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RBG-47169

August 3, 2011

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Subject: Revisions to the Technical Requirements Manual and the Technical Specification Bases
River Bend Station - Unit 1
Docket No. 50-458
License No. NPF-47

RBF1-11-0101

Dear Sir or Madam:

Pursuant to 10CFR50.71(e), Entergy Operations, Inc., (EOI) herein submits changes to the River Bend Station (RBS) Technical Requirements Manual (TRM). The revised pages cover the changes made during the period of February 17, 2010, through August 3, 2011. This includes TRM revisions 123 through 130.

Pursuant to RBS Technical Specification (TS) 5.5.11, revised pages for the Technical Specification (TS) Bases pages are included. The revised pages reflect the changes made during the same period stated above. This includes TS Bases revisions 140 through 148.

As required by 10CFR50.71(e), the affirmation below certifies that the information in this submittal accurately reflects changes made since the previous submittal, as necessary to represent information and analyses submitted or prepared pursuant to NRC requirements.

A001
NRR

If you have any questions, please call Joseph A. Clark at 225-381-4177.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 3, 2011.

Sincerely,

Jerry C. Roberts
Director – Nuclear Safety Assurance

Enclosures: 1. Technical Requirements Manual Revision Pages
2. Technical Specifications Bases Revision Pages

cc: U. S. Nuclear Regulatory Commission
Region IV
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(w/o enclosures)

Senior Resident Inspector
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Washington, DC

Enclosure 1
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Technical Requirements Manual Revision Pages

TECHNICAL REQUIREMENTS MANUAL
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TABLE 3.8.11-1 (page 7 of 7)
PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTION DEVICES

D. Air Circuit Breakers - Square D Masterpact NT/NW Breaker

Location	Device No.	Location	Device No.	Equip. No.
1EJS*LDC2B	ACB79	1EJS*LDC2B	ACB78	1HVR-UC1C
1EJS*LDC2A	ACB36	1EJS*LDC2A	ACB38	1HVR*UC1A
1EJS*LDC2A	ACB22	1EJS*LDC2A	ACB38	1MHR*CRN1/ POP-WR2D03
1EJS*LDC2B	ACB76	1EJS*LDC2B	ACB78	1HVR*UC1B
1EJS*LDC2A	ACB23	1HCS*PWRS1A	Int. Fuse	1HCS*RBNR1A
1EJS*LDC2B	ACB63	1HCS*PWRS1B	Int. Fuse	1HCS*RBNR1B

TR 3.9.14 Crane Travel - Spent and New Fuel Storage, Transfer and Upper Containment Fuel Pools

TLCO 3.9.14 Loads in excess of 1200 pounds shall be prohibited from travel over fuel assemblies in the spent or new fuel storage, transfer or upper containment fuel pool racks and all loads shall be prohibited from travel over irradiated fuel when water level is < 23' over the irradiated fuel.

APPLICABILITY: With fuel assemblies in the spent or new fuel storage, transfer or upper containment fuel pools.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. With the requirements of the above specification not satisfied.	A.1 Place the crane load in a safe condition.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.9.14.1	The fuel building crane loads shall be verified to weigh less than or equal to 1200 pounds.	Before travel over fuel assemblies in the spent or new fuel storage pools and the lower transfer pools
TSR 3.9.14.2	The reactor building polar crane loads shall be verified to weigh less than or equal to 1200 pounds.	Before travel over fuel assemblies in the upper transfer and containment fuel pools

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TR 3.8 ELECTRICAL POWER SYSTEMS

TR 3.8.1 AC Sources - Operating

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

1. The following surveillance requirements apply to Technical Specification LCO 3.8.1. Failure to meet these surveillance requirements requires entry into Technical Specification LCO 3.8.1.

2. When a modified DG start procedure is not used to satisfy SR 3.8.1.2, TSR 3.8.1.7 must be performed.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
TSR 3.8.1.1 - TSR 3.8.1.6 (Not Used)	
TSR 3.8.1.7 - DELETED	
TSR 3.8.1.8 - TSR 3.8.1.11 (Not Used)	

(continued)

TR 5.5 Programs and Manuals

TR 5.5.1 through TR 5.5.5 (Not Used)

TR 5.5.6 Inservice Inspection and Testing Programs

In addition to the requirements for the Inservice Testing Program contained in Technical Specification 5.5.6, Surveillance Requirements for inservice inspection and testing of ASME Code Class 1, 2, & 3 components shall be applicable as follows:

a. Inservice inspection of ASME Code Class 1, 2, and 3 components and shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a. Inservice testing of ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with the ASME OM Code for Operation and Maintenance of Nuclear Power Plants and applicable Addenda as required by 10 CFR 50, Section 50.55a.

b. Surveillance intervals specified in the applicable ASME Code/Addenda for the inservice inspection and testing activities shall be applicable as follows in the Technical Specifications and TRM:

Applicable ASME Code/Addenda terminology for inservice inspection and testing activities	Require frequencies for for performing inservice inspection and testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

c. The provisions of Technical Specification SR 3.0.2 are applicable to the above required frequencies for performing Technical Specification required inservice inspection and testing activities. The provisions of Technical Requirement TSR 3.0.2 are applicable to the above required frequencies for performing TRM required inservice inspection and testing activities.

d. Performance of the above inservice inspection and testing activities shall be in addition to other specified Surveillance Requirements.

e. Nothing in the applicable ASME Code/Addenda shall be construed to supersede the requirements of any Technical Specification.

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Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	NOMINAL SETPOINT/ RESPONSE TIME
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	-143 inches $T_L \le 1.0$ (g)
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	849 psig $T_L \le 1.0$ (g)
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	185 psid, Line A 189 psid, Line B, C and D $T_L \le 0.5$ (g)
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	8.5 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	144°F
f. Deleted					
g. Deleted					

(continued)

(a) With any turbine stop valve not closed.
(b), (c), (d), (e) & (f) - Not used this page.
(g) $T_L = T_v + T_r$; where:
T_L = Measured total response time of the isolation system instrumentation
T_v = Hydraulic response time of the channel sensor measured upon initial installation
T_r = Measured response time of the logic circuit excluding the channel sensor

The given numerical value is the acceptance criterion for T_L. Isolation system instrumentation response time for MSIVs only; no diesel generator delays are assumed.

T_L shall be added to the 5-second isolation time shown in Table 3.6.1.3-1 for the MSIVs to obtain ISOLATION SYSTEM RESPONSE TIME for the MSIVs.

In case the sensor is replaced or refurbished, a hydraulic response time test must be performed to establish revised value for T_v.

Table 3.3.6.1-1 (page 3 of 5)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	NOMINAL SETPOINT
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	127 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 ≤ 13 seconds maximum allowable
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	60 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	10 psig
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	182°F
f. 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	144°F
g. 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	0
h. RHR 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	117°F
i. 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	60.7 inches water
j. 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	1.68 psid
k. Manual Initiation	1, 2, 3	1	G	SR 3.3.6.1.6	NA

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Table 3.3.6.1-1 (page 4 of 5)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	NOMINAL SETTPOINT
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	55 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	45 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	104.5°F
d. RWCU Pump Rooms 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	165°F
e. 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	110°F
f. RWCU Demineralizer Rooms 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	110°F
g. RWCU Receiving Tank 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	110°F
h. 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	144°F
i. 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	- 43 inches
j. Standby Liquid Control System Initiation	1,2	1	I	SR 3.3.6.1.6	NA
k. Manual Initiation	1,2,3	2	G	SR 3.3.6.1.6	NA

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PRIMARY CONTAINMENT ISOLATION VALVES

SYSTEM	VALVE NUMBER[a]	PENETRATION NUMBER	VALVE GROUP[1]	MAXIMUM ISOLATION TIME (Seconds)	SECONDARY CONTAINMENT BYPASS PATH (Yes/No)
a. Automatic Isolation Valves continued					
RHR A Return-Supp. Pool	1E12*MOVF024A[j][p]	1KJB*Z24A	10	63.8	No
RHR A Hx Dump-Supp. Pool	1E12*MOVF011A[j][p]	1KJB*Z24A	10	34.1	No
LPCS Test Return-Supp. Pool	1E21*MOVF012[j][p]	1KJB*Z24A	10	57.2	No
RHR B Return-Supp. Pool	1E12*MOVF024B[j][p]	1KJB*Z24B	10	63.8	No
RHR B Hx Dump-Supp. Pool	1E12*MOVF011B[j][p]	1KJB*Z24B	10	30.8	No
RHR C Return-Supp. Pool	1E12*MOVF021[j][p]	1KJB*Z24C	10	97.9	No
SPC Discharge	RHS-AOV64[j]	1KJB*Z24C	17	10	No
SPC Suction	RHS-AOV62[j]	1KJB*Z25C	17	10	No
SPC Suction	RHS-AOV63[j]	1KJB*Z25C	17	10	No
Fuel Pool C&C Disch.	1SFC*MOV119	1KJB*Z26	1	68	Yes
Fuel Pool C&C Suction	1SFC*MOV120	1KJB*Z27	1	62.7	Yes
Fuel Pool C&C Suction	1SFC*MOV122	1KJB*Z27	1	63.8	Yes
Fuel Pool Purif. Suction	1SFC*MOV139	1KJB*Z28	1	39.6	Yes
Fuel Pool Purif. Suction	1SFC*MOV121	1KJB*Z28	1	55	Yes
Floor Drain Disch.	1DFR*AOV102[b]	1KJB*Z35, 1DRB*Z36	1	N/A	No
Floor Drain Disch.	1DFR*AOV101[b]	1KJB*Z35, 1DRB*Z36	1	N/A	No
Equip. Drain Disch.	1DER*AOV127[b]	1KJB*Z38, 1DRB*Z39	1	N/A	No
Equip. Drain Disch.	1DER*AOV126[b]	1KJB*Z38, 1DRB*Z39	1	N/A	No
Fire Protection Hdr.	1FPW*MOV121	1KJB*Z41	1	34.1	Yes
Service Air Supply	1SAS*MOV102	1KJB*Z44	1	22.0	Yes
Instr. Air Supply	1IAS*MOV106	1KJB*Z46	1	18.7	Yes
RPCCW Supply	1CCP*MOV138	1KJB*Z48	1	50.0	No
RPCCW Return	1CCP*MOV158	1KJB*Z49	1	50.0	No
RPCCW Return	1CCP*MOV159	1KJB*Z49	1	50.0	No
Service Water Return	1SWP*MOV5A[m]	1KJB*Z53A	1	50.6	No
Service Water Return	1SWP*MOV5B[m]	1KJB*Z53B	1	53.9	No
Vent. Chilled Water Rtn.	1HVN*MOV102	1KJB*Z131	1	31.9	Yes
Vent. Chilled Water Rtn.	1HVN*MOV128	1KJB*Z131	1	28.6	Yes
Vent. Chilled Water Sup.	1HVN*MOV127	1KJB*Z132	1	27.5	Yes
Condensate Makeup Supply	1CNS*MOV125	1KJB*Z134	1	22.0	Yes
RHR & RCIC Steam Sup.	1E51*MOVF063[b]	1KJB*Z15	2	9.9	No
RHR & RCIC Steam Sup.	1E51*MOVF076[b]	1KJB*Z15	2	13.4	No
RHR & RCIC Steam Sup.	1E51*MOVF064	1KJB*Z15	2	11.0	No
RCIC Pump Suc.-Supp. Pool	1E51*MOVF031[j]	1KJB*Z16	2	30.5	No
RCIC Turbine Exh. Vac. Bkr	1E51*MOVF077[q]	1KJB*Z18B,C	3	14.2	No
RCIC Turbine Exh. Vac. Bkr.	1E51*MOVF078	1KJB*Z18B,C	3	16.5	No
Cont./Drywell Purge Sup.	1HVR*AOV165	1KJB*Z31	8	3	No
Cont./Drywell Purge Sup.	1HVR*AOV123	1KJB*Z31	8	3	No
Cont./Drywell Purge Outlet	1HVR*AOV128	1KJB*Z33	8	3	No
Cont./Drywell Purge Outlet	1HVR*AOV166	1KJB*Z33	8	3	No
Post-Accident Samp. Sup.	1SSR*SOV130	1KJB*Z601B	10	3	No
Post-Accident Samp. Sup.	1SSR*SOV131	1KJB*Z601B	10	3	No

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TABLE 3.12.1-1 (page 1 of 4)
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Number of Representative Samples and Sample Locations[a]	Sampling and Collection Frequency	Type and Frequency of Analysis
1. DIRECT RADIATION[b]	24 routine monitoring stations either with two or more dosimeters or with one instrument for measuring and recording dose rate continuously, placed as follows: one ring of stations, one in each meteorological sector in the general area of the SITE BOUNDARY; the balance of the stations (8) to be placed in special interest areas such as population centers, nearby residences, schools, and in 1 or 2 areas to serve as control stations.	Quarterly	mR exposure quarterly.
2. AIRBORNE			
Radioiodine and Particulates	Samples from 4 locations: 2 samples from close to the 2 SITE BOUNDARY locations, in different sectors, of the highest calculated annual average groundlevel D/Q. 1 sample from the vicinity of a community having the highest calculated annual average ground level D/Q. 1 sample from a control location, as for example 15-30 km distant and in the least prevalent wind direction.[c]	Continuous sampler operation with sample collection every two weeks, or more frequently if required by dust loading.	<u>Radioiodine Canister</u>: I-131 analysis every two weeks. <u>Particulate Sampler</u>: Gross beta radioactivity analysis following filter change every two weeks;[d]

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TR 3.7-4	(4iv)	5	TR 3.8-17	(42x)	95	TR 5-1	87
TR 3.7-5	(8i)	90	TR 3.8-18	(42xi)	123	TR 5-2	117
TR 3.7-6	(11i)	26	TR 3.8-19	(42xii)	5	TR 5-3	5
TR 3.7-7	(14i)	5	TR 3.8-20	(42xiii)	5	TR 5-4	53
TR 3.7-8	(15i)	94	TR 3.8-21	(42xiv)	5	TR 5-5	65
TR 3.7-9	(15ii)	109	TR 3.8-22	(42xv)	30	TR 5-6	94
TR 3.7-10	(15iii)	5	TR 3.8-23	(42xvi)	88	TR 5-7	124
TR 3.7-11	(15iv)	122	TR 3.9-1	(7i)	84	TR 5-8	5
TR 3.7-12	(15v)	122	TR 3.9-2	(7ii)	72	TR 5-9	5
TR 3.7-13	(15vi)	5	TR 3.9-3	(13i)	85	TR 5-10	5
TR 3.7-14	(15vii)	15	TR 3.9-4	(13ii)	5	TR 5-11	77
TR 3.7-15	(15viii)	5	TR 3.9-5	(13iii)	70	TR 5-12	5
TR 3.7-16	(15ix)	5	TR 3.9-6	(13iv)	5	TR 5-13	94
TR 3.7-17	(15x)	58	TR 3.9-7	(13v)	5	TR 5-14	33
TR 3.7-18	(15xi)	5	TR 3.9-8	(13vi)	5	TR 5-15	53
TR 3.7-19	(15xii)	79	TR 3.9-9	(13vii)	123	TR 5-16	53
TR 3.7-20	(15xiii)	5	TR 3.9-10	(13viii)	103	TR 5-17	87
TR 3.7-21	(15xiv)	15	TR 3.9-11	(13ix)	103	TR 5-18	53
TR 3.7-22	(15xv)	58	TR 3.9-12	(13x)	104	TR 5-19	53
			TR 3.11-1		83		
TR 3.7-23	(15xvi)	5	TR 3.11-2		5	TR 5-20	53
TR 3.7-24	(15xvii)	5	TR 3.11-3		5	TR 5-21	94
TR 3.7-25	(15xviii)	58	TR 3.11-4		5	TR 5-22	8
TR 3.7-26	(15xix)	5	TR 3.11-5		5		
TR 3.7-27	(15xx)	5					

TR 3.3 INSTRUMENTATION

TR 3.3.1.1 Reactor Protection System (RPS) Instrumentation

---NOTE---
The following surveillance requirement applies to Technical Specification LCO 3.3.1.1. Failure to meet this surveillance requirement requires entry into Technical Specification LCO 3.3.1.1.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.3.1.1.1 - 3.3.1.1.15 (Not Used)		
TSR 3.3.1.1.16	---NOTE--- Enter Technical Specification LCO 3.3.1.1 for Functions 9 and 10 if this surveillance requirement is not met. --- Verify that all bypass valves are closed ≥ 40% RTP.	12 hours
	OR Verify the bypass channel is placed in the conservative condition (non-bypass).*	12 hours
TSR 3.3.1.1.17 - 3.3.1.1.18 (Not Used)		

*As discussed in BASES of TS 3.3.1.1 functions 9 and 10.

