s)- 1432 Only

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Action 3.3.3.C	CEACs (Digital)	NUREG(s)- 1432 Only
Action 3.3.3.C Bases	CEACs (Digital)	NUREG(s)- 1432 Only
Action 3.3.3.D	CEACs (Digital)	NUREG(s)- 1432 Only
Action 3.3.3.D Bases	CEACs (Digital)	NUREG(s)- 1432 Only
Action 3.3.4.A	ESFAS Instrumentation (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	ESFAS Instrumentation (Analog)	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: Renamed C	NUREG(s)- 1432 Only
Action 3.3.4.B	ESFAS Instrumentation (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.4.B	RPS Logic and Trip Initiation (Digital)	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.B Bases	RPS Logic and Trip Initiation (Digital)	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

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

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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: New Condition	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 Bases	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.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 3.3.7.A	DG - LOVS (Digital)	NUREG(s)- 1432 Only
Action 3.3.7.A Bases	DG - LOVS (Digital)	NUREG(s)- 1432 Only
Action 3.3.7.B	DG - LOVS (Digital)	NUREG(s)- 1432 Only
Action 3.3.7.B Bases	DG - LOVS (Digital)	NUREG(s)- 1432 Only

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Action 3.3.7.C	DG - LOVS (Digital)	NUREG(s)- 1432 Only
Action 3.3.7.C Bases	DG - LOVS (Digital)	NUREG(s)- 1432 Only
Action 3.3.8.A	CRIS (Analog)	NUREG(s)- 1432 Only
Action 3.3.8.A Bases	CRIS (Analog)	NUREG(s)- 1432 Only
Action 3.3.9.A	CRIS (Digital)	NUREG(s)- 1432 Only
Action 3.3.9.A	CVCS Isolation Signal (Analog)	NUREG(s)- 1432 Only
Action 3.3.9.A Bases	CRIS (Digital)	NUREG(s)- 1432 Only
Action 3.3.9.A Bases	CVCS Isolation Signal (Analog)	NUREG(s)- 1432 Only
Action 3.3.9.B	CVCS Isolation Signal (Analog)	NUREG(s)- 1432 Only
Action 3.3.9.B Bases	CVCS Isolation Signal (Analog)	NUREG(s)- 1432 Only
Action 3.3.9.C	CVCS Isolation Signal (Analog)	NUREG(s)- 1432 Only
Action 3.3.9.C Bases	CVCS Isolation Signal (Analog)	NUREG(s)- 1432 Only
Action 3.3.9.D	CVCS Isolation Signal (Analog) Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.3.9.D	CVCS Isolation Signal (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.9.D Bases	CVCS Isolation Signal (Analog) Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.3.9.D Bases	CVCS Isolation Signal (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.10.A	FHIS (Digital)	NUREG(s)- 1432 Only
Action 3.3.10.A	SBFAS (Analog)	NUREG(s)- 1432 Only
Action 3.3.10.A Bases	FHIS (Digital)	NUREG(s)- 1432 Only
Action 3.3.10.A Bases	SBFAS (Analog)	NUREG(s)- 1432 Only
Action 3.3.10.B	SBFAS (Analog) Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.3.10.B	SBFAS (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.10.B Bases	SBFAS (Analog) Change Description: Renamed C	NUREG(s)- 1432 Only

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Action 3.3.10.B Bases	SBFAS (Analog) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.3.11.C	PAM Instrumentation (Analog)	NUREG(s)- 1432 Only
Action 3.3.11.C	PAM Instrumentation (Digital)	NUREG(s)- 1432 Only
Action 3.3.11.C Bases	PAM Instrumentation (Analog)	NUREG(s)- 1432 Only
Action 3.3.11.C Bases	PAM Instrumentation (Digital)	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: New Condition	NUREG(s)- 1432 Only
Action 3.4.9.C	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 3.4.9.C Bases	Pressurizer Change Description: Renamed D	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

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Action 3.4.11.G Bases	Pressurizer PORVs	NUREG(s)- 1432 Only
Action 3.4.14.A	RCS PIV Leakage	NUREG(s)- 1432 Only
Action 3.4.14.A Bases	RCS PIV Leakage	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
Action 3.4.15.E	RCS Leakage Detection Instrumentation Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.4.15.E	RCS Leakage Detection Instrumentation Change Description: Renamed F	NUREG(s)- 1432 Only
Action 3.4.15.E Bases	RCS Leakage Detection Instrumentation Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.4.15.E Bases	RCS Leakage Detection Instrumentation Change Description: Renamed F	NUREG(s)- 1432 Only
Action 3.4.15.F	RCS Leakage Detection Instrumentation Change Description: Deleted	NUREG(s)- 1432 Only
Action 3.4.15.F Bases	RCS Leakage Detection Instrumentation Change Description: Deleted	NUREG(s)- 1432 Only
Action 3.4.18.A	SG Tube Integrity	NUREG(s)- 1432 Only
Action 3.4.18.A Bases	SG Tube Integrity	NUREG(s)- 1432 Only
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 Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.5.1.C	SITs Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.5.1.C Bases	SITs Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.5.1.C Bases	SITs Change Description: Renamed D	NUREG(s)- 1432 Only

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Action 3.5.1.D	SITs		NUREG(s)- 1432 Only
	Change Description:	Deleted	
Action 3.5.1.D Bases	SITs		NUREG(s)- 1432 Only
	Change Description:	Deleted	
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:	Deleted	
Action 3.5.2.D Bases	ECCS - Operating		NUREG(s)- 1432 Only
	Change Description:	Deleted	
Action 3.5.3.A	ECCS - Shutdown		NUREG(s)- 1432 Only
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 3.5.5.A	TSP		NUREG(s)- 1432 Only
Action 3.5.5.A Bases	TSP		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

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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 3.6.4.A	Containment Pressure (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.4A.A Bases	Containment Pressure (Atmospheric)	NUREG(s)- 1432 Only
Action 3.6.4B.A Bases	Containment Pressure (Dual)	NUREG(s)- 1432 Only
Action 3.6.5.A	Containment Air Temperature (Atmospheric)	NUREG(s)- 1432 Only
Action 3.6.5.A Bases	Containment Air Temperature (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 3.6.6B.A Bases	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.B	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
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

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Action 3.6.6A.C Bases	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 3.6.6B.D	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 Bases	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.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: New Condition	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: New Condition	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 3.6.6B.F Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Renamed G	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
Action 3.6.6B.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.G	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Deleted	NUREG(s)- 1432 Only
Action 3.6.6A.G	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Deleted	NUREG(s)- 1432 Only
Action 3.6.6A.G Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Deleted	NUREG(s)- 1432 Only
Action 3.6.6B.G Bases	Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Deleted	NUREG(s)- 1432 Only
Action 3.6.7.A	Spray Additive System (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.7.A Bases	Spray Additive System (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.8.A	SBEACS (Dual)	NUREG(s)- 1432 Only
Action 3.6.8.A Bases	SBEACS (Dual)	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 3.6.10.A	ICS (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.10.A	ICS (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.10.A Bases	ICS (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.10.A Bases	ICS (Atmospheric and Dual)	NUREG(s)- 1432 Only
Action 3.6.10.B	ICS (Atmospheric and Dual) Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.6.10.B	ICS (Atmospheric and Dual) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.6.10.B Bases	ICS (Atmospheric and Dual) Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.6.10.B Bases	ICS (Atmospheric and Dual) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.6.11.A	Shield Building (Dual)	NUREG(s)- 1432 Only
Action 3.6.11.A	Shield Building (Dual)	NUREG(s)- 1432 Only

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Action 3.6.11.A Bases	Shield Building (Dual)	NUREG(s)- 1432 Only
Action 3.6.11.A Bases	Shield Building (Dual)	NUREG(s)- 1432 Only
Action 3.6.12.A	Vacuum Relief Valves (Dual)	NUREG(s)- 1432 Only
Action 3.6.12.A	Vacuum Relief Valves (Dual)	NUREG(s)- 1432 Only
Action 3.6.12.A Bases	Vacuum Relief Valves (Dual)	NUREG(s)- 1432 Only
Action 3.6.12.A Bases	Vacuum Relief Valves (Dual)	NUREG(s)- 1432 Only
Action 3.6.12.B	Vacuum Relief Valves (Dual) Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.6.12.B	Vacuum Relief Valves (Dual) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.6.12.B Bases	Vacuum Relief Valves (Dual) Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.6.12.B Bases	Vacuum Relief Valves (Dual) Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.7.1.A	MSSVs	NUREG(s)- 1432 Only
Action 3.7.1.A Bases	MSSVs	NUREG(s)- 1432 Only
Action 3.7.1.B	MSSVs Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.7.1.B Bases	MSSVs Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.7.1.C	MSSVs Change Description: Renamed C	NUREG(s)- 1432 Only
Action 3.7.1.C Bases	MSSVs Change Description: Renamed C	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

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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 3.7.3.A	MFIVs [and [MFIV] Bypass Valves]	NUREG(s)- 1432 Only
Action 3.7.3.A Bases	MFIVs [and [MFIV] Bypass Valves]	NUREG(s)- 1432 Only
Action 3.7.3.B	MFIVs [and [MFIV] Bypass Valves]	NUREG(s)- 1432 Only
Action 3.7.3.B Bases	MFIVs [and [MFIV] Bypass Valves]	NUREG(s)- 1432 Only
Action 3.7.4.A	ADVs	NUREG(s)- 1432 Only
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 Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.7.5.C	AFW System Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.7.5.C Bases	AFW System Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.7.5.C Bases	AFW System Change Description: Renamed D	NUREG(s)- 1432 Only
Action 3.7.5.D	AFW System Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.7.5.D Bases	AFW System Change Description: Renamed E	NUREG(s)- 1432 Only
Action 3.7.5.E	AFW System Change Description: Renamed F	NUREG(s)- 1432 Only

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

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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:	New Condition	
Action 3.7.10.B	ECW		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
Action 3.7.10.B Bases	ECW		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
Action 3.7.10.B Bases	ECW		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.11.A	CREACS		NUREG(s)- 1432 Only
Action 3.7.11.A Bases	CREACS		NUREG(s)- 1432 Only
Action 3.7.11.B	CREACS		NUREG(s)- 1432 Only
Action 3.7.11.B Bases	CREACS		NUREG(s)- 1432 Only
Action 3.7.11.C	CREACS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.11.C	CREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.11.C Bases	CREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.11.C Bases	CREACS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.11.D	CREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.7.11.D Bases	CREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.7.11.E	CREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed F	
Action 3.7.11.E Bases	CREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed F	
Action 3.7.11.F	CREACS		NUREG(s)- 1432 Only
	Change Description:	Deleted	
Action 3.7.11.F Bases	CREACS		NUREG(s)- 1432 Only
	Change Description:	Deleted	

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Action 3.7.12.B	CREATCS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.12.B	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.B Bases	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Renamed C	
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:	Deleted	
Action 3.7.12.E Bases	CREATCS		NUREG(s)- 1432 Only
	Change Description:	Deleted	
Action 3.7.13.A	ECCS PREACS		NUREG(s)- 1432 Only
Action 3.7.13.A Bases	ECCS PREACS		NUREG(s)- 1432 Only
Action 3.7.13.B	ECCS PREACS		NUREG(s)- 1432 Only
Action 3.7.13.B Bases	ECCS PREACS		NUREG(s)- 1432 Only
Action 3.7.13.C	ECCS PREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.13.C	ECCS PREACS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.13.C Bases	ECCS PREACS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.13.C Bases	ECCS PREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.14.A	FBACS		NUREG(s)- 1432 Only
Action 3.7.14.A Bases	FBACS		NUREG(s)- 1432 Only

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Action 3.7.14.B	FBACS		NUREG(s)- 1432 Only
Action 3.7.14.B Bases	FBACS		NUREG(s)- 1432 Only
Action 3.7.14.C	FBACS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.14.C	FBACS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.14.C Bases	FBACS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.14.C Bases	FBACS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.14.D	FBACS		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.7.14.D Bases	FBACS		NUREG(s)- 1432 Only
	Change Description:	Renamed E	
Action 3.7.14.E	FBACS		NUREG(s)- 1432 Only
	Change Description:	Renamed F	
Action 3.7.14.E Bases	FBACS		NUREG(s)- 1432 Only
	Change Description:	Renamed F	
Action 3.7.15.A	PREACS		NUREG(s)- 1432 Only
Action 3.7.15.A Bases	PREACS		NUREG(s)- 1432 Only
Action 3.7.15.B	PREACS		NUREG(s)- 1432 Only
Action 3.7.15.B Bases	PREACS		NUREG(s)- 1432 Only
Action 3.7.15.C	PREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
Action 3.7.15.C	PREACS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.15.C Bases	PREACS		NUREG(s)- 1432 Only
	Change Description:	New Condition	
Action 3.7.15.C Bases	PREACS		NUREG(s)- 1432 Only
	Change Description:	Renamed D	
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

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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
Action 3.8.1.G	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1432 Only
Action 3.8.1.G	AC Sources - Operating Change Description: New Condition	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.G Bases	AC Sources - Operating Change Description: Renamed H	NUREG(s)- 1432 Only
Action 3.8.1.H	AC Sources - Operating Change Description: Deleted	NUREG(s)- 1432 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Deleted	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: Renamed E	NUREG(s)- 1432 Only
Action 3.8.4.D	DC Sources - Operating Change Description: New Condition	NUREG(s)- 1432 Only

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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: Renamed C	NUREG(s)- 1432 Only
Action 3.8.7.B	Inverters - Operating Change Description: New Condition	NUREG(s)- 1432 Only
Action 3.8.7.B Bases	Inverters - Operating Change Description: Renamed C	NUREG(s)- 1432 Only
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: Renamed E	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 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

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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
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 3.3.1.2.D	SRM Instrumentation	NUREG(s)- 1433 Only
Action 3.3.1.2.D Bases	SRM Instrumentation	NUREG(s)- 1433 Only
Action 3.3.2.1.A	Control Rod Block Instrumentation	NUREG(s)- 1433 Only
Action 3.3.2.1.A Bases	Control Rod Block Instrumentation	NUREG(s)- 1433 Only
Action 3.3.2.1.B	Control Rod Block Instrumentation Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.3.2.1.B	Control Rod Block Instrumentation Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.3.2.1.B Bases	Control Rod Block Instrumentation Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.3.2.1.B Bases	Control Rod Block Instrumentation Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.3.2.1.C	Control Rod Block Instrumentation Change Description: Renamed D	NUREG(s)- 1433 Only

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Action 3.3.2.1.C Bases	Control Rod Block Instrumentation Change Description: Renamed D	NUREG(s)- 1433 Only
Action 3.3.2.1.D	Control Rod Block Instrumentation Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.3.2.1.D Bases	Control Rod Block Instrumentation Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.3.2.1.E	Control Rod Block Instrumentation Change Description: Renamed F	NUREG(s)- 1433 Only
Action 3.3.2.1.E Bases	Control Rod Block Instrumentation Change Description: Renamed F	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 3.3.3.1.C	PAM Instrumentation	NUREG(s)- 1433 Only
Action 3.3.3.1.C Bases	PAM 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

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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
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 3.3.6.2.A	Secondary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
Action 3.3.6.2.A Bases	Secondary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
Action 3.3.6.2.B	Secondary Containment Isolation Instrumentation	NUREG(s)- 1433 Only
Action 3.3.6.2.B Bases	Secondary 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

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Action 3.3.6.3.C Bases	LLS Instrumentation	NUREG(s)- 1433 Only
Action 3.3.6.3.D	LLS Instrumentation Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.3.6.3.D	LLS Instrumentation Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.3.6.3.D Bases	LLS Instrumentation Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.3.6.3.D Bases	LLS Instrumentation Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.3.7.1.B	[MCREC] System Instrumentation	NUREG(s)- 1433 Only
Action 3.3.7.1.B Bases	[MCREC] System Instrumentation	NUREG(s)- 1433 Only
Action 3.3.7.1.C	[MCREC] System Instrumentation	NUREG(s)- 1433 Only
Action 3.3.7.1.C Bases	[MCREC] System Instrumentation	NUREG(s)- 1433 Only
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 3.3.8.2.A	RPS Electric Power Monitoring	NUREG(s)- 1433 Only
Action 3.3.8.2.A Bases	RPS Electric Power Monitoring	NUREG(s)- 1433 Only
Action 3.3.8.2.B	RPS Electric Power Monitoring	NUREG(s)- 1433 Only
Action 3.3.8.2.B Bases	RPS Electric Power Monitoring	NUREG(s)- 1433 Only
Action 3.4.1.A	Recirculation Loops Operating	NUREG(s)- 1433 Only
Action 3.4.1.A Bases	Recirculation Loops Operating	NUREG(s)- 1433 Only
Action 3.4.1.B	Recirculation Loops Operating Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.4.1.B	Recirculation Loops Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.4.1.B Bases	Recirculation Loops Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.4.1.B Bases	Recirculation Loops Operating Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.4.2.A	Jet Pumps	NUREG(s)- 1433 Only
Action 3.4.2.A Bases	Jet Pumps	NUREG(s)- 1433 Only

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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 Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.4.3.B	S/RVs Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.4.3.B Bases	S/RVs Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.4.3.B Bases	S/RVs Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.4.5.A	RCS PIV Leakage	NUREG(s)- 1433 Only
Action 3.4.5.A Bases	RCS PIV Leakage	NUREG(s)- 1433 Only
Action 3.4.6.E	RCS Leakage Detection Instrumentation Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.4.6.E	RCS Leakage Detection Instrumentation Change Description: Renamed F	NUREG(s)- 1433 Only
Action 3.4.6.E Bases	RCS Leakage Detection Instrumentation Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.4.6.E Bases	RCS Leakage Detection Instrumentation Change Description: Renamed F	NUREG(s)- 1433 Only
Action 3.4.6.F	RCS Leakage Detection Instrumentation Change Description: Deleted	NUREG(s)- 1433 Only
Action 3.4.6.F Bases	RCS Leakage Detection Instrumentation Change Description: Deleted	NUREG(s)- 1433 Only
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

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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 Change Description: Renamed H	NUREG(s)- 1433 Only
Action 3.5.1.G	ECCS - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.5.1.G Bases	ECCS - Operating Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.5.1.G Bases	ECCS - Operating Change Description: Renamed H	NUREG(s)- 1433 Only
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

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Action 3.6.1.3.E Bases	PCIVs	NUREG(s)- 1433 Only
Action 3.6.1.4.A	Drywell Pressure	NUREG(s)- 1433 Only
Action 3.6.1.4.A Bases	Drywell Pressure	NUREG(s)- 1433 Only
Action 3.6.1.5.A	Drywell Air Temperature	NUREG(s)- 1433 Only
Action 3.6.1.5.A Bases	Drywell Air Temperature	NUREG(s)- 1433 Only
Action 3.6.1.6.A	LLS Valves	NUREG(s)- 1433 Only
Action 3.6.1.6.A Bases	LLS Valves	NUREG(s)- 1433 Only
Action 3.6.1.6.B	LLS Valves Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.6.1.6.B	LLS Valves Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.6.1.6.B Bases	LLS Valves Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.6.1.6.B Bases	LLS Valves Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.6.1.7.A	Reactor Building-to-Suppression Chamber Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.7.A Bases	Reactor Building-to-Suppression Chamber Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.7.B	Reactor Building-to-Suppression Chamber Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.7.B Bases	Reactor Building-to-Suppression Chamber Vacuum Breakers	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 3.6.1.8.B	Suppression Chamber-to-Drywell Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.8.B Bases	Suppression Chamber-to-Drywell Vacuum Breakers	NUREG(s)- 1433 Only
Action 3.6.1.9.A	MSIV LCS	NUREG(s)- 1433 Only
Action 3.6.1.9.A Bases	MSIV LCS	NUREG(s)- 1433 Only

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Action 3.6.2.1.A	Suppression Pool Average Temperature	NUREG(s)- 1433 Only
Action 3.6.2.1.A Bases	Suppression Pool Average Temperature	NUREG(s)- 1433 Only
Action 3.6.2.2.A	Suppression Pool Water Level	NUREG(s)- 1433 Only
Action 3.6.2.2.A Bases	Suppression Pool Water Level	NUREG(s)- 1433 Only
Action 3.6.2.3.A	RHR Suppression Pool Cooling	NUREG(s)- 1433 Only
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 3.6.2.5.A	Drywell-to-Suppression Chamber Differential Pressure	NUREG(s)- 1433 Only
Action 3.6.2.5.A Bases	Drywell-to-Suppression Chamber Differential Pressure	NUREG(s)- 1433 Only
Action 3.6.3.1.A	[Drywell Cooling System Fans]	NUREG(s)- 1433 Only
Action 3.6.3.1.A Bases	[Drywell Cooling System Fans]	NUREG(s)- 1433 Only
Action 3.6.3.2.A	Primary Containment Oxygen Concentration	NUREG(s)- 1433 Only
Action 3.6.3.2.A Bases	Primary Containment Oxygen Concentration	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 3.6.4.1.A	[Secondary] Containment	NUREG(s)- 1433 Only
Action 3.6.4.1.A Bases	[Secondary] Containment	NUREG(s)- 1433 Only
Action 3.6.4.2.A	SCIVs	NUREG(s)- 1433 Only
Action 3.6.4.2.A Bases	SCIVs	NUREG(s)- 1433 Only
Action 3.6.4.2.B	SCIVs	NUREG(s)- 1433 Only
Action 3.6.4.2.B Bases	SCIVs	NUREG(s)- 1433 Only
Action 3.6.4.3.A	SGT System	NUREG(s)- 1433 Only
Action 3.6.4.3.A Bases	SGT System	NUREG(s)- 1433 Only

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Action 3.6.4.3.B	SGT System Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.6.4.3.B	SGT System Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.6.4.3.B Bases	SGT System Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.6.4.3.B Bases	SGT System Change Description: Renamed C	NUREG(s)- 1433 Only
Action 3.6.4.3.C	SGT System Change Description: Renamed D	NUREG(s)- 1433 Only
Action 3.6.4.3.C Bases	SGT System Change Description: Renamed D	NUREG(s)- 1433 Only
Action 3.6.4.3.D	SGT System Change Description: Deleted	NUREG(s)- 1433 Only
Action 3.6.4.3.D Bases	SGT System Change Description: Deleted	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: Renamed G	NUREG(s)- 1433 Only
Action 3.7.2.F	[PSW] System and [UHS] Change Description: New Condition	NUREG(s)- 1433 Only

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Action 3.7.2.F Bases	[PSW] System and [UHS] Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.7.2.F Bases	[PSW] System and [UHS] Change Description: Renamed G	NUREG(s)- 1433 Only
Action 3.7.4.A	[MCREC] System	NUREG(s)- 1433 Only
Action 3.7.4.A Bases	[MCREC] System	NUREG(s)- 1433 Only
Action 3.7.4.B	[MCREC] System	NUREG(s)- 1433 Only
Action 3.7.4.B Bases	[MCREC] System	NUREG(s)- 1433 Only
Action 3.7.4.C	[MCREC] System Change Description: Renamed D	NUREG(s)- 1433 Only
Action 3.7.4.C	[MCREC] System Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.7.4.C Bases	[MCREC] System Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.7.4.C Bases	[MCREC] System Change Description: New Condition	NUREG(s)- 1433 Only
Action 3.7.4.C Bases	[MCREC] System Change Description: Renamed D	NUREG(s)- 1433 Only
Action 3.7.4.D	[MCREC] System Change Description: Renamed E	NUREG(s)- 1433 Only
Action 3.7.4.E	[MCREC] System Change Description: Deleted	NUREG(s)- 1433 Only
Action 3.7.4.E Bases	[MCREC] System Change Description: Deleted	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

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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: Deleted	NUREG(s)- 1433 Only
Action 3.7.5.D Bases	[Control Room AC] System Change Description: Deleted	NUREG(s)- 1433 Only
Action 3.7.6.A	Main Condenser Offgas	NUREG(s)- 1433 Only
Action 3.7.6.A Bases	Main Condenser Offgas	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
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

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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: Deleted	NUREG(s)- 1433 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Deleted	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: New Condition	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 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
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: Renamed C	NUREG(s)- 1433 Only
Action 3.8.7.B	Inverters - Operating Change Description: New Condition	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

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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: 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.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: Deleted	NUREG(s)- 1433 Only
Action 3.8.9.F Bases	Distribution Systems - Operating Change Description: Deleted	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

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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 3.3.1.2.D	SRM Instrumentation	NUREG(s)- 1434 Only
Action 3.3.1.2.D Bases	SRM Instrumentation	NUREG(s)- 1434 Only
Action 3.3.3.1.B	PAM Instrumentation	NUREG(s)- 1434 Only
Action 3.3.3.1.B Bases	PAM 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
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

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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 3.3.6.2.A	Secondary Containment Isolation Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.2.A Bases	Secondary Containment Isolation Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.2.B	Secondary Containment Isolation Instrumentation	NUREG(s)- 1434 Only
Action 3.3.6.2.B Bases	Secondary 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
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

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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 3.3.7.1.B	[CRFA] System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.7.1.B Bases	[CRFA] System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.7.1.C	[CRFA] System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.7.1.C Bases	[CRFA] System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.7.1.D	[CRFA] System Instrumentation	NUREG(s)- 1434 Only
Action 3.3.7.1.D Bases	[CRFA] System Instrumentation	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 3.3.8.2.A	RPS Electric Power Monitoring	NUREG(s)- 1434 Only
Action 3.3.8.2.A Bases	RPS Electric Power Monitoring	NUREG(s)- 1434 Only
Action 3.4.1.A	Recirculation Loops Operating	NUREG(s)- 1434 Only
Action 3.4.1.A Bases	Recirculation Loops Operating	NUREG(s)- 1434 Only
Action 3.4.1.B	Recirculation Loops Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.4.1.B	Recirculation Loops Operating Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.4.1.B Bases	Recirculation Loops Operating Change Description: Renamed C	NUREG(s)- 1434 Only

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Action 3.4.1.B Bases	Recirculation Loops Operating Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.4.2.A	FCVs	NUREG(s)- 1434 Only
Action 3.4.2.A Bases	FCVs	NUREG(s)- 1434 Only
Action 3.4.3.A	Jet Pumps	NUREG(s)- 1434 Only
Action 3.4.3.A Bases	Jet Pumps	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: Renamed C	NUREG(s)- 1434 Only
Action 3.4.4.B	S/RVs Change Description: New Condition	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 3.4.6.A	RCS PIV Leakage	NUREG(s)- 1434 Only
Action 3.4.6.A Bases	RCS PIV Leakage	NUREG(s)- 1434 Only
Action 3.4.7.E	RCS Leakage Detection Instrumentation Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.4.7.E	RCS Leakage Detection Instrumentation Change Description: Renamed F	NUREG(s)- 1434 Only
Action 3.4.7.E Bases	RCS Leakage Detection Instrumentation Change Description: Renamed F	NUREG(s)- 1434 Only
Action 3.4.7.E Bases	RCS Leakage Detection Instrumentation Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.4.7.F	RCS Leakage Detection Instrumentation Change Description: Deleted	NUREG(s)- 1434 Only
Action 3.4.7.F Bases	RCS Leakage Detection Instrumentation Change Description: Deleted	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

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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
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:	Renamed H	
Action 3.5.1.G Bases	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.5.1.H	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	Renamed J	
Action 3.5.1.H Bases	ECCS - Operating		NUREG(s)- 1434 Only
	Change Description:	Renamed J	
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 3.5.3.A	RCIC System		NUREG(s)- 1434 Only
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

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Action 3.6.1.3.B Bases	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 3.6.1.4.A	Drywell Pressure	NUREG(s)- 1434 Only
Action 3.6.1.4.A Bases	Drywell Pressure	NUREG(s)- 1434 Only
Action 3.6.1.5.A	Drywell Air Temperature	NUREG(s)- 1434 Only
Action 3.6.1.5.A Bases	Drywell Air Temperature	NUREG(s)- 1434 Only
Action 3.6.1.6.A	LLS Valves	NUREG(s)- 1434 Only
Action 3.6.1.6.A Bases	LLS Valves	NUREG(s)- 1434 Only
Action 3.6.1.6.B	LLS Valves Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.6.1.6.B	LLS Valves Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.6.1.6.B Bases	LLS Valves Change Description: Renamed C	NUREG(s)- 1434 Only
Action 3.6.1.6.B Bases	LLS Valves Change Description: New Condition	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 3.6.1.8.B	PVLCS	NUREG(s)- 1434 Only
Action 3.6.1.8.B Bases	PVLCS	NUREG(s)- 1434 Only
Action 3.6.1.9.B	MSIV LCS	NUREG(s)- 1434 Only
Action 3.6.1.9.B Bases	MSIV LCS	NUREG(s)- 1434 Only
Action 3.6.2.1.A	Suppression Pool Average Temperature	NUREG(s)- 1434 Only

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Action 3.6.2.1.A	Suppression Pool Average Temperature	NUREG(s)- 1434 Only
Action 3.6.2.2.A	Suppression Pool Water Level	NUREG(s)- 1434 Only
Action 3.6.2.2.A	Suppression Pool Water Level	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
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 Ignitors	NUREG(s)- 1434 Only
Action 3.6.3.1.B Bases	Primary Containment and Drywell Hydrogen Ignitors	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 3.6.4.1.A	[Secondary Containment]	NUREG(s)- 1434 Only
Action 3.6.4.1.A Bases	[Secondary Containment]	NUREG(s)- 1434 Only
Action 3.6.4.2.A	SCIVs	NUREG(s)- 1434 Only
Action 3.6.4.2.A Bases	SCIVs	NUREG(s)- 1434 Only

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Action 3.6.4.2.B	SCIVs		NUREG(s)- 1434 Only
Action 3.6.4.2.B Bases	SCIVs		NUREG(s)- 1434 Only
Action 3.6.4.3.A	SGT System		NUREG(s)- 1434 Only
Action 3.6.4.3.A Bases	SGT System		NUREG(s)- 1434 Only
Action 3.6.4.3.B	SGT System		NUREG(s)- 1434 Only
	Change Description:	Renamed C	
Action 3.6.4.3.B	SGT System		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.6.4.3.B Bases	SGT System		NUREG(s)- 1434 Only
	Change Description:	Renamed C	
Action 3.6.4.3.B Bases	SGT System		NUREG(s)- 1434 Only
	Change Description:	New Condition	
Action 3.6.4.3.C	SGT System		NUREG(s)- 1434 Only
	Change Description:	Renamed D	
Action 3.6.4.3.C Bases	SGT System		NUREG(s)- 1434 Only
	Change Description:	Renamed D	
Action 3.6.4.3.D	SGT System		NUREG(s)- 1434 Only
	Change Description:	Deleted	
Action 3.6.4.3.D Bases	SGT System		NUREG(s)- 1434 Only
	Change Description:	Deleted	
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 3.6.5.4.A	Drywell Pressure		NUREG(s)- 1434 Only
Action 3.6.5.4.A Bases	Drywell Pressure		NUREG(s)- 1434 Only
Action 3.6.5.5.A	Drywell Air Temperature		NUREG(s)- 1434 Only

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Action 3.6.5.5.A Bases	Drywell Air Temperature	NUREG(s)- 1434 Only
Action 3.6.5.6.A	Drywell Vacuum Relief System	NUREG(s)- 1434 Only
Action 3.6.5.6.A Bases	Drywell Vacuum Relief System	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
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: Deleted	NUREG(s)- 1434 Only
Action 3.6.5.6.G Bases	Drywell Vacuum Relief System Change Description: Deleted	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: New Condition	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 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 3.7.3.A	[CRFA] System	NUREG(s)- 1434 Only

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Action 3.7.3.A Bases	[CRFA] System	NUREG(s)- 1434 Only
Action 3.7.3.B	[CRFA] System	NUREG(s)- 1434 Only
Action 3.7.3.B Bases	[CRFA] System	NUREG(s)- 1434 Only
Action 3.7.3.C	[CRFA] System Change Description: Renamed D	NUREG(s)- 1434 Only
Action 3.7.3.C	[CRFA] System Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.7.3.C Bases	[CRFA] System Change Description: New Condition	NUREG(s)- 1434 Only
Action 3.7.3.C Bases	[CRFA] System Change Description: Renamed D	NUREG(s)- 1434 Only
Action 3.7.3.D	[CRFA] System Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.7.3.D Bases	[CRFA] System Change Description: Renamed E	NUREG(s)- 1434 Only
Action 3.7.3.E	[CRFA] System Change Description: Deleted	NUREG(s)- 1434 Only
Action 3.7.3.E Bases	[CRFA] System Change Description: Deleted	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: Deleted	NUREG(s)- 1434 Only
Action 3.7.4.D Bases	[Control Room AC] System Change Description: Deleted	NUREG(s)- 1434 Only

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Action 3.7.5.A	Main Condenser Offgas	NUREG(s)- 1434 Only
Action 3.7.5.A Bases	Main Condenser Offgas	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: New Condition	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 Bases	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.H	AC Sources - Operating Change Description: Deleted	NUREG(s)- 1434 Only
Action 3.8.1.H Bases	AC Sources - Operating Change Description: Deleted	NUREG(s)- 1434 Only
Action 3.8.4.A	DC Sources - Operating	NUREG(s)- 1434 Only
Action 3.8.4.A Bases	DC Sources - Operating	NUREG(s)- 1434 Only

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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: New Condition	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 Bases	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.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
Action 3.8.9.B	Distribution Systems - Operating	NUREG(s)- 1434 Only

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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: New Condition	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.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: Deleted	NUREG(s)- 1434 Only
Action 3.8.9.F Bases	Distribution Systems - Operating Change Description: Deleted	NUREG(s)- 1434 Only
5.5.15	Risk Informed Completion Time Program	NUREG(s)- 1434 Only

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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.

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 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."

8. 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).

9. 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.

10. The Traveler will not modify Required Actions in Conditions entered during Operations with the Potential to Drain the Reactor Vessel (OPDRV) in BWRs.

11. The Traveler will not modify Required Actions that currently have a Completion Time of 30 days or more.

12. The Traveler will not modify Required Actions with a Completion Time of "immediately."

13. 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").

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 and then require being in Mode 3 in 6 hours and Mode 5 in 36 hours. This is equivalent to the LCO 3.0.3 allowance of 1 hour to prepare for a shutdown and to then be in Mode 3 in 6 hours and Mode 5 in 36 hours. This approach 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.

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. This is equivalent to the LCO 3.0.3 allowance of 1 hour to prepare for a shutdown and the LCO 3.0.3 required Modes and Completion Times. This approach 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

[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 0, "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 0, "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.

[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

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 0, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b." However, 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.

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 0, 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 0, 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

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,

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

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

[ATTACHMENT 3 - REVISED TECHNICAL SPECIFICATION PAGES]

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

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.

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.

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 OR In accordance with the Risk Informed Completion Time Program
B. Two subsystems inoperable.	B.1 Restore at least one subsystem to OPERABLE status.	1 hour 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. AND 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 is also entered. At least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. For emergent conditions, the licensee may be able to apply a RICT if the requirements of the Risk Informed Completion Time Program are met. A RICT cannot be applied if Condition B is entered voluntarily.

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 COMPLETION TIME	When "Immediately" is used as a Completion Time, the Required Action 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.

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two channels inoperable.	B.1 Place one channel in trip. AND	1 hour [OR In accordance with the Risk Informed Completion Time Program]
	B.2 Place second channel in bypass.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C. Three or more channels inoperable.	C.1 Restore inoperable channels to OPERABLE status.	1 hour [OR

CONDITION	REQUIRED ACTION	COMPLETION TIME
		In accordance with the Risk Informed Completion Time Program]
~~C. Three or more channels inoperable.~~ ~~OR~~ D. Required Action and associated Completion Time of Condition A ~~or~~ , B, or C not met.	D~~C.~~.1 Enter the Condition referenced in Table 3.3.1-1 for the Function.	Immediately
E~~D.~~. As required by Required Action C.1 and referenced in Table 3.3.1-1.	~~D~~E.1 Be in MODE 3. AND E~~D.~~.2 Open all CONTROL ROD drive (CRD) trip breakers.	6 hours 6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
FE. As required by Required Action C.1 and referenced in Table 3.3.1-1.	FE.1 Open all CRD trip breakers.	6 hours
GF. As required by Required Action C.1 and referenced in Table 3.3.1-1.	GF.1 Reduce THERMAL POWER < [45]% RTP.	6 hours
HG. As required by Required Action C.1 and referenced in Table 3.3.1-1.	HG.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
SR 3.3.1.3	----------NOTES---------- 1. Adjust the power range channel imbalance output if the absolute value of the imbalance error is ≥ [2]% RTP. 2. Not required to be performed until [24] hours after THERMAL POWER is ≥ 15% RTP. ---------- Compare results of out of core measured AXIAL POWER IMBALANCE (API_0) to incore measured AXIAL POWER IMBALANCE (API_1) as follows: $(RTP/TP)(API_0 - API_1)$ = imbalance error.	31 days
SR 3.3.1.4	Perform CHANNEL FUNCTIONAL TEST.	[45] days on a STAGGERED TEST BASIS
SR 3.3.1.5	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.1.6	----------NOTE---------- Neutron detectors are excluded from RPS RESPONSE TIME testing. ---------- Verify that RPS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

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 C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Nuclear Overpower -				
a. High Setpoint	1,2[a],3[d]	~~D~~E	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]	E	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	~~D~~E	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]	~~D~~E	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]	~~D~~E	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]	~~D~~E	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]	~~D~~E	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 C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Reactor Coolant Pump to Power	1,2[a]	~~D~~E	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]	~~D~~E	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	~~F~~G	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	~~G~~H	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]	~~E~~F	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 [OR 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. AND B.2 Open all CRD trip breakers.	6 hours 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

SURVEILLANCE	FREQUENCY
	startup if not performed within the previous 7 days

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

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. OR	1 hour [OR In accordance with the Risk Informed Completion Time Program]
	A.1.2 Remove power from the associated CRD trip breaker. AND	1 hour [OR In accordance with the Risk Informed Completion Time Program]
	A.2 Physically remove the inoperable RTM.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two or more RTMs inoperable in MODE 1, 2, or 3.	B.1 Restore inoperable RTMs to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~B. Two or more RTMs inoperable in MODE 1, 2, or 3.~~ ~~OR~~ C. Required Action and associated Completion Time not met in MODE 1, 2, or 3.	C~~B.~~.1 Be in MODE 3. AND ~~B~~C.2.1 Open all CRD trip breakers. OR ~~B~~C.2.2 Remove power from all CRD trip breakers.	6 hours 6 hours 6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D~~C.~~. Two or more RTMs inoperable in MODE 4 or 5.	D~~C.~~.1 Open all CRD trip breakers.	6 hours
OR	OR	
OR Required Action and associated Completion Time not met in MODE 4 or 5.	~~C~~D.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: Condition D is a default Condition and Condition E is outside the applicability of the Traveler. These 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) OR A.2 Remove power from the CRD trip breaker(s).	48 hours [OR In accordance with the Risk Informed Completion Time Program] 48 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One or more CRD trip breaker(s) [or breaker pair] inoperable for	B.1 Trip the CRD trip breaker(s).	1 hour [OR

CONDITION	REQUIRED ACTION	COMPLETION TIME
reasons other than those in Condition A.	OR	In accordance with the Risk Informed Completion Time Program]
	B.2 Remove power from the CRD trip breaker(s).	1 hour [OR In accordance with the Risk Informed Completion Time Program]

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. OR C.2 Trip corresponding AC CRD trip breaker.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour [OR In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met in MODE 1, 2, or 3.	D.1 Be in MODE 3. AND D.2.1 Open all CRD trip breakers. OR D.2.2 Remove power from all CRD trip breakers.	6 hours 6 hours 6 hours
E. Required Action and associated Completion Time not met in MODE 4 or 5.	E.1 Open all CRD trip breakers. OR E.2 Remove power from all CRD trip breakers.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

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 [OR In accordance with the Risk Informed Completion Time Program]
B. One or more Parameters with two or more channels inoperable.	B.1 Restore inoperable channel(s) to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~B. One or more Parameters with two or more channels inoperable.~~ ~~OR~~ C. Required Action and associated Completion Time not met.	C~~B.~~.1 Be in MODE 3. AND	6 hours

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform CHANNEL CHECK.	12 hours

Comment: Condition B 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 [OR In accordance with the Risk Informed Completion Time Program]
B. One or more ESFAS Functions with two channels inoperable.	B.1 Restore at least one channel to OPERABLE status.	1 hour [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	6 hours 36 hours

Comment: RA A.2 declares another component inoperable and is therefore excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
	OR	
	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 [OR 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 [OR 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 are 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 ≤ 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 ≤ 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
	AND	
	B.2 Initiate action to insert all CONTROL RODS.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.3 Open CONTROL ROD drive trip breakers. AND B.4 Verify SDM is within the limits specified in the COLR.	1 hour 1 hour AND 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: RA B.1 has an "Immediately" Completion Time and is therefore excluded.

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 ≤ 1E-10 amp.	2 hours [OR In accordance with the Risk Informed Completion Time Program]
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
	AND	
	B.2 ~~Open CRD trip breakers.~~1 Restore at least one channel to OPERABLE status. OR	1 hour [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.2 Open CRD trip breakers.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

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.

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. AND A.2 Place channel(s) in trip.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 72 hours [OR 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. AND B.2 Place second channel in	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
	trip. AND	[OR In accordance with the Risk Informed Completion Time Program]
	B.3 Restore one channel to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One EFW Vector Valve Control channel inoperable.	C.1 Restore channel to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
D. 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. OR Two or more EFW Vector Valve Control channels inoperable.	D.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
E~~D~~. ~~Three or more channels inoperable for Functions 1.a or 1.b.~~ ~~OR~~ Required Action and associated Completion Time not met for Functions 1.a or 1.b.	E~~D~~.1 Be in MODE 3. AND E~~D~~.2.1 ----------NOTE---------- Only required for Function 1a. ---------- Open CONTROL ROD drive trip breakers. AND E~~D~~.2.2 ----------NOTE---------- Only required for Function 1b. ---------- Be in MODE 4.	6 hours 6 hours 12 hours

F~~E~~. ~~Three or more channels inoperable for Functions 1.d.~~ ~~OR~~ Required Action and associated Completion Time not met for Function 1.d.	F~~E~~.1 Reduce THERMAL POWER to ≤ 10% RTP.	6 hours

ACTIONS (continued)

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

Table 3.3.11-1 (page 1 of 2)
Emergency Feedwater Initiation and Control System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCERE REQUIREMENTS	ALLOWABLE VALUE
1. EFW Initiation				
a. Loss of MFW Pumps (Control Oil Pressure)	1,2[(a)],3[(a)]	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	> [55] psig
b. SG Level - Low	1,2,3	4 per SG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3 SR 3.3.11.4	≥ [9] inches
c. SG Pressure - Low	1,2,3[(b)]	4 per SG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≥ [600] psig
d. RCP Status	≥ 10% RTP	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	NA
2. EFW Vector Valve Control				
a. SG Pressure - Low	1,2,3[(b)]	4 per SG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≥ [600] psig
b. SG Differential Pressure - High	1,2,3[(b)]	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≤ [125] psid
c. [SG Level - High	1,2,3[(b)]	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≤□[ ] inches]
3. Main Steam Line Isolation				
a. SG Pressure - Low	1,2,3[(b)(c)]	4 per SG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3 SR 3.3.11.4	≥ [600] psig

(a) When not in shutdown bypass.

(b) When SG pressure ≥ 750 psig.

(c) Except when all associated valves are closed and [deactivated].

Table 3.3.11-1 (page 2 of 2)
Emergency Feedwater Initiation and Control System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. MFW Isolation				
a. SG Pressure - Low	1,2,3[(b)(d)]	4 per SG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3 SR 3.3.11.4	≥ [600] psig

(b) When SG pressure ≥ 750 psig.

(d) Except when all [MFSVs], [MFCVs], [or associated SFCVs] are closed and [deactivated] [or isolated by a closed manual valve].

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 [OR 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 [OR 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. AND C.2 Be in MODE 4.	6 hours 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
A. One or more channel A Functions inoperable with all channel B Functions OPERABLE. OR One or more channel B Functions inoperable with all channel A Functions OPERABLE.	A.1 Restore affected channel to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One or more channels inoperable for both A and B Functions.	B.1 Restore affected channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
C~~B.~~. Required Action and associated Completion Time not met.	C~~B.~~.1 Be in MODE 3. AND C~~B.~~.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
A. One vector valve logic channel inoperable.	A.1 Restore channel to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. Two or more vector valve logic channels inoperable.	B.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time not met.	C~~B.~~.1 Be in MODE 3. AND C~~B.~~.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

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

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 [OR 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 3. AND B.2 Be in MODE 5.	6 hours 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. OR C.2 Suspend movement of [recently] irradiated fuel assemblies within the RB.	Immediately Immediately

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

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 [OR 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 3.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours
C. One channel inoperable during movement of [recently] irradiated fuel.	C.1 Place one OPERABLE CREVS train in emergency recirculation mode.	Immediately
	OR	

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	----------NOTE---------- 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. ---------- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.16.3	Perform CHANNEL CALIBRATION with setpoint Allowable Value ≤ [25] mR/hr.	[18] months

Comment: Condition A already has a 30 day CT. Conditions B and D are default Conditions and Conditions E and F apply to the default Condition (Condition D). Therefore these Conditions are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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. AND E.2 Be in MODE 4.	6 hours 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

Table 3.3.17-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. Wide Range Neutron Flux	2	E
2. RCS Hot Leg Temperature	2 per loop	E
3. RCS Cold Leg Temperature	2 per loop	E
4. RCS Pressure (Wide Range)	2	E
5. Reactor Vessel Water Level	2	F
6. Containment Sump Water Level (Wide Range)	2	E
7. Containment Pressure (Wide Range)	2	E
8. Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[(a)(b)]	E
9. Containment Area Radiation (High Range)	2	F
10. Pressurizer Level	2	E
11. Steam Generator Water Level	2 per SG	E
12. Condensate Storage Tank Level	2	E
13. Core Exit Temperature	2 independent sets of 5[(c)]	E
14. Emergency Feedwater Flow	2	E

----------REVIEWER'S NOTE----------
Table 3.3.17-1 shall be amended for each unit as necessary to list all U.S. NRC Regulatory Guide 1.97, Type A instruments and all U.S. NRC Regulatory Guide 1.97, Category I, non-Type A instruments in accordance with the unit's U.S. NRC Regulatory Guide 1.97, Safety Evaluation Report.

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) The subcooling margin monitor takes the average of the five highest CETs for each of the inadequate core cooling monitor (ICCM) trains.

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. AND B.2 Be in MODE 4.	6 hours 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 ≥ [2061.6] psig, RCS hot leg temperature shall be ≤ [604.6]°F, and RCS total flow rate shall be ≥ [139.7 E6] lb/hr, and

b. With three RCPs operating:

RCS loop pressure shall be ≥ [2057.2] psig, RCS hot leg temperature shall be ≤ [604.6] ° F, and RCS total flow rate shall be ≥ [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 ≥ 525°F.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop ≥ 525°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
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.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours
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.	C.1 Initiate action to restore parameter(s) to within limit. AND C.2 Determine RCS is acceptable for continued operation.	Immediately Prior to entering MODE 4

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 [OR 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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two RCS loops inoperable. OR Required RCS loop not in operation.	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. AND C.2 Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify one RCS loop is in operation.	12 hours
SR 3.4.5.2	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power available to each required pump.	 7 days

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

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
	AND	
	A.2 ----------NOTE---------- Only required if one DHR loop is OPERABLE. ---------- Be in MODE 5.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two required loops inoperable. OR Required loop not in operation.	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. AND B.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required DHR or RCS loop is in operation.	12 hours
SR 3.4.6.2	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power available to each required pump.	 7 days

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 ≥ [50]%.

----------NOTES----------

1. The DHR pump of the loop in operation 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. 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
A. One required DHR loop inoperable. AND One DHR loop OPERABLE.	A.1 Initiate action to restore a second DHR loop to OPERABLE status. OR A.2 Initiate action to restore required SGs secondary side water levels to within limits.	Immediately Immediately
B. One or more required SGs with secondary side water level not within limit. AND One DHR loop OPERABLE.	B.1 Initiate action to restore a second DHR loop to OPERABLE status. OR B.2 Initiate action to restore required SGs secondary side water level to within limit.	Immediately Immediately
C. No required DHR loop OPERABLE. OR Required DHR loop not in operation.	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. AND C.2 Initiate action to restore one DHR loop to OPERABLE status and operation.	Immediately Immediately

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 ≤ [160]°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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No required DHR loop OPERABLE. <u>OR</u> Required DHR loop not in operation.	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. <u>AND</u> B.2 Initiate action to restore one DHR loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify required DHR loop is in operation.	12 hours
SR 3.4.8.2	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power available to each required DHR pump.	 7 days

Comment: While Condition A represents a variable outside its limit, the pressurizer could be substituted as a surrogate in an RICT calculation. 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 ≤ [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 ≥ [275]°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Restore level to within limit.	1 hour [OR 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 3. AND B.2 Be in MODE 4 with RCS temperature ≤ [275]°F.	6 hours [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 [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
		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. AND D.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level ≤ [290] inches.	12 hours
SR 3.4.9.2	[Verify ≥ [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 ≥ [2475] psig and ≤ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met. OR Two pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with any RCS cold leg temperature ≤ [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
	AND	
	A.2 Remove power from block valve.	1 hour
B. Block valve inoperable.	B.1 Close block valve.	1 hour
	AND	
	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
	AND	
	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 ≤ [220] inches and an OPERABLE power operated relief valve (PORV) with a lift setpoint of ≤ [555] psig or

b. The RCS depressurized and an RCS vent of ≥ [0.75] square inch.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is ≤ [283]°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
	OR		
	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
	AND		
	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
	AND		
	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: 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)

3.4.13 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. OR Pressure boundary LEAKAGE exists. OR Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

Comment: While Condition A represents a variable outside its limit, the PIV could be used as a surrogate in an RICT calculation. 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
A. One or more flow paths with leakage from one or more RCS PIVs not within limit.	----------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]. ----------	
	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.	4 hours [OR In accordance with the Risk Informed Completion Time Program]
	AND	

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 [OR In accordance with the Risk Informed Completion Time Program] 72 hours] [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours
C. [Decay Heat Removal (DHR) System autoclosure interlock function inoperable.	C.1 Isolate the affected penetration by use of one closed manual or deactivated automatic valve.	4 hours] [OR In accordance with the Risk Informed Completion Time Program]

Comment: RAs A.1, B.1.1 and B.1.2 contain a repetitive surveillance type activity. RAs A.2 and B.2 already have a 30 day CT and Condition D is a default Condition. Therefore these are excluded.

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

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.	Once per 24 hours
	AND	
	B.2 Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
C. Both required monitors inoperable.	C.1 Restore at least one required monitor to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C.~~. Required Action and associated Completion Time not met.	D~~C.~~.1 Be in MODE 3.	6 hours
	AND	
	D~~C.~~.2 Be in MODE 5.	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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.15.3	Perform CHANNEL CALIBRATION of required containment sump monitor.	[18] months
SR 3.4.15.4	Perform CHANNEL CALIBRATION of required containment atmosphere radioactivity monitor.	[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 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}) ≥ 500°F.

ACTIONS

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

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°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant gross specific activity ≤ 100/Ē μCi/gm.	7 days
SR 3.4.16.2	----------NOTE---------- Only required to be performed in MODE 1. ----------	
	Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm.	14 days AND Between 2 and 6 hours after THERMAL POWER change of ≥ 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 Ē.	184 days

Comment: The RA A.2 CT is not a time-based CT and Condition B is a default Condition. Therefore these are excluded.

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
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. AND A.2 Plug [or repair] the affected tube(s) in accordance with the Steam Generator Program.	7 days [OR In accordance with the Risk Informed Completion Time 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. OR SG tube integrity not maintained.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

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.

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 [OR 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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two CFTs inoperable.	C.1 Restore at least one CFT to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C.~~. Required Action and associated Completion Time ~~of Condition A or B~~	D~~C.~~.1 Be in MODE 3. AND	6 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
not met.	~~C~~D.2 Reduce RCS pressure to ≤ [750] psig.	[12] hours
~~D. Two CFTs inoperable.~~	~~D.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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.2	Verify borated water volume in each CFT is ≥ [7555 gallons, [ ] ft and ≤ 8005 gallons, [ ] ft].	12 hours
SR 3.5.1.3	Verify nitrogen cover pressure in each CFT is ≥ [575] psig and ≤ [625] psig.	12 hours
SR 3.5.1.4	Verify boron concentration in each CFT is ≥ [2270] ppm and ≤ [3500] ppm.	31 days AND --------NOTE-------- Only required to be performed for affected CFT Once within 6 hours after each solution volume increase of ≥ [80 gallons] that is not the result of addition from the borated water storage tank
SR 3.5.1.5	Verify power is removed from each CFT isolation valve operator when RCS pressure is ≥ [2000] psig.	31 days

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 [OR 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 [OR In accordance with the Risk Informed Completion Time Program]
C. Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	C.1 Restore ECCS flow equivalent to 100% of a single OPERABLE ECCS train.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
D~~C~~. Required Action and associated Completion Time not met.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 4.	6 hours 12 hours
~~D. Less than 100% of the ECCS flow equivalent to a single OPERABLE train available.~~	~~D.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 [OR 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.

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. OR BWST water temperature not within limits.	A.1 Restore BWST to OPERABLE status.	8 hours [OR 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 [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. AND 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. AND B.2 Be in MODE 5.	6 hours 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
A. One or more containment air locks with one 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]. ---------- A.1 Verify the OPERABLE door is closed in the affected air lock. <u>AND</u>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Lock the OPERABLE door closed in the affected air lock. AND 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.	24 hours Once per 31 days
B. One or more containment air locks with containment air lock interlock mechanism inoperable.	----------NOTES---------- 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. ---------- B.1 Verify an OPERABLE door is closed in the affected air lock. AND	 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Lock an OPERABLE door closed in the affected air lock.	24 hours
	AND	
	B.3 ----------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ---------- Verify an OPERABLE door is locked closed in the affected air lock.	Once per 31 days
C. One or more containment air locks inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate overall containment leakage rate per LCO 3.6.1.	Immediately
	AND	
	C.2 Verify a door is closed in the affected air lock.	1 hour
	AND	
	C.3 Restore air lock to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	AND	
	D.2 Be in MODE 5.	36 hours

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. AND	4 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.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.	Once per 31 days following isolation for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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].	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C. ----------NOTE---------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. ---------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. AND	72 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	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 otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days following isolation
D. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	D.1 Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, or blind flange]. AND	24 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	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.	Once per 31 days following isolation for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
	AND D.3 Perform SR 3.6.3.6 for the resilient seal purge valves closed to comply with Required Action D.1.	Once per [ ] days] following isolation
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	6 hours 36 hours

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

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be ≥ [-2.0] psig and ≤ [+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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

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

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be ≤ [130]°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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 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

3.6.6 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 [OR 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 3. AND 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 [OR In accordance with the Risk Informed Completion Time Program]
D. One containment spray train and one [required] containment cooling train inoperable.	D.1 Restore containment spray train to OPERABLE status. OR	72 hours [OR

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

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. Two containment spray trains inoperable. OR Any combination of three or more trains inoperable.	F.1 Restore inoperable containment spray trains and containment cooling trains to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
G~~F~~. Required Action and associated Completion Time of Condition C, D, E, or F ~~D~~ not met.	G~~F~~.1 Be in MODE 3. AND G~~F~~.2 Be in MODE 5.	6 hours 36 hours
~~G. Two containment spray trains inoperable.~~ ~~OR~~ ~~Any combination of three or more trains inoperable.~~	~~G.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.3	Verify each [required] containment cooling train cooling water flow rate is ≥ [1780] gpm.	31 days
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.5	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.	[18] months
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	[18] months
SR 3.6.6.7	Verify each [required] containment cooling train starts automatically on an actual or simulated actuation signal.	[18] months
SR 3.6.6.8	Verify each spray nozzle is unobstructed.	[At first refueling] <u>AND</u> 10 years

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 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 ≥ [12,970] gal and ≤ [13,920] gal.	184 days

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

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. AND A.2 Reduce the nuclear overpower trip setpoint in accordance with Figure 3.7.1-1.	4 hours [OR In accordance with the Risk Informed Completion Time Program] 36 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One or more steam generators with less than [two] MSSVs OPERABLE.	B.1 Restore inoperable MSSVs on each steam generator to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
C~~B~~.Required Action and associated Completion Time not met. ~~OR~~ ~~One or more steam generators with less than [two] MSSVs OPERABLE.~~	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	6 hours 12 hours

Comment: Conditions B and E are default Conditions and RA D.2 requires the periodic performance of an action. Therefore these are excluded.

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 [OR 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 2.	6 hours
C Two or more MSIVs inoperable in MODE 1.	C.1 Restore inoperable MSIVs to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C~~. ----------NOTE---------- Separate Condition entry is allowed for each MSIV. ----------	D~~C~~.1 Close MSIV. AND	[8] hours [OR In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
One or more MSIVs inoperable in MODE 2 or 3.	D~~C~~.2 Verify MSIV is closed.	Completion Time Program] Once per 7 days following closure
E~~D~~. Required Action and associated Completion Time of Condition C or D not met.	E~~D~~.1 Be in MODE 3. AND E~~D~~.2 Be in MODE 4.	6 hours 12 hours

Comment: RAs A.2, B.2, and C.2 require periodic performance of an action and Condition E is a default Condition. Therefore these are excluded.

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]. AND A.2 Verify [MFSV] is closed or isolated.	[8 or 72] hours [OR In accordance with the Risk Informed Completion Time Program] Once per 7 days following closure or isolation
B. One [MFCV] in one or more flow paths inoperable.	B.1 Close or isolate [MFCV]. AND B.2 Verify [MFCV] is closed or isolated.	[8 or 72] hours [OR In accordance with the Risk Informed Completion Time Program] Once per 7 days following closure or isolation

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One [SFCV] in one or more flow paths inoperable.	C.1 Close or isolate [SFCV]. AND	[8 or 72] hours [OR In accordance with the Risk Informed Completion Time Program]
	C.2 Verify [SFCV] is closed or isolated.	Once per 7 days following closure or isolation

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 [OR In accordance with the Risk Informed Completion Time Program]
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. [AND 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 ≤ [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] [OR 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] [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. AND C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	6 hours [24] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.2	[Verify one complete cycle of each AVV block valve.	[18] months]

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One EFW train inoperable [for reasons other than Condition A] in MODE 1, 2, or 3.	B.1 Restore EFW train to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
[C. Two EFW trains inoperable in MODE 1, 2, or 3.	C.1 Restore at least one EFW train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]]
D~~C~~. Required Action and associated Completion Time of Condition A, [~~or~~ B,] [or C] not met. ~~[OR~~ ~~Two EFW trains inoperable in MODE 1, 2, or 3.]~~	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 4.	6 hours [18] hours
E~~D~~.[Three] EFW trains inoperable in MODE 1, 2, or 3.	E~~D~~.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. ---------- Initiate action to restore one EFW train to OPERABLE status.	 Immediately

F~~E~~. Required EFW train inoperable in MODE 4.	F~~E~~.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
A. The [two] CST(s) inoperable.	A.1 Verify by administrative means OPERABILITY of backup water supply. AND A.2 Restore CST(s) to OPERABLE status.	4 hours AND Once per 12 hours thereafter 7 days [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND 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 ----------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.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. Two CCW trains inoperable.	B.1 Restore at least one CCW train to OPERABLE status.	1 hour [OR

CONDITION	REQUIRED ACTION	COMPLETION TIME
		In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time ~~of Condition A~~ not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	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
A. One SWS train inoperable.	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.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. Two SWS trains inoperable.	B.1 Restore at least one SWS train to OPERABLE status.	1hour [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time ~~of Condition A~~ not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 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
A. [One or more cooling towers with one cooling tower fan inoperable.	A.1 Restore cooling tower fan(s) to OPERABLE status.	7 days] [OR 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]
C. UHS inoperable [for reasons other than Condition A or B.	C.1 Restore UHS to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time

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

Comment: Condition D is a default Condition, and Conditions E and F are outside the applicability of the traveler. Therefore these Conditions are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two CREVS trains inoperable in MODE 1, 2, 3 or 4 for reasons other than Condition B.	C.1 Restore at least one CREVS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Program]
D~~C~~. Required Action and associated Completion Time of Condition A, B, or C~~B~~ not met in MODE 1, 2, 3, or 4.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 5.	6 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E~~D~~.[Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies.	E~~D~~.1 ----------NOTE---------- Place in emergency mode if automatic transfer to emergency mode inoperable. ----------	
	Place OPERABLE CREVS train in emergency mode.	Immediately
	OR	
	E~~D~~.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately]
F~~E~~. [Two CREVS trains inoperable during movement of [recently] irradiated fuel assemblies.	F~~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
B. Two CREATCS trains inoperable in MODE 1, 2, 3 or 4.	B.1 Restore at least one CREATCS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	6 hours 36 hours
D~~C~~. [Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies.	D~~C~~.1 Place OPERABLE CREATCS train in operation. OR D~~C~~.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately Immediately]

CONDITION	REQUIRED ACTION	COMPLETION TIME
E~~D~~.[Two CREATCS trains inoperable during movement of [recently] irradiated fuel assemblies.	E~~D~~.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~E. Two CREATCS trains inoperable during MODE 1, 2, 3, or 4.~~	~~E.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: Condition D is a default Condition and is excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two EVS trains inoperable for reasons other than Condition B.	C.1 Restore at least one EVS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
D~~C~~. Required Action and associated Completion Time not met.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 5.	6 hours 36 hours

Comment: Condition D is a default Condition. Conditions E and F are outside the applicability of the Traveler. Therefore these Conditions are excluded

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two FSPVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	C.1 Restore at least one FSPVS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C~~. [Required Action and associated Completion Time of Condition A, B, or C~~B~~ not met in MODE 1, 2, 3, or 4. ~~OR~~ ~~Two FSPVs trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.~~	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 5.	6 hours 36 hours]
E~~D~~. Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies in the fuel building.	E~~D~~.1 Place OPERABLE FSPVS train in operation. OR E~~D~~.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately Immediately
F~~E~~. Two FSPVS trains inoperable during movement of [recently] irradiated fuel assemblies in the fuel building.	F~~E~~.1 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	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. 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 ≥ [500] ppm.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel pool boron concentration not within limit.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	A.1 Suspend movement of fuel assemblies in the spent fuel pool.	Immediately
	AND	
	A.2.1 Initiate action to restore spent fuel pool boron concentration to within limit.	Immediately
	OR	
	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 ≤ [0.10] μCi/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. AND A.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Verify the specific activity of the secondary coolant is ≤ [0.10] μCi/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 AND Once per 8 hours thereafter
	AND	
	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)
	AND	

ACTIONS (continued)

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

		Completion Time Program]/

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two [required] offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	AND	
	C.2 Restore one [required] offsite circuit to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
D. One [required] offsite circuit inoperable. AND One [required] DG inoperable.	----------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. ----------	
	D.1 Restore [required] offsite circuit to OPERABLE status. OR	12 hours [OR In accordance with the Risk Informed Completion Time Program]
	D.2 Restore [required] DG to OPERABLE status.	12 hours [OR In accordance with the Risk Informed Completion Time

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
-----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. ---------- F. One [required] [automatic load sequencer] inoperable.	F.1 Restore [required] [automatic load sequencer] to OPERABLE status.	[12] hours] [OR In accordance with the Risk Informed Completion Time Program]
G. Three or more [required] AC sources inoperable.	G.1 Restore [required] inoperable AC sources to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
H~~G~~. Required Action and Associated Completion Time ~~of Condition A, B, C, D, E, or [F]~~ not met.	H~~G~~.1 Be in MODE 3. AND H~~G~~.2 Be in MODE 5.	12 hours 36 hours
~~H. Three or more [required] AC sources inoperable.~~	~~H.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

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

ACTIONS (continued)

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

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.

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
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 ≥ [33,000] gal of fuel.	31 days
SR 3.8.3.2	Verify lube oil inventory is ≥ [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 ≥ [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 [OR In accordance with the Risk Informed Completion Time Program]
	AND	
	A.2 Verify battery float current ≤ [2] amps.	Once per [12] hours
	AND	
	A.3 Restore battery charger[s] to OPERABLE status.	7 days [OR 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] [OR 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 [OR In accordance with the Risk Informed Completion Time Program]
D. Two DC electrical power subsystems inoperable.	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]
E~~D~~. Required Action and Associated Completion Time not met.	E~~D~~.1 Be in MODE 3. AND E~~D~~.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----------
The 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 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. AND 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. AND A.2 Verify battery float current ≤ [2] amps. AND	2 hours Once per [12] hours

ACTIONS (continued)

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

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 AND A.2 Perform SR 3.8.6.1. AND A.3 Restore affected cell voltage ≥ [2.07] V.	2 hours 2 hours 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. AND B.2 Restore battery float current to ≤ [2] amps.	2 hours [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Required Action C.2 shall be completed if electrolyte level was below the top of plates. ----------	----------NOTE---------- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. ----------	
C. One [or two] batter[y][ies on one train] with one or more cells electrolyte level less than minimum established design limits.	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.	8 hours 12 hours 31 days
D. One [or two] batter[y][ies on one train] with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. One or more batteries in redundant trains with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one train to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR 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.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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.	7 days
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ [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 vital bus de-energized. ---------- Restore inverter to OPERABLE status.	24 hour [OR In accordance with the Risk Informed Completion Time Program]
B. Two or more [required] inverters inoperable.	B.1 Restore inoperable inverters to OPERABLE status.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
		[OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	6 hours 36 hours

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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	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
A. One or more AC electrical power distribution subsystems inoperable.	----------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. ----------	
	A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One or more AC vital buses inoperable.	B.1 Restore AC vital bus subsystem(s) to OPERABLE status.	2 hours [OR In accordance with the Risk Informed Completion Time Program]
C. One or more DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours [OR In accordance with

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.	D.1 Restore inoperable electrical power distribution subsystems to OPERABLE status to restore safety function.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
E~~D~~. Required Action and associated Completion Time not met.	E~~D~~.1 Be in MODE 3. AND E~~D~~.2 Be in MODE 5.	6 hours 36 hours
~~E. Two or more electrical power distribution subsystems inoperable that result in a loss of function.~~	~~E.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

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

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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.4 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.5 Declare associated required decay heat removal 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

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

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 in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

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.]

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.

F~~E~~.1

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 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.

G~~F~~.1

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 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)

H~~G~~.1

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 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.

ACTIONS

A.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

APPLICABILITY

The RTMs are required to be OPERABLE in MODES 1 and 2. They are also required to be OPERABLE in MODES 3, 4, and 5 if any CRD trip breakers are in the closed position and the CRD System is capable of rod withdrawal. The RTMs are designed to ensure a reactor trip would occur, if needed, any time the reactor is critical. This condition can exist in all of these MODES; therefore, the RTMs must be OPERABLE.

ACTIONS

A.1.1, A.1.2, and A.2

When an RTM is inoperable, the associated CRD trip breaker must then be placed in a condition that is equivalent to a tripped condition for the RTM. Required Action A.1.1 or Required Action A.1.2 requires this either by tripping the CRD trip breaker or by removing power to the CRD trip device. Tripping one RTM or removing power opens one set of CRD trip devices. Power to hold up CONTROL RODS is still provided via the parallel CRD trip device(s). Therefore, a reactor trip will not occur until a second protection channel trips.

To ensure the trip signal is registered in the other channels, Required Action A.2 requires that the inoperable RTM be removed from the cabinet. This action causes the electrical interlocks to indicate a tripped channel in the remaining three RTMs. Operation in this condition is allowed indefinitely because the actions put the RPS into a one-out-of-three configuration. The 1 hour Completion Time is sufficient time to perform the Required Actions. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

B.1

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

~~C~~B.1, ~~C~~B.2.1, and ~~C~~B.2.2

Condition C ~~B~~ applies if ~~two or more RTMs are inoperable or if~~ the Required Actions of Condition ~~-~~A or B are not met within the required Completion Time in MODE 1, 2, or 3. In this case, 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 with all CRD trip breakers open or with power from all CRD trip breakers removed 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.

BASES

ACTIONS (continued)

D~~C~~.1 and D~~C~~.2

Condition D ~~C~~ applies if two or more RTMs are inoperable or if the Required Actions of Condition A are not met within the required Completion Time in MODE 4 or 5. In this case, the unit must be placed in a MODE in which the LCO does not apply. This is done by opening all CRD trip breakers or removing power from all CRD trip breakers. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to open all CRD trip breakers or remove power from all CRD trip breakers without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1

----------REVIEWER'S NOTE----------
The CHANNEL FUNCTIONAL TEST Frequency is approved for all B&W power plants except for TMI based on an approved topical report. No further evaluations or justifications are required for the evaluated plants to incorporate the 23 day STAGGERED TEST BASIS Frequency.

The SRs include performance of a CHANNEL FUNCTIONAL TEST every [23] days on a STAGGERED TEST BASIS. This test shall verify the OPERABILITY of the RTM and its ability to receive and properly respond to channel trip and reactor trip signals. 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. Calculations have shown that the Frequency (23 days) maintains a high level of reliability of the Reactor Trip System in BAW-10167A, Supplement 3 (Ref. 2).

REFERENCES

1. FSAR, Chapter [7].

2. BAW-10167A, Supplement 3, February 1998.

BASES

ACTIONS

A Note has been added to the ACTIONS indicating separate Condition entry is allowed for each CRD trip device.