TR 3.3.4.1 End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation

------------------------------------NOTE------------------------------------
The following surveillance requirement applies to Technical Specification LCO 3.3.4.1. Failure to meet this surveillance requirement requires entry into Technical Specification LCO 3.3.4.1.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.3.4.1.1 - 3.3.4.1.8 (Not Used)		
TSR 3.3.4.1.9	Verify that all bypass valves are closed when ≥ 40% RTP with any recirc pump in fast speed. OR Verify the bypass channel is placed in the conservative condition (non-bypass).*	12 hours 12 hours

*As discussed in BASES of TS SR 3.3.4.1.5.

TABLE 3.3.4.1-1

END OF CYCLE RECIRCULATION PUMP TRIP INSTRUMENTATION

FUNCTION	NOMINAL SETPOINT	ALLOWABLE VALUE	RESPONSE TIME
a. Turbine Stop Valve Closure	5% closed	≤ 7% closed	≤ 140 milliseconds
b. Turbine Control Valve Fast closure *	530 psig	≥ 465 psig	≤ 140 milliseconds

* Automatic bypass Turbine First Stage Pressure nominal setpoint is 188.2 psig with an allowable value of ≤ 199.4 psig.

TR 3.4.6 Reactor Coolant System Pressure Isolation Valves

TABLE 3.4.6-1
REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

SYSTEM	VALVE NUMBER	FUNCTION
1. LPCS	1E21*AOVF006	LPCS Injection
	1E21*MOVF005	LPCS Injection
2. HPCS	1E22*AOVF005	HPCS Injection
	1E22*MOVF004	HPCS Injection
3. Deleted		
4. RHR		
	1E12*AOVF041A	LPCI A Injection
	1E12*MOVF042A	LPCI A Injection
	1E12*AOVF041B	LPCI B Injection
	1E12*MOVF042B	LPCI B Injection
	1E12*AOVF041C	LPCI C Injection
	1E12*MOVF042C	LPCI C Injection
	1E12*MOVF009 & RHS*V240[(a)]	Shutdown Cooling A & B Suction
	1E12*MOVF008	Shutdown Cooling A & B Suction

(a) Pressure isolation valves 1E12*MOVF009 and RHS*240 are tested simultaneously, in parallel. Due to the size of the 1E12*MOVF009 valve, the acceptance limit for this isolation boundary is the maximum allowed leakage of ≤ 5 gpm.

TR 3.8 ELECTRICAL POWER SYSTEMS

TR 3.8.1 AC Sources - Operating

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

1. The following surveillance requirements apply to Technical Specification LCO 3.8.1. Failure to meet these surveillance requirements requires entry into Technical Specification LCO 3.8.1.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
TSR 3.8.1.1 - TSR 3.8.1.6 (Not Used)	
TSR 3.8.1.7 DELETED	
TSR 3.8.1.8 - TSR 3.8.1.11 (Not Used)	

(continued)

SURVEILLANCE REQUIREMENTS

-------------------------------NOTE-------------------------------
The following surveillance requirements apply to Technical Specification LCO 3.8.2. Failure to meet these surveillance requirements requires entry into Technical Specification LCO 3.8.2.

SURVEILLANCE		FREQUENCY
TSR 3.8.2.1	---------------NOTE--------------- The following TSR is not required to be performed: TSR 3.8.1.19. ---------------------------------- For AC sources required to be OPERABLE, the following TSRs are applicable: TSR 3.8.1.19 TSR 3.8.1.20	In accordance with applicable TSRs

TECHNICAL REQUIREMENTS MANUAL
LIST OF EFFECTIVE PAGES

TECHNICAL REQUIREMENTS MANUAL
LIST OF EFFECTIVE PAGES

PAGE NUMBER	REV	PAGE NUMBER	REV	PAGE NUMBER	REV
TR 3.6-7 (20iii)	126	TR 3.7-28 (15xxi)	128	TR 3.11-6	18
TR 3.6-8 (20iv)	68	TR 3.7-29 (15xxii)	95	TR 3.11-7	14
TR 3.6-9 (20v)	108	TR 3.7-30 (15xxiii)	5	TR 3.11-8	5
TR 3.6-10 (20vi)	108	TR 3.7-31 (15xxiv)	5	TR 3.11-9	5
TR 3.6-11 (20vii)	69	TR 3.7-32 (15xxv)	18	TR 3.11-10	75
TR 3.6-12 (22i)	12	TR 3.7-33 (15xxvi)	5	TR 3.11-11	5
TR 3.6-13 (28i)	90	TR 3.7-34 (15xxvii)	5	TR 3.11-12	5
TR 3.6-14 (28ii)	128	TR 3.7-35 (15xxviii)	5	TR 3.11-13	5
TR 3.6-15 (30i)	128	TR 3.8-1 (15i)	127	TR 3.11-14	5
TR 3.6-16 (35i)	77	TR 3.8-2 (15ii)	65	TR 3.11-15	5
TR 3.6-17 (36i)	77	TR 3.8-3 (15iii)	128	TR 3.11-16	5
TR 3.6-18 (40i)	128	TR 3.8-4 (19i)	5	TR 3.11-17	5
TR 3.6-19 (50i)	107	TR 3.8-5 (20i)	127	TR 3.12-1	5
TR 3.6-20 (52i)	128	TR 3.8-6 (23i)	114	TR 3.12-2	5
TR 3.6-21 (54i)	98	TR 3.8-7 (27i)	55	TR 3.12-3	126
		TR 3.8-8 (42i)	81	TR 3.12-4	77
TR 3.6-23 (59i)	128	TR 3.8-9 (42ii)	81	TR 3.12-5	59
TR 3.6-24 (61i)	18	TR 3.8-10 (42iii)	128	TR 3.12-6	41
TR 3.6-25 (70i)	96	TR 3.8-11 (42iv)	128	TR 3.12-7	41
TR 3.6-26 (70ii)	96	TR 3.8-12 (42v)	5	TR 3.12-8	5
TR 3.6-27 (72i)	5	TR 3.8-13 (42vi)	95	TR 3.12-9	5
TR 3.7-1 (4i)	5	TR 3.8-14 (42vii)	95	TR 3.12-10	41
TR 3.7-2 (4ii)	5	TR 3.8-15 (42viii)	121	TR 3.12-11	41
TR 3.7-3 (4iii)	5	TR 3.8-16 (42ix)	95	TR 3.12-12	77
TR 3.7-4 (4iv)	128	TR 3.8-17 (42x)	95	TR 5-1	87
TR 3.7-5 (8i)	90	TR 3.8-18 (42xi)	123	TR 5-2	117
TR 3.7-6 (11i)	128	TR 3.8-19 (42xii)	5	TR 5-3	5
TR 3.7-7 (14i)	5	TR 3.8-20 (42xiii)	128	TR 5-4	53
TR 3.7-8 (15i)	94	TR 3.8-21 (42xiv)	5	TR 5-5	65
TR 3.7-9 (15ii)	109	TR 3.8-22 (42xv)	30	TR 5-6	94
TR 3.7-10 (15iii)	5	TR 3.8-23 (42xvi)	88	TR 5-7	124
TR 3.7-11 (15iv)	122	TR 3.9-1 (7i)	128	TR 5-8	128
TR 3.7-12 (15v)	122	TR 3.9-2 (7ii)	128	TR 5-9	5
TR 3.7-13 (15vi)	5	TR 3.9-3 (13i)	85	TR 5-10	5
TR 3.7-14 (15vii)	128	TR 3.9-4 (13ii)	5	TR 5-11	77
TR 3.7-15 (15viii)	5	TR 3.9-5 (13iii)	70	TR 5-12	5
TR 3.7-16 (15ix)	128	TR 3.9-6 (13iv)	5	TR 5-13	94
TR 3.7-17 (15x)	58	TR 3.9-7 (13v)	5	TR 5-14	33
TR 3.7-18 (15xi)	5	TR 3.9-8 (13vi)	5	TR 5-15	53
TR 3.7-19 (15xii)	79	TR 3.9-9 (13vii)	123	TR 5-16	53
TR 3.7-20 (15xiii)	5	TR 3.9-10 (13viii)	103	TR 5-17	87
TR 3.7-21 (15xiv)	15	TR 3.9-11 (13ix)	103	TR 5-18	53
TR 3.7-22 (15xv)	128	TR 3.9-12 (13x)	104	TR 5-19	53
		TR 3.11-1	83		
TR 3.7-23 (15xvi)	5	TR 3.11-2	5	TR 5-20	53
TR 3.7-24 (15xvii)	5	TR 3.11-3	5	TR 5-21	94
TR 3.7-25 (15xviii)	58	TR 3.11-4	5	TR 5-22	8
TR 3.7-26 (15xix)	5	TR 3.11-5	5		
TR 3.7-27 (15xx)	5				

TR 3.1.5 Control Rod Scram Accumulators

------------------------------------NOTE------------------------------------
The following surveillance requirement applies to Technical Specification LCO 3.1.5. Failure to meet this surveillance requirement requires entry into Technical Specification LCO 3.1.5.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.1.5.1	(Not Used)	
TSR 3.1.5.2	Measure and record the time, for up to 10 minutes, that each individual accumulator check valve maintains the associated accumulator pressure above the alarm set point.	24 months

TR 3.1.5.1 Control Rod Scram Accumulator Detectors/alarm Instrumentation

TLCO 3.1.5.1 Each control rod scram accumulator alarm shall be OPERABLE.

APPLICABILITY: When associated control rod scram accumulator is OPERABLE per Technical Specification LCO 3.1.5.

ACTIONS

------------------------------------NOTE------------------------------------
Separate Condition entry is allowed for each control rod scram accumulator detector/alarm.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more accumulator pressure detectors or alarms inoperable.	A.1 Verify the affected accumulator pressure ≥ 1540 psig.	Once per 24 hours
B. One or more accumulator leak detectors or alarms inoperable.	B.1 Verify the affected accumulator water drained.	Once per 48 hours AND Within 24 hours prior to reactor startup
C. Required Action and associated Completion Time not met.	C.1 Declare the associated accumulator inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.1.5.1.1	Perform a CHANNEL FUNCTIONAL TEST on the leak detector and associated alarm for each control rod scram accumulator.	24 months
TSR 3.1.5.1.2	Perform a CHANNEL CALIBRATION of the pressure detector for each control rod scram accumulator and verify a nominal alarm setpoint of 1600 psig on decreasing pressure.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
TSR 3.3.2.1.16	-------------------NOTES------------------- 1. Neutron detectors and Reactor Recirc Flow Reference transmitters, as applicable, may be excluded. 2. For SRMs, IRMs, and APRM neutron flux - High, Setdown, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform a CHANNEL CALIBRATION.	184 days
TSR 3.3.2.1.17	Perform a CHANNEL CALIBRATION.	24 months
TSR 3.3.2.1.18	Calibrate the Recirc Flow Reference transmitters.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.3.5.1.1.1	Perform CHANNEL FUNCTIONAL TEST.	92 days
TSR 3.3.5.1.1.2	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.6.1-1 to determine which TSRs 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 isolation capability.

SURVEILLANCE		FREQUENCY
TSR 3.3.6.1.1	Perform CHANNEL CHECK.	12 hours
TSR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
TSR 3.3.6.1.3	(Not Used)	
TSR 3.3.6.1.4	(Not Used)	
TSR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	24 months
TSR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

----------------------------------NOTE----------------------------------
The TSRs apply for the Remote Intake Control Room Vent Rad Monitor only.

SURVEILLANCE		FREQUENCY
TSR 3.3.7.1.1	Perform CHANNEL CHECK.	12 hours
TSR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
TSR 3.3.7.1.3	(Not Used)	
TSR 3.3.7.1.4	Perform CHANNEL CALIBRATION.	24 months
TSR 3.3.7.1.5	(Not Used)	

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 that the trip Function capability is maintained.

SURVEILLANCE		FREQUENCY
TSR 3.3.7.3.1	Perform a CHANNEL CHECK.	24 hours
TSR 3.3.7.3.2	Perform a CHANNEL FUNCTIONAL TEST.	92 days
TSR 3.3.7.3.3	Perform a CHANNEL CALIBRATION. The Allowable Value shall be ≤ 52.5 inches. The Nominal Setpoint is 50.7 inches.	24 months

SURVEILLANCE REQUIREMENTS

------------------------------------NOTE------------------------------------
Refer to Table 3.3.7.5-1 to determine which TSRs apply for each instrument
----

SURVEILLANCE		FREQUENCY
TSR 3.3.7.5.1	Perform a CHANNEL CHECK.	31 days
TSR 3.3.7.5.2	Perform a CHANNEL FUNCTIONAL TEST.	6 months
TSR 3.3.7.5.3	Perform a CHANNEL CALIBRATION.	24 months
TSR 3.3.7.5.4	---------------NOTE--------------- Not required to be performed until instrument is actuated by a seismic event ≥ 0.01 g. -----------------------------------	
	Restore to OPERABLE.	24 hours
	AND	
	Perform a CHANNEL CALIBRATION.	5 days
	AND	
	Initiate action to retrieve and analyze data from actuated instruments to determine the magnitude of vibratory ground motion	Immediately after event
	AND	
	Initiate action to prepare and submit a Special Report to the Commission, pursuant to Technical Requirement 5.6.9, within 10 days describing the magnitude, frequency spectrum and resultant effect upon unit features important to safety.	Immediately after event

TR 3.3.7.8.2 Offgas System Radiation Monitoring Instrumentation

TLCO 3.3.7.8.2 The Offgas System Radiation Monitoring Instrumentation shown in Table 3.3.7.8.2-1 shall be OPERABLE with its alarm/trip setpoints within the specified limits.

APPLICABILITY: During operation of the main condenser air ejector

ACTIONS

-----NOTE-----
1. Separate Condition entry is allowed for each channel.

2. The provisions of Technical Requirement TLCO 3.0.4 are not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. A radiation monitoring instrumentation channel alarm/trip setpoint exceeding the limit.	A.1 Adjust the setpoint to within the limit. OR A.2 Declare the channel inoperable.	4 hours 4 hours
B. One or more required radiation monitoring channels inoperable.	B.1 Enter the Condition Referenced in Table 3.3.7.8.2-1 for the channel.	Immediately
C. As required by Required Action B.1 and referenced in Table 3.3.7.8.2-1.	C.1 Obtain a grab sample of the monitored parameter AND C.2 Analyze the sample for gross radioactivity and verify effluent radioactivity is below trip setpoint. AND C.3 Restore required instrumentation to OPERABLE status.	Once per 12 hours Within 24 hours of sample collection 30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. As required by Required Action B.1 and referenced in Table 3.3.7.8.2-1.	D.1	Verify by administrative means the required Function 1.a post treatment monitor is OPERABLE	Immediately
	AND		
	D.2	Verify the offgas system is not bypassed.	Immediately
	AND		
	D.3	Restore required instrumentation to OPERABLE status.	72 hours
E. Required Action and associated Completion Time for Conditions C or D not met.	E.1	Enter TLCO 3.0.3	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----
Refer to Table 3.3.7.8.2-1 to determine which TSRs apply to each channel.

SURVEILLANCE		FREQUENCY
TSR 3.3.7.8.2.1	Perform a CHANNEL CHECK.	24 hours
TSR 3.3.7.8.2.2	Perform a CHANNEL FUNCTIONAL TEST.	92 days
TSR 3.3.7.8.2.3	Perform a CHANNEL CALIBRATION.	24 months

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.11.2-1 to determine which TSRs apply to each channel.

2. The provisions of TLCO 3.0.4 are not applicable.

SURVEILLANCE		FREQUENCY
TSR 3.3.11.2.1	Perform CHANNEL CHECK.	24 hours
TSR 3.3.11.2.2	(Not Used)	
TSR 3.3.11.2.3	Perform CHANNEL FUNCTIONAL TEST.	92 days
TSR 3.3.11.2.4	Perform a CHANNEL CALIBRATION.	24 months
TSR 3.3.11.2.5	Perform SOURCE CHECK.	Prior to each release

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.11.3-1 to determine which TSRs apply to each channel.
2. The provisions of TLCO 3.0.4 are not applicable.
3. The surveillance requirements apply to all ranges of the monitoring equipment.