Condition A

Condition A represents reduced redundancy in the CRD trip Function. Condition A applies when:

- One diverse trip Function (undervoltage or shunt trip device) is inoperable in one or more CRD trip breaker(s) [or breaker pair] or
- One diverse trip Function is inoperable in both DC trip breakers associated with one protection channel. In this case, the inoperable trip Function does not need to be the same for both breakers.

A.1 and A.2

If one of the diverse trip Functions on a CRD trip breaker [or breaker pair] becomes inoperable, actions must be taken to preclude the inoperable CRD trip device from preventing a reactor trip when needed. This is done by manually tripping the inoperable CRD trip breaker or by removing power from the channel containing the inoperable CRD trip breaker. Either of these actions places the affected CRDs in a one-out-of-two trip configuration, which precludes a single failure, which in turn could prevent tripping of the reactor. The 48 hour Completion Time has been shown to be acceptable through operating experience. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

Condition B

Condition B represents a loss of redundancy for the CRD trip Function. Condition B applies when:

- One or more CRD trip breaker(s) [or breaker pair] will not function on either undervoltage or shunt trip Functions or
- Both diverse trip Functions are inoperable in one or both DC trip breakers associated with one protection channel.

BASES

ACTIONS (continued)

B.1 and B.2

Required Action B.1 and Required Action B.2 are the same as Required Action A.1 and Required Action A.2, but the Completion Time is shortened. The 1 hour Completion Time allowed to trip or remove power from the CRD trip breaker allows the operator to take all the appropriate actions for the inoperable breaker and still ensures that the risk involved is acceptable. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

Condition C represents a loss of redundancy for the CRD trip Function. Condition C applies when one or more ETA relays are inoperable. The preferred action is to restore the ETA relay to OPERABLE status. If this cannot be done, the operator can perform one of two actions to eliminate reliance on the failed ETA relay. This first option is to switch the affected control rod group to an alternate power supply. This removes the failed ETA relay from the trip sequence, and the unit can operate indefinitely. The second option is to trip the corresponding AC CRD trip breaker. This results in the safety function being performed, thereby eliminating the failed ETA relay from the trip sequence. The 1 hour Completion Time is sufficient to perform the Required Action. [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

If the Required Actions of Condition A, B, or C are not met within the required Completion Time in MODE 1, 2, or 3, 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, with all CRD trip breakers open or with power from all CRD trip breakers removed 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.

BASES

ACTIONS (continued)

E.1 and E.2

If the Required Actions of Condition A, B, or C are not met within the required Completion Time in MODE 4 or 5, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, all CRD trip breakers must be opened or power from all CRD trip breakers removed within 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to open all CRD trip breakers or remove power from all CRD trip breakers without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1

----------REVIEWER'S NOTE----------
The CHANNEL FUNCTIONAL TEST Frequency is approved for all B&W plants except for TMI based on an approved topical report. No further evaluations or justifications are required for the evaluated plants to incorporate the 23 day STAGGERED TEST BASIS Frequency.

SR 3.3.4.1 is to perform a CHANNEL FUNCTIONAL TEST every 23 days on a STAGGERED TEST BASIS. This test verifies the OPERABILITY of the trip devices by actuation of the end devices. Also, this test independently verifies the undervoltage and shunt trip mechanisms of the AC breakers. 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. Calculations have shown that the Frequency (23 days) maintains a high level of reliability of the Reactor Trip System in BAW-10167A, Supplement 3 (Ref. 2).

REFERENCES

1. FSAR, Chapter [7].

2. BAW-10167A, Supplement 3, February 1998.

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.]

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.]

C~~B~~.1, C~~B~~.2.1, C~~B~~.2.2, and C~~B~~.2.3

Condition C~~B~~ 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 C~~B~~ 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,

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.

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.]

C~~B~~.1 and C~~B~~.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 reach the required MODES from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1

This SR requires the performance of a CHANNEL FUNCTIONAL TEST of the ESFAS manual initiation. This test verifies that the initiating circuitry is OPERABLE and will actuate the end device (i.e., pump, valves, etc.). 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

BASES

LCO	The automatic actuation logic matrix for each component actuated by the ESFAS is required to be OPERABLE whenever conditions exist that could require ESF protection of the reactor or the RB. This ensures automatic initiation of the ESF required to mitigate the consequences of accidents.
APPLICABILITY	The automatic actuation logic Function shall be OPERABLE in MODES 1, 2, and 3, and in MODE 4 when the associated engineered safeguard equipment is required to be OPERABLE, because ESF Functions are designed to provide protection in these MODES. Automatic actuation in MODE 5 or 6 is not required because the systems initiated by the ESFAS 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. Adequate time is available to evaluate unit conditions and respond by manually operating the ESF components, if required.
ACTIONS	A Note has been added to the ACTIONS indicating separate Condition entry is allowed for each ESFAS automatic actuation logic matrix.

A.1 and A.2

When one or more automatic actuation logic matrices are inoperable, the associated component(s) can be placed in its engineered safeguard configuration. Required Action A.1 is equivalent to the automatic actuation logic performing its safety function ahead of time. In some cases, placing the component in its engineered safeguard configuration would violate unit safety or operational considerations. In these cases, the component status should not be changed, but the supported system component must be declared inoperable. Conditions which would preclude the placing of a component in its engineered safeguard configuration include, but are not limited to, violation of system separation, activation of fluid systems that could lead to thermal shock, or isolation of fluid systems that are normally functioning. The Completion Time of 1 hour [or in accordance with the Risk Informed Completion Time Program] is based on operating experience and reflects the urgency associated with the inoperability of a safety system component.

Required Action A.2 requires entry into the Required Actions of the affected supported systems, since the true effect of automatic actuation logic failure is inoperability of the supported system. The Completion Time of 1 hour is based on operating experience and reflects the urgency associated with the inoperability of a safety system component.

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 REQUIREMENTS

SR 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

APPLICABILITY

The intermediate range neutron flux channels shall be OPERABLE in MODE 2 and in 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.

The intermediate range instrumentation is designed to detect power changes during initial criticality and power escalation when the power range and source range instrumentation cannot provide reliable indications. Since those conditions can exist in all of these MODES, the intermediate range instrumentation must be OPERABLE.

ACTIONS

A.1

If one intermediate range channel becomes inoperable when the channels indicate > 1E-10 amp, the unit is exposed to the possibility that a single failure will disable all neutron monitoring instrumentation. To avoid this, the inoperable channel must be repaired or power must be reduced to the point where source range channels can provide neutron flux indication. Completion of Required Action A.1 places the unit in this state, and LCO 3.3.9, "Source Range Neutron Flux," requires OPERABILITY of two source range detectors once this state is reached. If the one channel failure occurs when indicated power is ≤ 1E-10 amp, the Required Action prohibits increases in power above the source range capability.

The 2 hour Completion Time allows controlled reduction of power into the source range and is based on unit operating experience that demonstrates the improbability of the second intermediate range channel failing during the allowed interval. [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

With two intermediate range neutron flux channels inoperable when THERMAL POWER is ≤ 5% RTP, the operators must place the reactor in the next lowest condition for which the intermediate range instrumentation is not required. This involves providing power level indication on the source range instrumentation by immediately suspending operations involving positive reactivity changes and, within 1 hour [or in accordance with the Risk Informed Completion Time Program], restoring at least one channel to OPERABLE status, or placing the reactor in the tripped condition with the CRD trip breakers open. The Completion Times are based on unit operating experience and allow the operators sufficient time to manually insert the CONTROL RODS prior to opening the CRD breakers.

BASES

ACTIONS (continued)

Required Action B.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.

SURVEILLANCE REQUIREMENTS

SR 3.3.10.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; therefore, it is key in 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 isolation, indication, and readability. If a channel is outside the criteria, it may be an indication that the transmitter or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

The agreement criteria includes an expectation of one decade of overlap when transitioning between neutron flux instrumentation. For example, during a power increase near the top of the scale for the source range monitors, an intermediate range monitor reading is expected with at least one decade overlap. Without such an overlap, the intermediate range monitors are considered inoperable unless it is clear that a source range monitor inoperability is responsible for the lack of the expected overlap. Further, during a power reduction near the bottom of the scale for the power range monitors, an intermediate range monitor reading is expected with at least one decade overlap. Without such an overlap, the intermediate range monitors are considered inoperable unless it is clear that a power range monitor inoperability is responsible for the lack of the expected overlap.

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

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.]

~~E~~D.1, ~~E~~D.2.1, ~~E~~D.2.2, F~~E~~.1, and ~~G~~F.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

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 REQUIREMENTS

SR 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.

B.1

With one or more channels inoperable for both A and B Functions, the Required Action is to restore sufficient channels to OPERABLE status to restore EFIC Logic functions 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.]

C~~B~~.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 MODES from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 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 verifies MFW and Main Steam Line Isolation and EFW initiation automatic actuation logics are functional. 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. This test simulates the required inputs to the logic circuit and verifies successful operation of the automatic actuation logic. 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 actuation of EFW during testing at power. The Frequency of 31 days is

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)

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.]

C~~B~~.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 REQUIREMENTS

SR 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 based on operating experience that demonstrates the rarity of more than one channel failing within the same 31 day interval.

REFERENCES None.

BASES

ACTIONS

A.1

With one channel inoperable in MODE 1, 2, 3, or 4, the RB purge valves must be placed and maintained in the closed position. This action accomplishes the safety function of the RB Purge Isolation - High Radiation Function. The 1 hour Completion Time is reasonable considering the time required to isolate the penetration and the relative importance of maintaining containment OPERABILITY during MODES 1, 2, 3, and 4. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

B.1 and B.2

If Required Action A.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 reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

C.1, C.2.1, and C.2.2

Condition C applies to failure of the high radiation purge function during movement of [recently] irradiated fuel assemblies within the RB.

With one channel inoperable during movement of [recently] irradiated fuel assemblies within the RB, the RB purge valves must be closed, or movement of [recently] irradiated fuel assemblies within the RB must be suspended. Required Action C.1 accomplishes the function of the high radiation channel. Required Action C.2.1 and Required Action C.2.2 place the unit in a configuration in which purge isolation on high radiation is not required. The Completion Time of "Immediately" is consistent with the urgency associated with the loss of RB isolation capability under conditions in which the fuel handling accidents [involving handling recently irradiated fuel] are possible and the high radiation function provides the only automatic actions to mitigate radiation release.

BASES

ACTIONS

A.1

Condition A applies to failure of the Control Room Isolation - High Radiation Function in MODE 1, 2, 3, or 4.

With one channel of Control Room Isolation - High Radiation inoperable, the CREVS must be placed in a condition that does not require the isolation to occur. To ensure that the ventilation system has been placed in a state equivalent to that which occurs after the high radiation isolation has occurred, one OPERABLE train of the CREVS is placed in the emergency recirculation mode of operation. Reactor operation can continue indefinitely in this state. The 1 hour Completion Time is a sufficient amount of time in which to take the Required Action. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

The Required Action is modified by a Note, which requires the CREVS be placed in the toxic gas protection mode if automatic transfer to the toxic gas protection mode is inoperable, since the pressurization mode would increase vulnerability to toxic gas releases.

B.1 and B.2

If the CREVS cannot be placed into recirculation mode while in MODE 1, 2, 3, or 4, actions must be taken to minimize the chances of an accident that could lead to radiation releases. The unit must be placed in at least MODE 3 within 6 hours, with a subsequent cooldown to MODE 5 within 36 hours. This places the reactor in a low energy state that allows greater time for operator action if habitation of the control room is precluded. 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.

C.1 and C.2

Required Action C.1 is the same as discussed earlier for Condition A, except for Completion Time. If the CREVS cannot be placed into recirculation mode during moving [recently] irradiated fuel assemblies, then Required Action C.2.1 and Required Action C.2.2 suspend actions that could lead to an accident that could release radioactivity resulting from a fuel handling accident.

BASES

LCO (continued)

EFW Flow is the primary indication used by the operator to determine the need to throttle flow during an SLB accident to prevent the EFW pumps from operating in runout conditions. EFW Flow is also used by the operator to verify that the EFW System is delivering the correct flow to each SG. However, the primary indication used by the operator to ensure an adequate inventory is SG level.

RCS pressure is used by the operator to monitor the cooldown of the RCS following an SG tube rupture or small break LOCA. In addition, HPI flow is throttled based on RCS pressure and subcooled margin. The indication is also used to identify an LPI pump operating at system pressures above its shutoff head. If this condition exists, the operator is instructed to verify this condition exists, to verify HPI flow, and to terminate LPI flow prior to exceeding 30 minutes of LPI pump operation against a deadhead pressure. RCS pressure, in conjunction with LPI flow, is also used to determine if a core flood line break has occurred.

APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and preplanned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, unit conditions are such that the likelihood of an event occurring that would require PAM instrumentation is low; therefore, the PAM instrumentation is not required to be OPERABLE in these MODES.

ACTIONS

A Note is 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 3.3.17-1. The Completion Time(s) of the inoperable channels of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

When one or more Functions have one required channel inoperable, the inoperable channel must be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience. This takes into account the remaining OPERABLE channel (or, in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval.

BASES

ACTIONS (continued)

B.1

Required Action B.1 specifies initiation of action described in Specification 5.6.5, that requires a written report to be submitted to the NRC. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative actions. This action is appropriate in lieu of a shutdown requirement since alternative actions are identified before loss of functional capability and given the likelihood of unit conditions that would require information provided by this instrumentation. The Completion Time of "Immediately" for Required Action B.1 ensures the requirements of Specification 5.6.5 are initiated.

C.1

When one or more Functions have two required channels inoperable (i.e., two channels inoperable in the same Function), one channel in the Function should be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrumentation action operation and the availability of alternative means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance of qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur.

D.1

Required Action D.1 directs entry into the appropriate Condition referenced in Table 3.3.17-1. The applicable Condition referenced in the Table is Function dependent. Each time an inoperable channel has not met the Required Action of Condition C and the associated Completion Time has expired, Condition D is entered for that channel and provides for transfer to the appropriate subsequent Condition.

BASES

ACTIONS (continued)

E.1

If the Required Action and associated Completion Time of Condition C is not met and Table 3.3.17-1 directs entry into Condition E, the unit must be brought to a MODE in which the requirements of this LCO do not apply. To achieve this status, the unit must be brought to at least 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.

F.1

At this unit, alternative means of monitoring Containment Area Radiation have been developed and tested. These alternative means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allowed time.

If these alternative means are used, the Required Action is not to shut the unit down, but rather to follow the directions of Specification 5.6.5, in the Administrative Controls section of the Technical Specifications. The report provided to the NRC should discuss the alternative means used, describe the degree to which the alternative means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

In the case of reactor vessel level, Reference 4 determined that the appropriate Required Action was not to shut the unit down, but rather to follow the directions of Specification 5.6.5.

[At this unit, the alternative monitoring provisions consist of the following:]

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

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 and, for pressurizer water level, for MODE 4 with RCS temperature ≥ [275]°F. The purpose is to prevent solid water RCS operation during heatup and cooldown to avoid rapid pressure rises caused by normal operational perturbations, such as reactor coolant pump startup. The temperature of [275]°F has been designated as the cutoff for applicability because LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," provides a requirement for pressurizer level below [275]°F. The LCO does not apply to MODE 5 with loops filled because LCO 3.4.12 applies. The LCO does not apply to MODES 5 and 6 with partial loop operation.

In MODES 1, 2, and 3, there is the 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. The Applicability is modified by a Note stating that the OPERABILITY requirements on pressurizer heaters do not apply in MODE 4. For MODE 4, 5, or 6, it is not necessary to control pressure (by heaters) to ensure loop subcooling for heat transfer when the Decay Heat Removal System is in service, and therefore the LCO is not applicable.

ACTIONS

A.1

With pressurizer water level in excess of the maximum limit, action must be taken to restore pressurizer operation to within the bounds assumed in the analysis. This is done by restoring the pressurizer water level to within the limit. The 1 hour Completion Time is considered to be a reasonable time for draining excess liquid. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

B.1 and B.2

If the water level cannot be restored, reducing core power constrains heat input effects that drive pressurizer insurge that could result from an anticipated transient. By shutting down the reactor and reducing reactor coolant temperature to at least MODE 3, the potential thermal energy of the reactor coolant mass for LOCA mass and energy releases is reduced.

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 ≤ [275]°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 REQUIREMENTS

SR 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 ≤ [283]°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]°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 REQUIREMENTS

SR 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 ± [3]% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

REFERENCES

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

BASES

LCO (continued)

Reference 7 permits leakage testing at a lower pressure differential than between the specified maximum RCS pressure and the normal pressure of the connected system during RCS operation (the maximum pressure differential) in those types of valves in which the higher service pressure will tend to diminish the overall leakage channel opening. In such cases, the observed rate may be adjusted to the maximum pressure differential by assuming leakage is directly proportional to the pressure differential to the one half power.

APPLICABILITY

In MODES 1, 2, 3, and 4, this LCO applies because the PIV leakage potential is greatest when the RCS is pressurized. In MODE 4, valves in the DHR flow path are not required to meet the requirements of this LCO when in, or during the transition to or from, the DHR mode of operation.

In MODES 5 and 6, leakage limits are not provided because the lower reactor coolant pressure results in a reduced potential for leakage and for a LOCA outside the containment.

ACTIONS

The ACTIONS are modified by two Notes. Note 1 is added to provide clarification that each flow path allows separate entry into a Condition. This is allowed based upon the functional independence of the flow path. Note 2 requires an evaluation of affected systems if a PIV is inoperable. The leakage may have affected system operability, or isolation of a leaking flow path with an alternate valve may have degraded the ability of the interconnected system to perform its safety function.

A.1 and A.2

The flow path must be isolated by two valves. Required Actions A.1 and A.2 are modified by a Note that the valves used for isolation must meet the same leakage requirements as the PIVs and must be on the RCS pressure boundary [or the high pressure portion of the system].

Required Action A.1 requires that the isolation with one valve must be performed within 4 hours [or in accordance with the Risk Informed Completion Time Program]. Four hours provides time to reduce leakage in excess of the allowable limit and to isolate the affected system if leakage cannot be reduced. The 4 hours allows the actions and restricts the operation with leaking isolation valves.

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

----------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

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

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

APPLICABILITY

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

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

ACTIONS

A.1 and A.2

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

However, the containment atmosphere activity monitor will provide indications of changes in leakage. Together with the atmosphere monitor, the periodic surveillance for RCS inventory balance, SR 3.4.13.1, water inventory balance, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and [RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

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

BASES

ACTIONS (continued)

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

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

The 24 hour interval provides periodic information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and [RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. The 30 day Completion Time recognizes at least one other form of leak detection is available.

C.1

With both required monitors inoperable, no automatic means of monitoring leakage are available. The Required Action is to restore at least one of the required inoperable monitors to OPERABLE status within 1 hour to regain a method of leakage detection. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required monitor. [Alternately, a Completion time can be determined in accordance with the Risk Informed Completion time Program.]

D~~C~~.1 and D ~~C~~.2

If a Required Action of Condition A or B cannot be met within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

~~D.1~~

~~With both required monitors inoperable, no automatic means of monitoring leakage are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.~~

BASES

LCO (continued)

The operational LEAKAGE performance criterion provides an observable indication of SG tube conditions during plant operation. The limit on operational LEAKAGE is contained in LCO 3.4.13, "RCS Operational LEAKAGE," and limits primary to secondary LEAKAGE through any one SG to 150 gallons per day. This limit is based on the assumption that a single crack leaking this amount would not propagate to a SGTR under the stress conditions of a LOCA or a main steam line break. If this amount of LEAKAGE is due to more than one crack, the cracks are very small, and the above assumption is conservative.

APPLICABILITY

Steam generator tube integrity is challenged when the pressure differential across the tubes is large. Large differential pressures across SG tubes can only be experienced in MODE 1, 2, 3, or 4.

RCS conditions are far less challenging in MODES 5 and 6 than during MODES 1, 2, 3, and 4. In MODES 5 and 6, primary to secondary differential pressure is low, resulting in lower stresses and reduced potential for LEAKAGE.

ACTIONS

The ACTIONS are modified by a Note clarifying that the Conditions may be entered independently for each SG tube. This is acceptable because the Required Actions provide appropriate compensatory actions for each affected SG tube. Complying with the Required Actions may allow for continued operation, and subsequent affected SG tubes are governed by subsequent Condition entry and application of associated Required Actions.

A.1 and A.2

Condition A applies if it is discovered that one or more SG tubes examined in an inservice inspection satisfy the tube repair criteria but were not plugged [or repaired] in accordance with the Steam Generator Program as required by SR 3.4.17.2. An evaluation of SG tube integrity of the affected tube(s) must be made. Steam generator tube integrity is based on meeting the SG performance criteria described in the Steam Generator Program. The SG repair criteria define limits on SG tube degradation that allow for flaw growth between inspections while still providing assurance that the SG performance criteria will continue to be met. In order to determine if a SG tube that should have been plugged [or repaired] has tube integrity, an evaluation must be completed that demonstrates that the SG performance criteria will continue to be met until the next refueling outage or SG tube inspection. The tube integrity

BASES

ACTIONS (continued)

determination is based on the estimated condition of the tube at the time the situation is discovered and the estimated growth of the degradation prior to the next SG tube inspection. If it is determined that tube integrity is not being maintained, Condition B applies.

A Completion Time of 7 days is sufficient to complete the evaluation while minimizing the risk of plant operation with a SG tube that may not have tube integrity. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

If the evaluation determines that the affected tube(s) have tube integrity, Required Action A.2 allows plant operation to continue until the next refueling outage or SG inspection provided the inspection interval continues to be supported by an operational assessment that reflects the affected tubes. However, the affected tube(s) must be plugged [or repaired] prior to entering MODE 4 following the next refueling outage or SG inspection. This Completion Time is acceptable since operation until the next inspection is supported by the operational assessment.

B.1 and B.2

If the Required Actions and associated Completion Times of Condition A are not met or if SG tube integrity is not being maintained, the reactor must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours.

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

SURVEILLANCE REQUIREMENTS

SR 3.4.17.1

During shutdown periods the SGs are inspected as required by this SR and the Steam Generator Program. NEI 97-06, Steam Generator Program Guidelines (Ref. 1), and its referenced EPRI Guidelines, establish the content of the Steam Generator Program. Use of the Steam Generator Program ensures that the inspection is appropriate and consistent with accepted industry practices.

During SG inspections a condition monitoring assessment of the SG tubes is performed. The condition monitoring assessment determines the "as found" condition of the SG tubes. The purpose of the condition monitoring assessment is to ensure that the SG performance criteria have been met for the previous operating period.

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 ≥ 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 ≤ 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.

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.]

D~~C~~.1 and D~~C~~.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.

~~D.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

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."

ACTIONS

A.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.

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.

D~~C~~.1 and D~~C~~.2

If the inoperable components cannot be returned to OPERABLE status or the ECCS flow equivalent cannot be returned to 100 % of the ECCS flow equivalent to a single OPERAVBLE 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 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.

~~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.~~

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)

C.1 and C.2

If the BWST 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.

SURVEILLANCE REQUIREMENTS

SR 3.5.4.1

Verification every 24 hours that the BWST water temperature is within the specified temperature band ensures that the boron will not precipitate; the fluid will not freeze; the fluid temperature entering the reactor vessel will not be colder than assumed in the reactor vessel stress analysis; and the fluid temperature entering the reactor vessel will not be hotter than assumed in the LOCA analysis. The 24 hour Frequency is sufficient to identify a temperature change that would approach either temperature limit and has been shown to be acceptable through operating experience.

The SR is modified by a Note that requires the Surveillance to be performed only when ambient air temperatures are outside the operating temperature limits of the BWST. With ambient temperatures within this band, the BWST temperature should not exceed the limits.

SR 3.5.4.2

Verification every 7 days that the BWST contained volume is within the required range ensures that a sufficient initial supply is available for injection and to support continued ECCS pump operation on recirculation. Since the BWST volume is normally stable and provided with a low level alarm, a 7 day Frequency has been shown to be appropriate through operating experience.

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 inoperable in one or more containment air locks, 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 remaining OPERABLE air lock door within the 24 hour Completion Time. The 24 hour Completion Time is considered reasonable for locking the OPERABLE air lock door, considering the OPERABLE door of the affected air lock is being maintained closed.

BASES

ACTIONS (continued)

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 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 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. 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 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 was 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.

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)

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 REQUIREMENTS

SR 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.

SR 3.6.2.2

The air lock interlock is designed to prevent simultaneous opening of both doors in a single air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident containment pressure, closure of either door will support containment OPERABILITY. Thus, the door interlock feature supports containment OPERABILITY while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates

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.

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

BACKGROUND (continued)

containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the containment pressure response in accordance with 10 CFR 50, Appendix K (Ref. 2).

Containment pressure satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

Maintaining containment pressure less than or equal to the LCO upper pressure limit ensures that, in the event of a DBA, the resultant peak containment accident pressure will remain below the containment design pressure. Maintaining containment pressure greater than or equal to the LCO lower pressure limit ensures that the containment will not exceed the design negative differential pressure following the inadvertent actuation of the Containment Spray System.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. Since maintaining containment pressure within design basis limits is essential to ensure initial conditions assumed in the accident analysis are maintained, 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, maintaining containment pressure within the limits of the LCO is not required in MODES 5 and 6.

ACTIONS

A.1

When containment pressure is not within the limits of the LCO, containment pressure must be restored to within these limits within 1 hour [or 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.

B.1 and B.2

If containment pressure cannot be restored 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 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	During a DBA, with an initial containment average air temperature less than or equal to the LCO temperature limit, the resultant accident temperature profile assures that the containment structural temperature is maintained below its design temperature and that required safety related equipment will continue to perform its function.
APPLICABILITY	In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment average air temperature within the limit is not required in MODE 5 or 6.
ACTIONS	A.1 When containment average air temperature is not within the limit of the LCO, it must be restored within 8 hours [or in accordance with the Risk Informed Completion Time Program]. This Required Action is necessary to return operation to within the bounds of the containment analysis. The 8 hour Completion Time is acceptable considering the sensitivity of the analysis to variations in this parameter and provides sufficient time to correct minor problems. B.1 and B.2 If the containment average air temperature cannot be restored to within its limit 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

A.1

With one containment spray train 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 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 [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 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 [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 of the 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 (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.

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.

G~~F~~.1 and G~~F~~.2

If the Required Actions and associated Completion Times of Condition C, D, E, or F~~E~~ 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.

~~G.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

ACTIONS

A.1

With the containment Spray Additive System inoperable, the system must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The pH adjustment of the Containment Spray System for corrosion protection and iodine removal enhancement is reduced in this Condition. The Containment Spray System would still be available and would remove some iodine from the containment atmosphere in the event of a DBA. The 72 hour Completion Time takes into account the redundant flow path capabilities and the low probability of the worst-case DBA occurring during this period.

B.1 and B.2

If the Spray Additive System 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 for restoration of the Spray Additive System 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 3.6.7.1

Verifying the correct alignment of spray additive manual, power operated, and automatic valves in the spray additive flow path provides assurance that the system is able to provide additive to the Containment Spray System in the event of a DBA. 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. 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 capable of potentially being mispositioned are in the correct position.

BASES

ACTIONS (continued)

A.1 and A.2

An alternative to restoring the inoperable MSSV(s) to OPERABLE status is to reduce power so that the available MSSV relieving capacity meets ASME Code requirements for the power level. Operation may continue, provided the ALLOWABLE THERMAL POWER and RPS nuclear overpower trip setpoint are reduced by the application of the following formulas:

$$RP = [Y / Z] \times 100\%$$

and

$$SP = [Y / Z] \times W$$

where:

W = Nuclear overpower trip setpoint for four pump operation as specified in LCO 3.3.1, "Reactor Protection System (RPS),"

Y = Total OPERABLE MSSV relieving capacity per steam generator based on a summation of individual OPERABLE MSSV relief capacities per steam generator [lb/hour],

Z = Required relieving capacity per steam generator of [6,585,600] lb/hour,

RP = Reduced power requirement (not to exceed RTP), and

SP = Nuclear overpower trip setpoint (not to exceed W).

These equations are graphically represented in Figure 3.7.1-1, in the accompanying LCO. Operation is restricted to the area below and to the right of line BCDE.

The operator should limit the maximum steady state power level to some value slightly below this setpoint to avoid an inadvertent overpower trip.

The 4 hour Completion Time for Required Action A.1 is a reasonable time period to reduce power level and is based on the low probability of an event occurring during this period that would require activation of the MSSVs. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] An additional 32 hours is allowed in Required Action A.2 to

BASES

ACTIONS (continued)

reduce the setpoints. The Completion Time of 36 hours for Required Action A.2 is based on a reasonable time to correct the MSSV inoperability, the time required to perform the power reduction, operating experience in resetting all channels of a protective function, and on the low probability of the occurrence of a transient that could result in steam generator overpressure during this period.

B.1

With one or more steam generators with less than [two] MSSVs OPERABLE, the Required Action is to restore sufficient required inoperable MSSVs to OPERABLE status within 1 hour to provide overpressure protection for the secondary system. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient MSSVs. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

~~C~~B.1 and ~~C~~ B.2

~~With one or more MSSVs inoperable, a verification by administrative means that at least [two] required MSSVs per steam generator are OPERABLE, with each valve from a different lift setting range, is performed.~~

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

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1

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

a. Visual examination,

b. Seat tightness determination,

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 [or 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.

C.1 ~~and C.2~~

With two or more 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.]

.

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. . [Similar to Condition A, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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 following closure 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 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 REQUIREMENTS

SR 3.7.2.1

This SR verifies that MSIV closure time of each MSIV is ≤ [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

LCO

This LCO ensures that the MFIVs will isolate MFW flow to the steam generators following a FWLB or a main steam line break. These valves will also isolate the nonsafety related portions from the safety related portions of the system.

[Two] [MFSVs], [MFCVs], [or associated SFCVs] are required to be OPERABLE. The MFIVs are considered OPERABLE when the isolation times are within limits and they close on an isolation actuation signal.

Failure to meet the LCO requirements can result in additional mass and energy being released to containment following an SLB or FWLB inside containment. If the SFRCS on high steam generator level is relied on to terminate an excess feedwater flow event, failure to meet the LCO may result in the introduction of water into the main steam lines.

APPLICABILITY

The [MFSVs], [MFCVs], [or associated SFCVs] must be OPERABLE whenever there is significant mass and energy in the RCS and steam generators. This ensures that in the event of an HELB, a single failure cannot result in the blowdown of more than one steam generator.

In MODES 1, 2, and 3, the [MFSVs], [MFCVs], [or associated SFCVs] are required to be OPERABLE in order to limit the amount of available fluid that could be added to containment in the case of a secondary system pipe break inside containment. When the valves are closed, they are already performing their safety function.

In MODES 4, 5, and 6, steam generator energy is low. Therefore, the [MFSVs], [MFCVs], [or associated SFCVs] are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each valve.

A.1 and A.2

With one [MFSV] in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within [8 or 72] hours [or in accordance with the Risk Informed Completion Time Program]. When these valves are closed or isolated, they are performing their required safety function.

BASES

ACTIONS (continued)

[For units with only one MFIV per feedwater line: The [8] hour Completion Time is reasonable to close the MFIV or its associated bypass valve which includes performing a controlled unit shutdown to MODE 2. The Completion Time is reasonable, based on operating experience, to reach MODE 2 from full power conditions with the MFIVs closed, in an orderly manner and without challenging unit systems.]

The [72] hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The [72] hour Completion Time is reasonable, based on operating experience.

Inoperable [MFSVs] that are closed or isolated, must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time following closure or isolation is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

B.1 and B.2

With one [MFCV] in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within [8 or 72] hours [or in accordance with the Risk Informed Completion Time Program]. When these valves are closed or isolated, they are performing their required safety function.

[For units with only one MFIV per feedwater line: The [8] hour Completion Time is reasonable, based on operating experience, to close the MFIV or its associated bypass valve.]

The [72] hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths.

Inoperable [MFCVs] that are closed or isolated must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time following closure or isolation is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

BASES

ACTIONS (continued)

C.1 and C.2

With one [SFCV] in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within [8 or 72] hours [or in accordance with the Risk Informed Completion Time Program]. When these valves are closed or isolated, they are performing their required safety function.

[For units with only one MFIV per feedwater line: The [8] hour Completion Time is reasonable, based on operating experience, to close the MFIV or its associated bypass valve.]

The [72] hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths.

Inoperable SFCVs that are closed or isolated must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time following closure or isolation is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

D.1

With two inoperable valves in the same flow path there may be no redundant system to operate automatically and perform the required safety function. Although the containment can be isolated with the failure to two valves in parallel in the same flow path, the double failure can be an indication of a common mode failure in the valves of this flow path and as such is treated the same as a loss of the isolation capability of this flow path. Under these conditions, affected valves in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours [or in accordance with the Risk Informed Completion Time Program]. The 8 hour Completion Time is reasonable, based on operating experience, to close the MFIV or otherwise isolate the affected flow path. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

E.1 and E.2

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

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that the closure time of each [MFSV], [MFCV], and [associated SFCV] is ≤ 7 seconds.

The [MFSV], [MFCV], and [associated SFCV] 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 [MFSV], [MFCV], and [associated SFCV] should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. This is consistent with the ASME Code (Ref. 2) requirements during operation in MODES 1 and 2.

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

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

SR 3.7.3.2

This SR verifies that each [MFSV, MFCV, and associated SFCV] 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 for this SR 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 REQUIREMENTS

SR 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.

[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.]

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.]

D~~C~~.1 and D~~C~~.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.~~

~~E~~D.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 REQUIREMENTS

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

SR 3.7.6.1

This SR verifies that the CST(s) contains the required volume of cooling water. The 12 hour Frequency is based on operating experience and the need for operator awareness of unit evolutions that may affect the CST inventory between checks. The 12 hour Frequency is considered adequate in view of other indications in the control room, including 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)

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.]

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 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 they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves which 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.

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

SR 3.7.7.2

BASES

APPLICABLE SAFETY ANALYSES (continued)

The SWS, in conjunction with the CCW System, also cools the unit from Decay Heat Removal (DHR) System, as discussed in the FSAR, Section [6.3], (Ref. 3) entry conditions to MODE 5 during normal and post accident operation. The time required for this evolution is a function of the number of CCW and DHR 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 [85]°F occurring simultaneously with maximum heat loads on the system.

The SWS is also required when needed to support CCW in the removal of heat from the emergency diesel generators (EDGs) or reactor auxiliaries.

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 case single active failure occurs coincident with the loss of offsite power.

An SWS train is considered OPERABLE when:

a. It has an OPERABLE pump 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

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.

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.]

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 provides assurance 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 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. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves.

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.]

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.]

[D~~C~~.1 and D~~C~~.2

If the Required Actions and Completion Time of Condition [A, B, or C~~B~~] 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 ≥ [ ] ft [mean sea level].]

BASES

ACTIONS

A.1

With one CREVS train 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 CREVS train is adequate to perform the control room radiation protection function. However, the overall reliability is reduced because a failure in the OPERABLE CREVS train could result in loss of CREVS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.

If the control room boundary is inoperable in MODE 1, 2, 3, or 4, the CREVS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.

C.1 ~~and C.2~~

With two CREVS trains inoperable, the Required Action is to restore at least one of the required inoperable CREVS trains to OPERABLE status within 1 hour to regain a protected environment from which operators can control the unit following an uncontrolled release of radioactivity [, chemicals, or toxic gas], 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.]

D.1 and D.2

In MODE 1, 2, 3, or 4, if the inoperable CREVS train(s) or control room boundary 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 and without challenging unit systems.

BASES

ACTIONS (continued)

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

In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, if the inoperable CREVS train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CREVS train must immediately be placed in the emergency mode. 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. Required Action D.1 is modified by a Note indicating to place the system in the emergency mode if automatic transfer to emergency mode is inoperable.

An alternative to Required Action D.1 is 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 the accident risk. This does not preclude the movement of fuel to a safe position.]

[F~~E~~.1

In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, when two CREVS trains are inoperable, action must be taken immediately to suspend activities that could release 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.]

~~F.1~~

~~If both CREVS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable control room boundary (i.e., Condition B), the CREVS 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.~~

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.

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, 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.]

C~~B~~.1 and C~~B~~.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)

[D~~C~~.1 and D~~C~~.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 D ~~C~~.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.]

[E~~D~~.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.]

~~E.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 REQUIREMENTS

SR 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.

REFERENCES

1. FSAR, Section [9.4].

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, the EVS is required to be OPERABLE consistent with the OPERABILITY requirements of the ECCS.

In MODES 5 and 6, the EVS is not required to be OPERABLE since the ECCS is not required to be OPERABLE.

ACTIONS

A.1

With one EVS train inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. During this time, the remaining OPERABLE train is adequate to perform the EVS safety function. However, the overall reliability is reduced because a single failure in the OPERABLE EVS train could result in loss of EVS function.

The 7 day Completion Time is appropriate because the risk contribution is less than that of the ECCS (72 hour Completion Time), and this system is not a direct support system for the ECCS. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.

If the Auxiliary Building negative pressure area boundary is inoperable, the EVS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE Auxiliary Building negative pressure area boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the Auxiliary Building negative pressure area boundary is inoperable, appropriate compensatory measures [consistent with the intent, as applicable, of GDC 19, 63, 64 and 10 CFR Part 100] should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the Auxiliary Building negative pressure area boundary.

BASES

ACTIONS (continued)

C.1 ~~and C.2~~

With two EVS trains inoperable for reasons other than Condition B, the Required Action is to restore at least one of the required inoperable EVS trains to OPERABLE status within 1 hour to regain ability to filter air from the area of the active Emergency Core Cooling System (ECCS) components during the recirculation phase of a loss of coolant accident (LOCA). 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.]

D.1 and D.2

If the EVS train(s) or the Auxiliary Building negative pressure area boundary 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 3.7.12.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and normal operating conditions on this system are not severe, testing each train once a month provides an adequate check on this system. Monthly heater operations dry out any moisture that may have accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥ 15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on known reliability of equipment and the two train redundancy available.

SR 3.7.12.2

This SR verifies that the required EVS testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].

BASES

APPLICABILITY

[In [MODES 1, 2, 3, and 4,] the FSPVS is required to be OPERABLE to provide fission product removal associated with ECCS leaks due to a loss of coolant accident (refer to LCO 3.7.12) for units that use this system as part of their EVSs.

During movement of [recently] irradiated fuel assemblies in the fuel handling area, the FSPVS is always required to be OPERABLE to mitigate the consequences of a fuel handling accident.

In MODES 5 and 6, the FSPVS is not required to be OPERABLE since the ECCS is not required to be OPERABLE.]

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

A.1

With one FSPVS train inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. During this time period, the remaining OPERABLE train is adequate to perform the FSPVS function. However, the overall reliability is reduced because a single failure in the OPERABLE FSPVS train could result in a loss of FSPVS functioning. The 7 day Completion Time is based on the risk from an event occurring requiring the inoperable FSPVS train, and ability of the remaining FSPVS train to provide the required protection.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the even of an intentional or unintentional entry into Condition B.

BASES

ACTIONS (continued)

If the fuel building boundary is inoperable in MODE 1, 2, 3, or 4, the FSPVS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE fuel building boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the fuel building boundary is inoperable, appropriate compensatory measures [consistent with the intent, as applicable, of GDC 19, 60, 61, 63, 64 and 10 CFR 100] should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the fuel building boundary.

C.1

With two FSPVS trains inoperable in MODES 1, 2, 3 or 4 for reasons other than Condition B, the Required Action is to restore at least one of the required inoperable FBACS trains to OPERABLE status within 1 hour to regain negative pressure control in the fuel storage area, and the ability to filter airborne radioactive particulates from the area of the fuel pool following a fuel handling accident. 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.]

[D~~C~~.1 and D~~C~~.2

In MODE 1, 2, 3, or 4, when Required Action A.1, B.1, or C~~B~~.1 cannot be completed within the associated Completion Time, ~~or when both FSPVS trains are inoperable for reasons other than an inoperable fuel building boundary (i.e., Condition 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 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.]

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

If the inoperable FSPVS train cannot be restored to OPERABLE status within the required Completion Time, during movement of [recently] irradiated fuel assemblies in the fuel building the OPERABLE FSPVS train must be started immediately or [recently] irradiated fuel movement suspended. This action ensures that the remaining train is OPERABLE, that no undetected failures preventing system operation will occur, and that any active failures will be readily detected.

If the system is not placed in operation, this action requires suspension of [recently] irradiated fuel movement, which precludes a fuel handling accident [involving handling recently irradiated fuel]. This action does not preclude the movement of fuel assemblies to a safe position.

BASES

ACTIONS (continued)

FE.1

When two trains of the FSPVS are inoperable during movement of [recently] irradiated fuel assemblies in the fuel building, the unit must be placed in a condition in which the LCO does not apply. This LCO involves immediately suspending movement of [recently] irradiated fuel assemblies in the fuel building. This does not preclude the movement of fuel to a safe position.

SURVEILLANCE REQUIREMENTS

[SR 3.7.13.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system. Monthly heater operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥ 15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.]

[SR 3.7.13.2

This SR verifies that the required FSPVS testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].]

[SR 3.7.13.3

This SR verifies that each FSPVS train starts and operates on an actual or simulated actuation signal. The 18 month Frequency is consistent with that specified in Reference 6.]

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.]

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.]

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)

~~H.1~~

~~Condition H 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 ± 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.

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.]

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.

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.]

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

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).

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.]

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)

~~E.1~~

~~Condition E 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 REQUIREMENTS

SR 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.

1.3 Completion Times

EXAMPLES (continued)

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each "Once per 8 hours thereafter" interval begins upon performance of Required Action A.1.

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

---------- 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 OR In accordance with the Risk Informed Completion Time Program
B. Two subsystems inoperable.	B.1 Restore at least one subsystem to OPERABLE status.	1 hour 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. AND 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 is also entered. At least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. For emergent conditions, the licensee may be able to apply a RICT if the requirements of the Risk Informed Completion Time Program are met. A RICT cannot be applied if Condition B is entered voluntarily.

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

Comment: RA F.2.2 requires periodic performance of an action, Required Actions 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. 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. ~~OR~~ ~~B.2 Be in MODE 3.~~	48 hours [OR In accordance with the Risk Informed Completion Time Program] ~~54 hours~~
C. Two Manual Reactor Trip channels inoperable.	C.1 Restore at least one channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C~~D. One channel or train inoperable.	~~C~~D.1 Restore channel or train to OPERABLE status. ~~OR~~ ~~C.2.1 Initiate action to fully insert all rods.~~ ~~AND~~	48 hours [OR In accordance with the Risk Informed Completion Time Program] ~~48 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	~~C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.~~	~~49 hours~~
E. Two channels or trains inoperable.	E.1 Restore at least one channel or train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~D~~F. One Power Range Neutron Flux - High channel inoperable.	[----------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. ----------]	
	~~D~~F.1.1 Place channel in trip.	72 hours
	AND	[OR
	~~D~~	In accordance with the Risk Informed Completion Time Program]
	F.1.2 Reduce THERMAL POWER to ≤ 75% RTP.	78 hours

	OR ~~D~~	[OR In accordance with the Risk Informed Completion Time Program]
	F.2.1 Place channel in trip.	72 hours
	AND	[OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	~~D~~F.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.	 Once per 12 hours
	~~OR~~ ~~D.3 Be in MODE 3.~~	 ~~78 hours~~
G. Two or more Power Range Neutron Flux - High channel inoperable.	G.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~E~~H.One channel inoperable.	[----------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. ----------] ~~E~~H.1 Place channel in trip. ~~OR~~	 72 hours [OR

	~~E.2 Be in MODE 3.~~	In accordance with the Risk Informed Completion Time Program] ~~78 hours~~
I. Two or more channels inoperable.	I.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~F~~J. One Intermediate Range Neutron Flux channel inoperable.	~~F~~J.1 Reduce THERMAL POWER to < P-6. OR	24 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	~~F~~J.2 Increase THERMAL POWER to > P-10.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
~~G~~K. Two Intermediate Range Neutron Flux channels inoperable.	~~G~~K.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. AND ~~G~~K.2 Reduce THERMAL POWER to < P-6.	 Immediately 2 hours [OR In accordance with the Risk Informed Completion Time Program]
~~H~~L. One Source Range Neutron Flux channel inoperable.	----------NOTE---------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ---------- ~~H~~L.1 Suspend operations involving positive reactivity	 Immediately

	additions.	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~I~~M. Two Source Range Neutron Flux channels inoperable.	~~I~~M.1 Open reactor trip breakers (RTBs).	Immediately
~~J~~N. One Source Range Neutron Flux channel inoperable.	~~J~~N.1 Restore channel to OPERABLE status. ~~OR~~ ~~J.2.1 Initiate action to fully insert all rods.~~ ~~AND~~ ~~J.2.2. Place the Rod Control System in a condition incapable of rod withdrawal.~~ ~~.~~	48 hours [OR In accordance with the Risk Informed Completion Time Program] ~~48 hours~~ ~~49 hours~~
O. Required Action and associated Completion Time of Condition D, E or N not met.	O.1 Initiate action to fully insert all rods. AND O.2 Place the Rod Control System in a condition incapable of rod withdrawal.	Immediately 1 hour
~~K~~P. One channel inoperable.	[----------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. ----------] ~~K~~P.1 Place channel in trip. ~~OR~~	72 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Q. Two or more channels inoperable.	Q.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
R. Required Action and associated Completion Time of Condition P or Q not met.	~~K.2~~R.1 Reduce THERMAL POWER to < P-7.	~~78~~ 6 hours
~~L~~S. One Reactor Coolant Pump Breaker Position (Single Loop) channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels. ---------- ~~L~~S.1 Restore channel to OPERABLE status. ~~OR~~ ~~L.2 Reduce THERMAL POWER to < P-8.~~	[6] hours [OR In accordance with the Risk Informed Completion Time Program] ~~[10] hours~~
T. Two Reactor Coolant Pump Breaker Position (Single Loop) channels inoperable.	T.1 Restore at least one channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed

		Completion Time Program]
U. Required Action and associated Completion Time of Condition S or T not met.	U.1 Reduce THERMAL POWER to < P-8.	[4] hours
~~M~~V. One Reactor Coolant Breaker Position (Two Loops) channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels. ----------	
	~~M~~V.1 Place the channel in trip.	[6] hours
	~~OR~~	[OR
	~~M.2 Reduce THERMAL POWER to <P-7.~~	In accordance with the Risk Informed Completion Time Program]
		~~[12] hours~~
W. Two or more Reactor Coolant Breaker Position (Two Loops) channels inoperable.	W.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
X. Required Action and associated Completion Time of Condition V or W not met.	X.1 Reduce THERMAL POWER to <P-7.	[6] hours
~~N~~Y. One Turbine Trip channel inoperable.	[----------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. ----------] ~~N~~Y.1 Place channel in trip. ~~OR~~ ~~N.2 Reduce THERMAL POWER to < [P-9].~~	 72 hours [OR In accordance with the Risk Informed Completion Time Program] ~~76 hours~~
Z. Two or more Turbine Trip channels inoperable.	Z.1 Restore inoperable channels to OPERABLE status. .	1 hour [OR In accordance with the Risk Informed Completion Time Program]

AA. Required Action and associated Completion Time of Condition Y or Z not met.	AA.1 Reduce THERMAL POWER to < [P-9].	4 hours
~~O~~BB. One train inoperable.	----------NOTE---------- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. ---------- ~~O~~BB.1 Restore train to OPERABLE status. ~~OR~~ ~~O.2 Be in MODE 3.~~	24 hours [OR In accordance with the Risk Informed Completion Time Program] ~~30 hours~~
CC. Two trains inoperable.	CC.1 Restore at least one train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~P~~DD. One RTB train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. ---------- ~~P~~DD.1 Restore train to OPERABLE status. ~~OR~~ ~~P.2 Be in MODE 3.~~	[24] hours [OR In accordance with the Risk Informed Completion Time Program] ~~[30] hours~~
EE. Two RTB trains inoperable.	EE.1 Restore at least one train to OPERABLE status.	I hour [OR In accordance with the Risk Informed Completion Time Program]
~~Q~~FF. One or more channels inoperable.	~~Q~~FF.1 Verify interlock is in required state for existing unit conditions. ~~OR~~ ~~Q.2 Be in MODE 3.~~	1 hour [OR In accordance with the Risk Informed Completion Time Program]

		~~7 hours~~
~~R.~~GG One or more channels inoperable.	~~R~~GG.1 Verify interlock is in required state for existing unit conditions. ~~OR~~ ~~R.2 Be in MODE 2.~~	1 hour [OR In accordance with the Risk Informed Completion Time Program] ~~7 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
HH. Required Action and associated Completion Time of Condition GG not met.	HH.1 Be in MODE 2.	6 hours
~~S.~~ II. One trip mechanism inoperable for one RTB.	~~S~~II.1 Restore inoperable trip mechanism to OPERABLE status. ~~OR~~ ~~S.2 Be in MODE 3.~~	48 hours [OR In accordance with the Risk Informed Completion Time Program] ~~54 hours~~
JJ. One trip mechanism inoperable for two or more RTBs.	JJ.1 Restore inoperable trip mechanisms to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
KK. Required Action and associated Completion Time of Condition B, C, F, G, H, I, BB, CC, DD, EE, FF, II or JJ not met.	KK.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

----------NOTE----------

Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.

Comment: Conditions M, N and O are default Conditions and are therefore 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 In accordance with the Risk Informed Completion Time Program]
C. Two channels or trains inoperable.	C.1 Restore at least one channel or train to OPERABLE status.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
		[OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C~~D. One train inoperable.	----------NOTE---------- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. ---------- ~~C~~D.1 Restore train to OPERABLE status. ~~OR~~ ~~C.2.1 Be in MODE 3.~~ ~~AND~~ ~~C.2.2 Be in MODE 5.~~	 24 hours ~~30 hours~~ ~~60 hours~~[OR In accordance with the Risk Informed Completion Time Program]
E. Two trains inoperable.	E.1 Restore at least one train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~D~~F. One channel inoperable.	[----------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. ----------]	
	~~D~~F.1 Place channel in trip.	72 hours
	~~OR~~	[OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Two or more required channels inoperable or one channel inoperable in more than one loop, steam line, or stream generator.	G.1 ~~D.2.1 Be in MODE 3.~~ ~~AND~~ ~~D.2.2 Be in MODE 4.~~ Restore inoperable channels to OPERABLE status.	~~78 hours~~ ~~84 hours~~1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~E~~H. One Containment Pressure channel inoperable.	[----------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. ----------] ~~E~~H.1 Place channel in bypass. ~~OR~~ ~~E.2.1 Be in MODE 3.~~ ~~AND~~ ~~E.2.2 Be in MODE 4.~~	 72 hours ~~78 hours~~ ~~84 hours~~[OR In accordance with the Risk Informed

		Completion Time Program]
I. Two or more Containment Pressure channels inoperable.	I.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~F~~J. One channel or train inoperable.	~~F~~J.1 Restore channel or train to OPERABLE status. ~~OR~~ ~~F.2.1 Be in MODE 3.~~ ~~AND~~	48 hours ~~54 hours~~ [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	~~F.2.2 Be in MODE 4.~~	~~60 hours~~
K. Two or more required channels or two trains inoperable.	K.1 Restore inoperable channels or trains to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~G~~L. One train inoperable.	----------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.~~	 24 hours ~~30 hours~~ ~~36 hours~~[OR In accordance with the Risk Informed Completion Time Program]
M. Two trains inoperable.	M.1 Restore at least one train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time

		Program]
~~H~~N. One train inoperable.	----------NOTE---------- One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. ---------- ~~H~~N.1 Restore train to OPERABLE status. ~~OR~~ ~~H.2 Be in MODE 3.~~	 24 hours [OR In accordance with the Risk Informed Completion Time Program] ~~30 hours~~
O. Two trains inoperable.	O.1 Restore at least one train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~I~~P. One channel inoperable.	[----------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. ----------]	
	~~I~~P.1 Place channel in trip. ~~OR~~ ~~I.2 Be in MODE 3.~~	72 hours ~~78 hours~~ [OR In accordance with the Risk Informed Completion Time Program]
Q. Two or more channels inoperable.	Q.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
R~~J.~~. One Main Feedwater Pumps trip channel inoperable.	R~~J.~~.1 Restore channel to OPERABLE status. ~~OR~~	48 hours [OR

	~~J.2 Be in MODE 3.~~	In accordance with the Risk Informed Completion Time Program] ~~54 hours~~
S. Two or more Main Feedwater Pumps trip channels inoperable.	S.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~K~~T. One channel inoperable.	[----------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. ----------]	
	~~K~~T.1 Place channel in bypass.	[6] hours
	~~OR~~	
	~~K.2.1 Be in MODE 3.~~	~~[12] hours~~
	~~AND~~	
	~~K.2.2 Be in MODE 5.~~	~~[42] hours~~[OR In accordance with the Risk Informed Completion Time Program]
U. Two or more channels inoperable.	U.1 Restore inoperable channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~L~~V. One or more channels inoperable.	~~L~~V.1 Verify interlock is in required state for existing	1 hour

	unit condition. OR L.2.1 Be in MODE 3. AND L.2.2 Be in MODE 4.	[OR In accordance with the Risk Informed Completion Time Program] 7 hours 13 hours[
W. Required Action and associated Completion Time of Conditions B, C, D, E, T or U not met.	W.1 Be in MODE 3. AND W.2 Be in MODE 5.	6 hours 36 hours
X. Required Action and associated Completion Time of Conditions F, G, H, I, J, K, L, M or V not met.	X.1 Be in MODE 3. AND X.2 Be in MODE 4.	6 hours 12 hours
Y. Required Action and associated Completion Time of Conditions N, O, P, Q, R or S not met.	Y.1 Be in MODE 3.	6 hours

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	~~C~~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	~~D~~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]	~~D~~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	~~D~~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	~~D~~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[j] TRIP SETPOINT
1. Safety Injection						
f. High Steam Flow in Two Steam Lines	1,2,3 [c]	2 per steam line	~~D~~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	1,2,3 [c]	1 per loop	~~D~~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
g. High Steam Flow in Two Steam Lines	1,2,3 [c]	2 per steam line	~~D~~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	1,2,3 [c]	1 per steam line	~~D~~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] 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	~~C~~D,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	~~E~~H,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,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
3. Containment Isolation						
a. Phase A Isolation						
(1) Manual Initiation	1,2,3,4	2	B,C	SR 3.3.2.8	NA	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	~~C~~D,E	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,C	SR 3.3.2.8	NA	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	~~C~~D,E	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,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

----------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[j] TRIP SETPOINT
4. Steam Line Isolation						
a. Manual Initiation	1,2 [h],3 [h]	2	~~F~~J,K	SR 3.3.2.8	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2 [h],3 [h]	2 trains	~~G~~L,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]	~~D~~F,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	~~D~~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) Negative Rate - High	3 [f] [h]	3 per steam line	~~D~~F,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 ≥ [50] seconds and t_2 ≤ [5] seconds.

(f) Below the P-11 (Pressurizer Pressure) interlock.

(g) Time constant utilized in the rate/lag controller is ≥ [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	~~D~~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	~~D~~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	~~D~~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	~~D~~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	~~D~~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	~~D~~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 ≥ [50] seconds and t_2 ≤ [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	~~D~~F,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[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	~~I[D]~~P,Q[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	~~G~~L,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	~~G~~L,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	~~D~~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	~~I~~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	~~J~~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	~~C~~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~~T,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	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
and						
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: Condition A already has a 30 day CT, condition B is a default Condition, and Conditions E and F apply to the default Condition (Condition D) and are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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. AND E.2 Be in MODE 4.	6 hours 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

Table 3.3.3-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION D.1
1.	Power Range Neutron Flux	2	E
2.	Source Range Neutron Flux	2	E
3.	Reactor Coolant System (RCS) Hot Leg Temperature	2 per loop	E
4.	RCS Cold Leg Temperature	2 per loop	E
5.	RCS Pressure (Wide Range)	2	E
6.	Reactor Vessel Water Level	2	F
7.	Containment Sump Water Level (Wide Range)	2	E
8.	Containment Pressure (Wide Range)	2	E
9.	Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[(a)(b)]	E
10.	Containment Area Radiation (High Range)	2	F
11.	Pressurizer Level	2	E
12.	Steam Generator Water Level (Wide Range)	2 per steam generator	E
13.	Condensate Storage Tank Level	2	E
14.	Core Exit Temperature - Quadrant [1]	2[(c)]	E
15.	Core Exit Temperature - Quadrant [2]	2[(c)]	E
16.	Core Exit Temperature - Quadrant [3]	2[(c)]	E
17.	Core Exit Temperature - Quadrant [4]	2[(c)]	E
18.	Auxiliary Feedwater Flow	2	E

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) A channel consists of two core exit thermocouples (CETs).

----------REVIEWER'S NOTE----------
Table 3.3.3-1 shall be amended for each unit as necessary to list:
1. All Regulatory Guide 1.97, Type A instruments and
2. All Regulatory Guide 1.97, Category I, non-Type A instruments in accordance with the unit's Regulatory Guide 1.97, Safety Evaluation Report.

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. AND B.2 Be in MODE 4.	6 hours 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
A. One or more Functions with one channel per bus inoperable.	A.1 ----------NOTE---------- The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels. ---------- Place channel in trip.	[6] hours [OR In accordance with the Risk Informed Completion Time Program]
B. One or more Functions with two or more channels per bus inoperable.	B.1 Restore all but one channel per bus to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time

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

Comment: Condition B has various elements of the following and is excluded: default condition, loss of safety function, directed to declare other equipment inoperable, and an immediate Completion Time. Condition C is outside the applicability of the Traveler.

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 [OR In accordance with the Risk Informed Completion Time Program]
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. OR Two or more radiation monitoring channels inoperable.	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

CONDITION	REQUIRED ACTION	COMPLETION TIME
OR Required Action and associated Completion Time of Condition A not met.		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Only applicable during movement of [recently] irradiated fuel assemblies within containment. ----------	C.1 Place and maintain containment purge and exhaust valves in closed position.	Immediately
	OR	
One or more Functions with one or more manual or automatic actuation trains inoperable.	C.2 Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment purge and exhaust isolation valves made inoperable by isolation instrumentation.	Immediately
OR		
Two or more radiation monitoring channels inoperable.		
OR		
Required Action and associated Completion Time for Condition A not met.		

SURVEILLANCE REQUIREMENTS

----------NOTE----------

Refer to Table 3.3.6-1 to determine which SRs apply for each Containment Purge and Exhaust Isolation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform CHANNEL CHECK.	12 hours

Comment: Condition B has an immediate Completion time. Condition C is a default Condition. Conditions D and E are outside the applicability of the Traveler. Therefore these Conditions are excluded.

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
A. One or more Functions with one channel or train inoperable.	A.1 ----------NOTE---------- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] ---------- Place one CREFS train in emergency [radiation protection] mode.	7 days [OR In accordance with the Risk Informed Completion Time Program]
B. One or more Functions with two channels or two trains inoperable.	----------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	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
	emergency [radiation protection] mode. <u>AND</u>	

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.	Immediately
	OR		
	B.2	Place both trains in emergency [radiation protection] mode.	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.	6 hours
	AND		
	C.2	Be in MODE 5.	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: Condition B has an immediate Completion Time. Condition C is outside the applicability of the Traveler. Condition D is a default Condition. Therefore these Conditions are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
B. One or more Functions with two channels or two trains inoperable.	B.1.1 Place one FBACS train in operation. AND 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 Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
	OR 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. AND 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 Condtions 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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two trains inoperable. OR Required Action and associated Completion Time of Condition A not met.	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.	Immediately
	AND	
	B.2.1 Restore one train to	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
	OPERABLE status. OR	[OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.2.1 Close unborated water source isolation valves. AND B.2.2.2 Perform SR 3.1.1.1.	1 hour 1 hour AND Once per 12 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.9.2	Perform COT.	[184] days
SR 3.3.9.3	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	 [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)

3.4.1 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 ≥ [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 ≥ [541]°F.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Verify RCS T_{avg} in each loop ≥ [541]°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
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.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5 with RCS pressure < [500] psig.	6 hours 36 hours
C. ----------NOTE---------- Required Action C.2 shall be completed whenever this Condition is entered. ---------- Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.	C.1 Initiate action to restore parameter(s) to within limits. AND C.2 Determine RCS is acceptable for continued operation.	Immediately Prior to entering MODE 4

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 ~~i~~are~~s~~ 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 [OR 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
C. [One required RCS loop not in operation with Rod Control System capable of rod withdrawal.	C.1 Restore required RCS loop to operation. OR C.2 Place the Rod Control System in a condition incapable of rod withdrawal.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour] [OR In accordance with the Risk Informed Completion Time Program]
D. [Two] [required] RCS loops inoperable. OR Required RCS loop(s) not in operation.	D.1 Place the Rod Control System in a condition incapable of rod withdrawal. AND 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. AND D.3 Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately Immediately Immediately

Comment: No changes made. The immediate CTs of RAs A.1, B.1 and B.2 are~~is~~ 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. AND	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 ----------NOTE---------- Only required if RHR loop is OPERABLE. ---------- Be in MODE 5.	24 hours
B. Two required loops inoperable. OR Required loop not in operation.	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.	Immediately
	AND	
	B.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required RHR or RCS loop is in operation.	12 hours
SR 3.4.6.2	Verify SG secondary side water levels are ≥ [17]% for required RCS loops.	12 hours
SR 3.4.6.3	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power are available to each required pump.	7 days

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 ≥ [17]%.

----------NOTES----------

1. The RHR pump of the loop in operation 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. 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 ≤ [275°F] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR] unless the secondary side water temperature of each SG is ≤ [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
A. One required RHR loop inoperable. AND One RHR loop OPERABLE.	A.1 Initiate action to restore a second RHR loop to OPERABLE status. OR A.2 Initiate action to restore required SGs secondary side water level to within limit.	Immediately Immediately
B. One or more required SGs with secondary side water level not within limit. AND One RHR loop OPERABLE.	B.1 Initiate action to restore a second RHR loop to OPERABLE status. OR B.2 Initiate action to restore required SGs secondary side water level to within limit.	Immediately Immediately
C. No required RHR loops OPERABLE. OR Required RHR loop not in operation.	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. AND C.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately Immediately

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No required RHR loop OPERABLE. <u>OR</u> Required RHR loop not in operation.	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. <u>AND</u> B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify required RHR loop is in operation.	12 hours
SR 3.4.8.2	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power are available to each required RHR pump.	 7 days

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 ≤ [92]% and

b. [Two groups of] pressurizer heaters OPERABLE with the capacity [of each group] ≥ [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. AND A.2 Fully insert all rods. AND A.3 Place Rod Control System in a condition incapable of rod withdrawal. AND A.4 Be in MODE 4.	6 hours 6 hours 6 hours 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
		Program]
C. Two [required] group of pressurizer heaters inoperable.	C~~B~~.1 Restore at least one [required] group of pressurizer heaters to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C~~. Required Action and associated Completion Time of Condition B or C not met.	~~C~~D.1 Be in MODE 3. AND	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D~~C~~.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level is ≤ [92]%.	12 hours
----------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. ----------		
SR 3.4.9.2	Verify capacity of each required group of pressurizer heaters is ≥ [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 ≥ [2460] psig and ≤ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met. OR Two or more pressurizer	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with any RCS cold leg temperatures ≤ [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]. AND B.2 Remove power from associated block valve[s]. AND B.3 Restore PORV[s] to OPERABLE status.	1 hour 1 hour 72 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One [or two] block valve(s) inoperable.	----------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. ----------	
	C.1 Place associated PORV in manual control.	1 hour
	AND	
	C.2 Restore block valve to OPERABLE status.	72 hours [OR 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.	6 hours
	AND	
	D.2 Be in MODE 4.	12 hours
E. Two [or three] PORVs inoperable and not capable of being manually cycled.	E.1 Close associated block valves.	1 hour
	AND	
	E.2 Remove power from associated block valves.	1 hour
	AND	
	~~E.3 Be in MODE 3.~~	~~6 hours~~
	~~AND~~	
	~~E.4 Be in MODE 4.~~	

	E.3 Restore at least one PORV to OPERABLE status.	~~12 hours~~1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two [or three] block valves inoperable.	----------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. ---------- F.1 Restore one block valve to OPERABLE status [if three block valves are inoperable]. [	2 hours] [OR 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. AND 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 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 ≥ [436.5] psig and ≤ [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 ≥ [436.5] psig and ≤ [463.5] psig,] or

d. The RCS depressurized and an RCS vent of ≥ [2.07] square inches.

----------NOTES----------

1. [Two charging pumps] may be made capable of injecting for ≤ 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 ≤ [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].	12 hours
	OR	
	D.2 Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	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 ≥ [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. OR Pressure boundary LEAKAGE exists. OR Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

Comment: While Condition A represents a variable outside its limit, the PCV could be substituted as a surrogate in an RICT calculation. 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
A. One or more flow paths with leakage from one or more RCS PIVs not within limit.	----------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]. ----------	
	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.	4 hours [OR In accordance with the Risk Informed Completion Time Program]
	AND	

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 [OR In accordance with the Risk Informed Completion Time Program] 72 hours] [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours
C. [RHR System autoclosure interlock function inoperable.	C.1 Isolate the affected penetration by use of one closed manual or deactivated automatic valve.	4 hours] [OR In accordance with the Risk Informed Completion Time Program]

Comment: Conditions A, B, and D already have a 30 day CT. Condition C requires periodic performance of a Surveillance. and Condition F is a default condition. All these Conditions are therefore excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

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

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

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

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

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

ACTIONS

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

ACTIONS (continued)

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. [Required containment atmosphere radioactivity monitor inoperable. AND Required containment air cooler condensate flow rate monitor inoperable.	D.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status. OR D.2 Restore required containment air cooler condensate flow rate monitor to OPERABLE status.	30 days 30 days]
E. All required monitors inoperable.	E.1 Restore inoperable required monitors.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
F~~E~~. Required Action and associated Completion Time not met.	F~~E~~.1 Be in MODE 3. AND F~~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

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}) ≥ 500°F.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. 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.	C.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours

SURVEILLANCE REQUIREMENTS

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

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. AND B.2 Be in MODE 3. AND 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
	OR	
	A.2 ----------NOTE---------- Only required if temperature requirement not met. ---------- Close cold leg isolation valve.	Immediately

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 ≥ 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: The RA A.2 CT is not a time-based CT and Condition B is a default Condition. Therefore these are excluded.

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. AND A.2 Plug [or repair] the affected tube(s) in accordance with the Steam Generator Program.	7 days [OR In accordance with the Risk Informed Completion Time 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. OR SG tube integrity not maintained.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 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
A. One accumulator inoperable due to boron concentration not within limits.	A.1 Restore boron concentration to within limits.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One accumulator inoperable for reasons other than Condition A.	B.1 Restore accumulator to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Two or more accumulators inoperable.	C.1 Restore inoperable accumulators to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Program]
D~~C~~. Required Action and associated Completion Time of Condition A or B not met.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Reduce RCS pressure to ≤ [1000] psig.	6 hours 12 hours
~~D. Two or more accumulators inoperable.~~	~~D.1 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 [OR In accordance with the Risk Informed Completion Time Program]
B. Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	B.1 Restore ECCS flow equivalent to 100% of a single OPERABLE ECCS train.	1 hour [OR In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Completion Time Program]
C~~B~~. Required Action and associated Completion Time not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	6 hours 12 hours
~~C. Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.~~	~~C.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 [OR 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 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. OR RWST borated water temperature not within limits.	A.1 Restore RWST to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
B. RWST inoperable for reasons other than Condition A.	B.1 Restore RWST to OPERABLE status.	1 hour [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. AND C.2 Be in MODE 5.	6 hours 36 hours

Comment: 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 [≤ [40] gpm with [centrifugal charging pump discharge header] pressure ≥ [2480] psig and the [charging flow] control valve full open or ≥ [0.2117] ft/gpm^2 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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 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 [OR 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 3. AND B.2 Borate to SDM specified in COLR. AND 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

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. AND B.2 Be in MODE 5.	6 hours 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: 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
A. One or more containment air locks with one 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]. ---------- A.1 Verify the OPERABLE door is closed in the affected air lock. <u>AND</u>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Lock the OPERABLE door closed in the affected air lock. AND	24 hours
	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.	Once per 31 days
B. One or more containment air locks with containment air lock interlock mechanism inoperable.	----------NOTES---------- 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. ---------- B.1 Verify an OPERABLE door is closed in the affected air lock. AND	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Lock an OPERABLE door closed in the affected air lock.	24 hours
	AND	
	B.3 ----------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ----------	
	Verify an OPERABLE door is locked closed in the affected air lock.	Once per 31 days
C. One or more containment air locks inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate overall containment leakage rate per LCO 3.6.1.	Immediately
	AND	
	C.2 Verify a door is closed in the affected air lock.	1 hour
	AND	
	C.3 Restore air lock to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	AND	
	D.2 Be in MODE 5.	36 hours

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
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]].	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. AND	4 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.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.	Once per 31 days following isolation for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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]].	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C. ----------NOTE---------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. ---------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. AND	72 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	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 otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days following isolation
D. [One or more shield building bypass leakage [or purge valve leakage] not within limit.	D.1 Restore leakage within limit.	4 hours for shield building bypass leakage [OR In accordance with the Risk Informed Completion Time Program] AND 24 hours for purge valve leakage] [OR In accordance with the Risk Informed Completion Time Program]
E. [One or more penetration flow paths	E.1 Isolate the affected penetration flow path by	24 hours

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]. AND	[OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	E.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.	Once per 31 days following isolation for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
	AND E.3 Perform SR 3.6.3.7 for the resilient seal purge valves closed to comply with Required Action E.1.	Once per [92] days] following isolation
F. Required Action and associated Completion Time not met.	F.1 Be in MODE 3.	6 hours
	AND F.2 Be in MODE 5.	36 hours

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

3.6 CONTAINMENT SYSTEMS

3.6.4A Containment Pressure (Atmospheric, Dual, and Ice Condenser)

LCO 3.6.4A Containment pressure shall be ≥ [-0.3] psig and ≤ [+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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4A.1	Verify containment pressure is within limits.	12 hours

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

3.6 CONTAINMENT SYSTEMS

3.6.4B Containment Pressure (Subatmospheric)

LCO 3.6.4B Containment air partial pressure shall be ≥ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4B.1	Verify containment air partial pressure is within limits.	12 hours

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

3.6 CONTAINMENT SYSTEMS

3.6.5A Containment Air Temperature (Atmospheric and Dual)

LCO 3.6.5A Containment average air temperature shall be ≤ [120]°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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5A.1	Verify containment average air temperature is within limit.	24 hours

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

3.6 CONTAINMENT SYSTEMS

3.6.5B Containment Air Temperature (Ice Condenser)

LCO 3.6.5B Containment average air temperature shall be:

a. ≥ [85]°F and ≤ [110]°F for the containment upper compartment and

b. ≥ [100]°F and ≤ [120]°F for the containment lower compartment.