SURVEILLANCE		FREQUENCY
TSR 3.3.11.3.1	Perform CHANNEL CHECK.	24 hours
TSR 3.3.11.3.2	Perform CHANNEL CHECK.	7 days
TSR 3.3.11.3.3	Perform SOURCE CHECK.	31 days
TSR 3.3.11.3.4	Perform CHANNEL FUNCTIONAL TEST.	92 days
TSR 3.3.11.3.5	Perform a CHANNEL CALIBRATION.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.4.6.1.1	Perform CHANNEL FUNCTIONAL TEST on the high/low pressure interface valves leakage pressure monitor alarm setpoints.	92 days
TSR 3.4.6.1.2	Perform CHANNEL CALIBRATION on the high/low pressure interface valves leakage pressure monitor setpoints per Table 3.4.6.1-1.	24 months

TABLE 3.4.6.1-1
REACTOR COOLANT SYSTEM INTERFACE VALVES
LEAKAGE PRESSURE MONITORS

INSTRUMENT NUMBER	FUNCTION	NOMINAL ALARM SETPOINT
1E21*PTN054	LPCS Pump Discharge Pressure High	580 psig
1E22*PTN052	HPCS Pump Suction Pressure High	80 psig
1E12*PTN053A	RHR A Pump Discharge Pressure High	474 psig
1E12*PTN053B	RHR B Pump Discharge Pressure High	474 psig
1E12*PTN053C	RHR C Pump Discharge Pressure High	474 psig
1E12*PTN057	RHR Pump Shutdown Cooling Suction Pressure High	174 psig

TR 3.4.7 RCS Leakage Detection Instrumentation

-------------------------------------NOTE-------------------------------------
The following surveillance requirement applies to Technical Specification LCO 3.4.7. Failure to meet this surveillance requirement requires entry into Technical Specification LCO 3.4.7.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
TSR 3.4.7.1 - TSR 3.4.7.3 (Not Used)	
TSR 3.4.7.4 Flow test the drywell floor drain sump inlet piping for blockage.	24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time for Condition B not met when suppression pool level is being maintained for LCO 3.5.2.	D.1 Establish compliance with LCO 3.6.1.10, Primary Containment - Shutdown.	8 hours
	AND	
	D.2.1.1 Provide an alternate pumpback method	24 hours
	AND	
	D.2.1.2 Demonstrate the OPERABILITY of an alternate pumpback method.	once per 24 hours thereafter
	OR	
	D.2.2.1 Suspend CORE ALTERATIONS	Immediately
	AND	
	D.2.2.2 Suspend operations with a potential for draining the reactor vessel (OPDRVs)	Immediately
	AND	
	D.2.2.3 Lock the reactor mode switch in SHUTDOWN	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
TSR 3.5.4.1 Perform a functional test of each crescent area sump pump to verify it is capable of developing 50 gpm when aligned to the suppression pool.	24 months
TSR 3.5.4.2 Verify the flow path can be aligned to the suppression pool.	24 months

SURVEILLANCE REQUIREMENTS

---------------------------------NOTE---------------------------------
The following surveillance requirement applies to Technical Specification LCO 3.6.1.9. Failure to meet this surveillance requirement requires entry into Technical Specification LCO 3.6.1.9.

SURVEILLANCE	FREQUENCY
TSR 3.6.1.8.1 - TSR 3.6.1.8.2 (Not Used)	
TSR 3.6.1.8.3 Perform a CHANNEL CALIBRATION	24 months

TR 3.6.1.9 Main Steam•Positive Leakage Control System (MS-PLCS)

SURVEILLANCE REQUIREMENTS

----------------------------------NOTE----------------------------------
The following surveillance Note applies to the identified SR of Technical Specification LCO 3.6.1.9.

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.3	----------------NOTE---------------- The system functional test of each MS-PLCS subsystem includes verifying each automatic valve actuates to its correct position and that 8.5 ± 3 psid sealing pressure is established in each steam line. ------------------------------------	

----------------------------------NOTE----------------------------------
The following surveillance requirement applies to Technical Specification LCO 3.6.1.9. Failure to meet this surveillance requirement requires entry into Technical Specification LCO 3.6.1.9.

SURVEILLANCE		FREQUENCY
TSR 3.6.1.9.1 - TSR 3.6.1.9.3 (Not Used)		
TSR 3.6.1.9.4	Perform a CHANNEL CALIBRATION	24 months
TSR 3.6.1.9.5	----------------NOTE---------------- Not required if performed within the previous 92 days ------------------------------------ Cycle each motor - operated valve including the Main Steam Shutoff Valves (MSSVs) through at least one complete cycle of full travel.	Each Cold Shutdown

TR 3.6.3.1 Primary Containment Hydrogen Recombiners

TLCO 3.6.3.1 One primary containment hydrogen recombiner shall be operable.

APPLICABILITY: When both divisions of hydrogen igniters are inoperable, requiring entry to TS 3.6.3.2 Condition B

------------------------------------NOTE------------------------------------
Refer to Technical Specification Bases B.3.6.3.2 Action B.1 regarding recombiner function.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. With no hydrogen recombiner operable	A.1 Enter TS 3.6.3.2 Condition C	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.6.3.1.1	Perform a functional test for the hydrogen recombiner	24 months
TSR 3.6.3.1.2	Visually examine the primary containment hydrogen recombiner enclosure and verify there is no evidence of abnormal conditions	24 months
TSR 3.6.3.1.3	Perform a resistance to ground test for each heater phase	24 months
TSR 3.6.3.1.4	Perform a CHANNEL CALIBRATION on control room recombiner indication instrumentation and control circuits.	24 months

TR 3.6.4.3 Standby Gas Treatment (SGT) System

SURVEILLANCE REQUIREMENTS

------------------------------NOTE------------------------------
The following surveillance requirements apply to Technical Specification LCO 3.6.4.3. Failure to meet these surveillance requirements requires entry into Technical Specification LCO 3.6.4.3.

SURVEILLANCE	FREQUENCY
TSR 3.6.4.3.1 (Not Used)	
TSR 3.6.4.3.2 (Not Used)	
TSR 3.6.4.3.3 (Not Used)	
TSR 3.6.4.3.4 (Not Used)	
TSR 3.6.4.3.5 Verify each SGT subsystem filter train starts and dampers align on a manual initiation signal.	24 months

TR 3.6.4.7 Fuel Building Ventilation System - Fuel Handling

SURVEILLANCE REQUIREMENTS

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

The following surveillance requirements apply to Technical Specification LCO 3.6.4.7. Failure to meet these surveillance requirements requires entry into Technical Specification LCO 3.6.4.7.

SURVEILLANCE		FREQUENCY
TSR 3.6.4.7.1	(Not Used)	
TSR 3.6.4.7.2	(Not Used)	
TSR 3.6.4.7.3	(Not Used)	
TSR 3.6.4.7.4	Verify each fuel building ventilation charcoal filtration subsystem will actuate on a Fuel Building ventilation exhaust high radiation initiation signal.	24 months
TSR 3.6.4.7.5	(Not Used)	
TSR 3.6.4.7.6	Verify that the subsystem starts and isolation dampers actuate to isolate the normal flow path and to divert flow through the charcoal filters on manual initiation from the control room.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.7.1.1	Verify the water level of UHS cooling tower basin is ≥ 78%.	24 hours
TSR 3.7.1.2	Verify the average water temperature of UHS is ≤ 88°F.	24 hours
TSR 3.7.1.3	Operate each cooling tower fan cell for ≥ 15 minutes.	31 days
TSR 3.7.1.4	Verify each required SSW subsystem manual, power operated, and automatic valve in the flow path servicing required OPERABLE safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
TSR 3.7.1.5	Verify each SSW subsystem actuates on an actual or simulated initiation signal.	24 months

TR 3.7.3 Control Room Air Conditioning (AC) System

---NOTE---
The following surveillance requirement applies to Technical Specification LCO 3.7.3. Failure to meet this surveillance requirement requires entry into Technical Specification LCO 3.7.3.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.7.3.1	(Not Used)	
TSR 3.7.3.2	Verify isolation of HVK/SSW from non-safety related makeup water supply on a LOCA signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
TSR 3.7.9.1.11	Perform a system functional test which includes simulated automatic actuation of the system throughout its operating sequence.	18 months
TSR 3.7.9.1.12	Verify that each fire suppression pump develops at least 2250 gpm at a system head of 248 feet,	18 months
TSR 3.7.9.1.13	Cycle each valve in the flow path, that is not testable during plant operation, through at least one complete cycle of full travel	24 months
TSR 3.7.9.1.14	Verify that each fire suppression pump starts sequentially to maintain the fire suppression water system pressure greater than or equal to 70 psig.	18 months
TSR 3.7.9.1.15	----------------NOTE---------------- TSR 3.0.2 is not applicable. ------------------------------------ Subject the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service.	24 months
TSR 3.7.9.1.16	Verify that the battery cases and battery racks show no visual indication of physical damage or abnormal deterioration.	18 months
TSR 3.7.9.1.17	Verify that Battery-to-battery and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material.	18 months
TSR 3.7.9.1.18	Perform a flow test of the system in accordance with Chapter 5, Section 11 of the Fire Protection Handbook, 14th Edition, published by the National Fire Protection Association.	3 years

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each required spray or sprinkler system.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above required spray or sprinkler systems inoperable.	A.1 Establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged AND A.2 Establish an hourly fire watch patrol for other areas.	1 hour 1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.7.9.2.1	Verify that each valve (manual, power operated or automatic) in the flow path is in its correct position.	31 days
TSR 3.7.9.2.2	Cycle each testable valve in the flow path through at least one complete cycle of full travel.	12 months
TSR 3.7.9.2.3	Perform a system functional test which includes simulated automatic actuation of the automatic systems and verify that the automatic valves in the flow path actuate to their correct positions on a simulated actuation test signal.	18 months
TSR 3.7.9.2.4	Cycle each valve in the flow path, that is not testable during plant operation, through at least one complete cycle of full travel.	24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.7.9.4.1	Perform a visual inspection of the fire hose stations accessible during plant operation to assure all required equipment is at the station.	31 days
TSR 3.7.9.4.2	Perform a visual inspection of the fire hose stations not accessible during plant operation to assure all required equipment is at the station.	24 months
TSR 3.7.9.4.3	Remove the hose for inspection and re-racking, and inspect all gaskets and replace any degraded gaskets in the couplings.	18 months
TSR 3.7.9.4.4	Partially open each hose station valve to verify valve OPERABILITY and no flow blockage.	3 years
TSR 3.7.9.4.5	Remove the hose for hydrostatic testing. Perform a Service Test on all in-service hose at a pressure of 150 psig or at least 50 psig above the maximum fire main operating pressure, whichever is greater, to determine suitability for continued service. Any hose failing the service test shall be replaced with hose that has had a successful Service Test performed.	3 years

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.7.9.6.1	Verify that doors with automatic hold open and release mechanisms are free of obstructions.	24 hours
TSR 3.7.9.6.2	Verify that each unlocked fire door without electrical supervision is closed.	24 hours
TSR 3.7.9.6.3	Verify that each locked-closed fire door is closed.	7 days
TSR 3.7.9.6.4	Verify the OPERABILITY of the fire door supervision system for each electrically supervised fire door by performing a CHANNEL FUNCTIONAL TEST.	31 days
TSR 3.7.9.6.5	Perform a visual inspection of the automatic hold open, release and closing mechanisms and latches on all required fire doors utilizing automatic hold open and release mechanisms (held open fire doors).	184 days
TSR 3.7.9.6.6	Perform a visual inspection of the exposed surfaces of each fire-rated assembly that is accessible during plant operation.	18 months
TSR 3.7.9.6.7	Perform a visual inspection of each fire damper and associated hardware that is accessible during plant operation.	18 months
TSR 3.7.9.6.8	Perform a visual inspection of at least 10 percent of each type of sealed penetration. If changes in appearance or abnormal degradations are found, a visual inspection of an additional 10 percent of each type of sealed penetration where changes in appearance or abnormal degradation was noted shall be made. This inspection process shall continue until a 10 percent sample of each type of sealed penetration is found with no apparent changes in appearance or abnormal degradation. Samples shall be selected such that each penetration seal will be inspected at least once per 15 years.	18 months
TSR 3.7.9.6.9	Perform a functional test of the automatic hold-open, release and closing mechanism and latches.	18 months
TSR 3.7.9.6.10	Perform a visual inspection of the exposed surfaces of each fire-rated assembly not accessible during plant operation.	24 months
TSR 3.7.9.6.11	Perform a visual inspection of each fire damper and associated hardware not accessible during plant operation.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
TSR 3.8.1.13 - TSR 3.8.1.18 (Not Used)	
TSR 3.8.1.19 a., b. (Not Used) c. When the DG is auto-started from standby condition for technical specification SR 3.8.1.19 1. - 4. (Not Used) 5. Verify the auto-connected loads for each diesel do not exceed 3130 KW for diesel generator 1A and 1B and 2600 KW for diesel generator 1C.	24 months
TSR 3.8.1.20 -----------------NOTE----------------- Not required to be met when Division III diesel engine is running. --------------------------------------- Verify the Division III diesel generator ambient room temperature to be ≥ 40°F	Once per 24 hours OR Once per 12 hours when the last reported room temperature <50°F.
TSR 3.8.1.21 (Deleted)	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.8.11.1	A CHANNEL CALIBRATION of the associated protective relays for the 4.16 kV breakers.	24 months on a STAGGERED TEST BASIS
TSR 3.8.11.2	Perform an integrated system functional test of the 4.16 kV breakers which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and overcurrent control circuits function as designed.	24 months on a STAGGERED TEST BASIS
TSR 3.8.11.3	------------------NOTES------------------ Testing of these circuit breakers shall consist of injecting currents in excess of the breaker's nominal setpoint and measuring the response time of the long time and short time delay elements and the setpoint of the instantaneous element, as appropriate. The measured data shall be compared to the manufacturer's data to ensure that it is less than or equal to a value specified by the manufacturer. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. --- Functionally test a representative sample of at least 10% of each type of lower voltage (≤ 480 volt) circuit breakers.	24 months on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
TSR 3.8.11.4	-----------------NOTES----------------- Testing of these motor starters shall consist of injecting a current in accordance with the manufacturer's recommendations and verifying that the motor starter operates to interrupt the current within the associated thermal overload time delay band width for that current as specified by the manufacturer. Motor starters found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. --------------------------------------- Functionally test a representative sample of at least 10% of each type of motor starter used for penetration redundant overcurrent protection.	24 months on a STAGGERED TEST BASIS
TSR 3.8.11.5	Subject each circuit breaker to an inspection and preventive maintenance program in accordance with procedures prepared in conjunction with its manufacturer's recommendations.	60 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.8.12.1	-----------------NOTE------------------- Testing of these circuit breakers shall consist of injecting currents in excess of the breaker's nominal setpoint and measuring the response time of the long time and short time delay elements and the setpoint of the instantaneous element, as appropriate. The measured data shall be compared to the manufacturer's data to ensure that it is less than or equal to a value specified by the manufacturer. -- Test one-half of each type of circuit breaker	24 months on a STAGGERED TEST BASIS

TR 3.9.5 Control Rod Scram Accumulators - Refueling

----------------------------------NOTE----------------------------------
The following surveillance requirement applies to Technical Specification LCO 3.9.5. Failure to meet this surveillance requirement requires entry into Technical Specification LCO 3.9.5.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.9.5.1 and 3.9.5.2 (Not Used)		
TSR 3.9.5.3	Measure and record the time, for up to 10 minutes, that each individual accumulator check valve maintains the associated accumulator pressure above the alarm set point.	24 months

TR 3.9.5.1 Control Rod Scram Accumulator Alarms - Refueling

TLCO 3.9.5.1 Each control rod scram accumulator alarm shall be OPERABLE.

APPLICABILITY: When associated control rod scram accumulator is OPERABLE per Technical Specification LCO 3.9.5.

ACTIONS

-----------------------------------NOTE-----------------------------------
Separate Condition entry is allowed for each control rod scram accumulator alarm.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more accumulator pressure detectors or alarms inoperable.	A.1 Verify the affected accumulator pressure ≥ 1540 psig.	Once per 24 hours
B. One or more accumulator leak detectors or alarms inoperable.	B.1 Verify the affected accumulator water drained.	Once per 48 hours AND Within 24 hours prior to reactor startup
C. Required Action and associated Completion Time not met.	C.1 Declare the associated accumulator inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.9.5.1.1	Perform a CHANNEL FUNCTIONAL TEST on the leak detector and associated alarm for each control rod scram accumulator.	24 months
TSR 3.9.5.1.2	Perform a CHANNEL CALIBRATION of the pressure detector for each control rod scram accumulator and verify an nominal alarm setpoint of 1600 psig on decreasing pressure.	24 months

TR 5.5.6 (continued)

f. The Inservice Inspection Program (ISI) for piping susceptible to Inter-granular Stress Corrosion Cracking (IGSCC) shall be performed in accordance with the NRC positions included in Generic Letter 88-01.

TR 5.5.7 Filter Testing Program

In addition to the requirements of Technical Specification 5.5.7 the following requirements apply to the filter testing program:

a. The testing requirements of Technical Specification 5.5.7.a will be performed at least once per 24 months or (1) after any structural maintenance on the HEPA filter (2) following painting, fire or chemical release in any ventilation zone communicating with the subsystem, or (3) after each complete or partial replacement of a HEPA filter bank.

b. The testing requirements of Technical Specification 5.5.7.b will be performed at least once per 24 months or (1) after any structural maintenance on the charcoal adsorber housings, (2) following painting, fire or chemical release in any ventilation zone communicating with the subsystem, or (3) following each complete or partial replacement of a charcoal adsorber bank.

c. The testing requirements of Technical Specification 5.5.7.c will be performed at least once per 24 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, (2) following painting, fire or chemical release in any ventilation zone communicating with the subsystem, or (3) every 720 hours of charcoal adsorber operation. The representative carbon sample will be tested within 31 days following removal.

d. The testing requirements of Technical Specification 5.5.7.d will be performed at least once per 24 months.

e. The testing requirements of Technical Specification 5.5.7.e will be performed at least once per 24 months.

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TR 3.3.8.1 Loss of Power (LOP) Instrumentation

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Loss of Power Instrumentation

FUNCTION	REQUIRED CHANNELS PER DIVISION	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Divisions 1 and 2 - 4.16 kV Emergency Bus Undervoltage			
a. Loss of Voltage • 4.16 kV basis	3	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2910 V and ≤ 3030 V
b. Loss of Voltage • Time Delay	1	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2.7 seconds and ≤ 3.3 seconds
c. Degraded Voltage • 4.16 kV basis	3	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 3692 V and ≤ 3733 V[a] ≥ 3713.9 V and ≤ 3715.0 V[b]
d. Degraded Voltage • Time Delay, No LOCA	1	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 54 seconds and ≤ 66 seconds
e. Degraded Voltage•Time Delay, LOCA	1	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 4.56 seconds and ≤ 5.54 seconds
2. Division 3 • 4.16 kV Emergency Bus Undervoltage			
a. Loss of Voltage • 4.16 kV basis	2	SR 3.3.8.1.1 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2892 V and ≤ 3198 V
b. Loss of Voltage • Time Delay	2	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2.7 seconds and ≤ 3.3 seconds
c. Degraded Voltage • 4.16 kV basis	2	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 3675 V and ≤ 3720 V[a] ≥ 3699.9 V and ≤ 3701.2 V[b]
d. Degraded Voltage • Time Delay, No LOCA	2	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 54 seconds and ≤ 66 seconds
e. Degraded Voltage • Time Delay, LOCA	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 4.63 seconds and ≤ 5.57 seconds

Note: [a] Prior to implementation of ECN-24574 of EC-16880, operability will be maintained using these setpoints.

[b] After implementation of ECN-24574 of EC-16880, operability will be maintained using these setpoints.

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TR 3.3-22	(43iv)	9	TR 3.3-68	(71xxi)	51	TR 3.6-3	(8i)	73
TR 3.3-23	(43v)	9	TR 3.3-69	(71xxii)	78	TR 3.6-3a	(8ii)	13
TR 3.3-24	(43vi)	77	TR 3.3-70	(71xxiii)	75	TR 3.6-4	(8iii)	73
TR 3.3-25	(43vii)	5	TR 3.3-71	(71xxiv)	90	TR 3.6-5	(20i)	11
TR 3.3-26	(47i)	9	TR 3.3-72	(71xxv)	26	TR 3.6-6	(20ii)	77
TR 3.3-27	(52i)	116	TR 3.3-73	(71xxvi)	5			

TR 3.3.8.1 Loss of Power (LOP) Instrumentation

Table 3.3.8.1-1 (page 1 of 1)
Loss of Power Instrumentation

FUNCTION	REQUIRED CHANNELS PER DIVISION	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Divisions 1 and 2 - 4.16 kV Emergency Bus Undervoltage			
a. Loss of Voltage 4.16 kV basis	3	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2910 V and ≤ 3030 V
b. Loss of Voltage Time Delay	1	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2.7 seconds and ≤ 3.3 seconds
c. Degraded Voltage 4.16 kV basis	3	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 3713.9 V and ≤ 3715.0 V
d. Degraded Voltage Time Delay, No LOCA	1	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 54 seconds and ≤ 66 seconds
e. Degraded Voltage Time Delay, LOCA	1	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 4.56 seconds and ≤ 5.54 seconds
2. Division 3 4.16 kV Emergency Bus Undervoltage			
a. Loss of Voltage 4.16 kV basis	2	SR 3.3.8.1.1 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2892 V and ≤ 3198 V
b. Loss of Voltage Time Delay	2	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2.7 seconds and ≤ 3.3 seconds
c. Degraded Voltage 4.16 kV basis	2	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 3699.9 V and ≤ 3701.2 V
d. Degraded Voltage Time Delay, No LOCA	2	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 54 seconds and ≤ 66 seconds
e. Degraded Voltage Time Delay, LOCA	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 4.63 seconds and ≤ 5.57 seconds

Enclosure 2
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B 3.4-21a	140	B 3.4-62	6-14	B 3.6-14	110	B 3.6-54	0
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B 3.4-36	133	B 3.5-13a	109	B 3.6-28	110	B 3.6-69	122
B 3.4-37	0	B 3.5-14	140	B 3.6-29	2-1	B 3.6-70	122
B 3.4-38	0	B 3.5-15	0	B 3.6-30	0	B 3.6-71	122
B 3.4-39	110	B 3.5-16	0	B 3.6-31	0	B 3.6-72	0
B 3.4-40	110	B 3.5-17	0	B 3.6-32	0	B 3.6-73	0
B 3.4-41	133	B 3.5-18	0	B 3.6-33	0	B 3.6-74	0
B 3.4-42	110	B 3.5-19	0	B 3.6-34	0	B 3.6-75	133
B 3.4-43	0	B 3.5-20	6-14	B 3.6-35	109	B 3.6-76	6-12
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SURVEILLANCE REQUIREMENTS

SR 3.4.4.3 (continued)

a reasonable time to complete the SR. If performed by method 2), valve OPERABILITY has been demonstrated for all installed S/RVs based upon the successful operation of a test sample of S/RVs.

1. Manual actuation of the S/RV, with verification of the response of the turbine control valves or bypass valves, by a change in the measured steam flow, or any other method suitable to verify steam flow (e.g., tailpipe temperature or pressure). Adequate reactor steam pressure must be available to perform this test to avoid damaging the valve. Also, adequate reactor steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the S/RVs divert steam flow upon opening. Sufficient time is therefore allowed after the required pressure and flow are achieved to perform this test. Adequate pressure at which this test is to be performed is consistent with the pressure recommended by the valve manufacturer.

2. The sample population of S/RVs tested each refueling outage to satisfy SR 3.4.4.1 will be stroked in the relief mode during "as-found" testing to verify proper operation of the S/RV. The successful performance of the test sample of S/RVs provides reasonable assurance that the remaining installed S/RVs will perform in a similar fashion. After the S/RVs are replaced, the relief-mode actuator of the newly installed S/RVs will be uncoupled from the S/RV, and cycled to ensure that no damage has occurred to the S/RV during transportation and installation. Following cycling, the relief-mode actuator is recoupled and the proper connection to the S/RV lever is independently verified.

This verifies that each replaced S/RV will properly perform its intended function.

If the valve fails to actuate due only to the failure of the solenoid, but is capable of opening on overpressure, the safety function of the S/RV is considered OPERABLE.

The STAGGERED TEST BASIS frequency ensures that each solenoid for each S/RV relief-mode actuator is alternately tested. The frequency of the required relief-mode actuator testing was developed based on the S/RV tests required by the ASME OM Code for Operation and Maintenance of Nuclear Power Plants (ref. 4) as implemented by the Inservice Testing Program of

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.4.3 (continued)

Specification 5.5.6. The testing frequency required by the Inservice Testing Program is based on operating experience and valve performance. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. ASME, Boiler and Pressure Vessel Code, Section III and XI.
2. USAR, Section 5.2.2.2.3.
3. USAR, Section 15.
4. ASME OM Code for Operation and Maintenance of Nuclear Power Plants.

BASES

BACKGROUND (continued)	c. High Pressure Core Spray System; and d. Reactor Core Isolation Cooling System. The PIVs are listed in Reference 6.
APPLICABLE SAFETY ANALYSES	Reference 5 evaluated various PIV configurations, leakage testing of the valves, and operational changes to determine the effect on the probability of intersystem LOCAs. This study concluded that periodic leakage testing of the PIVs can substantially reduce the probability of an intersystem LOCA. PIV leakage is not considered in any Design Basis Accident analyses. This Specification provides for monitoring the condition of the RCPB to detect PIV degradation that has the potential to cause a LOCA outside of containment. RCS PIV leakage satisfies Criterion 2 of the NRC Policy Statement.
LCO	RCS PIV leakage is leakage into closed systems connected to the RCS. Isolation valve leakage is usually on the order of drops per minute. Leakage that increases significantly suggests that something is operationally wrong and corrective action must be taken. Violation of this LCO could result in continued degradation of a PIV, which could lead to overpressurization of a low pressure system and the loss of the integrity of a fission product barrier. The LCO PIV leakage limit is 0.5 gpm per nominal inch of valve size with a maximum limit of 5 gpm. Reference 4 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). 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1 (continued)

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 Frequency required by the Inservice Testing Program is within the ASME OM Code Frequency requirement.

Therefore, this SR is modified by a Note that states the leakage Surveillance is only required to be performed in MODES 1 and 2. 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 OM Code for Operation and Maintenance of Nuclear Power Plants, Subsection ISTC.
5. NUREG-0677, "The Probability of Intersystem LOCA: Impact Due to Leak Testing and Operational Changes," May 1980.
6. Technical Requirements Manual.
7. Deleted
8. NEDC-31339, "BWR Owners Group Assessment of ECCS Pressurization in BWRs," November 1986.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.2 (continued)

This SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the 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. This allows operation in the RHR shutdown cooling mode during MODE 3 if necessary.

SR 3.5.1.3

Verification every 31 days that ADS air accumulator supply pressure is ≥ 131 psig assures adequate air pressure for reliable ADS operation. The accumulator on each ADS valve provides pneumatic pressure for valve actuation. The designed pneumatic supply pressure requirements for the accumulator are such that, following a failure of the pneumatic supply to the accumulator, at least two valve actuations can occur with the drywell at 70% of design pressure (Ref. 13). The ECCS safety analysis assumes only one actuation to achieve the depressurization required for operation of the low pressure ECCS. This minimum required pressure of 131 psig is provided by the nonsafety related air supply system (SVV) with safety related backup from the penetration valve leakage control system (LSV), post LOCA, at a system design pressure of 120 psig. The 31 day Frequency takes into consideration administrative control over operation of the SVV and LSV Systems and alarms for low air pressure.

SR 3.5.1.4

The performance requirements of the ECCS pumps are determined through application of the 10 CFR 50, Appendix K, criteria (Ref. 8). This periodic Surveillance is performed (in accordance with the ASME OM Code requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of 10 CFR 50.46 (Ref. 10).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.7 (continued)

OPERABILITY has been demonstrated for all installed ADS valves based upon the successful operation of a test sample of S/RVs.

1. Manual actuation of the ADS valve, with verification of the response of the turbine control valves or bypass valves, by a change in the measured steam flow, or any other method suitable to verify steam flow (e.g., tailpipe temperature or pressure). Adequate reactor steam pressure must be available to perform this test to avoid damaging the valve. Also, adequate reactor steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the ADS valves divert steam flow upon opening. Sufficient time is therefore allowed after the required pressure and flow are achieved to perform this test. Adequate pressure at which this test is to be performed is consistent with the pressure recommended by the valve manufacturer.

2. The sample population of S/RVs tested each refueling outage to satisfy SR 3.4.4.1 will be stroked in the relief mode during "as-found" testing to verify proper operation of the S/RV. The successful performance of the test sample of S/RVs provides reasonable assurance that all ADS valves will perform in a similar fashion. After the S/RVs are replaced, the relief-mode actuator of the newly installed S/RVs will be uncoupled from the S/RV, and cycled to ensure that no damage has occurred to the S/RV during transportation and installation. Following cycling, the relief-mode actuator is recoupled and the proper connection to the S/RV lever is independently verified. This verifies that each replaced S/RV will properly perform its intended function.

SR 3.5.1.6 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

The STAGGERED TEST BASIS frequency ensures that both solenoids for each ADS valve relief-mode actuator are alternately tested. The frequency of the required relief-mode actuator testing was developed based on the tests required by ASME OM Code (ref. 16) as

(continued)

BASES

REFERENCES

1. USAR, Section 6.3.2.2.3.
2. USAR, Section 6.3.2.2.4.
3. USAR, Section 6.3.2.2.1.
4. USAR, Section 6.3.2.2.2.
5. USAR, Section 15.2.8.
6. USAR, Section 15.6.4.
7. USAR, Section 15.6.5.
8. 10 CFR 50, Appendix K.
9. USAR, Section 6.3.3.
10. 10 CFR 50.46.
11. USAR, Section 6.3.3.3.
12. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCO's for ECCS Components," December 1, 1975.
13. USAR, Section 5.2.2.4.1.
14. NEDO-32291-A, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.
15. RBS Technical Requirements Manual.
16. ASME OM Code for Operation and Maintenance of Nuclear Power Plants.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1 (continued)

frequency of the required relief-mode actuator testing was developed based on the tests required by ASME OM Code (ref. 3) as implemented by the Inservice Testing Program of Specification 5.5.6. The testing frequency required by the Inservice Testing Program is based on operating experience and valve performance. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.

SR 3.6.1.6.2

The LLS designed S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify that the mechanical portions (i.e., solenoids) of the automatic LLS function operate as designed when initiated either by an actual or simulated automatic initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.4.4 overlaps this SR to provide complete testing of the safety function.

The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note that excludes valve actuation. This prevents a reactor pressure vessel pressure blowdown.

REFERENCES

1. GESSAR-II, Appendix 3B, Attachment A, Section 3BA.8.
2. USAR, Section 5.2.2.
3. ASME OM Code for Operation and Maintenance of Nuclear Power Plants.

BASES

SURVEILLANCE REQUIREMENTS (continued)	SR 3.6.2.3.2 Verifying each RHR pump develops a flow rate ≥ 5050 gpm, with flow through the associated heat exchanger to the suppression pool ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME OM 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.
REFERENCES	1. USAR, Section 6.2. 2. ASME OM Code for Operation and Maintenance of Nuclear Power Plants.

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B 3.3-94	0	B 3.3-134	0	B 3.3-174	110	B 3.3-214	123
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B 3.3-98	0	B 3.3-138	0	B 3.3-178	6-5	B 3.3-218	0
B 3.3-99	0	B 3.3-139	115	B 3.3-179	6-5	B 3.3-219	0
B 3.3-100	0	B 3.3-140	115	B 3.3-180	6-5	B 3.3-220	0
B 3.3-101	0	B 3.3-141	0	B 3.3-181	0	B 3.3-221	1
B 3.3-102	0	B 3.3-142	104	B 3.3-182	0	B 3.3-222	0
B 3.3-103	0	B 3.3-143	110	B 3.3-183	1	B 3.4-1	4-8
B 3.3-104	0	B 3.3-144	115	B 3.3-184	0	B 3.4-2	4-8
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B 3.3-116	0	B 3.3-156	0	B 3.3-196	0	B 3.4-14	0
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B 3.3 INSTRUMENTATION

B 3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

BASES

BACKGROUND

The purpose of the ECCS instrumentation is to initiate appropriate responses from the systems to ensure that fuel is adequately cooled in the event of a design basis accident or transient.

For most anticipated operational occurrences (AOOs) and Design Basis Accidents (DBAs), a wide range of dependent and independent parameters are monitored.

The ECCS instrumentation actuates low pressure core spray (LPCS), low pressure coolant injection (LPCI), high pressure core spray (HPCS), Automatic Depressurization System (ADS), and the diesel generators (DGs). The equipment involved with each of these systems is described in the Bases for LCO 3.5.1, "ECCS-Operating."

Low Pressure Core Spray System

The LPCS System may be initiat)y either automatic or manual means. Automatic initiation occurs for conditions of Reactor Vessel Water Level-Low Low Low, Level 1 or Drywell Pressure-High. Each of these diverse variables is monitored by two redundant transmitters, which are, in turn, connected to two trip units. The outputs of the four trip units (two trip units from each of the two variables) are connected to relays whose contacts are arranged in a one-out-of-two taken twice logic. The high drywell pressure initiation signal is a sealed in signal and must be manually reset. The logic can also be initiated by use of a manual push button. Upon receipt of an initiation signal, the LPCS pump is started after an approximate 2 second delay when power is available.

The LPCS test line isolation valve, which is also a primary containment isolation valve (PCIV), is closed on a LPCS initiation signal to allow full system flow assumed in the accident analysis and maintains containment isolation in the event LPCS is not operating.