----------NOTE----------
The minimum containment average air temperature in MODES 2, 3, and 4 may be reduced to [60]°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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.5C Containment Air Temperature (Subatmospheric)

LCO 3.6.5C Containment average air temperature shall be ≥ [86]°F and ≤ [120]°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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5C.1	Verify containment average air temperature is within limits.	24 hours

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 [OR 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 3. AND 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 [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two [required] containment cooling trains inoperable.	D.1 Restore one [required] containment cooling train to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
E. Two containment spray trains inoperable. OR Any combination of three or more containment spray and cooling trains inoperable.	E.1 Restore inoperable containment spray trains and containment cooling trains to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
F~~E.~~. Required Action and associated Completion Time of Condition C, D or ~~D~~ E not met.	F~~E.~~.1 Be in MODE 3. AND F~~E.~~.2 Be in MODE 5.	6 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~F. Two containment spray trains inoperable.~~ ~~OR~~ ~~Any combination of three or more trains inoperable.~~	~~F.1 Enter LCO 3.0.3.~~	~~Immediately~~

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 [required] containment cooling train fan unit for ≥ 15 minutes.	31 days
SR 3.6.6A.3	Verify each [required] containment cooling train cooling water flow rate is ≥ [700] gpm.	31 days
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.	In accordance with the Inservice Testing Program
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.	[18] months

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

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. OR 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]

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.~~. Any combination of three or more trains inoperable.	~~F.1 Be in MODE 3.~~ ~~AND~~ ~~F.2 Be in MODE 5.~~ .1 Restore inoperable trains to OPERABLE status. ~~.~~	~~6 hours~~ ~~36 hours~~1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~G. Any combination of three or more trains inoperable.~~ Required Action and associated Completion Time of Condition A, B, C, D, E, or F not met.	G.1 ~~Enter LCO~~Be in MODE 3.~~0.3.~~ AND G.2 Be in MODE 5.	~~Immediately~~6 hours 36 hours

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

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
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. Two containment spray trains inoperable.	B.1 Restore at least one containment spray train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time not met.	C~~B.~~.1 Be in MODE 3. AND C~~B.~~.2 Be in MODE 5.	6 hours 84 hours

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two QS trains inoperable.	B.1 Restore at least one QS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time not met.	C~~B.~~.1 Be in MODE 3. AND C~~B.~~.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~~F. Required Action and associated Completion Time not met.~~. Three or more RS subsystems inoperable.	F.1 ~~Be in MODE 3.~~ ~~AND~~ ~~F.2 Be in MODE 5~~Restore inoperable RS subsystems to OPERABLE status.	~~6 hours~~ ~~84 hours~~1 hour [OR In accordance with the Risk Informed Completion Time Program]
G~~G. Three or more RS subsystems inoperable.~~ . Required Action and associated Completion Time not met	G.1 ~~Enter LCO~~Be in MODE 3.~~0.3.~~ AND G.2 Be in MODE 5.	6 hours ~~Immediately~~84 hours

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 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

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 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	31 days

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. AND B.2 Restore one HMS train to OPERABLE status.	1 hour AND Once per 12 hours thereafter 7 days [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.	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. OR A.2 Perform SR 3.6.10.1 on the OPERABLE train.	7 days [OR 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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two HIS trains inoperable.	C.1 Restore at least one HIS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time

CONDITION	REQUIRED ACTION	COMPLETION TIME
		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: Condition C is a default Condition and is therefore excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two ICS trains inoperable.	B.1 Restore at least one ICS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time not met.	C~~B.~~.1 Be in MODE 3. AND C~~B.~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two vacuum relief lines inoperable.	B.1 Restore at least one vacuum relief line to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time not met.	~~B~~C.1 Be in MODE 3. AND C~~B.~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two SBACS trains inoperable.	B.1 Restore at least one SBACS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time not met.	C~~B.~~.1 Be in MODE 3. AND C~~B.~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two ARS trains inoperable.	B.1 Restore at least one ARS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time not met.	C~~B.~~.1 Be in MODE 3. AND C~~B.~~.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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.15.1	Verify maximum ice bed temperature is ≤ [27]°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
A. One or more ice condenser inlet doors inoperable due to being physically restrained from opening.	A.1 Restore inlet door to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
B. One or more ice condenser doors inoperable for reasons other than Condition A or not closed.	B.1 Verify maximum ice bed temperature is ≤ [27]°F. AND B.2 Restore ice condenser door to OPERABLE status and closed positions.	Once per 4 hours 14 days [OR In accordance with the Risk Informed Completion Time Program]

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. AND D.2 Be in MODE 5.	6 hours 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] AND [18] months
SR 3.6.16.4	Verify torque required to cause each inlet door to begin to open is ≤ [675] in-lb.	[3 months during first year after receipt of license] AND [18] months
SR 3.6.16.5	Perform a torque test on [a sampling of ≥ 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
A. ----------NOTE---------- For this action, separate Condition entry is allowed for each personnel access door or equipment hatch. ---------- One or more personnel access doors or equipment hatches open or inoperable, other than for personnel transit entry.	A.1 Restore personnel access doors and equipment hatches to OPERABLE status and closed positions.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
B. Divider barrier seal inoperable.	B.1 Restore seal to OPERABLE status.	1 hour [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. AND C.2 Be in MODE 5.	6 hours 36 hours

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
A. One [or more] ice condenser floor drain[s] inoperable.	A.1 Restore ice condenser floor drain to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
B. One [or more] refueling canal drain[s] inoperable.	B.1 Restore refueling canal drain to OPERABLE status.	1 hour [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. AND C.2 Be in MODE 5.	6 hours 36 hours

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

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 [OR In accordance with the Risk Informed Completion Time Program]
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. AND	4 hours [OR In accordance with the Risk Informed Completion Time Program]

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 [OR In accordance with the Risk Informed Completion Time Program]
C. One or more steam generators with ≥ [4] MSSVs inoperable.	C.1 Restore inoperable MSSVs on each steam generator to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C.~~. Required Action and associated Completion Time not met. ~~OR~~ ~~One or more steam generators with ≥ [4] MSSVs inoperable.~~	D~~C.~~.1 Be in MODE 3. AND ~~C~~D.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.	

Comment: The RICT of RA D.1 is limited to 7 days due to RA D.2 requiring periodic performance of an action every 7 days. 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 [OR 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 2.	6 hours
C Two or more MSIVs inoperable in MODE 1.	C.1 Restore inoperable MSIVs to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~C~~D. ----------NOTE---------- ---- Separate Condition entry	D~~C.~~.1 Close MSIV. AND	[8] hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
is allowed for each MSIV. ---------- One or more MSIVs inoperable in MODE 2 or 3.		[OR In accordance with the Risk Informed Completion Time Program]
	D~~C.~~.2 Verify MSIV is closed.	Once per 7 days
E~~D.~~. Required Action and associated Completion Time of Condition C or D not met.	E~~D.~~.1 Be in MODE 3. AND ~~D~~E.2 Be in MODE 4.	6 hours 12 hours

Comment: 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. AND	[72] hours [OR In accordance with the Risk Informed Completion Time Program]
	A.2 Verify MFIV is closed or isolated.	Once per 7 days following closure or isolation
B. One or more MFRVs inoperable.	B.1 Close or isolate MFRV. AND	[72] hours [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Verify MFRV is closed or isolated.	Once per 7 days following closure or isolation
C. [One or more [MFRV or preheater] bypass valves inoperable.	C.1 Close or isolate bypass valve. AND	[72] hours [OR In accordance with the Risk Informed Completion Time Program]
	C.2 Verify bypass valve is closed or isolated.	Once per 7 days following closure or isolation]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two valves in the same flow path inoperable.	D.1 Isolate affected flow path.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. [AND 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 [OR 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 [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. AND C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	6 hours [24] hours

Comment: Condition D~~C~~ 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
A. [One steam supply to turbine driven AFW pump inoperable. OR ----------NOTE---------- Only applicable if MODE 2 has not been entered following refueling. ---------- One turbine driven AFW pump inoperable in MODE 3 following refueling.	A.1 Restore affected equipment to OPERABLE status.	7 days] [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One AFW train inoperable in MODE 1, 2, or 3 [for reasons other than Condition A].	B.1 Restore AFW train to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Two AFW trains inoperable in MODE 1, 2, or 3.]	C.1 Restore at least one AFW train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C.~~. Required Action and associated Completion Time for Condition A ~~[or~~ , [B] or C not met. ~~[OR~~ ~~Two AFW trains inoperable in MODE 1, 2, or 3.]~~	D~~C.~~.1 Be in MODE 3. AND ~~C~~D.2 [Be in MODE 4.	6 hours [18] hours]
E~~D.~~. [Three] AFW trains inoperable in MODE 1, 2, or 3.	~~D.1~~E1 ----------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.	Immediately]

F~~E~~. Required AFW train inoperable in MODE 4.	F~~E~~.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.

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 by administrative means OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND	
	A.2 Restore CST to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in MODE 4, without reliance on steam generator for heat removal.	[24] hours

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 residual heat removal loops made inoperable by CCW. ---------- Restore CCW train to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. Two CCW trains inoperable.	B.1 Restore at least one CCW train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and	C~~B~~.1 Be in MODE 3.	6 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
associated Completion Time ~~of Condition A~~ not met.	AND ~~B~~C.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
A. One SWS train inoperable.	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.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. Two SWS trains inoperable.	B.1 Restore at least one SWS train to OPERABLE status.	1hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
		[OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time ~~of Condition A~~ not met.	C~~B.~~.1 Be in MODE 3. AND C~~B.~~.2 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
A. [One or more cooling towers with one cooling tower fan inoperable.	A.1 Restore cooling tower fan(s) to OPERABLE status.	7 days] [OR 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]
C. UHS inoperable [for reasons other than Condition A or B.]	C.1 Restore UHS to OPERABLE status.	1 hour [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]
D~~C~~. [Required Action and associated Completion Time ~~of Condition A or B~~ not met.] ~~OR]~~ ~~UHS inoperable [for reasons other than Condition A or B].~~	~~C~~D.1 Be in MODE 3. AND ~~C~~D.2 Be in MODE 5.	6 hours 36 hours

Comment: Condition C is a default Conditions, and Conditions E and F are outside the applicability of the traveler. Therefore these Conditions are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two CREFS trains inoperable in MODE 1, 2, 3 or 4 for reasons other than Condition B.	C.1 Restore at least one CREFS train to OPERABLE status.	1 hour [OR

CONDITION	REQUIRED ACTION	COMPLETION TIME
		In accordance with the Risk Informed Completion Time Program]
DC. Required Action and associated Completion Time of Condition A, B or BC not met in MODE 1, 2, 3, or 4.	CD.1 Be in MODE 3. AND CD.2 Be in MODE 5.	6 hours 36 hours

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
B. Two CREATCS trains inoperable in MODE 1, 2, 3 or 4.	B.1 Restore at least one CREATCS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C~~B.~~.1 Be in MODE 3. AND C~~B.~~.2 Be in MODE 5.	6 hours 36 hours
D~~C.~~. Required Action and associated Completion Time of Condition A not met [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	~~C~~D.1 Place OPERABLE CREATCS train in operation. OR ~~C~~D.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
E~~D.~~. Two CREATCS trains inoperable [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	E~~D.~~.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~E. Two CREATCS trains inoperable in MODE 1, 2, 3, or 4.~~	~~E.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: Condition D is a default Condition and is excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two ECCS PREACS trains inoperable for reasons other than	C.1 Restore at least one ECCS PREACS train to OPERABLE status.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
Condition B.		[OR In accordance with the Risk Informed Completion Time Program]
DC. Required Action and associated Completion Time not met.	CD.1 Be in MODE 3. AND CD.2 Be in MODE 5.	6 hours 36 hours

Comment: Condition D is a default Condition. Conditions E and F are outside the applicability of the Traveler. Therefore these Conditions are excluded

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two FBACS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	C.1 Restore at least one FBACS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~C~~D. [Required Action and associated Completion Time of Condition A, B or ~~B~~C not met in MODE 1, 2, 3, or 4. ~~OR~~ ~~Two FBACS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.~~	~~C~~D.1 Be in MODE 3. AND ~~C~~D.2 Be in MODE 5.	6 hours 36 hours]
~~D.~~E. Required Action and associated Completion Time [of Condition A] not met during movement of [recently] irradiated fuel assemblies in the fuel building.	~~D~~E.1 Place OPERABLE FBACS train in operation. OR ~~D~~E.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately Immediately
~~E.~~F. Two FBACS trains inoperable during movement of [recently] irradiated fuel assemblies in the fuel building.	~~E~~F.1 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two PREACS trains inoperable due to inoperable penetration room boundary.	B.1 Restore penetration room boundary to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Two PREACS trains inoperable for reasons other than Condition B.	C.1 Restore at least one PREACS train to OPERABLE status.	1 hour [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]
D~~C.~~. Required Action and associated Completion Time not met.	D~~C.~~.1 Be in MODE 3. AND D~~C.~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Operate each PREACS train for [≥ 10 continuous hours with heaters 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.

3.7 PLANT SYSTEMS

3.7.15 Fuel Storage Pool Water Level

LCO 3.7.15 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 the fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	Verify the fuel storage pool water level is ≥ 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 ≥ [2300] ppm.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool boron concentration not within limit.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	A.1 Suspend movement of fuel assemblies in the fuel storage pool.	Immediately
	AND	
	A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately
	OR	
	A.2.2 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 ≤ [0.10] μCi/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. AND A.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.18.1	Verify the specific activity of the secondary coolant is ≤ [0.10] μCi/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 AND Once per 8 hours thereafter
	AND	
	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)
	AND	

ACTIONS (continued)

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

		Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two [required] offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required features
	AND	
	C.2 Restore one [required] offsite circuit to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
D. One [required] offsite circuit inoperable. AND One [required] DG inoperable.	----------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. ----------	
	D.1 Restore [required] offsite circuit to OPERABLE status.	12 hours [OR In accordance with the Risk Informed Completion Time Program]
	OR	
	D.2 Restore [required] DG to OPERABLE status.	12 hours [OR In accordance with the Risk Informed Completion Time

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
-----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. ---------- F. [One [required] [automatic load sequencer] inoperable.	F.1 Restore [required] [automatic load sequencer] to OPERABLE status.	[12] hours] [OR In accordance with the Risk Informed Completion Time Program]
G. Three or more [required] AC sources inoperable.	G.1 Restore [required] inoperable AC sources to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
H~~G.~~. Required Action and associated Completion Time of Condition A, B, C, D, E, ~~or~~ [F] or G not met.	H~~G.~~.1 Be in MODE 3. AND ~~G~~H.2 Be in MODE 5.	6 hours 36 hours
~~H. Three or more [required] AC sources inoperable.~~	~~H.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

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

ACTIONS (continued)

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

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

CONDITION	REQUIRED ACTION	COMPLETION TIME

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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 ≥ [33,000] gal of fuel.	31 days
SR 3.8.3.2	Verify lubricating oil inventory is ≥ [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 ≥ [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 [OR In accordance with the Risk Informed Completion Time Program]
	AND	
	A.2 Verify battery float current ≤ [2] amps.	Once per [12] hours
	AND	
	A.3 Restore battery charger[s] to OPERABLE status.	7 days [OR 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] [OR In accordance with the Risk Informed Completion Time

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 [OR In accordance with the Risk Informed Completion Time Program]
D. Two DC electrical power subsystems inoperable.	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]
E~~D.~~. Required Action and Associated Completion Time not met.	E~~D.~~.1 Be in MODE 3. AND ~~D~~E.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. AND 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. AND A.2 Verify battery float current ≤ [2] amps. AND	2 hours Once per [12] hours

ACTIONS (continued)

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

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. AND A.2 Perform SR 3.8.6.1. AND A.3 Restore affected cell voltage ≥ [2.07] V.	2 hours 2 hours 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. AND B.2 Restore battery float current to ≤ [2] amps.	2 hours [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Required Action C.2 shall be completed if electrolyte level was below the top of plates. ----------	----------NOTE---------- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. ----------	
C. One [or two] batter[y][ies on one train] with one or more cells electrolyte level less than minimum established design limits.	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.	8 hours 12 hours 31 days
D. One [or two] batter[y][ies on one train] with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. One or more batteries in redundant trains with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one train to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> 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.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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.	7 days
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ [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 [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two or more [required] inverters inoperable.	B.1 Restore inoperable inverters to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B.~~. Required Action and associated Completion Time not met.	C~~B.~~.1 Be in MODE 3. AND	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	~~B~~C.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, [frequency], and alignment to required AC vital buses.	7 days

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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	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
A. One or more AC electrical power distribution subsystems inoperable.	----------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. ----------	
	A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One or more AC vital buses inoperable.	B.1 Restore AC vital bus subsystem(s) to OPERABLE status.	2 hours [OR In accordance with the Risk Informed Completion Time Program]
C. One or more DC	C.1 Restore DC electrical	2 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
electrical power distribution subsystems inoperable.	power distribution subsystem(s) to OPERABLE status.	[OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.	D.1 Restore inoperable electrical power distribution subsystems to OPERABLE status to restore safety function.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
E~~D.~~. Required Action and associated Completion Time not met.	E~~D.~~.1 Be in MODE 3. AND E~~D.~~.2 Be in MODE 5.	6 hours 36 hours
~~E. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.~~	~~E.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

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

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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.4 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.5 Declare associated required residual heat removal 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

5.5.16 Containment Leakage Rate Testing Program (continued)

1. Containment leakage rate acceptance criterion is ≤ 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] [≤ 0.75 L_a for Option B Type A tests].

2. Air lock testing acceptance criteria are:

   a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

   b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 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] 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 Notes ----------

1. 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.

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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 [or 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.

C.1

With two Reactor Manual Trip 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.]

~~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 ~~C~~D 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.

E.1

With two channels or trains inoperable the Required Action is to restore at least one channel or train 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 or train. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

~~FD.~~.1.1, ~~DF~~.1.2, ~~DF~~.2.1, ~~D~~and F.2.2~~, and D.3~~

Condition ~~D~~F 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 ≤ 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 ~~D~~F.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.

G.1

With two or more Power Range Neutron Flux - High 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.]

BASES

ACTIONS (continued)

~~E~~H.1 ~~and E.2~~

Condition ~~E~~H 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.

~~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.]

J.1 and ~~F~~J.2

Condition ~~F~~J 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] 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.

~~G~~K.1 and ~~G~~K.2

Condition ~~G~~K 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

Required Action ~~G~~K.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.

~~H~~L.1

Condition ~~H~~L 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 ~~H~~L.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.

~~I~~M.1

Condition ~~I~~M 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 ~~J~~N 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.]

~~K~~O.1 and ~~K~~O.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) [or 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 ~~K~~L.

[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.

~~L~~Q.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.]

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.

~~M~~T.1

With two RCP Breaker Position (Single Loop) 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.]

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.2~~The 4 hours to reduce THERMAL POWER to below the P-8 setpoint is justified in Reference 11.

V.1

Condition ~~M~~V 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~~

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.]

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 ~~N~~Y 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.

~~O~~Z.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.]

AA.1

If the Required Action and ~~O.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 ~~O~~BB 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

~~P~~CC.1 ~~and P.2~~

With two trains inoperable the Required Action is to restore at least one train 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 train. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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 ~~P~~DD.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 ~~P~~DD.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 ~~P~~DD:

1. If WCAP-14333-P-A, Rev. 1 is implemented without implementing WCAP-15376-P, the Completion Time for Required Action ~~P~~DD.1 will be 1 hour~~ and for Required Action P.2 will be 7 hours.~~. Condition ~~P~~DD 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 ~~P~~DD.1 will be 24 hours~~ and for Required Action P.2 will be 30 hours.~~. Condition ~~P~~DD will only contain one Note (Note 1 as discussed in the first

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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 ~~P~~DD 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 ~~P~~DD 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.

~~Q~~EE.1 ~~and Q.2~~

With two RTB trains inoperable the Required Action is to restore at least one train 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 train. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

FF.1

Condition ~~Q~~FF 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.~~[or in accordance with the Risk Informed Completion Time Program]. 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.~~

~~R~~GG.1 ~~and R.2~~

Condition ~~R~~GG 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.~~[or in accordance with the Risk Informed Completion Time Program]. 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)

~~S~~II.1 ~~and S.2~~

Condition ~~S~~II 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 ~~P~~DD.

The Completion Time of 48 hours for Required Action ~~S~~II.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.

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.]

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.

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.~~

C.1~~, C.2.~~

With two channels or trains inoperable the Required Action is to restore at least one channel or train 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 or train. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D.1

Condition ~~C~~D 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.

~~D~~E.1~~, D.2.~~

With two trains inoperable the Required Action is to restore at least one train 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.]

F.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,
- 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.

~~E~~G.1~~, E.2.~~

With two or more channels inoperable or one channel inoperable in more than one loop, steam line, or stream 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.]

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

~~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.

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.]

BASES

ACTIONS (continued)

~~F.1, F.2.1, and F.2.2~~

J.1

Condition ~~F~~J 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 Time 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.~~

~~G~~K.1~~, G.2.~~

With two or more required channels or two trains inoperable the Required Action is to restore sufficient inoperable channels to restore the safety function or at least one train 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 sufficient channels. [Alternately,

a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

L.1

Condition ~~G~~L 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.

M.1

With two trains inoperable the Required Action is to restore at least one train 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 train. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

[~~H~~N.1 ~~and H.2~~

Condition ~~H~~N 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.]

~~I~~O.1 ~~and I.2~~

With two trains inoperable the Required Action is to restore at least one train 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 train. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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 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.

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.]

BASES

ACTIONS (continued)

~~J~~R.1 ~~and J.2~~

Condition ~~J~~R 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.

~~K~~S.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.]

T.1

Condition ~~K~~T 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~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The [6] hour Completion Time is justified in Reference 10.

[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.

~~L~~U.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.]

V.1

Condition ~~L~~V 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

LCO (continued)

- to regulate AFW flow so that the SG tubes remain covered.

At some units, AFW flow is a Type A variable because operator action is required to throttle flow during an SLB accident to prevent the AFW pumps from operating in runout conditions. AFW flow is also used by the operator to verify that the AFW System is delivering the correct flow to each SG. However, the primary indication used by the operator to ensure an adequate inventory is SG level.

APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and pre-planned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, unit conditions are such that the likelihood of an event that would require PAM instrumentation is low; therefore, the PAM instrumentation is not required to be OPERABLE in these MODES.

ACTIONS

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 3.3.3-1. 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 when one or more Functions have one required channel that is inoperable. Required Action A.1 requires restoring the inoperable channel to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channel (or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval.

BASES

ACTIONS (continued)

B.1

Condition B applies when the Required Action and associated Completion Time for Condition A are not met. This Required Action specifies initiation of actions in Specification 5.6.5, which requires a written report to be submitted to the NRC immediately. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative actions. This action is appropriate in lieu of a shutdown requirement since alternative actions are identified before loss of functional capability, and given the likelihood of unit conditions that would require information provided by this instrumentation.

C.1

Condition C applies when one or more Functions have two inoperable required channels (i.e., two channels inoperable in the same Function). Required Action C.1 requires restoring one channel in the Function(s) to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrument operation and the availability of alternate means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur.

D.1

Condition D applies when the Required Action and associated Completion Time of Condition C is not met. Required Action D.1 requires entering the appropriate Condition referenced in Table 3.3.3-1 for the channel immediately. The applicable Condition referenced in the Table is Function dependent. Each time an inoperable channel has not met the Required Action of Condition C, and the associated Completion Time has expired, Condition D is entered for that channel and provides for transfer to the appropriate subsequent Condition.

BASES

ACTIONS (continued)

E.1 and E.2

If the Required Action and associated Completion Time of Condition C is not met and Table 3.3.3-1 directs entry into Condition E, the unit must be brought to a MODE where the requirements of this LCO do not apply. To achieve this status, the unit must be brought to at least 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.

F.1

At this unit, alternate means of monitoring Reactor Vessel Water Level and Containment Area Radiation have been developed and tested. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. If these alternate means are used, the Required Action is not to shut down the unit but rather to follow the directions of Specification 5.6.5, in the Administrative Controls section of the TS. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that SR 3.3.3.1 and SR 3.3.3.3 apply to each PAM instrumentation Function in Table 3.3.3-1.

SR 3.3.3.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross instrumentation failure 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 the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The high radiation instrumentation should be compared to similar unit instruments located throughout the unit.

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 [or 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 REQUIREMENTS

SR 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

APPLICABILITY (continued)

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

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

ACTIONS

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

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

A.1

Condition A applies to the failure of one containment purge isolation radiation monitor channel. Since the four containment radiation monitors measure different parameters, failure of a single channel may result in loss of the radiation monitoring Function for certain events. Consequently, the failed channel must be restored to OPERABLE status. The 4 hours allowed to restore the affected channel is justified by the low likelihood of events occurring during this interval, and recognition that one or more of the remaining channels will respond to most events. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

B.1

Condition B applies to all Containment Purge and Exhaust Isolation Functions and addresses the train orientation of the Solid State Protection System (SSPS) and the master and slave relays for these Functions. It also addresses the failure of multiple radiation monitoring channels, or the inability to restore a single failed channel to OPERABLE status in the time allowed for Required Action A.1.

If a train is inoperable, multiple channels are inoperable, or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action for the applicable Conditions of LCO 3.6.3 is met for each valve made inoperable by failure of isolation instrumentation.

A Note is added stating that Condition B is only applicable in MODE 1, 2, 3, or 4.

C.1 and C.2

Condition C applies to all Containment Purge and Exhaust Isolation Functions and addresses the train orientation of the SSPS and the master and slave relays for these Functions. It also addresses the failure of multiple radiation monitoring channels, or the inability to restore a single failed channel to OPERABLE status in the time allowed for Required Action A.1. If a train is inoperable, multiple channels are inoperable, or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action to place and maintain containment purge and exhaust isolation valves in their closed position is met or the applicable Conditions of LCO 3.9.4, "Containment Penetrations," are met for each valve made inoperable by failure of isolation instrumentation. The Completion Time for these Required Actions is Immediately.

A Note states that Condition C is applicable during movement of [recently] irradiated fuel assemblies within containment.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.6-1 determines which SRs apply to which Containment Purge and Exhaust Isolation Functions.

BASES

LCO (continued)

4. Safety Injection

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

APPLICABILITY

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

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

ACTIONS

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

A Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each Function. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.7-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A applies to the actuation logic train Function of the CREFS, the radiation monitor channel Functions, and the manual channel Functions.

BASES

ACTIONS (continued)

If one train is inoperable, or one radiation monitor channel is inoperable in one or more Functions, 7 days are permitted to restore it to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10. If the channel/train cannot be restored to OPERABLE status, one CREFS train must be placed in the emergency radiation protection mode of operation. This accomplishes the actuation instrumentation Function and places the unit in a conservative mode of operation.

The Required Action for Condition A is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.

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

Condition B applies to the failure of two CREFS actuation trains, two radiation monitor channels, or two manual channels. The first Required Action is to place one CREFS train in the emergency [radiation protection] mode of operation immediately. This accomplishes the actuation instrumentation Function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.10 must also be entered for the CREFS train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed upon train inoperability as discussed in the Bases for LCO 3.7.10.

Alternatively, both trains may be placed in the emergency [radiation protection] mode. This ensures the CREFS function is performed even in the presence of a single failure.

The Required Action for Condition B is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.

BASES

ACTIONS (continued)

C.1 and C.2

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to 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.

D.1

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met when [recently] irradiated fuel assemblies are being moved. Movement of [recently] irradiated fuel assemblies must be suspended immediately to reduce the risk of accidents that would require CREFS actuation.

E.1

Condition E applies when the Required Action and associated Completion Time for Condition A or B have not been met in MODE 5 or 6. Actions must be initiated to restore the inoperable train(s) to OPERABLE status immediately to ensure adequate isolation capability in the event of a waste gas decay tank rupture.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.7-1 determines which SRs apply to which CREFS Actuation Functions.

SR 3.3.7.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

BASES

ACTIONS (continued)

A second 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 3.3.8-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A applies to the actuation logic train function of the Solid State Protection System (SSPS), the radiation monitor functions, and the manual function. Condition A applies to the failure of a single actuation logic train, radiation monitor channel, or manual channel. If one channel or train is inoperable, a period of 7 days is allowed to restore it to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the train cannot be restored to OPERABLE status, one FBACS train must be placed in operation. This accomplishes the actuation instrumentation function and places the unit in a conservative mode of operation. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this time is the same as that provided in LCO 3.7.13.

B.1.1, B.1.2, B.2

Condition B applies to the failure of two FBACS actuation logic trains, two radiation monitors, or two manual channels. The Required Action is to place one FBACS train in operation immediately. This accomplishes the actuation instrumentation function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.13 must also be entered for the FBACS train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed on train inoperability as discussed in the Bases for LCO 3.7.13.

Alternatively, both trains may be placed in the emergency [radiation protection] mode. This ensures the FBACS Function is performed even in the presence of a single failure.

BASES

ACTIONS (continued)

C.1

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and [recently] irradiated fuel assemblies are being moved in the fuel building. Movement of [recently] irradiated fuel assemblies in the fuel building must be suspended immediately to eliminate the potential for events that could require FBACS actuation.

D.1 and D.2

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to 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.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that table 3.3.8-1 determines which SRs apply to which FBACS Actuation Functions.

SR 3.3.8.1

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 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.

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.

B.1, B.2.1, B.2.2.1, and B.2.2.2

With two trains inoperable, or the Required Action and associated Completion Time of Condition A not met, 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 is provided to restore one train to OPERABLE status.

Required Action B.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 B.2.1), Required Action B.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 B.2.2.2 accompanies Required Action B.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 B.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 REQUIREMENTS

SR 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 ≥ [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)

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.]

D~~C~~.1 and ~~C~~D.2

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

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1

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

SR 3.4.9.2

----------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.

BASES

APPLICABILITY (continued)

The LCO is not applicable in MODE 4 when any RCS cold leg temperatures are ≤ [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 [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 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 ≤ [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 insurges, 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. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ If the inoperable valve cannot be restored to OPERABLE status, it must be isolated within the specified time of 1 hour. ~~[Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]~~ 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 in accordance with the Risk Informed Completion Time Program]~~ 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.

E.1, E.2, ~~E.3,~~ and E.~~4~~3

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 REQUIREMENTS

SR 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

LCO (continued)

Reference 7 permits leakage testing at a lower pressure differential than between the specified maximum RCS pressure and the normal pressure of the connected system during RCS operation (the maximum pressure differential) in those types of valves in which the higher service pressure will tend to diminish the overall leakage channel opening. In such cases, the observed rate may be adjusted to the maximum pressure differential by assuming leakage is directly proportional to the pressure differential to the one half power.

APPLICABILITY

In MODES 1, 2, 3, and 4, this LCO applies because the PIV leakage potential is greatest when the RCS is pressurized. In MODE 4, valves in the RHR flow path are not required to meet the requirements of this LCO when in, or during the transition to or from, the RHR mode of operation.

In MODES 5 and 6, leakage limits are not provided because the lower reactor coolant pressure results in a reduced potential for leakage and for a LOCA outside the containment.

ACTIONS

The Actions are modified by two Notes. Note 1 provides clarification that each flow path allows separate entry into a Condition. This is allowed based upon the functional independence of the flow path. Note 2 requires an evaluation of affected systems if a PIV is inoperable. The leakage may have affected system operability, or isolation of a leaking flow path with an alternate valve may have degraded the ability of the interconnected system to perform its safety function.

A.1 and A.2

The flow path must be isolated by two valves. Required Actions A.1 and A.2 are modified by a Note that the valves used for isolation must meet the same leakage requirements as the PIVs and must be within the RCPB [or the high pressure portion of the system].

Required Action A.1 requires that the isolation with one valve must be performed within 4 hours [or in accordance with the Risk Informed Completion Time Program]. Four hours provides time to reduce leakage in excess of the allowable limit and to isolate the affected system if leakage cannot be reduced. The 4 hour Completion Time allows the actions and restricts the operation with leaking isolation valves.

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.

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

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

LCO (continued)

The LCO is satisfied when monitors of diverse measurement means are available. Thus, the containment sump monitor, in combination with a gaseous or particulate radioactivity monitor [and a containment air cooler condensate flow rate monitor], provides an acceptable minimum.

APPLICABILITY

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

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

ACTIONS

A.1 and A.2

With the required containment sump monitor inoperable, no other form of sampling can provide the equivalent information; however, the containment atmosphere radioactivity monitor will provide indications of changes in leakage. Together with the atmosphere monitor, the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, [and RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

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

BASES

ACTIONS (continued)

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

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

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

The 24 hour interval provides periodic information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, [and RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. The 30 day Completion Time recognizes at least one other form of leakage detection is available.

[C.1 and C.2

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

The 24 hour interval provides periodic information that is adequate to detect RCS LEAKAGE. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, [and RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.]

BASES

ACTIONS (continued)

[D.1 and D.2

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

E.1

With all required monitors inoperable, no automatic means of monitoring leakage are available. The Required Action is to restore at least one of the required inoperable monitors to OPERABLE status within 1 hour to regain a method of leakage detection. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required monitor. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

F.1 and ~~E~~F.2

If a Required Action of Condition A, B, [C], ~~or~~ [D] or ~~-~~[E] cannot be met, the plant must be brought to a MODE in which the requirement does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

~~F.1~~

~~With all required monitors inoperable, no automatic means of monitoring leakage are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.~~

SURVEILLANCE REQUIREMENTS

SR 3.4.15.1

SR 3.4.15.1 requires the performance of a CHANNEL CHECK of the required containment atmosphere radioactivity monitor. The check gives reasonable confidence that the channel is operating properly. The

BASES

LCO (continued)

The operational LEAKAGE performance criterion provides an observable indication of SG tube conditions during plant operation. The limit on operational LEAKAGE is contained in LCO 3.4.13, "RCS Operational LEAKAGE," and limits primary to secondary LEAKAGE through any one SG to 150 gallons per day. This limit is based on the assumption that a single crack leaking this amount would not propagate to a SGTR under the stress conditions of a LOCA or a main steam line break. If this amount of LEAKAGE is due to more than one crack, the cracks are very small, and the above assumption is conservative.

APPLICABILITY

Steam generator tube integrity is challenged when the pressure differential across the tubes is large. Large differential pressures across SG tubes can only be experienced in MODE 1, 2, 3, or 4.

RCS conditions are far less challenging in MODES 5 and 6 than during MODES 1, 2, 3, and 4. In MODES 5 and 6, primary to secondary differential pressure is low, resulting in lower stresses and reduced potential for LEAKAGE.

ACTIONS

The ACTIONS are modified by a Note clarifying that the Conditions may be entered independently for each SG tube. This is acceptable because the Required Actions provide appropriate compensatory actions for each affected SG tube. Complying with the Required Actions may allow for continued operation, and subsequent affected SG tubes are governed by subsequent Condition entry and application of associated Required Actions.

A.1 and A.2

Condition A applies if it is discovered that one or more SG tubes examined in an inservice inspection satisfy the tube repair criteria but were not plugged [or repaired] in accordance with the Steam Generator Program as required by SR 3.4.20.2. An evaluation of SG tube integrity of the affected tube(s) must be made. Steam generator tube integrity is based on meeting the SG performance criteria described in the Steam Generator Program. The SG repair criteria define limits on SG tube degradation that allow for flaw growth between inspections while still providing assurance that the SG performance criteria will continue to be met. In order to determine if a SG tube that should have been plugged [or repaired] has tube integrity, an evaluation must be completed that demonstrates that the SG performance criteria will continue to be met until the next refueling outage or SG tube inspection. The tube integrity

BASES

ACTIONS (continued)

determination is based on the estimated condition of the tube at the time the situation is discovered and the estimated growth of the degradation prior to the next SG tube inspection. If it is determined that tube integrity is not being maintained, Condition B applies.

A Completion Time of 7 days is sufficient to complete the evaluation while minimizing the risk of plant operation with a SG tube that may not have tube integrity. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

If the evaluation determines that the affected tube(s) have tube integrity, Required Action A.2 allows plant operation to continue until the next refueling outage or SG inspection provided the inspection interval continues to be supported by an operational assessment that reflects the affected tubes. However, the affected tube(s) must be plugged [or repaired] prior to entering MODE 4 following the next refueling outage or SG inspection. This Completion Time is acceptable since operation until the next inspection is supported by the operational assessment.

B.1 and B.2

If the Required Actions and associated Completion Times of Condition A are not met or if SG tube integrity is not being maintained, the reactor must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours.

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

SURVEILLANCE REQUIREMENTS

SR 3.4.20.1

During shutdown periods the SGs are inspected as required by this SR and the Steam Generator Program. NEI 97-06, Steam Generator Program Guidelines (Ref. 1), and its referenced EPRI Guidelines, establish the content of the Steam Generator Program. Use of the Steam Generator Program ensures that the inspection is appropriate and consistent with accepted industry practices.

During SG inspections a condition monitoring assessment of the SG tubes is performed. The condition monitoring assessment determines the "as found" condition of the SG tubes. The purpose of the condition monitoring assessment is to ensure that the SG performance criteria have been met for the previous operating period.

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 [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. 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 [or 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).

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.]

D.1 and D.2

If the accumulator 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)

~~D.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 REQUIREMENTS

SR 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 storage tank (RWST), because the water contained in the RWST is within the accumulator boron concentration requirements. This is consistent with the recommendation of NUREG-1366 (Ref. 5).

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~~C~~ must be immediately entered.

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.

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 OPERAVBLE 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.

~~. Therefore, LCO 3.0.3 must be entered immediately.~~

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 REQUIREMENTS

SR 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 [or 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 [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 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 REQUIREMENTS

SR 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

ACTIONS

A.1

With the seal injection flow [resistance] not within its limit, the amount of charging flow available to the RCS may be reduced. Under this Condition, action must be taken to restore the flow [resistance] to within its limit. The operator has 4 hours [or in accordance with the Risk Informed Completion Time Program] from the time the flow [resistance] is known to not be within the limit to correctly position the manual valves and thus be in compliance with the accident analysis. The Completion Time minimizes the potential exposure of the plant to a LOCA with insufficient injection flow and provides a reasonable time to restore seal injection flow [resistance] within limits. This time is conservative with respect to the Completion Times of other ECCS LCOs; it is based on operating experience and is sufficient for taking corrective actions by operations personnel.

B.1 and B.2

When the Required Actions cannot be completed within the required Completion Time, a controlled shutdown must be initiated. The Completion Time of 6 hours for reaching MODE 3 from MODE 1 is a reasonable time for a controlled shutdown, based on operating experience and normal cooldown rates, and does not challenge plant safety systems or operators. Continuing the plant shutdown begun in Required Action B.1, an additional 6 hours is a reasonable time, based on operating experience and normal cooldown rates, to reach MODE 4, where this LCO is no longer applicable.

SURVEILLANCE REQUIREMENTS

SR 3.5.5.1

Verification every 31 days that the manual seal injection throttle valves are adjusted to give a flow [resistance] within the limit ensures that the ECCS injection flows stay within the safety analysis. A differential pressure is established between the charging header and the RCS, and the total seal injection flow is verified to within the limit determined in accordance with the ECCS safety analysis. [The flow [resistance] shall be verified by confirming seal injection flow ≤ [40] gpm with the RCS at normal operating pressure, the charging flow control valve full open, and the charging header pressure ≥ [2480].

OR

The flow [resistance] shall be verified by confirming seal injection flow and differential pressure within the acceptable region of Figure 3.5.5-1.

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)

After determining that the BIT is inoperable and the Required Actions of B.1 and B.2 have been completed, the tank must be returned to OPERABLE status within 7 days. These actions ensure that the plant will not be operated with an inoperable BIT for a lengthy period of time. It should be noted, however, that changes to applicable MODES cannot be made until the BIT is restored to OPERABLE status pursuant to the provisions of LCO 3.0.4.

C.1

Even though the RCS has been borated to a safe and stable condition as a result of Required Action B.2, either the BIT must be restored to OPERABLE status (Required Action C.1) or the plant must be placed in a condition in which the BIT is not required (MODE 4). The 12 hour Completion Time to reach MODE 4 is reasonable, based on operating experience and normal cooldown rates, and does not challenge plant safety systems or operators.

SURVEILLANCE REQUIREMENTS

SR 3.5.6.1

Verification every 24 hours that the BIT water temperature is at or above the specified minimum temperature is frequent enough to identify a temperature change that would approach the acceptable limit. The solution temperature is also monitored by an alarm that provides further assurance of protection against low temperature. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.6.2

Verification every 7 days that the BIT contained volume is above the required limit is frequent enough to assure that this volume will be available for quick injection into the RCS. If the volume is too low, the BIT would not provide enough borated water to ensure subcriticality during recirculation or to shut down the core following an MSLB. Since the BIT volume is normally stable, a 7 day Frequency is appropriate and has been shown to be acceptable through operating experience.

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.

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 de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within 4 hours [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 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

BASES

APPLICABLE SAFETY ANALYSES (continued)

For certain aspects of transient accident analyses, maximizing the calculated containment pressure is not conservative. In particular, the cooling effectiveness of the Emergency Core Cooling System during the core reflood phase of a LOCA analysis increases with increasing containment backpressure. Therefore, for the reflood phase, the containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the containment pressure response in accordance with 10 CFR 50, Appendix K (Ref. 2).

Containment pressure satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

Maintaining containment pressure at less than or equal to the LCO upper pressure limit ensures that, in the event of a DBA, the resultant peak containment accident pressure will remain below the containment design pressure. Maintaining containment pressure at greater than or equal to the LCO lower pressure limit ensures that the containment will not exceed the design negative differential pressure following the inadvertent actuation of the Containment Spray System.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. Since maintaining containment pressure within limits is essential to ensure initial conditions assumed in the accident analyses are maintained, 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, maintaining containment pressure within the limits of the LCO is not required in MODE 5 or 6.

ACTIONS

A.1

When containment pressure is not within the limits of the LCO, it must be restored to within these limits within 1 hour [or 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.

BASES

ACTIONS (continued)

B.1 and B.2

If containment pressure 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 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 3.6.4A.1

Verifying that containment pressure is within limits ensures that unit operation remains within the limits assumed in the containment analysis. The 12 hour Frequency of this SR was developed based on operating experience related to trending of containment pressure variations during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment pressure condition.

REFERENCES

1. FSAR, Section [6.2].

2. 10 CFR 50, Appendix K.

BASES

ACTIONS

A.1

When containment air partial pressure is not within the limits of the LCO, containment pressure must be restored to within these limits within 1 hour [or 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.

B.1 and B.2

If containment air partial pressure 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 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 3.6.4B.1

Verifying that containment air partial pressure is within limits ensures that operation remains within the limits assumed in the containment analysis. The 12 hour Frequency of this SR was developed considering operating experience related to trending of containment pressure variations and pressure instrument drift during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment pressure condition.

REFERENCES

1. FSAR, Section [6.2].

2. 10 CFR 50, Appendix K.

BASES

ACTIONS

A.1

When containment average air temperature is not within the limit of the LCO, it must be restored to within limit within 8 hours [or in accordance with the Risk Informed Completion Time Program]. This Required Action is necessary to return operation to within the bounds of the containment analysis. The 8 hour Completion Time is acceptable considering the sensitivity of the analysis to variations in this parameter and provides sufficient time to correct minor problems.

B.1 and B.2

If the containment average air temperature cannot be restored to within its limit 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 3.6.5A.1

Verifying that containment average air temperature is within the LCO limit ensures that containment operation remains within the limit assumed for the containment analyses. In order to determine the containment average air temperature, an arithmetic average is calculated using measurements taken at locations within the containment selected to provide a representative sample of the overall containment atmosphere. The 24 hour Frequency of this SR is considered acceptable based on observed slow rates of temperature increase within containment as a result of environmental heat sources (due to the large volume of containment). 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 containment temperature condition.

REFERENCES

1. FSAR, Section [6.2].

2. 10 CFR 50.49.

BASES

LCO	During a DBA, with an initial containment average air temperature within the LCO temperature limits, the resultant accident temperature profile assures that the containment structural temperature is maintained below its design temperature and that required safety related equipment will continue to perform its function. In MODES 3 and 4, containment air temperature may be as low as 60°F because the resultant calculated peak containment accident pressure would not exceed the design pressure due to a lesser amount of energy released from the pipe break in these MODES.
APPLICABILITY	In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment average air temperature within the limit is not required in MODE 5 or 6.
ACTIONS	A.1 When containment average air temperature in the upper or lower compartment is not within the limit of the LCO, the average air temperature in the affected compartment must be restored to within limits within 8 hours [or in accordance with the Risk Informed Completion Time Program]. This Required Action is necessary to return operation to within the bounds of the containment analysis. The 8 hour Completion Time is acceptable considering the sensitivity of the analysis to variations in this parameter and provides sufficient time to correct minor problems. B.1 and B.2 If the containment average air temperature cannot be restored to within its 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 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 3.6.5B.1 and SR 3.6.5B.2 Verifying that containment average air temperature is within the LCO limits ensures that containment operation remains within the limits assumed for the containment analyses. In order to determine the containment average air temperature, a weighted average is calculated

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment average air temperature within the limit is not required in MODE 5 or 6.

ACTIONS

A.1

When containment average air temperature is not within the limits of the LCO, it must be restored to within limits within 8 hours [or in accordance with the Risk Informed Completion Time Program]. This Required Action is necessary to return operation to within the bounds of the containment analysis. The 8 hour Completion Time is acceptable considering the sensitivity of the analysis to variations in this parameter and provides sufficient time to correct minor problems.

B.1 and B.2

If the containment average air temperature cannot be restored to within its 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 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 3.6.5C.1

Verifying that containment average air temperature is within the LCO limits ensures that containment operation remains within the limits assumed for the containment analyses. In order to determine the containment average air temperature, a weighted average is calculated using measurements taken at locations within containment selected to provide a representative sample of the overall containment atmosphere. The 24 hour Frequency of this SR is considered acceptable based on observed slow rates of temperature increase within containment as a result of environmental heat sources (due to the large volume of containment). 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 containment temperature condition.

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)

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 status before proceeding with a plant shutdown as required by Condition F.

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 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.~~

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

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

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.

F.1 ~~and F.2~~

~~If any of the Required Actions or associated Completion Times for Condition A, B, C, D, or E 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.~~

~~G.1~~

With 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.

G.1 and G.2

If any of the Required Actions or 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.

~~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.

B.1 ~~and B.2~~

With two containment spray trains inoperable, at least one containment spray train 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 status, before proceeding with a plant shutdown as required by Condition C.

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

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.

B.1 ~~and B.2~~

With two QS trains inoperable, one QS train 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 status before proceeding with a plant shutdown as required by Condition C.

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 REQUIREMENTS

SR 3.6.6D.1

Verifying the correct alignment of manual, power operated, and automatic valves, excluding check valves, in the QS System provides assurance that the proper flow path exists for QS System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they were verified to be 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.

SR 3.6.6D.2

Verifying that each QS pump's developed head at the flow test point is greater than or equal to the required developed head ensures that QS

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.]

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 two RS subsystems are inoperable. 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.

G.1 and ~~F~~G.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 REQUIREMENTS

SR 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

LCO (continued)

spray flow until the Containment Spray System suction path is switched from the RWST to the containment sump, and to raise the average spray solution pH to a level conducive to iodine removal, namely, to between [7.2 and 11.0]. This pH range maximizes the effectiveness of the iodine removal mechanism without introducing conditions that may induce caustic stress corrosion cracking of mechanical system components. In addition, it is essential that valves in the Spray Additive System flow paths are properly positioned and that automatic valves are capable of activating to their correct positions.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment requiring the operation of the Spray Additive System. The Spray Additive System assists in reducing the iodine fission product inventory prior to release to the environment.

In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Thus, the Spray Additive System is not required to be OPERABLE in MODE 5 or 6.

ACTIONS

A.1

If the Spray Additive System is inoperable, it must be restored to OPERABLE within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The pH adjustment of the Containment Spray System flow for corrosion protection and iodine removal enhancement is reduced in this condition. The Containment Spray System would still be available and would remove some iodine from the containment atmosphere in the event of a DBA. The 72 hour Completion Time takes into account the redundant flow path capabilities and the low probability of the worst case DBA occurring during this period.

B.1 and B.2

If the Spray Additive System 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 48 hours for restoration of the Spray

BASES

ACTIONS (continued)

Additive System in MODE 3 and 36 hours to reach MODE 5. This is reasonable when considering the reduced pressure and temperature conditions in MODE 3 for the release of radioactive material from the Reactor Coolant System.

SURVEILLANCE REQUIREMENTS

SR 3.6.7.1

Verifying the correct alignment of Spray Additive System manual, power operated, and automatic valves in the spray additive flow path provides assurance that the system is able to provide additive to the Containment Spray System in the event of a DBA. 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. 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.

SR 3.6.7.2

To provide effective iodine removal, the containment spray must be an alkaline solution. Since the RWST contents are normally acidic, the volume of the spray additive tank must provide a sufficient volume of spray additive to adjust pH for all water injected. This SR is performed to verify the availability of sufficient NaOH solution in the Spray Additive System. The 184 day Frequency was developed based on the low probability of an undetected change in tank volume occurring during the SR interval (the tank is isolated during normal unit operations). Tank level is also indicated and alarmed in the control room, so that there is high confidence that a substantial change in level would be detected.

SR 3.6.7.3

This SR provides verification of the NaOH concentration in the spray additive tank and is sufficient to ensure that the spray solution being injected into containment is at the correct pH level. The 184 day Frequency is sufficient to ensure that the concentration level of NaOH in the spray additive tank remains within the established limits. This is based on the low likelihood of an uncontrolled change in concentration (the tank is normally isolated) and the probability that any substantial variance in tank volume will be detected.

BASES

ACTIONS

A.1

In the event shield building OPERABILITY is not maintained, shield building OPERABILITY must be restored within 24 hours [or in accordance with the Risk Informed Completion Time Program]. Twenty-four hours is a reasonable Completion Time considering the limited leakage design of containment and the low probability of a Design Basis Accident occurring during this time period.

B.1 and B.2

If the shield building 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 3.6.8.1

Verifying that shield building annulus negative pressure is within limit ensures that operation remains within the limit assumed in the containment analysis. The 12 hour Frequency of this SR was developed considering operating experience related to shield building annulus pressure variations and pressure instrument drift during the applicable MODES.]

SR 3.6.8.2

Maintaining shield building OPERABILITY requires verifying one door in the access opening closed. [An access opening may contain one inner and one outer door, or in some cases, shield building access openings are shared such that a shield building barrier may have multiple inner or multiple outer doors. The intent is to not breach the shield building boundary at any time when the shield building boundary is required. This is achieved by maintaining the inner or outer portion of the barrier closed at all times.] However, all shield building access doors are normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on an access opening. The 31 day Frequency of this SR is based on engineering judgment and is considered adequate in view of the other indications of door status that are available to the operator.

BASES

APPLICABILITY

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.

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.

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.

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 [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.

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 REQUIREMENTS

SR 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)

C.1

With two HIS trains inoperable the Required Action is to restore at least one of the required 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.]

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 ≥ [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.

SR 3.6.10.2

This SR confirms that the two inoperable hydrogen ignitors allowed by SR 3.6.10.1 (i.e., one in each train) are not in the same containment region. The Frequency of 92 days is acceptable based on the Frequency of SR 3.6.10.1, which provides the information for performing this SR.

SR 3.6.10.3

BASES

ACTIONS

A.1

With one ICS train inoperable, the inoperable 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 100% of the iodine removal needs after a DBA. The 7 day Completion Time is based on consideration of such factors as:

a. The availability of the OPERABLE redundant ICS train,

b. The fact that, even with no ICS train in operation, almost the same amount of iodine would be removed from the containment atmosphere through absorption by the Containment Spray System, and

c. The fact that the Completion Time is adequate to make most repairs.

B.1 ~~and B.2~~

With two ICS trains inoperable, the Required Action is to restore at least one of the inoperable ICS trains to OPERABLE status within 1 hour to regain a method of fission product reduction. 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.]

C.1 and C.2

If the ICS 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 without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.11.1

Operating each ICS train 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. For systems with heaters, operation with the heaters on (automatic heater cycling to maintain temperature) for ≥ 10 continuous hours eliminates moisture on the adsorbers and HEPA filters. Experience from filter testing at operating

BASES

LCO

The LCO establishes the minimum equipment required to accomplish the vacuum relief function following the inadvertent actuation of containment cooling features. Two 100% vacuum relief lines are required to be OPERABLE to ensure that at least one is available, assuming one or both valves in the other line fail to open.

APPLICABILITY

In MODES 1, 2, 3, and 4, the containment cooling features, such as the Containment Spray System, are required to be OPERABLE to mitigate the effects of a DBA. Excessive negative pressure inside containment could occur whenever these systems are required to be OPERABLE due to inadvertent actuation of these systems. Therefore, the vacuum relief lines are required to be OPERABLE in MODES 1, 2, 3, and 4 to mitigate the effects of inadvertent actuation of the Containment Spray System, Quench Spray (QS) System, or Containment Cooling System.

In MODES 5 and 6, the probability and consequences of a DBA are reduced due to the pressure and temperature limitations of these MODES. The Containment Spray System, QS System, and Containment Cooling System are not required to be OPERABLE in MODES 5 and 6. Therefore, maintaining OPERABLE vacuum relief valves is not required in MODE 5 or 6.

ACTIONS

A.1

When one of the required vacuum relief lines is inoperable, the inoperable line must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The specified time period is consistent with other LCOs for the loss of one train of a system required to mitigate the consequences of a LOCA or other DBA.

B.1 ~~and B.2~~

With two ~~HIS~~ vacuum relief lines inoperable, the Required Action is to restore at least one of the inoperable vacuum relief lines to OPERABLE status within 1 hour to regain containment vessel negative pressure protection. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one vacuum relief line. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C.1 and C.2

If the vacuum relief line(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

LCO

In the event of a DBA, one SBACS train is required to provide the minimum particulate iodine removal assumed in the safety analysis. Two trains of the SBACS must be OPERABLE to ensure that at least one train will operate, assuming that the other train is disabled by a single active failure.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could lead to fission product release to containment that leaks to the shield building. The large break LOCA, on which this system's design is based, is a full power event. Less severe LOCAs and leakage still require the system to be OPERABLE throughout these MODES. The probability and severity of a LOCA decrease as core power and Reactor Coolant System pressure decrease. With the reactor shut down, the probability of release of radioactivity resulting from such an accident is low.

In MODES 5 and 6, the probability and consequences of a DBA are low due to the pressure and temperature limitations in these MODES. Under these conditions, the Filtration System is not required to be OPERABLE (although one or more trains may be operating for other reasons, such as habitability during maintenance in the shield building annulus).

ACTIONS

A.1

With one SBACS train inoperable, the inoperable 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 100% of the iodine removal needs after a DBA. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE redundant SBACS train and the low probability of a DBA occurring during this period. The Completion Time is adequate to make most repairs.

B.1 ~~and B.2~~

With two SBACS trains inoperable, at least one inoperable train must be restored to OPERABLE status within 1 hour~~s~~ [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.

C.1 and C.2

If the SBACS 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.

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)

B.1 ~~and B.2~~

With two ARS trains inoperable the Required Action is to restore at least one of the required 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.]

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 ≥ [9.0] minutes and ≤ [11.0] minutes, and operates for ≥ 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.

SR 3.6.14.2

Verifying ARS fan motor current to be at rated speed with the return air dampers closed confirms one operating condition of the fan. This test is indicative of overall fan motor performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of 92 days conforms with the testing requirements for similar ESF equipment and considers 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 REQUIREMENTS

SR 3.6.15.1

Verifying that the maximum temperature of the ice bed is ≤ [27]°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 [or 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 [or 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 REQUIREMENTS

SR 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

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.

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.

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

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each MSSV.

With one or more MSSVs inoperable, action must be taken so that the available MSSV relieving capacity meets Reference 2 requirements. Operation with less than all [five] MSSVs OPERABLE for each steam generator is permissible, if THERMAL POWER is limited to the relief capacity of the remaining MSSVs. This is accomplished by restricting THERMAL POWER so that the energy transfer to the most limiting steam generator is not greater than the available relief capacity in that steam generator.

A.1

In the case of only a single inoperable MSSV on one or more steam generators [when the Moderator Temperature Coefficient is not positive], a reactor power reduction alone is sufficient to limit primary side heat generation such that overpressurization of the secondary side is precluded for any RCS heatup event. Furthermore, for this case there is sufficient total steam flow capacity provided by the turbine and remaining OPERABLE MSSVs to preclude overpressurization in the event of an increased reactor power due to reactivity insertion, such as in the event of an uncontrolled RCCA bank withdrawal at power. Therefore, Required Action A.1 requires an appropriate reduction in reactor power within 4 hours [or in accordance with the Risk Informed Completion Time Program].

The maximum THERMAL POWER corresponding to the heat removal capacity of the remaining OPERABLE MSSVs is determined via a conservative heat balance calculation as described in the attachment to Reference 6, with an appropriate allowance for calorimetric power uncertainty.

----------REVIEWER'S NOTE----------
To determine the maximum THERMAL POWER corresponding to the heat removal capacity of the remaining OPERABLE MSSVs, the governing heat transfer relationship is the equation $q = \dot{m}\,\Delta h$, where q is the heat input from the primary side, $\dot{m}$ is the mass flow rate of the steam, and Δh is the increase in enthalpy that occurs in converting the secondary side water to steam. If it is conservatively assumed that the secondary side water is all saturated liquid (i.e., no subcooled feedwater), then the Δh is the heat of vaporization (h_{fg}) at the steam relief pressure. The following equation is used to determine the maximum allowable power level for continued operation with inoperable MSSV(s):

BASES

ACTIONS (continued)

$$\text{Maximum NSSS Power} \leq (100/Q)\ (w_s h_{fg} N) / K$$

where:

Q = Nominal NSSS power rating of the plant (including reactor coolant pump heat), MWt

K = Conversion factor, 947.82 (Btu/sec)/MWt

w_s = Minimum total steam flow rate capability of the OPERABLE MSSVs on any one steam generator at the highest OPERABLE MSSV opening pressure, including tolerance and accumulation, as appropriate, lbm/sec.

h_{fg} = Heat of vaporization at the highest MSSV opening pressure, including tolerance and accumulation as appropriate, Btu/lbm.

N = Number of steam generators in the plant.

For use in determining the %RTP in the Required Action statement A.1, the Maximum NSSS Power calculated above is reduced by [2]% RTP to account for calorimetric power uncertainty.

B.1 and B.2

In the case of multiple inoperable MSSVs on one or more steam generators, with a reactor power reduction alone there may be insufficient total steam flow capacity provided by the turbine and remaining OPERABLE MSSVs to preclude overpressurization in the event of an increased reactor power due to reactivity insertion, such as in the event of an uncontrolled RCCA bank withdrawal at power. [Furthermore, for a single inoperable MSSV on one or more steam generators when the Moderator Temperature Coefficient is positive the reactor power may increase as a result of an RCS heatup event such that flow capacity of the remaining OPERABLE MSSVs is insufficient.] The 4 hour Completion Time for Required Action B.1 is consistent with A.1. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] An additional 32 hours is allowed in Required Action B.2 to reduce the setpoints. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The Completion Time of 36 hours is based on a reasonable time to correct the MSSV inoperability, the time required to perform the power reduction, operating experience in resetting all channels of a protective function, and on the low probability of the

occurrence of a transient that could result in steam generator overpressure during this period.

BASES

ACTIONS (continued)

The maximum THERMAL POWER corresponding to the heat removal capacity of the remaining OPERABLE MSSVs is determined via a conservative heat balance calculation as described in the attachment to Reference 6, with an appropriate allowance for Nuclear Instrumentation System trip channel uncertainties.

----------REVIEWER'S NOTE----------
To determine the Table 3.7.1-1 Maximum Allowable Power for Required Actions B.1 and B.2 (%RTP), the Maximum NSSS Power calculated using the equation in the Reviewer's Note above is reduced by [9]% RTP to account for Nuclear Instrumentation System trip channel uncertainties.

Required Action B.2 is modified by a Note, indicating that the Power Range Neutron Flux-High reactor trip setpoint reduction is only required in MODE 1. In MODES 2 and 3 the reactor protection system trips specified in LCO 3.3.1, "Reactor Trip System Instrumentation," provide sufficient protection.

The allowed Completion Times are reasonable based on operating experience to accomplish the Required Actions in an orderly manner without challenging unit systems.

C.1

With one or more steam generators with greater than [3] MSSVs inoperable, the Required Action is to restore sufficient required inoperable MSSVs to OPERABLE status within 1 hour to provide overpressure protection for the secondary system. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient MSSVs. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D~~C~~.1 and D~~C~~.2

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

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 [or 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.

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.]

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D.1 and D.2

Condition ~~C~~D 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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)

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

If the MSIVs 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 REQUIREMENTS

SR 3.7.2.1

This SR verifies that MSIV closure time is ≤ [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

LCO (continued)

Failure to meet the LCO requirements can result in additional mass and energy being released to containment following an SLB or FWLB inside containment. If a feedwater isolation signal on high steam generator level is relied on to terminate an excess feedwater flow event, failure to meet the LCO may result in the introduction of water into the main steam lines.

APPLICABILITY

The MFIVs and MFRVs and the associated bypass valves must be OPERABLE whenever there is significant mass and energy in the Reactor Coolant System and steam generators. This ensures that, in the event of an HELB, a single failure cannot result in the blowdown of more than one steam generator. In MODES 1, 2, [and 3], the MFIVs and MFRVs and the associated bypass valves are required to be OPERABLE to limit the amount of available fluid that could be added to containment in the case of a secondary system pipe break inside containment. When the valves are closed and de-activated or isolated by a closed manual valve, they are already performing their safety function.

In MODES 4, 5, and 6, steam generator energy is low. Therefore, the MFIVs, MFRVs, and the associated bypass valves are normally closed since MFW is not required.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each valve.

A.1 and A.2

With one MFIV in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within [72] hours [or in accordance with the Risk Informed Completion Time Program]. When these valves are closed or isolated, they are performing their required safety function.

The [72] hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The [72] hour Completion Time is reasonable, based on operating experience.

Inoperable MFIVs that are closed or isolated must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time following closure or isolation is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

BASES

ACTIONS (continued)

B.1 and B.2

With one MFRV in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within [72] hours [or in accordance with the Risk Informed Completion Time Program]. When these valves are closed or isolated, they are performing their required safety function.

The [72] hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The [72] hour Completion Time is reasonable, based on operating experience.

Inoperable MFRVs, that are closed or isolated, must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time following closure or isolation is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls to ensure that the valves are closed or isolated.

C.1 and C.2

With one associated bypass valve in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within [72] hours [or in accordance with the Risk Informed Completion Time Program]. When these valves are closed or isolated, they are performing their required safety function.

The [72] hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The [72] hour Completion Time is reasonable, based on operating experience.

Inoperable associated bypass valves that are closed or isolated must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time following closure or isolation is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

BASES

ACTIONS (continued)

D.1

With two inoperable valves in the same flow path, there may be no redundant system to operate automatically and perform the required safety function. Although the containment can be isolated with the failure of two valves in parallel in the same flow path, the double failure can be an indication of a common mode failure in the valves of this flow path, and as such, is treated the same as a loss of the isolation capability of this flow path. Under these conditions, affected valves in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours [or in accordance with the Risk Informed Completion Time Program]. This action returns the system to the condition where at least one valve in each flow path is performing the required safety function. The 8 hour Completion Time is reasonable, based on operating experience, to complete the actions required to close the MFIV or MFRV, or otherwise isolate the affected flow path. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

E.1 and E.2

If the MFIV(s) and MFRV(s) and the associated bypass valve(s) cannot be restored to OPERABLE status, or closed, or isolated 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 full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that the closure time of each MFIV, MFRV, and [associated bypass valve] is ≤ 7 seconds. The MFIV and MFRV isolation times are assumed in the accident and containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. These valves should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. This is consistent with the ASME Code (Ref. 2), quarterly stroke requirements during operation in MODES 1 and 2.

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

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.

ACTIONS

A.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

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.

In MODE 4 the AFW System may be used for heat removal via the steam generators.

In MODE 5 or 6, the steam generators are not normally used for heat removal, and the AFW System is not required.

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.

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

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.

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,~~if 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)

~~D~~E.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 ~~D~~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. In this case, LCO 3.0.3 is not applicable because it could force the unit into a less safe condition.

~~E~~F.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 REQUIREMENTS

SR 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 REQUIREMENTS

SR 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.

B.1 ~~and B.2~~

With two CCW trains inoperable the Required Action is to restore at least one of the required 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.]

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.

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.

B.1 ~~and B.2~~

With two SWS trains inoperable, the Required Action is to restore at least one of the required 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.]

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

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.

Verifying the correct alignment for manual, power operated, and automatic valves in the SWS flow path provides assurance 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 being locked, sealed, or secured. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

BASES

APPLICABLE SAFETY ANALYSES	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. 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. 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 required to support the OPERABILITY of the equipment serviced by the UHS and required to be OPERABLE in these MODES. In MODE 5 or 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].

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.]

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.]

[~~C~~D.1 and ~~C~~D.2

If the Required Actions and Completion Times of Condition [A, B, or C~~B~~] 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

APPLICABILITY (continued)

In [MODE 5 or 6], the CREFS is required to cope with the release from the rupture of an outside waste gas tank.

During movement of [recently] irradiated fuel assemblies, the CREFS must be OPERABLE to cope with the release from a fuel handling accident [involving handling recently irradiated fuel]. [The CREFS 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.]

ACTIONS

A.1

When one CREFS 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, the remaining OPERABLE CREFS train is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CREFS train could result in loss of CREFS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.

If the control room boundary is inoperable in MODE 1, 2, 3, or 4, the CREFS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke,

BASES

ACTIONS (continued)

temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.

C.1

With two CREFS trains inoperable, the Required Action is to restore at least one of the required inoperable CREFS trains to OPERABLE status within 1 hour to regain a protected environment from which operators can control the unit following an uncontrolled release of radioactivity [, chemicals, or toxic gas]. 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.]

~~C~~D.1 and ~~C~~D.2

In MODE 1, 2, 3, or 4, if the inoperable CREFS train(s) or control room boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes 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.

~~D.1 and D.2~~

~~With two CREFS trains inoperable, the Required Action is to restore at least one of the required inoperable CREFS trains to OPERABLE status within 1 hour to regain a protected environment from which operators can control the unit following an uncontrolled release of radioactivity [, chemicals, or toxic gas], 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.]~~

E.1 and E.2

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, if the inoperable CREFS train cannot be restored to OPERABLE status within the required Completion Time, action must be taken to immediately place the OPERABLE CREFS train in the emergency mode. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure would be readily detected.

An alternative to Required Action ~~D~~E.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 risk. This does not preclude the movement of fuel to a safe position.

Required Action ~~D~~E.1 is modified by a Note indicating to place the system in the toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.

BASES

ACTIONS (continued)

~~E~~F.1

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, with two CREFS trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter 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.

~~F.1~~

~~If both CREFS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable control room boundary (i.e., Condition B), the CREFS 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 REQUIREMENTS

SR 3.7.10.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing each train once every month provides an adequate check of this system. Monthly heater operations dry out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on the reliability of the equipment and the two train redundancy availability.

SR 3.7.10.2

This SR verifies that the required CREFS testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the [VFTP].

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room Emergency Air Temperature Control System (CREATCS)

BASES

BACKGROUND	The CREATCS provides temperature control for the control room following isolation of the control room. The CREATCS consists of two independent and redundant trains that provide cooling and heating of recirculated control room air. Each train consists of heating coils, cooling coils, instrumentation, and controls to provide for control room temperature control. The CREATCS is a subsystem providing air temperature control for the control room. The CREATCS is an emergency system, parts of which may also operate during normal unit operations. A single train will provide the required temperature control to maintain the control room between [70]° and [85]°. The CREATCS operation in maintaining the control room temperature is discussed in the FSAR, Section [6.4] (Ref. 1).
APPLICABLE SAFETY ANALYSES	The design basis of the CREATCS is to maintain the control room temperature for 30 days of continuous occupancy. The CREATCS components are arranged in redundant, safety related trains. During emergency operation, the CREATCS maintains the temperature between [70]° and [85]°. A single active failure of a component of the CREATCS, with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for control room temperature control. The CREATCS is designed in accordance with Seismic Category I requirements. The CREATCS is capable of removing sensible and latent heat loads from the control room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment OPERABILITY. The CREATCS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).
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 disabling the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident.

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.

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.]

C~~B~~.1 and C~~B~~.2

In MODE 1, 2, 3, or 4, if the inoperable CREATCS train 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)

D~~C~~.1 and D~~C~~.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 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 accident risk. This does not preclude the movement of fuel to a safe position.

~~E~~D.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.

~~E.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 REQUIREMENTS

SR 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)

The LCO is modified by a Note allowing the ECCS pump room boundary to be opened intermittently under administrative controls. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for ECCS pump room isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, and 4, the ECCS PREACS is required to be OPERABLE consistent with the OPERABILITY requirements of the ECCS.

In MODE 5 or 6, the ECCS PREACS is not required to be OPERABLE since the ECCS is not required to be OPERABLE.

ACTIONS

A.1

With one ECCS PREACS train inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. During this time, the remaining OPERABLE train is adequate to perform the ECCS PREACS function.

The 7 day Completion Time is appropriate because the risk contribution is less than that for the ECCS (72 hour Completion Time), and this system is not a direct support system for the ECCS. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability.

Concurrent failure of two ECCS PREACS trains would result in the loss of functional capability; therefore, LCO 3.0.3 must be entered immediately.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.

BASES

ACTIONS (continued)

If the ECCS pump room boundary is inoperable, the ECCS PREACS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE ECCS pump room boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the ECCS pump room boundary is inoperable, appropriate compensatory measures [consistent with the intent, as applicable, of GDC 19, 60, 64 and 10 CFR Part 100] should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the ECCS pump room boundary.

C.1 ~~and C.2~~

With two ECCS PREACS trains inoperable for reasons other than Condition B, the Required Action is to restore at least one of the required inoperable ECCS PREACS trains to OPERABLE status within 1 hour to regain environmental control of temperature and humidity in the ECCS pump room area and the lower reaches of the Auxiliary Building. 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.]

D.1 and D.2

If the ECCS PREACS train(s) or ECCS pump room boundary 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 3.7.12.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions

BASES

APPLICABILITY

In MODE 1, 2, 3, or 4, the FBACS is required to be OPERABLE to provide fission product removal associated with ECCS leaks due to a LOCA and leakage from containment and annulus.

In MODE 5 or 6, the FBACS is not required to be OPERABLE since the ECCS is not required to be OPERABLE.

During movement of [recently] irradiated fuel in the fuel handling area, the FBACS is required to be OPERABLE to alleviate the consequences of a fuel handling accident.

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

A.1

With one FBACS train inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. During this period, the remaining OPERABLE train is adequate to perform the FBACS function. The 7 day Completion Time is based on the risk from an event occurring requiring the inoperable FBACS train, and the remaining FBACS train providing the required protection.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have guidance available describing compensatory measures to be taken in the event of an intentional and unintentional entry into Condition B.

If the fuel building boundary is inoperable in MODE 1, 2, 3, or 4, the FBACS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE fuel building boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the fuel building boundary is inoperable, appropriate compensatory measures [consistent with the intent, as

BASES

ACTIONS (continued)

applicable, of GDC 19, 60, 61, 63, 64 and 10 CFR Part 100] should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the fuel building boundary.

C.1

With two FBACS trains inoperable in MODES 1, 2, 3 or 4 for reasons other than Condition B the Required Action is to restore at least one of the required inoperable FBACS trains to OPERABLE status within 1 hour to regain environmental control of temperature and humidity in the fuel pool area. 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.]

[~~C~~D.1 and ~~C~~D.2

In MODE 1, 2, 3, or 4, when Required Action A.1, B.1 or ~~B~~C.1 cannot be completed within the associated Completion Time, ~~or when both FBACS trains are inoperable for reasons other than an inoperable fuel building boundary (i.e., Condition 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 MODE 3 within 6 hours, and in MODE 5 within 36 hours. 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.]

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

When Required Action A.1 cannot be completed within the required Completion Time, during movement of [recently] irradiated fuel assemblies in the fuel building, the OPERABLE FBACS train must be started immediately or [recently] irradiated fuel movement suspended. This action ensures that the remaining train is OPERABLE, that no undetected failures preventing system operation will occur, and that any active failure will be readily detected.

If the system is not placed in operation, this action requires suspension of [recently] irradiated fuel movement, which precludes a fuel handling accident [involving handling recently irradiated fuel]. This does not preclude the movement of fuel assemblies to a safe position.

BASES

ACTIONS (continued)

~~E~~F.1

When two trains of the FBACS are inoperable during movement of [recently] irradiated fuel assemblies in the fuel building, action must be taken to place the unit in a condition in which the LCO does not apply. Action must be taken immediately to suspend movement of [recently] irradiated fuel assemblies in the fuel building. This does not preclude the movement of fuel to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.7.13.1

Standby systems should be checked periodically to ensure that they function properly. As the environmental and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system.

Monthly heater operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.

[SR 3.7.13.2

This SR verifies that the required FBACS testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].]

[SR 3.7.13.3

This SR verifies that each FBACS train starts and operates on an actual or simulated actuation signal. The [18] month Frequency is consistent with Reference 6.]

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, the PREACS is required to be OPERABLE, consistent with the OPERABILITY requirements of the Emergency Core Cooling System (ECCS).

In MODE 5 or 6, the PREACS is not required to be OPERABLE since the ECCS is not required to be OPERABLE.

ACTIONS

A.1

With one PREACS train inoperable, the action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. During this period, the remaining OPERABLE train is adequate to perform the PREACS function. The 7 day Completion Time is appropriate because the risk contribution of the PREACS is less than that of the ECCS (72 hour Completion Time), and this system is not a direct support system for the ECCS. The 7 day Completion Time is based on the low probability of a DBA occurring during this period, and the remaining train providing the required capability.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have guidance available describing compensatory measures to be taken in the event of an intentional and unintentional entry into Condition B.

If the penetration room boundary is inoperable, the PREACS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE penetration room boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the penetration room boundary is inoperable, appropriate compensatory measures [consistent with the intent, as applicable, of GDC 19, 60, 64 and 10 CFR Part 100] should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the penetration room boundary.

BASES

ACTIONS (continued)

C.1 ~~and C.2~~

With two PREACS trains inoperable in MODES 1, 2, 3 or 4 for reasons other than Condition B, the Required Action is to restore at least one of the required inoperable PREACS trains to OPERABLE status within 1 hour to regain air filtration from the penetration area between containment and the Auxiliary Building. 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.]

D.1 and D.2

If the inoperable train(s) or penetration room boundary 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 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 3.7.14.1

Standby systems should be checked periodically to ensure that they function properly. As the environmental and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system. Monthly heater operation dries out any moisture that may have accumulated in the charcoal as a result of humidity in the ambient air. [Systems with heaters must be operated for ≥10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on the known reliability of equipment and the two train redundancy available.

SR 3.7.14.2

This SR verifies that the required PREACS testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].

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.]

[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 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)

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.]

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.

~~H.1~~

~~Condition H 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

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.

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.]

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.

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

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).

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.]

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)

~~E.1~~

~~Condition E 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 REQUIREMENTS

SR 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.

1.3 Completion Times

EXAMPLES (continued)

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each "Once per 8 hours thereafter" interval begins upon performance of Required Action A.1.

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

---------- 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 OR In accordance with the Risk Informed Completion Time Program
B. Two subsystems inoperable.	B.1 Restore at least one subsystem to OPERABLE status.	1 hour 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. AND 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 is also entered. At least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. For emergent conditions, the licensee may be able to apply a RICT if the requirements of the Risk Informed Completion Time Program are met. A RICT cannot be applied if Condition B is entered voluntarily.

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

Comment: Conditions F and G are default Conditions and are therefore excluded.

3.3 INSTRUMENTATION

3.3.1 Reactor Protective System (RPS) Instrumentation - Operating (Analog)

LCO 3.3.1 Four RPS trip units and associated instrument and bypass removal channels for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: 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. AND A.2.1 Restore channel to OPERABLE status. OR A.2.2 [Place affected trip unit in trip.	1 hour [OR In accordance with the Risk Informed Completion Time Program] [48] hours [OR In accordance with the Risk Informed Completion Time Program] 48 hours] [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with two RPS trip units or associated instrument channels inoperable except for Condition C (excore channel not calibrated with incore detectors).	B.1 Place one trip unit in bypass and place the other trip unit in trip. AND B.2 Restore one trip unit to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program] [48] hours [OR 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 excore channels not calibrated with the incore detectors.	C.1 Perform SR 3.3.1.3. OR C.2 Restrict THERMAL POWER to ≤ 90% RTP.	24 hours [OR In accordance with the Risk Informed Completion Time Program] 24 hours [OR In accordance with the Risk Informed Completion Time Program]
D. One or more Functions with one automatic bypass removal channel inoperable.	D.1 Disable bypass channel. OR D.2.1 Place affected trip units in bypass or trip. AND D.2.2.1 Restore bypass removal channel and affected trip units to OPERABLE status. OR	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour [OR In accordance with the Risk Informed Completion Time Program] [48] hours [OR In accordance with the Risk Informed Completion Time Program]

	D.2.2.2 [Place affected trip units in trip.	48 hours] [OR 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. OR	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	E.2.1 [Place one affected trip unit in bypass and place the other in trip for each affected trip Function. AND E.2.2 Restore one automatic bypass removal channel and the associated trip unit to OPERABLE status for each affected trip Function.	1 hour [OR In accordance with the Risk Informed Completion Time Program] [48] hours] [OR In accordance with the Risk Informed Completion Time Program]
F. Required Action and associated Completion Time not met for Axial Power Distribution and Loss of Load Trip Functions.	F.1 Reduce THERMAL POWER to < 15% RTP.	6 hours
G. Required Action and associated Completion Time not met except for Axial Power Distribution or Loss of Load Trip Functions.	G.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

----------NOTE----------

Refer to Table 3.3.1-1 to determine which SR shall be performed for each RPS Function.

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.	1 hour
	AND	
	A.2.1 Restore channel to OPERABLE status.	[48] hours
	OR	
	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.	1 hour
	AND	
	B.2 [Restore one trip unit to OPERABLE status.	48 hours]
C. One automatic bypass removal channel inoperable.	C.1 Disable bypass channel.	1 hour
	OR	
	C.2.1 Place affected trip unit in bypass or trip.	1 hour
	AND	
	C.2.2.1 Restore bypass removal channel and affected trip unit to OPERABLE status.	[48] hours
	OR	
	C.2.2.2 [Place affected trip units in trip.	48 hours]
D. Two automatic bypass removal channels inoperable.	D.1 Disable bypass channels.	1 hour
	OR	
	D.2.1 Place one affected trip unit in bypass and place the other in trip.	1 hour
	AND	

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	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform a CHANNEL CALIBRATION, including bypass removal functions with Allowable Value ≤ [2.6] dpm.	[18] months

Comment: 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 INSTRUMENTATION

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
A. One Matrix Logic channel inoperable. OR Three Matrix Logic channels inoperable due to a common power source failure de-energizing three matrix power supplies.	A.1 Restore channel(s) to OPERABLE status.	48 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1 Open the affected RTCBs.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
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

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. OR One or more Functions with two or more Manual Trip, Matrix Logic, Initiation Logic, or RTCB channels inoperable for reasons other than Condition A or D.	E.1 Be in MODE 3. AND E.2 Open all RTCBs.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform a CHANNEL FUNCTIONAL TEST on each 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: Condition G is a default Condition and is therefore excluded.

3.3 INSTRUMENTATION

3.3.4 Engineered Safety Features Actuation System (ESFAS) Instrumentation (Analog)

LCO 3.3.4 Four ESFAS trip units and associated instrument and bypass removal channels for each Function in Table 3.3.4-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each ESFAS 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] [OR In accordance with the Risk Informed Completion Time Program]
B. [Two or more CSAS trip units or associated instruments inoperable.	B.1 Restore inoperable CSAS trip units or associated instruments to OPERABLE.	1 hour] [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. One or more Functions with one ESFAS trip unit or associated instrument channel (except CSAS) inoperable.	C~~B~~.1 Place affected trip unit in bypass or trip. AND	1 hour [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C~~B~~.2.1 Restore channel to OPERABLE status. OR C~~B~~.2.2 [Place affected trip unit in trip.	[48] hours [OR In accordance with the Risk Informed Completion Time Program] 48 hours] [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D~~C~~. One or more Functions with two ESFAS trip units or associated instrument channels (except CSAS) inoperable.	D~~C~~.1 Place one trip unit in bypass and place the other trip unit in trip. AND D~~C~~.2 Restore one trip unit to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program] [48] hours [OR In accordance with the Risk Informed Completion Time Program]
E~~D~~. One or more Functions with one automatic bypass removal channel inoperable.	E~~D~~.1 Disable bypass channel. OR E~~D~~.2.1 Place affected trip units in bypass or trip. AND E~~D~~.2.2.1 Restore bypass removal channel and affected trip units to OPERABLE status. OR	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour [OR In accordance with the Risk Informed Completion Time Program] [48] hours [OR In accordance with the Risk Informed

	E~~D~~.2.2.2 [Place affected trip units in trip.	Completion Time Program] 48 hours] [OR In accordance with the Risk Informed Completion Time Program]
F~~E~~. One or more Functions with two automatic bypass removal channels inoperable.	F~~E~~.1 Disable bypass channels. OR F~~E~~.2.1 Place one affected trip unit in bypass and place the other in trip for each affected ESFAS Function. AND	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	F~~E~~.2.2 [Restore one bypass channel and the associated trip unit to OPERABLE status for each affected trip Function.	48 hours] [OR In accordance with the Risk Informed Completion Time Program]
G~~F~~. Required Action and associated Completion Time not met.	G~~F~~.1 Be in MODE 3. AND G~~F~~.2 Be in MODE 4.	6 hours [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two AFAS Manual Trip or Actuation Logic channels inoperable.	B.1 Restore at least one AFAS Manual Trip or Actuation Logic channels to OPERABLE.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~OR~~ C. Required Action and associated Completion Time of Condition A or B not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	6 hours [12] hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
D~~C~~. One or more Functions with one Manual Trip or Actuation Logic channel inoperable except AFAS.	D~~C~~.1 Restore channel to OPERABLE status.	48 hours [OR In accordance with the Risk Informed Completion Time Program]
E. One or more Functions with two Manual Trip or Actuation Logic channel inoperable except AFAS.	E.1 Restore inoperable Functions with two Manual Trip or Actuation Logic channels to OPERABLE.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~D. One or more Functions with two Manual Trip or Actuation Logic channel inoperable except AFAS.~~ ~~OR~~ F. Required Action and associated Completion Time of Condition D or E ~~C~~ not met.	F~~D~~.1 Be in MODE 3. AND F~~D~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	----------NOTES---------- 1. Testing of Actuation Logic shall include verification of the proper operation of each initiation relay. 2. Relays associated with plant equipment that cannot be operated during plant operation are only required to be tested during each MODE 5 entry exceeding 24 hours unless tested during the previous 6 months. ---------- Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.	[92] days
SR 3.3.5.2	Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.	[18] months

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

3.3 INSTRUMENTATION

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
	AND	[OR In accordance with the Risk Informed Completion Time Program]
	A.2.1 Restore channel to OPERABLE status.	[48] hours
	OR	[OR In accordance with the Risk Informed Completion Time Program]
	A.2.2 [Place the channel in trip.	48 hours] [OR

CONDITION	REQUIRED ACTION	COMPLETION TIME
		In accordance with the Risk Informed Completion Time Program]
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. OR	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.1 Place one channel in bypass and the other channel in trip. AND B.2.2 Restore one channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program] [48] hours [OR 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 [OR 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]

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

3.3 INSTRUMENTATION

3.3.7 Containment Purge Isolation Signal (CPIS) (Analog)

LCO 3.3.7 [Four] CPIS containment radiation monitor channels and one CPIS automatic Actuation Logic and one Manual Trip train shall be OPERABLE.

APPLICABILITY: During movement of [recently] irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One radiation monitor channel inoperable.	A.1 Place the affected channel in trip.	4 hours
	OR	
	A.2 Suspend movement of [recently] irradiated fuel assemblies within containment.	Immediately
B. One required Manual Trip or automatic Actuation Logic train inoperable.	B.1 Place and maintain containment purge and exhaust valves in closed position.	Immediately
OR	OR	
More than one radiation monitor channel inoperable.	B.2 Enter applicable Conditions and Required Actions for affected valves of LCO 3.9.3, "Containment Penetrations," made inoperable by isolation instrumentation.	Immediately
OR		
Required Action and associated Completion Time of Condition A not met.		

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

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
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.	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.	1 hour [OR 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 3.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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.	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.	Immediately
	OR	
	C.2.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	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.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform a CHANNEL CHECK on the required control room radiation monitor channel.	12 hours

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. One CVCS isolation instrument channel inoperable.	B.1 Place the channel in bypass or trip. AND B.2.1 Restore the channel to OPERABLE status. OR B.2.2 Place the channel in trip.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 48 hours [OR In accordance with the Risk Informed Completion Time Program] 48 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
		[OR In accordance with the Risk Informed Completion Time Program]
C. Two CVCS isolation instrument channels inoperable.	C.1 Place one channel in bypass and place the other channel in trip. AND C.2 Restore one channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 48 hours [OR In accordance with the Risk Informed Completion Time Program]
D. Two Actuation Logic channels inoperable.	D.1 Restore at least one Actuation Logic channel to OPERABLE.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~D. Two Actuation Logic channels inoperable.~~ ~~OR~~ E. Required Action and associated Completion Time not met.	E~~D~~.1 Be in MODE 3. AND E~~D~~.2 Be in MODE 5.	6 hours 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: Condition C is a default Condition and is therefore excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two Manual Trip or Actuation Logic channels inoperable.	B.1 Restore at least one channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

Comment: Condition A already has a 30 day CT, Condition B and D are default Conditions, and Conditions E and F apply to the default Condition (Condition D) and are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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. AND E.2 Be in MODE 4.	6 hours 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.

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. AND B.2 Be in MODE 4.	6 hours [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
A. One or more required channel(s) inoperable.	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.	Immediately
	AND	
	A.2 Perform SDM verification in accordance with SR 3.1.1.1.	4 hours AND Once per 12 hours thereafter

Comment: RAs A.2 and C.2.2 Completion Times are not time based and Condition G is a default Condition. Therefore these are excluded.

3.3 INSTRUMENTATION

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. AND A.2 Restore channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 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 [OR In accordance with the Risk Informed Completion Time Program]
C. One or more Functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel. OR	1 hour [OR

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Place affected automatic trip channel in bypass or trip. AND C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 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. OR D.2 Place one affected automatic trip channel in bypass and place the other in trip.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
F. One or more CPC channels with three or	F.1 Perform CHANNEL FUNCTIONAL TEST on	24 hours

more autorestarts during a 12 hour period.	affected CPC.	[OR In accordance with the Risk Informed Completion Time Program]
G. Required Action and associated Completion Time not met.	G.1 Be in MODE 3.	6 hours

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

3.3 INSTRUMENTATION

3.3.2 Reactor Protective System (RPS) Instrumentation - Shutdown (Digital)

LCO 3.3.2 Four RPS Logarithmic Power Level - High trip channels 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----------
Bypass may be enabled when logarithmic power is > [1E-4]% and shall be capable of automatic removal whenever logarithmic power is > [1E-4]%. Bypass shall be removed prior to reducing logarithmic power to a value ≤ [1E-4]%.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RPS logarithmic power level trip channel inoperable.	A.1 Place channel in bypass or trip. AND A.2 Restore channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
B. Two RPS logarithmic power level trip channels inoperable.	B.1 Place one channel in bypass and place the other in trip.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION
C. One automatic bypass removal channel inoperable.	C.1 Disable bypass channel.	1 hour
	OR	
	C.2.1 Place affected automatic trip channel in bypass or trip.	1 hour
	AND	
	C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
D. Two automatic bypass removal channels inoperable.	D.1 Disable bypass channels.	1 hour
	OR	
	D.2 Place one affected automatic trip channel in bypass and place the other in trip.	1 hour
E. Required Action and associated Completion Time not met.	E.1 Open all RTCBs.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform a CHANNEL CHECK of each logarithmic power channel.	12 hours

Comment: RAs A.1 and B.5 require the periodic performance of actions and Condition E is a default Condition. Therefore these are excluded.

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. AND A.2 Restore CEAC to OPERABLE status.	Once per 4 hours 7 days [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time of Condition A not met. OR 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]. AND	4 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	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].	4 hours [OR In accordance with the Risk Informed Completion Time Program]
	AND	
	B.3 Verify the "RSPT/CEAC Inoperable" addressable constant in each core protection calculator (CPC) is set to indicate that both CEACs are inoperable.	4 hours [OR In accordance with the Risk Informed Completion Time Program]
	AND	
	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.	
	AND	
	B.5 Perform SR 3.1.4.1.	4 hours [OR In accordance with the Risk Informed Completion Time Program]

		Once per 4 hours
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 [OR In accordance with the Risk Informed Completion Time Program]

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 [OR In accordance with the Risk Informed Completion Time Program]
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: 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 INSTRUMENTATION

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
A. One Matrix Logic channel inoperable. OR Three Matrix Logic channels inoperable due to a common power source failure de-energizing three matrix power supplies.	A.1 Restore channel(s) to OPERABLE status.	48 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1 Open the affected RTCBs.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
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	D.1 Open the affected RTCBs.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
Trip, RTCBs, or Initiation Logic affecting the same trip leg inoperable.		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, or D not met. OR One or more Functions with more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel inoperable for reasons other than Condition A or D.	E.1 Be in MODE 3. AND E.2 Open all RTCBs.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform a CHANNEL FUNCTIONAL TEST on each 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: RAs A.2 and C.2.2 Completion Times are not time based and Condition E is a default Condition. Therefore these are excluded.

3.3 INSTRUMENTATION

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. AND A.2 Restore channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 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 [OR In accordance with the Risk Informed Completion Time Program]
C. One or more Functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel. OR	1 hour [OR

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Place affected automatic trip channel in bypass or trip. AND C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 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. OR D.2 Place one affected automatic trip channel in bypass and place the other in trip.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour [OR In accordance with the Risk Informed Completion Time Program]
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. AND 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 [OR 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 [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with two Initiation Logic channels affecting the same trip leg inoperable.	C.1 Open at least one contact in the affected trip leg of both ESFAS Actuation Logics. AND C.2 Restore channels to OPERABLE status.	Immediately 48 hours [OR In accordance with the Risk Informed Completion Time Program]
D. One or more Functions with one Actuation Logic channel inoperable.	D.1 ----------NOTE---------- One channel of Actuation Logic may be bypassed for up to 1 hour for Surveillances, provided the other channel is OPERABLE. ---------- Restore inoperable channel to OPERABLE status.	48 hours [OR In accordance with the Risk Informed Completion Time Program]
E. Two Actuation Logic channels inoperable.	E.1 Restore at least one inoperable channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

~~E. Two Actuation Logic channels inoperable.~~ ~~OR~~ F. Required Action and associated Completion Time of Conditions, for Containment Spray Actuation Signal, Main Steam Isolation Signal, or Emergency Feedwater Actuation Signal not met.	F~~E~~.1 AND F~~E~~.2	Be in MODE 3. Be in MODE 4.	6 hours [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~F. Two Actuation Logic channels inoperable.~~ ~~OR~~ G. Required Action and associated Completion Time of Conditions, for Safety Injection Actuation Signal, Containment Isolation Actuation Signal, Recirculation Actuation Signal, or Containment Cooling Actuation Signal not met.	G~~F~~.1 Be in MODE 3. AND G~~F~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	----------NOTE---------- Testing of Actuation Logic shall include the verification of the proper operation of each initiation relay. ---------- Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.	 [92] days

Comment: RA A.2 Completion Time is not time based and Condition D is a default Condition. Therefore these are 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 AND A.2 Restore channel to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 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. OR	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Place one channel in bypass and the other channel in trip.	1 hour [OR 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 [OR 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 3.3.7.1	[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. AND 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
	OR	
	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	----------NOTE---------- Only required to be met in MODES 1, 2, 3, and 4. ---------- Perform a CHANNEL FUNCTIONAL TEST on each required containment radiation monitor channel. Verify setpoint [Allowable Value] is in accordance with the following: Containment Gaseous Monitor: ≤ [2X background] Containment Particulate Monitor: ≤ [2X background] Containment Area Gamma Monitor: ≤ [325 mR/hr]	92 days

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

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
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.	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.	1 hour [OR 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 3.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours

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. ---------- Place one CREACS train in emergency radiation protection mode.	Immediately
	OR	
	C.2.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	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.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform a CHANNEL CHECK on the required control room radiation monitor channel.	12 hours

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

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] [OR 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 3. AND 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. OR C.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately Immediately

Comment: Condition A already has a 30 day CT, Condition B and D are default Conditions, and Conditions E and F apply to the default Condition (Condition D) and are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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. AND E.2 Be in MODE 4.	6 hours 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.

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. AND B.2 Be in MODE 4.	6 hours [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
A. One or more required channels inoperable.	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.	Immediately
	AND		
	A.2	Perform SDM verification in accordance with SR 3.1.1.1.	4 hours AND Once per 12 hours thereafter

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 ≥ [2025] psia and ≤ [2275] psia,

b. RCS cold leg temperature (T_c) ≥ [535]°F and ≤ [558]°F for < [70]% RTP or ≥ [544]°F and ≤ [588]°F for ≥ [70]% RTP, and

c. RCS total flow rate ≥ [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

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 ≤ [30]% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure ≥ [2025] psia and ≤ [2275] psia.	12 hours
SR 3.4.1.2	Verify RCS cold leg temperature ≥ [535]°F and ≤ [558]°F for < [70]% RTP or ≥ [544]°F and ≤ [558]°F for ≥ [70]% RTP.	12 hours
SR 3.4.1.3	----------NOTE---------- Only required to be met in MODE 1. ---------- Verify RCS total flow rate ≥ [148 E6] lb/hour.	12 hours
SR 3.4.1.4	----------NOTE---------- Not required to be performed until [24] hours after ≥ [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 ≥ [520]°F.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Verify RCS T_{avg} in each loop ≥ [520]°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
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.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5 with RCS pressure < [500] psig.	6 hours 36 hours
C. ----------NOTE---------- Required Action C.2 shall be completed whenever this Condition is entered. ---------- Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.	C.1 Initiate action to restore parameter(s) to within limits. AND C.2 Determine RCS is acceptable for continued operation.	Immediately Prior to entering MODE 4

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 [OR 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. OR	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 ≥ [25]%.	12 hours
SR 3.4.5.3	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- 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]°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. AND	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 ----------NOTE---------- Only required to be met if SDC train is OPERABLE. ---------- Be in MODE 5.	24 hours
B. Two required loops or trains inoperable. <u>OR</u> Required loop or train not in operation.	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.	Immediately
	<u>AND</u>	
	B.2 Initiate action to restore one loop or train to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required RCS loop or SDC train is in operation.	12 hours
SR 3.4.6.2	Verify secondary side water level in required SG(s) is ≥ [25]%.	12 hours
SR 3.4.6.3	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power available to each required pump.	7 days

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 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 ≥ [25%].

----------NOTES----------

1. The SDC pump of the train in operation 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 ≥ 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
A. One required SDC train inoperable. AND One SDC train OPERABLE.	A.1 Initiate action to restore a second SDC train to OPERABLE status. OR A.2 Initiate action to restore required SGs secondary side water level to within limit.	Immediately Immediately
B. One or more required SGs with secondary side water level not within limit. AND One SDC train OPERABLE.	B.1 Initiate action to restore a second SDC train to OPERABLE status. OR B.2 Initiate action to restore required SGs secondary side water level to within limit.	Immediately Immediately
C. No required SDC trains OPERABLE. OR Required SDC train not in operation.	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. AND C.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately Immediately

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°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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No required SDC train OPERABLE. OR Required SDC train not in operation.	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. AND B.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify required SDC train is in operation.	12 hours
SR 3.4.8.2	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power available to each required SDC pump.	 7 days

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. AND A.2 Be in MODE 4.	6 hours [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 Program]
C. Two [required] group of pressurizer heaters inoperable.	C.1 Restore at least one [required] group of pressurizer heaters to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C~~. Required Action and	D~~C~~.1 Be in MODE 3.	6 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
associated Completion Time of Condition B or C not met.	AND D~~C~~.2 Be in MODE 4.	 [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 ≥ [2475] psia and ≤ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met. OR Two [or more] pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND 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. AND B.2 Remove power from associated block valve. AND B.3 Restore PORV to OPERABLE status.	1 hour 1 hour 72 hours [OR 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
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Restore block valve to OPERABLE status.	72 hours [OR 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. AND 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. AND E.2 Remove power from associated block valves. AND E.3 Restore at least one PORV to OPERABLE status. ~~Be in MODE 3.~~ ~~AND~~ ~~E.4 Be in MODE 4.~~	1 hour 1 hour 16 ~~6~~ hour~~s~~ [OR In accordance with the Risk Informed Completion Time Program] ~~[12] hours~~
F. Two block valves inoperable.	F.1 Restore at least one block valve to OPERABLE status.	2 hours [OR 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. AND 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 ≥ [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.	12 hours
	OR		
	D.2	Depressurize affected SIT to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	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
G. Two required PORVs 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 ≥ [1.3] square inches.	12 hours

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 ≥ [1.3] square inches is open.	12 hours for unlocked open vent valve(s) <u>AND</u> 31 days for other vent path(s)

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. OR Pressure boundary LEAKAGE exists. OR Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

Comment: While Condition A represents a variable outside its limit, the PCV could be substituted as a surrogate in an RICT calculation. 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
A. One or more flow paths with leakage from one or more RCS PIVs not within limit.	----------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]. ----------	
	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.	4 hours [OR In accordance with the Risk Informed Completion Time Program]
	AND	

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] [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3. AND 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] [OR In accordance with the Risk Informed Completion Time Program]

Comment: Conditions A, B, and D already have a 30 day CTs. Condition C requires periodic performance of a Surveillance, and Condition F is a default condition. All these Conditions are therefore excluded.

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.	Once per 24 hours
	AND		
	A.2	Restore containment sump monitor to OPERABLE status.	30 days

ACTIONS (continued)

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. [Required containment atmosphere radioactivity monitor inoperable. AND Required containment air cooler condensate flow rate monitor inoperable.	D.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status. OR D.2 Restore required containment air cooler condensate flow rate monitor to OPERABLE status.	30 days 30 days]
E. All required monitors inoperable.	E.1 Restore inoperable required monitors.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
F~~E~~. Required Action and associated Completion Time not met.	F~~E~~.1 Be in MODE 3. AND F~~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

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}) ≥ 500°F.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant gross specific activity ≤ 100/Ē μCi/gm.	7 days
SR 3.4.16.2	----------NOTE---------- Only required to be performed in MODE 1. ----------	
	Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm.	14 days AND Between 2 and 6 hours after THERMAL POWER change of ≥ 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 Ē 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 ≤ 5% RTP and

b. The reactor trip setpoints of the OPERABLE power level channels are set ≤ 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 ≤ 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: The RA A.2 CT is not a time-based CT and Condition B is a default Condition. Therefore these are excluded.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.18 Steam Generator (SG) Tube Integrity

LCO 3.4.18 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. AND A.2 Plug [or repair] the affected tube(s) in accordance with the Steam Generator Program.	7 days [OR In accordance with the Risk Informed Completion Time 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. OR	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
SG tube integrity not maintained.		

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.

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
A. One SIT inoperable due to boron concentration not within limits. OR One SIT inoperable due to the inability to verify level or pressure.	A.1 Restore SIT to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One SIT inoperable for reasons other than Condition A.	B.1 Restore SIT to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Two or more SITs inoperable.	C.1 Restore inoperable SITs to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
D~~C~~. Required Action and associated Completion Time ~~of Condition A or B~~ not met.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Reduce pressurizer pressure to < [700] psia.	6 hours 2 hours
~~D. 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 ≥ [1700] psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
-----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. ----------		
A. One LPSI subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days [OR 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 [OR In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Completion Time Program]
C. Less than 100% of the ECCS flow equivalent to a single OPERABLE train available.	C.1 Restore ECCS flow equivalent to 100% of a single OPERABLE ECCS train.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C~~. Required Action and associated Completion Time not met.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Reduce pressurizer pressure to < [1700] psia.	6 hours 12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~D. Less than 100% of the ECCS flow equivalent to a single OPERABLE train available.~~	~~D.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]. Valve Number / Position / Function [ ] / [ ] / [ ] [ ] / [ ] / [ ] [ ] / [ ] / [ ]	12 hours]
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 ≥ [36] gpm at a discharge pressure of ≥ [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 [OR 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
A. RWT boron concentration not within limits. OR RWT borated water temperature not within limits.	A.1 Restore RWT to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
B. RWT inoperable for reasons other than Condition A.	B.1 Restore RWT to OPERABLE status	1 hour [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. AND C.2 Be in MODE 5.	6 hours 36 hours

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

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Trisodium Phosphate (TSP)

LCO 3.5.5 The TSP baskets shall contain ≥ [291] ft^3 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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours [12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.5.1	Verify the TSP baskets contain ≥ [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. AND B.2 Be in MODE 5.	6 hours 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
A. One or more containment air locks with one 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]. ---------- A.1 Verify the OPERABLE door is closed in the affected air lock. <u>AND</u>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Lock the OPERABLE door closed in the affected air lock. AND 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.	24 hours Once per 31 days
B. One or more containment air locks with containment air lock interlock mechanism inoperable.	----------NOTES---------- 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. ---------- B.1 Verify an OPERABLE door is closed in the affected air lock. AND	 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Lock an OPERABLE door closed in the affected air lock.	24 hours
	AND	
	B.3 ----------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ----------	
	Verify an OPERABLE door is locked closed in the affected air lock.	Once per 31 days
C. One or more containment air locks inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate overall containment leakage rate per LCO 3.6.1.	Immediately
	AND	
	C.2 Verify a door is closed in the affected air lock.	1 hour
	AND	
	C.3 Restore air lock to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	AND	
	D.2 Be in MODE 5.	36 hours

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
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.	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. AND	4 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.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.	Once per 31 days following isolation for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
[B. ----------NOTE---------- Only applicable to penetration flow paths with two [or more] containment isolation valves. ---------- One or more penetration flow paths with one containment isolation valve inoperable [for reasons other than Condition[s] A, E, [and F]].	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. AND	[7 days] [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.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.	Once per 31 days following isolation for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment]
C. ----------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] E [and F]].	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.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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.	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. AND 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.	72 hours [or in accordance with the Risk Informed Completion Time Program] for those penetrations that do not met the 7 day criteria AND 7 days [or in accordance with the Risk Informed Completion Time Program] for those penetrations that meet the 7 day criteria Once per 31 days following isolation
E. [One or more secondary containment bypass leakage [or purge valve leakage] not within limit.	E.1 Restore leakage within limit.	4 hours [or in accordance with the Risk Informed Completion Time Program] for secondary containment bypass leakage

		AND 24 hours [or in accordance with the Risk Informed Completion Time Program] for purge valve leakage]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	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].	24 hours [OR In accordance with the Risk Informed Completion Time Program]
	AND	
	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.	
	AND	
		Once per 31 days following isolation for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment

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. AND 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

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

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 ≤ +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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

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

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature (Atmospheric and Dual)

LCO 3.6.5 Containment average air temperature shall be ≤ [120]°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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 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 [OR 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 3. AND 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 [OR In accordance with the Risk Informed Completion Time Program]
D. One containment spray and one containment cooling train inoperable.	D.1 Restore containment spray train to OPERABLE status.	72 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
	OR	[OR In accordance with the Risk Informed Completion Time Program]
	D.2 Restore containment cooling train to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]

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 [OR In accordance with the Risk Informed Completion Time Program]
F. Two containment spray trains inoperable. OR Any combination of three or more containment spray and cooling trains inoperable.	F.1 Restore inoperable containment spray trains and containment cooling trains to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
G~~F~~. Required Action and associated Completion Time of Condition C, D, E, or F ~~E~~ not met.	G~~F~~.1 Be in MODE 3. AND G~~F~~.2 Be in MODE 5.	6 hours 36 hours
~~G. Two containment spray trains inoperable.~~ ~~OR~~ ~~Any combination of three or more trains inoperable.~~	~~G.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

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 containment cooling train inoperable.	B.1 Restore 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 Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One containment spray train and one containment cooling train inoperable.	D.1 Restore containment spray train to OPERABLE status. OR D.2 Restore 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]

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 [OR In accordance with the Risk Informed Completion Time Program]
F. Any combination of three or more trains inoperable.	F.1 Restore inoperable trains to OPERABLE status. .	1 hour [OR In accordance with the Risk Informed Completion Time Program]
G~~F~~.Required Action and associated Completion Time ~~of Condition A, B, C, D, or E~~ not met.	G~~F~~.1 Be in MODE 3. AND G~~F~~.2 Be in MODE 5.	6 hours 36 hours
~~G. Any combination of three or more trains inoperable.~~	~~G.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

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 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 ≥ [816] gal [90%] and ≤ [896] gal [100%].	184 days

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and Associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 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

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. AND B.2 Restore one HMS train to OPERABLE status.	1 hour AND Once every 12 hours thereafter 7 days] [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.	6 hours

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two ICS trains inoperable.	B.1 Restore at least one ICS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 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

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two vacuum relief lines inoperable.	B.1 Restore at least one vacuum relief line to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

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. AND A.2 Reduce the [variable overpower trip - high] setpoint [ceiling] in accordance with Table 3.7.1-1.	4 hours [OR In accordance with the Risk Informed Completion Time Program] 36 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One or more steam generators with less than [two] MSSVs OPERABLE.	B.1 Restore inoperable MSSVs on each steam generator to OPERABLE status.	1 hour [OR

CONDITION	REQUIRED ACTION	COMPLETION TIME
		In accordance with the Risk Informed Completion Time Program]
C~~B~~.Required Action and associated Completion Time not met. ~~OR~~ ~~One or more steam generators with less than [two] MSSVs OPERABLE.~~	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	6 hours [12] hours

Comment: 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 [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 [OR 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 2.	6 hours
C Two or more MSIVs inoperable in MODE 1.	C.1 Restore inoperable MSIVs to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C~~. ----------NOTE---------- Separate Condition entry is allowed for each MSIV.	D~~C~~.1 Close MSIV. AND	[8] hours [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
---------- One or more MSIVs inoperable in MODE 2 or 3.		the Risk Informed Completion Time Program]
	D~~C~~.2 Verify MSIV is closed.	Once per 7 days following closure
E~~D~~.Required Action and associated Completion Time of Condition C or D not met.	E~~D~~.1 Be in MODE 3.	6 hours
	AND	
	E~~D~~.2 Be in MODE 4.	[12] hours

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

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs) [and [MFIV] Bypass Valves]

LCO 3.7.3 [Two] MFIVs [and [MFIV] bypass valves] shall be OPERABLE.

APPLICABILITY: MODES 1, 2, [and 3] except when MFIV [or [MFIV] 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 [or [MFIV] bypass valves] inoperable.	A.1 Close or isolate inoperable MFIV [or [MFIV] bypass valve]. AND A.2 Verify inoperable MFIV [or [MFIV] bypass valve] is closed or isolated.	[8 or 72] hours [OR In accordance with the Risk Informed Completion Time Program] Once per 7 days following closure or isolation
B. [[Two] valves in the same flow path inoperable.	B.1 Isolate affected flow path. AND B.2 Verify inoperable MFIV [or [MFIV] bypass valve] is	8 hours [OR In accordance with the Risk Informed Completion Time Program] Once per 7 days] following isolation

CONDITION	REQUIRED ACTION	COMPLETION TIME
	closed or isolated.	
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. [AND C.2 Be in MODE 4.	6 hours [12] hours]

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 [OR 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 [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. [AND 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
A. [One steam supply to turbine driven AFW pump inoperable. OR ----------NOTE---------- Only applicable if MODE 2 has not been entered following refueling. ---------- One turbine driven AFW pump inoperable in MODE 3 following refueling.	A.1 Restore affected equipment to OPERABLE status.	7 days] [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One AFW train inoperable [for reasons other than Condition A] in MODE 1, 2, or 3.	B.1 Restore AFW train to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
C. [Two] AFW trains inoperable in MODE 1, 2, or 3.]	C.1 Restore at least one AFW train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C~~. Required Action and associated Completion Time of Condition A, [~~or~~ B] or C not met. ~~[OR~~ ~~[Two] AFW trains inoperable in MODE 1, 2, or 3.]~~	D~~C~~.1 Be in MODE 3. AND D~~C.~~2 Be in MODE 4.	6 hours [18] hours
E~~D~~.[[Three] AFW trains inoperable in MODE 1, 2, or 3.	E~~D~~.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.	 Immediately]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F~~E~~. Required AFW train inoperable in MODE 4.	F~~E~~.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.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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.	31 days
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.	In accordance with the Inservice Testing Program

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.	4 hours AND Once per 12 hours thereafter
	AND	
	A.2 Restore CST to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in MODE 4 without reliance on steam generator for heat removal.	[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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two CCW trains inoperable.	B.1 Restore at least one CCW train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time ~~of Condition A~~ not	C~~B~~.1 Be in MODE 3. AND	6 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
met.	CB.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
A. One SWS train inoperable.	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.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. Two SWS trains inoperable.	B.1 Restore at least one SWS train to OPERABLE status.	1hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
		[OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time of Condition A not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 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
A. [One or more cooling towers with one cooling tower fan inoperable.	A.1 Restore cooling tower fan(s) to OPERABLE status.	7 days] [OR 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]
C. UHS inoperable [for reasons other than Condition A or B.]	C.1 Restore UHS to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Program]
D~~C~~. [Required Action and associated Completion Time ~~of Condition A or B~~ not met. ~~OR]~~ ~~UHS inoperable [for reasons other than Condition A or B].~~	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 5.	6 hours 36 hours

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 [OR In accordance with the Risk Informed Completion Time Program]
B. [Two] ECW trains inoperable.	C.1 Restore at least one ECW train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

Comment: Condition D is a default Conditions, and Conditions E and F are outside the applicability of the traveler. Therefore these Conditions are excluded.~~Comment:~~

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two CREACS trains inoperable in MODE 1, 2, 3 or 4 for reasons other than Condition B.	C.1 Restore at least one CREACS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Program]
D~~C~~. Required Action and associated Completion Time of Condition A, B or C~~B~~ not met in MODE 1, 2, 3, or 4.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 5.	6 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E~~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.	E~~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.	Immediately
	OR	
	E~~D~~.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
F~~E~~. Two CREACS trains inoperable [in MODES 5 and 6, or] during movement of [recently] irradiated fuel assemblies.	F~~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
B. Two CREATCS trains inoperable in MODE 1, 2, 3 or 4.	B.1 Restore at least one CREATCS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	6 hours 36 hours
D~~C~~. 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~~C~~.1 Place OPERABLE CREATCS train in operation. OR D~~C~~.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
E~~D~~. Two CREATCS trains inoperable [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	E~~D~~.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~E. Two CREATCS trains inoperable in MODE 1, 2, 3, or 4.~~	~~E.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: Condition D is a default Condition and is excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two ECCS PREACS trains inoperable for reasons other than Condition B.	C.1 Restore at least one ECCS PREACS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Completion Time Program]
D~~C~~. Required Action and associated Completion Time not met.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 5.	6 hours 36 hours

Comment: Condition D is a default Condition. Conditions E and F are outside the applicability of the Traveler. Therefore these Conditions are excluded

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two FBACS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	C.1 Restore at least one FBACS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
D~~C~~. [Required Action and associated Completion Time of Condition A, B or C~~B~~ not met in MODE 1, 2, 3, or 4. ~~OR~~ ~~Two FBACS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.~~	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 5.	6 hours 36 hours]
E~~D~~. Required Action and Associated Completion Time [of Condition A] not met during movement of [recently] irradiated fuel assemblies in the fuel building.	E~~D~~.1 Place OPERABLE FBACS train in operation. OR E~~D~~.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately Immediately
F~~E~~. Two FBACS trains inoperable during movement of [recently] irradiated fuel assemblies in the fuel building.	F~~E~~.1 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two PREACS trains inoperable due to inoperable penetration room boundary.	B.1 Restore penetration room boundary to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Two PREACS trains inoperable for reasons other than Condition B.	C.1 Restore at least one PREACS train to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Program]
D~~C~~. Required Action and associated Completion Time not met.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 5.	6 hours 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.

3.7 PLANT SYSTEMS

3.7.17 Fuel Storage Pool Boron Concentration

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool boron concentration not within limit.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	A.1 Suspend movement of fuel assemblies in the fuel storage pool.	Immediately
	AND	
	A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately
	OR	
	A.2.2 Initiate action to perform a fuel storage pool verification.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Verify the fuel storage pool boron concentration is within limit.	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

3.7.18 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.

3.7 PLANT SYSTEMS

3.7.19 Secondary Specific Activity

LCO 3.7.19 The specific activity of the secondary coolant shall be ≤ [0.10] μCi/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. AND A.2 Be in MODE 5.	6 hours 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 AND Once per 8 hours thereafter
	AND	
	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)
	AND	

ACTIONS (continued)

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

		the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two [required] offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	AND	
	C.2 Restore one [required] offsite circuit to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
D. One [required] offsite circuit inoperable. AND One [required] DG inoperable.	----------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. ----------	
	D.1 Restore [required] offsite circuits to OPERABLE status.	12 hours [OR In accordance with the Risk Informed Completion Time Program]
	OR	
	D.2 Restore [required] DG to OPERABLE status.	12 hours [OR

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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.	F.1 Restore [required] [automatic load sequencer] to OPERABLE status.	[12] hours] [OR In accordance with the Risk Informed Completion Time Program]
G. Three or more [required] AC sources inoperable.	G.1 Restore [required] inoperable AC sources to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
H~~G~~. Required Action and associated Completion Time ~~of Condition A, B, C, D, E, or [F]~~ not met.	H~~G~~.1 Be in MODE 3. AND H~~G~~.2 Be in MODE 5.	6 hours 36 hours
~~H. Three or more [required] AC sources inoperable.~~	~~H.1 Enter LCO 3.0.3.~~	~~Immediately~~

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

ACTIONS (continued)

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

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.

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 ≥ [125] psig.	E.1 Restore starting air receiver pressure to ≥ [225] psig.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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 ≥ [33,000] gal of fuel.	31 days
SR 3.8.3.2	Verify lubricating oil inventory is ≥ [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 ≥ [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 [OR In accordance with the Risk Informed Completion Time Program]
	AND	
	A.2 Verify battery float current ≤ [2] amps.	Once per [12] hours
	AND	
	A.3 Restore battery charger[s] to OPERABLE status.	7 days [OR 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] [OR In accordance with the Risk Informed

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 [OR In accordance with the Risk Informed Completion Time Program]
D. Two DC electrical power subsystems inoperable.	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]
E~~D~~.Required Action and Associated Completion Time not met.	E~~D~~.1 Be in MODE 3. AND E~~D~~.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 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 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]
B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A. OR Required Action and associated Completion Time of Condition A not met].	B.1 Declare affected required feature(s) inoperable. OR B.2.1 Suspend CORE ALTERATIONS. AND B.2.2 Suspend movement of [recently] irradiated fuel assemblies. AND B.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. AND B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately Immediately Immediately Immediately Immediately

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----------
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 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. AND A.2 Perform SR 3.8.6.1. AND A.3 Restore affected cell voltage ≥ [2.07] V.	2 hours 2 hours 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. AND B.2 Restore battery float current to ≤ [2] amps.	2 hours [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Required Action C.2 shall be completed if electrolyte level was below the top of plates. ----------	----------NOTE---------- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. ----------	
C. One [or two] batter[y][ies on one train] with one or more cells electrolyte level less than minimum established design limits.	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.	8 hours 12 hours 31 days
D. One [or two] batter[y][ies on one train] with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. One or more batteries in redundant trains with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one train to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> 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.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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.	7 days
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ [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 vital bus de-energized. ---------- Restore inverter to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
B. Two or more [required]	B.1 Restore inoperable	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
inverters inoperable.	inverters to OPERABLE status.	[OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time not met.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 5.	6 hours 36 hours

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	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
A. One or more AC electrical power distribution subsystems inoperable.	----------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. ---------- A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
B. One or more AC vital buses inoperable.	B.1 Restore AC vital bus subsystem(s) to OPERABLE status.	2 hours [OR In accordance with the Risk Informed Completion Time Program]
C. One or more DC electrical power distribution subsystems	C.1 Restore DC electrical power distribution subsystem(s) to	2 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
inoperable.	OPERABLE status.	[OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.	D.1 Restore inoperable electrical power distribution subsystems to OPERABLE status to restore safety function.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
E~~D~~. Required Action and associated Completion Time not met.	E~~D~~.1 Be in MODE 3. AND E~~D~~.2 Be in MODE 5.	6 hours 36 hours
~~E. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.~~	~~E.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

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

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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.4 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	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

5.5.17 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 Notes ----------
1. 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.
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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 (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 [or in accordance with the Risk Informed Completion Time Program] (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 [or in accordance with the Risk Informed Completion Time Program]. 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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)

G.1

Condition G is entered when the Required Action and associated Completion Time of Conditions A, B, C, D, E, or F are not met.

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 be in MODE 3 is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

The SRs for any particular RPS Function are found in the SR column of Table 3.3.1-1 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 plant to take credit for topical reports as the basis for justifying Frequencies, topical reports must be supported by an NRC staff SER that establishes the acceptability of each topical report for that plant (Ref. 9).

SR 3.3.1.1

Performance of the CHANNEL CHECK once every 12 hours ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the transmitter or the signal processing equipment has drifted outside its limits.

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

C.1

Condition C applies to the failure of one Initiation Logic channel, RTCB channel, or Manual Trip channel affecting the same trip leg in MODE 3, 4, or 5 with the RTCBs closed. The channel must be restored to OPERABLE status within 48 hours. If the inoperable channel cannot be restored to OPERABLE status within 48 hours, the affected RTCBs must be opened. In some cases, this condition may effect all of the RTCBs. This removes the need for the affected channel by performing its associated safety function. With the RTCBs open, the affected functions are in a one-out-of-two logic, which meets redundancy requirements.

The Completion Time of 48 hours is consistent with that of other RPS instrumentation and should be adequate to repair most failures.

Testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing.

D.1

Condition D applies to the failure of both Manual Trip or Initiation Logic channels affecting the same trip leg. Since this will open two channels of RTCBs, this Condition is also applicable to the two affected channels of RTCBs. This Condition allows for loss of a single vital instrument bus or matrix power supply, which will de-energize both Initiation Logic channels in the same trip leg. This will open both sets of RTCBs in the affected trip leg, satisfying the Required Action of opening the affected RTCBs.

Of greater concern is the failure of the initiation circuit in a nontrip condition (e.g., due to two initiation K-relay failures). With only one Initiation Logic channel failed in a nontrip condition, there is still the redundant set of RTCBs in the trip leg. With both failed in a nontrip condition, the reactor will not trip automatically when required. In either case, the affected RTCBs must be opened immediately by using the appropriate Manual Trip push buttons, since each of the four push buttons opens one set of RTCBs, independent of the initiation circuitry. Caution must be exercised, since depressing the wrong push buttons may result in a reactor trip.

BASES

ACTIONS (continued)

If two Manual Trip channels are inoperable and affecting the same trip leg, the associated RTCBs must be opened immediately to ensure Manual Trip capability is maintained. With the affected RTCBs open, any one of two Manual Trip push buttons being depressed will result in a reactor trip.

If the affected RTCB(s) cannot be opened, Condition E is entered. This would only occur if there is a failure in the Manual Trip circuitry or the RTCB(s).

E.1 and E.2

Condition E is entered if Required Actions associated with Condition A, B, or D are not met within the required Completion Time or if for one or more Functions more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel is inoperable for reasons other than Condition A or D.

If the RTCBs associated with the inoperable channel cannot be opened, the reactor must be shut down within 6 hours and all the RTCBs opened. A Completion Time of 6 hours is reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems and to open RTCBs. All RTCBs should then be opened, placing the plant in a MODE where the LCO does not apply and ensuring no CEA withdrawal occurs.

SURVEILLANCE REQUIREMENTS

----------REVIEWER'S NOTE----------
In order for a plant to take credit for topical reports as the basis for justifying Frequencies, topical reports must be supported by an NRC staff Safety Evaluation Report that establishes the acceptability of each topical report for that unit (Ref. 4).

SR 3.3.3.1

A CHANNEL FUNCTIONAL TEST is performed on each RTCB channel every 31 days. This verifies proper operation of each RTCB. The RTCB must then be closed prior to testing the other RTCBs, or a reactor trip may result. The Frequency of 31 days is based on the reliability analysis presented in Topical Report CEN-327, "RPS/ESFAS Extended Test Interval Evaluation," (Ref. 5).

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

B.1

With two or more CSAS channels inoperable the Required Action is to restore sufficient channels 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.]

C~~B~~.1, C~~B~~.2.1, and C~~B~~.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 [or in accordance with the Risk Informed Completion Time Program] (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.]

D~~C~~.1 and D~~C~~.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 [or in accordance with the Risk Informed Completion Time Program]. 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 ~~C~~.2 must be placed in trip if more than [48] hours has elapsed since the initial channel failure.

E~~D~~.1, E~~D~~.2.1, E~~D~~.2.2.1, and E~~D~~.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.]

F ~~E~~.1, F ~~E~~.2.1, and F ~~E~~.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 ~~C~~). Also similar to Condition D ~~C~~, 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 ~~C~~. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

G~~F~~.1 and G~~F~~.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)

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.]

C~~B~~.1 and C~~B~~.2

I~~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.

D~~C~~.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.

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.]

~~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 ~~C~~ are not met. If Required Action D ~~C~~.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 [or in accordance with the Risk Informed Completion Time Program] (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 [or in accordance with the Risk Informed Completion Time Program], 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

ACTIONS (continued)

generally made during the performance of a CHANNEL FUNCTIONAL TEST when the process instrument is set up for adjustment to bring it within specification. If the trip setpoint is not within the Allowable Value, the channel is inoperable and the appropriate Conditions must be entered.

A.1, B.1, B.2, C.1, C.2.1, and C.2.2

Conditions A and C have been modified by a Note, which specifies that CREACS be placed manually in the toxic gas protection mode if the automatic transfer to the toxic gas protection mode is inoperable. [At this unit, the basis for this Note is as follows:]

Conditions A, B, and C are applicable to manual and automatic actuation of the CREACS by CRIS. Condition A applies to the failure of the CRIS Manual Trip, Actuation Logic, and required particulate/iodine and required gaseous radiation monitor channels in MODE 1, 2, 3, or 4. Entry into this Condition requires action to either restore the failed channel(s) or manually perform the CRIS safety function (Required Action A.1). The Completion Time of 1 hour is sufficient to complete the Required Actions and accounts for the fact that CRIS supplements control room isolation by other Functions (e.g., SIAS) in MODES 1, 2, 3, and 4. [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, 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 (Required Action B.1) and to MODE 5 within 36 hours (Required Action B.2). The Completion Times of 6 hours and 36 hours for reaching MODES 3 and 5 from MODE 1 are reasonable, based on operating experience and normal cooldown rates, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant safety systems or operators.

Condition C applies to the failure of CRIS Manual Trip, Actuation Logic, and required particulate/iodine and required gaseous radiation monitor channels [in MODE 5 or 6] or when moving [recently] irradiated assemblies. The Required Actions are immediately taken to place one OPERABLE CREACS train in the emergency radiation protection mode or to suspend positive reactivity additions and movement of [recently] irradiated fuel assemblies. The Completion Time recognizes the fact that the radiation signals are the only Functions available to initiate control room isolation in the event of a fuel handling accident requiring control room isolation.

BASES

ACTIONS (continued)

Required Action [C.2.2] 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.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value.

Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

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

The Frequency, about once every shift, is based on operating experience that demonstrates the rarity of channel failure. Since the probability of two random failures in redundant channels in any 12 hour period is low, the CHANNEL CHECK minimizes the chance of loss of protective function due to failure of redundant channels. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel OPERABILITY during normal operational use of the displays associated with the LCO required channels.

At this unit, the following administrative controls and design features (e.g., downscale alarms) immediately alert operations to loss of function in the nonredundant channels.

[At this unit, verification of sample system alignment and operation for gaseous, particulate, and iodine monitors is required as follows:]

BASES

APPLICABILITY

The CVCS Isolation Signal must be OPERABLE in MODES 1, 2, 3, and 4, since the possibility of a loss of coolant accident is greatest in these MODES. In MODE 5 or 6, the probability is greatly diminished, and there is time to manually isolate CVCS.

ACTIONS

A CVCS isolation 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 not large and would result in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a CHANNEL FUNCTIONAL TEST, when the process instrument is set up for adjustment to bring it within specification. If the trip setpoint is not consistent with the Allowable Value in SR 3.3.9.2, the channel must be declared inoperable immediately 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 sensor, instrument loop, signal processing electronics, or bistable is found inoperable, then all affected Functions provided by that channel should be declared inoperable and the LCO Condition entered for the particular protection Function affected.

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.1

Condition A applies to the failure of one CVCS Actuation Logic channel associated with the CVCS Isolation Signal. Required Action A.1 requires restoration of the inoperable channel to restore redundancy of the affected Function. The Completion Time of 48 hours is consistent with the Completion Time of other ESFAS Functions and should be adequate for most repairs, while minimizing the risk of operating with an inoperable channel. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

B.1, B.2.1, and B.2.2

Condition B applies if one of the four CVCS instrument channels is inoperable. The Required Actions are identical to those of ESFAS Functions employing four redundant sensors specified in LCO 3.3.4, "Engineered Safety Features Actuation System (ESFAS) Instrumentation." The channel must be placed in bypass or trip if it cannot be repaired within 1 hour [or in accordance with the Risk Informed Completion Time Program] (Required Action B.1). The provision of four trip channels allows one channel to be bypassed (removed from service) during operations, placing the ESFAS in two-out-of-three coincidence logic. Placing the channel in bypass is preferred, since the CVCS isolation Function will be in two-out-of-three logic. This will avoid possible inadvertent CVCS isolation if an additional channel fails. The 1 hour Completion Time to bypass or trip the channel is sufficient time to perform the Required Actions.

Once the Required Action to trip or bypass the channel has been complied with, Required Action B.2.1 and Required Action B.2.2 provide for restoring the channel to OPERABLE status or placing it in trip within 48 hours [or in accordance with the Risk Informed Completion Time Program]. Required Action B.2.1 restores the full capability of the Function. Required Action B.2.2 places the Function in a one-out-of-three configuration. In this configuration, common cause failure of dependent channels cannot prevent CVCS isolation actuation. The Completion Time provides the operator with time to take appropriate actions and still ensures that any risk involved in operating with a failed channel is acceptable. It is improbable that a failure of a second channel will occur during any given 48 hour period.

C.1 and C.2

Condition C applies if two of the four CVCS West Penetration Room/Letdown Heat Exchanger Room Pressure - High channels are inoperable. The Required Actions are identical to those for other ESFAS Functions employing four redundant sensors in LCO 3.3.4.

Restoring at least one channel to OPERABLE status is the preferred Required Action. If this cannot be accomplished, one channel should be placed in bypass and the other channel in trip. The allowed Completion Time of 1 hour is sufficient time to perform the Required Actions. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

Once the Required Action to trip or bypass the channel has been complied with, Required Action C.2 provides for restoring one channel to OPERABLE status within 48 hours [or in accordance with the Risk Informed Completion Time Program]. The justification of the 48 hour Completion Time is the same as for Condition B.

After one channel is restored to OPERABLE status, the provisions of Condition C still apply to the remaining inoperable channel.

D.1

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

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

Condition E ~~D~~ specifies the shutdown track to be followed ~~if two Actuation Logic channels are inoperable or~~ if the Required Actions and associated Completion Times of Condition A, B, C, or D ~~C~~ are not met. If ~~two Actuation Logic channels are inoperable or~~ the Required Actions cannot be met within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The Completion Times are reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.9.1

Performance of the CHANNEL CHECK on each CVCS isolation pressure indicating channel once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value.

Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of

BASES

ACTIONS (continued)

A.1

Condition A applies to the failure of one SBFAS Manual Trip channel or of one Actuation Logic associated with the Chemical and Volume Control System Isolation Signal or SBFAS. Required Action A.1 requires restoration of the inoperable channel to restore redundancy of the affected Function. The Completion Time of 48 hours is consistent with the Completion Time of other ESFAS Functions employing similar logic and should be adequate for most repairs while minimizing the risk of operating with an inoperable channel for a manually actuated Function. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

B.1

If two SBFAS Manual Trip or Actuation Logic channels are inoperable, the Required Action is to restore at least one of the channels 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 at least one SBFAS Manual Trip or Actuation Logic channel. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C~~B~~.1 and C~~B~~.2

Condition C ~~B~~ specifies the shutdown track to be followed if the Required Action and associated Completion Time of Condition A or B are not met. If Required Action A.1 or B.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 Completion Times are reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.10.1

The SBFAS can be initiated either on a Safety Injection Actuation Signal (SIAS) or manually. This Surveillance is a restatement of SR 3.3.5.1 on the SIAS Function. Performing SR 3.3.5.1 satisfies this Surveillance. 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

BASES

ACTIONS

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 Table 3.3.11-1. 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

When one or more Functions have one required channel that is inoperable, the required inoperable channel must be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channel (or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval.

B.1

This Required Action specifies initiation of actions in accordance with Specification 5.6.5, which requires a written report to be submitted to the Nuclear Regulatory Commission. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative Required Actions. This Required Action is appropriate in lieu of a shutdown requirement, given the likelihood of plant conditions that would require information provided by this instrumentation. Also, alternative Required Actions are identified before a loss of functional capability condition occurs.

C.1

When one or more Functions have two required channels inoperable (i.e., two channels inoperable in the same Function), one channel in the Function should be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrumentation operation and the availability of alternate means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable

BASES

ACTIONS (continued)

because the alternate indications may not fully meet all performance qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur.

D.1

This Required Action directs entry into the appropriate Condition referenced in Table 3.3.11-1. The applicable Condition referenced in the Table is Function dependent. Each time Required Action C.1 is not met, and the associated Completion Time has expired, Condition D is entered for that channel and provides for transfer to the appropriate subsequent Condition.

E.1 and E.2

If the Required Action and associated Completion Time of Condition D is not met, and Table 3.3.11-1 directs entry into Condition E, the plant must be brought to a MODE in which the requirements of this LCO do not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours.

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

F.1

[At this plant, alternate means of monitoring Reactor Vessel Water Level and Containment Area Radiation have been developed and tested. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. If these alternate means are used, the Required Action is not to shut down the plant, but rather to follow the directions of Specification 5.6.5. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.]

BASES

ACTIONS (continued)

A Note has been added to the ACTIONS. The Note has been added 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 for that Function.

A.1 and A.2

Condition A applies to the failure of a single trip channel or associated instrument channel inoperable in any RPS automatic trip Function. RPS coincidence logic is two-out-of-four.

If one RPS channel is inoperable, startup or power operation is allowed to continue, providing the inoperable channel is placed in bypass or trip in 1 hour [or in accordance with the Risk Informed Completion Time Program] (Required Action A.1). The 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. The failed channel must be restored to OPERABLE status prior to entering MODE 2 following the next MODE 5 entry. With a channel in bypass, the coincidence logic is now in a two-out-of-three configuration.

The Completion Time of prior to entering MODE 2 following the next MODE 5 entry is based on adequate channel to channel independence, which allows a two-out-of-three channel operation since no single failure will cause or prevent a reactor trip.

B.1

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 [or in accordance with the Risk Informed Completion Time Program]. This Completion Time is sufficient to allow the operator to take all appropriate actions for the failed channels while ensuring 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.

BASES

ACTIONS (continued)

One of the two inoperable channels will need to be restored to operable status prior to the next required CHANNEL FUNCTIONAL TEST, because channel surveillance testing on an OPERABLE channel requires that the OPERABLE channel be placed in bypass. However, it is not possible to bypass more than one RPS channel, and placing a second channel in trip will result in a reactor trip. Therefore, if one RPS channel is in trip and a second channel is in bypass, a third inoperable channel would place the unit in LCO 3.0.3.

C.1, C.2.1, and C.2.2

Condition C applies to one automatic bypass removal channel inoperable. If the inoperable bypass removal channel for any bypass channel cannot be restored to OPERABLE status within 1 hour [or in accordance with the Risk Informed Completion Time Program], 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 affected automatic trip channel placed in bypass or trip. The bypass removal channel and the automatic trip channel must be repaired prior to entering MODE 2 following the next MODE 5 entry. The Bases for the Required Actions and required Completion Times are consistent with Condition A.

D.1 and D.2

Condition D applies to two inoperable automatic bypass removal channels. If the bypass removal channels for two operating bypasses cannot be restored to OPERABLE status within 1 hour [or in accordance with the Risk Informed Completion Time Program], 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 one automatic trip channel placed in bypass and the other in trip within 1 hour [or in accordance with the Risk Informed Completion Time Program]. The restoration of one affected bypassed automatic trip channel must be completed prior to the next CHANNEL FUNCTIONAL TEST, or the plant must shut down per LCO 3.0.3 as explained in Condition B.

BASES

ACTIONS (continued)

E.1

Condition E applies if any CPC cabinet receives a high temperature alarm. There is one temperature sensor in each of the four CPC bays. Since CPC bays B and C also house CEAC calculators 1 and 2, respectively, a high temperature in either of these bays may also indicate a problem with the associated CEAC. CEAC OPERABILITY is addressed in LCO 3.3.3.

If a CPC cabinet high temperature alarm is received, it is possible for the CPC to be affected and not be completely reliable. Therefore, a CHANNEL FUNCTIONAL TEST must be performed within 12 hours [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 12 hours is adequate considering the low probability of undetected failure, the consequences of a single channel failure, and the time required to perform a CHANNEL FUNCTIONAL TEST.

F.1

Condition F applies if an OPERABLE CPC has three or more autorestarts in a 12 hour period.

CPCs and CEACs will attempt to autorestart if they detect a fault condition, such as a calculator malfunction or loss of power. A successful autorestart restores the calculator to operation; however, excessive autorestarts might be indicative of a calculator problem.

If a nonbypassed CPC has three or more autorestarts, it may not be completely reliable. Therefore, a CHANNEL FUNCTIONAL TEST must be performed on the CPC to ensure it is functioning properly. Based on plant operating experience, the Completion Time of 24 hours is adequate and reasonable to perform the test while still keeping the risk of operating in this condition at an acceptable level, since overt channel failure will most likely be indicated and annunciated in the control room by CPC online diagnostics. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

G.1

Condition G is entered when the Required Action and associated Completion Time of Condition A, B, C, D, E, or F are not met.

BASES

ACTIONS (continued)

If the Required Actions associated with these Conditions cannot be completed within the required Completion Time, the reactor must be brought to a MODE where the Required Actions do not apply. The allowed Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

The SRs for any particular RPS Function are found in the SR column of Table 3.3.1-1 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 plant to take credit for topical reports as the basis for justifying Frequencies, topical reports must be supported by an NRC staff SER that establishes the acceptability of each topical report for that unit.

SR 3.3.1.1

Performance of the CHANNEL CHECK once every 12 hours ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the transmitter or the signal processing equipment has drifted outside its limits.

The Frequency, about once every shift, is based on operating experience that demonstrates the rarity of channel failure. Since the probability of two random failures in redundant channels in any 12 hour period is extremely low, the CHANNEL CHECK minimizes the chance of loss of protective function due to failure of redundant channels. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel OPERABILITY during normal operational use of the displays associated with the LCO required channels.

BASES

APPLICABILITY

Most RPS trips are required to be OPERABLE in MODES 1 and 2 because the reactor is critical in these MODES. The trips are designed to take the reactor subcritical, which maintains the SLs during AOOs and assists the Engineered Safety Features Actuation System in providing acceptable consequences during accidents. Most trips are not required to be OPERABLE in MODES 3, 4, and 5. In MODES 3, 4, and 5, the emphasis is placed on return to power events. The reactor is protected in these MODES by ensuring adequate SDM.

Because CEACs provide the inputs to the DNBR - Low and LPD - High trips, they are required to be OPERABLE in the same MODES as those trips for the same reasons.

ACTIONS

A.1 and A.2

Condition A applies to the failure of a single CEAC channel. There are only two CEACs, each providing CEA deviation input into all four CPC channels. The CEACs include complex diagnostic software, making it unlikely that a CEAC will fail without informing the CPCs of its failed status. With one failed CEAC, the CPC will receive CEA deviation penalty factors from the remaining OPERABLE CEAC. If the second CEAC should fail (Condition B), the CPC will use large preassigned penalty factors. The specific Required Actions allowed are as follows:

With one CEAC inoperable, the second CEAC still provides a comprehensive set of comparison checks on individual CEAs within subgroups, as well as outputs to all CPCs, CEA deviation alarms, and position indication for display. Verification every 4 hours that each CEA is within 7 inches of the other CEAs in its group provides a check on the position of all CEAs and provides verification of the proper operation of the remaining CEAC. An OPERABLE CEAC will not generate penalty factors until deviations of > 7 inches within a subgroup are encountered.