The LPCS pump discharge flow is monitored by a flow transmitter. When the pump is running and discharge flow is

(continued)

B 3.3 INSTRUMENTATION

B 3.3.6.2 Secondary Containment and Fuel Building Isolation Instrumentation

BASES

BACKGROUND

The secondary containment isolation instrumentation automatically initiates closure of appropriate secondary containment isolation dampers (SCIDs) and starts appropriate ventilation subsystems. Similarly, the fuel building isolation instrumentation automatically initiates closure of appropriate fuel building isolation dampers (FBIDs) and initiates fuel building ventilation flow through the filtration system. The function of these systems, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) (Ref. 1), such that offsite radiation exposures are maintained within the requirements of 10 CFR 50.67 that are part of the NRC staff approved licensing basis. Secondary containment isolation and establishment of vacuum within the assumed time limits ensures that fission products that leak from primary containment following a DBA, or are released outside primary containment or during certain operations when primary containment is not required to be OPERABLE are maintained within applicable limits. Fuel building isolation ensures that fission products released due to fuel uncovery or a dropped fuel assembly are also maintained within regulatory limits.

The isolation instrumentation includes the sensors, relays, and switches that are necessary to cause initiation of secondary containment isolation. Most channels include electronic equipment (e.g., trip units) that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs an isolation signal to the isolation logic. Functional diversity is provided by monitoring a wide range of independent parameters. The input parameters to the isolation logic are (a) reactor vessel water level, (b) drywell pressure, and (c) fuel building ventilation exhaust radiation. Redundant sensor input signals from each parameter are provided for initiation of isolation parameters. In addition, manual initiation of the logic is provided.

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LCO 3.0.6 (continued)

potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCO's Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the plant is maintained in a safe condition in the support system's Required Actions.

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

Specification 5.5.10, "Safety Function Determination Program" (SFDP), ensures loss of safety function is detected and appropriate actions are taken. Upon failure to meet two or more LCOs concurrently, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

Cross division checks to identify a loss of safety function for those support systems that support safety systems are required. The cross division check verifies that the supported systems of the redundant OPERABLE support system are OPERABLE, thereby ensuring safety function is retained. If this evaluation determines that a loss of safety function exists, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

LCO 3.0.6 addresses support systems that have an LCO specified in the TS. For support systems that do not have an LCO specified in the TS, the following guidance applies.

In most cases, the non-TS support system has two subsystems, each supporting just one TS division of safety equipment. The duration of a maintenance activity on such a non-TS support system is limited by the Required Action Completion Times of the supported TS system(s). In this case, because the outage time of the non-TS support system is limited by the supported system TSs, the plant is temporarily allowed to depart from the single-failure design criterion, but sole reliance on the TS limitations is not appropriate. Risk of the outage must still be assessed and managed in accordance with 10 CFR 50.65(a)(4).

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BASES

LCO 3.0.6 (continued)

In some cases, the non-TS support system has two redundant 100 percent capacity subsystems, each capable of supporting both TS divisions (e.g., HVR-UC11A and B). Loss of one support subsystem does not result in a loss of support for either division of TS equipment. Both TS divisions remain operable, despite a loss of support function redundancy, because the TS definition of operability does not require a TS subsystem's necessary support function to meet the single-failure design criterion. Thus, no TS limits the duration of the non-TS support subsystem outage, even though the single-failure design requirement of the supported TS systems is not met. However, by assessing and managing risk in accordance with 10 CFR 50.65(a)(4), an appropriate duration for the maintenance activity can be determined. Use of administrative controls to implement such a risk-informed limitation is an acceptable basis for also allowing a temporary departure from the design-basis configuration during such maintenance. This allowance is permitted regardless of whether the maintenance is corrective or preventive.

Although not expected, if the risk assessment determines that the support subsystem may inoperable for more than 90 days, then an evaluation of the maintenance configuration as a change to the facility under 10 CFR 50.59 must be made, including consideration of the single-failure design criterion.

When a non-TS support subsystem is unexpectedly found to be in a degraded or nonconforming condition, a prompt determination of operability / functionality must be made. If the non-TS support subsystem determined to be inoperable (non-functional), then it must be determined whether the subsystem's support function is actually needed to support OPERABILITY of the TS supported systems. If the support function is required, then the risk-management strategies of the TS and 10 CFR 50.65(a)(4), as described above for planned maintenance, will determine the appropriate actions and time limits to return the non-TS subsystem to operable (functional) status. If the non-TS support function cannot maintained, then enter the LCO(s) of the TS supported system(s).

LCO 3.0.7

There are certain special tests and operations required to be performed at various times over the life of the unit. These special tests and operations are necessary to

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B 3.4-51	0	B 3.6-3	2-1	B 3.6-43	3-9	B 3.6-84	6-5
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B 3.6-108	6-5	B 3.7-6	0	B 3.8-14	127	B 3.8-52a	125
B 3.6-109	6-5	B 3.7-7	3-1	B 3.8-15	139	B 3.8-52b	125
B 3.6-110	6-5	B 3.7-8	143	B 3.8-16	102	B 3.8-53	125
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B 3.6-116	143	B 3.7-13	132	B 3.8-22	113	B 3.8-59	110
B 3.6-117	0	B 3.7-14	132	B 3.8-23	143	B 3.8-60	110
B 3.6-118	0	B 3.7-15	143	B 3.8-24	143	B 3.8-61	115
B 3.6-119	143	B 3.7-16	132	B 3.8-25	143	B 3.8-62	0
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B 3.6-121	119	B 3.7-18	110	B 3.8-27	143	B 3.8-64	0
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B 3.1 REACTIVITY CONTROL SYSTEMS

B 3.1.7 Standby Liquid Control (SLC) System

BASES

BACKGROUND

The SLC System is designed to provide the capability of bringing the reactor, at any time in a fuel cycle, from full power and minimum control rod inventory (which is at the peak of the xenon transient) to a subcritical condition with the reactor in the most reactive xenon free state without taking credit for control rod movement. The SLC System satisfies the requirements of 10 CFR 50.62 (Ref. 1) on anticipated transient without scram (ATWS).

The SLC System consists of a Boron-10 (B-10) solution storage tank, two positive displacement pumps, two explosive valves, which are provided in parallel for redundancy, and associated piping and valves used to transfer borated water from the storage tank to the reactor pressure vessel (RPV). The borated solution is discharged through the SLC sparger near the bottom of the core shroud.

APPLICABLE SAFETY ANALYSES

The SLC System is manually initiated from the main control room, as directed by the emergency operating procedures, if the operator believes the reactor cannot be shut down, or kept shut down, with the control rods. The SLC System is used in the event that not enough control rods can be inserted to accomplish shutdown and cooldown in the normal manner. The SLC System injects borated water into the reactor core to compensate for all of the various reactivity effects that could occur during plant operation. To meet this objective, it is necessary to inject a quantity of B-10 that produces a concentration of at least 143 ppm of B-10 in the reactor core at 68°F. To allow for potential leakage and imperfect mixing in the reactor system, an additional amount of B-10 equal to 25% of the amount cited above is added (Ref. 2). The concentration limits are calculated such that the required concentration is achieved accounting for dilution in the RPV with normal water level and including the water volume in the residual heat removal shutdown cooling piping and in the recirculation loop piping. This quantity of B-10 in solution (170 pounds) is

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)	the amount that is above the pump suction shutoff level in the B-10 solution storage tank. No credit is taken for the portion of the tank volume that cannot be injected. The SLC System satisfies the requirements of the NRC Policy Statement because operating experience and probabilistic risk assessment have generally shown it to be important to public health and safety.
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	<u>A.1</u> If the product of concentration times enrichment ((C)(E)) of the sodium pentaborate solution is less than the required limits for ATWS mitigation, and otherwise satisfying the required limits on weight (≥ 170 lbs), concentration (≤ 9.5%), temperature (≥ 45°F), and volume, the remaining capability of the SLC System is sufficient to meet the original licensing basis. In this condition, the concentration must be restored to within limits in 72 hours. It is not necessary under these conditions to enter

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.7.7

Demonstrating each SLC System pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1250 psig ensures that pump performance has not degraded during the fuel cycle. This minimum pump flow rate requirement ensures that, when combined with the sodium pentaborate solution concentration requirements, the rate of negative reactivity insertion from the SLC System will adequately compensate for the positive reactivity effects encountered during power reduction, cooldown of the moderator, and xenon decay. This test confirms one point on the pump design curve, and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this Surveillance is in accordance with the Inservice Testing Program.

SR 3.1.7.8

This Surveillance ensures that there is a functioning flow path from the boron solution storage tank to the RPV, including the firing of an explosive valve. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of that batch successfully fired. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. The pump and explosive valve tested should be alternated such that both complete flow paths are tested every 48 months, at alternating 24 month intervals. The Surveillance may be performed in separate steps to prevent injecting boron into the RPV. An acceptable method for verifying flow from the pump to the RPV is to pump demineralized water from a test tank through one SLC subsystem and into the RPV. In order to pump this water, the test valve 1C41*F031 is open. A system initiation signal (which normally signals the 1C41*F001 storage tank suction valve) is generated with the test valve open and verification is made that the storage tank suction valve remains closed. The 24 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.7.9

Enriched sodium pentaborate solution is made by mixing granular, enriched sodium pentaborate with water. Isotopic tests on the sodium pentaborate solution to determine the actual B-10 enrichment must be performed once within 24 hours after boron is added to the solution in order to ensure that the B-10 enrichment is adequate. Enrichment testing is only required when boron addition is made since enrichment change cannot occur by any other process.

REFERENCES

1. 10 CFR 50.62.

2. USAR, Section 9.3.5.3.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.8.3 (continued)

reset signal, the opening of the SDV vent and drain valves is verified. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1 and the scram time testing of control rods in LCO 3.1.3, "Control Rod OPERABILITY," overlap this Surveillance to provide complete testing of the assumed safety function. The 24 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.

REFERENCES

1. USAR, Section 4.6.1.1.2.4.2.5.
2. 10 CFR 50.67.
3. NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping," August 1981.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.9 and SR 3.3.1.1.12

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. The 92 day Frequency of SR 3.3.1.1.9 is based on the reliability analysis of Reference 9.

For Functions 9 and 10 the CHANNEL FUNCTIONAL TEST shall include the turbine first stage pressure instruments.

The 24 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.

SR 3.3.1.1.10

The calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in Table 3.3.1.1-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

For Functions 9 and 10 all applicable trip unit setpoints must be calibrated including the turbine first stage pressure instrument trip unit setpoints.

The Frequency of 92 days for SR 3.3.1.1.10 is based on the reliability analysis of Reference 9.

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SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.11, SR 3.3.1.1.13, and SR 3.3.1.1.17

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

For Functions 9 and 10 the CHANNEL CALIBRATION shall include the turbine first stage pressure instruments.

Note 1 states that neutron detectors and flow reference transmitters are excluded from CHANNEL CALIBRATION because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the 7 day calorimetric calibration (SR 3.3.1.1.2) and the 2000 MWD/T LPRM calibration against the TIPs (SR 3.3.1.1.8). Calibration of the flow reference transmitters is performed on an 24 month Frequency (SR 3.3.1.1.17). A second Note is provided that requires the APRM and IRM SRs to be performed within 12 hours of entering MODE 2 from MODE 1. Testing of the MODE 2 APRM and IRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads or movable links. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR. The Frequency of SR 3.3.1.1.11, SR 3.3.1.1.13, and SR 3.3.1.1.17 is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.

Note 3 states that the digital components of the flow control trip reference card are excluded from CHANNEL CALIBRATION of Function 2.b, Average Power Range Monitor Flow Biased Simulated Thermal Power-High. The analog output potentiometers of the flow control trip reference card are not excluded. The flow control trip reference card has an automatic self-test feature which periodically tests the hardware which performs the digital algorithm. Exclusion of the digital components of the flow control trip reference card from CHANNEL CALIBRATION of Function 2.b is based on the conditions required to perform the test and the likelihood of a change in the status of these components not being detected.

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SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.14

The Average Power Range Monitor Flow Biased Simulated Thermal Power-High Function uses an electronic filter circuit to generate a signal proportional to the core THERMAL POWER from the APRM neutron flux signal. This filter circuit is representative of the fuel heat transfer dynamics that produce the relationship between the neutron flux and the core THERMAL POWER. The filter time constant is specified in the COLR and must be verified to ensure that the channel is accurately reflecting the desired parameter. The Frequency of 24 months is based on engineering judgment and reliability of the components.

SR 3.3.1.1.15

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The functional testing of control rods, in LCO 3.1.3, "Control Rod OPERABILITY," and SDV vent and drain valves, in LCO 3.1.8, "Scram Discharge Volume (SDV) Vent and Drain Valves," overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 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.

SR 3.3.1.1.16

This SR ensures that scrams initiated from the Turbine Stop Valve Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure-Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 40% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodology are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from turbine first stage pressure), the main turbine bypass valves must remain closed at THERMAL POWER ≥ 40% RTP to ensure that the calibration remains valid.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.16 (continued)

If any bypass channel setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 40% RTP, either due to open main turbine bypass valve(s) or other reasons), then the affected Turbine Stop Valve Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure-Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition, this SR is met and the channel is considered OPERABLE.

The Frequency of 24 months is based on engineering judgment and reliability of the components.

SR 3.3.1.1.18

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The RPS RESPONSE TIME acceptance criteria are included in Reference 10.

As noted, neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

RPS RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. Note 2 requires STAGGERED TEST BASIS Frequency to be determined based on 4 channels per trip system, in lieu of the 8 channels specified in Table 3.3.1.1-1 for the MSIV Closure Function. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. Therefore, staggered testing results in response time verification of these devices every 24 months.

REFERENCES

1. USAR, Figure 7.2-1.
2. USAR, Section 5.2.2.
3. USAR, Section 6.3.3.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.5 (continued)

inability to perform the Surveillance while at higher power levels. Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. In this event, the 12 hour Frequency is reasonable, based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

SR 3.3.1.2.6

Performance of a CHANNEL CALIBRATION verifies the performance of the SRM detectors and associated circuitry. The Frequency considers the plant conditions required to perform the test, the ease of performing the test, and the likelihood of a change in the system or component status. The neutron detectors are excluded from the CHANNEL CALIBRATION because they cannot readily be adjusted. The detectors are fission chambers that are designed to have a relatively constant sensitivity over the range, and with an accuracy specified for a fixed useful life.

The Note to the Surveillance allows the Surveillance to be delayed until entry into the specified condition of the Applicability. The SR must be performed in MODE 2 within 12 hours of entering MODE 2 with IRMs on Range 2 or below. The allowance to enter the Applicability with the 24 month Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels. Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. In this event, the 12 hour Frequency is reasonable, based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

REFERENCES

None.

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.6 (continued)

in the nonbypassed condition, the SR is met and the RWL would not be considered inoperable. Because main turbine bypass steam flow can affect the HPSP nonconservatively for the RWL, the RWL is considered inoperable with any main turbine bypass valve open. The Frequency of 92 days is based on the setpoint methodology utilized for these channels.

SR 3.3.2.1.7

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.2.1.8

The CHANNEL FUNCTIONAL TEST for the Reactor Mode Switch-Shutdown Position Function is performed by attempting to withdraw any control rod with the reactor mode switch in the shutdown position and verifying a control rod block occurs.

As noted in the SR, the Surveillance is not required to be performed until 1 hour after the reactor mode switch is in the shutdown position, since testing of this interlock with the reactor mode switch in any other position cannot be performed without using jumpers, lifted leads, or movable limits. This allows entry into MODES 3 and 4 if the 24 month Frequency is not met per SR 3.0.2.

The 24 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1.1 (continued)

The Frequency of 31 days is based upon plant operating experience with regard to channel OPERABILITY and drift, which demonstrates that failure of more than one channel of a given function in any 31 day interval is 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.

SR 3.3.3.1.2 and SR 3.3.3.1.3

For all Functions except the containment and drywell hydrogen analyzers, a CHANNEL CALIBRATION is performed every 24 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop including the sensor. The test verifies that the channel responds to the measured parameter with the necessary range and accuracy. The Frequency is based on operating experience and consistency with the typical industry refueling cycles.

For the containment and drywell hydrogen analyzers, the CHANNEL CALIBRATION is performed every 92 days. This Frequency is based on operating experience.

REFERENCES

1. Regulatory Guide 1.97, "Instrumentation for Light-Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Revision 2, December 1980.
2. NRC Safety Evaluation Report, "Conformance to Regulatory Guide 1.97, Revision 2, River Bend Station, Unit 1," dated June 30, 1986.
3. USAR Section 7.5.
4. Technical Requirements Manual

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.2.2

SR 3.3.3.2.2 verifies each required Remote Shutdown System transfer switch and control circuit performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of the equipment from the remote shutdown panel is not necessary. The surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the plant can be placed and maintained in MODE 3 from the remote shutdown panel and the local control stations. However, this Surveillance is not required to be performed only during a plant outage.