The Completion Time of once per 4 hours is adequate based on operating experience, considering the low probability of an undetected CEA deviation coincident with an undetected failure in the remaining CEAC within this limited time frame.

As long as Required Action A.1 is accomplished as specified, the inoperable CEAC can be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 7 days is adequate for most repairs, while minimizing risk, considering that dropped CEAs are detectable by the redundant CEAC, and other LCOs specify Required Actions necessary to maintain DNBR and LPD margin.

BASES

ACTIONS (continued)

B.1, B.2, B.3, B.4, and B.5

Condition B applies if the Required Action and associated Completion Time of Required Action A are not met, or if both CEACs are inoperable. Actions associated with this Condition involve disabling the Control Element Drive Mechanism Control System (CEDMCS), while providing increased assurance that CEA deviations are not occurring and informing all OPERABLE CPC channels, via a software flag, that both CEACs are failed. This will ensure that the large penalty factor associated with two CEAC failures will be applied to CPC calculations. The penalty factor for two failed CEACs is sufficiently large that power must be maintained significantly < 100% RTP if CPC generated reactor trips are to be avoided. The Completion Time of 4 hours is adequate to accomplish these actions while minimizing risks. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

The Required Actions are as follows:

B.1

Meeting the DNBR margin requirements of LCO 3.2.5, "AXIAL SHAPE INDEX (ASI)," ensures that power level and ASI are within a conservative region of operation based on actual core conditions. In addition to the above actions, the Reactor Power Cutback (RPCB) System must be disabled. This ensures that CEA position will not be affected by RPCB operation.

B.2

The "full out" CEA reed switches provide acceptable indication of CEA position. Therefore, the CEAs will remain fully withdrawn, except as required for specified testing or flux control via group #6. This verification ensures that undesired perturbations in local fuel burnup are prevented.

B.3

The "RSPT/CEAC Inoperable" addressable constant in each of the CPCs is set to indicate that both CEACs are inoperable. This provides a conservative penalty factor to ensure that a conservative effective margin is maintained by the CPCs in the computation of DNBR and LPD trips.

BASES

ACTIONS (continued)

B.4

The CEDMCS is placed and maintained in "OFF," except during CEA motion permitted by Required Action B.2, to prevent inadvertent motion and possible misalignment of the CEAs.

B.5

A comprehensive set of comparison checks on individual CEAs within groups must be made within 4 hours. Verification that each CEA is within 7 inches of other CEAs in its group provides a check that no CEA has deviated from its proper position within the group.

C.1

Condition C applies if the CPC channel B or C cabinet receives a high temperature alarm. There is one temperature sensor in each of the four CPC bays. Since CPC bays B and C also house CEAC calculators 1 and 2, respectively, a high temperature in either of these bays may also indicate a problem with the associated CEAC.

If a CPC channel B or C cabinet high temperature alarm is received, it is possible for the CEAC to be affected and not be completely reliable. Therefore, a CHANNEL FUNCTIONAL TEST must be performed within 12 hours [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 12 hours is adequate, considering the low probability of undetected failure, the consequences of failure, and the time required to perform a CHANNEL FUNCTIONAL TEST.

D.1

Condition D applies if an OPERABLE CEAC has three or more autorestarts in a 12 hour period.

CPCs and CEACs will attempt to autorestart if they detect a fault condition such as a calculator malfunction or loss of power. A successful autorestart restores the calculator to operation; however, excessive autorestarts might be indicative of a calculator problem.

BASES

ACTIONS (continued)

If a nonbypassed CEAC has three or more autorestarts, it may not be completely reliable. Therefore, a CHANNEL FUNCTIONAL TEST must be performed on the CEAC to ensure it is functioning properly. Based on plant operating experience, the Completion Time of 24 hours is adequate and reasonable to perform the test while still keeping the risk of operating in this condition at an acceptable level, since overt channel failure will most likely be indicated and annunciated by CPC online diagnostics. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

E.1

Condition E is entered when the Required Action and associated Completion Time of Condition B, C, or D are not met.

If the Required Actions associated with these Conditions cannot be completed within the required Completion Time, the reactor must be brought to a MODE where the Required Actions do not apply. The Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

----------REVIEWER'S NOTE----------
In order for a plant to take credit for topical reports as the basis for justifying Frequencies, topical reports must be supported by an NRC staff Safety Evaluation Report that establishes the acceptability of each topical report for that plant (Ref. 4).

SR 3.3.3.1

Performance of the CHANNEL CHECK once every 12 hours ensures that 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 approximately the same value.

Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying 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)

B.1

Condition B applies to one Initiation Logic channel, RTCB channel, or Manual Trip channel in MODES 1 and 2, since they have the same actions. MODES 3, 4, and 5, with the RTCBs shut, are addressed in Condition C. These Required Actions require opening the affected RTCBs. This removes the need for the affected channel by performing its associated safety function. With an RTCB open, the affected Functions are in one-out-of-two logic, which meets redundancy requirements, but testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing.

Required Action B.1 provides for opening the RTCBs associated with the inoperable channel within a Completion Time of 1 hour [or in accordance with the Risk Informed Completion Time Program]. This Required Action is conservative, since depressing the Manual Trip push button associated with either set of breakers in the other trip leg will cause a reactor trip. With this configuration, a single channel failure will not prevent a reactor trip. The allotted Completion Time is adequate for opening the affected RTCBs while maintaining the risk of having them closed at an acceptable level.

C.1

Condition C applies to the failure of one Initiation Logic channel, RTCB channel, or Manual Trip channel affecting the same trip leg in MODE 3, 4, or 5 with the RTCBs closed. The channel must be restored to OPERABLE status within 48 hours. If the inoperable channel cannot be restored to OPERABLE status within 48 hours, the affected RTCBs must be opened. In some cases, this condition may effect all of the RTCBs. This removes the need for the affected channel by performing its associated safety function. With the RTCBs open, the affected functions are in a one-out-of-two logic, which meets redundancy requirements.

The Completion Time of 48 hours is consistent with that of other RPS instrumentation and should be adequate to repair most failures.

Testing on the OPERABLE channels cannot be performed without causing a reactor trip unless the RTCBs in the inoperable channels are closed to permit testing.

BASES

ACTIONS (continued)

D.1

Condition D applies to the failure of both Manual Trip or Initiation Logic channels affecting the same trip leg. Since this will open two channels of RTCBs, this Condition is also applicable to channels in the same trip leg. This will open both sets of RTCBs in the affected trip leg, satisfying the Required Action of opening the affected RTCBs.

Of greater concern is the failure of the initiation circuit in a nontrip condition (e.g., due to two initiation K-relay failures). With only one Initiation Logic channel failed in a nontrip condition, there is still the redundant set of RTCBs in the trip leg. With both failed in a nontrip condition, the reactor will not trip automatically when required. In either case, the affected RTCBs must be opened immediately by using the appropriate Manual Trip push buttons, since each of the four push buttons opens one set of RTCBs, independent of the initiation circuitry. Caution must be exercised, since depressing the wrong push buttons may result in a reactor trip.

If two Manual Trip channels are inoperable and affecting the same trip leg, the associated RTCBs must be opened immediately to ensure Manual Trip capability is maintained. With the affected RTCBs open, any one of two Manual Trip push buttons being depressed will result in a reactor trip.

If the affected RTCB cannot be opened, Required Action E is entered. This would only occur if there is a failure in the Manual Trip circuitry or the RTCB(s).

E.1 and E.2

Condition E is entered if Required Actions associated with Condition A, B, or D are not met within the required Completion Time or, if for one or more Functions, more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel is inoperable for reasons other than Condition A or D.

If the RTCBs associated with the inoperable channel cannot be opened, the reactor must be shut down within 6 hours and all the RTCBs opened. A Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required plant conditions from full power conditions in an orderly manner and without challenging plant systems and for opening RTCBs. All RTCBs should then be opened, placing the plant in a MODE where the LCO does not apply and ensuring no CEA withdrawal occurs.

BASES

APPLICABILITY (continued)

In MODES 4, 5, and 6, automatic actuation of these Functions is not required because adequate time is available to evaluate plant conditions and respond by manually operating the ESF components if required, as addressed by LCO 3.3.6.

Several trips have operating bypasses, discussed in the preceding LCO section. The interlocks that allow these bypasses shall be OPERABLE whenever the RPS Function they support is OPERABLE.

ACTIONS

The most common causes of channel inoperability are 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 process instrument is set up for adjustment to bring it to within specification.

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 ESFAS bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition entered for the particular protection Function affected.

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. The Note has been added 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 and A.2

Condition A 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

BASES

ACTIONS (continued)

2. Containment Spray Actuation Signal Containment Pressure - High High Automatic SIAS

3. Containment Isolation Actuation Signal Containment Pressure - High Pressurizer Pressure - Low

4. Main Steam Isolation Signal Steam Generator Pressure - Low Containment Pressure - High

5. Recirculation Actuation Signal Refueling Water Storage Tank Level - Low

6. Emergency Feedwater Actuation Signal SG #1 (EFAS-1) Steam Generator Level - Low SG Pressure Difference - High Steam Generator Pressure - Low

7. Emergency Feedwater Actuation Signal SG #2 (EFAS-2) Steam Generator Level - Low SG Pressure Difference - High Steam Generator Pressure - Low

ESFAS coincidence logic is normally two-out-of-four.

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 [or in accordance with the Risk Informed Completion Time Program] (Required Action A.1).

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 and still ensures that the risk involved in operating with the failed channel is acceptable.

The failed channel must be restored to OPERABLE status prior to entering MODE 2 following the next MODE 5 entry. With a channel bypassed, the coincidence logic is now in a two-out-of-three configuration. In this configuration, common cause failure of dependent channels cannot prevent trip. The Completion Time of prior to entering MODE 2 following the next MODE 5 entry is based on adequate channel to channel independence, which allows a two-out-of-three channel operation, since no single failure will cause or prevent a reactor trip.

BASES

ACTIONS (continued)

B.1

Condition B applies to the failure of two channels of one or more input parameters in the following ESFAS automatic trip Functions:

1. Safety Injection Actuation Signal Containment Pressure - High Pressurizer Pressure - Low

2. Containment Spray Actuation Signal Containment Pressure - High High Automatic SIAS

3. Containment Isolation Actuation Signal Containment Pressure - High Pressurizer Pressure - Low

4. Main Steam Isolation Signal Steam Generator Pressure - Low Containment Pressure - High

5. Recirculation Actuation Signal Refueling Water Storage Tank Level - Low

6. Emergency Feedwater Actuation Signal SG #1 (EFAS-1) Steam Generator Level - Low SG Pressure Difference - High Steam Generator Pressure - Low

7. Emergency Feedwater Actuation Signal SG #2 (EFAS-2) Steam Generator Level - Low SG Pressure Difference - High Steam Generator Pressure - Low

With two inoperable channels, power operation may continue, provided one inoperable channel is placed in bypass and the other channel is placed in trip within 1 hour [or in accordance with the Risk Informed Completion Time Program]. With one channel of protective instrumentation bypassed, the ESFAS Function is in two-out-of-three logic in the bypassed input parameter, 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 Function in a one-out-of-two logic. If any of the other OPERABLE channels receives a trip signal, ESFAS actuation will occur.

BASES

ACTIONS (continued)

One of the two inoperable channels will need to be restored to OPERABLE status prior to the next required CHANNEL FUNCTIONAL TEST because channel surveillance testing on an OPERABLE channel requires that the OPERABLE channel be placed in bypass. However, it is not possible to bypass more than one ESFAS channel, and placing a second channel in trip will result in an ESFAS actuation. Therefore, if one ESFAS channel is in trip and a second channel is in bypass, a third inoperable channel would place the unit in LCO 3.0.3.

C.1, C.2.1, and C.2.2

Condition C applies to one automatic bypass removal channel inoperable. The only automatic bypass removal on an ESFAS is on the Pressurizer Pressure - Low signal. This bypass removal is shared with the RPS Pressurizer Pressure - Low bypass removal.

If the bypass removal channel for any operating bypass cannot be restored to OPERABLE status, the associated ESFAS channel may be considered OPERABLE only if the bypass is not in effect. Otherwise, the affected ESFAS channel must be declared inoperable, as in Condition A, and the bypass either removed or the bypass removal channel repaired. The Bases for the Required Actions and required Completion Times are consistent with Condition A.

D.1 and D.2

Otherwise, the affected ESFAS channels must be declared inoperable, as in Condition B, and either the bypass removed or the bypass removal channel repaired. The restoration of one affected bypassed automatic trip channel must be completed prior to the next CHANNEL FUNCTIONAL TEST or the plant must shut down per LCO 3.0.3, as explained in Condition B. Completion Times are consistent with Condition B.

BASES

ACTIONS (continued)

E.1 and E.2

If the Required Actions and associated Completion Times of Condition A, B, C, or D 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.

SURVEILLANCE REQUIREMENTS

SR 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 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.

The Frequency, about once every shift, is based on operating experience that demonstrates channel failure is rare. Since the probability of two random failures in redundant channels in any 12 hour period is low, the CHANNEL CHECK minimizes the chance of loss of protective function due to failure of redundant channels. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel OPERABILITY during normal operational use of displays associated with the LCO required channels.

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)

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.]

F~~E~~.1 and F~~E~~.2

~~If two associated Actuation Logic channels are inoperable, or i~~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.

G~~F~~.1 and G~~F~~.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 REQUIREMENTS

SR 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

APPLICABLE SAFETY ANALYSES (continued)

[For this unit, the Bases for the Allowable Values and trip setpoints are as follows:]

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 clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each DG - LOVS Function. 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 and A.2

Condition A applies if one channel is inoperable for one or more Functions per DG bus.

BASES

ACTIONS (continued)

If the channel cannot be restored to OPERABLE status, the affected channel should either be bypassed or tripped within 1 hour [or in accordance with the Risk Informed Completion Time Program] (Required Action A.1).

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, and interlocks prevent bypass of a second channel for the affected Function. 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 allows prior to entering MODE 2 following the next MODE 5 entry to repair the inoperable channel. If the channel cannot be restored to OPERABLE status, the plant cannot enter MODE 2 following the next MODE 5 entry. 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 prior to entering MODE 2 following the next MODE 5 entry Completion Time is based on adequate channel independence, which allows a two-out-of-three channel operation since no single failure will cause or prevent a reactor trip.

B.1 and B.2

Condition B applies if two channels are inoperable for one or more Functions.

If the channel cannot be placed in bypass or trip within 1 hour [or in accordance with the Risk Informed Completion Time Program], 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. This places the Function in one-out-of-two logic. The 1 hour Completion Time is sufficient to perform the Required Actions.

One of the two inoperable channels will need to be restored to OPERABLE status prior to the next required CHANNEL FUNCTIONAL TEST because channel surveillance testing on an OPERABLE channel requires that the OPERABLE channel be placed in bypass. However, it is not possible to bypass more than one DG - LOVS channel, and placing a second channel in trip will result in a loss of voltage diesel start signal. Therefore, if one DG - LOVS channel is in trip and a second channel is in bypass, a third inoperable channel would place the unit in LCO 3.0.3.

BASES

ACTIONS (continued)

After one channel is restored to OPERABLE status, the provisions of Condition A still apply to the remaining inoperable channel.

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 the 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 3.3.7.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the 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

ACTIONS (continued)

generally made during the performance of a CHANNEL FUNCTIONAL TEST when the process instrument is set up for adjustment to bring it within specification. If the trip setpoint is not within the Allowable Value, the channel is inoperable and the appropriate Conditions must be entered.

A.1, B.1, B.2, C.1, C.2.1, and C.2.2

Conditions A and C have been modified by a Note, which specifies that CREACS be placed manually in the toxic gas protection mode if the automatic transfer to the toxic gas protection mode is inoperable. [At this unit, the basis for this Note is as follows:]

Conditions A, B, and C are applicable to manual and automatic actuation of the CREACS by CRIS. Condition A applies to the failure of the CRIS Manual Trip, Actuation Logic, and required [particulate/iodine and required gaseous radiation monitor channels] in MODE 1, 2, 3, or 4. Entry into this Condition requires action to either restore the failed channel(s) or manually perform the CRIS safety function (Required Action A.1). The Completion Time of 1 hour is sufficient to complete the Required Actions and accounts for the fact that CRIS supplements control room isolation by other Functions (e.g., SIAS) in MODES 1, 2, 3, and 4. [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, 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 (Required Action B.1) and to MODE 5 within 36 hours (Required Action B.2). The Completion Times of 6 hours and 36 hours for reaching MODES 3 and 5 from MODE 1 are reasonable, based on operating experience and normal cooldown rates, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant safety systems or operators.

Condition C applies to the failure of CRIS Manual Trip, Actuation Logic, and required particulate/iodine and required gaseous radiation monitor channels [in MODE 5 or 6] or when moving [recently] irradiated assemblies. The Required Actions are immediately taken to place one OPERABLE CREACS train in the emergency radiation protection mode, or to suspend positive reactivity additions and movement of [recently] irradiated fuel assemblies. The Completion Time recognizes the fact that the radiation signals are the only Functions available to initiate control room isolation in the event of a fuel handling accident [involving handling recently irradiated fuel].

BASES

ACTIONS (continued)

Required Action [C.2.2 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.

SURVEILLANCE REQUIREMENTS

SR 3.3.9.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value.

Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

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

The Frequency, about once every shift, is based on operating experience that demonstrates the rarity of channel failure. Since the probability of two random failures in redundant channels in any 12 hour period is low, the CHANNEL CHECK minimizes the chance of loss of protective function due to failure of redundant channels. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel OPERABILITY during normal operational use of the displays associated with the LCO required channels.

At this unit, the following administrative controls and design features (e.g., downscale alarms) immediately alert operations to loss of function in the nonredundant channels.

[At this unit, verification of sample system alignment and operation for gaseous, particulate, and iodine monitors is required as follows:]

BASES

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

An FHIS 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 not large and would result in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a CHANNEL FUNCTIONAL TEST when the process instrument is set up for adjustment to bring it within specification. If the trip setpoint is not consistent with the Allowable Value in LCO 3.3.10, the channel must be declared inoperable immediately 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 sensor, instrument loop, signal processing electronics, or bistable is found inoperable, then all affected Functions provided by that channel are required to be declared inoperable and the LCO Condition entered for the particular protective function affected.

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, B.1, and B.2

Conditions A and B apply only to those plants whose fuel building HVAC is shared with an ESF equipment room.

Condition A applies to FHIS Manual Trip, Actuation Logic, and required [particulate/iodine and gaseous radiation monitors] inoperable.

BASES

ACTIONS (continued)

The Required Actions are to restore the affected channels to OPERABLE status or place one OPERABLE FBACS train in operation within 1 hour [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 1 hour is sufficient to perform the Required Actions. The Completion Time accounts for the fact that the FHIS radiation monitors are the only signals available to automatically initiate the FBACS to mitigate radiation releases in the fuel building and credits the relatively lower likelihood of such events when irradiated fuel is not being moved.

Condition B applies if the affected channels cannot be restored to OPERABLE status or one OPERABLE FBACS train cannot be placed in operation. If the channels cannot be restored to OPERABLE status, 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 MODE from full power conditions in an orderly manner and without challenging plant systems.]

C.1 and C.2

Condition C applies to FHIS Manual Trip, Actuation Logic, and required [particulate/iodine and] gaseous radiation monitor inoperable during movement of [recently] irradiated fuel in the fuel building.

The Required Actions are to restore required channels to OPERABLE status, or place one OPERABLE FBACS train in operation, or suspend movement of [recently] irradiated fuel in the fuel building. These Required Actions are required to be completed immediately. The Completion Time accounts for the higher likelihood of releases in the fuel building during fuel handling.

SURVEILLANCE REQUIREMENTS

SR 3.3.10.1

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.

BASES

LCO (continued)

In the case of Containment Isolation Valve Position, the important information is the status of the containment penetrations. The LCO requires one position indicator for each active containment isolation valve. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active valve and prior knowledge of the passive valve or via system boundary status. If a normally active containment isolation valve is known to be closed and deactivated, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE.

APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and preplanned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, plant conditions are such that the likelihood of an event occurring that would require PAM instrumentation is low; therefore, PAM instrumentation is not required to be OPERABLE in these MODES.

ACTIONS

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 Table 3.3.11-1. 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

When one or more Functions have one required channel that is inoperable, the required inoperable channel must be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channel (or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval.

BASES

ACTIONS (continued)

B.1

This Required Action specifies initiation of actions in accordance with Specification 5.6.5, which requires a written report to be submitted to the Nuclear Regulatory Commission. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative Required Actions. This Required Action is appropriate in lieu of a shutdown requirement, given the likelihood of plant conditions that would require information provided by this instrumentation. Also, alternative Required Actions are identified before a loss of functional capability condition occurs.

C.1

When one or more Functions have two required channels inoperable (i.e., two channels inoperable in the same Function), one channel in the Function should be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrumentation operation and the availability of alternate means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur.

D.1

This Required Action directs entry into the appropriate Condition referenced in Table 3.3.11-1. The applicable Condition referenced in the Table is Function dependent. Each time Required Action C.1 is not met, and the associated Completion Time has expired, Condition D is entered for that channel and provides for transfer to the appropriate subsequent Condition.

BASES

ACTIONS (continued)

E.1 and E.2

If the Required Action and associated Completion Time of Condition C are not met and Table 3.3.11-1 directs entry into Condition E, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

[F.1

At this plant, alternate means of monitoring Reactor Vessel Water Level and Containment Area Radiation have been developed and tested. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. If these alternate means are used, the Required Action is not to shut down the plant, but rather to follow the directions of Specification 5.6.5. The report provided to the NRC should discuss whether the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.]

SURVEILLANCE REQUIREMENTS

A Note at the beginning of the SR Table specifies thatthe following SRs apply to each PAM instrumentation Function found in Table 3.3.11-1.

SR 3.3.11.1

Performance of the CHANNEL CHECK once every 31 days 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 the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

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 REQUIREMENTS

SR 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

LCO (continued)

The LCO requires [two groups of] OPERABLE pressurizer heaters, [each] with a capacity ≥ [150] kW [and capable of being powered from an emergency power supply]. The minimum heater capacity required is sufficient to maintain the RCS near normal operating pressure when accounting for heat losses through the pressurizer insulation. By maintaining the pressure near the operating conditions, a wide subcooling margin to saturation can be obtained in the loops. The exact design value of [150] kW is derived from the use of 12 heaters rated at 12.5 kW each. The amount needed to maintain pressure is dependent on the ambient heat losses.

APPLICABILITY

The need for pressure control is most pertinent when core heat can cause the greatest effect on RCS temperature resulting in the greatest effect on pressurizer level and RCS pressure control. Thus, Applicability has been designated for MODES 1 and 2. The Applicability is also provided for MODE 3. The purpose is to prevent solid water RCS operation during heatup and cooldown to avoid rapid pressure rises caused by normal operational perturbation, such as reactor coolant pump startup. The LCO does not apply to MODE 5 (Loops Filled) because LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," applies. The LCO does not apply to MODES 5 and 6 with partial loop operation.

In MODES 1, 2, and 3, there is the 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 gives 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 Shutdown Cooling System is in service and therefore the LCO is not applicable.

ACTIONS

A.1 and A.2

With pressurizer water level not within the limit, action must be taken to restore the plant to operation within the bounds of the safety analyses. To achieve this status, the unit must be brought to MODE 3, with the reactor trip breakers open, within 6 hours and to MODE 4 within [12] hours. This takes the plant out of the applicable MODES and restores the plant to operation within the bounds of the safety analyses.

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.

C.1

With two [required] groups of pressurizer heaters inoperable, the Required Action is to restore at least one [required] inoperable pressurizer heaters group 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 at least one [required] group of pressurizer heaters. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D~~C~~.1 and D~~C~~.2

If one or two~~[required]~~ groups 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

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 insurges, and thereby removes the need for overpressure protection by [two] pressurizer safety valves.

SURVEILLANCE REQUIREMENTS

SR 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 ± [3]% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

REFERENCES

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

BASES

LCO

The LCO requires the PORV and its associated block valve to be OPERABLE. The block valve is required to be OPERABLE so it may be used to isolate the flow path if the PORV is not OPERABLE.

Valve OPERABILITY also means the PORV setpoint is correct. By ensuring that the PORV opening setpoint is correct, the PORV is not subject to frequent challenges from possible pressure increase transients, and therefore the possibility of a small break LOCA through a failed open PORV is not a frequent event.

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. A likely cause for PORV small break LOCA is a result of pressure increase transients that cause 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. Pressure increase transients can occur any time the steam generators are used for heat removal. The most rapid increases will occur at higher operating power and pressure conditions of MODES 1 and 2.

Pressure increases are less prominent in MODE 3 because the core input energy is reduced, but the RCS pressure is high. Therefore, this LCO is applicable in MODES 1, 2, and 3. The LCO is not applicable in MODE 4 when both pressure and core energy are decreased and the pressure surges become much less significant. The PORV setpoint is reduced for LTOP in MODES 4, 5, and 6 with the reactor vessel head in place. LCO 3.4.12 addresses the PORV requirements in these MODES.

ACTIONS

The ACTIONS are modified by a Note. The Note clarifies 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).

A.1

With the PORV inoperable and capable of being manually cycled, either the PORV must be restored or the flow path isolated within 1 hour. The block valve should be closed but power must be maintained to the associated block valve, since removal of power would render the block valve inoperable. Although the PORV may be designated inoperable, it may be able to be manually opened and closed and in this manner can be used to perform its function. PORV inoperability may be due to seat leakage, instrumentation problems, automatic control problems, or other causes that do not prevent manual use and do not create a possibility for

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.

E.1, E.2, ~~E.3,~~ and E.~~3~~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

LCO (continued)

Reference 7 permits leakage testing at a lower pressure differential than between the specified maximum RCS pressure and the normal pressure of the connected system during RCS operation (the maximum pressure differential) in those types of valves in which the higher service pressure will tend to diminish the overall leakage channel opening. In such cases, the observed rate may be adjusted to the maximum pressure differential by assuming leakage is directly proportional to the pressure differential to the one half power.

APPLICABILITY

In MODES 1, 2, 3, and 4, this LCO applies because the PIV leakage potential is greatest when the RCS is pressurized. In MODE 4, valves in the SDC flow path are not required to meet the requirements of this LCO when in, or during the transition to or from, the SDC mode of operation.

In MODES 5 and 6, leakage limits are not provided because the lower reactor coolant pressure results in a reduced potential for leakage and for a LOCA outside the containment.

ACTIONS

The Actions are modified by two Notes. Note 1 is added to provide clarification that each flow path allows separate entry into a Condition. This is allowed based on the functional independence of the flow path. Note 2 requires an evaluation of affected systems if a PIV is inoperable. The leakage may have affected system operability or isolation of a leaking flow path with an alternate valve may have degraded the ability of the interconnected system to perform its safety function.

A.1 and A.2

The flow path must be isolated by two valves. Required Actions A.1 and A.2 are modified by a Note stating that the valves used for isolation must meet the same leakage requirements as the PIVs and must be in the RCPB [or the high pressure portion of the system].

Required Action A.1 requires that the isolation with one valve must be performed within 4 hours [or in accordance with the Risk Informed Completion Time Program]. Four hours provides time to reduce leakage in excess of the allowable limit and to isolate if leakage cannot be reduced. The 4 hours allows the actions and restricts the operation with leaking isolation valves.

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.

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

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

LCO

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

The LCO is satisfied when monitors of diverse measurement means are available. Thus, the containment sump monitor, in combination with a particulate or gaseous radioactivity monitor [and a containment air cooler condensate flow rate monitor], provides an acceptable minimum.

APPLICABILITY

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

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

ACTIONS

A.1 and A.2

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

However, the containment atmosphere radioactivity monitor will provide indications of changes in leakage. Together with the atmosphere monitor, the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and [RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

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

BASES

ACTIONS (continued)

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

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

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

The 24 hour interval provides periodic information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and [RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. The 30 day Completion Time recognizes at least one other form of leakage detection is available.

[C.1 and C.2

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

The 24 hour interval provides periodic information that is adequate to detect RCS LEAKAGE. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and [RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

BASES

ACTIONS (continued)

D.1 and D.2

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

E.1

With all required monitors inoperable, no automatic means of monitoring leakage are available. The Required Action is to restore at least one of the required inoperable monitors to OPERABLE status within 1 hour to regain a method of leakage detection. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required monitor. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

F.1 and F ~~E~~.2

If any Required Action of Condition A, B, [C],[D], or [E~~D~~] cannot be met within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

~~F.1~~

~~If all required monitors are inoperable, no automatic means of monitoring leakage are available and immediate plant shutdown in accordance with LCO 3.0.3 is required.~~

SURVEILLANCE REQUIREMENTS

SR 3.4.15.1

BASES

LCO (continued)

The operational LEAKAGE performance criterion provides an observable indication of SG tube conditions during plant operation. The limit on operational LEAKAGE is contained in LCO 3.4.13, "RCS Operational LEAKAGE," and limits primary to secondary LEAKAGE through any one SG to 150 gallons per day. This limit is based on the assumption that a single crack leaking this amount would not propagate to a SGTR under the stress conditions of a LOCA or a main steam line break. If this amount of LEAKAGE is due to more than one crack, the cracks are very small, and the above assumption is conservative.

APPLICABILITY

Steam generator tube integrity is challenged when the pressure differential across the tubes is large. Large differential pressures across SG tubes can only be experienced in MODE 1, 2, 3, or 4.

RCS conditions are far less challenging in MODES 5 and 6 than during MODES 1, 2, 3, and 4. In MODES 5 and 6, primary to secondary differential pressure is low, resulting in lower stresses and reduced potential for LEAKAGE.

ACTIONS

The ACTIONS are modified by a Note clarifying that the Conditions may be entered independently for each SG tube. This is acceptable because the Required Actions provide appropriate compensatory actions for each affected SG tube. Complying with the Required Actions may allow for continued operation, and subsequent affected SG tubes are governed by subsequent Condition entry and application of associated Required Actions.

A.1 and A.2

Condition A applies if it is discovered that one or more SG tubes examined in an inservice inspection satisfy the tube repair criteria but were not plugged [or repaired] in accordance with the Steam Generator Program as required by SR 3.4.18.2. An evaluation of SG tube integrity of the affected tube(s) must be made. Steam generator tube integrity is based on meeting the SG performance criteria described in the Steam Generator Program. The SG repair criteria define limits on SG tube degradation that allow for flaw growth between inspections while still providing assurance that the SG performance criteria will continue to be met. In order to determine if a SG tube that should have been plugged [or repaired] has tube integrity, an evaluation must be completed that demonstrates that the SG performance criteria will continue to be met until the next refueling outage or SG tube inspection. The tube integrity

BASES

ACTIONS (continued)

determination is based on the estimated condition of the tube at the time the situation is discovered and the estimated growth of the degradation prior to the next SG tube inspection. If it is determined that tube integrity is not being maintained, Condition B applies.

A Completion Time of 7 days is sufficient to complete the evaluation while minimizing the risk of plant operation with a SG tube that may not have tube integrity. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

If the evaluation determines that the affected tube(s) have tube integrity, Required Action A.2 allows plant operation to continue until the next refueling outage or SG inspection provided the inspection interval continues to be supported by an operational assessment that reflects the affected tubes. However, the affected tube(s) must be plugged [or repaired] prior to entering MODE 4 following the next refueling outage or SG inspection. This Completion Time is acceptable since operation until the next inspection is supported by the operational assessment.

B.1 and B.2

If the Required Actions and associated Completion Times of Condition A are not met or if SG tube integrity is not being maintained, the reactor must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours.

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

SURVEILLANCE REQUIREMENTS

SR 3.4.18.1

During shutdown periods the SGs are inspected as required by this SR and the Steam Generator Program. NEI 97-06, Steam Generator Program Guidelines (Ref. 1), and its referenced EPRI Guidelines, establish the content of the Steam Generator Program. Use of the Steam Generator Program ensures that the inspection is appropriate and consistent with accepted industry practices.

During SG inspections a condition monitoring assessment of the SG tubes is performed. The condition monitoring assessment determines the "as found" condition of the SG tubes. The purpose of the condition monitoring assessment is to ensure that the SG performance criteria have been met for the previous operating period.

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)

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.]

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.

~~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 REQUIREMENTS

SR 3.5.1.1

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

SR 3.5.1.2 and SR 3.5.1.3

SIT borated water volume and nitrogen cover pressure should be verified to be within specified limits every 12 hours in order to ensure adequate injection during a LOCA. Due to the static design of the SITs, a 12 hour

BASES

APPLICABILITY

In MODES 1 and 2, and in MODE 3 with RCS pressure ≥ 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 ≥ 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)

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.

D~~C~~.1 and D~~C~~.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.

~~D.1~~

~~Condition 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. 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

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 ≥ 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

ACTIONS (continued)

B.1

When the Required Action cannot be completed within the required Completion Time, a controlled shutdown should be initiated. Twenty-four hours is reasonable, based on operating experience, to reach MODE 5 in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 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

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

APPLICABILITY

In MODES 1, 2, and 3, the RCS is at elevated temperature and pressure, providing an energy potential for a LOCA. The potential for a LOCA results in a need for the ability to control the pH of the recirculated coolant.

In MODES 4, 5, and 6, the potential for a LOCA is reduced or nonexistent, and TSP is not required.

ACTIONS

A.1

If it is discovered that the TSP in the containment building sump is not within limits, action must be taken to restore the TSP to within limits. During plant operation the containment sump is not accessible and corrections may not be possible.

The Completion Time of 72 hours is allowed for restoring the TSP within limits, where possible, because 72 hours is the same time allowed for restoration of other ECCS components. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

B.1 and B.2

If the TSP cannot be restored within limits within the Completion Time of Required Action A.1, the plant must be brought to a MODE in which the LCO does not apply. The specified Completion Times for reaching MODES 3 and 4 are those used throughout the Technical Specifications; they were chosen to allow reaching the specified conditions from full power in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.5.5.1

Periodic determination of the volume of TSP in containment must be performed due to the possibility of leaking valves and components in the containment building that could cause dissolution of the TSP during normal operation. A Frequency of 18 months is required to determine visually that a minimum of [291] cubic feet is contained in the TSP baskets. This requirement ensures that there is an adequate volume of TSP to adjust the pH of the post LOCA sump solution to a value ≥ 7.0.

The periodic verification is required every 18 months, since access to the TSP baskets is only feasible during outages, and normal fuel cycles are scheduled for 18 months. Operating experience has shown this Surveillance Frequency acceptable due to the margin in the volume of TSP placed in the containment building.

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment air locks are not required in MODE 5 to prevent leakage of radioactive material from containment. The requirements for the containment air locks during MODE 6 are addressed in LCO 3.9.3, "Containment Penetrations."

ACTIONS

The ACTIONS are modified by a Note that allows entry and exit to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed for most repairs. It is preferred that the air lock be accessed from inside primary containment by entering through the other OPERABLE air lock. However, if this is not practicable, or if repairs on either door must be performed from the barrel side of the door then it is permissible to enter the air lock through the OPERABLE door, which means there is a short time during which the containment boundary is not intact (during access through the OPERABLE door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable because of 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. A third Note has been included that requires entry into the applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when leakage results in exceeding the overall containment leakage limit.

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

With one air lock door inoperable in one or more containment air locks, 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.

BASES

ACTIONS (continued)

In addition, the affected air lock penetration must be isolated by locking closed an OPERABLE air lock door within the 24 hour Completion Time. The 24 hour Completion Time is considered 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 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 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 was 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.

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 REQUIREMENTS

SR 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.

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.

BASES

APPLICABLE SAFETY ANALYSES (continued)

Containment Spray System. The LCO limit of [-0.3] psig ensures that operation within the design limit of [-0.5] psig is maintained. The maximum calculated external pressure that would occur as a result of an inadvertent actuation of the Containment Spray System is [2.8] psig.

Containment pressure satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

Maintaining containment pressure less than or equal to the LCO upper pressure limit ensures that, in the event of a DBA, the resultant peak containment accident pressure will remain below the containment design pressure. Maintaining containment pressure greater than or equal to the LCO lower pressure limit ensures that the containment will not exceed the design negative pressure differential following the inadvertent actuation of the Containment Spray System.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. Since maintaining containment pressure within limits is essential to ensure initial conditions assumed in the accident analysis are maintained, 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, maintaining containment pressure within the limits of the LCO is not required in MODE 5 or 6.

ACTIONS

A.1

When containment pressure is not within the limits of the LCO, containment pressure must be restored to within these limits within 1 hour [or 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.

B.1 and B.2

If containment pressure 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 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	Maintaining containment pressure less than or equal to the LCO upper pressure limit ensures that, in the event of a DBA, the resultant peak containment accident pressure will remain below the containment design pressure. Maintaining containment pressure greater than or equal to the LCO lower pressure limit ensures the containment will not exceed the design negative differential pressure following the inadvertent actuation of the Containment Spray System.
APPLICABILITY	In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. Since maintaining containment pressure within limits is essential to ensure initial conditions assumed in the accident analysis are maintained, 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.
ACTIONS	A.1 When containment pressure is not within the limits of the LCO, containment pressure must be restored to within these limits within 1 hour [or 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. B.1 and B.2 If containment pressure 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 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 3.6.4B.1 Verifying that containment pressure is within limits ensures that facility operation remains within the limits assumed in the containment analysis. The 12 hour Frequency of this SR was developed after taking into consideration operating experience related to trending of containment pressure variations during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment pressure condition.

BASES

APPLICABLE SAFETY ANALYSES (continued)

containment steel liner and concrete structure reach approximately 230°F and 220°F, respectively. The containment average air temperature limit of [120]°F ensures that, in the event of an accident, the maximum design temperature for containment, [300]°F, is not exceeded. The consequence of exceeding this design temperature may be the potential for degradation of the containment structure under accident loads.

For dual containment, the initial containment condition of [120]°F resulted in a maximum vapor temperature in containment of [413.5]°F. The temperature of the containment steel pressure vessel also reaches approximately [413.5]°F. The containment average temperature limit of [120]°F ensures that, in the event of an accident, the maximum design temperature for containment of [269.3]°F during LOCA conditions and [413.5]°F during MSLB conditions is not exceeded. The consequences of exceeding this design temperature may be the potential for degradation of the containment structure under accident loads.]

Containment average air temperature satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

During a DBA, with an initial containment average air temperature less than or equal to the LCO temperature limit, the resultant accident temperature profile assures that the containment structural temperature is maintained below its design temperature and that required safety related equipment will continue to perform its function.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment average air temperature within the limit is not required in MODE 5 or 6.

ACTIONS

A.1

When containment average air temperature is not within the limit of the LCO, it must be restored to within limit within 8 hours [or in accordance with the Risk Informed Completion Time Program]. This Required Action is necessary to return operation to within the bounds of the containment analysis. The 8 hour Completion Time is acceptable considering the sensitivity of the analysis to variations in this parameter and provides sufficient time to correct minor problems.

BASES

ACTIONS (continued)

B.1 and B.2

If the containment average air temperature cannot be restored to within its limit 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 3.6.5.1

Verifying that containment average air temperature is within the LCO limit ensures that containment operation remains within the limit assumed for the containment analyses. In order to determine the containment average air temperature, an arithmetic average is calculated using measurements taken at locations within the containment selected to provide a representative sample of the overall containment atmosphere. The 24 hour Frequency of this SR is considered acceptable based on the observed slow rates of temperature increase within containment as a result of environmental heat sources (due to the large volume of containment). 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 containment temperature condition.

REFERENCES

1. FSAR, Section [ ].

2. FSAR, Section [ ].

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 [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 [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)

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.

G~~F~~.1 and G~~F~~.2

If the Required Actions and associated Completion Times of Condition C, D, E, or F~~E~~ 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.

~~G.1~~

~~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 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 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

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.

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.

G~~F~~.1 and G~~F~~.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.

~~G.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

BASES

ACTIONS

A.1

With the Spray Additive System inoperable, the system must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The pH adjustment of the containment spray flow for corrosion protection and iodine removal enhancement are reduced in this condition. The Containment Spray System would still be available and would remove some iodine from the containment atmosphere in the event of a DBA. The 72 hour Completion Time takes into account the redundant flow path capabilities and the low probability of the worst case DBA occurring during this period.

B.1 and B.2

If the Spray Additive System 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 restoration of the Spray Additive System and is reasonable when considering the reduced pressure and temperature conditions in MODE 3 for the release of radioactive material from the Reactor Coolant System.

SURVEILLANCE REQUIREMENTS

SR 3.6.7.1

Verifying the correct alignment of Spray Additive System manual, power operated, and automatic valves in the spray additive flow path provides assurance that the system is able to provide additive to the Containment Spray System in the event of a DBA. 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. 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

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could lead to fission product release to containment that leaks to the shield building. The large break LOCA, on which this system's design is based, is a full power event. Less severe LOCAs and leakage still require the system to be OPERABLE throughout these MODES. The probability and severity of a LOCA decrease as core power and Reactor Coolant System pressure decrease. With the reactor shut down, the probability of release of radioactivity resulting from such an accident is low.

In MODES 5 and 6, the probability and consequences of a DBA are low due to the pressure and temperature limitations in these MODES. Under these conditions, the Filtration System is not required to be OPERABLE.

ACTIONS

A.1

With one SBEACS train inoperable, the inoperable 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 100% of the iodine removal needs after a DBA. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE redundant SBEACS train and the low probability of a DBA occurring during this period.

B.1 and B.2

If the SBEACS 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 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 3.6.8.1

Operating each SBEACS train 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. For systems with heaters, operation with the heaters on (automatic heater cycling to maintain temperature) for ≥ 10 continuous hours eliminates moisture on the adsorbers and HEPA filters. Experience from filter testing at operating units indicates that the 10 hour period is adequate for moisture

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 (continued)

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 REQUIREMENTS

SR 3.6.9.1

Operating each HMS train for ≥ 15 minutes ensures that the 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.

SR 3.6.9.2

Verifying that each HMS train flow rate on slow speed is ≥ [37,000] cfm ensures that each train is capable of maintaining localized 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, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.6.9.3

This SR ensures that the HMS responds properly to a CCAS. 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, the Frequency was concluded to be acceptable from a reliability standpoint.

BASES

APPLICABLE SAFETY ANALYSES

The DBAs that result in a release of radioactive iodine within containment are a loss of coolant accident (LOCA), a main steam line break (MSLB), or a control element assembly (CEA) ejection accident. In the analysis for each of these accidents, it is assumed that adequate containment leak tightness is intact at event initiation to limit potential leakage to the environment. Additionally, it is assumed that the amount of radioactive iodine release is limited by reducing the iodine concentration in the containment atmosphere.

The ICS design basis is established by the consequences of the limiting DBA, which is a LOCA. The accident analysis (Ref. 4) assumes that only one train of the ICS is functional due to a single failure that disables the other train. The accident analysis accounts for the reduction in airborne radioactive iodine provided by the remaining one train of this filtration system.

The ICS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two separate, independent, and redundant trains of the ICS are required to ensure that at least one is available, assuming a single failure coincident with a loss of offsite power.

APPLICABILITY

In MODES 1, 2, 3, and 4, iodine is a fission product that can be released from the fuel to the reactor coolant as a result of a DBA. The DBAs that can cause a failure of the fuel cladding are a LOCA, MSLB, and CEA ejection accident. Because these accidents are considered credible accidents in MODES 1, 2, 3, and 4, the ICS must be operable in these MODES to ensure the reduction in iodine concentration assumed in the accident analysis.

In MODES 5 and 6, the probability and consequences of a LOCA are low due to the pressure and temperature limitations of these MODES. The ICS is not required in these MODES to remove iodine from the containment atmosphere.

ACTIONS

A.1

With one ICS train inoperable, the inoperable 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 100% of the iodine removal needs after a DBA. The 7 day Completion Time is based on consideration of such factors as:

a. The availability of the OPERABLE redundant ICS train,

BASES

ACTIONS (continued)

b. The fact that, even with no ICS train in operation, almost the same amount of iodine would be removed from the containment atmosphere through absorption by the Containment Spray System, and

c. The fact that the Completion Time is adequate to make most repairs.

B.1 ~~and B.2~~

With two ICS trains inoperable, the Required Action is to restore at least one of the inoperable ICS trains to OPERABLE status within 1 hour to regain a method of fission product reduction. 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.]"

C.1 and C.2

If the ICS 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 3.6.10.1

Operating each ICS train 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. For systems with heaters, operation with the heaters on (automatic heater cycling to maintain temperature) for ≥ 10 continuous hours eliminates moisture on the adsorbers and HEPA filters. Experience from filter testing at operating units indicates that the 10 hour period is adequate for moisture elimination on the adsorbers and HEPA filters. The 31 day Frequency was developed considering the known reliability of fan motors and controls, the two train redundancy available, and the iodine removal capability of the Containment Spray System independent of the ICS.

BASES

ACTIONS

A.1

In the event shield building OPERABILITY is not maintained, shield building OPERABILITY must be restored within 24 hours [or in accordance with the Risk Informed Completion Time Program].

Twenty-four hours is a reasonable Completion Time considering the limited leakage design of the containment and the low probability of a DBA occurring during this time period.

B.1 and B.2

If the shield building 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 3.6.11.1

Verifying that shield building annulus pressure is within limit ensures that operation remains within the limit assumed in the containment analysis. The 12 hour Frequency of this SR was developed considering operating experience related to shield building annulus pressure variations and pressure instrument drift during the applicable MODES.

SR 3.6.11.2

Maintaining shield building OPERABILITY requires verifying one door in the access opening closed. [An access opening may contain one inner and one outer door, or in some cases, shield building access openings are shared such that a shield building barrier may have multiple inner or multiple outer doors. The intent is to not breach the shield building boundary at any time when the shield building boundary is required. This is achieved by maintaining the inner or outer portion of the barrier closed at all times.] However, all shield building access doors are normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on an access opening. The Frequency of 31 days is based on engineering judgment and is considered adequate in view of other indications of door status available to the operator.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The vacuum relief valves must also perform the containment isolation function in a containment high pressure event. For this reason, the system is designed to take the full containment positive design pressure and the containment design basis accident (DBA) environmental conditions (temperature, pressure, humidity, radiation, chemical attack, etc.) associated with the containment DBA.

The vacuum relief valves satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO establishes the minimum equipment required to accomplish the vacuum relief function following the inadvertent actuation of the Containment Spray System. Two vacuum relief lines are required to be OPERABLE to ensure that at least one is available, assuming one or both valves in the other line fail to open.

APPLICABILITY

In MODES 1, 2, 3, and 4, the containment cooling features, such as the Containment Spray System, are required to be OPERABLE to mitigate the effects of a DBA. Excessive negative pressure inside containment could occur whenever these systems are required to be OPERABLE due to inadvertent actuation of these systems. Therefore, the vacuum relief lines are required to be OPERABLE in MODES 1, 2, 3, and 4 to mitigate the effects of inadvertent actuation of the Containment Spray System or Containment Cooling System.

In MODES 5 and 6, the probability and consequences of a DBA are reduced due to the pressure and temperature limitations of these MODES. The Containment Spray System and Containment Cooling System are not required to be OPERABLE in MODES 5 and 6. Therefore, maintaining OPERABLE vacuum relief lines is not required in MODE 5 or 6.

ACTIONS

A.1

With one of the required vacuum relief lines inoperable, the inoperable line must be restored to OPERABLE status within 72 hours [or in accordance with the Risk Informed Completion Time Program]. The specified time period is consistent with other LCOs for the loss of one train of a system required to mitigate the consequences of a LOCA or other DBA.

BASES

ACTIONS (continued)

B.1 ~~and B.2~~

With two vacuum relief lines inoperable, the Required Action is to restore at least one of the inoperable vacuum relief lines to OPERABLE status within 1 hour to regain containment vessel negative pressure protection. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one vacuum relief line. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]"

C.1 and C.2

If the vacuum relief line(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 3.6.12.1

This SR references the Inservice Testing Program, which establishes the requirement that inservice testing of the ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with the ASME Boiler and Pressure Vessel Code and applicable Addenda (Ref. 2). Therefore, SR Frequency is governed by the Inservice Testing Program.

REFERENCES

1. FSAR, Section [6.2].

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

BASES

APPLICABILITY

In MODE 1, a minimum of two MSSVs per steam generator are required to be OPERABLE, according to Table 3.7.1-1 in the accompanying LCO, which is limiting and bounds all lower MODES. In MODES 2 and 3, both the ASME Code and the accident analysis require only one MSSV per steam generator to provide overpressure protection.

In MODES 4 and 5, there are no credible transients requiring the MSSVs.

The steam generators are not normally used for heat removal in MODES 5 and 6, and thus cannot be overpressurized; there is no requirement for the MSSVs to be OPERABLE in these MODES.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each MSSV.

A.1 and A.2

An alternative to restoring the inoperable MSSV(s) to OPERABLE status is to reduce power so that the available MSSV relieving capacity meets Code requirements for the power level. Operation may continue provided the allowable THERMAL POWER is equal to the product of: 1) the ratio of the number of MSSVs available per steam generator to the total number of MSSVs per steam generator, and 2) the ratio of the available relieving capacity to total steam flow, multiplied by 100%.

$$\text{Allowable THERMAL POWER} = \left(\frac{8 - N}{8}\right) \times 109.2$$

With one or more MSSVs inoperable, the ceiling on the variable overpower trip is reduced to an amount over the allowable THERMAL POWER equal to the band given for this trip, according to Table 3.7.1-1 in the accompanying LCO.

SP = Allowable THERMAL POWER + 9.8

where:

SP = Reduced reactor trip setpoint in percent RTP. This is a ratio of the available relieving capacity over the total steam flow at rated power.

8 = Total number of MSSVs per steam generator.

N = Number of inoperable MSSVs on the steam generator with the greatest number of inoperable valves.

BASES

ACTIONS (continued)

109.2 = Ratio of MSSV relieving capacity at 110% steam generator design pressure to calculated steam flow rate at 100% RTP + 2% instrument uncertainty expressed as a percentage (see text above).

9.8 = Band between the maximum THERMAL POWER and the variable overpower trip setpoint ceiling (Table 3.7.1-1).

The operator should limit the maximum steady state power level to some value slightly below this setpoint to avoid an inadvertent overpower trip.

The 4 hour Completion Time for Required Action A.1 is a reasonable time period to reduce power level and is based on the low probability of an event occurring during this period that would require activation of the MSSVs. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] An additional 32 hours is allowed in Required Action A.2 to reduce the setpoints. The Completion Time of 36 hours for Required Action A.2 is based on a reasonable time to correct the MSSV inoperability, the time required to perform the power reduction, operating experience in resetting all channels of a protective function, and on the low probability of the occurrence of a transient that could result in steam generator overpressure during this period. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

B.1

With one or more steam generators with less than [2] MSSVs OPERABLE, the Required Action is to restore sufficient required MSSVs to OPERABLE status within 1 hour to provide overpressure protection for the secondary system. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient MSSVs. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C~~B~~.1 and C~~B~~.2

If the MSSVs cannot be restored to OPERABLE status in the associated Completion Time, ~~or if one or more steam generators have less than two MSSVs OPERABLE,~~ the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within [12] hours. The allowed Completion Times are reasonable, based on operating

experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1

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

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.

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.]

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~~.~~. [Similar to Condition A, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

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 following closure 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 REQUIREMENTS

SR 3.7.2.1

This SR verifies that the closure time of each MSIV is ≤ [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

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each value.

A.1 and A.2

With one MFIV or the bypass valve inoperable, action must be taken to close or isolate the inoperable valves within [8 or 72] hours [or in accordance with the Risk Informed Completion Time Program]. When these valves are closed or isolated, they are performing their required safety function (e.g., to isolate the line).

For units with only one MFIV per feedwater line: The [8] hour Completion Time is reasonable to close the MFIV or its bypass valve, which includes performing a controlled unit shutdown to MODE 2.

The [72] hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves, and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths.

Inoperable MFIVs and [MFIV] bypass valves that cannot be restored to OPERABLE status within the Completion Time, but are closed or isolated, must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day following closure or isolation Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls to ensure that these valves are closed or isolated.

B.1

If more than one MFIV or [MFIV] bypass valve in the same flow path cannot be restored to OPERABLE status, then there may be no redundant system to operate automatically and perform the required safety function. Although the containment can be isolated with the failure of two valves in parallel in the same flow path, the double failure can be an indication of a common mode failure in the valves of this flow path, and as such is treated the same as a loss of the isolation capability of this flow path. Under these conditions, valves in each flow path must be restored to OPERABLE status, closed, or the flow path isolated within 8 hours [or in accordance with the Risk Informed Completion Time Program]. This action returns the system to the condition where at least one valve in each flow path is performing the required safety function. The 8 hour Completion Time is reasonable to close the MFIV or its bypass valve, or otherwise isolate the affected flow path.

Inoperable MFIVs and [MFIV] bypass valves that cannot be restored to OPERABLE status within the Completion Time, but are closed or isolated, must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day following closure or isolation Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls to ensure that these valves are closed or isolated.

BASES

ACTIONS (continued)

C.1 and [C.2]

If the MFIVs and their bypass valves cannot be restored to OPERABLE status, closed, or isolated 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 full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR ensures the verification of each MFIV [and [MFIV] bypass valve] is ≤ [7] seconds. The MFIV 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 MFIVs 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 these valves are not tested at power, they are exempt from the ASME Code (Ref. 2) requirements during operation in MODES 1 and 2.

The Frequency is in accordance with the Inservice Testing Program.

SR 3.7.3.2

This SR verifies that each MFIV [and [MFIV] bypass valve] 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 for this SR 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.

REFERENCES

1. FSAR, Section [10.4.7].

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

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 REQUIREMENTS

SR 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

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.

In MODE 4, the AFW System may be used for heat removal via the steam generator.

In MODES 5 and 6, the steam generators are not normally used for decay heat removal, and the AFW System is not required.

ACTIONS

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.

[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.

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.]

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, ~~[or 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)

E~~D~~.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.

F~~E~~.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 REQUIREMENTS

SR 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 REQUIREMENTS

SR 3.7.6.1

This SR verifies that the CST contains the required volume of cooling water. (This level ≥ [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.

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.]

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

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 SSW 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)

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.]

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. 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.

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

SR 3.7.8.2

This SR verifies proper automatic operation of the SWS valves on an actual or simulated actuation signal. The SWS is a normally operating

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 restored 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)

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.]

[D~~C~~.1 and D~~C~~.2

If the Required Actions or Completion Times of Conditions [A, B, or C~~B~~] 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 ≥ [562] ft [mean sea level].]

[SR 3.7.9.2

This SR verifies that the SWS is available to cool the CCW System to at least its maximum design temperature within the maximum accident or normal design heat loads for 30 days following a DBA. 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 temperature is ≤ [92]°F.]

[SR 3.7.9.3

Operating each cooling tower fan for ≥ [15] minutes verifies that all fans are OPERABLE and that all associated controls are functioning properly.

BASES

LCO

[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.

An ECW train is considered OPERABLE when:

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.

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.

APPLICABILITY

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.

In MODES 5 and 6, potential heat loads are smaller and the probability of accidents requiring the ECW System is low.

ACTIONS

A.1

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.

B.1

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.]

C~~B~~.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

ACTIONS

A.1

With one CREACS train 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 CREACS subsystem is adequate to perform control room radiation protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CREACS train could result in loss of CREACS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the CREACS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.

C.1

If both CREACS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable control room boundary (i.e., Condition B), the Required Action is to restore at least one of the required CREACS trains to OPERABLE status within 1 hour to regain a protected environment from which operators can control the unit following an uncontrolled release of radioactivity [, chemicals, or toxic gas]. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for

restoration of at least one required train. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D~~C~~.1 and D~~C~~.2

If the inoperable CREACS or control room boundary cannot be restored to OPERABLE status within the associated Completion Time in MODE 1, 2, 3, or 4, 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.

BASES

ACTIONS (continued)

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

Required Action E ~~D~~.1 is modified by a Note indicating to place the system in the emergency radiation protection mode if the automatic transfer to emergency mode is inoperable.

In MODE 5 or 6, or during movement of [recently] irradiated fuel assemblies, if Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE CREACS train must be immediately placed in the emergency mode of operation. 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 E ~~D~~.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.

F~~E~~.1

When [in MODES 5 and 6, or] during movement of [recently] irradiated fuel assemblies, with two CREACS 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.

~~F.1~~

~~If both CREACS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable control room boundary (i.e., Condition B), the CREACS 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.~~

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.

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.]

C~~B~~.1 and C~~B~~.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.

[D~~C~~.1 and D~~C~~.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)

[~~E~~D.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.]

~~E.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 REQUIREMENTS

SR 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)

The LCO is modified by a Note allowing the ECCS pump room boundary to be opened intermittently under administrative controls. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for ECCS pump room isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, and 4, the ECCS PREACS is required to be OPERABLE consistent with the OPERABILITY requirements of the ECCS.

In MODES 5 and 6, the ECCS PREACS is not required to be OPERABLE, since the ECCS is not required to be OPERABLE.

ACTIONS

A.1

With one ECCS PREACS train inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. During this time, the remaining OPERABLE train is adequate to perform the ECCS PREACS function.

The 7 day Completion Time is appropriate because the risk contribution is less than that for the ECCS (72 hour Completion Time) and this system is not a direct support system for the ECCS. The 7 day Completion Time is reasonable, based on the low probability of a DBA occurring during this time period, and the consideration that the remaining train can provide the required capability.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have guidance available describing compensatory measures to be taken in the event of an intentional and unintentional entry into Condition B.

BASES

ACTIONS (continued)

If the ECCS pump room boundary is inoperable, the ECCS PREACS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE ECCS pump room boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the ECCS pump room boundary is inoperable, appropriate compensatory measures [consistent with the intent, as applicable, of GDC 19, 60, 64 and 10 CFR Part 100] should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the ECCS pump room boundary.

C.1 ~~and C.2~~

With two ECCS PREACS trains inoperable for reasons other than Condition B, the Required Action is to restore at least one of the required ECCS PREACS trains to OPERABLE status within 1 hour to regain environmental control of temperature and humidity in the ECCS pump room area and the lower reaches of the Auxiliary Building. 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.]

D.1 and D.2

If the ECCS PREACS train(s) or ECCS pump room boundary cannot be restored to OPERABLE status within the associated Completion Time, the unit must be 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 3.7.13.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and normal operating conditions

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, the FBACS is required to be OPERABLE to provide fission product removal associated with ECCS leaks due to a LOCA (refer to LCO 3.7.13, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)") for units that use this system as part of their ECCS PREACS.

During movement of [recently] irradiated fuel assemblies in the fuel building, the FBACS is required to be OPERABLE to mitigate the consequences of a fuel handling accident [involving handling recently irradiated fuel. Due to radioactive decay, FBACS is only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)].

In MODES 5 and 6, the FBACS is not required to be OPERABLE, since the ECCS is not required to be OPERABLE.

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

A.1

If one FBACS train is inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. During this time period, the remaining OPERABLE train is adequate to perform the FBACS function. The 7 day Completion Time is reasonable, based on the risk from an event occurring requiring the inoperable FBACS train, and ability of the remaining FBACS train to provide the required protection.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have guidance available describing compensatory measures to be taken in the event of an intentional and unintentional entry into Condition B.

BASES

ACTIONS (continued)

If the fuel building boundary is inoperable in MODE 1, 2, 3, or 4, the FBACS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE fuel building boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the fuel building boundary is inoperable, appropriate compensatory measures [consistent with the intent, as applicable, of GDC 19, 60, 61, 63, 64 and 10 CFR Part 100] should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibility repair, and test most problems with the fuel building boundary.

C.1

With two FBACS trains inoperable in MODES 1, 2, 3 or 4 for reasons other than Condition B, the Required Action is to restore at least one of the required FBACS trains to OPERABLE status within 1 hour to regain radioactive particle filtration and environmental control of temperature and humidity in the fuel pool area. 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.]

[D~~C~~.1 and D~~C~~.2

In MODE 1, 2, 3, or 4, when Required Action A.1, B.1, or C~~B~~.1 cannot be completed within the Completion Time, ~~or when both FBACS trains are inoperable for reasons other than an inoperable fuel building boundary (i.e., Condition 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 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.]

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

When Required Action A.1 cannot be completed within the required Completion Time during movement of [recently] irradiated fuel assemblies in the fuel building, the OPERABLE FBACS train must be started immediately or fuel movement suspended. This action ensures that the remaining train is OPERABLE, that no undetected failures preventing system operation will occur, and that any active failure will be readily detected.

If the system is not placed in operation, this action requires suspension of [recently] irradiated fuel movement, which precludes a fuel handling accident. This does not preclude the movement of fuel to a safe position.

BASES

ACTIONS (continued)

FE.1

When two trains of the FBACS are inoperable during movement of [recently] irradiated fuel assemblies in the fuel building, action must be taken to place the unit in a condition in which the LCO does not apply. This LCO involves immediately suspending movement of [recently] irradiated fuel assemblies in the fuel building. This does not preclude the movement of fuel to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.7.14.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system. Monthly heater operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥ 15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.

SR 3.7.14.2

This SR verifies the performance of FBACS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].

[SR 3.7.14.3

This SR verifies that each FBACS train starts and operates on an actual or simulated actuation signal. The [18] month Frequency is consistent with that specified in Reference 6.]

BASES

ACTIONS

A.1

With one PREACS train inoperable, action must be taken to restore OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. During this time period, the remaining OPERABLE train is adequate to perform the PREACS function. The 7 day Completion Time is appropriate because the risk contribution of the PREACS is less than that for the ECCS (72 hour Completion Time), and because this system is not a direct support system for the ECCS. The 7 day Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the consideration that the remaining train can provide the required capability.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have guidance available describing compensatory measures to be taken in the event of an intentional and unintentional entry into Condition B.

If the penetration room boundary is inoperable, the PREACS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE penetration room boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the penetration room boundary is inoperable, appropriate compensatory measures [consistent with the intent, as applicable, of GDC 19, 60, 64 and 10 CFR Part 100] should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the penetration room boundary.

BASES

ACTIONS (continued)

C.1 ~~and C.2~~

With two PREACS trains inoperable in MODES 1, 2, 3 or 4 for reasons other than Condition B, the Required Action is to restore at least one of the required PREACS trains to OPERABLE status within 1 hour to regain air filtration from the penetration area between containment and the Auxiliary Building. 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.]

D.1 and D.2

If the inoperable PREACS train(s) or penetration room boundary 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 3.7.15.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system.

Monthly heater operation dries out any moisture that may have accumulated in the charcoal as a result of humidity in the ambient air. [Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥ 15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.

SR 3.7.15.2

This SR verifies the performance of PREACS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test

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.

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.]

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.]

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)

~~H.1~~

~~Condition H 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 ± 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.

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.]

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

SURVEILLANCE REQUIREMENTS (continued)

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 ensure that these requirements can be satisfied.

This SR provides two options. One option requires that each battery charger be capable of supplying [400] amps at the minimum established float voltage for [8] hours. The ampere requirements are based on the output rating of the chargers. The voltage requirements are based on the charger voltage level after a response to a loss of AC power. The time period is sufficient for the charger temperature to have stabilized and to have been maintained for at least [2] hours.

The other option requires that each battery charger be capable of recharging the battery after a service test coincident with supplying the largest coincident demands of the various continuous steady state loads (irrespective of the status of the plant during which these demands occur). This level of loading may not normally be available following the battery service test and will need to be supplemented with additional loads. The duration for this test may be longer than the charger sizing criteria since the battery recharge is affected by float voltage, temperature, and the exponential decay in charging current. The battery is recharged when the measured charging current is ≤ [2] amps.

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.

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.]

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

SR 3.8.7.1

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).

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.]

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)

~~E.1~~

~~Condition E 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 REQUIREMENTS

SR 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 OR In accordance with the Risk Informed Completion Time Program
B. Two subsystems inoperable.	B.1 Restore at least one subsystem to OPERABLE status.	1 hour 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. AND 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 is also entered. At least one subsystem must be restored to OPERABLE status within 1 hour or

Condition C must also be entered. For emergent conditions, the licensee may be able to apply a RICT if the requirements of the Risk Informed Completion Time Program are met. A RICT cannot be applied if Condition B is entered voluntarily.

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

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

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] [OR 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 [OR 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 [OR 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

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. OR A.2 Place associated trip system in trip.	12 hours [OR In accordance with the Risk Informed Completion Time Program] 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. OR B.2 Place one trip system in	6 hours [OR In accordance with the Risk Informed Completion Time Program] 6 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
	trip.	[OR 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 [OR 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 Condition E is 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 [OR 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. AND D.2 Place reactor mode switch in the shutdown position.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour [OR

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

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
	AND	
	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: Condition C is a default Condition. RAs D.2.2 and E.1 specify the periodic performance of an action. Condition F, and RAs D.1, D.2.1.1 and D.2.1.2 all have "Immediately" CTs. Therefore these actions are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
B Two RBM channels inoperable.	B.1 Restore at least one RBM channel to OPERABLE status. OR B.2 Place one RBM channel in trip.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour
C~~B~~. Required Action and associated Completion Time of Condition A ~~of Condition A~~ not met. ~~OR~~	~~B~~C.1 Place one RBM channel in trip.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~Two RBM channels inoperable.~~		
D~~C.~~. Rod worth minimizer (RWM) inoperable during reactor startup.	~~C~~D.1 Suspend control rod movement except by scram. OR D~~C.~~.2.1.1 Verify ≥ 12 rods withdrawn. OR	Immediately Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	DC.2.1.2 Verify by administrative methods that startup with RWM inoperable has not been performed in the last calendar year. AND CD.2.2 Verify movement of control rods is in compliance with banked position withdrawal sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.	Immediately During control rod movement
ED. RWM inoperable during reactor shutdown.	ED.1 Verify movement of control rods is in compliance with BPWS by a second licensed operator or other qualified member of the technical staff.	During control rod movement
FE. One or more Reactor Mode Switch - Shutdown Position channels inoperable.	FE.1 Suspend control rod withdrawal. AND FE.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately Immediately

Comment: Conditiion 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 [OR 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 [OR 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

CONDITION	REQUIRED ACTION	COMPLETION TIME
	pump(s) and main turbine valve(s) from service. <u>OR</u>	

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 ≤ [58.0] inches.	[18] months
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including [valve] actuation.	[18] months

Comment: Condition A already has a 30 day CT, Conditions B and D are default Conditions and Conditions E and F apply to the default Condition (Condition D) and are therefore excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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.

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. OR	72 hours [OR In accordance with the Risk Informed Completion Time Program]
	A.2 ----------NOTE---------- Not applicable if inoperable channel is the result of an inoperable breaker. ---------- Place channel in trip.	72 hours [OR

CONDITION	REQUIRED ACTION	COMPLETION TIME
		In accordance with 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. AND [MCPR limit for inoperable EOC-RPT not made applicable.]	B.1 Restore EOC-RPT trip capability. OR [B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.]	2 hours [OR In accordance with the Risk Informed Completion Time Program] [2 hours] [OR 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 an inoperable RPT breaker. ---------- Remove the affected recirculation pump from service. OR C.2 Reduce THERMAL POWER to < [30]% RTP.	 4 hours 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.

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
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status.	14 days [OR In accordance with the Risk Informed Completion Time Program]
	OR	
	A.2 ----------NOTE---------- Not applicable if inoperable channel is the result of an inoperable breaker. ---------- Place channel in trip.	14 days' [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours [OR 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 [OR 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. OR 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 has an "Immediately" CT. RAs B.1, B.2, C.1, D.1, E.1 F.1 and G.1 declare another component inoperable. 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. AND	1 hour from discovery of loss of initiation capability for feature(s) in both divisions

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 ----------NOTE---------- Only applicable for Functions 3.a and 3.b. ----------	
	Declare High Pressure Coolant Injection (HPCI) System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	AND	
	B.3 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 3.3.5.1-1.	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. ----------	
	Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	AND	
	C.2 Restore channel to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1 ----------NOTE---------- Only applicable if HPCI pump suction is not aligned to the suppression pool. ----------	
	Declare HPCI System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	AND	
	D.2.1 Place channel in trip.	24 hours
	OR	[OR In accordance with the Risk Informed Completion Time Program]
	D.2.2 Align the HPCI pump suction to the suppression pool.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1 ----------NOTES---------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.d and 2.g. ----------	
	Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	AND	

	E.2 Restore channel to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	F.1 Declare Automatic Depressurization System (ADS) valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	AND	
	F.2 Place channel in trip.	96 hours from discovery of inoperable channel concurrent with HPCI or reactor core isolation cooling (RCIC) inoperable [OR In accordance with the Risk Informed Completion Time Program] AND 8 days [OR In accordance with the Risk Informed Completion Time Program]
G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	G.1 ----------NOTE---------- Only applicable for Functions 4.c, 4.e, 4.f, 4.g, 5.c, 5.e, 5.f, and 5.g. ---------- Declare ADS valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems

	AND G.2 Restore channel to OPERABLE status.	96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable [OR In accordance with the Risk Informed Completion Time Program] AND 8 days [OR In accordance with the Risk Informed Completion Time Program]

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. 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. AND B.2 Place channel in trip.	1 hour from discovery of loss of RCIC initiation capability 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
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1 ----------NOTE---------- Only applicable if RCIC pump suction is not aligned to the suppression pool. ----------	
	Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	AND	
	D.2.1 Place channel in trip.	24 hours
	OR	[OR In accordance with the Risk Informed Completion Time Program]
	D.2.2 Align RCIC pump suction to the suppression pool.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1 Declare RCIC System inoperable.	Immediately

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

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 [OR In accordance with the Risk Informed Completion Time Program] AND 24 hours for Functions other than Functions 2.a, 2.b, 6.b, 7.a, and 7.b [OR 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.		[OR 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). OR D.2.1 Be in MODE 3. AND 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. OR Required Action and associated Completion Time for Condition F or G not met.	H.1 Be in MODE 3. AND 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
	OR	
	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
	OR	
	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

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

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 [OR In accordance with the Risk Informed Completion Time Program] AND 24 hours for Functions other than Function 2 [OR In accordance with the Risk Informed Completion Time Program]
B. One or more automatic Functions with secondary containment isolation capability not maintained.	B.1 Restore secondary containment isolation capability.	1 hour [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time of Condition A or B not met.	C.1.1 Isolate the associated [zone(s)]. OR C.1.2 Declare associated secondary containment isolation valves inoperable. AND	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
	OR	
	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 [OR 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 [OR In accordance with the Risk Informed Completion Time Program]
D Two or more LLS valves inoperable due to inoperable channels.	D.1 Restore channels to OPERABLE status.	1 hour [OR In accordance with the Risk Informed

CONDITION	REQUIRED ACTION	COMPLETION TIME
		Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~E~~D~~.~~. Required Action and associated Completion Time ~~of Condition A, B, or C~~ not met. ~~OR~~ ~~Two or more LLS valves inoperable due to inoperable channels.~~	~~E~~D~~.~~.1 Declare the associated LLS valve(s) inoperable.	Immediately

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
SR 3.3.6.3.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.3.2	Perform CHANNEL FUNCTIONAL TEST for portion of the channel outside primary containment.	[92] days
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.	[92] days

Comment: Condition A has an "Immediately" CT, RA B.1 and C.1 declares another component inoperable and Condition D is a default Condition. Therefore they are excluded.

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. AND B.2 Place channel in trip.	1 hour from discovery of loss of [MCREC] initiation capability in both trip systems 24 hours] [OR In accordance with the Risk Informed Completion Time Program]
C. As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	C.1 Declare associated [MCREC] subsystem inoperable. AND	1 hour from discovery of loss of [MCREC] initiation capability in both trip systems

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Place channel in trip.	6 hours [OR 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 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
	OR		
	D.2	----------NOTE---------- Only applicable to Function 3 channels. ---------- Isolate associated main steam line (MSL).	1 hour
	OR		
	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 [OR 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: Condition C is a default Condition and Condition D is outside the applicability of the Traveler. Therefore these are 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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
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. AND 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	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
[with any control rod withdrawn from a core cell containing one or more fuel assemblies].	AND	

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]
	OR	
	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 ≤ [132] V. b. Undervoltage ≥ [108] V, with time delay set to [zero]. c. Underfrequency ≥ [57] Hz, with time delay set to [zero].	[18] months
SR 3.3.8.2.3	Perform a system functional test.	[18] months

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

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 [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No recirculation loops in operation.	B.1 Restore at least one recirculation loop to operation.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C~~B~~. Required Action and associated Completion Time ~~of Condition A~~ not met. ~~OR~~ ~~No recirculation loops in operation.~~	~~B~~C.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: RA A.2 is a default Condition and is therefore excluded.

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 Restore inoperable jet pumps to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
	OR	
	A.2 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] [OR In accordance with the Risk Informed Completion Time Program]
B. [Three] or more [required] S/RVs inoperable.	B.1 Restore the [required] S/RV[s] to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~.[Required Action and associated Completion Time of Condition A or B not met.] ~~OR~~ ~~[Three] or more [required] S/RVs inoperable.~~	C~~B~~.1 Be in MODE 3. AND C~~B~~.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. ≤ [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. OR 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. OR B.2 Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.	4 hours 4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR Pressure boundary LEAKAGE exists.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 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: While Condition A represents a variable outside its limit, the PIV could be substituted as a surrogate in an RICT calculation. 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
A. One or more flow paths with leakage from one or more RCS PIVs not within limit.	----------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]. ----------	
	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.	4 hours [OR In accordance with the Risk Informed Completion Time Program]
	AND	

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, de-activated automatic, or check valve.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND 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 ≥ [ ] and ≤ [ ] psig.	[In accordance with the Inservice Testing Program or [18] months]

Comment: RAs A.1, B.2, D.1 AND D.2 already have a 30 day CT, RAs B.1 and C.1 specify the periodic performance of an action, and Condition F is a default Condition. Therefore these are excluded.

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
	AND	
	B.2 [Restore required primary containment atmospheric monitoring system to OPERABLE status.	30 days]

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. AND Primary containment air cooler condensate flow rate monitoring system inoperable.	D.1 Restore required primary containment atmospheric monitoring system to OPERABLE status. OR D.2 Restore primary containment air cooler condensate flow rate monitoring system to OPERABLE status.	30 days 30 days]
E. All required leakage detection systems inoperable.	E.1 Restore at least one required leakage detection systems to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
F~~E~~. Required Action and associated Completion Time ~~of Condition A, B, [C, or D]~~ not met.	F~~E~~.1 Be in MODE 3. AND F~~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 ≤ [0.2] µCi/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] µCi/gm and ≤ 4.0 µCi/gm DOSE EQUIVALENT I-131.	----------NOTE---------- LCO 3.0.4.c is applicable. ----------	
	A.1 Determine DOSE EQUIVALENT I-131.	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limits.	48 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Determine DOSE EQUIVALENT I-131.	Once per 4 hours
	AND	
OR	B.2.1 Isolate all main steam lines.	12 hours
Reactor Coolant specific activity > [4.0] µCi/gm DOSE EQUIVALENT I-131.	OR	
	B.2.2.1 Be in MODE 3.	12 hours
	AND	
	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
	AND	
	A.2 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour
	AND	

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 AND Once per 24 hours thereafter
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1 Verify reactor coolant circulating by an alternate method. AND	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter

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
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.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours
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.	C.1 Initiate action to restore parameter(s) to within limits. AND C.2 Determine RCS is acceptable for operation.	Immediately Prior to entering MODE 2 or 3

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 ≤ [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 ≤ [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 ≤ [150] psig.

ACTIONS

----------NOTE----------
LCO 3.0.4.b is not applicable to HPCI.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. OR One LPCI pump in both LPCI subsystems inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]

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. AND B.2 Be in MODE 4.	12 hours 36 hours
C. HPCI System inoperable.	C.1 Verify by administrative means RCIC System is OPERABLE. AND C.2 Restore HPCI System to OPERABLE status.	Immediately 14 days [OR In accordance with the Risk Informed Completion Time Program]
D. HPCI System inoperable. AND Condition A entered.	D.1 Restore HPCI System to OPERABLE status. OR D.2 Restore low pressure ECCS injection/spray subsystem 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]
E. One ADS valve inoperable.	E.1 Restore ADS valve to OPERABLE status.	14 days

		[OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One ADS valve inoperable. AND Condition A entered.	F.1 Restore ADS valve to OPERABLE status. OR F.2 Restore low pressure ECCS injection/spray subsystem 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]
G. Two or more ADS valves inoperable.	G.1 Restore inoperable ADS valves to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~G. Two or more ADS valves inoperable.~~ ~~OR~~ H.1 Required Action and associated Completion Time of Condition -C, D, E, F, or -G~~F~~ not met.	~~G~~H.1 Be in MODE 3. AND H~~G~~.2 Reduce reactor steam dome pressure to ≤ [150] psig.	12 hours 36 hours
I. Two or more low pressure ECCS injection/spray subsystems inoperable	I.1 Restore inoperable systems and ADS valves to OPERABLE status.	1 hour [OR

for reasons other than Condition A. OR HPCI System and one or more ADS valves inoperable.		In accordance with the Risk Informed Completion Time Program]
J. Required Action and associated Completion Time of Condition I not met. ~~H. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A.~~ ~~OR~~ ~~HPCI System and one or more ADS valves inoperable.~~	J~~H~~.1 Enter LCO 3.0.3.	Immediately

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 ≥ [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. AND	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.	Immediately
	AND	
	D.2 [Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately]
	AND	
	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 coolant injection (LPCI) subsystem, the suppression pool water level is ≥ [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. AND A.2 Restore RCIC System to OPERABLE status.	Immediately 14 days [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND 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. AND B.2 Be in MODE 4.	12 hours 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

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 Lock

LCO 3.6.1.2 The primary containment air lock shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTES----------

1. Entry and exit is permissible to perform repairs of the air lock components.

2. 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 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 air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls. ---------- A.1 Verify the OPERABLE door is closed. <u>AND</u> A.2 Lock the OPERABLE door closed. <u>AND</u>	 1 hour 24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	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.	Once per 31 days
B. Primary containment air lock interlock mechanism inoperable.	----------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.	1 hour
	AND	
	B.2 Lock an OPERABLE door closed.	24 hours
	AND	

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.	Immediately
	AND		
	C.2	Verify a door is closed.	1 hour
	AND		
	C.3	Restore air lock to OPERABLE status.	24 hours [OR 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
	AND		
	D.2	Be in MODE 4.	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 Isolation Instrumentation."

ACTIONS

----------NOTES----------

1. Penetration flow paths [except for purge valve penetration flow paths] may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Only applicable to penetration flow paths with two [or more] PCIVs. ---------- One or more penetration flow paths with one PCIV inoperable [for reasons other than Condition[s] D [and E]].	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.	4 hours [or in accordance with the Risk Informed Completion Time Program] except for main steam line
	AND	AND
		8 hours [or in accordance with the Risk Informed Completion Time Program] for main steam line

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.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.	Once per 31 days following isolation for isolation devices outside primary containment AND 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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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]].	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour [OR in accordance with the Risk Informed Completion Time Program]
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]].	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	[4] hours [or in accordance with the Risk Informed Completion Time Program] except for excess flow check valves (EFCVs) and penetrations with a closed system
	AND	AND
		72 hours [or in accordance with the Risk Informed Completion Time Program] for EFCVs and penetrations with a closed system

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	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 otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days following isolation

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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.	D.1 Restore leakage rate to within limit.	[4 hours [or in accordance with the Risk Informed Completion Time Program] for hydrostatically tested line leakage [not on a closed system]] AND [4 hours [or in accordance with the Risk Informed Completion Time Program] for secondary containment bypass leakage] AND [8 hours [or in accordance with the Risk Informed Completion Time Program] for MSIV leakage] AND [24 hours [or in accordance with the Risk Informed Completion Time Program] for purge valve leakage] AND [72 hours [or in accordance with the Risk Informed Completion Time Program] for hydrostatically tested

		line leakage [on a closed system] [and EFCV leakage]]
E. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	E.1 Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, or blind flange]. AND	24 hours [OR in accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	E.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.	Once per 31 days following isolation for isolation devices outside containment AND Prior to entering MODE 2 or 3 from MODE 4 if not performed within the previous 92 days for isolation devices inside containment
	AND E.3 Perform SR 3.6.1.3.7 for the resilient seal purge valves closed to comply with Required Action E.1.	Once per [92] days] following isolation
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met in MODE 1, 2, or 3.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours

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 [secondary] containment.	G.1	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of [recently] irradiated fuel assemblies in [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 <u>OR</u> H.2	Initiate action to suspend OPDRVs. Initiate action to restore valve(s) to OPERABLE status.	Immediately Immediately]

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

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Drywell Pressure

LCO 3.6.1.4 Drywell pressure shall be [≤ 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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.4.1 Verify drywell pressure is within limit.	12 hours

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

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Drywell Air Temperature

LCO 3.6.1.5 Drywell average air temperature shall be ≤ [135]°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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.5.1	Verify drywell average air temperature is within limit.	24 hours

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two or more LLS valves inoperable.	B.1 Restore inoperable LLS valves to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time ~~of Condition A~~ not met. ~~OR~~ ~~Two or more LLS valves inoperable.~~	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	12 hours 36 hours

Comment: Condition E is a default Condition and is therefore 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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two [or more] lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	D.1 Restore all vacuum breakers in [one] line to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and Associated Completion Time not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	12 hours 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 ≤ [0.5] psid.	[18] months

Comment: Condition C is a default Condition and is therefore 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 [OR 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 [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. AND C.2 Be in MODE 4.	12 hours 36 hours

Comment: Condition A already has a 30 day CT and Condition C is a default Condition. Therefore these are excluded.

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 [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. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1	Operate each MSIV LCS blower ≥ [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: Although the LCO is on variables, the containment can be used as a surrogate for RICT calculations. RAs A.1 and D.2 requires a periodic performance of an action. Conditions B and E, and RA D.3 are default Conditions/RAs. Condition C and RA D.1 has an "Immediately" CT. These are therefore 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. ≤ [95]° 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. ≤ [105]° 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. ≤ [110]°F [when all OPERABLE IRM channels are ≤ [25/40] divisions of full scale on Range 7] [with THERMAL POWER ≤ 1% RTP].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool average temperature > [95]°F but ≤ [110]°F. AND [Any OPERABLE IRM channel > [25/40] divisions of full scale on Range 7] [THERMAL POWER > 1% RTP]. AND Not performing testing that adds heat to the suppression pool.	A.1 Verify suppression pool average temperature ≤ [110]°F. AND A.2 Restore suppression pool average temperature to ≤ [95]°F.	Once per hour 24 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Reduce THERMAL POWER [until all OPERABLE IRM channels ≤ [25/40] divisions of full scale on Range 7] [to ≤ 1% RTP.]	12 hours
C. Suppression pool average temperature > [105]°F. <u>AND</u> [Any OPERABLE IRM channel > [25/40] divisions of full scale on Range 7] [THERMAL POWER > 1% RTP]. <u>AND</u> Performing testing that adds heat to the suppression pool.	C.1 Suspend all testing that adds heat to the suppression pool.	Immediately
D. Suppression pool average temperature > [110]°F but ≤ [120]°F.	D.1 Place the reactor mode switch in the shutdown position. <u>AND</u> D.2 Verify suppression pool average temperature ≤ [120]°F. <u>AND</u> D.3 Be in MODE 4.	Immediately Once per 30 minutes 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Suppression pool average temperature > [120]°F.	E.1 Depressurize the reactor vessel to < [200] psig. AND E.2 Be in MODE 4.	12 hours [36 hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1.1	Verify suppression pool average temperature is within the applicable limits.	24 hours AND 5 minutes when performing testing that adds heat to the suppression pool

Comment: Although this LCO is on variables, the containment can be used as a surrogate system for RICT calculations. Condition B is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be ≥ [12 ft 2 inches] and ≤ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 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. AND 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. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

Comment: Although this LCO is on variables, the containment can be used as a system surrogate in RICT calculations. Condition B is a default Condition and is therefore excluded.

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 ≥ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ [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. AND B.2 Restore one [required] [drywell cooling system fan] to OPERABLE status.	1 hour AND Once per 12 hours thereafter 7 days [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.	12 hours

Comment: Although this LCO is on variables, the containment can be a system surrogate in RICT calculations. Condition B is a default Condition and is therefore excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ [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. AND B.2 Restore one CAD subsystem to OPERABLE status.	1 hour AND Once per 12 hours thereafter 7 days [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.	12 hours

Comment: Condition B is a default Condition and Condition C has an "Immediately" CT. Therefore these are excluded.

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 [OR 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 3. AND B.2 Be in MODE 4.	12 hours 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. AND C.2 Initiate action to suspend OPDRVs.	 Immediately Immediately

Comment: RA A.2 specifies the periodic performance of an action and Conditions C and D are default Conditions. Therefore these are excluded.

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. AND	8 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.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.	Once per 31 days following isolation
B. ----------NOTE---------- Only applicable to penetration flow paths with two isolation valves. ---------- One or more penetration flow paths with two SCIVs inoperable.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 hours [OR In accordance with the Risk Informed Completion Time Program]
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. AND C.2 Be in MODE 4.	12 hours 36 hours

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
	AND	
	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: Condition C is a default Condition. Conditions D and E have "Immediately" CTs. Therefore these are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two SGT subsystems inoperable in MODE 1, 2, or 3.	B.1 Restore at least one SGT subsystem to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	~~B~~C.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	12 hours 36 hours
D~~C~~. Required Action and associated Completion Time of Condition A not	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	

CONDITION	REQUIRED ACTION	COMPLETION TIME
met during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.	D~~C~~.1 Place OPERABLE SGT subsystem in operation. OR D~~C~~.2.1 Suspend movement of [recently] irradiated fuel assemblies in [secondary] containment. AND	Immediately Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D~~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. AND E.2 Initiate action to suspend OPDRVs.	 Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ [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 [OR 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 [OR 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 [OR In accordance with the Risk Informed Completion Time Program]
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3.	12 hours
	AND	
	E.2 Be in MODE 4.	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 [OR 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] [OR 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
E. One [PSW] subsystem inoperable for reasons other than Condition[s] A [and C].	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.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
F. Both [PSW] subsystems inoperable for reasons other than Condition[s] B [and C]. [OR [UHS] inoperable for reasons other than Condition C [or D].]	F.1 Restore inoperable [PSW] subsystems and [UHS] to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G~~F~~. Required Action and associated Completion Time of Condition A, B [~~or~~ D] or F not met. ~~OR~~ ~~Both [PSW] subsystems inoperable for reasons other than Condition[s] B [and C].~~ ~~[OR~~ ~~[UHS] inoperable for reasons other than Condition C [or D].]~~	G~~F~~.1 Be in MODE 3. AND G~~F~~.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	[Verify the water level of each [PSW] cooling tower basin is ≥ [ ] ft.	24 hours]
SR 3.7.2.2	[Verify the water level [in each PSW pump well of the intake structure] is ≥ [60.1] ft [mean sea level].	24 hours]
SR 3.7.2.3	[Verify the average water temperature of [UHS] is ≤ [ ]°F.	24 hours]
SR 3.7.2.4	[Operate each [PSW] cooling tower fan for ≥ [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
	AND	
	A.2 Verify cooling water is aligned to DG [1B] from a Unit [1] PSW subsystem.	Once per 31 days
	AND	
	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: Condition D is a default Condition and Conditions E and F are outside the applicability of the Traveler. Therefore these are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two [MCREC] subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	C.1 Restore at least one [MCREC] subsystem to OPERABLE status.	1 hour [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]
DC. Required Action and associated Completion Time of Condition A, B, or CB not met in MODE 1, 2, or 3.	CD.1 Be in MODE 3. AND DC.2 Be in MODE 4.	12 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E~~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.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	E~~D~~.1 ----------NOTE---------- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] ----------	
	Place OPERABLE [MCREC] subsystem in [pressurization] mode.	Immediately
	OR	
	E~~D~~.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.	Immediately
	AND	
	E~~D~~.2.2 Initiate action to suspend OPDRVs.	Immediately
~~E. Two [MCREC] subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.~~	~~E.1 Enter LCO 3.0.3.~~	~~Immediately~~

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. ----------	
	F.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.	Immediately
	AND	
	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 ≥ [0.1] inches water gauge relative to the [turbine building] during the [pressurization] mode of operation at a flow rate of ≤ [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
B. Two [control room AC] subsystems inoperable in MODE 1, 2, or 3.	B.1 Restore at least one [control room AC] subsystem to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	12 hours 36 hours
D~~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. ---------- D~~C~~.1 Place OPERABLE [control room AC] subsystem in operation.	 Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D~~C~~.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment. AND D~~C~~.2.2 Initiate action to suspend OPDRVs.	Immediately Immediately
~~D. Two [control room AC] subsystems inoperable in MODE 1, 2, or 3.~~	~~D.1 Enter LCO 3.0.3.~~	~~Immediately~~
E. Two [control room AC] subsystems inoperable during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- E.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment. AND E.2 Initiate actions to suspend OPDRVs.	 Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each [control room AC] subsystem has the capability to remove the assumed heat load.	[18] months

Comment: While Condition A represents a variable outside its limit, the main condenser or main steam lines could be substituted as a surrogate in an RICT calculation. Condition B is a default Condition and is therefore excluded.

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 ≤ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 [Isolate all main steam lines. OR B.2 Isolate SJAE. OR B.3.1 Be in MODE 3. AND 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

3.7.7 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 [OR 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 ≥ [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 ≥ [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 AND Once per 8 hours thereafter
	AND	
	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)
	AND	

ACTIONS (continued)

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

	B.4 Restore [required] DG to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two [required] offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	AND	
	C.2 Restore one [required] offsite circuit to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
D. One [required] offsite circuit inoperable. AND One [required] DG inoperable.	----------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. ----------	
	D.1 Restore [required] offsite circuit to OPERABLE status.	12 hours [OR In accordance with the Risk Informed Completion Time Program]
	OR	
	D.2 Restore [required] DG to OPERABLE status.	12 hours [OR In accordance with the Risk Informed Completion Time Program]

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. [One [required] [automatic load sequencer] inoperable.	----------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. ----------	
	F.1 Restore [required] [automatic load sequencer] to OPERABLE status.	[12] hours] [OR In accordance with the Risk Informed Completion Time Program]
G. Three or more [required] AC sources inoperable [for reasons other than Condition E].	G.1 Restore inoperable [required] AC sources [for reasons other than Condition E] to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
H~~G~~. Required Action and associated Completion Time of Condition ~~A, B, C, D, E, or [F]~~ not met.	H~~G~~.1 Be in MODE 3. AND H~~G~~.2 Be in MODE 4.	12 hours 36 hours
~~H. Three or more [required] AC sources inoperable [for reasons other than Condition E].~~	~~H.1 Enter LCO 3.0.3.~~	~~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
A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Condition and Required Actions of LCO 3.8.10, with one required division de-energized as a result of Condition A. ---------- A.1 Declare affected required feature(s), with no offsite power available, inoperable. <u>OR</u>	 Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
	AND	
	A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One required DG inoperable.	B.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	B.2 Suspend movement of [recently] irradiated fuel assemblies in [secondary] containment.	Immediately
	AND	
	B.3 Initiate action to suspend OPDRVs.	Immediately
	AND	

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	----------NOTES---------- 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 3.8.16, [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." ---------- 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.	In accordance with applicable SRs

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 ≥ [125] psig.	E.1 Restore starting air receiver pressure to ≥ [225] psig.	48 hours
F. Required Action and associated Completion Time not met. OR 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 ≥ [33,000] gal of fuel.	31 days
SR 3.8.3.2	Verify lube oil inventory is ≥ [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 ≥ [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 [OR In accordance with the Risk Informed Completion Time Program]
	AND	
	A.2 Verify battery float current ≤ [2] amps.	Once per [12] hours
	AND	
	A.3 Restore battery charger[s] to OPERABLE status.	7 days [OR 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] [OR 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 [OR In accordance with the Risk Informed Completion Time Program]
D. Two DC electrical power subsystems inoperable.	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
E~~D~~. Required Action and Associated Completion Time of Condition A[, B, or C] not met for station service DC subsystem.	E~~D~~.1 Be in MODE 3. AND E~~D~~.2 Be in MODE 4.	12 hours 36 hours
F~~E~~. [Required Action and associated Completion Time of Condition A[, B, or C] not met for DG DC subsystem.	F~~E~~.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 ≥ [400 amps for station service subsystems, and ≥ 100 amps for DG subsystems] at greater than or equal to the minimum established float voltage for ≥ [4] hours. OR 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
[A. One [or two] battery charger[s on one division] inoperable. AND 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. AND	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Verify battery float current ≤ [2] amps. AND 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. OR Required Action and associated Completion Time of Condition A not met.]	B.1 Declare affected required feature(s) inoperable. OR B.2.1 Suspend CORE ALTERATIONS. AND B.2.2 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment. AND B.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel. AND B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately 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----------
Licensees 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. AND A.2 Perform SR 3.8.6.1. AND A.3 Restore affected cell voltage ≥ [2.07] V.	2 hours 2 hours 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. AND B.2 Restore battery float current to ≤ [2] amps.	2 hours [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Required Action C.2 shall be completed if electrolyte level was below the top of plates. ----------	----------NOTE---------- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. ----------	
C. One [or two] batter[y][ies on one division] with one or more cells electrolyte level less than minimum established design limits.	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.	8 hours 12 hours 31 days
D. One [or two] batter[y][ies on one division] with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. One or more batteries in redundant divisions with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one division to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> 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.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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.	7 days
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ [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. Two [or more][required] inverters inoperable.	B.1 Restore inoperable inverters to OPERABLE	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
	status.	[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. AND CB.2 Be in MODE 4.	12 hours 36 hours

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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [secondary] containment.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	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 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
A. One or more AC electrical power distribution subsystems inoperable.	----------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. ----------	
	A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
B. [One or more AC vital buses inoperable.	B.1 Restore AC vital bus distribution subsystem(s) to OPERABLE status.	2 hours] [OR In accordance with the Risk Informed Completion Time Program]
C. One or more [station service] DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours [OR

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	D.1 Restore inoperable electrical power distribution subsystems to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
E~~D~~. Required Action and associated Completion Time of Condition A, B, C, or ~~C~~D not met.	E~~D~~.1 Be in MODE 3. AND E~~D~~.2 Be in MODE 4.	12 hours 36 hours
F~~E~~. [One or more DG DC electrical power distribution subsystems inoperable.	F~~E~~.1 Declare associated DG(s) inoperable.	Immediately]
~~F. Two or more electrical power distribution subsystems inoperable that result in a loss of function.~~	~~F.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

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

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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [secondary] containment.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	A.2.4 Initiate actions to restore required AC, DC, [and AC vital bus] electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	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 Notes ----------
1. 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.
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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 REQUIREMENTS

SR 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

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

During shutdown conditions (MODE 3, 4, or 5), no positive reactivity insertion events are analyzed because assumptions are that control rod withdrawal blocks are provided to prevent criticality. Therefore, when the reactor mode switch is in the shutdown position, the control rod withdrawal block is required to be OPERABLE. During MODE 5 with the reactor mode switch in the refueling position, the refuel position one-rod-out interlock (LCO 3.9.2) provides the required control rod withdrawal blocks.

ACTIONS

----------REVIEWER'S NOTE----------
Certain LCO Completion Times are based on approved topical reports. In order for the 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

With one RBM channel inoperable, the remaining OPERABLE channel is adequate to perform the control rod block function; however, overall reliability is reduced because a single failure in the remaining OPERABLE channel can result in no control rod block capability for the RBM. For this reason, Required Action A.1 requires restoration of the inoperable channel to OPERABLE status. The Completion Time of 24 hours is based on the low probability of an event occurring coincident with a failure in the remaining OPERABLE channel. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

B.1

If both RBM channels are inoperable, the RBM is not capable of performing its intended function. Thus, either one channel must be restored to OPERABLE status (or in accordance with the Risk Informed Completion Time Program) or one inoperable channel must be place in trip in 1 hour ensuring that the RBM function is met. The 1 hour Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities and is acceptable because it minimizes risk while allowing time for restoration or tripping of inoperable channels.

C~~B~~.1

If Required Action A.1 is not met and the associated Completion Time has expired, the inoperable channel must be placed in trip within 1 hour. ~~If both RBM channels are inoperable, the RBM is not capable of performing its intended function; thus, one channel must also be placed in trip. This initiates a control rod withdrawal block, thereby ensuring that the RBM function is met.~~

The 1 hour Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities and is acceptable because it minimizes risk while allowing time for restoration or tripping of inoperable channels.

BASES

ACTIONS (continued)

D~~C~~.1, D~~C~~.2.1.1, D~~C~~.2.1.2, and D~~C~~.2.2

With the RWM inoperable during a reactor startup, the operator is still capable of enforcing the prescribed control rod sequence. However, the overall reliability is reduced because a single operator error can result in violating the control rod sequence. Therefore, control rod movement must be immediately suspended except by scram. Alternatively, startup may continue if at least 12 control rods have already been withdrawn, or a reactor startup with an inoperable RWM was not performed in the last 12 months. Required Actions D~~C~~.2.1.1 and D~~C~~.2.1.2 require verification of these conditions by review of plant logs and control room indications. Once Required ~~Action~~ Action D~~C~~.2.1.1 or D~~C~~.2.1.2 is satisfactorily completed, control rod withdrawal may proceed in accordance with the restrictions imposed by Required Action D~~C~~.2.2. Required Action D~~C~~.2.2 allows for the RWM Function to be performed manually and requires a double check of compliance with the prescribed rod sequence by a second licensed operator (Reactor Operator or Senior Reactor Operator) or other qualified member of the technical staff.

The RWM may be bypassed under these conditions to allow continued operations. In addition, Required Actions of LCO 3.1.3 and LCO 3.1.6 may require bypassing the RWM, during which time the RWM must be considered inoperable with Condition D~~C~~ entered and its Required Actions taken.

E~~D~~.1

With the RWM inoperable during a reactor shutdown, the operator is still capable of enforcing the prescribed control rod sequence. Required Action E~~D~~.1 allows for the RWM Function to be performed manually and requires a double check of compliance with the prescribed rod sequence by a second licensed operator (Reactor Operator or Senior Reactor Operator) or other qualified member of the technical staff. The RWM may be bypassed under these conditions to allow the reactor shutdown to continue.

BASES

ACTIONS (continued)

FE.1 and FE.2

With one Reactor Mode Switch - Shutdown Position control rod withdrawal block channel inoperable, the remaining OPERABLE channel is adequate to perform the control rod withdrawal block function. However, since the Required Actions are consistent with the normal action of an OPERABLE Reactor Mode Switch - Shutdown Position Function (i.e., maintaining all control rods inserted), there is no distinction between having one or two channels inoperable.

In both cases (one or both channels inoperable), suspending all control rod withdrawal and initiating action to fully insert all insertable control rods in core cells containing one or more fuel assemblies will ensure that the core is subcritical with adequate SDM ensured by LCO 3.1.1. 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.

As noted at the beginning of the SRs, the SRs for each Control Rod Block instrumentation Function are found in the SRs column of Table 3.3.2.1-1.

The Surveillances are modified by a Note to indicate that when an RBM 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 control rod block 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. 9) 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 a control rod block will be initiated when necessary.

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

ACTIONS (continued)

A.1

When one or more Functions have one required channel that is inoperable, the required inoperable channel must be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channels (or, in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval.

B.1

If a channel has not been restored to OPERABLE status in 30 days, this Required Action specifies initiation of action in accordance with Specification 5.6.5, which requires a written report to be submitted to the NRC. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative actions. This action is appropriate in lieu of a shutdown requirement, since alternative actions are identified before loss of functional capability, and given the likelihood of plant conditions that would require information provided by this instrumentation.

C.1

When one or more Functions have two required channels that are inoperable (i.e., two channels inoperable in the same Function), one channel in the Function should be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrument operation and the availability of alternate means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

D.1

This Required Action directs entry into the appropriate Condition referenced in Table 3.3.3.1-1. The applicable Condition referenced in the Table is Function dependent. Each time an inoperable channel has not met the Required Action of Condition C and the associated Completion Time has expired, Condition D is entered for that channel and provides for transfer to the appropriate subsequent Condition.

E.1

For the majority of Functions in Table 3.3.3.1-1, if the Required Action and associated Completion Time of Condition C 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 at least MODE 3 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

F.1

Since alternate means of monitoring primary containment area radiation have been developed and tested, the Required Action is not to shut down the plant, but rather to follow the directions of Specification 5.6.5. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

SURVEILLANCE REQUIREMENTS

The following SRs apply to each PAM instrumentation Function in Table 3.3.3.1-1.

SR 3.3.3.1.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel against a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter

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 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 (continued)

D.1 and D.2

With any Required Action and associated Completion Time not met, the plant must be brought to a MODE or other specified condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 2 within 6 hours (Required Action D.2). Alternately, the associated recirculation pump may be removed from service since this performs the intended function of the instrumentation (Required Action D.1). The allowed Completion Time of 6 hours is reasonable, based on operating experience, both to reach MODE 2 from full power conditions and to remove a recirculation pump from service in an orderly manner and without challenging plant systems.

Required Action D.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 times, the licensee must justify the Frequencies as required by the staff Safety Evaluation Report 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 the associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains ATWS-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. 2) 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

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

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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 per Required Action D.2.2. Placing the

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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.

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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

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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

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, 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.]

BASES

ACTIONS (continued)

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.

D.1, D.2.1, and D.2.2

If the channel is not restored to OPERABLE status or 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 placing the plant in at least MODE 3 within 12 hours and in MODE 4 within 36 hours (Required Actions D.2.1 and D.2.2). Alternately, the associated MSLs may be isolated (Required Action D.1), and, if allowed (i.e., plant safety analysis allows operation with an MSL isolated), operation with that MSL isolated may continue. Isolating the affected MSL accomplishes the safety function of the inoperable channel. The 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.

E.1

If the channel is not restored to OPERABLE status or 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 placing the plant in at least MODE 2 within 6 hours.

The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

F.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, plant operations may continue if the affected penetration flow path(s) is isolated. Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable channels.

For the RWCU Area and Area Ventilation Differential Temperature - High Functions, the affected penetration flow path(s) may be considered isolated by isolating only that portion of the system in the associated room monitored by the inoperable channel. That is, if the RWCU pump room A area channel is inoperable, the pump room A area can be isolated while allowing continued RWCU operation utilizing the B RWCU pump. For the RWCU Differential Flow - High Function, if the flow element/transmitter monitoring RWCU flow to radwaste and condensate is the only portion of the channel inoperable, then the affected penetration flow path(s) may be considered isolated by isolating the RWCU return to radwaste and condensate.

Alternately, if it is not desired to isolate the affected penetration flow path(s) (e.g., as in the case where isolating the penetration flow path(s) could result in a reactor scram), Condition H must be entered and its Required Actions taken.

The 1 hour Completion Time is acceptable because it minimizes risk while allowing sufficient time for plant operations personnel to isolate the affected penetration flow path(s).

G.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, plant operations may continue if the affected penetration flow path(s) is isolated. Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable channels. The 24 hour Completion Time is acceptable due to the fact that these Functions are either not assumed in any accident or transient analysis in the FSAR (Manual Initiation) or, in the case of the TIP System isolation, the TIP System penetration is a small bore (approximately ½ inch), its isolation in a design basis event (with loss of offsite power) would be via the manually operated shear valves, and the

BASES

ACTIONS (continued)

ability to manually isolate by either the normal isolation valve or the shear valve is unaffected by the inoperable instrumentation. Alternately, if it is not desired to isolate the affected penetration flow path(s) (e.g., as in the case where isolating the penetration flow path(s) could result in a reactor scram), Condition H must be entered and its Required Actions taken.

H.1 and H.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, or any Required Action of Condition F or G is not met and the associated Completion Time has expired, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by placing the plant 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 plant conditions from full power conditions in an orderly manner and without challenging plant systems.

I.1 and I.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated SLC subsystem(s) is declared inoperable or the RWCU System is isolated. Since this Function is required to ensure that the SLC System performs its intended function, sufficient remedial measures are provided by declaring the associated SLC subsystems inoperable or isolating the RWCU System.

The 1 hour Completion Time is acceptable because it minimizes risk while allowing sufficient time for personnel to isolate the RWCU System.

J.1 and J.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path should be closed. However, if the shutdown cooling function is needed to provide core cooling, these Required Actions allow the penetration flow path to remain unisolated provided action is immediately initiated to restore the channel to OPERABLE status or to isolate the RHR Shutdown Cooling System (i.e., provide alternate decay heat removal capabilities so the penetration flow path can be isolated). Actions must continue until the channel is restored to OPERABLE status or the RHR Shutdown Cooling System is isolated.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Two channels of Manual Initiation Function are available and are required to be OPERABLE in MODES 1, 2, and 3, and during OPDRVs and movement of [recently] irradiated fuel assemblies in the secondary containment. These are the MODES and other specified conditions in which the Secondary Containment Isolation automatic Functions are 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 secondary 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 secondary 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 secondary 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 Function 2, and 24 hours for Functions other than Function 2, 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

BASES

ACTIONS (continued)

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 inoperable channel in trip would result in an isolation), Condition C 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 a complete loss of automatic isolation capability for the associated penetration flow path(s) or a complete loss of automatic initiation capability for the SGT System. A Function is considered to be maintaining secondary containment 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 SCIVs in the associated penetration flow path and one SGT subsystem can be initiated on an isolation signal from the given Function. For the Functions with two one-out-of-two logic trip systems (Functions 1, 2, 3, and 4), this would require one trip system to have one channel OPERABLE or in trip. The Condition does not include the Manual Initiation Function (Function 5), since it is 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.]

C.1.1, C.1.2, C.2.1, and C.2.2

If any Required Action and associated Completion Time of Condition A or B are not met, the ability to isolate the secondary containment and start the SGT System cannot be ensured. Therefore, further actions must be performed to ensure the ability to maintain the secondary containment function. Isolating the associated zone (closing the ventilation supply and exhaust automatic isolation dampers) and starting the associated SGT subsystem (Required Actions C.1.1 and C.2.1) performs the intended function of the instrumentation and allows operation to continue.

BASES

ACTIONS (continued)

Alternately, declaring the associated SCIVs or SGT subsystem(s) inoperable (Required Actions C.1.2 and C.2.2) is also acceptable since the Required Actions of the respective LCOs (LCO 3.6.4.2 and LCO 3.6.4.3) provide appropriate actions for the inoperable components.

One hour is sufficient for plant operations personnel to establish required plant conditions or to declare the associated components inoperable without unnecessarily 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.

As noted at the beginning of the SRs, the SRs for each Secondary Containment Isolation instrumentation Function are located in the SRs column of Table 3.3.6.2-1.

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 provided the associated Function maintains secondary containment isolation 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 (Refs. 5 and 6) 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 SCIVs will isolate the associated penetration flow paths and that the SGT System will initiate when necessary.

SR 3.3.6.2.1

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

BASES

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

BASES

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.

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.]

~~E~~D.1

If any Required Action and associated Completion Time of Conditions A, B, C, or ~~-~~D~~C~~ 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 (continued)

A Note has been provided to modify the ACTIONS related to MCREC 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 MCREC 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 MCREC System instrumentation channel.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.7.1-1. 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

Because of the diversity of sensors available to provide initiation signals and the redundancy of the MCREC System design, an allowable out of service time of 24 hours has been shown to be acceptable (Refs. 5 and 6) 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.] However, this out of service time is only acceptable provided the associated Function is still maintaining MCREC System initiation capability. A Function is considered to be maintaining MCREC System initiation capability when sufficient channels are OPERABLE or in trip such that one trip system will generate an initiation signal from the given Function on a valid signal. For Functions 1 and 2, this would require one trip system to have one channel per logic string OPERABLE or in trip (a logic string is the one-out-of-two portion of a one-out-of-two taken twice logic arrangement). For Function 3, this would require one trip system to have one channel per logic string, associated with each MSL,

BASES

ACTIONS (continued)

OPERABLE or in trip. In this situation (loss of MCREC System initiation capability), the 24 hour allowance of Required Action B.2 is not appropriate. If the Function is not maintaining MCREC System initiation capability, the MCREC System must be declared inoperable within 1 hour of discovery of the loss of MCREC System initiation capability in both trip systems.

The 1 hour Completion Time (B.1) is acceptable because it minimizes risk while allowing time for restoring or tripping of channels.

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 D must be entered and its Required Action taken.

C.1 and C.2

Because of the diversity of sensors available to provide initiation signals and the redundancy of the MCREC System design, an allowable out of service time of 6 hours is provided 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.] However, this out of service time is only acceptable provided the associated Function is still maintaining MCREC System initiation capability. A Function is considered to be maintaining MCREC System initiation capability when sufficient channels are OPERABLE or in trip such that one trip system will generate an initiation signal from the given Function on a valid signal. For Functions 4 and 5, this would require one trip system to have one channel OPERABLE or in trip. In this situation (loss of MCREC System initiation capability), the 6 hour allowance of Required Action C.2 is not appropriate. If the Function is not maintaining MCREC System initiation capability, the MCREC System must be declared inoperable within 1 hour of discovery of the loss of MCREC System initiation capability in both trip systems.

The 1 hour Completion Time (C.1) is acceptable because it minimizes risk while allowing time for restoring or tripping of channels.

BASES

ACTIONS (continued)

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 C.2. Placing the inoperable channel in trip performs the intended function of the channel (starts both MCREC subsystems in the pressurization mode). Alternately, if it is not desired to place the channel in trip (e.g., as in the case where it is not desired to start the subsystem), Condition D must be entered and its Required Action taken.

The 6 hour Completion Time is based on the consideration that this Function provides the primary signal to start the MCREC System; thus, ensuring that the design basis of the MCREC System is met.

D.1, D.2, and D.3

With any Required Action and associated Completion Time not met, the associated MCREC subsystem(s) must be placed in the pressurization mode of operation per Required Action D.1 to ensure that control room personnel will be protected in the event of a Design Basis Accident. The method used to place the MCREC subsystem(s) in operation must provide for automatically re-initiating the subsystem(s) upon restoration of power following a loss of power to the MCREC subsystem(s). As noted, if the toxic gas protection instrumentation is concurrently inoperable, then the MCREC subsystem(s) should be placed in the toxic gas mode instead of the pressurization mode. This provides proper protection of the control room personnel if both toxic gas instrumentation (not required by Technical Specifications) and radiation instrumentation are concurrently inoperable. Alternately, if a Function 3 channel is inoperable and untripped, the associated MSL may be isolated, since isolating the MSL performs the intended function of the MCREC System instrumentation. Alternately, if it is not desired to start the subsystem(s) or isolate the MSL, the MCREC subsystem(s) associated with inoperable, untripped channels must be declared inoperable within 1 hour.

The 1 hour Completion Time is intended to allow the operator time to place the MCREC subsystem(s) in operation or to isolate the associated MSLs if applicable. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels, for placing the associated MCREC subsystem(s) in operation, for isolating the associated MSLs, or for entering the applicable Conditions and Required Actions for the inoperable MCREC subsystem(s).

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 (continued)

The Allowable Values for the instrument settings are based on the RPS providing ≥ 57 Hz, 120 V ± 10% (to all equipment), and 115 V ± 10 V (to scram and MSIV solenoids). The most limiting voltage requirement and associated line losses determine the settings of the electric power monitoring instrument channels. The settings are calculated based on the loads on the buses and RPS MG set or alternate power supply being 120 VAC and 60 Hz.

APPLICABILITY

The operation of the RPS electric power monitoring assemblies is essential to disconnect the RPS bus powered components from the MG set or alternate power supply during abnormal voltage or frequency conditions. Since the degradation of a nonclass 1E source supplying power to the RPS bus can occur as a result of any random single failure, the OPERABILITY of the RPS electric power monitoring assemblies is required when the RPS bus powered components are required to be OPERABLE. This results in the RPS Electric Power Monitoring System OPERABILITY being required in MODES 1, 2, and 3; and in MODES 4 and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both residual heat removal (RHR) shutdown cooling isolation valves open.

ACTIONS

A.1

If one RPS electric power monitoring assembly for an inservice power supply (MG set or alternate) is inoperable, or one RPS electric power monitoring assembly on each inservice power supply is inoperable, the OPERABLE assembly will still provide protection to the RPS bus powered components under degraded voltage or frequency conditions. However, the reliability and redundancy of the RPS Electric Power Monitoring System is reduced, and only a limited time (72 hours) is allowed to restore the inoperable assembly to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable assembly cannot be restored to OPERABLE status, the associated power supply(s) must be removed from service (Required Action A.1). This places the RPS bus in a safe condition. An alternate power supply with OPERABLE powering monitoring assemblies may then be used to power the RPS bus.

The 72 hour Completion Time takes into account the remaining OPERABLE electric power monitoring assembly and the low probability of an event requiring RPS electric power monitoring protection occurring during this period. It allows time for plant operations personnel to take corrective actions or to place the plant in the required condition in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

Alternately, if it is not desired to remove the power supply from service (e.g., as in the case where removing the power supply(s) from service would result in a scram or isolation), Condition C or D, as applicable, must be entered and its Required Actions taken.

B.1

If both power monitoring assemblies for an inservice power supply (MG set or alternate) are inoperable or both power monitoring assemblies in each inservice power supply are inoperable, the system protective function is lost. In this condition, 1 hour is allowed to restore one assembly to OPERABLE status for each inservice power supply. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If one inoperable assembly for each inservice power supply cannot be restored to OPERABLE status, the associated power supply(s) must be removed from service within 1 hour (Required Action B.1). An alternate power supply with OPERABLE assemblies may then be used to power one RPS bus. The 1 hour Completion Time is sufficient for the plant operations personnel to take corrective actions and is acceptable because it minimizes risk while allowing time for restoration or removal from service of the electric power monitoring assemblies. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

Alternately, if it is not desired to remove the power supply(s) from service (e.g., as in the case where removing the power supply(s) from service would result in a scram or isolation), Condition C or D, as applicable, must be entered and its Required Actions taken.

C.1 and C.2

If any Required Action and associated Completion Time of Condition A or B are not met in MODE 1, 2, or 3, a plant shutdown must be performed. This places the plant in a condition where minimal equipment, powered through the inoperable RPS electric power monitoring assembly(s), is required and ensures that the safety function of the RPS (e.g., scram of control rods) is not required. The plant shutdown is accomplished by placing the plant in 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 plant conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

D.1, D.2.1, and D.2.2

If any Required Action and associated Completion Time of Condition A or B are not met in MODE 4 or 5, or with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both RHR shutdown cooling valves open, the operator must immediately initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. Required Action D.1 results in the least reactive condition for the reactor core and ensures that the safety function of the RPS (e.g., scram of control rods) is not required.

In addition, action must be immediately initiated to either restore one electric power monitoring assembly to OPERABLE status for the inservice power source supplying the required instrumentation powered from the RPS bus (Required Action D.2.1) or to isolate the RHR Shutdown Cooling System (Required Action D.2.2). Required Action D.2.1 is provided because the RHR Shutdown Cooling System may be needed to provide core cooling. All actions must continue until the applicable Required Actions are completed.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1

A CHANNEL FUNCTIONAL TEST is performed on each overvoltage, undervoltage, and underfrequency 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.

As noted in the Surveillance, the CHANNEL FUNCTIONAL TEST is only required to be performed while the plant is in a condition in which the loss of the RPS bus will not jeopardize steady state power operation (the design of the system is such that the power source must be removed from service to conduct the Surveillance). The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance.

The 184 day Frequency and the Note in the Surveillance are based on guidance provided in Generic Letter 91-09 (Ref. 2).

BASES

APPLICABLE SAFETY ANALYSES (continued)

range monitor (APRM) instrument setpoints is also required to account for the different relationships between recirculation drive flow and reactor core flow. The APLHGR and MCPR limits for single loop operation are specified in the COLR. The APRM Flow Biased Simulated THERMAL POWER - High Allowable Value in LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation."

Recirculation loops operating satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

Two recirculation loops are required to be in operation with their flows matched within the limits specified in SR 3.4.1.1 to ensure that during a LOCA caused by a break of the piping of one recirculation loop the assumptions of the LOCA analysis are satisfied. With the limits specified in SR 3.4.1.1 not met, the recirculation loop with the lower flow must be considered not in operation. With only one recirculation loop in operation, modifications to the required APLHGR limits (LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)"), MCPR limits (LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)"), and APRM Flow Biased Simulated THERMAL POWER - High Allowable Value (LCO 3.3.1.1) may be applied to allow continued operation consistent with the assumptions of Reference 3.

APPLICABILITY

In MODES 1 and 2, requirements for operation of the Reactor Coolant Recirculation System are necessary since there is considerable energy in the reactor core and the limiting design basis transients and accidents are assumed to occur.

In MODES 3, 4, and 5, the consequences of an accident are reduced and the coastdown characteristics of the recirculation loops are not important.

ACTIONS

A.1

With the requirements of the LCO not met, the recirculation loops must be restored to operation with matched flows within 24 hours [or in accordance with the Risk Informed Completion Time Program]. A recirculation loop is considered not in operation when the pump in that loop is idle or when the mismatch between total jet pump flows of the two loops is greater than required limits. The loop with the lower flow must be considered not in operation. Should a LOCA occur with one recirculation loop not in operation, the core flow coastdown and resultant core response may not be bounded by the LOCA analyses. Therefore, only a limited time is allowed to restore the inoperable loop to operating status.

BASES

ACTIONS (continued)

Alternatively, if the single loop requirements of the LCO are applied to operating limits and RPS setpoints, operation with only one recirculation loop would satisfy the requirements of the LCO and the initial conditions of the accident sequence. [Since this requires modification of Power Distribution Limits, the Risk Informed Completion Time Program cannot be applied to this action.]

The 24 hour Completion Time is based on the low probability of an accident occurring during this time period, on a reasonable time to complete the Required Action, and on frequent core monitoring by operators allowing abrupt changes in core flow conditions to be quickly detected.

This Required Action does not require tripping the recirculation pump in the lowest flow loop when the mismatch between total jet pump flows of the two loops is greater than the required limits. However, in cases where large flow mismatches occur, low flow or reverse flow can occur in the low flow loop jet pumps, causing vibration of the jet pumps. If zero or reverse flow is detected, the condition should be alleviated by changing pump speeds to re-establish forward flow or by tripping the pump.

B.1

With no recirculation loops in operation, at least one recirculation loop must be restored within 1 hour [or in accordance with the Risk Informed Completion Time Program]. Should a LOCA occur with no recirculation loop in operation, the core response may not be bounded by the LOCA analyses. Therefore, only a limited time is allowed to restore the inoperable loop to operating status.

C~~B~~.1

With~~With no recirculation loops in operation or~~ the Required Action and associated Completion Time of Condition A or B 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. In this condition, the recirculation loops are not required to be operating because of the reduced severity of DBAs and minimal dependence on the recirculation loop coastdown characteristics. 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 SR 3.4.1.1

BASES

LCO

The structural failure of any of the jet pumps could cause significant degradation in the ability of the jet pumps to allow reflooding to two-thirds core height during a LOCA. OPERABILITY of all jet pumps is required to ensure that operation of the Reactor Coolant Recirculation System will be consistent with the assumptions used in the licensing basis analysis (Ref. 1).

APPLICABILITY

In MODES 1 and 2, the jet pumps are required to be OPERABLE since there is a large amount of energy in the reactor core and since the limiting DBAs are assumed to occur in these MODES. This is consistent with the requirements for operation of the Reactor Coolant Recirculation System (LCO 3.4.1).

In MODES 3, 4, and 5, the Reactor Coolant Recirculation System is not required to be in operation, and when not in operation, sufficient flow is not available to evaluate jet pump OPERABILITY.

ACTIONS

A.1 and A.2

An inoperable jet pump can increase the blowdown area and reduce the capability of reflooding during a design basis LOCA. If one or more of the jet pumps are inoperable, the inoperable jet pump(s) must be restored to OPERABLE status, or the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the jet pump(s) must be restored within 1 hour [or in accordance with the Risk Informed Completion Time Program] (RA A.1) or the plant must be brought to MODE 3 within 12 hours (RA A.2). The Completion Time of RA A.1 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 Completion Time of RA A.2 (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 REQUIREMENTS

SR 3.4.2.1

This SR is designed to detect significant degradation in jet pump performance that precedes jet pump failure (Ref. 2). This SR is required to be performed only when the loop has forced recirculation flow since surveillance checks and measurements can only be performed during jet pump operation. The jet pump failure of concern is a complete mixer displacement due to jet pump beam failure. Jet pump plugging is also of concern since it adds flow resistance to the recirculation loop. Significant degradation is indicated if the specified criteria confirm unacceptable deviations from established patterns or relationships. The allowable deviations from the established patterns have been developed based on

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 ± 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.]

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.]

C~~B~~.1 and C~~B~~.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 ± [3]% for OPERABILITY; however, the valves are reset to ± 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.]

BASES

ACTIONS

The ACTIONS are modified by two Notes. Note 1 has been provided to modify the ACTIONS related to RCS PIV flow paths. Section 1.3, Completion Times, specifies 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 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 the Condition of RCS PIV leakage limits exceeded provide appropriate compensatory measures for separate affected RCS PIV flow paths. As such, a Note has been provided that allows separate Condition entry for each affected RCS PIV flow path. Note 2 requires an evaluation of affected systems if a PIV is inoperable. The leakage may have affected system OPERABILITY, or isolation of a leaking flow path with an alternate valve may have degraded the ability of the interconnected system to perform its safety function. As a result, the applicable Conditions and Required Actions for systems made inoperable by PIVs must be entered. This ensures appropriate remedial actions are taken, if necessary, for the affected systems.

A.1 and A.2

If leakage from one or more RCS PIVs is not within limit, the flow path must be isolated by at least one closed manual, deactivated automatic, or check valve within 4 hours [or in accordance with the Risk Informed Completion Time Program].

Required Action A.1 and Required Action A.2 are modified by a Note stating that the valves used for isolation must meet the same leakage requirements as the PIVs and must be on the RCPB [or the high pressure portion of the system].

Four hours provides time to reduce leakage in excess of the allowable limit and to isolate the flow path if leakage cannot be reduced while corrective actions to reseat the leaking PIVs are taken. The 4 hours allows time for these actions and restricts the time of operation with leaking valves.

Required Action A.2 specifies that the double isolation barrier of two valves be restored by closing another valve qualified for isolation or restoring one leaking PIV. The 72 hour Completion Time considers the time required to complete the action, the low probability of a second valve failing during this time period, and the low probability of a pressure boundary rupture of the low pressure ECCS piping when overpressurized to reactor pressure (Ref. 7). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

B.1 and B.2

If leakage cannot be reduced or the system isolated, 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 MODE 4 within 36 hours. This action may reduce the leakage and also reduces the potential for a LOCA outside the containment. The Completion Times are reasonable, based on operating experience, to achieve the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.5.1

Performance of leakage testing on each RCS PIV is required to verify that leakage is below the specified limit and to identify each leaking valve. The leakage limit of 0.5 gpm per inch of nominal valve diameter up to 5 gpm maximum applies to each valve. Leakage testing requires a stable pressure condition. For the two PIVs in series, the leakage requirement applies to each valve individually and not to the combined leakage across both valves. If the PIVs are not individually leakage tested, one valve may have failed completely and not be detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

The 18 month Frequency required by the Inservice Testing Program is within the ASME Code Frequency requirement and is based on the need to perform this Surveillance during an outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

This SR is modified by a Note that states the leakage Surveillance is not required to be performed in MODE 3. Entry into MODE 3 is permitted for leakage testing at high differential pressures with stable conditions not possible in the lower MODES.

REFERENCES

1. 10 CFR 50.2.

2. 10 CFR 50.55a(c).

3. 10 CFR 50, Appendix A, GDC 55.

BASES

APPLICABILITY

In MODES 1, 2, and 3, leakage detection systems are required to be OPERABLE to support LCO 3.4.4. This Applicability is consistent with that for LCO 3.4.4.

ACTIONS

A.1

With the drywell floor drain sump monitoring system inoperable, no other form of sampling can provide the equivalent information to quantify leakage. However, the primary containment atmospheric activity monitor [and the primary containment air cooler condensate flow rate monitor] will provide indication of changes in leakage.

With the drywell floor drain sump monitoring system inoperable, but with RCS unidentified and total LEAKAGE being determined every 8 hours (SR 3.4.4.1), operation may continue for 30 days. The 30 day Completion Time of Required Action A.1 is acceptable, based on operating experience, considering the multiple forms of leakage detection that are still available.

B.1 and B.2

With both gaseous and particulate primary containment atmospheric monitoring channels inoperable, grab samples of the primary containment atmosphere must be taken and analyzed to provide periodic leakage information. [Provided a sample is obtained and analyzed once every 12 hours, the plant may be operated for up to 30 days to allow restoration of at least one of the required monitors.] [Provided a sample is obtained and analyzed every 12 hours, the plant may continue operation since at least one other form of drywell leakage detection (i.e., air cooler condensate flow rate monitor) is available.]

The 12 hour interval provides periodic information that is adequate to detect LEAKAGE. The 30 day Completion Time for restoration recognizes that at least one other form of leakage detection is available.

BASES

ACTIONS (continued)

[C.1

With the required primary containment air cooler condensate flow rate monitoring system inoperable, SR 3.4.6.1 must be performed every 8 hours to provide periodic information of activity in the primary containment at a more frequent interval than the routine Frequency of SR 3.4.7.1. The 8 hour interval provides periodic information that is adequate to detect LEAKAGE and recognizes that other forms of leakage detection are available. However, this Required Action is modified by a Note that allows this action to be not applicable if the required primary containment atmospheric monitoring system is inoperable. Consistent with SR 3.0.1, Surveillances are not required to be performed on inoperable equipment.]

[D.1 and D.2

With both the primary containment gaseous and particulate atmospheric monitor channels and the primary containment air cooler condensate flow rate monitor inoperable, the only means of detecting LEAKAGE is the drywell floor drain sump monitor. This condition does not provide the required diverse means of leakage detection. The Required Action is to restore either of the inoperable monitors to OPERABLE status within 30 days to regain the intended leakage detection diversity. The 30 day Completion Time ensures that the plant will not be operated in a degraded configuration for a lengthy time period.]

E.1

With all required monitors inoperable, no required automatic means of monitoring LEAKAGE are available. The Required Action is to restore at least one of the required inoperable monitors to OPERABLE status within 1 hour to regain a method of leakage detection. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required monitor. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

F~~E~~.1 and F~~E~~.2

If any Required Action of Condition A, B, [C, ~~or~~ D,] or E cannot be met 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 MODE 4 within

36 hours. The allowed Completion Times are reasonable, based on operating experience, to perform the actions in an orderly manner and without challenging plant systems.

~~F.1~~

~~With all required monitors inoperable, no required automatic means of monitoring LEAKAGE are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.~~

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.]

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.]

H~~G~~.1 and H~~G~~.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.

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.]

~~H~~J.1

If any Required Action and associated Completion Time of Condition I is not met,~~When multiple ECCS subsystems are inoperable, as stated in Condition H, 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 HPCI System, CS System, and LPCI subsystems full of water ensures that the ECCS will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent a water hammer following an ECCS initiation signal. One acceptable method of ensuring that the lines are full is to vent at the high points. The 31 day Frequency is based on the gradual nature of void buildup in the ECCS piping, the procedural controls governing system operation, and operating experience.

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 ≤ [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

The ACTIONS are modified by Note 1, which allows entry and exit to perform repairs of the affected air lock component. If the outer door is inoperable, then it may be easily accessed to repair. If the inner door is the one that is inoperable, however, then a short time exists when the containment boundary is not intact (during access through the outer door). The ability to open the OPERABLE door, even if it means the primary containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the primary containment during the short time in which the OPERABLE door is expected to be open. The OPERABLE door must be immediately closed after each entry and exit.

The ACTIONS are modified by a second Note, which ensures appropriate remedial measures are taken when necessary. Pursuant to LCO 3.0.6, actions are not required, even if primary containment is exceeding its leakage limit. Therefore, the Note is added to require ACTIONS for LCO 3.6.1.1, "Primary Containment," to be taken in this event.

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

With one primary containment air lock door inoperable, the OPERABLE door must be verified closed (Required Action A.1) in the air lock. This ensures that a leak tight primary containment barrier is maintained by the use of an OPERABLE air lock door. This action must be completed within 1 hour. The 1 hour 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.

In addition, the 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 considered reasonable for locking the OPERABLE air lock door, considering that the OPERABLE door is being maintained closed.

Required Action A.3 ensures that the air lock with an inoperable door has been isolated by the use of a locked closed OPERABLE air lock door. This ensures that an acceptable primary 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

BASES

ACTIONS (continued)

lock doors located in high radiation areas or areas with limited access due to inerting 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.

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 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. 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. Primary containment entry may be required to perform Technical Specifications (TS) Surveillances and Required Actions, as well as other activities on equipment inside primary 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-related activities) if the primary containment was 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 primary 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, 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 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).

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

conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

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 de-activated 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.]

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.4 Drywell Pressure

BASES

BACKGROUND	The drywell pressure is limited during normal operations to preserve the initial conditions assumed in the accident analysis for a Design Basis Accident (DBA) or loss of coolant accident (LOCA).
APPLICABLE SAFETY ANALYSES	Primary containment performance is evaluated for the entire spectrum of break sizes for postulated LOCAs (Ref. 1). Among the inputs to the DBA is the initial primary containment internal pressure (Ref. 1). Analyses assume an initial drywell pressure of [0.75 psig]. This limitation ensures that the safety analysis remains valid by maintaining the expected initial conditions and ensures that the peak LOCA drywell internal pressure does not exceed the maximum allowable of [62] psig. The maximum calculated drywell pressure occurs during the reactor blowdown phase of the DBA, which assumes an instantaneous recirculation line break. The calculated peak drywell pressure for this limiting event is [57.5] psig (Ref. 1). Drywell pressure satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).
LCO	In the event of a DBA, with an initial drywell pressure ≤ [0.75 psig], the resultant peak drywell accident pressure will be maintained below the drywell design pressure.
APPLICABILITY	In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining drywell pressure within limits is not required in MODE 4 or 5.
ACTIONS	A.1 With drywell pressure not within the limit of the LCO, drywell pressure must be restored within 1 hour [or in accordance with the Risk Informed Completion Time Program]. The Required Action is necessary to return operation to within the bounds of the primary containment analysis. The 1 hour 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. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

B.1 and B.2

If drywell pressure cannot be restored to within limit 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 REQUIREMENTS

SR 3.6.1.4.1

Verifying that drywell pressure is within limit ensures that unit operation remains within the limit assumed in the primary containment analysis. The 12 hour Frequency of this SR was developed, based on operating experience related to trending of drywell pressure variations during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal drywell pressure condition.

REFERENCES

1. FSAR, Section [6.2].

BASES

ACTIONS

A.1

With drywell average air temperature not within the limit of the LCO, drywell average air temperature must be restored within 8 hours [or in accordance with the Risk Informed Completion Time Program]. The Required Action is necessary to return operation to within the bounds of the primary containment analysis. The 8 hour Completion Time is acceptable, considering the sensitivity of the analysis to variations in this parameter, and provides 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

If the drywell average air temperature cannot be restored to within limit 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 REQUIREMENTS

SR 3.6.1.5.1

Verifying that the drywell average air temperature is within the LCO limit ensures that operation remains within the limits assumed for the primary containment analyses. Drywell air temperature is monitored in all quadrants and at various elevations (referenced to mean sea level). Due to the shape of the drywell, a volumetric average is used to determine an accurate representation of the actual average temperature.

The 24 hour Frequency of the SR was developed based on operating experience related to drywell average air temperature variations and temperature instrument drift during the applicable MODES and the low probability of a DBA occurring between surveillances. 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 drywell air temperature condition.

REFERENCES

1. FSAR, Section [6.2].

2. FSAR, Section [6.2.1.4.1].

3. FSAR, Section [6.2.1.4.5].

BASES

LCO

[Four] LLS valves are required to be OPERABLE to satisfy the assumptions of the safety analyses (Ref. 1). The requirements of this LCO are applicable to the mechanical and electrical/pneumatic capability of the LLS valves to function for controlling the opening and closing of the S/RVs.

APPLICABILITY

In MODES 1, 2, and 3, an event could cause pressurization of the reactor and opening of S/RVs. 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 LLS valves OPERABLE is not required in MODE 4 or 5.

ACTIONS

A.1

With one LLS valve inoperable, the remaining OPERABLE LLS valves are adequate to perform the designed function. However, the overall reliability is reduced. The 14 day Completion Time takes into account the redundant capability afforded by the remaining LLS valves and the low probability of an event in which the remaining LLS valve capability would be inadequate. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

B.1

With two or more LLS valves inoperable, the Required Action is to restore sufficient required LLS valves to OPERABLE status within 1 hour to regain the LLS function of preventing excessive short duration S/RV cycles. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient LLS valves. Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C~~B~~.1 and C~~B~~.2

~~If two or more LLS valves are inoperable or i~~f the Required Action and associated Completion Time of Condition A or B not met~~inoperable LLS valve 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.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

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

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

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 REQUIREMENTS

SR 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 ≥ [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

APPLICABILITY

In MODES 1, 2, and 3, a DBA could lead to a fission product release to primary containment. Therefore, MSIV LCS OPERABILITY is required during these MODES. 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 MSIV LCS OPERABLE is not required in MODE 4 or 5 to ensure MSIV leakage is processed.

ACTIONS

A.1

With one MSIV LCS subsystem inoperable, the inoperable MSIV LCS subsystem must be restored to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE MSIV LCS subsystem is adequate to perform the required leakage control function. However, the overall reliability is reduced because a single failure in the remaining subsystem could result in a total loss of MSIV leakage control function. The 30 day Completion Time is based on the redundant capability afforded by the remaining OPERABLE MSIV LCS subsystem and the low probability of a DBA LOCA occurring during this period.

B.1

With two MSIV LCS subsystems inoperable, at least one 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 DBA LOCA.

C.1 and C.2

If the MSIV LCS subsystem 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.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.9.1

Each MSIV LCS blower is operated for ≥ [15] minutes to verify OPERABILITY. The 31 day Frequency was developed considering the known reliability of the LCS blower and controls, the two subsystem redundancy, and the low probability of a significant degradation of the MSIV LCS subsystems occurring between surveillances and has been shown to be acceptable through operating experience.

BASES

LCO (continued)

[Note that [25/40] divisions of full scale on IRM Range 7 is a convenient measure of when the reactor is producing power essentially equivalent to 1% RTP]. At [this power level] [1% RTP], heat input is approximately equal to normal system heat losses.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause significant heatup of the suppression pool. 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 suppression pool average temperature within limits is not required in MODE 4 or 5.

ACTIONS

A.1 and A.2

With the suppression pool average temperature above the specified limit when not performing testing that adds heat to the suppression pool and when above the specified power indication, the initial conditions exceed the conditions assumed for the Reference 1, 3, and 4 analyses. However, primary containment cooling capability still exists, and the primary containment pressure suppression function will occur at temperatures well above those assumed for safety analyses. Therefore, continued operation is allowed for a limited time. The 24 hour Completion Time is adequate to allow the suppression pool average temperature to be restored below the limit. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] Additionally, when suppression pool temperature is > [95]°F, increased monitoring of the suppression pool temperature is required to ensure that it remains ≤ [110]°F. The once per hour Completion Time is adequate based on past experience, which has shown that pool temperature increases relatively slowly except when testing that adds heat to the suppression pool is being performed. Furthermore, the once per hour Completion Time is considered adequate in view of other indications in the control room, including alarms, to alert the operator to an abnormal suppression pool average temperature condition.

B.1

If the suppression pool average temperature 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 power must be reduced to [< [25/40] divisions of full scale on Range 7 for all OPERABLE IRMs] [≤ 1% RTP] within 12 hours. The 12 hour Completion Time is reasonable, based on operating experience, to reduce power from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

C.1

Suppression pool average temperature is allowed to be > [95]°F [when any OPERABLE IRM channel is > [25/40] divisions of full scale on Range 7] [with THERMAL POWER > 1% RTP], and when testing that adds heat to the suppression pool is being performed. However, if temperature is > [105]°F, all testing must be immediately suspended to preserve the heat absorption capability of the suppression pool. With the testing suspended, Condition A is entered and the Required Actions and associated Completion Times are applicable.

D.1 and D.2

Suppression pool average temperature > [110]°F requires that the reactor be shut down immediately. This is accomplished by placing the reactor mode switch in the shutdown position. Further cooldown to Mode 4 is required at normal cooldown rates (provided pool temperature remains ≤ [120]°F). Additionally, when suppression pool temperature is > [110]°F, increased monitoring of pool temperature is required to ensure that it remains ≤ [120]°F. The once per 30 minute Completion Time is adequate, based on operating experience. Given the high suppression pool average temperature in this Condition, the monitoring Frequency is increased to twice that of Condition A. Furthermore, the 30 minute Completion Time is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool average temperature condition.

E.1 and E.2

If suppression pool average temperature cannot be maintained at ≤ [120]°F, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the reactor pressure must be reduced to < [200] psig within 12 hours, and the plant must be brought to at least 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)

Continued addition of heat to the suppression pool with suppression pool temperature > [120]°F could result in exceeding the design basis maximum allowable values for primary containment temperature or pressure. Furthermore, if a blowdown were to occur when the temperature was > [120]°F, the maximum allowable bulk and local temperatures could be exceeded very quickly.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1.1

The suppression pool average temperature is regularly monitored to ensure that the required limits are satisfied. The average temperature is determined by taking an arithmetic average of OPERABLE suppression pool water temperature channels. The 24 hour Frequency has been shown, based on operating experience, to be acceptable. When heat is being added to the suppression pool by testing, however, it is necessary to monitor suppression pool temperature more frequently. The 5 minute Frequency during testing is justified by the rates at which tests will heat up the suppression pool, has been shown to be acceptable based on operating experience, and provides assurance that allowable pool temperatures are not exceeded. The Frequencies are further justified in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool average temperature condition.

REFERENCES

1. FSAR, Section [6.2].

2. FSAR, Section [15.1].

3. NUREG-0783.

[4. Mark I Containment Program.]

BASES

LCO	A limit that suppression pool water level be ≥ [12 ft 2 inches] and ≤ [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

ACTIONS (continued)

C.1 and C.2

If the 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 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 3.6.2.3.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR suppression pool cooling mode flow path provides assurance that the proper flow path exists for system 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 is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the RHR suppression pool cooling mode is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ [7700] gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME Code (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is [in accordance with the Inservice Testing Program or 92 days].

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

ACTIONS (continued)

C.1 and C.2

If the inoperable RHR suppression pool spray 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 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 3.6.2.4.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR suppression pool spray mode flow path provides assurance that the proper flow paths will exist for system 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 is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the RHR suppression pool cooling mode is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.