SR 3.3.3.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies the channel responds to measured parameter values with the necessary range and accuracy. Valve position Functions are excluded since channel performance is adequately determined during performance of other valve surveillances.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19.
2. RBS Technical Requirements Manual.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers is included as a part of this test, overlapping the LOGIC SYSTEM FUNCTIONAL TEST, to provide complete testing of the associated safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel would also be inoperable.

The 24 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.

SR 3.3.4.1.5

This SR ensures that an EOC-RPT initiated from the TSV Closure and TCV Fast Closure, Trip Oil Pressure-Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 40% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from first stage pressure), the main turbine bypass valves must remain closed at THERMAL POWER ≥ 40% RTP to ensure that the calibration remains valid. If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 40% RTP either due to open main turbine bypass valves or other reasons), the affected TSV Closure and TCV Fast Closure, Trip Oil Pressure-Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition, this SR is met and the channel considered OPERABLE.

The Frequency of 24 months has shown that channel bypass failures between successive tests are rare.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.6

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The EOC-RPT SYSTEM RESPONSE TIME acceptance criteria are included in Reference 6.

A Note to the Surveillance states that breaker interruption time may be assumed from the most recent performance of SR 3.3.4.1.7. This is allowed since the time to open the contacts after energization of the trip coil and the arc suppression time are short and do not appreciably change, due to the design of the breaker opening device and the fact that the breaker is not routinely cycled.

EOC-RPT SYSTEM RESPONSE TIME tests are conducted on an 24 month STAGGERED TEST BASIS. Each test shall include at least the logic of one type of channel input (Turbine Stop Valve Closure or Turbine Control Valve Fast Closure, Trip Oil Pressure - Low) such that both types of channel inputs are tested at least once per 48 months. Response times cannot be determined at power because operation of final actuated devices is required. Therefore, this Frequency is consistent with the typical industry refueling cycle.

SR 3.3.4.1.7

This SR ensures that the RPT breaker interruption time is provided to the EOC-RPT SYSTEM RESPONSE TIME test. Breaker Interruption time is defined as Breaker Response time plus Arc Suppression time. Breaker Response is the time from application of voltage to the trip coil until the arcing contacts separate. Arc Suppression is the time from arcing contact separation until the complete suppression of the electrical arc across the open contacts. Breaker Response shall be verified by testing to be within the manufacturer's design response time. Testing of the breaker response time verifies the design interruption time to be ≤ five cycles (83.3 ms). Breaker arc suppression shall be validated by visual observation of puffer performance and insulation testing of the breaker arc chutes. The 60 month Frequency of

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.4 (continued)

range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.4.2.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers, included as part of this Surveillance, overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel(s) would be inoperable.

The 24 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.

REFERENCES

1. USAR, Section 7.7.1.2.

2. NEDE-770-06-1, "Bases For Changes To Surveillance Test Intervals and Allowed Out-of-Service Times For Selected Instrumentation Technical Specifications," February 1991.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.1.4 and SR 3.3.5.1.5

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency of SR 3.3.5.1.4 and SR 3.3.5.1.5 is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.5.1.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.1, LCO 3.5.2, LCO 3.8.1, and LCO 3.8.2 overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage (except for Division III which can be tested in any operational condition) and the potential for unplanned transients if the Surveillance were performed with the reactor at power.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.2.4 (continued)

The Frequency is based on the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.5.2.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.3 overlaps this Surveillance to provide complete testing of the safety function.

The 24 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.

REFERENCES

1. NEDE-770-06-2, "Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.3 (continued)

Table 3.3.6.1-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of References 5 and 6.

SR 3.3.6.1.4 and SR 3.3.6.1.5

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency of SR 3.3.6.1.4 and SR 3.3.6.1.5 is based on the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.6.1.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on PCIVs in LCO 3.6.1.3 and on drywell isolation valves in LCO 3.6.5.3 overlaps this Surveillance to provide complete testing of the assumed safety function. The 24 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1.7

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. Testing is performed only on channels where the assumed response time does not correspond to the diesel generator (DG) start time. For channels assumed to respond within the DG start time, sufficient margin exists in the 10 second start time when compared to the typical channel response time (milliseconds) so as to assure adequate response without a specific measurement test. Testing of the closure times of the MSIVs is not included in this Surveillance since the closure time of the MSIVs is tested in SR 3.6.1.3.6. The instrument response times must be added to the MSIV closure times to obtain the ISOLATION SYSTEM RESPONSE TIME. ISOLATION SYSTEM RESPONSE TIME acceptance criteria for this instrumentation is included in Reference 7.

As noted the associated sensors are not required to be response time tested. Response time testing for the remaining channel components is required. This is supported by Reference 8.

ISOLATION SYSTEM RESPONSE TIME tests for this instrumentation are conducted on an 24 month STAGGERED TEST BASIS. This test Frequency is consistent with the typical industry refueling cycle.

REFERENCES

1. USAR, Section 6.3.
2. USAR, Chapter 15.
3. NEDO-31466, "Technical Specification Screening Criteria Application and Risk Assessment," November 1987.
4. USAR, Section 9.3.5.
5. NEDC-31677-P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," June 1989.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing, performed on SCIDs and the associated ventilation subsystems in LCO 3.6.4.2, LCO 3.6.4.3, LCO 3.6.4.4, LCO 3.6.4.6, and LCO 3.6.4.7, respectively, overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 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.

REFERENCES

1. USAR, Section 6.3.
2. USAR, Chapter 15.
3. NEDC-31677-P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
4. NEDC-30851-P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentations Common to RPS and ECCS Instrumentation," March 1989.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.3.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.6.1.7, "Primary Containment Unit Coolers," overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 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.

REFERENCES

1. USAR, Section 7.3.1.1.6.

2. USAR, Section 6.2.1.1.3.

3. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.4.2

The calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in SR 3.3.6.4.3. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 3.

SR 3.3.6.4.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.6.4.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed for S/RVs in LCO 3.4.4 and LCO 3.6.1.6 overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.7.1.3 (continued)

setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

The Frequency of 92 days is based on the reliability analyses of References 4, 5, and 6.

SR 3.3.7.1.4

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based on the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.7.1.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.7.3, "Control Room Fresh Air (CRFA) System," overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 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.

REFERENCES

1. USAR, Section 7.3.1.1.9.
2. USAR, Section 6.4.
3. USAR, Chapter 15.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.8.1.2 (continued)

The Frequency of 31 days is based on plant operating experience with regard to channel OPERABILITY and drift that demonstrates that failure of more than one channel of a given Function in any 31 day interval is rare.

SR 3.3.8.1.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. There is a plant specific program which verifies that the instrumentation channel functions as required by verifying that the as-left and as-found settings are consistent with those established by the setpoint methodology. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based on the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.8.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed in LCO 3.8.1 and LCO 3.8.2 overlaps this Surveillance to provide complete testing of the assumed safety functions.

The 24 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.

REFERENCES

1. USAR, Section 8.3.1.
2. USAR, Section 5.2.
3. USAR, Section 6.3.
4. USAR, Chapter 15.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1

A CHANNEL FUNCTIONAL TEST is performed on each overvoltage, undervoltage, and underfrequency (including time delay) channel to ensure that the entire channel will perform the intended function.

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).

SR 3.3.8.2.2

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.8.2.3

Performance of a system functional test demonstrates a required system actuation (simulated or actual) signal. The logic of the system will automatically trip open the associated power monitoring assembly circuit breaker. Only one signal per power monitoring assembly is required to be tested. This Surveillance overlaps with the CHANNEL CALIBRATION to provide complete testing of the safety function. The system functional test of the Class 1E circuit breakers is included as part of this test to provide complete testing of the safety function. If the breakers are incapable of operating, the associated electric power monitoring assembly would be inoperable.

The 24 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.

REFERENCES

1. USAR, Section 8.3.1.1.3.

2. NRC Generic Letter 91-09, "Modification of Surveillance Interval for the Electric Protective Assemblies in Power Supplies for the Reactor Protection System."

BASES

ACTIONS (continued)

B.1

If the FCVs are not deactivated (locked up) and 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. 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.

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1

Hydraulic power unit pilot operated isolation valves located between the servo valves and the common "open" and "close" lines are required to close in the event of a loss of hydraulic pressure. When closed, these valves inhibit FCV motion by blocking hydraulic pressure from the servo valve to the common open and close lines as well as to the alternate subloop. This Surveillance verifies FCV lockup on a loss of hydraulic pressure.

The 24 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.

SR 3.4.2.2

This SR ensures the overall average rate of FCV movement at all positions is maintained within the analyzed limits.

The 24 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

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.4.2.2 (continued) were performed with the reactor at power.
REFERENCES	1. USAR, Section 15.3.2. 2. USAR, Section 15.4.5.

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1 (continued)

lift settings must be performed during shutdown, since this is a bench test, and 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 Frequency was selected because this Surveillance must be performed during shutdown conditions and is based on the time between refuelings.

SR 3.4.4.2

The required relief function S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify the mechanical portions of the automatic relief function operate as designed when initiated either by an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.4.4 overlaps this SR to provide complete testing of the safety function.

The 24 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.

This SR is modified by a Note that excludes valve actuation. This prevents an RPV pressure blowdown.

SR 3.4.4.3

A manual actuation of each required S/RV (those valves removed and replaced to satisfy SR 3.4.4.1) is performed to verify that the valve is functioning properly. This SR can be demonstrated by one of two methods. If performed by method 1), plant startup is allowed prior to performing this test because valve OPERABILITY and the setpoints for overpressure protection are verified, per ASME requirements (Ref. 1), prior to valve installation. Therefore, this SR is modified by a note that states the surveillance is <u>not</u> required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for manual actuation after the required pressure is reached is sufficient to achieve stable conditions for testing and provides

(continued)

BASES

ACTIONS (continued)

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.

SURVEILLANCE REQUIREMENTS

SR 3.4.7.1

This SR requires the performance of a CHANNEL CHECK of the required drywell atmospheric monitoring system. The check gives reasonable confidence that the channel is operating properly. The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.

SR 3.4.7.2

This SR requires the performance of a CHANNEL FUNCTIONAL TEST of the required RCS leakage detection instrumentation. The test ensures that the monitors can perform their function in the desired manner. The test also verifies the relative accuracy of the instrumentation. The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.

SR 3.4.7.3

This SR requires the performance of a CHANNEL CALIBRATION of the required RCS leakage detection instrumentation channels. The calibration verifies the accuracy of the instrumentation, including the instruments located inside the drywell. The Frequency of 24 months is a typical refueling cycle and considers channel reliability.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.4 (continued)

The pump flow rates are verified with a pump differential pressure that is sufficient to overcome the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during LOCAs. These values may be established during pre-operational testing. The Frequency for this Surveillance is in accordance with the Inservice Testing Program requirements.

SR 3.5.1.5

The ECCS subsystems are required to actuate automatically to perform their design functions. This Surveillance test verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of HPCS, LPCS, and LPCI will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup, and actuation of all automatic valves in the flow path to their required positions. This test may be performed by means of any series of sequential, overlapping, or total system steps so that the entire system is tested. This Surveillance also ensures that the HPCS System will automatically restart on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation," overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage (except for Division III which can be tested in any operational condition) and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.5 (continued)

This SR is modified by a Note that excludes vessel injection/spray during the Surveillance. Since all active components are testable and full flow can be demonstrated by recirculation through the test line, coolant injection into the RPV is not required during the Surveillance.

SR 3.5.1.6

The ADS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to demonstrate that the mechanical portions of the ADS function (i.e., solenoids) operate as designed when initiated either by an actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.7 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

The 24 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.

This SR is modified by a Note that excludes valve actuation. This prevents an RPV pressure blowdown.

SR 3.5.1.7

A manual actuation of each required ADS valve (those valves removed and replaced to satisfy SR 3.4.4.1) is performed to verify that the valve is functioning properly. This SR can be demonstrated by one of two methods. If performed by method 1), plant startup is allowed prior to performing this test because valve OPERABILITY and the setpoints for overpressure protection are verified, per ASME requirements (Ref. 16) prior to valve installation. Therefore, this SR is modified by a note that states the surveillance is not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for manual actuation after the required pressure is reached is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. If performed by method 2), valve

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.7 (continued)

implemented by the Inservice Testing Program of Specification 5.5.6. The testing frequency required by the Inservice Testing Program is based on operating experience and valve performance. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.

SR 3.5.1.8

This SR ensures that the ECCS RESPONSE TIMES are within limits for each of the ECCS injection and spray subsystems. This SR is modified by a Note which identifies that the associated ECCS actuation instrumentation is not required to be response time tested. Response time testing of the remaining subsystem components is required. This is supported by Reference 14. Response time testing acceptance criteria are included in Reference 15.

ECCS RESPONSE TIME tests are conducted every 24 months. The 24 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Since the required reactor steam pressure must be available to perform SR 3.5.3.3 and SR 3.5.3.4, sufficient time is allowed after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time to satisfactorily perform the Surveillance is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

A 92 day Frequency for SR 3.5.3.3 is consistent with the Inservice Testing Program requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform this Surveillance under the conditions that apply just prior to or during startup from a plant outage.

SR 3.5.3.5

The RCIC System is required to actuate automatically to perform its design function. This Surveillance verifies that with a required system initiation signal (actual or simulated) the automatic initiation logic of RCIC will cause the system to operate as designed, including actuation of the system throughout its emergency operating sequence,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.5 (continued)

automatic pump startup and actuation of all automatic valves to their required positions. This Surveillance test also ensures that the RCIC System will automatically restart on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation," overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 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.

This SR is modified by a Note that excludes vessel injection during the Surveillance. Since all active components are testable and full flow can be demonstrated by recirculation through the test line, coolant injection into the RPV is not required during the Surveillance.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 33.
2. USAR, Section 5.4.6.2.
3. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCO's for ECCS Components," December 1, 1975.
4. USAR, Section 5.4.6.1

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.2.3

The air lock interlock mechanism is designed to prevent simultaneous opening of both doors in the air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident primary containment pressure (Ref. 3), closure of either door will support primary containment OPERABILITY. Thus, the interlock feature supports primary containment OPERABILITY while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous inner and outer door opening will not inadvertently occur. Due to the nature of this interlock, and given that the interlock mechanism is only challenged when the primary containment airlock door is opened, this test is only required to be performed upon entering or exiting a primary containment air lock, but is not required more frequently than once per 184 days. The 184 day Frequency is based on engineering judgment and is considered adequate in view of other administrative controls.

SR 3.6.1.2.4

A seal pneumatic system test to ensure that pressure does not decay at a rate equivalent to > 1.50 psig for a period of 24 hours from an initial pressure of 90 psig is an effective leakage rate test to verify system performance.

REFERENCES

1. USAR, Section 3.8.
2. 10 CFR 50, Appendix J, Option B.
3. USAR, Table 6.2-1.
4. USAR, 15.7.4.
5. Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.7

Automatic PCIVs close on a primary containment isolation signal to prevent leakage of radioactive material from primary containment following a DBA. This SR ensures that each automatic PCIV will actuate to its isolation position on a primary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.1.6 overlaps this SR to provide complete testing of the safety function. The 24 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.

SR 3.6.1.3.8

The use of MS-PLCS as a positive leakage barrier results in in-leakage and gradual pressure buildup within the containment. The total allowable MSIV in-leakage rate does not have radiological consequences. This surveillance ensures that the total allowable air in-leakage rate is limited such that containment pressurization does not exceed 50 percent of the design value in a 30 day period due to these sources.

The 24 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.

SR 3.6.1.3.9

This SR ensures that the leakage rate of secondary containment bypass leakage paths is less than the specified leakage rate when pressurized to $\geq P_a$, 7.6 psig. This provides assurance that the assumptions in the radiological

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1 (continued)

frequency of the required relief-mode actuator testing was developed based on the tests required by ASME OM Code (ref. 3) as implemented by the Inservice Testing Program of Specification 5.5.6. The testing frequency required by the Inservice Testing Program is based on operating experience and valve performance. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.

SR 3.6.1.6.2

The LLS designed S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify that the mechanical portions (i.e., solenoids) of the automatic LLS function operate as designed when initiated either by an actual or simulated automatic initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.4.4 overlaps this SR to provide complete testing of the safety function.

The 24 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.

This SR is modified by a Note that excludes valve actuation. This prevents a reactor pressure vessel pressure blowdown.