SR 3.6.2.4.2

Verifying each RHR pump develops a flow rate ≥ [400] gpm while operating in the suppression pool spray mode with flow through the heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by the ASME Code (Ref. 2). This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice

BASES

APPLICABILITY

Drywell-to-suppression chamber differential pressure must be controlled when the primary containment is inert. The primary containment must be inert in MODE 1, since this is the condition with the highest probability for an event that could produce hydrogen. It is also the condition with the highest probability of an event that could impose large loads on the primary containment.

Inerting primary containment is an operational problem because it prevents primary containment access without an appropriate breathing apparatus. Therefore, the primary containment is inerted as late as possible in the unit startup and is de-inerted as soon as possible in the unit shutdown. As long as reactor power is < [15]% RTP, the probability of an event that generates hydrogen or excessive loads on primary containment occurring within the first [24] hours following a startup or within the last [24] hours prior to a shutdown is low enough that these "windows," with the primary containment not inerted, are also justified. The [24] hour time period is a reasonable amount time to allow plant personnel to perform inerting or de-inerting.

ACTIONS

A.1

If drywell-to-suppression chamber differential pressure is not within the limit, the conditions assumed in the safety analyses are not met and the differential pressure must be restored to within the limit within 8 hours [or in accordance with the Risk Informed Completion Time Program]. The 8 hour Completion Time provides sufficient time to restore differential pressure to within limit and takes into account the low probability of an event that would create excessive suppression chamber loads occurring during this time period.

B.1

If the differential pressure cannot be restored to within limits within the associated Completion Time, the plant must be placed in a MODE in which the LCO does not apply. This is done by reducing power to ≤ [15]% RTP within 12 hours. The 12 hour Completion Time is reasonable, based on operating experience, to reduce reactor power 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 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 REQUIREMENTS

SR 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

A.1

If oxygen concentration is ≥ 4.0 v/o at any time while operating in MODE 1, with the exception of the relaxations allowed during startup and shutdown, oxygen concentration must be restored to < 4.0 v/o within 24 hours [or in accordance with the Risk Informed Completion Time Program]. The 24 hour Completion Time is allowed when oxygen concentration is ≥ 4.0 v/o because of the low probability and long duration of an event that would generate significant amounts of hydrogen occurring during this period.

B.1

If oxygen concentration 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, power must be reduced to ≤ [15]% RTP within 8 hours. The 8 hour Completion Time is reasonable, based on operating experience, to reduce reactor power from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.3.2.1

The primary containment must be determined to be inert by verifying that oxygen concentration is < 4.0 v/o. The 7 day Frequency is based on the slow rate at which oxygen concentration can change and on other indications of abnormal conditions (which would lead to more frequent checking by operators in accordance with plant procedures). Also, this Frequency has been shown to be acceptable through operating experience.

REFERENCES

1. FSAR, Section [6.2.5].

BASES

LCO	Two CAD subsystems must be OPERABLE. This ensures operation of at least one CAD subsystem in the event of a worst case single active failure. Operation of at least one CAD subsystem is designed to maintain primary containment post-LOCA oxygen concentration < 5.0 v/o for 7 days.
APPLICABILITY	In MODES 1 and 2, the CAD System is required to maintain the oxygen concentration within primary containment below the flammability limit of 5.0 v/o following a LOCA. This ensures that the relative leak tightness of primary containment is adequate and prevents damage to safety related equipment and instruments located within primary containment. In MODE 3, both the hydrogen and oxygen production rates and the total amounts produced after a LOCA would be less than those calculated for the Design Basis Accident LOCA. Thus, if the analysis were to be performed starting with a LOCA in MODE 3, the time to reach a flammable concentration would be extended beyond the time conservatively calculated for MODES 1 and 2. The extended time would allow hydrogen removal from the primary containment atmosphere by other means and also allow repair of an inoperable CAD subsystem, if CAD were not available. Therefore, the CAD System is not required to be OPERABLE in MODE 3. In MODES 4 and 5, the probability and consequences of a LOCA are reduced due to the pressure and temperature limitations of these MODES. Therefore, the CAD System is not required to be OPERABLE in MODES 4 and 5.
ACTIONS	A.1 If one CAD subsystem is inoperable, it must be restored to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CAD subsystem is adequate to perform the oxygen control function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced oxygen control capability. The 30 day Completion Time is based on the low probability of the occurrence of a LOCA that would generate hydrogen and oxygen 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 OPERABLE CAD subsystem and other hydrogen mitigating systems.

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

ACTIONS (continued)

C.1

If any Required Action cannot be met 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. 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 REQUIREMENTS

SR 3.6.3.3.1

Verifying that there is ≥ [4350] gal of liquid nitrogen supply in the CAD System will ensure at least [7] days of post-LOCA CAD operation. This minimum volume of liquid nitrogen allows sufficient time after an accident to replenish the nitrogen supply for long term inerting. This is verified every 31 days to ensure that the system is capable of performing its intended function when required. The 31 day Frequency is based on operating experience, which has shown 31 days to be an acceptable period to verify the liquid nitrogen supply and on the availability of other hydrogen mitigating systems.

SR 3.6.3.3.2

Verifying the correct alignment for manual, power operated, and automatic valves in each of the CAD subsystem flow paths provides assurance that the proper flow paths exist for system 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 is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable because the CAD System is manually initiated. This SR 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 capable of being mispositioned are in the correct position.

BASES

APPLICABILITY (continued)

-During fuel handling/core alterations, ventilation system and radiation monitor availability (as defined in NUMARC 91-06) should be assessed, with respect to filtration and monitoring of releases from the fuel. Following shutdown, radioactivity in the fuel decays away fairly rapidly. The basis of the Technical Specification operability amendment is the reduction in doses due to such decay. The goal of maintaining ventilation system and radiation monitor availability is to reduce doses even further below that provided by the natural decay.

-A single normal or contingency method to promptly close primary or secondary containment penetrations should be developed. Such prompt methods need not completely block the penetration or be capable of resisting pressure.

The purpose of the "prompt methods" mentioned above are to enable ventilation systems to draw the release from a postulated fuel handling accident in the proper direction such that it can be treated and monitored."

ACTIONS

A.1

If [secondary] containment is inoperable, it must be restored to OPERABLE status within 4 hours [or in accordance with the Risk Informed Completion Time Program]. The 4 hour Completion Time provides a period of time to correct the problem that is commensurate with the importance of maintaining [secondary] containment during MODES 1, 2, and 3. This time period also ensures that the probability of an accident (requiring [secondary] containment OPERABILITY) occurring during periods where [secondary] containment is inoperable is minimal.

B.1 and B.2

If [secondary] containment 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)

C.1 and C.2

Movement of [recently] irradiated fuel assemblies in the [secondary] containment and OPDRVs can be postulated to cause significant fission product release to the [secondary] containment. In such cases, the [secondary] containment is the only barrier to release of fission products to the environment. Therefore, movement of [recently] irradiated fuel assemblies must be immediately suspended if the [secondary] containment is inoperable.

Suspension of these activities shall not preclude completing an action that involves moving a component to a safe position. Also, action must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

Required Action C.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving [recently] irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of [recently] irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

[SR 3.6.4.1.1

This SR ensures that the [secondary] containment boundary is sufficiently leak tight to preclude exfiltration under expected wind conditions. The 24 hour Frequency of this SR was developed based on operating experience related to [secondary] containment vacuum variations during the applicable MODES and the low probability of a DBA occurring between surveillances.

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 [secondary] containment vacuum condition.]

BASES

ACTIONS (continued)

The third Note ensures appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable SCIV.

A.1 and A.2

In the event that there are one or more penetration flow paths with one SCIV inoperable, the affected penetration flow path(s) must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic SCIV, a closed manual valve, and a blind flange. For penetrations isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available device to [secondary] containment. The Required Action must be completed within the 8 hour Completion Time [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 probability of a DBA, which requires the SCIVs to close, occurring during this short time is very low.

For affected penetrations that have been isolated in accordance with Required Action A.1, the affected penetration must be verified to be isolated on a periodic basis. This is necessary to ensure that [secondary] containment penetrations required to be isolated following an accident, but no longer capable of being automatically isolated, will be in the isolation position should an event occur. The Completion Time of once per 31 days following isolation is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low. This Required Action does not require any testing or device manipulation. Rather, it involves verification that the affected penetration remains isolated.

Required Action A.2 is modified by two Notes. Note 1 applies to devices located in high radiation areas and allows them to be verified closed by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted. 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.

BASES

ACTIONS (continued)

B.1

With two SCIVs in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 4 hours [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 4 hour Completion Time is reasonable considering the time required to isolate the penetration and the probability of a DBA, which requires the SCIVs to close, occurring during this short time, is very low.

The Condition has been modified by a Note stating that Condition B is only applicable to penetration flow paths with two isolation valves. This clarifies that only Condition A is entered if one SCIV is inoperable in each of two penetrations.

C.1 and C.2

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 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.

D.1 and D.2

If any Required Action and associated Completion Time are not met, the plant must be placed in a condition in which the LCO does not apply. If applicable, the movement of [recently] irradiated fuel assemblies in the [secondary] containment must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be immediately initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

BASES

ACTIONS (continued)

Required Action D.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving [recently] irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving fuel while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of [recently] irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

This SR verifies that each secondary containment manual isolation valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the [secondary] containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those SCIVs in [secondary] containment that are capable of being mispositioned are in the correct position.

Since these SCIVs are readily accessible to personnel during normal operation and verification of their position is relatively easy, the 31 day Frequency was chosen to provide added assurance that the SCIVs are in the correct positions. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

Two Notes have been added to this SR. The first Note applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these SCIVs, once they have been verified to be in the proper position, is low.

A second Note has been included to clarify that SCIVs that are open under administrative controls are not required to meet the SR during the time the SCIVs are open.

BASES

BACKGROUND (continued)

The SGT System automatically starts and operates in response to actuation signals indicative of conditions or an accident that could require operation of the system. Following initiation, both charcoal filter train fans start. Upon verification that both subsystems are operating, the redundant subsystem is normally shut down.

APPLICABLE SAFETY ANALYSES

The design basis for the SGT System is to mitigate the consequences of a loss of coolant accident and fuel handling accidents [involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)] (Ref. 2). For all events analyzed, the SGT System is shown to be automatically initiated to reduce, via filtration and adsorption, the radioactive material released to the environment.

The SGT System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Following a DBA, a minimum of one SGT subsystem is required to maintain the [secondary] containment at a negative pressure with respect to the environment and to process gaseous releases. Meeting the LCO requirements for two OPERABLE subsystems ensures operation of at least one SGT subsystem in the event of a single active failure.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could lead to a fission product release to primary containment that leaks to secondary containment. Therefore, SGT System OPERABILITY is required during these MODES.

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 SGT System in OPERABLE status is not required in MODE 4 or 5, except for other situations under which significant releases of radioactive material can be postulated, such as during operations with a potential for draining the reactor vessel (OPDRVs) or during movement of [recently] irradiated fuel assemblies in the [secondary] containment. [Due to radioactive decay, the SGT 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 SGT subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status in 7 days [or in accordance with the Risk Informed Completion Time Program]. In this Condition, the remaining OPERABLE SGT subsystem is adequate to perform the required radioactivity release control function. However, the overall system reliability is reduced because a single failure in the OPERABLE

BASES

ACTIONS (continued)

subsystem could result in the radioactivity release control function not being adequately performed. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE redundant SGT System and the low probability of a DBA occurring during this period.

B.1

If both SGT subsystems are inoperable in MODE 1, 2, or 3, the SGT system may not be capable of supporting the required radioactivity release control function. With two SGT subsystems inoperable the Required Action is to restore at least one SGT subsystem to OPERABLE status within 1 hour to regain the SGT safety function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one SGT subsystem. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C~~B~~.1 and C~~B~~.2

If the SGT subsystem(s) cannot be restored to OPERABLE status within the required Completion Time 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.

D~~C~~.1, D~~C~~.2.1, and D~~C~~.2.2

During movement of [recently] irradiated fuel assemblies, in the [secondary] containment or during OPDRVs, when Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE SGT subsystem should immediately be placed in operation. This action ensures that the remaining subsystem is OPERABLE, that no failures that could prevent automatic actuation have occurred, and that any other failure would be readily detected.

An alternative to Required Action D~~C~~.1 is to immediately suspend activities that represent a potential for releasing a significant amount of radioactive material to the [secondary] containment, thus placing the plant in a condition that minimizes risk. If applicable, movement of [recently]

irradiated fuel assemblies must immediately be suspended. Suspension of these activities must not preclude completion of movement of a component to a safe position. Also, if applicable, actions must immediately be initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

BASES

ACTIONS (continued)

The Required Actions of Condition D~~C~~ have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving [recently] irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of [recently] irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

~~D.1~~

~~If both SGTS subsystems are inoperable in MODE 1, 2, or 3, the SGT system may not be capable of supporting the required radioactivity release control function. Therefore, actions are required to enter LCO 3.0.3 immediately.~~

E.1 and E.2

When two SGT subsystems are inoperable, if applicable, movement of [recently] irradiated fuel assemblies in [secondary] containment must immediately be suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must immediately be initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

Required Action E.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving [recently] irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of [recently] irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

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.

ACTIONS

A.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 (continued)

E.1 and E.2

If the RHRSW subsystems cannot be not restored to OPERABLE status within the associated Completion Times, 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 3.7.1.1

Verifying the correct alignment for each manual, power operated, and automatic valve in each RHRSW subsystem flow path provides assurance that the proper flow paths will exist for RHRSW 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. A valve is also allowed to be in the nonaccident position, and yet considered in the correct position, provided it can be realigned to its accident position. This is acceptable because the RHRSW System is a manually initiated system. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

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

REFERENCES

1. FSAR, Section [9.2.7].
2. FSAR, Chapter [6].
3. FSAR, Chapter [15].
4. FSAR, Section [6.2.1.4.3].

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)

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.]

G~~F~~.1 and G~~F~~.2

If the [PSW] subsystem cannot be restored to OPERABLE status within the associated Completion Time~~, 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]~~ of Condition A, B, [D,] or F, 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

BASES

APPLICABILITY

In MODES 1, 2, and 3, the [MCREC] System must be OPERABLE to control operator exposure during and following a DBA, since the DBA could lead to a fission product release.

In MODES 4 and 5, the probability and consequences of a DBA are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining the [MCREC] 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 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 MCREC 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 [MCREC] subsystem inoperable, the inoperable [MCREC] subsystem 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 [MCREC] subsystem is adequate to perform control room radiation protection. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced [MCREC] System capability. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.

BASES

ACTIONS (continued)

If the main control room boundary is inoperable in MODE 1, 2, or 3, the MCREC subsystems cannot perform their intended functions. Actions must be taken to restore an OPERABLE main control room boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the main control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the main control room boundary.

C.1

If both [MCREC] subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable control room boundary (i.e., Condition B), the [MCREC] System may not be capable of performing the intended function. With two [MCREC] subsystems inoperable the Required Action is to restore at least one inoperable [MCREC] 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 [MCREC] subsystem. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D~~C~~.1 and D~~C~~.2

In MODE 1, 2, or 3, if the inoperable [MCREC] subsystem(s) or control room boundary 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.

E~~D~~.1, E~~D~~.2.1 and E~~D~~.2.2

The Required Actions of Condition E ~~D~~ 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.

BASES

ACTIONS (continued)

During movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs, if the inoperable [MCREC] subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE [MCREC] subsystem may be placed in the pressurization mode. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent automatic actuation will occur, and that any active failure will be readily detected.

Required Action -E~~D~~.1 is modified by a Note alerting the operator to [place the system in the toxic gas protection mode if the toxic gas automatic transfer capability is inoperable].

An alternative to Required Action E ~~D~~.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 the subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

~~E.1~~

~~If both [MCREC] subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable control room boundary (i.e., Condition B), the [MCREC] System 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.~~

F.1 and F.2

The Required Actions of Condition 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 sufficient reason to require a reactor shutdown.

BASES

ACTIONS (continued)

During movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs, with two [MCREC] 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, 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. If applicable, actions must be initiated immediately to suspend OPDVRs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem once every month provides an adequate check on this system. Monthly heater operation dries out any moisture that has accumulated in the charcoal as a result of humidity in the ambient air. [Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥ 15 minutes to demonstrate the function of the system.] Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.

SR 3.7.4.2

This SR verifies that the required [MCREC] testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].

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.

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.]

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.

DC.1, DC.2.1, and DC.2.2

The Required Actions of Condition DC 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 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 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)

~~D.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.~~

E.1 and E.2

The Required Actions of Condition E 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 REQUIREMENTS

SR 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

ACTIONS

A.1

If the offgas radioactivity rate limit is exceeded, 72 hours is allowed to restore the gross gamma activity rate to within the limit. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 72 hour Completion Time is reasonable, based on engineering judgment, the time required to complete the Required Action, the large margins associated with permissible dose and exposure limits, and the low probability of a Main Condenser Offgas System rupture.

B.1, B.2, B.3.1, and B.3.2

If the gross gamma activity rate is not restored to within the limits in the associated Completion Time, [all main steam lines or] the SJAE must be isolated. This isolates the Main Condenser Offgas System from the source of the radioactive steam. The main steam lines are considered isolated if at least one main steam isolation valve in each main steam line is closed, and at least one main steam line drain valve in each drain line is closed. The 12 hour Completion Time is reasonable, based on operating experience, to perform the actions from full power conditions in an orderly manner and without challenging unit systems.

An alternative to Required Actions B.1 and B.2 is to place the unit 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 3.7.6.1

This SR, on a 31 day Frequency, requires an isotopic analysis of an offgas sample to ensure that the required limits are satisfied. The noble gases to be sampled are Xe-133, Xe-135, Xe-138, Kr-85, Kr-87, and Kr-88. If the measured rate of radioactivity increases significantly (by ≥ 50% after correcting for expected increases due to changes in THERMAL POWER), an isotopic analysis is also performed within 4 hours after the increase is noted, to ensure that the increase is not indicative of a sustained increase in the radioactivity rate. The 31 day Frequency is adequate in view of other instrumentation that continuously monitor the offgas, and is acceptable, based on operating experience.

This SR is modified by a Note indicating that the SR is not required to be performed until 31 days after any [main steam line is not isolated and] the SJAE is in operation. Only in this condition can radioactive fission gases be in the Main Condenser Offgas System at significant rates.

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 ≥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.]

[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.]

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.]

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.]

H~~G~~.1 and H~~G~~.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.

~~H.1~~

~~Condition H 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

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.

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.]

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

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.]

C~~B~~.1 and C~~B~~.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)

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.]

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

F~~E~~.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."

~~F.1~~

~~Condition 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 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 SR 3.8.9.1

1.3 Completion Times

EXAMPLES (continued)

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

---------- 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 OR In accordance with the Risk Informed Completion Time Program
B. Two subsystems inoperable.	B.1 Restore at least one subsystem to OPERABLE status.	1 hour 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. AND 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 is also entered. At least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. For emergent conditions, the licensee may be able to apply a RICT if the requirements of the Risk Informed Completion Time Program are met. A RICT cannot be applied if Condition B is entered voluntarily.

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 COMPLETION TIME	When "Immediately" is used as a Completion Time, the Required Action 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.

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] [OR 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 [OR 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 [OR 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
A. One or more required channels inoperable.	A.1 Place channel in trip. OR A.2 Place associated trip system in trip.	12 hours [OR In accordance with the Risk Informed Completion Time Program] 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. OR B.2 Place one trip system in	6 hours [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
	trip.	6 hours [OR 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 [OR 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

Table 3.3.1.1-1 (page 1 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitors					
a. Neutron Flux – High	2	[3]	H	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [122/125] divisions of full scale
	5[(a)]	[3]	I	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [122/125] divisions of full scale
b. Inop	2	[3]	H	SR 3.3.1.1.4 SR 3.3.1.1.13	NA
	5[(a)]	[3]	I	SR 3.3.1.1.5 SR 3.3.1.1.13	NA
2. Average Power Range Monitors					
a. Neutron Flux - High, Setdown	2	[3]	H	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.6 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ [20]% RTP
b. Flow Biased Simulated Thermal Power - High	1	[3]	G	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.3 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [0.66 W + 67]% RTP and ≤ [113]% RTP[(b)]

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

[(b) Allowable Value is [≤ 0.66 W + 43%] RTP when reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating."]

Table 3.3.1.1-1 (page 2 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (Continued)					
c. Fixed Neutron Flux - High	1	[3]	G	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [120]% RTP
d. Inop	1,2	[3]	H	SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.13	NA
3. Reactor Vessel Steam Dome Pressure - High	1,2	[2]	H	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [1079.7] psig
4. Reactor Vessel Water Level - Low, Level 3	1,2	[2]	H	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.15	≥ [10.8] inches
5. Reactor Vessel Water Level - High, Level 8	≥ 25% RTP	[2]	F	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [54.1] inches
6. Main Steam Isolation Valve - Closure	1	[8]	G	SR 3.3.1.1.9 SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [7]% closed

Table 3.3.1.1-1 (page 3 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Drywell Pressure - High	1,2	[2]	H	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [1.43] psig
8. Scram Discharge Volume Water Level - High					
a. Transmitter/Trip Unit	1,2	[2]	H	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [63]% of full scale
	5[(a)]	[2]	I	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [63]% of full scale
b. Float Switch	1,2	[2]	H	SR 3.3.1.1.7 SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [65] inches
	5[(a)]	[2]	I	SR 3.3.1.1.7 SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [65] inches
9. Turbine Stop Valve Closure, Trip Oil Pressure - Low	≥ [40]% RTP	[4]	E	SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ [37] psig
10. Turbine Control Valve Fast Closure, Trip Oil Pressure - Low	≥ [40]% RTP	[2]	E	SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ [42] psig

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

Table 3.3.1.1-1 (page 4 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
11. Reactor Mode Switch - Shutdown Position	1,2	[2]	H	SR 3.3.1.1.10 SR 3.3.1.1.13	NA
	5[a]	[2]	I	SR 3.3.1.1.10 SR 3.3.1.1.13	NA
12. Manual Scram	1,2	[2]	H	SR 3.3.1.1.5 SR 3.3.1.1.13	NA
	5[a]	[2]	I	SR 3.3.1.1.5 SR 3.3.1.1.13	NA

Comment: Condition B has an "Immediately" CT, Condition C is a default Condition, and Condition E is outside the applicability of the Traveler. Therefore these Conditions are 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 [OR 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. AND D.2 Place reactor mode switch in the shutdown position.	1 hour [OR In accordance with the Risk Informed Completion Time Program] 1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
		[OR In accordance with the Risk Informed Completion Time Program]

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
	AND	
	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

Comment: No changes. No RAs have a Completion Time longer than "Immediately".

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. AND C.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately Immediately

Comment: Condition A already has a 30 day CT, Condition D is a default Condition, and Conditions E and F apply to the default Condition (Condition D). Therefore these are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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

Table 3.3.3.1-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. Reactor Steam Dome Pressure	2	E
2. Reactor Vessel Water Level	2	E
3. Suppression Pool Water Level	2	E
4. Drywell Pressure	2	E
5. Primary Containment Area Radiation	2	[F]
[6. Drywell Sump Level	2	E]
[7. Drywell Drain Sump Level	2	E]
8. Penetration Flow Path PCIV Position	2 per penetration flow path[(a) (c)]	E
9. Wide Range Neutron Flux	2	E
10. Primary Containment Pressure	2	E
11. [Relief Valve Discharge Location] Suppression Pool Water Temperature	2[(c)]	E

(a) Not required for isolation valves whose associated penetration flow path is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) Monitoring each [relief valve discharge location].

----------REVIEWER'S NOTE----------
Table 3.3.3.1-1 shall be amended for each plant as necessary to list:
1. All Regulatory Guide 1.97, Type A instruments and
2. All Regulatory Guide 1.97, Category 1, non-Type A instruments specified in the plant's Regulatory Guide 1.97, Safety Evaluation Report.

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.

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 ≥ [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 [OR In accordance with the Risk Informed Completion Time Program]
	OR	
	A.2 ----------NOTE---------- Not applicable if inoperable channel is the result of an inoperable breaker. ---------- Place channel in trip.	72 hours [OR In accordance with

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. AND [MCPR limit for inoperable EOC-RPT not made applicable.]	B.1 Restore EOC-RPT trip capability. OR [B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.	2 hours [OR In accordance with the Risk Informed Completion Time Program] 2 hours] [OR In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Remove the associated recirculation pump fast speed breaker from service. OR C.2 Reduce THERMAL POWER to < [40]% RTP.	4 hours 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]

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
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status.	14 days [OR In accordance with the Risk Informed Completion Time Program]
	OR	
	A.2 ----------NOTE---------- Not applicable if inoperable channel is the result of an inoperable breaker. ---------- Place channel in trip.	14 days [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours [OR 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 [OR 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. OR 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. 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. AND	1 hour from discovery of loss of initiation capability for feature(s) in both divisions

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 ----------NOTES---------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 3.a and 3.b. ---------- Declare High Pressure Core Spray (HPCS) System inoperable.	1 hour from discovery of loss of HPCS initiation capability
	AND	
	B.3 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 3.3.5.1-1.	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. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	AND	
	C.2 Restore channel to OPERABLE status.	24 hours [OR In accordance with

		the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1 ----------NOTE---------- Only applicable if HPCS pump suction is not aligned to the suppression pool. ----------	
	Declare HPCS System inoperable.	1 hour from discovery of loss of HPCS initiation capability
	AND	
	D.2.1 Place channel in trip.	24 hours
	OR	[OR In accordance with the Risk Informed Completion Time Program]
	D.2.2 Align the HPCS pump suction to the suppression pool.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1 ----------NOTES---------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.e, 1.f, and 2.e. ----------	
	Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions

	AND E.2 Restore channel to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	F.1 Declare Automatic Depressurization System (ADS) valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	AND	
	F.2 Place channel in trip.	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 AND 8 days [OR In accordance with the Risk Informed Completion Time Program]
G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	G.1 ----------NOTE---------- Only applicable for Functions 4.c, 4.e, 4.f, 4.g, 5.c, 5.e, and 5.f. ----------	
	Declare ADS valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	AND	
	G.2 Restore channel to OPERABLE status.	96 hours [or in accordance with the

		Risk Informed Completion Time Program] from discovery of inoperable channel concurrent with HPCS or RCIC inoperable AND 8 days [OR In accordance with the Risk Informed Completion Time Program]

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

Table 3.3.5.1-1 (page 1 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3, 4[a], 5[a]	[2][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [-152.5] inches
b. Drywell Pressure - High	1, 2, 3	[2][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.]	≤ [1.44] psig
c. LPCI Pump A Start - Time Delay Relay	1, 2, 3, 4[a], 5[a]	[1]	C	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	≥ [ ] seconds and ≤ [5.25] seconds
d. Reactor Steam Dome Pressure - Low (Injection Permissive)	1, 2, 3	[3]	C	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [452] psig and ≤ [534] psig
	4[a], 5[a]	[3]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [452] psig and ≤ [534] psig
e. [LPCS Pump Discharge Flow - Low (Bypass)]	1, 2, 3, 4[a], 5[a]	[1]	E	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [ ] gpm and ≤ [ ] gpm

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, “ECCS - Shutdown.”

(b) Also required to initiate the associated [Technical Specifications (TS) required functions].

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. LPCI and LPCS Subsystems					
f. [LPCI Pump A Discharge Flow - Low (Bypass)]	1, 2, 3, 4[a], 5[a]	[1]	E	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [ ] gpm and ≤ [ ] gpm
[g. Manual Initiation	1, 2, 3, 4[a], 5[a]	[1]	C	SR 3.3.5.1.6	NA]
2. LPCI B and LPCI C Subsystems					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3, 4[a], 5[a]	[2][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [-152.5] inches
b. Drywell Pressure - High	1, 2, 3	[2][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ [1.44] psig
c. LPCI Pump B Start - Time Delay Relay	1, 2, 3, 4[a] ,5[a]	[1]	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ [ ] seconds and ≤ [5.25] seconds
d. Reactor Steam Dome Pressure - Low (Injection Permissive)	1, 2, 3	[3]	C	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [452] psig and ≤ [534] psig

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, “ECCS - Shutdown.”

(b) Also required to initiate the associated [TS required functions].

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI B and LPCI C Subsystems					
e. [LPCI Pump B and LPCI Pump C Discharge Flow - Low (Bypass)]	1, 2, 3, 4[a], 5[a]	[2] [1 per pump]	E	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [ ] gpm and ≤ [ ] gpm
[f. Manual Initiation	1, 2, 3, 4[a], 5[a]	[1]	C	SR 3.3.5.1.6	NA]
3. High Pressure Core Spray (HPCS) System					
a. Reactor Vessel Water Level - Low Low, Level 2	1, 2, 3, 4[a], 5[a]	[4][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [-43.8] inches
b. Drywell Pressure - High	1, 2, 3	[4][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ [1.44] psig
c. Reactor Vessel Water Level - High, Level 8	1, 2, 3, 4[a], 5[a]	[2]	C	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [55.7] inches
d. Condensate Storage Tank Level - Low	1, 2, 3, 4[c], 5[c]	[2]	D	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [-3] inches

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, “ECCS - Shutdown.”

(b) Also required to initiate the associated [TS required functions].

(c) When HPCS is OPERABLE for compliance with LCO 3.5.2, "ECCS - Shutdown," and aligned to the condensate storage tank while tank water level is not within the limit of SR 3.5.2.2.

Table 3.3.5.1-1 (page 4 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCS System					
e. Suppression Pool Water Level - High	1, 2, 3	[2]	D	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [7.0] inches
f. [HPCS Pump Discharge Pressure - High (Bypass)]	1, 2, 3, 4[a], 5[a]	[1]	E	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [ ] psig
g. [HPCS System Flow Rate - Low (Bypass)]	1, 2, 3, 4[a], 5[a]	[1]	E	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [ ] gpm and ≤ [ ] gpm
[h. Manual Initiation	1, 2, 3, 4[a], 5[a]	[1]	C	SR 3.3.5.1.6	NA]
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2[d], 3[d]	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [-152.5] inches
b. Drywell Pressure - High	1, 2[d], 3[d]	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [1.44] psig
c. ADS Initiation Timer	1, 2[d], 3[d]	[1]	G	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	≤ [117] seconds

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, “ECCS - Shutdown.”

(d) With reactor steam dome pressure > [150] psig.

Table 3.3.5.1-1 (page 5 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. ADS Trip System A					
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)	1, 2[(d)], 3[(d)]	[1]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [10.8] inches
e. LPCS Pump Discharge Pressure - High	1, 2[(d)], 3[(d)]	[2]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [125] psig and ≤ [165] psig
f. LPCI Pump A Discharge Pressure - High	1, 2[(d)], 3[(d)]	[2]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [115] psig and ≤ [135] psig
g. [ADS Bypass Timer (High Drywell Pressure)]	1, 2[(d)], 3[(d)]	[2]	G	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	≤ [9.4] minutes
[h. Manual Initiation	1, 2[(d)], 3[(d)]	[2]	G	SR 3.3.5.1.6	NA]
5. ADS Trip System B					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2[(d)], 3[(d)]	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [-152.5] inches
b. Drywell Pressure - High	1, 2[(d)], 3[(d)]	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [1.44] psig
c. ADS Initiation Timer	1, 2[(d)], 3[(d)]	[1]	G	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	≤ [117] seconds

(d) With reactor steam dome pressure > [150] psig.

Table 3.3.5.1-1 (page 6 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. ADS Trip System B					
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)	1, 2[(d)], 3[(d)]	[1]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [10.8] inches
e. LPCI Pumps B & C Discharge Pressure - High	1, 2[(d)], 3[(d)]	[4] [2 per pump]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [115] psig and ≤ [135] psig
f. [ADS Bypass Timer (High Drywell Pressure)]	1, 2[(d)], 3[(d)]	[2]	G	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	≤ [9.4] minutes
[g. Manual Initiation	1, 2[(d)], 3[(d)]	[2]	G	SR 3.3.5.1.6	NA]

(d) With reactor steam dome pressure > [150] psig.

Comment: Condition A contains an "Immediately" CT. RAs B.1 and D.1 declare another component inoperable and Condition E is a default Condition. 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. AND B.2 Place channel in trip.	1 hour from discovery of loss of RCIC initiation capability 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
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1 ----------NOTE---------- Only applicable if RCIC pump suction is not aligned to the suppression pool. ----------	
	Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	AND	
	D.2.1 Place channel in trip.	24 hours
	OR	[OR In accordance with the Risk Informed Completion Time Program]
	D.2.2 Align RCIC pump suction to the suppression pool.	24 hours [OR In accordance with the Risk Informed Completion Time Program]
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1 Declare RCIC System inoperable.	Immediately

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 [OR In accordance with the Risk Informed Completion Time Program] AND 24 hours for Functions other than Functions 2.b, 5.c, 5.d, and 5.e [OR 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.		[OR 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). OR D.2.1 Be in MODE 3. AND 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. OR Required Action and associated Completion Time of Condition F or G not met.	H.1 Be in MODE 3. AND 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 inoperable.	1 hour
	OR	
	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
	OR	
	J.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.	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).	Immediately
	OR	
	K.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment].	Immediately
	AND	
	K.2.2 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately

Table 3.3.6.1-1 (page 1 of 7)
Primary Containment Isolation Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Main Steam Line Isolation					
a.	Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	[2]	D	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [-152.5] inches
b.	Main Steam Line Pressure - Low	1	[2]	E	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [837] psig
c.	Main Steam Line Flow - High	1,2,3	[2] per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [176.5] psig
d.	Condenser Vacuum - Low	1,2[(a)], 3[(a)]	[2]	D	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≥ [8.7] inches Hg vacuum
e.	Main Steam Tunnel Temperature - High	1,2,3	[2]	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [191]°F
f.	Main Steam Tunnel Differential Temperature - High	1,2,3	[2]	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [104]°F
[g.	Manual Initiation	1,2,3	[2]	G	SR 3.3.6.1.6	NA]

(a) With any turbine [stop valve] not closed.

Table 3.3.6.1-1 (page 2 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low Low, Level 2	1,2,3	[2]	H	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [-43.8] inches
b. Drywell Pressure - High	1,2,3	[2]	H	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [1.43] psig
[c. Reactor Vessel Water Level - Low Low Low, Level 1 (ECCS Divisions 1 and 2)	1,2,3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [-152.5] inches]
[d. Drywell Pressure - High (ECCS Divisions 1 and 2)	1,2,3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [1.44] psig]
[e. Reactor Vessel Water Level - Low Low, Level 2 (HPCS)	1,2,3	[4]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [-43.8] inches]
[f. Drywell Pressure - High (HPCS)	1,2,3	[4]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [1.44] psig]

Table 3.3.6.1-1 (page 3 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation					
g. Containment and Drywell Ventilation Exhaust Radiation-High	1,2,3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [4.0] mR/hr
	[(b)]	[2]	K	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [4.0] mR/hr
[h. Manual Initiation	1,2,3	[2]	G	SR 3.3.6.1.6	NA]
3. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [64] inches water
[b. RCIC Steam Line Flow Time Delay	[1,2,3]	[1]	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ [3] seconds and ≤ [7] seconds]
c. RCIC Steam Supply Line Pressure - Low	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [53] psig
d. RCIC Turbine Exhaust Diaphragm Pressure - High	1,2,3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [20] psig

[(b) During movement of [recently] irradiated fuel assemblies in [primary or secondary containment], or operations with a potential for draining the reactor vessel.]

Table 3.3.6.1-1 (page 4 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. RCIC System Isolation					
e. RCIC Equipment Room Ambient Temperature - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [191]°F
f. RCIC Equipment Room Differential Temperature - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [128]°F
g. Main Steam Line Tunnel Ambient Temperature - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [191]°F
h. Main Steam Line Tunnel Differential Temperature - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [104]°F
i. Main Steam Line Tunnel Temperature Timer	1,2,3	[1]	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ [30] minutes
j. RHR Equipment Room Ambient Temperature - High	1,2,3	[1 per room]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [171]°F
k. RHR Equipment Room Differential Temperature - High	1,2,3	[1 per room]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [102]°F
l. RCIC/RHR Steam Line Flow - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [43] inches water
m. Drywell Pressure - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [1.44] psig

Table 3.3.6.1-1 (page 5 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. RCIC System Isolation					
[n. Manual Initiation	1,2,3	[2]	G	SR 3.3.6.1.6	NA]
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Differential Flow - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 [SR 3.3.6.1.7]	≤ [89] gpm
b. Differential Flow - Timer	1,2,3	[1]	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ [57] seconds
c. RWCU Heat Exchanger Equipment Room Temperature-High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [126]°F
d. RWCU Heat Exchanger Equipment Room Differential Temperature - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [66]°F
e. RWCU Pump Rooms Temperature - High	1,2,3	[1] [1 per room]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [176]°F
f. RWCU Pump Rooms Differential Temperature - High	1,2,3	[1] [1 per room]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [118]°F
g. RWCU Valve Nest Room Temperature - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [141]°F
h. RWCU Valve Nest Room Differential Temperature - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [73]°F

Table 3.3.6.1-1 (page 6 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. RWCU System Isolation					
i. Main Steam Line Tunnel Ambient Temperature – High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [191]°F
j. Main Steam Line Tunnel Differential Temperature - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [104]°F
k. Reactor Vessel Water Level - Low Low, Level 2	1,2,3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [-43.8] inches
l. Standby Liquid Control System Initiation	1,2	[1]	I	SR 3.3.6.1.6	NA
[m. Manual Initiation	1,2,3	[2]	G	SR 3.3.6.1.6	NA]
5. Shutdown Cooling System Isolation					
a. RHR Equipment Room Ambient Temperature - High	2,3	[1 per room]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [171]°F
b. RHR Equipment Room Differential Temperature - High	2,3	[1 per room]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [102]°F
c. Reactor Vessel Water Level - Low, Level 3	3,4,5	[2](c)	J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [10.8] inches

(c) Only one trip system required in MODES 4 and 5 with RHR Shutdown Cooling System integrity maintained.

Table 3.3.6.1-1 (page 7 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Shutdown Cooling System Isolation					
d. Reactor Steam Dome Pressure - High	1,2,3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [150] psig
e. Drywell Pressure - High	1,2,3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [1.43] psig

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

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 [OR In accordance with the Risk Informed Completion Time Program] AND 24 hours for Functions other than Function 2 [OR In accordance with the Risk Informed Completion Time Program]
B. One or more automatic Functions with secondary containment isolation capability not maintained.	B.1 Restore secondary containment isolation capability.	1 hour [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time of Condition A or B not met.	C.1.1 Isolate the associated penetration flow path(s). OR C.1.2 Declare associated secondary containment isolation valves inoperable. AND	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
	OR	
	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: 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. AND B.2 Place channel in trip.	1 hour from discovery of loss of RHR containment spray initiation capability in both trip systems 24 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.6.3-1.	C.1 ----------NOTE---------- Only applicable for Functions 2 and 4. ---------- Declare associated RHR containment spray subsystem inoperable.	1 hour from discovery of loss of RHR containment spray initiation capability in both trip systems
	AND	
	C.2 Restore channel to OPERABLE status.	24 hours [OR 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 RHR containment spray subsystem inoperable.	Immediately

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

Table 3.3.6.3-1 (page 1 of 1)
RHR Containment Spray System Instrumentation

FUNCTION	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Drywell Pressure - High	[2]	B	SR 3.3.6.3.1 SR 3.3.6.3.2 [SR 3.3.6.3.3] SR 3.3.6.3.5 SR 3.3.6.3.6	≤ [1.44] psig
2. Containment Pressure - High	[1]	C	SR 3.3.6.3.1 SR 3.3.6.3.2 [SR 3.3.6.3.3] SR 3.3.6.3.5 SR 3.3.6.3.6	≤ [8.34] psig
3. Reactor Vessel Water Level - Low Low Low, Level 1	[2]	B	SR 3.3.6.3.1 SR 3.3.6.3.2 [SR 3.3.6.3.3] SR 3.3.6.3.5 SR 3.3.6.3.6	≥ [-152.5] inches
4. System A and System B Timers	[1]	C	SR 3.3.6.3.2 [SR 3.3.6.3.4] SR 3.3.6.3.6	≥ [10.26] minutes and ≤ [11.44] minutes
5. [Manual Initiation	[1]	C	SR 3.3.6.3.6	NA]

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. AND B.2 Place channel in trip.	1 hour from discovery of loss of SPMU initiation capability in both trip systems 24 hours [OR In accordance with the Risk Informed Completion Time Program]
C. As required by Required Action A.1 and referenced in Table 3.3.6.4-1.	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 [OR 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

Table 3.3.6.4-1 (page 1 of 1)
Suppression Pool Makeup System Instrumentation

FUNCTION	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Drywell Pressure - High	[2]	B	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≤ [1.44] psig
2. Reactor Vessel Water Level - Low Low Low, Level 1	[2]	B	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≥ [-152.5] inches
3. Suppression Pool Water Level - Low Low	[1]	C	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≥ [17 ft 2 inches]
4. Drywell Pressure - High	[2]	B	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≤ [1.43] psig
5. Reactor Vessel Water Level - Low Low, Level 2	[2]	B	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≥ [-43.8] inches
6. Timer	[1]	C	SR 3.3.6.4.2 [SR 3.3.6.4.4] SR 3.3.6.4.6	≤ [29.5] minutes
7. [Manual Initiation	[2]	C	SR 3.3.6.4.6	NA]

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
A. One trip system inoperable.	A.1 Restore trip system to OPERABLE status.	7 days [OR In accordance with the Risk Informed Completion Time Program]
B. Two trip systems inoperable.	B.1 Restore at least one trip system to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time ~~of Condition A~~ not met. ~~OR~~ ~~Two trip systems inoperable.~~	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

Comment: Condition A contains an "Immediately" CT, RAs B.1, C.1 and D.1 declare another component inoperable, and Condition E is a default Condition. Therefore they are excluded.

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. AND B.2 Place channel in trip.	1 hour from discovery of loss of [CRFA] initiation capability in both trip systems 24 hours] [OR In accordance with the Risk Informed Completion Time Program]
C. [As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	C.1 Declare associated [CRFA] subsystem inoperable. AND	1 hour from discovery of loss of [CRFA] initiation capability in both trip systems

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Place channel in trip.	12 hours] [OR In accordance with the Risk Informed Completion Time Program]

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
	AND	
	D.2 Place channel in trip.	6 hours [OR In accordance with the Risk Informed Completion Time Program]
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
	OR	
	E.2 Declare associated [CRFA] subsystem inoperable.	1 hour

Table 3.3.7.1-1 (page 1 of 1)
[Control Room Fresh Air] System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2	1, 2, 3, [(a)]	[2]	B	SR 3.3.7.1.1 SR 3.3.7.1.2 [SR 3.3.7.1.3] SR 3.3.7.1.4 SR 3.3.7.1.5	≥ [-43.8] inches
2. Drywell Pressure - High	1, 2, 3	[2]	C	SR 3.3.7.1.1 SR 3.3.7.1.2 [SR 3.3.7.1.3] SR 3.3.7.1.4 SR 3.3.7.1.5	≤ [1.43] psig
3. Control Room Ventilation Radiation Monitors	1, 2, 3, (a), (b)	[2]	D	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ [5] mR/hr

(a) During operations with a potential for draining the reactor vessel.

(b) During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment]

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 [OR 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: 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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
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. AND 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	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
[with any control rod withdrawn from a core cell containing one or more fuel assemblies].	AND	

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
	OR	
	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

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

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 [OR In accordance with the Risk Informed Completion Time Program]

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No recirculation loops in operation.	B.1 Restore at least one recirculation loop to operation.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C~~B~~. Required Action and associated Completion Time of Condition ~~A~~ not met. ~~OR~~ ~~No recirculation loops in operation.~~	C~~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: Condition B is a default Condition and is therefore excluded.

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 [OR 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

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	[18] months

Comment: RA A.2 is a default RA and is therefore excluded.

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 Restore inoperable jet pumps to OPERABLE status.	1 hour
		[OR
	OR	In accordance with the Risk Informed Completion Time Program]
	A.2 Be in MODE 3.	12 hours

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 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] [OR In accordance with the Risk Informed Completion Time Program]
B. [Two] or more [required] S/RVs inoperable.	B.1 Restore [required] S/RVs to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~.[Required Action and associated Completion Time of Condition A not met.] ~~OR~~ ~~[Two] or more [required] S/RVs inoperable.~~	C~~B~~.1 Be in MODE 3. AND C~~B~~.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. ≤ [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. OR 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. OR B.2 Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.	4 hours 4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR Pressure boundary LEAKAGE exists.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 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: While Condition A represents a variable outside its limit, the PIV could be substituted as a surrogate in an RICT calculation. 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
A. One or more flow paths with leakage from one or more RCS PIVs not within limit.	----------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]. ----------	
	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.	4 hours [OR In accordance with the Risk Informed Completion Time Program]
	AND	

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND 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 ≥ [1040] psig and ≤ [1060] psig.	[In accordance with Inservice Testing Program or [18] months]

Comment: RAs A.1, B.2, D.1 and D.2 already have 30 day CTs, RAs B.1 and C.1 specify the periodic performance of an action and Condition F is a default Condition. Therefore they are excluded.

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. AND 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.	----------NOTE---------- Not applicable when the required drywell atmospheric monitoring system is inoperable. ---------- C.1 Perform SR 3.4.7.1.	Once per 8 hours]
D. [Required drywell atmospheric monitoring system inoperable. AND Drywell air cooler condensate flow rate monitoring system inoperable.	D.1 Restore required drywell atmospheric monitoring system to OPERABLE status. OR D.2 Restore drywell air cooler condensate flow rate monitoring system to OPERABLE status.	30 days 30 days]
E. All required leakage detection systems inoperable.	E.1 Restore at least one required leakage detection systems to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
F~~E~~. Required Action and associated Completion Time of Condition A, B, [C, ~~or~~ D] or E not met.	F~~E~~.1 Be in MODE 3. AND F~~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 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] μCi/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] μCi/gm and ≤ 4.0 μCi/gm DOSE EQUIVALENT I-131.	----------NOTE---------- LCO 3.0.4.c is applicable. ---------- A.1 Determine DOSE EQUIVALENT I-131. AND 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. OR Reactor coolant specific activity > [4.0] μCi/gm DOSE EQUIVALENT I-131.	B.1 Determine DOSE EQUIVALENT I-131. AND B.2.1 Isolate all main steam lines. OR B.2.2.1 Be in MODE 3. AND	Once per 4 hours 12 hours 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 ≤ [0.2] μCi/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. AND	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.2	Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour
	AND		
	A.3	Be in MODE 4.	24 hours
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1	Initiate action to restore one RHR shutdown cooling subsystem or one recirculation pump to operation.	Immediately
	AND		
	B.2	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	B.3	Monitor reactor coolant temperature and pressure.	Once per hour

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 AND Once per 24 hours thereafter

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. <u>AND</u> B.2 Monitor reactor coolant temperature and pressure.	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 3.4.10.1	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)

3.4.11 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.11 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
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.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours
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.	C.1 Initiate action to restore parameter(s) to within limits. AND C.2 Determine RCS is acceptable for operation.	Immediately Prior to entering MODE 2 or 3

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 ≤ [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 ≤ [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 [OR 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. AND	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Restore HPCS System to OPERABLE status.	14 days [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two ECCS injection subsystems inoperable. OR One ECCS injection and one ECCS spray subsystem inoperable.	C.1 Restore one ECCS injection/spray subsystem to OPERABLE status.	72 hours [OR 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. AND 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 [OR In accordance with the Risk Informed Completion Time Program]
F. One ADS valve inoperable. AND One low pressure ECCS injection/spray subsystem inoperable.	F.1 Restore ADS valve to OPERABLE status. OR F.2 Restore low pressure ECCS injection/spray subsystem 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]

G. Two or more ADS valves inoperable.	G.1 Restore inoperable ADS valves to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~G. Two or more ADS valves inoperable.~~ ~~OR~~ H. Required Action and associated Completion Time of Condition E, F or G ~~F~~ not met.	H~~G~~.1 Be in MODE 3. AND H~~G~~.2 Reduce reactor steam dome pressure to ≤ [150] psig.	12 hours 36 hours
I. HPCS and low pressure core spray (LPCS) inoperable. OR Three or more ECCS injection/spray subsystems inoperable. OR HPCS System and one or more ADS valves inoperable. OR Two or more ECCS injection/spray subsystems and one or more ADS valves inoperable.	I.1 Restore inoperable systems and ADS valves to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. Required Action and associated Completion Time of Condition I not met. ~~H. HPCS and low pressure core spray (LPCS) inoperable.~~ ~~OR~~ ~~Three or more ECCS injection/spray subsystems inoperable.~~ ~~OR~~ ~~HPCS System and one or more ADS valves inoperable.~~ ~~OR~~ ~~Two or more ECCS injection/spray subsystems and one or more ADS valves inoperable.~~	J~~H~~.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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.	31 days

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 ≥ [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. AND C.2 Restore one ECCS injection/spray subsystem to OPERABLE status.	Immediately 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
	AND		
	D.2	[Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately]
	AND		
	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 ≥ [12.67 ft].	12 hours
SR 3.5.2.2	Verify, for the required High Pressure Core Spray (HPCS) System, the: a. Suppression pool water level is ≥ [12.67 ft] or b. Condensate storage tank water level is ≥ [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. AND A.2 Restore RCIC System to OPERABLE status.	Immediately 14 days [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND 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. AND B.2 Be in MODE 4.	12 hours 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
	A.1 Verify the OPERABLE door is closed in the affected air lock.	1 hour
	AND	
	A.2 Lock the OPERABLE door closed in the affected air lock.	24 hours
	AND	
	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.	Once per 31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more primary containment air locks with primary containment air lock interlock mechanism inoperable.	----------NOTES---------- 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 into and exit from containment is permissible under the control of a dedicated individual. ----------	
	B.1 Verify an OPERABLE door is closed in the affected air lock.	1 hour
	AND	
	B.2 Lock an OPERABLE door closed in the affected air lock.	24 hours
	AND	
	B.3 ----------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ---------- Verify an OPERABLE door is locked closed in the affected air lock.	Once per 31 days

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
	AND	
	C.2 Verify a door is closed in the affected air lock.	1 hour
	AND	
	C.3 Restore air lock to OPERABLE status.	24 hours [OR 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
	AND	
	D.2 Be in MODE 4.	36 hours

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.

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

ACTIONS

----------NOTES----------

1. Penetration flow paths [except for [ ] inch purge valve penetration flow paths] may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Only applicable to penetration flow paths with two [or more] PCIVs. ---------- One or more penetration flow paths with one PCIV inoperable [for reasons other than Condition[s] D [and E]].	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.	4 hours [or in accordance with the Risk Informed Completion Time Program] except for main steam line
	AND	AND
		8 hours [or in accordance with the Risk Informed Completion Time Program] for main steam line

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.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.	Once per 31 days following isolation for isolation devices outside primary containment, drywell, and steam tunnel AND 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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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]].	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
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]].	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. AND	[4] hours [or in accordance with the Risk Informed Completion Time Program] except for penetrations with a closed system AND 72 hours [or in accordance with the Risk Informed Completion Time Program] for penetrations with a closed system
	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 otherwise secured may be verified by use of administrative means. ---------- Verify the affected	Once per 31 days

	penetration flow path is isolated.	following isolation

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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.	D.1 Restore leakage rate to within limit.	[4 hours [or in accordance with the Risk Informed Completion Time Program] for hydrostatically tested line leakage [not on a closed system] AND [4 hours [or in accordance with the Risk Informed Completion Time Program] for secondary containment bypass leakage] AND [8 hours [or in accordance with the Risk Informed Completion Time Program] for MSIV leakage] AND [24 hours [or in accordance with the Risk Informed Completion Time Program] for purge valve leakage] AND [72 hours [or in accordance with the Risk Informed Completion Time Program] for hydrostatically tested

		line leakage] [on a closed system]]
E. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	E.1 Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, or blind flange]. AND	24 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	E.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.	Once per 31 days following isolation for isolation devices outside containment AND Prior to entering MODE 2 or 3 from MODE 4 if not performed within the previous 92 days for isolation devices inside containment
	AND E.3 Perform SR 3.6.1.3.6 for the resilient seal purge valves closed to comply with Required Action E.1.	Once per [92] days following isolation]
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met in MODE 1, 2, or 3.	F.1 Be in MODE 3.	12 hours
	AND F.2 Be in MODE 4.	36 hours

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. OR 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: While Condition A represents a variable outside the limit, the Containment could be substituted as a surrogate in an RICT calculation. Condition B is a default Condition and is therefore excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 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: While Condition A represents a variable outside the limit, the Containment could be substituted as a surrogate in an RICT calculation. Condition B is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Primary Containment Air Temperature

LCO 3.6.1.5 Primary containment average air temperature shall be ≤ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.5.1	Verify primary containment average air temperature is within limit.	24 hours

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two or more LLS valves inoperable.	B.1 Restore LLS valves to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time of Condition A not met. ~~OR~~ ~~Two or more LLS valves inoperable.~~	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

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. AND C.2 Be in MODE 4.	12 hours 36 hours

Comment: Condition A already has a 30 day CT and Condition C is a default Condition. Therefore these are excluded.

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 [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. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	Verify air pressure in each subsystem is ≥ [101] psig.	24 hours
SR 3.6.1.8.2	Perform a system functional test of each PVLCS	[18] months

Comment: Condition A already has a 30 day CT and Condition C is a default Condition. Therefore these are excluded.

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 [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. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1	Operate each MSIV LCS blower ≥ [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: Although the LCO is on variables, the containment can be used as a surrogate for RICT calculations. RAs A.1 and D.2 requires a periodic performance of an action. Conditions B and E, and RA D.3 are default Conditions/RAs. Condition C and RA D.1 has an "Immediately" CT. These are therefore 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. ≤ [95]°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. ≤ [105]°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. ≤ [110]°F [when all OPERABLE IRM channels are ≤ [25/40] divisions of full scale on Range 7] [with THERMAL POWER ≤ 1% RTP].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool average temperature > [95]°F but ≤ [110]°F. AND [Any OPERABLE IRM channel > [25/40] divisions of full scale on Range 7] [THERMAL POWER > 1% RTP]. AND Not performing testing that adds heat to the suppression pool.	A.1 Verify suppression pool average temperature is ≤ [110]°F. AND A.2 Restore suppression pool average temperature to ≤ [95]°F.	Once per hour 24 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Reduce THERMAL POWER [until all OPERABLE IRM channels are ≤ [25/40] divisions of full scale on Range 7] [to ≤ 1% RTP].	12 hours
C. Suppression pool average temperature > [105]°F. <u>AND</u> [Any OPERABLE IRM channel > [25/40] divisions of full scale on Range 7] [THERMAL POWER > 1% RTP]. <u>AND</u> Performing testing that adds heat to the suppression pool.	C.1 Suspend all testing that adds heat to the suppression pool.	Immediately
D. Suppression pool average temperature > [110]°F but ≤ [120]°F.	D.1 Place the reactor mode switch in the shutdown position. <u>AND</u> D.2 Verify suppression pool average temperature is ≤ [120]°F. <u>AND</u> D.3 Be in MODE 4.	Immediately Once per 30 minutes 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Suppression pool average temperature > [120]°F.	E.1 Depressurize the reactor vessel to < [200] psig. AND E.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1.1	Verify suppression pool average temperature is within the applicable limits.	24 hours AND 5 minutes when performing testing that adds heat to the suppression pool

Comment: Although this LCO is on variables, the containment can be used as a surrogate system for RICT calculations. Condition B is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be ≥ [18 ft 4.5 inches] and ≤ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 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 supression 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. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

Comment: While Conditions A and B represents a variable outside the limit, the Containment could be substituted as a surrogate in an RICT calculation. Condition E is a default Condition and is therefore excluded.

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 [OR 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 [OR 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 [OR In accordance with the Risk Informed Completion Time Program]
D. Two SPMU subsystems inoperable for reasons other than Condition A or B.	D.1 Restore at least one SPMU subsystem to OPERABLE status.	1 hour [OR

CONDITION	REQUIRED ACTION	COMPLETION TIME
		In accordance with the Risk Informed Completion Time Program]
E~~D~~. Required Action and associated Completion Time not met.	E~~D~~.1 Be in MODE 3. AND E~~D~~.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify upper containment pool water level is ≥ [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.

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.	B.1 Verify by administrative means that the hydrogen control function is maintained. AND B.2 Restore one primary containment and drywell hydrogen ignitor division to OPERABLE status.	1 hour AND Once per 12 hours thereafter 7 days [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.	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. AND B.2 Restore one [drywell purge] subsystem to OPERABLE status.	1 hour AND Once per 12 hours thereafter 7 days [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.	12 hours

Comment: Condition B is a default Condition and Condition C has an "Immediately" CT. Therefore these are excluded.

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 [OR 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 3. AND B.2 Be in MODE 4.	12 hours 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]. AND C.2 Initiate action to suspend	 Immediately Immediately]

CONDITION	REQUIRED ACTION	COMPLETION TIME
	OPDRVs.	

Comment: RA A.2 specifies the periodic performance of an action and Conditions C and D are default Conditions. Therefore these are excluded.

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. AND	8 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.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.	Once per 31 days following isolation
B. ----------NOTE---------- Only applicable to penetration flow paths with two isolation valves. ---------- One or more penetration flow paths with two SCIVs inoperable.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 hours [OR In accordance with the Risk Informed Completion Time Program]
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. AND C.2 Be in MODE 4.	12 hours 36 hours

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
	AND	
	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: Condition C is a default Condition. Conditions D and E have "Immediately" CTs. Therefore they are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Two SGT subsystems inoperable in MODE 1, 2, or 3.	B.1 Restore at least one SGT subsystem to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. Required Action and associated Completion Time of Condition ~~A~~ or B not met in MODE 1, 2, or 3.	C~~B~~.1 Be in MODE 3. AND C~~B~~.2 Be in MODE 4.	12 hours 36 hours
D~~C~~. Required Action and associated Completion Time of Condition ~~A~~ not	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	

CONDITION	REQUIRED ACTION	COMPLETION TIME
met during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs.	D~~C~~.1 Place OPERABLE SGT subsystem in operation.	Immediately
	OR	
	D~~C~~.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment].	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D~~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]. AND E.2 Initiate action to suspend OPDRVs.	 Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ [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.

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 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 ≤ [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

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

3.6.5.2 Drywell Air Lock

LCO 3.6.5.2 The drywell air lock 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. Enter applicable Conditions and Required Actions of LCO 3.6.5.1, "Drywell," when air lock leakage results in exceeding overall drywell bypass leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One drywell air lock door inoperable.	----------NOTES---------- 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls. ----------	
	A.1 Verify the OPERABLE door is closed.	1 hour
	<u>AND</u>	
	A.2 Lock the OPERABLE door closed.	24 hours
	<u>AND</u>	
	A.3 Verify by administrative means the OPERABLE door is locked closed.	Once per 31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Drywell air lock interlock mechanism inoperable.	----------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 and exit is permissible under the control of a dedicated individual. ----------	
	B.1 Verify an OPERABLE door is closed.	1 hour
	AND	
	B.2 Lock an OPERABLE door closed.	24 hours
	AND	
	B.3 Verify by administrative means an OPERABLE door is locked closed.	Once per 31 days
C. Drywell air lock inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate drywell overall leakage rate per LCO 3.6.5.1, "Drywell," using current air lock test results.	Immediately
	AND	
	C.2 Verify a door is closed.	1 hour
	AND	
	C.3 Restore air lock to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time

		Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	12 hours 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 ≤ [200] scfh when the gap between the door seals is pressurized to ≥ [11.5] psig.	72 hours
SR 3.6.5.2.2	Verify drywell air lock seal air flask pressure is ≥ [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. AND	8 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.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.	Prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days
B. ----------NOTE---------- Only applicable to penetration flow paths with two isolation valves. ---------- One or more penetration flow paths with two drywell isolation valves inoperable.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	4 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. AND C.2 Be in MODE 4.	12 hours 36 hours

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

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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 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: While Condition A represents a variable outside the limit, the Drywell could be substituted as a surrogate in an RICT calculation. Condition B is a default Condition and is therefore excluded.

3.6 CONTAINMENT SYSTEMS

3.6.5.5 Drywell Air Temperature

LCO 3.6.5.5 Drywell average air temperature shall be ≤ [135]°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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.5.1	Verify drywell average air temperature is within limit.	24 hours

Comment: Conditions B and C already 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 [OR In accordance with the Risk Informed Completion Time Program]
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
D. [Two] drywell purge vacuum relief subsystems inoperable for reasons other than Condition A.	D.1 Restore one drywell purge vacuum relief subsystem to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
E. [Two] drywell post-LOCA vacuum relief subsystems inoperable for reasons other than Condition A. AND One drywell purge vacuum relief subsystem inoperable for reasons other than Condition A.	E.1 Restore one drywell post-LOCA vacuum relief or drywell purge vacuum relief subsystem to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
F. [Two] drywell purge vacuum relief subsystems inoperable for reasons other than Condition A. AND One or [two] drywell post-LOCA vacuum relief subsystems inoperable for reasons other than Condition A.	F.1 Restore drywell post-LOCA vacuum relief or drywell purge vacuum relief subsystems to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
G~~F~~. Required Action and associated Completion Time ~~of Condition A, B, C, D, or E~~ not met.	~~F~~G.1 Be in MODE 3. AND G~~F~~.2 Be in MODE 4.	12 hours 36 hours

~~G. [Two] drywell purge vacuum relief subsystems inoperable for reasons other than Condition A.~~ ~~AND~~ ~~One or [two] drywell post LOCA vacuum relief subsystems inoperable for reasons other than Condition A.~~	~~G.1 Be in MODE 3.~~ ~~AND~~ ~~G.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] [OR 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
C. One [SSW] subsystem inoperable [for reasons other than Condition A].	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.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
D. Both [SSW] subsystems inoperable [for reasons other than Condition A]. [OR [UHS] inoperable for reasons other than Condition A [or B].]	D.1 Restore inoperable [SSW] subsystems and [UHS] to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
E~~D~~.Required Action and associated Completion Time ~~of Condition A, [B]~~	E~~D~~.1 Be in MODE 3. AND	12 hours

~~or C~~ not met. ~~OR~~ ~~Both [SSW] subsystems inoperable [for reasons other than Condition A].~~ ~~[OR~~ ~~[UHS] inoperable for reasons other than Condition A [or B].]~~	E~~D~~.2 Be in MODE 4.	36 hours

Comment: No changes made. The only Condtion 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 ≥ [7.25] ft.	24 hours
SR 3.7.2.2	----------NOTE---------- Isolation of flow to individual components does not render [HPCS SWS] System inoperable. ---------- 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.	31 days
SR 3.7.2.3	Verify the HPCS SWS actuates on an actual or simulated initiation signal.	[18] months

Comment: Condition D is a default Condition and Conditions E and F are outside the applicability of the Traveler. Therefore these are excluded.

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 [OR In accordance with the Risk Informed Completion Time Program]
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 [OR In accordance with the Risk Informed Completion Time Program]
C. Two [CRFA] subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	C.1 Restore at least one [CRFA] subsystem to OPERABLE status.	1 hour [OR In accordance with

CONDITION	REQUIRED ACTION	COMPLETION TIME
		the Risk Informed Completion Time Program]
D~~C~~. Required Action and associated Completion Time of Condition -A, B, or C~~B~~ not met in MODE 1, 2, or 3.	D~~C~~.1 Be in MODE 3. AND D~~C~~.2 Be in MODE 4.	12 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E~~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.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	E~~D~~.1 ----------NOTE---------- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] ----------	
	Place OPERABLE [CRFA] subsystem in [isolation] mode.	Immediately
	OR	
	E~~D~~.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment].	Immediately
	AND	
	E~~D~~.2.2 Initiate action to suspend OPDRVs.	Immediately
~~E. Two [CRFA] subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.~~	~~E.1 Enter LCO 3.0.3.~~	~~Immediately~~

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. ----------	
	F.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment].	Immediately
	AND	
	F.2 Initiate action to suspend OPDRVs.	Immediately

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 ≥ [ ] inches water gauge relative to [adjacent buildings] during the [isolation] mode of operation at a flow rate of ≤ [ ] 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

3.7.4 [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. Two [control room AC] subsystems inoperable in MODE 1, 2, or 3.	B.1 Restore at least one [control room AC] subsystem to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
C~~B~~. 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. AND B.2 Be in MODE 4.	12 hours 36 hours
D~~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	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D~~C~~.1 Place OPERABLE [control room AC] subsystem in operation.	 Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
OPDRVs.	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D~~C~~.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment]. AND D~~C~~.2.2 Initiate action to suspend OPDRVs.	Immediately Immediately
~~D. Two [control room AC] subsystems inoperable in MODE 1, 2, or 3.~~	~~D.1 Enter LCO 3.0.3.~~	~~Immediately~~
E. Two [control room AC] 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. ---------- E.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment]. AND E.2 Initiate action to suspend OPDRVs.	 Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify each [control room AC] subsystem has the capability to remove the assumed heat load.	[18] months

Comment: While Condition A represents a variable outside its limit, the main condenser or main steam line could be substituted as a surrogate in an RICT calcultation. Condition B is a default Condition and is therefore excluded.

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 ≤ [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 [OR In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time not met.	B.1 [Isolate all main steam lines. OR B.2 Isolate SJAE. OR B.3.1 Be in MODE 3. AND 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 ≥ 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 [OR 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 ≥ [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 ≥ [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. AND	1 hour AND Once per 8 hours thereafter

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	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)
	AND	
	A.3 Restore [required] offsite circuit to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program] AND 24 hours [or in accordance with the Risk Informed Completion Time Program] from discovery of two divisions with no offsite power
B. One [required] DG inoperable.	B.1 Perform SR 3.8.1.1 for OPERABLE [required] offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND	
	B.2 Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required

	AND	feature(s)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.3.1 Determine OPERABLE DG(s) are not inoperable due to common cause failure.	[24] hours
	OR	
	B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s).	[24] hours
	AND	
	B.4 Restore required DG to OPERABLE status.	72 hours [OR In accordance with the Risk Informed Completion Time Program]
C. Two [required] offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	AND	
	C.2 Restore one [required] offsite circuit to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One [required] offsite circuit inoperable. AND One [required] DG inoperable.	----------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]. ----------	
	D.1 Restore [required] offsite circuit to OPERABLE status. OR	12 hours [OR In accordance with the Risk Informed Completion Time Program]
	D.2 Restore [required] DG to OPERABLE status.	12 hours [OR In accordance with the Risk Informed Completion Time Program]
E. Two [required] DGs inoperable.	E.1 Restore one [required] DG to OPERABLE status.	2 hours [OR In accordance with the Risk Informed Completion Time Program] OR 24 hours [or in accordance with the Risk Informed Completion Time Program] if Division 3 DG is inoperable

F. [One [required] [automatic load sequencer] inoperable.	----------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. ---------- F.1 Restore [required] [automatic load sequencer] to OPERABLE status.	[12] hours] [OR In accordance with the Risk Informed Completion Time Program]
G. Three or more [required] AC sources inoperable.	G.1 Restore inoperable [required] AC sources to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H~~G~~. Required Action and associated Completion Time of Condition ~~A, B, C, D, E, or [F]~~ not met.	~~G~~H.1 Be in MODE 3. AND H~~G~~.2 Be in MODE 4.	12 hours 36 hours
~~H. Three or more [required] AC sources inoperable.~~	~~H.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 ≥ [3744] V and ≤ [4576] V and frequency ≥ [58.8] Hz and ≤ [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.	----------NOTE---------- Enter applicable Condition and Required Actions of LCO 3.8.10, with one required division de-energized as a result of Condition A. ----------	
	A.1 Declare affected required feature(s) with no offsite power available 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 in the [primary and secondary] containment.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
	<u>AND</u>	
	A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. LCO Item b. not met.	B.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	B.2	Suspend movement of [recently] irradiated fuel assemblies in [primary and secondary] containment.	Immediately
	AND		
	B.3	Initiate action to suspend OPDRVs.	Immediately
	AND		
	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
A. One or more DGs with fuel oil level: 1. For [DG 11 or 12], < [62,000] gal and ≥ [49,000] gal, and 2. For [DG 13], < [41,200] gal and ≥ [33,500] gal.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory: 1. For [DG 11 or 12], < [ ] gal and ≥ [425] gal, and 2. For [DG 13], < [ ] gal and ≥ [ ] 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

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. OR 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 [OR In accordance with the Risk Informed Completion Time Program]
	AND	
	A.2 Verify battery float current ≤ [2] amps.	Once per [12] hours
	AND	
	A. 3 Restore battery charger[s] to OPERABLE status.	7 days [OR 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] [OR 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 [OR In accordance with the Risk Informed Completion Time Program]
D. [Division 1 and 2] DC electrical power subsystems inoperable.	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
~~D~~E. [Division 3] DC electrical power subsystem inoperable for reasons other than Condition A [or B].	~~D~~E.1 Declare High Pressure Core Spray System [and 2C Standby Service Water System] inoperable.	Immediately
~~E~~F. Required Action and associated Completion Time not met.	~~E~~F.1 Be in MODE 3. AND ~~E~~F.2 Be in MODE 4.	12 hours 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≥ [400] amps at greater than or equal to the minimum established float voltage for ≥ [8] hours. OR 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. AND 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. AND A.2 Verify battery float current ≤ [2] amps. AND	2 hours Once per [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.3 Restore battery charger[s] to OPERABLE status.	7 days]
B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A. OR Required Action and associated Completion Time of Condition A not met.]	B.1 Declare affected required feature(s) inoperable. OR B.2.1 Suspend CORE ALTERATIONS. AND B.2.2 Suspend movement of [recently] irradiated fuel assemblies in the [primary or secondary] containment. AND B.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel. AND B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately 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----------
Licensees 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. AND A.2 Perform SR 3.8.6.1. AND A.3 Restore affected cell voltage ≥ [2.07] V.	2 hours 2 hours 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. AND B.2 Restore battery float current to ≤ [2] amps.	2 hours [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Required Action C.2 shall be completed if electrolyte level was below the top of plates. ----------	----------NOTE---------- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. ----------	
C. One [or two] batter[y][ies on one division] with one or more cells electrolyte level less than minimum established design limits.	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.	8 hours 12 hours 31 days
D. One [or two] batter[y][ies on one division] with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. One or more batteries in redundant divisions with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one division to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR 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.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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.	7 days
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ [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 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 or~~and~~ 2] inverters to OPERABLE status.	24 hours [OR In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. [Division 1 and 2] inverters inoperable.	B.1 Restore inoperable inverters to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
~~B~~C.[[Division 3] inverter inoperable.	~~B~~C.1 Declare High Pressure Core Spray System [and 2C Standby Service Water System] inoperable.	Immediately]
~~C~~D. Required Action and associated Completion Time not met.	~~C~~D.1 Be in MODE 3. AND ~~C~~D.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, [frequency,] and alignment to required AC vital buses.	7 days

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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [primary or secondary] containment.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	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 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
A. One or more [Division 1 and 2] AC electrical power distribution subsystems inoperable.	----------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. ----------	
	A.1 Restore [Division 1 and 2] AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours [OR In accordance with the Risk Informed Completion Time Program]
B. [One or more [Division 1 and 2] AC vital buses inoperable.	B.1 Restore [Division 1 and 2] AC vital bus distribution subsystem(s) to OPERABLE status.	2 hours] [OR In accordance with the Risk Informed Completion Time Program]
C. One or more [Division 1 and 2] DC electrical power distribution subsystems inoperable.	C.1 Restore [Division 1 and 2] DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours [OR

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	D.1 Restore inoperable electrical power distribution subsystems to OPERABLE status.	1 hour [OR In accordance with the Risk Informed Completion Time Program]
E~~D~~. Required Action and associated Completion Time of Condition A, B, or C not met.	E~~D~~.1 Be in MODE 3. AND E~~D~~.2 Be in MODE 4.	12 hours 36 hours
F~~E~~. One or more [Division 3] AC, DC, or AC vital bus electrical power distribution subsystems inoperable.	F~~E~~.1 Declare High Pressure Core Spray System [and 2C Standby Service Water System] inoperable.	Immediately
~~F. Two or more electrical power distribution subsystems inoperable that result in a loss of function.~~	~~F.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

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

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
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [primary or secondary] containment.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	A.2.4 Initiate actions to restore [required] AC, DC, [and AC vital bus] electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	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

5.5.13 Primary Containment Leakage Rate Testing Program (continued)

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 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] [≤ 0.75 L_a for Option B Type A tests].