REFERENCES

1. GESSAR-II, Appendix 3B, Attachment A, Section 3BA.8.
2. USAR, Section 5.2.2.
3. ASME OM Code for Operation and Maintenance of Nuclear Power Plants.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.7.2

Verifying each unit cooler develops a flow rate ≥ 50,000 cfm ensures overall performance has not degraded during the cycle. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is consistent with that applied to pumps by the Inservice Testing Program.

SR 3.6.1.7.3

This SR verifies that each primary containment unit cooler actuates upon receipt of an actual or simulated automatic actuation signal throughout its' emergency operating sequence and that the pressure relief and backdraft damper in the flow path actuates to its' correct position. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.3.5 overlaps this SR to provide complete testing of the safety function. The 24 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.

REFERENCES

1. USAR, Section 6.2.1.1.3.4.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.9.1 (continued)

from the PVLCS accumulators. Due to the support system function of PVLCS for S/RV actuator air, however, the specified minimum pressure of 101 psig is required, which provides sufficient air for intermediate and long term post-LOCA S/RV actuations. This minimum air pressure alone is sufficient for PVLCS to support the OPERABILITY of these S/RV systems and is verified every 24 hours. The 24 hour Frequency is considered adequate in view of other indications available in the control room, such as alarms, to alert the operator to an abnormal PVLCS air pressure condition.

SR 3.6.1.9.2

Each PVLCS compressor is operated for ≥ 15 minutes to verify MS-PLCS OPERABILITY. The 31 day Frequency was developed considering the known reliability of the PVLCS compressor and controls, the two subsystem redundancy, and the low probability of a significant degradation of the MS-PLCS subsystem occurring between surveillances and has been shown to be acceptable through operating experience.

SR 3.6.1.9.3

A system functional test is performed to ensure that the MS-PLCS will operate through its operating sequence. The 24 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.

REFERENCES

1. USAR, Section 6.7.
2. USAR, Section 15.6.5.

BASES

ACTIONS

C.1 (continued)

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 and SR 3.6.3.2.2

These SRs verify that there are no physical problems that could affect the igniter operation. Since the igniters are mechanically passive, they are not subject to mechanical failure. The only credible failures are loss of power or burnout. The verification that each required igniter is energized is performed by circuit current versus voltage measurement of each circuit.

The Frequency of 184 days has been shown to be acceptable through operating experience because of the low failure occurrence, and provides assurance that hydrogen burn capability exists between the more rigorous 24 month Surveillances. Operating experience has shown these components usually pass the Surveillance when performed at a 184 day Frequency. Additionally, these surveillances must be performed every 92 days if four or more igniters in any division are inoperable. The 92 day Frequency was chosen, recognizing that the failure occurrence is higher than normal. Thus, decreasing the Frequency from 184 days to 92 days is a prudent measure, since only two more inoperable igniters (for a total of six) will result in an inoperable igniter division. SR 3.6.3.2.2 is modified by a Note that indicates that the Surveillance is not required to be performed until 92 days after four or more igniters in the division are discovered to be inoperable.

SR 3.6.3.2.3 and SR 3.6.3.2.4

These functional tests are performed every 24 months to verify system OPERABILITY. The current draw to develop a surface temperature of ≥ 1700°F is verified for igniters in inaccessible areas. Inaccessible areas are defined as areas that have high radiation levels during the entire refueling outage period. These areas are the heat exchanger, filter demineralizer, backwash, and holding pump rooms of the RWCU system. Additionally, the surface temperature of each accessible igniter is verified to be ≥ 1700°F to demonstrate

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.6.3.2.3 and SR 3.6.3.2.4 (continued) that a temperature sufficient for ignition is achieved. The 24 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.
REFERENCES	1. 10 CFR 50.44. 2. 10 CFR 50, Appendix A, GDC 41. 3. USAR, Section 6.2.5.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.3.1 (continued)

and 3, because these valves have never been demonstrated capable of closing during accident conditions in the drywell (Reference 3). The 92 day frequency is consistent with operating experience, the known reliability of the fan and controls, and the two redundant subsystems available.

SR 3.6.3.3.2

Verifying that each primary containment/drywell hydrogen mixing subsystem flow rate is ≥ 600 cfm ensures that each subsystem is capable of maintaining drywell hydrogen concentrations below the flammability limit. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage when the drywell boundary is not required.

REFERENCES

1. Regulatory Guide 1.7, Revision 2.
2. USAR, Section 6.2.5.
3. CR 96-0767.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.4 and SR 3.6.4.1.6

The SGT System exhausts the shield building annulus and auxiliary building atmosphere to the environment through appropriate treatment equipment. To ensure that all fission products are treated, SR 3.6.4.1.4 verifies that the SGT System will rapidly establish and maintain a pressure in the shield building annulus and auxiliary building that is less than the lowest postulated pressure external to the secondary containment boundary. This is confirmed by demonstrating that one SGT subsystem will draw down the shield building annulus and auxiliary building to ≥ 0.5 and ≥ 0.25 inches of vacuum water gauge in ≤ 18.5 and ≤ 34.5 seconds, respectively. This cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.6 demonstrates that each SGT subsystem can maintain ≥ 0.5 and ≥ 0.25 inches of vacuum water gauge for 1 hour. The 1 hour test period allows shield building annulus and auxiliary building to be in thermal equilibrium at steady state conditions. Therefore, these two tests are used to ensure the integrity of this portion of the secondary containment boundary. Since these SRs are secondary containment tests, they need not be performed with each SGT subsystem. The SGT subsystems are tested on a STAGGERED TEST BASIS, however, to ensure that in addition to the requirements of LCO 3.6.4.3, either SGT subsystem will perform this test.

REFERENCES

1. USAR, Section 15.6.5.
2. USAR, Section 15.7.4.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.2.2

Verifying that each required automatic SCID and FBID closes on an isolation signal is required to prevent leakage of radioactive material from secondary containment or fuel building following a DBA or other accidents. This SR ensures that each automatic SCID will actuate to the isolation position on a secondary containment isolation signal and that each FBID will actuate on a fuel building isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.2.5 overlaps this SR to provide complete testing of the safety function. The 24 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.

REFERENCES

1. USAR, Section 15.6.5.
2. USAR, Section 6.2.3.
3. USAR, Section 15.7.4.
4. TRM, Table 3.6.4.2-1.

BASES

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 SGT System filter tests are in accordance with Regulatory Guide 1.52 (Ref. 4). 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.

SR 3.6.4.3.4

This SR requires verification that the SGT filter cooling bypass damper can be opened and the fan started. This ensures that the ventilation mode of SGT System operation is

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.6.4.3.4 (continued) available.
REFERENCES	1. 10 CFR 50, Appendix A, GDC 41. 2. USAR, Section 6.2.3. 3. USAR, Section 15.6.5. 4. Regulatory Guide 1.52, Rev. 2.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.7.2

Operating each fuel building ventilation charcoal filtration 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 operating (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 3.6.4.7.3

This SR verifies that the required fuel building ventilation charcoal filtration filter testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The fuel building ventilation charcoal filtration filter tests are in accordance with Regulatory Guide 1.52 (Ref. 4). 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 3.6.4.7.4

This SR requires verification that each fuel building ventilation charcoal filtration 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.7.5

This SR requires verification that the fuel building ventilation charcoal filtration filter cooling bypass damper can be opened and the fan started. This ensures that the ventilation mode of Fuel Building Ventilation System operation is available.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 41.
2. USAR, Section 6.2.3.
3. USAR, Section 15.6.5.
4. Regulatory Guide 1.52, Rev. 2.

BASES

ACTIONS

A.1 (continued)

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–Operating."

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.

SURVEILLANCE REQUIREMENTS

SR 3.6.5.1.1

The seal air flask pressure is verified to be at ≥ 75 psig every 7 days to ensure that the seal system remains viable. It must be checked because it could bleed down during or following access through the personnel door. The 7 day Frequency has been shown to be acceptable through operating experience and is considered adequate in view of the other indications available to operations personnel that the seal air flask pressure is low.

SR 3.6.5.1.2

A seal pneumatic system test to ensure that pressure does not decay at a rate equivalent to > 20.0 psig for a period of 24 hours from an initial pressure of 75 psig is an effective leakage rate test to verify system performance. The 24 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.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.5.2.5 (continued)

system pressure does not decay at an unacceptable rate. The air lock seal will support drywell OPERABILITY down to a pneumatic pressure of 75 psig. Since the air lock seal air flask pressure is verified in SR 3.6.5.2.2 to be ≥ 75 psig, a decay rate ≤ 20.0 psig over 24 hours is acceptable. The 24 hour interval is based on engineering judgment, considering that there is no postulated DBA where the drywell is still pressurized 24 hours after the event. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage when the air lock OPERABILITY is not required.

REFERENCES

1. 10 CFR 50, Appendix J.
2. USAR, Chapters 6 and 15.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.5.3.4

be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable since access to these areas is typically restricted during MODES 1, 2, and 3. Therefore, the probability of misalignment of these devices, once they have been verified to be in their proper position, is low. A second Note is included to clarify that the drywell isolation valves that are open under administrative controls are not required to meet the SR during the time that the devices are open.

Verifying that the isolation time of each power operated and each automatic drywell isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analysis. The isolation time and Frequency of this SR are in accordance with the Inservice Testing Program.

SR 3.6.5.3.5

Verifying that each automatic drywell isolation valve closes on a drywell isolation signal is required to prevent bypass leakage from the drywell following a DBA. This SR ensures each automatic drywell isolation valve will actuate to its isolation position on a drywell isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.1.6 overlaps this SR to provide complete testing of the safety function. The 24 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, since isolation of penetrations would eliminate cooling water flow and disrupt the normal operation of many critical components.

SR 3.6.5.3.6

This SR ensures that the hydrogen mixing valves remain closed during Modes 1, 2, and 3, or, if open, are only open for a limited period of time over a 365 day cycle. Since

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.1.4 (continued)

those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

Isolation of the SSW subsystem to components or systems does not necessarily affect the OPERABILITY of the SSW System. As such, when all SSW pumps, valves, and piping are OPERABLE, but a branch connection off the main header is isolated, the SSW subsystem needs to be evaluated to determine if it is still OPERABLE.

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

SR 3.7.1.5

This SR verifies that the automatic isolation valves of the SSW System will automatically switch to the safety or emergency position to provide cooling water exclusively to the safety related equipment during an accident event. This is demonstrated by use of an actual or simulated initiation signal. This SR also verifies the automatic start capability of the SSW pump and cooling tower fans in each subsystem. Any series of sequential or overlapping steps which demonstrate the required function may be used to satisfy this requirement.

REFERENCES

1. Regulatory Guide 1.27, Revision 2, January 1976.
2. USAR, Section 9.2.
3. USAR, Table 9.2-15.
4. USAR, Section 6.2.1.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.2.2

This SR verifies that the required CRFA testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CRFA filter tests are in accordance with Regulatory Guide 1.52 (Ref. 5). 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 3.7.2.3

This SR verifies that each CRFA subsystem starts and operates on an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.5 overlaps this SR to provide complete testing of the safety function.

SR 3.7.2.4

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem TEDE and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. 7) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 8). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 9). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

(continued)

BASES

ACTIONS	E.1 and E.2 (continued) 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 3.7.3.1 This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the safety analysis. The SR consists of a combination of testing and calculation. The 24 month Frequency is appropriate since significant degradation of the Control Room AC System is not expected over this time period.
REFERENCES	1. USAR, Section 6.4. 2. USAR, Section 9.4.1.

BASES

ACTIONS

B.1 (continued)

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.

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

Cycling each main turbine bypass valve through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will function when required. The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions. Therefore, the Frequency is acceptable from a reliability standpoint.

SR 3.7.5.2

The Main Turbine Bypass System is required to actuate automatically to perform its design function. This SR demonstrates that, with the required system initiation signals, the valves will actuate to their required position. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and because of the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

SR 3.7.5.3

This SR ensures that the TURBINE BYPASS SYSTEM RESPONSE TIME is in compliance with the assumptions of the appropriate safety analysis. The response time limits are specified in applicable surveillance test procedures. The 24 month Frequency is based on the need to perform this Surveillance

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.7.5.3 (continued) under the conditions that apply during a unit outage and because of the potential for an unplanned transient if the Surveillance were performed with the reactor at power.
REFERENCES	1. USAR, Section 7.7.1.4. 2. USAR, Section 15.1.2.

BASES

ACTIONS

B.3.1 and B.3.2 (continued)

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 Condition Report 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

In Condition B, the remaining OPERABLE DGs and offsite circuits are adequate to supply electrical power to the onsite Class 1E distribution system. Although Condition B applies to a single inoperable DG, several Completion Times are Specified for this Condition. The first completion time applies to an inoperable Division III DG. 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. This Completion Time begins only "upon discovery of an inoperable Division III DG" and, as such, provides an exception to the normal "time zero" for beginning the allowed outage time "clock" (i.e., for beginning the clock for an inoperable Division III DG when Condition B may have already been entered for another equipment inoperability and is still in effect).

The second Completion Time (14 days) applies to an inoperable Division I or Division II DG and is risk-informed allowed out-of-service time (AOT) based on plant specific risk analysis. The extended AOT would typically be use for voluntary planned maintenance or inspections but can also be used for corrective maintenance. However, use of the extended AOT for voluntary planned maintenance should be limited to once within an operating cycle (24 months) for each DG (Division I and Division II). Additional contingencies are to be in place for any extended AOT duration (greater than 72 hours and up to 14 days) as follows:

1. An DG extended AOT will not be entered for voluntary planned maintenance purposes if severe weather conditions are expected.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.7

See SR 3.8.1.2

SR 3.8.1.8

Transfer of each 4.16 kV ESF bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit. This SR applies to Divisions 1, 2, and 3. The 24 month Frequency of the Surveillance is based on engineering judgment taking into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9

Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the DG load response characteristics and capability to reject the largest single load while maintaining a specified margin to the overspeed trip. The referenced load for DG 1A is the 917.5 kW low pressure core spray pump; for DG 1B, the 462.2 kW residual heat removal (RHR) pump; and for DG 1C the 1995 kW HPCS pump. The Standby Service Water (SSW) pump values are not used as the largest load since the SSW supplies cooling to the associated DG. If this load were to trip, it would result in the loss of the DG. As required by IEEE-308 (Ref. 13), the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower. For the River Bend Station the lower value results from the first criteria.

This SR has been modified by two Notes. The reason for Note 1 is that credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, Note 2 requires that, if synchronized to offsite power, testing be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10

This Surveillance demonstrates the DG capability to reject a full load, i.e., maximum expected accident load, without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This Surveillance ensures proper engine generator load response under the simulated test conditions. This test simulates the loss of the total connected load that the DG experiences following a full load rejection and verifies that the DG does not trip upon loss of the load. These acceptance criteria provide DG damage protection. While the DG is not expected to experience this transient during an event and continue to be available, this response ensures that the DG is not degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.

The 24 month Frequency is intended to be consistent with expected fuel cycle lengths.

This SR has been modified by a Note. The reason for the Note is that credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.11

As required by Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), this Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source. This test verifies all actions encountered from the loss of offsite power, including shedding of the Division I and II nonessential loads and energization of the emergency buses and respective loads from the DG. It further demonstrates the capability of the DG to automatically achieve the required voltage and frequency within the specified time.

The DG auto-start time of 10 seconds for DG 1A and DG 1B and 13 seconds for DG 1C is derived from requirements of the accident analysis to respond to a design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability has been achieved.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, ECCS injection valves are not desired to be stroked open, systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Frequency of 24 months takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.12 (continued)

The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with the expected fuel cycle lengths.

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations for DG 1A and DG 1B. For DG 1C, standby conditions mean that the lube oil is heated by the jacket water and continuously circulated through a portion of the system as recommended by the vendor. Engine jacket water is heated by an immersion heater and circulates through the system by natural circulation. (Note 2 is not applicable to DG1C) The reason for Note 2 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.13

This Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature)

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.13 (continued)

are bypassed on an ECCS initiation test signal and critical protective functions trip the DG to avert substantial damage to the DG unit. The non-critical trips are bypassed during DBAs and provide alarms on abnormal engine conditions. These alarms provide the operator with necessary information to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

The 24 month Frequency is based on engineering judgment, taking into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

The SR is modified by a Note. (The Note is not applicable to DG1C) The reason for the Note is that performing the Surveillance removes a required DG from service. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.14

This surveillance requires demonstration once per 24 months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours-22 hours of which is at a load

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.14 (continued)

equivalent to the continuous rating of the DG, and 2 hours of which is at a load equivalent to 110% of the continuous duty rating of the DG. An exception to the loading requirements is made for DG 1A and DG 1B. DG 1A and DG 1B are operated for 24 hours at a load greater than or equal to the maximum expected post accident load. Load carrying capability testing of the Transamerica Delaval Inc. (TDI) diesel generators (DG 1A and DG 1B) has been limited to a load less than that which corresponds to 201 psig brake mean effective pressure (BMEP). Therefore, full load testing is performed at a load ≥ 3030 kW but < 3130 kW. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience.