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

e. The provisions of SR 3.0.3 are applicable to the Primary 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.

5.5.14 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 Notes ----------
1. 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.
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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 REQUIREMENTS

SR 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)

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 in an orderly manner and without challenging plant systems.

D.1 and D.2

With one or more required SRM channels 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 time. [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 SRMs inoperable in MODE 5, the capability 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.

BASES

ACTIONS

A Note has been provided to modify the ACTIONS related to PAM 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 PAM instrumentation channels provide appropriate compensatory measures for separate inoperable functions. As such, a Note has been provided that allows separate Condition entry for each inoperable PAM Function.

A.1

When one or more Functions have one required channel that is inoperable, the required inoperable channel must be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channel (or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval.

B.1

If a channel has not been restored to OPERABLE status in 30 days, this Required Action specifies initiation of actions in accordance with Specification 5.6.5, which requires a written report to be submitted to the NRC. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative actions. This Action is appropriate in lieu of a shutdown requirement since alternative Actions are identified before loss of functional capability, and given the likelihood of plant conditions that would require information provided by this instrumentation.

BASES

ACTIONS (continued)

C.1

When one or more Functions have two required channels that are inoperable (i.e., two channels inoperable in the same Function), one channel in the Function should be restored to OPERABLE status within 7 days [or in accordance with the Risk Informed Completion Time Program]. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrument operation and the availability of alternate means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur. Condition C is modified by a Note that excludes hydrogen monitor channels. Condition D provides appropriate Required Actions for two inoperable hydrogen monitor channels. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

D.1

This Required Action directs entry into the appropriate Condition referenced in Table 3.3.3.1-1. The applicable Condition referenced in the Table is Function dependent. Each time an inoperable channel has not met the Required Action of Condition C, and the associated Completion Time has expired, Condition D is entered for that channel and provides for transfer to the appropriate subsequent Condition.

E.1

For the majority of Functions in Table 3.3.3.1-1, if the Required Action and associated Completion Time of Condition C is not met, the plant must be placed in a MODE in which the LCO does not apply. This is done by placing the plant in at least MODE 3 within 12 hours.

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

BASES

ACTIONS (continued)

F.1

Since alternate means of monitoring primary containment area radiation have been developed and tested, the Required Action is not to shut down the plant but rather to follow the directions of Specification 5.6.5. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

SURVEILLANCE REQUIREMENTS

The following SRs apply to each PAM instrumentation Function in Table 3.3.3.1-1.

SR 3.3.3.1.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross instrumentation failure 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. The high radiation instrumentation should be compared to similar plant instruments located throughout the plant.

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

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

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

This protection is required consistent with the analysis, whenever the THERMAL POWER is ≥ 40% RTP with any recirculating pump in fast speed. Below 40% RTP or with recirculation pumps in slow speed, 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. The turbine first stage pressure/reactor power relationship for the setpoint of the automatic enable is identical to that described for TSV closure.

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 Action 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 allowed 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. 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.]

BASES

ACTIONS (continued)

C.1 and C.2

With any Required Action and associated Completion Time not met, THERMAL POWER must be reduced to < 40% 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 < 40% RTP 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 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.

SR 3.3.4.1.1

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 reliability analysis (Ref. 5).

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 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

ACTIONS (continued)

D.1 and D.2

With any Required Action and associated Completion Time not met, the plant must be brought to a MODE or other specified condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 2 within 6 hours (Required Action D.2). Alternately, the associated recirculation pump may be removed from service since this performs the intended Function of the instrumentation (Required Action D.1). The allowed Completion Time of 6 hours is reasonable, based on operating experience, both to reach MODE 2 from full power conditions and to remove a recirculation pump from service in an orderly manner and without challenging plant systems.

Required Action D.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 ATWS-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. 2) 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)

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

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ACTIONS (continued)

Functions 1.a, l.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

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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, l.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 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.

BASES

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 HCPS 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)

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 the 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 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, 3.g, and 3.h; and (b) for Functions other than 3.c, 3.f, 3.g, and 3.h provided the associated Function or redundant Function maintains ECCS initiation 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. 4) 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 ECCS will initiate when necessary.

SR 3.3.5.1.1

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 the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Suppression pool water level signals are initiated from two level transmitters. 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 NRC 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 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.

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 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

BASES

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, 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 (continued)

D.1, D.2.1, and D.2.2

If the channel is not restored to OPERABLE status or 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 placing the plant in at least MODE 3 within 12 hours and in MODE 4 within 36 hours (Required Actions D.2.1 and D.2.2). Alternately, the associated MSLs may be isolated (Required Action D.1), and if allowed (i.e., plant safety analysis allows operation with an MSL isolated), plant operation with the MSL isolated may continue. Isolating the affected MSL accomplishes the safety function of the inoperable channel. The 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.

E.1

If the channel is not restored to OPERABLE status or 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 placing the plant in at least MODE 2 within 6 hours.

The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power conditions in an orderly manner and without challenging plant systems.

F.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, plant operation may continue if the affected penetration flow path(s) is isolated. Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable channels.

For some of the Ambient and Differential Temperature Functions, the affected penetration flow path(s) may be considered isolated by isolating only that portion of the system in the associated room monitored by the inoperable channel. That is, if the RWCU pump room A ambient channel is inoperable, the A pump room area can be isolated while allowing continued RWCU operation utilizing the B RWCU pump.

BASES

ACTIONS (continued)

Alternatively, if it is not desired to isolate the affected penetration flow path(s) (e.g., as in the case where isolating the penetration flow path(s) could result in a reactor scram), Condition H must be entered and its Required Actions taken.

The Completion Time is acceptable because it minimizes risk while allowing sufficient time for plant operations personnel to isolate the affected penetration flow path(s).

G.1

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, plant operations may continue if the affected penetration flow path(s) is isolated. Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable channels. The 24 hour Completion Time is acceptable due to the fact that these Functions (Manual Initiation) are not assumed in any accident or transient analysis in the FSAR. Alternately, if it is not desired to isolate the affected penetration flow path(s) (e.g., as in the case where isolating the penetration flow path(s) could result in a reactor scram), Condition H must be entered and its Required Actions taken.

H.1 and H.2

If the channel is not restored to OPERABLE status or placed in trip, or any Required Action of Condition F or G is not met and the associated Completion Time has expired, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by placing the plant 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 plant conditions from full power conditions in an orderly manner and without challenging plant systems.

I.1 and I.2

If the channel is not restored to OPERABLE status within the allowed Completion Time, the associated SLC subsystem(s) is declared inoperable or the RWCU System is isolated. Since this Function is required to ensure that the SLC System performs its intended function, sufficient remedial measures are provided by declaring the associated SLC subsystem inoperable or isolating the RWCU System.

BASES

ACTIONS (continued)

The Completion Time of 1 hour is acceptable because it minimizes risk while allowing sufficient time for personnel to isolate the RWCU System.

J.1 and J.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path should be closed. However, if the shutdown cooling function is needed to provide core cooling, these Required Actions allow the penetration flow path to remain unisolated provided action is immediately initiated to restore the channel to OPERABLE status or to isolate the RHR Shutdown Cooling System (i.e., provide alternate decay heat removal capabilities so the penetration flow path can be isolated). ACTIONS must continue until the channel is restored to OPERABLE status or the RHR Shutdown Cooling System is isolated.

K.1, K.2.1, and K.2.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path(s) should be isolated (Required Action K.1). Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable instrumentation. Alternately, 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 OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission production release. Actions must continue until OPDRVs are suspended.

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 Primary Containment Isolation Instrumentation Function are found in the SRs column of Table 3.3.6.1-1.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Four channels of the Manual Initiation Function are available and are required to be OPERABLE in MODES 1, 2, and 3 and during OPDRVs and movement of [recently] irradiated fuel assemblies in the secondary containment, since these are the MODES and other specified conditions in which the Secondary Containment Isolation automatic Functions are 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 secondary 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 secondary 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 secondary 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. 3 and 4) 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. 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 Actions 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 a complete loss of automatic isolation capability for the associated penetration flow path(s) or a complete loss of automatic initiation capability for the SGT System. A Function is considered to be maintaining secondary containment 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 SCIVs in the associated penetration flow path and one SGT subsystem can be initiated on an isolation signal from the given Function. For the Functions with two two-out-of-two logic trip systems (Functions 1, 2, 3, and 4), this would require one trip system to have two channels, each OPERABLE or in trip. The Condition does not include the Manual Initiation Function (Function 5), since it is 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.]

C.1.1, C.1.2, C.2.1, and C.2.2

If any Required Action and associated Completion Time of Condition A or B are not met, the ability to isolate the secondary containment and start the SGT System cannot be ensured. Therefore, further actions must be performed to ensure the ability to maintain the secondary containment function. Isolating the associated valves and starting the associated SGT subsystem (Required Actions C.1.1 and C.2.1) performs the intended function of the instrumentation and allows operations to continue.

Alternatively, declaring the associated SCIVs or SGT subsystem inoperable (Required Actions C.1.2 and C.2.2) is also acceptable since the Required Actions of the respective LCOs (LCO 3.6.4.2 and LCO 3.6.4.3) provide appropriate actions for the inoperable components.

One hour is sufficient for plant operations personnel to establish required plant conditions or to declare the associated components inoperable without challenging plant systems.

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.

BASES

ACTIONS (continued)

D.1

With any Required Action and associated Completion Time not met, the associated SPMU subsystem may be incapable of performing the intended function and the SPMU 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 SPMU System Function are located in the SRs column of Table 3.3.6.4-1.

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 suppression pool makeup 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. 3) 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 SPMU will initiate when necessary.

SR 3.3.6.4.1

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 the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

BASES

ACTIONS (continued)

A.1

Because the failure of any reactor steam dome pressure instrument channels [providing relief S/RV opening and LLS opening and closing pressure setpoints] in one trip system will not prevent the associated S/RV from performing its relief and LLS function, 7 days is allowed to restore a trip system to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] In this condition, the remaining OPERABLE trip system is adequate to perform the relief and LLS initiation function. However, the overall reliability is reduced because a single failure in the OPERABLE trip system could result in a loss of relief or LLS function.

The 7 day Completion Time is considered appropriate for the relief and LLS function because of the redundancy of sensors available to provide initiation signals and the redundancy of the relief and LLS design. In addition, the probability of multiple relief or LLS instrumentation channel failures, which renders the remaining trip system inoperable, occurring together with an event requiring the relief or LLS function during the 7 day Completion Time is very low.

B.1

With two trip systems inoperable, the Required Action is to restore at least one system to OPERABLE status within 1 hour, 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.]

C~~B~~.1 and C~~B~~.2

If the inoperable trip system is not restored to OPERABLE status within 7 days, per Condition -A or B, ~~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 ----------REVIEWER'S NOTE----------

BASES

ACTIONS (continued)

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.7.1-1. The applicable Condition specified in the Table is Function dependent. Each time an inoperable channel is discovered, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Because of the diversity of sensors available to provide initiation signals and the redundancy of the CRFA System design, an allowable out of service time of 24 hours has 25-been shown to be acceptable (Refs. 4 and 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.] However, this out of service time is only acceptable provided the associated Function is still maintaining CRFA System initiation capability. A Function is considered to be maintaining CRFA System initiation capability when sufficient channels are OPERABLE or in trip, such that one trip system will generate an initiation signal from the given Function on a valid signal. This would require one trip system to have two channels, each OPERABLE or in trip. In this situation (loss of CRFA System initiation capability), the 24 hour allowance of Required Action B.2 is not appropriate. If the Function is not maintaining CRFA System initiation capability, the CRFA System must be declared inoperable within 1 hour of discovery of loss of CRFA System initiation capability in both trip systems. 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 Actions taken.

C.1 and C.2

Because of the diversity of sensors available to provide initiation signals and the redundancy of the CRFA System design, an allowable out of service time of 12 hours has been shown to be acceptable (Refs. 4 and 6) 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.] However, this out of service time is only acceptable provided the associated Function is still maintaining CRFA System initiation

BASES

ACTIONS (continued)

capability. A Function is considered to be maintaining CRFA System initiation capability when sufficient channels are OPERABLE or in trip, such that one trip system will generate an initiation signal from the given Function on a valid signal. This would require one trip system to have two channels, each OPERABLE or in trip. In this situation (loss of CRFA System initiation capability), the 12 hour allowance of Required Action C.2 is not appropriate. If the Function is not maintaining CRFA System initiation capability, the CRFA System must be declared inoperable within 1 hour of discovery of loss of CRFA System initiation capability in both trip systems. 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 C.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 Actions taken.

D.1 and D.2

Because of the diversity of sensors available to provide initiation signals and the redundancy of the CRFA System design, an allowable out of service time of 6 hours is provided 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.] However, this out of service time is only acceptable provided the associated Function is still maintaining CRFA System initiation capability. A Function is considered to be maintaining CRFA System initiation capability when sufficient channels are OPERABLE or in trip, such that one trip system will generate an initiation signal from the given Function on a valid signal. This would require one trip system to have two channels, each OPERABLE or in trip. In this situation (loss of CRFA System initiation capability), the 6 hour allowance of Required Action D.2 is not appropriate. If the Function is not maintaining CRFA System initiation capability, the CRFA System must be declared inoperable within 1 hour of discovery of loss of CRFA System initiation capability in both trip systems. 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. Placing the inoperable channel in trip performs the intended function of the channel (starts the associated CRFA subsystem in the isolation mode). Alternately, if it is not desired to place the channel in trip (e.g., as in the case where it is not desired to start the subsystem), Condition E must be entered and its Required Actions taken.

BASES

ACTIONS (continued)

The 6 hour Completion Time is based on the consideration that this Function provides the primary signal to start the CRFA System, thus ensuring that the design basis of the CRFA System is met.

E.1 and E.2

With any Required Action and associated Completion Time not met, the associated CRFA subsystem must be placed in the isolation mode of operation (Required Action D.1) to ensure that control room personnel will be protected in the event of a Design Basis Accident. The method used to place the CRFA subsystem in operation must provide for automatically reinitiating the subsystem upon restoration of power following a loss of power to the CRFA subsystem(s). As noted, if the toxic gas protection instrumentation is concurrently inoperable, then the CRFA subsystem shall be placed in the toxic gas mode instead of the isolation mode. This provides proper protection of the control room personnel if both toxic gas instrumentation (not required by Technical Specifications) and radiation instrumentation are concurrently inoperable. Alternately, if it is not desired to start the subsystem, the CRFA subsystem associated with inoperable, untripped channels must be declared inoperable within 1 hour.

The 1 hour Completion Time is intended to allow the operator time to place the CRFA subsystem in operation. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels, or for placing the associated CRFA subsystem in operation.

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 CRFA System Instrumentation Function are located in the SRs column of Table 3.3.7.1-1.

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

LCO (continued)

The Allowable Values for the instrument settings are based on the RPS providing ≥ 57 Hz, 120 V ± 10% (to all equipment), and 115 V ± 10 V (to scram and MSIV solenoids). The most limiting voltage requirement and associated line losses determine the settings of the electric power monitoring instrument channels. The settings are calculated based on the loads on the buses and RPS MG set or alternate power supply being 120 VAC and 60 Hz.

APPLICABILITY

The operation of the RPS electric power monitoring assemblies is essential to disconnect the RPS bus powered components from the MG set or alternate power supply during abnormal voltage or frequency conditions. Since the degradation of a nonclass 1E source supplying power to the RPS bus can occur as a result of any random single failure, the OPERABILITY of the RPS electric power monitoring assemblies is required when the RPS bus powered components are required to be OPERABLE. This results in the RPS Electric Power Monitoring System OPERABILITY being required in MODES 1, 2, and 3, and MODES 4 and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both residual heat removal (RHR) shutdown cooling isolation valves open.

ACTIONS

A.1

If one RPS electric power monitoring assembly for an inservice power supply (MG set or alternate) is inoperable, or one RPS electric power monitoring assembly on each inservice power supply is inoperable, the OPERABLE assembly will still provide protection to the RPS bus powered components under degraded voltage or frequency conditions. However, the reliability and redundancy of the RPS Electric Power Monitoring System are reduced and only a limited time (72 hours) is allowed to restore the inoperable assembly(s) to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the inoperable assembly(s) cannot be restored to OPERABLE status, the associated power supply must be removed from service (Required Action A.1). This places the RPS bus in a safe condition. An alternate power supply with OPERABLE power monitoring assemblies may then be used to power the RPS bus.

The 72 hour Completion Time takes into account the remaining OPERABLE electric power monitoring assembly and the low probability of an event requiring RPS Electric Power Monitoring protection occurring during this period. It allows time for plant operations personnel to take corrective actions or to place the plant in the required condition in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

Alternatively, if it is not desired to remove the power supply(s) from service (e.g., as in the case where removing the power supply(s) from service would result in a scram or isolation), Condition C or D, as applicable, must be entered and its Required Actions taken.

B.1

If both power monitoring assemblies for an inservice power supply (MG set or alternate) are inoperable, or both power monitoring assemblies in each inservice power supply are inoperable, the system protective function is lost. In this condition, 1 hour is allowed to restore one assembly to OPERABLE status for each inservice power supply. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If one inoperable assembly for each inservice power supply cannot be restored to OPERABLE status, the associated power supplies must be removed from service within 1 hour (Required Action B.1). An alternate power supply with OPERABLE assemblies may then be used to power one RPS bus. The 1 hour Completion Time is sufficient for the plant operations personnel to take corrective actions and is acceptable because it minimizes risk while allowing time for restoration or removal from service of the electric power monitoring assemblies. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

Alternately, if it is not desired to remove the power supply(s) from service (e.g., as in the case where removing the power supply(s) from service would result in a scram or isolation), Condition C or D, as applicable, must be entered and its Required Actions taken.

C.1 and C.2

If any Required Action and associated Completion Time of Condition A or B are not met in MODE 1, 2, or 3, a plant shutdown must be performed. This places the plant in a condition where minimal equipment, powered through the inoperable RPS electric power monitoring assembly(s), is required and ensures that the safety function of the RPS (e.g., scram of control rods) is not required. The plant shutdown is accomplished by placing the plant in 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 plant conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

D.1, D.2.1, and D.2.2

If any Required Action and associated Completion Time of Condition A or B are not met in MODE 4 or 5, with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both RHR shutdown cooling valves open, the operator must immediately initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies (Required Action D.1). This Required Action results in the least reactive condition for the reactor core and ensures that the safety function of the RPS (e.g., scram of control rods) is not required.

In addition, action must be immediately initiated to either restore one electric power monitoring assembly to OPERABLE status for the inservice power source supplying the required instrumentation powered from the RPS bus (Required Action D.2.1) or to isolate the RHR Shutdown Cooling System (Required Action D.2.2). Required Action D.2.1 is provided because the RHR Shutdown Cooling System may be needed to provide core cooling. All actions must continue until the applicable Required Actions are completed.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1

A CHANNEL FUNCTIONAL TEST is performed on each overvoltage, undervoltage, and underfrequency 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.

As noted in the Surveillance, the CHANNEL FUNCTIONAL TEST is only required to be performed while the plant is in a condition in which the loss of the RPS bus will not jeopardize steady state power operation (the design of the system is such that the power source must be removed from service to conduct the Surveillance). The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance. The 184 day Frequency and the Note in the Surveillance are based on guidance provided in Generic Letter 91-09 (Ref. 2).

BASES

APPLICABLE SAFETY ANALYSES (continued)

The transient analyses of Chapter 15 of the FSAR have also been performed for single recirculation loop operation (Ref. 3) and demonstrate sufficient flow coastdown characteristics to maintain fuel thermal margins during the abnormal operational transients analyzed provided the MCPR requirements are modified. During single recirculation loop operation, modification to the Reactor Protection System average power range monitor (APRM) instrument setpoints is also required to account for the different relationships between recirculation drive flow and reactor core flow. The APLHGR and MCPR setpoints for single loop operation are specified in the COLR. The APRM flow biased simulated thermal power setpoint is in LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation."

Recirculation loops operating satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

Two recirculation loops are required to be in operation with their flows matched within the limits specified in SR 3.4.1.1 to ensure that during a LOCA caused by a break of the piping of one recirculation loop the assumptions of the LOCA analysis are satisfied. With the limits specified in SR 3.4.1.1 not met, the recirculation loop with the lower flow must be considered not in operation. With only one recirculation loop in operation, modifications to the required APLHGR limits (LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)"), MCPR limits (LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)"), and APRM Flow Biased Simulated Thermal Power - High setpoint (LCO 3.3.1.1) may be applied to allow continued operation consistent with the assumptions of Reference 3.

APPLICABILITY

In MODES 1 and 2, requirements for operation of the Reactor Coolant Recirculation System are necessary since there is considerable energy in the reactor core and the limiting design basis transients and accidents are assumed to occur.

In MODES 3, 4, and 5, the consequences of an accident are reduced and the coastdown characteristics of the recirculation loops are not important.

ACTIONS

A.1

With the requirements of the LCO not met, the recirculation loops must be restored to operation with matched flows within 24 hours [or in accordance with the Risk Informed Completion Time Program]. A recirculation loop is considered not in operation when the pump in that loop is idle or when the mismatch between total jet pump flows of the two loops is greater than required limits. The loop with the lower flow must be

BASES

ACTIONS (continued)

considered not in operation. Should a LOCA occur with one recirculation loop not in operation, the core flow coastdown and resultant core response may not be bounded by the LOCA analyses. Therefore, only a limited time is allowed to restore the inoperable loop to operating status.

Alternatively, if the single loop requirements of the LCO are applied to operating limits and RPS setpoints, operation with only one recirculation loop would satisfy the requirements of the LCO and the initial conditions of the accident sequence.

The 24 hour Completion Time is based on the low probability of an accident occurring during this time period, on a reasonable time to complete the Required Action, and on frequent core monitoring by operators allowing abrupt changes in core flow conditions to be quickly detected.

This Required Action does not require tripping the recirculation pump in the lowest flow loop when the mismatch between total jet pump flows of the two loops is greater than the required limits. However, in cases where large flow mismatches occur, low flow or reverse flow can occur in the low flow loop jet pumps, causing vibration of the jet pumps. If zero or reverse flow is detected, the condition should be alleviated by changing flow control valve position to re-establish forward flow or by tripping the pump.

B.1

With no recirculation loops in operation, at least one recirculation loop must be restored within 1 hour [or in accordance with the Risk Informed Completion Time Program]. Should a LOCA occur with no recirculation loop in operation, the core response may not be bounded by the LOCA analyses. Therefore, only a limited time is allowed to restore the inoperable loop to operating status.

C~~B~~.1

With ~~no recirculation loops in operation, or~~ the Required Action and associated Completion Time of Condition ~~-~~A or B not met, the unit is required to 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. In this condition, the recirculation loops are not required to be operating because of the reduced severity of DBAs and minimal dependence on the recirculation loop coastdown characteristics. 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 REQUIREMENTS

SR 3.4.1.1

This SR ensures the recirculation loop flows are within the allowable limits for mismatch. At low core flow (i.e., < [70]% of rated core flow), the MCPR requirements provide larger margins to the fuel cladding integrity Safety Limit such that the potential adverse effect of early boiling

BASES

ACTIONS

A Note has been provided to modify the ACTIONS related to FCVs. Section 1.3, Completion Times, specifies 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 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 FCVs provide appropriate compensatory measures for separate inoperable FCVs. As such, a Note has been provided that allows separate Condition entry for each inoperable FCV.

A.1

With one or two required FCVs inoperable, the assumptions of the design basis transient and accident analyses may not be met and the inoperable FCV must be returned to OPERABLE status or hydraulically locked within 4 hours [or in accordance with the Risk Informed Completion Time Program].

Opening an FCV faster than the limit could result in a more severe flow runout transient, resulting in violation of the Safety Limit MCPR. Closing an FCV faster than the limit assumed in the LOCA analysis (Refs. 1 and 2) could affect the recirculation flow coastdown, resulting in higher peak clad temperatures. Therefore, if an FCV is inoperable due to stroke times faster than the limits, deactivating the valve will essentially lock the valve in position, which will prohibit the FCV from adversely affecting the DBA and transient analyses. Continued operation is allowed in this Condition.

The 4 hour Completion Time is a reasonable time period to complete the Required Action, while limiting the time of operation with an inoperable FCV.

B.1

If the FCVs are not deactivated ("locked up") 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. This brings the unit to a condition where the flow coastdown characteristics of the recirculation loop are not important. 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 unit systems.

BASES

LCO

The structural failure of any of the jet pumps could cause significant degradation in the ability of the jet pumps to allow reflooding to two thirds core height during a LOCA. OPERABILITY of all jet pumps is required to ensure that operation of the Reactor Coolant Recirculation System will be consistent with the assumptions used in the licensing basis analysis (Ref. 1).

APPLICABILITY

In MODES 1 and 2, the jet pumps are required to be OPERABLE since there is a large amount of energy in the reactor core and since the limiting DBAs are assumed to occur in these MODES. This is consistent with the requirements for operation of the Reactor Coolant Recirculation System (LCO 3.4.1).

In MODES 3, 4, and 5, the Reactor Coolant Recirculation System is not required to be in operation, and when not in operation sufficient flow is not available to evaluate jet pump OPERABILITY.

ACTIONS

A.1 and A.2

An inoperable jet pump can increase the blowdown area and reduce the capability of reflooding during a design basis LOCA. If one or more of the jet pumps are inoperable, the inoperable jet pump(s) must be restored to OPERABLE status, or the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the jet pump(s) must be restored within 1 hour [or in accordance with the Risk Informed Completion Time Program] (RA A.1) or the plant must be brought to MODE 3 within 12 hours (RA A.2). The Completion Time of RA A.1 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 allowed Completion Time of RA A.2 (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 REQUIREMENTS

SR 3.4.3.1

This SR is designed to detect significant degradation in jet pump performance that precedes jet pump failure (Ref. 2). This SR is required to be performed only when the loop has forced recirculation flow since surveillance checks and measurements can only be performed during jet pump operation. The jet pump failure of concern is a complete mixer displacement due to jet pump beam failure. Jet pump plugging is also of concern since it adds flow resistance to the recirculation loop. Significant degradation is indicated if the specified criteria confirm unacceptable deviations from established patterns or relationships. The allowable deviations from the established patterns have been developed based on

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.]

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.]

B.1 and B.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

ACTIONS

The ACTIONS are modified by two Notes. Note 1 has been provided to modify the ACTIONS related to RCS PIV flow paths. Section 1.3, Completion Times, specifies 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 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 the Condition of RCS PIV leakage limits exceeded provide appropriate compensatory measures for separate affected RCS PIV flow paths. As such, a Note has been provided that allows separate Condition entry for each affected RCS PIV flow path. Note 2 requires an evaluation of affected systems if a PIV is inoperable. The leakage may have affected system OPERABILITY, or isolation of a leaking flow path with an alternate valve may have degraded the ability of the interconnected system to perform its safety function. As a result, the applicable Conditions and Required Actions for systems made inoperable by PIVs must be entered. This ensures appropriate remedial actions are taken, if necessary, for the affected systems.

A.1 and A.2

If leakage from one or more RCS PIVs is not within limit, the flow path must be isolated by at least one closed manual, deactivated, automatic, or check valve within 4 hours [or in accordance with the Risk Informed Completion Time Program]. Required Action A.1 and Required Action A.2 are modified by a Note stating that the valves used for isolation must meet the same leakage requirements as the PIVs and must be on the RCPB [or the high pressure portion of the system.]

Four hours provides time to reduce leakage in excess of the allowable limit and to isolate the flow path if leakage cannot be reduced while corrective actions to reseat the leaking PIVs are taken. The 4 hours allows time for these actions and restricts the time of operation with leaking valves.

Required Action A.2 specifies that the double isolation barrier of two valves be restored by closing another 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 Required Action, the low probability of a second valve failing during this time period, and the low probability of a pressure boundary rupture of the low pressure ECCS piping when overpressurized to reactor pressure (Ref. 7). [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

BASES

ACTIONS (continued)

B.1 and B.2

If leakage cannot be reduced or the system isolated, 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. This action may reduce the leakage and also reduces the potential for a LOCA outside the containment. The Completion Times are reasonable, based on operating experience, to achieve the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1

Performance of leakage testing on each RCS PIV is required to verify that leakage is below the specified limit and to identify each leaking valve. The leakage limit of 0.5 gpm per inch of nominal valve diameter up to 5 gpm maximum applies to each valve. Leakage testing requires a stable pressure condition. For the two PIVs in series, the leakage requirement applies to each valve individually and not to the combined leakage across both valves. If the PIVs are not individually leakage tested, one valve may have failed completely and not be detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

The 18 month Frequency required by the Inservice Testing Program is within the ASME Code Frequency requirement and is based on the need to perform this Surveillance under the conditions that apply during an outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Therefore, this SR is modified by a Note that states the leakage Surveillance is not required to be performed in MODE 3. Entry into MODE 3 is permitted for leakage testing at high differential pressures with stable conditions not possible in the lower MODES.

REFERENCES

1. 10 CFR 50.2.

2. 10 CFR 50.55a(c).

3. 10 CFR 50, Appendix A, GDC 55.

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

BASES

APPLICABILITY

In MODES 1, 2, and 3, leakage detection systems are required to be OPERABLE to support LCO 3.4.5. This Applicability is consistent with that for LCO 3.4.5.

ACTIONS

A.1

With the drywell floor drain sump monitoring system inoperable, no other form of sampling can provide the equivalent information to quantify leakage. However, the drywell atmospheric activity monitor [and the drywell air cooler condensate flow rate monitor] will provide indications of changes in leakage.

With the drywell floor drain sump monitoring system inoperable, but with RCS unidentified and total LEAKAGE being determined every 8 hours (SR 3.4.5.1), operation may continue for 30 days. The 30 day Completion Time of Required Action A.1 is acceptable, based on operating experience, considering the multiple forms of leakage detection that are still available.

B.1 and B.2

With both gaseous and particulate drywell atmospheric monitoring channels inoperable, grab samples of the drywell atmosphere shall be taken and analyzed to provide periodic leakage information. [Provided a sample is obtained and analyzed every 12 hours, the plant may be operated for up to 30 days to allow restoration of at least one of the required monitors.] [Provided a sample is obtained and analyzed every 12 hours, the plant may continue operation since at least one other form of drywell leakage detection (i.e., air cooler condensate flow rate monitor) is available.]

The 12 hour interval provides periodic information that is adequate to detect LEAKAGE. The 30 day Completion Time for restoration recognizes that at least one other form of leakage detection is available.

BASES

ACTIONS (continued)

[C.1

With the required drywell air cooler condensate flow rate monitoring system inoperable, SR 3.4.7.1 is performed every 8 hours to provide periodic information of activity in the drywell at a more frequent interval than the routine Frequency of SR 3.4.7.1. The 8 hour interval provides periodic information that is adequate to detect LEAKAGE and recognizes that other forms of leakage detection are available. However, this Required Action is modified by a Note that allows this action to be not applicable if the required drywell atmospheric monitoring system is inoperable. Consistent with SR 3.0.1, Surveillances are not required to be performed on inoperable equipment.]

[D.1 and D.2

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

E.1

With all required monitors inoperable, no required automatic means of monitoring LEAKAGE are available. The Required Action is to restore at least one of the required inoperable monitors to OPERABLE status within 1 hour to regain a method of leakage detection. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required monitor. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

F~~E~~.1 and F ~~E~~.2

If any Required Action of Condition A, B, [C, ~~or~~ D] or E cannot be met 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 in an orderly manner and without challenging plant systems.

~~F.1~~

~~With all required monitors inoperable, no required automatic means of monitoring LEAKAGE are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.~~

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.]

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.]

H~~G~~.1 and H~~G~~.2

If any Required Action and associated Completion Time of Condition -E, F or -G~~F~~ 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)

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.]

~~JH~~.1

If any Required Action and associated Completion Time of Condition I is not met, ~~When multiple ECCS subsystems are inoperable, as stated in Condition H, 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. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

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. <u>A.1 and A.2</u> 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

The ACTIONS are modified by Note 1, which allows entry and exit to perform repairs of the affected air lock component. If the outer door is inoperable, then it may be easily accessed for most repairs. It is preferred that the air lock be accessed from inside primary containment by entering through the other OPERABLE air lock. However, if this is not practicable, or if repairs on either door must be performed from the barrel side of the door, then it is permissible to enter the air lock through the OPERABLE door, which means there is a short time during which the primary containment boundary is not intact (during access through the OPERABLE door). The ability to open the OPERABLE door, even if it means the primary containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the primary 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.

Note 2 has been included 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.

The ACTIONS are modified by a third Note, which ensures appropriate remedial actions are taken when necessary. Pursuant to LCO 3.0.6, ACTIONS are not required even if primary containment is exceeding its leakage limit. Therefore, the Note is added to require ACTIONS for LCO 3.6.1.1, "Primary Containment," to be taken in this event.

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

With one primary containment air lock door inoperable in one or more primary containment air locks, the OPERABLE door must be verified closed (Required Action A.1) in each affected air lock. This ensures that a leak tight primary containment barrier is maintained by the use of an OPERABLE air lock door. This action must be completed within 1 hour. The 1 hour 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)

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 considered 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 ensures that the affected air lock with an inoperable door has been isolated by the use of a locked closed OPERABLE air lock door. This ensures that an acceptable primary 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 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.

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 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. 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.

Primary containment entry may be required to perform Technical Specifications (TS) Surveillances and Required Actions, as well as other activities on equipment inside primary 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-related activities) if the primary containment was 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 primary containment during the short time that the OPERABLE door is expected to be open.

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

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	A limitation on the primary [to secondary containment differential] pressure of [≥ -0.1 and ≤ 1.0 psid] is required to ensure that primary containment initial conditions are consistent with the initial safety analyses assumptions so that containment pressures remain within design values during a LOCA and the design value of containment negative pressure is not exceeded during an inadvertent operation of containment sprays.
APPLICABILITY	In MODES 1, 2, and 3, a DBA could result in 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, maintaining primary containment pressure within limits is not required in MODE 4 or 5.
ACTIONS	A.1 When primary [to secondary containment differential] pressure is not within the limits of the LCO, differential pressure must be restored to within limits within 1 hour [or in accordance with the Risk Informed Completion Time Program]. The Required Action is necessary to return operation to within the bounds of the primary containment analysis. The 1 hour 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. B.1 and B.2 If primary [to secondary containment differential] pressure 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.
SURVEILLANCE REQUIREMENTS	SR 3.6.1.4.1 Verifying that primary containment [to secondary containment differential] pressure is within limits ensures that operation remains within the limits assumed in the primary containment analysis. The 12 hour Frequency of this SR was developed based on operating experience related to trending primary containment pressure variations during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal primary containment pressure condition.

BASES

ACTIONS

A.1

When primary containment average air temperature is not within the limit of the LCO, it must be restored within 8 hours [or in accordance with the Risk Informed Completion Time Program]. This Required Action is necessary to return operation to within the bounds of the primary containment analysis. The 8 hour Completion Time is acceptable, considering the sensitivity of the analysis to variations in this parameter, and provides sufficient time to correct minor problems.

B.1 and B.2

If the primary containment average air temperature cannot be restored to within limit 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 REQUIREMENTS

SR 3.6.1.5.1

Verifying that the primary containment average air temperature is within the LCO limit ensures that operation remains within the limits assumed for the primary containment analyses. In order to determine the primary containment average air temperature, an arithmetic average is calculated, using measurements taken at locations within the primary containment selected to provide a representative sample of the overall primary containment atmosphere.

The 24 hour Frequency of this SR is considered acceptable based on observed slow rates of temperature increase within primary containment as a result of environmental heat sources (due to large volume of the primary containment). 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 primary containment air temperature condition.

REFERENCES

1. FSAR, Section [6.2].

BASES

LCO

[Six LLS valves are required to be OPERABLE to satisfy the assumptions of the safety analysis (Ref. 2). The requirements of this LCO are applicable to the mechanical and electrical/pneumatic capability of the LLS valves to function for controlling the opening and closing of the S/RVs

APPLICABILITY

In MODES 1, 2, and 3, an event could cause pressurization of the reactor and opening of S/RVs. 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 LLS valves OPERABLE is not required in MODE 4 or 5.

ACTIONS

A.1

With one LLS valve inoperable, the remaining OPERABLE LLS valves are adequate to perform the designed function. However, the overall reliability is reduced. The 14 day Completion Time takes into account the redundant capability afforded by the remaining LLS S/RVs and the low probability of an event in which the remaining LLS S/RV capability would be inadequate. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

B.1

With two or more LLS valves inoperable, the Required Action is to restore sufficient required LLS valves to OPERABLE status within 1 hour to regain the LLS function of preventing excessive short duration S/RV cycles. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient LLS valves. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C~~B~~.1 and C~~B~~.2

If ~~two or more LLS valves are inoperable or if~~ the Required Action and associated Completion Time of Condition A or B not met~~inoperable LLS valve 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.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

BASES

LCO

In the event of a Design Basis Accident (DBA), a minimum of one RHR containment spray subsystem is required to mitigate potential bypass leakage paths and maintain the primary containment peak pressure below design limits. To ensure that these requirements are met, two RHR containment spray subsystems must be OPERABLE. Therefore, in the event of an accident, at least one subsystem is OPERABLE assuming the worst case single active failure. An RHR containment spray subsystem is OPERABLE when the pump, 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 containment spray subsystems OPERABLE is not required in MODE 4 or 5.

ACTIONS

A.1

With one RHR containment 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 containment spray 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 was chosen in light of the redundant RHR containment capabilities afforded by the OPERABLE subsystem and the low probability of a DBA occurring during this period.

B.1

With two RHR containment spray 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 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

ACTIONS (continued)

C.1 and C.2

If the inoperable RHR containment spray subsystem 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.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.7.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR containment spray mode flow path provides assurance that the proper flow paths will exist for 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 capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The 31 day Frequency of this SR is justified because the valves are operated under procedural control and because improper valve position would affect only a single subsystem. This Frequency has been shown to be acceptable based on operating experience.

A Note has been added to this SR that allows RHR containment spray subsystems to be considered OPERABLE during alignment to and operation in the RHR shutdown cooling mode when below [the RHR cut in permissive pressure in MODE 3], if capable of being manually realigned and not otherwise inoperable. At these low pressures and decay heat levels (the reactor is shut down in MODE 3), a reduced complement of subsystems can provide the required containment pressure mitigation function thereby allowing operation of an RHR shutdown cooling loop when necessary.

BASES

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the PVLCS is not required to be OPERABLE in MODES 4 and 5 to prevent leakage of radioactive material from primary containment.

ACTIONS

A.1

With one PVLCS subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE PVLCS subsystem is adequate to perform the leakage control function. The 30 day Completion Time is based on the low probability of the occurrence of a LOCA, the amount of time available after the event for operator action to prevent exceeding this limit, the low probability of failure of the OPERABLE PVLCS subsystem, and the availability of the PCIVs.

B.1

With [two] PVLCS subsystems inoperable, at least one 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 DBA LOCA, the availability of 25 minutes for operator action, and the availability of the PCIVs.

C.1 and C.2

If the inoperable PVLCS subsystem 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

APPLICABILITY

In MODES 1, 2, and 3, a DBA could lead to a fission product release to primary containment. Therefore, MSIV LCS OPERABILITY is required during these MODES. 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 MSIV LCS OPERABLE is not required in MODE 4 or 5 to ensure MSIV leakage is processed.

ACTIONS

A.1

With one MSIV LCS subsystem inoperable, the inoperable MSIV LCS subsystem must be restored to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE MSIV LCS subsystem is adequate to perform the required leakage control function. However, the overall reliability is reduced because a single failure in the remaining subsystem could result in a total loss of MSIV leakage control function. The 30 day Completion Time is based on the redundant capability afforded by the remaining OPERABLE MSIV LCS subsystem and the low probability of a DBA LOCA occurring during this period.

B.1

With two MSIV LCS subsystems inoperable, at least one 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 DBA LOCA.

C.1 and C.2

If the MSIV LCS subsystem 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.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.9.1

Each MSIV LCS blower is operated for ≥ [15] minutes to verify OPERABILITY. The 31 day Frequency was developed considering the known reliability of the LCS blower and controls, the two subsystem redundancy, and the low probability of a significant degradation of the MSIV LCS subsystem occurring between surveillances and has been shown to be acceptable through operating experience.

BASES

LCO (continued)

[Note that [25/40] divisions of full scale on IRM Range 7 is a convenient measure of when the reactor is producing power essentially equivalent to 1% RTP]. At [this power level] [1% RTP], heat input is approximately equal to normal system heat losses.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause significant heatup of the suppression pool. 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 suppression pool average temperature within limits is not required in MODE 4 or 5.

ACTIONS

A.1 and A.2

With the suppression pool average temperature above the specified limit when not performing testing that adds heat to the suppression pool and when above the specified power indication, the initial conditions exceed the conditions assumed for the Reference 1 and 3 analyses. However, primary containment cooling capability still exists, and the primary containment pressure suppression function will occur at temperatures well above that assumed for safety analyses. Therefore, continued operation is allowed for a limited time. The 24 hour Completion Time is adequate to allow the suppression pool temperature to be restored to below the limit. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] Additionally, when pool temperature is > [95]°F, increased monitoring of the pool temperature is required to ensure it remains ≤ [110]°F. The once per hour Completion Time is adequate based on past experience, which has shown that suppression pool temperature increases relatively slowly except when testing that adds heat to the pool is being performed. Furthermore, the once per hour Completion Time is considered adequate in view of other indications in the control room, including alarms, to alert the operator to an abnormal suppression pool average temperature condition.

B.1

If the suppression pool average temperature 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, THERMAL POWER must be reduced to [≤ [25/40] divisions of full scale on Range 7 for all OPERABLE IRM channels] [≤ 1% RTP] within 12 hours. The 12 hour Completion Time is reasonable, based on operating experience, to reduce reactor power from full power in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

C.1

Suppression pool average temperature is allowed to be > [95]°F [with any OPERABLE IRM channel > [25/40] divisions of full scale on Range 7] [with THERMAL POWER > 1% RTP] when testing that adds heat to the suppression pool is being performed. However, if temperature is > [105]°F, the testing must be immediately suspended to preserve the pool's heat absorption capability. With the testing suspended, Condition A is entered and the Required Actions and associated Completion Times are applicable.

D.1 and D.2

Suppression pool average temperature > [110]°F requires that the reactor be shut down immediately. This is accomplished by placing the reactor mode switch in the shutdown position. Further cooldown to MODE 4 is required at normal cooldown rates (provided pool temperature remains ≤ [120]°F). Additionally, when pool temperature is > [110]°F, increased monitoring of pool temperature is required to ensure that it remains ≤ [120]°F. The once per 30 minute Completion Time is adequate, based on operating experience. Given the high pool temperature in this Condition, the monitoring Frequency is increased to twice that of Condition A. Furthermore, the 30 minute Completion Time is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool average temperature condition.

E.1 and E.2

If suppression pool average temperature cannot be maintained ≤ [120]°F, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the reactor pressure must be reduced to < [200] psig within 12 hours and the plant must be brought 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 without challenging plant systems.

BASES

ACTIONS (continued)

Continued addition of heat to the suppression pool with pool temperature > [120]°F could result in exceeding the design basis maximum allowable values for primary containment temperature or pressure. Furthermore, if a blowdown were to occur when temperature was > [120]°F, the maximum allowable bulk and local temperatures could be exceeded very quickly.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1.1

The suppression pool average temperature is regularly monitored to ensure that the required limits are satisfied. Average temperature is determined by taking an arithmetic average of the OPERABLE suppression pool water temperature channels. The 24 hour Frequency has been shown to be acceptable based on operating experience. When heat is being added to the suppression pool by testing, however, it is necessary to monitor suppression pool temperature more frequently. The 5 minute Frequency during testing is justified by the rates at which testing will heat up the suppression pool, has been shown to be acceptable based on operating experience, and provides assurance that allowable pool temperatures are not exceeded. The Frequencies are further justified in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool average temperature condition.

REFERENCES

1. FSAR, Section [6.2].
2. FSAR, Section [15.2].
3. NUREG-0783.

BASES

LCO	A limit that suppression pool water level be ≥ [18 ft 4.5 inches] and ≤ [18 ft 9.75 inches] is required to ensure that the primary containment conditions assumed for the safety analysis are met. Either the high or low water level limits were used in the safety analysis, depending upon which is conservative for a particular calculation.
APPLICABILITY	In MODES 1, 2, and 3, a DBA could cause significant loads on the primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced because of 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 analysis are not met. If water level is below the minimum level, the pressure suppression function still exists as long as main vents are covered, 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 or as long as the drywell sprays are OPERABLE. Prompt action to restore the suppression pool water level to within the normal range is prudent, however, to retain the margin to weir wall overflow from an inadvertent upper pool dump and reduce the risks of increased pool swell and dynamic loading. Therefore, continued operation for a limited time is allowed. The 2 hour Completion Time is sufficient to restore suppression pool water level to within specified 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 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

ACTIONS (continued)

C.1 and C.2

If the 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 REQUIREMENTS

SR 3.6.2.3.1

Verifying the correct alignment for manual, power operated, and automatic valves, in the RHR suppression pool cooling mode flow path provides assurance that the proper flow path exists for system 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 being locked, sealed, or secured. A valve is also allowed to be in the nonaccident position, provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable, since the RHR suppression pool cooling mode is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable, based on operating experience.

SR 3.6.2.3.2

Verifying each RHR pump develops a flow rate ≥ [7450] gpm, while operating in the suppression pool cooling mode with flow through the associated heat exchanger at least every 92 days, ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is [in accordance with the Inservice Testing Program or 92 days].

BASES

LCO (continued)

failure. The SPMU System is OPERABLE when the upper containment pool water temperature is ≤ [125]°F, the water level is ≥ [23 ft 3 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 ≥ [36,380] 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 ft 3 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]°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.

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.]

E~~D~~.1 and E~~D~~.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 REQUIREMENTS

SR 3.6.2.4.1

The upper containment pool water level is regularly monitored to ensure that the required limits are satisfied. The 24 hour Frequency of this SR was developed, considering operating experience related to upper containment pool water level variations and water level instrument drift during the applicable MODES and considering the low probability of a DBA occurring between surveillances. 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 upper containment pool water level condition.

SR 3.6.2.4.2

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 REQUIREMENTS

SR 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 ≥ [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

APPLICABILITY (continued)

- During fuel handling/core alterations, ventilation system and radiation monitor availability (as defined in NUMARC 91-06) should be assessed, with respect to filtration and monitoring of releases from the fuel. Following shutdown, radioactivity in the fuel decays away fairly rapidly. The basis of the Technical Specification operability amendment is the reduction in doses due to such decay. The goal of maintaining ventilation system and radiation monitor availability is to reduce doses even further below that provided by the natural decay.

- A single normal or contingency method to promptly close primary or secondary containment penetrations should be developed. Such prompt methods need not completely block the penetration or be capable of resisting pressure.

The purpose of the "prompt methods" mentioned above are to enable ventilation systems to draw the release from a postulated fuel handling accident in the proper direction such that it can be treated and monitored."

ACTIONS

A.1

If [secondary containment] is inoperable, it must be restored to OPERABLE status within 4 hours [or in accordance with the Risk Informed Completion Time Program]. The 4 hour Completion Time provides a period of time to correct the problem that is commensurate with the importance of maintaining [secondary containment] during MODES 1, 2, and 3. This time period also ensures that the probability of an accident (requiring [secondary containment] OPERABILITY) occurring during periods where [secondary containment] is inoperable is minimal.

B.1 and B.2

If the [secondary containment] 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)

[C.1 and C.2

Movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] and OPDRVs can be postulated to cause significant fission product release to the [secondary containment]. In such cases, the [secondary containment] is the only barrier to release of fission products to the environment. Therefore, movement of [recently] irradiated fuel assemblies must be immediately suspended if the [secondary containment] is inoperable.

Suspension of these activities shall not preclude completing an action that involves moving a component to a safe position. Also, action must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

Required Action C.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving [recently] irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of [recently] irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.]

SURVEILLANCE REQUIREMENTS

[SR 3.6.4.1.1

This SR ensures that the [secondary containment] boundary is sufficiently leak tight to preclude exfiltration under expected wind conditions. The 24 hour Frequency of this SR was developed based on operating experience related to [secondary containment] vacuum variations during the applicable MODES and the low probability of a DBA occurring between surveillances.

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 [secondary containment] vacuum condition.]

BASES

ACTIONS (continued)

The second Note provides clarification that for the purpose of this LCO separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SCIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SCIVs are governed by subsequent Condition entry and application of associated Required Actions.

The third Note ensures appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable SCIV.

A.1 and A.2

In the event that there are one or more penetration flow paths with one SCIV inoperable, the affected penetration flow path(s) must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criteria are a closed and de-activated automatic SCIV, a closed manual valve, and a blind flange. For penetrations isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available device to secondary containment. This Required Action must be completed within the 8 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 low probability of a DBA, which requires the SCIVs to close, occurring during this short time.

For affected penetrations that have been isolated in accordance with Required Action A.1, the affected penetration must be verified to be isolated on a periodic basis. This is necessary to ensure that secondary containment penetrations required to be isolated following an accident, but no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification that the affected penetration remains isolated.

Required Action A.2 is modified by two Notes. Note 1 applies to devices located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically

BASES

ACTIONS (continued)

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 two SCIVs in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 4 hours [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 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the low probability of a DBA, which requires the SCIVs to close, occurring during this short time.

The Condition has been modified by a Note stating that Condition B is only applicable to penetration flow paths with two isolation valves. This clarifies that only Condition A is entered if one SCIV is inoperable in each of two penetrations.

C.1 and C.2

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 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)

D.1 and D.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, the movement of [recently] irradiated fuel assemblies in the [primary and secondary containment] must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be immediately initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

Required Action D.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving [recently] irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of [recently] irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

This SR verifies 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. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the [secondary containment] boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those SCIVs in [secondary containment] that are capable of being mispositioned are in the correct position.

Since these SCIVs are readily accessible to personnel during normal unit operation and verification of their position is relatively easy, the 31 day Frequency was chosen to provide added assurance that the SCIVs are in the correct positions. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

BASES

APPLICABILITY (continued)

significant releases of radioactive material can be postulated, such as during operations with a potential for draining the reactor vessel (OPDRVs) or during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment]. [Due to radioactive decay, the SGT 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 SGT 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 SGT subsystem is adequate to perform the required radioactivity release control function. However, the overall system reliability is reduced because a single failure in the OPERABLE subsystem could result in the radioactivity release control function not being adequately performed. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE redundant SGT subsystem and the low probability of a DBA occurring during this period.

B.1

If both SGT subsystems are inoperable in MODE 1, 2, or 3, the SGT system may not be capable of supporting the required radioactivity release control function. With two SGT subsystems inoperable the Required Action is to restore at least one SGT subsystem to OPERABLE status within 1 hour to regain the SGT safety function. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one SGT subsystem. [Alternately, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]

C~~B~~.1 and C~~B~~.2

If the SGT subsystem cannot be restored to OPERABLE status within the required Completion Time 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.

DG.1, DG.2.1, and DG.2.2

During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs, when Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE SGT subsystem should be immediately placed in operation. This Required Action ensures that the remaining subsystem is OPERABLE, that no failures that could prevent automatic actuation have occurred, and that any other failure would be readily detected.

BASES

ACTIONS (continued)

An alternative to Required Action -DC.1 is to immediately suspend activities that represent a potential for releasing a significant amount of radioactive material to the secondary containment, thus placing the unit in a Condition that minimizes risk. 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 position. Also, if applicable, action must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Action must continue until OPDRVs are suspended.

The Required Actions of Condition D C have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving [recently] irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of [recently] irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

D.1

If both SGT subsystems are inoperable in MODE 1, 2, or 3, the SGT system may not be capable of supporting the required radioactivity release control function. Therefore, actions are required to enter LCO 3.0.3 immediately.

E.1 and E.2

When two SGT subsystems are inoperable, if applicable, movement of [recently] irradiated fuel assemblies in the [primary and secondary containment] must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Action must continue until OPDRVs are suspended.

BASES

ACTIONS (continued)

Required Action E.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving [recently] irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of [recently] irradiated fuel assemblies would not be sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.3.1

Operating each SGT subsystem for ≥ [10] continuous hours ensures that both subsystems 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. Operation [with the heaters on (automatic heater cycling to maintain temperature)] for ≥ [10] continuous hours every 31 days eliminates moisture on the adsorbers and HEPA filters. The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.

SR 3.6.4.3.2

This SR verifies that the required SGT filter testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specified test frequencies and additional information are discussed in detail in the VFTP.

SR 3.6.4.3.3

This SR requires verification that each SGT subsystem starts upon receipt of an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.2.5 overlaps this SR to provide complete testing of the safety function. While this Surveillance can be performed with the reactor at power, operating experience has shown these components usually pass the Surveillance when performed at the [18] month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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 ≤ [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)

The ACTIONS are modified by a second Note, which ensures appropriate remedial actions are taken when necessary. Pursuant to LCO 3.0.6, ACTIONS are not required even if the drywell is exceeding its bypass leakage limit. Therefore, the Note is added to require ACTIONS for LCO 3.6.5.1 to be taken in this event.

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

With one drywell air lock door inoperable, the OPERABLE door must be verified closed (Required Action A.1). This ensures that a leak tight drywell barrier is maintained by the use of an OPERABLE air lock door. This action must be completed within 1 hour. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.5.1, "Drywell," which requires that the drywell be restored to OPERABLE status within 1 hour.

In addition, the air lock penetration must be isolated by locking closed the OPERABLE air lock door within the 24 hour Completion Time. The Completion Time is considered reasonable for locking the OPERABLE air lock door, considering that the OPERABLE door is being maintained closed.

Required Action A.3 verifies that the air lock has been isolated by the use of a locked and closed OPERABLE air lock door. This ensures that an acceptable drywell 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 that ensure that the OPERABLE air lock door remains closed.

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. The exception of the Note does not affect tracking the Completion Times 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. Drywell entry may be required to perform Technical Specifications (TS) Surveillances and Required Actions, as well as other activities on equipment inside the drywell 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 drywell was 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 drywell during the short time that the OPERABLE door is expected to be open.

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

ACTIONS (continued)

D.1 and D.2

If the inoperable drywell 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 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 3.6.5.2.1

This SR requires a test be performed to verify seal leakage of the drywell air lock doors at pressures ≥ [11.5] psig. A seal leakage rate limit of ≤ [200] scfh has been established to ensure the integrity of the seals. The Surveillance is only required to be performed once after each closing. The Frequency of 72 hours is based on operating experience and is considered adequate in view of the other indications available to plant operations personnel that the seal is intact.

SR 3.6.5.2.2

Every 7 days the drywell air lock seal air flask pressure is verified to be ≥ [90] psig to ensure that the seal system remains viable. It must be checked because it could bleed down during or following access through the air lock, which occurs regularly. The 7 day Frequency has been shown to be acceptable, based on operating experience, and is considered adequate in view of the other indications to the plant operations personnel that the seal air flask pressure is low.

SR 3.6.5.2.3

The air lock door interlock is designed to prevent simultaneous opening of both doors in the air lock. Since both the inner and outer doors of the air lock are designed to withstand the maximum expected post accident drywell pressure, closure of either door will support drywell OPERABILITY. Thus, the door interlock feature supports drywell OPERABILITY while the air lock is being used for personnel transit in and out of the drywell. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous inner and outer

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] ft^2 would be maintained even with a single failure due to application of ACTIONS Note 4. In addition, the Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting drywell OPERABILITY during MODES 1, 2, and 3. [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] ft^2 is maintained due to application of ACTIONS Note 4. The Completion Time is reasonable, considering the time required to isolate the penetration, and the probability of a DBA, which requires the drywell isolation valves to close, occurring during this short time is very low. [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

LCO

A limitation on the drywell-to-primary containment differential pressure of [≥ -0.26 psid and ≤ 2.0 psid] is required to ensure that suppression pool water is not forced over the weir wall, vent clearing does not occur during normal operation, containment conditions are consistent with the safety analyses, and LOCA drywell pressures and pool swell loads are within design values.

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, maintaining the drywell-to-primary containment differential pressure limitation is not required in MODE 4 or 5.

ACTIONS

A.1

With drywell-to-primary containment differential pressure not within the limits of the LCO, it must be restored within 1 hour [or in accordance with the Risk Informed Completion Time Program]. The Required Action is necessary to return operation to within the bounds of the safety analyses. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.5.1, "Drywell," which requires that the drywell be restored to OPERABLE status within 1 hour.

B.1 and B.2

If drywell-to-primary containment differential pressure 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.

SURVEILLANCE REQUIREMENTS

SR 3.6.5.4.1

This SR provides assurance that the limitations on drywell-to-primary containment differential pressure stated in the LCO are met. The 12 hour Frequency of this SR was developed, based on operating experience related to trending of drywell pressure variations during the applicable MODES and to assessing proximity to the specified LCO pressure limits. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal drywell pressure condition.

BASES

ACTIONS

A.1

When the drywell average air temperature is not within the limit of the LCO, it must be restored within 8 hours [or in accordance with the Risk Informed Completion Time Program]. The Required Action is necessary to return operation to within the bounds of the safety analyses. The 8 hour Completion Time is acceptable, considering the sensitivity of the analyses to variations in this parameter, and provides sufficient time to correct minor problems.

B.1 and B.2

If drywell average air temperature cannot be restored to within limit 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 3.6.5.5.1

Verifying that the drywell average air temperature is within the LCO limit ensures that operation remains within the limits assumed for the drywell analysis. Drywell air temperature is monitored in all quadrants and at various elevations. Since the measurements are uniformly distributed, an arithmetic average is an accurate representation of actual drywell average temperature.

The 24 hour Frequency of the SR was developed based on operating experience related to variations in drywell average air temperature variations 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 drywell air temperature condition.

REFERENCES

1. FSAR, Section [6.2].

BASES

LCO

The LCO ensures that in the event of a LOCA, [two] drywell post-LOCA and [two] drywell purge vacuum relief subsystems are available to mitigate the potential subsequent drywell depressurization. Each vacuum relief subsystem is OPERABLE when capable of opening at the required setpoint but is maintained in the closed position during normal operation.

APPLICABILITY

In MODES 1, 2, and 3, a Design Basis Accident could cause pressurization of primary containment. Therefore, Drywell Vacuum Relief System OPERABILITY is required during these MODES. 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 Drywell Vacuum Relief System OPERABLE is not required in MODE 4 or 5.

ACTIONS

The ACTIONS 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, the Note is added to require the proper actions be taken.

A.1

With one or more vacuum relief subsystems open, the subsystem must be closed within 4 hours [or in accordance with the Risk Informed Completion Time Program]. This assures that drywell leakage would not result if a postulated LOCA were to occur. The 4 hour Completion Time is acceptable, since the drywell design bypass leakage A/√k) of [1.0] ft^2 is maintained, and is considered a reasonable length of time needed to complete the Required Action.

A Note has been added to provide clarification that separate Condition entry is allowed for vacuum relief subsystems not closed.

B.1 and C.1

With one [or two] drywell post-LOCA vacuum relief subsystems inoperable or one drywell purge vacuum relief subsystem inoperable, for reasons other then being not closed, the inoperable subsystem(s) must be restored to OPERABLE status within 30 days. In these Conditions, the remaining OPERABLE vacuum relief subsystems are adequate to perform the depressurization mitigation function since two [10] inch lines remain available. The 30 day Completion Time takes into account the redundant capability afforded by the remaining subsystems, a reasonable time for repairs, and the low probability of an event requiring the vacuum relief subsystems to function occurring during this period.

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.

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.]

~~F.1, F.2,~~ G.1, and G.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 REQUIREMENTS

SR 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

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 ≥ [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)

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.]

~~E~~D.1 and ~~E~~D.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 REQUIREMENTS

[SR 3.7.1.1

This SR ensures adequate long term (30 days) cooling can be maintained. With the [UHS] water source below the minimum level, the affected [SSW] 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 3.7.1.2

This SR verifies the water level [in each [SSW] pump well of the intake structure] to be sufficient for the proper operation of the [SSW] 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 3.7.1.3

BASES

APPLICABILITY (continued)

a. During operations with a potential for draining the reactor vessel (OPDRVs) and

b. During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment]. [Due to radioactive decay, the CRFA 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 [CRFA] subsystem inoperable, the inoperable [CRFA] subsystem 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 [CRFA] subsystem is adequate to perform control room radiation protection. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in loss of [CRFA] System function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

B.1

----------REVIEWER'S NOTE----------
Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.

If the control room boundary is inoperable in MODE 1, 2, or 3, the CRFA subsystems cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours [or in accordance with the Risk Informed Completion Time Program]. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose,

plan and possibly repair, and test most problems with the control room boundary.

BASES

ACTIONS (continued)

C.1

If both [CRFA] subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable control room boundary (i.e., Condition B), the [CRFA] System may not be capable of performing the intended function. With two [CRFA] subsystems inoperable the Required Action is to restore at least one inoperable [CRFA] 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.]

D~~C~~.1 and D ~~C~~.2

In MODE 1, 2, or 3, if the inoperable [CRFA] subsystem or control room boundary 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.

E~~D~~.1, E~~D~~.2.1 and E~~D~~.2.2

The Required Actions of Condition E ~~D~~ 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 the inoperable [CRFA] subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE [CRFA] subsystem may be placed in the isolation mode. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent automatic actuation will occur, and that any active failure will be readily detected.

Required Action E ~~D~~.1 is modified by a Note alerting the operator to [place the system in the toxic gas protection mode if the toxic gas, automatic transfer capability is inoperable].

An alternative to Required Action E ~~D~~.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)

~~E.1~~

~~If both [CRFA] subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable control room boundary (i.e., Condition B), the [CRFA] System may not be capable of performing the intended function and the unit is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.~~

F.1 and F.2

The Required Actions of Condition 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 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 [CRFA] 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, 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. 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 REQUIREMENTS

SR 3.7.3.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem once every month provides an adequate check on this system. Monthly heater operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be operated for

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 [primary or 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 cooling methods.

BASES

ACTIONS (continued)

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.]

C~~B~~.1 and C~~B~~.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.

D~~C~~.1, D~~C~~.2.1, and D~~C~~.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)

~~D.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.~~

E.1 and E.2

The Required Actions of Condition E.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 REQUIREMENTS

SR 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].

2. FSAR, Section [9.4.1].

BASES

ACTIONS

A.1

If the offgas radioactivity rate limit is exceeded, 72 hours is allowed to restore the gross gamma activity rate to within the limit. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The 72 hour Completion Time is reasonable, based on engineering judgment considering the time required to complete the Required Action, the large margins associated with permissible dose and exposure limits, and the low probability of a Main Condenser Offgas System rupture occurring.

B.1, B.2, B.3.1, and B.3.2

If the gross gamma activity rate is not restored to within the limits within the associated Completion Time, [all main steam lines] or the SJAE must be isolated. This isolates the Main Condenser Offgas System from the source of the radioactive steam. The main steam lines are considered isolated if at least one main steam isolation valve in each main steam line is closed, and at least one main steam line drain valve in each drain line is closed. The 12 hour Completion Time is reasonable, based on operating experience, to perform the actions from full power conditions in an orderly manner and without challenging unit systems.

An alternative to Required Actions B.1 and B.2 is to place the unit 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 3.7.5.1

This SR, on a 31 day Frequency, requires an isotopic analysis of an offgas sample to ensure that the required limits are satisfied. The noble gases to be sampled are Xe-133, Xe-135, Xe-138, Kr-85, Kr-87, and Kr-88. If the measured rate of radioactivity increases significantly (by ≥ 50% after correcting for expected increases due to changes in THERMAL POWER), an isotopic analysis is also performed within 4 hours after the increase is noted, to ensure that the increase is not indicative of a sustained increase in the radioactivity rate. The 31 day Frequency is adequate in view of other instrumentation that continuously monitor the offgas, and is acceptable based on operating experience.

This SR is modified by a Note indicating that the SR is not required to be performed until 31 days after any [main steam line is not isolated] and the SJAE is in operation. Only in this condition can radioactive fission gases be in the Main Condenser Offgas System at significant rates.

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 ≥ 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

LCO (continued)

The AC sources in one division must be separate and independent (to the extent possible) of the AC sources in the other division(s). For the DGs, the separation and independence are complete. For the offsite AC sources, the separation and independence are to the extent practical.

APPLICABILITY

The AC sources and sequencers 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.

A Note has been added taking exception to the Applicability requirements for Division 3 sources, provided the HPCS System is declared inoperable. This exception is intended to allow declaring of the Division 3 inoperable either in lieu of declaring the Division 3 source inoperable, or at any time subsequent to entering ACTIONS for an inoperable Division 3 source. This exception is acceptable since, with the Division 3 inoperable and the associated ACTIONS entered, the Division 3 AC sources provide no additional assurance of meeting the above criteria.

AC power requirements for MODES 4 and 5 are covered in LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

A.1

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.

To ensure a highly reliable power source remains, it is necessary to verify the availability of the remaining 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 the 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)

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, 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 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 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 division has no offsite power supplying its loads and

b. A required feature on the other division is inoperable.

If, at any time during the existence of this Condition (one offsite circuit inoperable), a required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

Discovering no offsite power to one division 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 the other division 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

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]. **]**

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.]

H~~G~~.1 and H~~G~~.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.

~~H.1~~

~~Condition H 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 minimum operating voltage is also usually specified as 90% of name plate rating. The specified maximum steady state output voltage of [4576] 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 ± 2% of the 60 Hz nominal frequency and are derived from the recommendations given in Regulatory Guide 1.9 (Ref. 3).

SR 3.8.1.1

This SR ensures proper circuit continuity for the offsite AC electrical power supply to the onsite distribution network and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in its correct position to ensure that distribution buses and loads are connected to their preferred power source and that appropriate

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.

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.]

E~~D~~.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 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 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 requirements 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 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.

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.

B.1

With the [Division 1 and Division 2] inverters inoperable, the Required Action is to restore the inoperable 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.]

~~B~~C.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)

~~C~~D.1 and ~~C~~D.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].

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).

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.]

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

If the inoperable electrical power distribution system(s) cannot be restored to OPERABLE status within the associated Completion Times, the plant must be bought 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.

~~F.1~~

~~Condition F 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 REQUIREMENTS

SR 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.