The 24 month Frequency takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

This Surveillance is modified by two Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. Similarly, momentary power factor transients above the limit do not invalidate the test. The reason for Note 2 is that credit may be taken for unplanned events

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.14 (continued)

that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.15

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 10 seconds for DG 1A and DG 1B and within 13 seconds for DG 1C. The time requirements are derived from the requirements of the accident analysis to respond to a design basis large break LOCA.

This SR has been modified by two Notes. Note 1 ensures that the test is performed with the diesel sufficiently hot. The requirement that the diesel has operated for at least 1 hour at full load conditions prior to performance of this Surveillance and longer if necessary to stabilize the operating temperature, is based on manufacturer recommendations for achieving hot conditions. The load band is provided to avoid routine overloading of the DG. Routine overloads may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. Momentary transients due to changing bus loads do not invalidate this test. Note 2 allows all DG starts to be preceded by an engine prelube period to minimize wear and tear on the diesel during testing.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.16

As required by Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6), this Surveillance ensures that the manual synchronization and load transfer from the respective DG to each required offsite power source can be made and that the respective DG can be returned to ready-to-load status when offsite power is restored. It also ensures that the undervoltage logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in ready-to-load status when the DG is at rated speed and voltage, the output breaker is open and can receive an auto-close signal on bus undervoltage, and the load sequence timers are reset.

Portions of the synchronization circuit are associated with the DG and portions with the respective offsite circuit. If a failure in the synchronization requirement of the Surveillance occurs, depending on the specific affected portion of the synchronization circuit, either the DG or the associated offsite circuit is declare inoperable.

The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance.

This SR is modified by a Note. (The Note is not applicable to DG1C) The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.17

Demonstration of the test mode override ensures that the DG availability under accident conditions is not compromised as the result of testing. Interlocks to the LOCA sensing circuits cause the DG to automatically reset to ready-to-load operation if an ECCS initiation signal is received during operation in the test mode. Ready-to-load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. These provisions for automatic switchover are required by IEEE-308 (Ref. 13), paragraph 6.2.6(2).

The requirement to automatically energize the emergency loads with offsite power is essentially identical to that of SR 3.8.1.13. The intent in the requirement associated with SR 3.8.1.18.b is to show that the emergency loading is not affected by the DG operation in test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The 24 month Frequency takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

This SR has been modified by a Note. (The Note is not applicable to DG1C) The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.17 (continued)

2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.18

Under accident conditions, loads are sequentially connected to the bus by the load sequencing logic. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the bus power supply due to high motor starting currents. The 10% load sequence time tolerance ensures that sufficient time exists for the bus power supply to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. (Note that this surveillance requirement pertains only to the load sequence timer itself, and not to the interposing logic which comprises the remainder of the circuit.) Reference 2 provides a summary of the automatic loading of ESF buses.

The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

This SR is modified by a Note. (The Note is not applicable to DG1C) The reason for the Note is that performing the Surveillance during these MODES would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.18 (continued)

2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.19

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

This Surveillance demonstrates the DG operation, as discussed in the Bases for SR 3.8.1.12, during a loss of offsite power actuation test signal in conjunction with an ECCS initiation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 24 months.

This SR is modified by two Notes. (Note 2 is not applicable to DG1C) The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations for DG 1A and DG 1B. For DG 1C, standby conditions mean that the lube oil is heated by the jacket water and continuously circulated through a portion of the system as recommended by the vendor. Engine jacket water is heated by an immersion heater and circulates through the system by natural circulation. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.3 (continued)

The 24 month Frequency of the Surveillance is based on engineering judgement, taking into consideration the desired unit conditions to perform the Surveillance.

SR 3.8.4.4 and SR 3.8.4.5

Visual inspection and resistance measurements of inter-cell, inter-rack, inter-tier, and terminal connections provides an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anti-corrosion material is used to ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection.

The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR, provided visible corrosion is removed during performance of this Surveillance.

The 24 month Frequency of the Surveillance is based on engineering judgement, taking into consideration the desired unit conditions to perform the Surveillance.

SR 3.8.4.6

Battery charger capability requirements are based on the design capacity of the chargers (Ref. 4). According to Regulatory Guide 1.32 (Ref. 9), the battery charger supply is required 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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.6 (continued)

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. Momentary transients that are not attributable to charger performance do not invalidate this test.

The Surveillance Frequency is acceptable, given the unit conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these 24 month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.

SR 3.8.4.7

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length correspond to the design duty cycle requirements as specified in Reference 4.

This SR is modified by two Notes. Note 1 allows the once per 60 months performance of SR 3.8.4.8 in lieu of SR 3.8.4.7. This substitution is acceptable because the battery performance test (SR 3.8.4.8) represents a more severe test of battery capacity than the battery service test (SR 3.8.4.7). Because both the battery service test and the battery performance test involve battery capacity determination, complete battery replacement invalidates the previous performance of these surveillance requirements. In addition to requiring the re-performance of both of these surveillance tests prior to declaring the battery OPERABLE, complete battery replacement also resets the 60 month time period used for substitution of the service test by the performance test. For this reason, substitution is acceptable for performance testing conducted within the first two years of service of a new battery as required by Reference 8. The reason for Note 2 is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. The Division III test may be performed in Mode 1, 2, or 3 in conjunction with HPCS system outages. Credit may be taken for unplanned events that satisfy the Surveillance. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

(continued)

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B 3.3-87	0	B 3.3-127	0	B 3.3-167	0	B 3.3-207	0
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B 3.3-94	0	B 3.3-134	0	B 3.3-174	110	B 3.3-214	123
B 3.3-95	0	B 3.3-135	0	B 3.3-175	6-5	B 3.3-215	3-3
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B 3.3-101	0	B 3.3-141	0	B 3.3-181	0	B 3.3-221	1
B 3.3-102	0	B 3.3-142	104	B 3.3-182	0	B 3.3-222	0
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B 3.4-21a	140	B 3.4-62	6-14	B 3.6-14	110	B 3.6-54	0
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B 3.4-29	0	B 3.5-7	0	B 3.6-22	110	B 3.6-62	0
B 3.4-30	0	B 3.5-8	0	B 3.6-23	0	B 3.6-63	0
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B 3.4-38	0	B 3.5-15	0	B 3.6-30	0	B 3.6-71	122
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B 3.3 INSTRUMENTATION

B 3.3.7.1 Control Room Fresh Air (CRFA) System Instrumentation

BASES

BACKGROUND

The CRFA System is designed to provide a radiologically controlled environment to ensure the habitability of the control room for the safety of control room operators under all plant conditions. Two independent CRFA subsystems are each capable of fulfilling the stated safety function. The instrumentation and controls for the CRFA System automatically initiate action to isolate and pressurize the main control room (MCR) to minimize the consequences of radioactive material in the control room environment.

In the event of a Reactor Vessel Water Level – Low Low, Level 2, Drywell Pressure – High, or Control Room Local Intake Ventilation Radiation Monitor signal, the CRFA System is automatically started in the emergency mode. A portion of the MCR return air is then recirculated through the charcoal filter, and sufficient outside air is drawn in through the local air intake and processed through the charcoal filter to keep the MCR slightly pressurized with respect to adjacent areas.

The CRFA System instrumentation has two trip systems: one trip system initiates one CRFA subsystem, while the second trip system initiates the other CRFA subsystem (Ref. 1). Each trip system receives input from the Functions listed above. The Functions are arranged as follows for each trip system. The Reactor Vessel Water Level – Low Low, Level 2 and Drywell Pressure-High are arranged together in a one-out-of-two taken twice logic. The Control Room Local Intake Ventilation Radiation Monitors are arranged in a one-out-of-one logic. The channels include electronic equipment (e.g., trip units) that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs a CRFA System initiation signal to the initiation logic.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The ability of the CRFA System to maintain the habitability of the MCR is explicitly assumed for certain accidents as discussed in the USAR safety analyses (Refs. 2 and 3). CRFA System operation ensures that the radiation exposure of control room personnel, through the duration of any one of

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

the postulated accidents, does not exceed the limits set by GDC 19 of 10 CFR 50, Appendix A and 10 CFR 50.67.

CRFA System instrumentation satisfies Criterion 3 of the NRC Policy Statement.

The OPERABILITY of the CRFA System instrumentation is dependent upon the OPERABILITY of the individual instrumentation channel Functions specified in Table 3.3.7.1-1. Each Function must have a required number of OPERABLE channels, with their setpoints within the specified Allowable Values, where appropriate. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value. The actual setpoint is calibrated consistent with applicable setpoint methodology assumptions.

Allowable Values are specified for each CRFA System Function specified in the Table. Nominal trip setpoints are specified in the setpoint calculations. These nominal setpoints are selected to ensure that the setpoints do not exceed the Allowable Value between successive CHANNEL CALIBRATIONS. Operation with a trip setpoint that is less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable.

Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (e.g., reactor vessel water level), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., trip unit) changes state. The analytic limits are derived from the limiting values of the process parameters obtained from the safety analysis. The Allowable Values are derived from the analytic limits, corrected for 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 specific Applicable Safety Analyses, LCO, and Applicability discussions are listed below on a Function by Function basis.

(continued)

BASES (continued)

APPLICABLE SAFETY ANALYSES

The PCIVs LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory and establishing the primary containment boundary during major accidents. As part of the primary containment boundary, PCIV OPERABILITY supports leak tightness of primary containment. Therefore, the safety analysis of any event requiring isolation of primary containment is applicable to this LCO.

The DBAs that result in a release of radioactive material for which the consequences are mitigated by PCIVs, are a loss of coolant accident (LOCA), a main steam line break (MSLB), and a fuel handling accident inside primary containment (Refs. 1 and 2). In the analysis for each of these accidents, it is assumed that PCIVs are either closed or function to close within the required isolation time following event initiation. This ensures that potential paths to the environment through PCIVs are minimized. Of the events analyzed in Reference 1, the LOCA is the most limiting event due to radiological consequences. It is assumed that the primary containment is isolated such that release of fission products to the environment is controlled.

PCIVs satisfy Criterion 3 of the NRC Policy Statement.

LCO

PCIVs form a part of the primary containment boundary and some also form a part of the RCPB. The PCIV safety function is related to minimizing the loss of reactor coolant activity and establishing the primary containment boundary during a DBA.

The power operated isolation valves are required to have isolation times within limits and actuate on an automatic isolation signal.

The normally closed PCIVs are considered OPERABLE when, as applicable, manual valves are closed or open in accordance with appropriate administrative controls, automatic valves are de-activated and secured in their closed position, or blind flanges are in place. The valves covered by this LCO

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.7 Primary Containment Unit Coolers

BASES

BACKGROUND

The primary containment is designed with a suppression pool so that, in the event of a loss of coolant accident (LOCA), steam released from the primary system is channeled through the suppression pool water and condensed without producing significant pressurization of the primary containment. The primary containment is designed so that with the pool initially at the minimum water volume and the worst single failure of the primary containment heat removal systems, suppression pool energy absorption combined with subsequent operator controlled pool cooling will prevent the primary containment pressure from exceeding its design value. However, the primary containment must also withstand a postulated bypass leakage pathway that allows the passage of steam from the drywell directly into the primary containment airspace, bypassing the suppression pool. The primary containment also must withstand a low energy steam release into the primary containment airspace. The primary containment unit coolers are designed to mitigate the effects of bypass leakage and low energy line breaks.

The primary containment ventilation system consists of three 100% capacity unit coolers, two of which are safety related (A and B). In conjunction with the RHR suppression pool cooling mode of operation, the containment ventilation system functions to ensure containment integrity following a LOCA by preventing containment pressures and temperatures in excess of the containment design criteria.

The coolers are sized for normal operating conditions and normally are supplied with coolant from the chilled water system. During an accident, standby service water is used for cooling water. The Primary Containment Unit Coolers are automatically initiated on high containment pressure or low reactor water level with an interlock delaying initiation for 10 minutes to minimize short-term loads on the diesel generators. The unit cooler fan stops running on negative containment-to-annulus differential pressure.

APPLICABLE SAFETY ANALYSES

Reference 1 contains the results of analyses that predict the primary containment pressure response for a LOCA with the maximum allowable bypass leakage area. The containment

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B 3.3-94	0	B 3.3-134	0	B 3.3-174	110	B 3.3-214	123
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B 3.3-97	0	B 3.3-137	0	B 3.3-177	6-5	B 3.3-217	0
B 3.3-98	0	B 3.3-138	0	B 3.3-178	6-5	B 3.3-218	0
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B 3.3-100	0	B 3.3-140	115	B 3.3-180	6-5	B 3.3-220	0
B 3.3-101	0	B 3.3-141	0	B 3.3-181	0	B 3.3-221	1
B 3.3-102	0	B 3.3-142	104	B 3.3-182	0	B 3.3-222	0
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B 3.3-117	103	B 3.3-157	115	B 3.3-197	0	B 3.4-15	0
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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

1.c, 1.d, 1.e, 2.c, 2.d, 2.e. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)

A reduced voltage condition on a 4.16 kV emergency bus indicates that while offsite power may not be completely lost to the respective emergency bus, power may be insufficient for starting large motors without risking damage to the motors that could disable the ECCS function. Therefore, power supply to the bus is transferred from offsite power to onsite DG power when the voltage on the bus drops below the Degraded Voltage Function Allowable Values (degraded voltage with a time delay). This ensures that adequate power will be available to the required equipment.

The Bus Undervoltage Allowable Values are low enough to prevent inadvertent power supply transfer, but high enough to ensure that sufficient power is available to the required equipment. To ensure an inadvertent power supply transfer does not occur, no more than three 1250 HP motors may be powered by Preferred Station Transformer RTX-XSR1D with grid voltage below the main control room Low Grid Voltage alarm setpoint. The Time Delay Allowable Values are long enough to provide time for the offsite power supply to recover to normal voltages, but short enough to ensure that sufficient power is available to the required equipment.

Three channels of Division I and II - 4.16 kV Emergency Bus Undervoltage (Degraded Voltage) Function per associated emergency bus and two channels of Division III - 4.16 kV Emergency Bus Undervoltage (Degraded Voltage) Functions per associated emergency bus are only required to be OPERABLE when the associated DG is required to be OPERABLE to ensure that no single instrument failure can preclude the DG function. Refer to LCO 3.8.1 and LCO 3.8.2 for Applicability Bases for the DGs.

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.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

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 specific Applicable Safety Analyses, LCO, and Applicability discussions are listed below on a Function by Function basis.

4.16 kV Emergency Bus Undervoltage

1.a, 1.b, 2.a, 2.b. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)

Loss of voltage on a 4.16 kV emergency bus indicates that offsite power may be completely lost to the respective emergency bus and is unable to supply sufficient power for proper operation of the applicable equipment. Therefore, the power supply to the bus is transferred from offsite power to DG power when the voltage on the bus drops below the Loss of Voltage Function Allowable Values (loss of voltage with a short time delay). This ensures that adequate power will be available to the required equipment.

The Bus Undervoltage Allowable Values are low enough to prevent inadvertent power supply transfer, but high enough to ensure power is available to the required equipment. The Time Delay Allowable Values are long enough to provide time for the offsite power supply to recover to normal voltages, but short enough to ensure that power is available to the required equipment.

Three channels of 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) Function per associated emergency bus are only required to be OPERABLE when the associated DG is required to be OPERABLE to ensure that no single instrument failure can preclude the DG function. (Four channels input to each of the three DGs.) Refer to LCO 3.8.1, "AC Sources-Operating," and LCO 3.8.2, "AC Sources-Shutdown," for Applicability Bases for the DGs.

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B 3.8-72	111	B 3.9-20	119	B 3.10-25	0		
B 3.8-73	0	B 3.9-21	115	B 3.10-26	0		
B 3.8-74	110	B 3.9-22	115	B 3.10-27	0		
B 3.8-75	115	B 3.9-23	119	B 3.10-28	0		
B 3.8-76	110	B 3.9-24	115	B 3.10-29	0		
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B 3.10 SPECIAL OPERATIONS

B 3.10.1 Inservice Leak and Hydrostatic Testing Operation

BASES

BACKGROUND

The purpose of this Special Operations LCO is to allow certain reactor coolant pressure tests to be performed in MODE 4 when the metallurgical characteristics of the reactor pressure vessel (RPV) require the pressure testing at temperatures > 200°F (normally corresponding to MODE 3), or to allow completing these reactor coolant pressure tests when the initial conditions do not require temperatures > 200°F. Furthermore, the purpose is to allow continued performance of control rod scram time testing required by SR 3.1.4.1 or SR 3.1.4.4 if reactor coolant temperatures exceed 200°F when the control rod scram time testing is initiated in conjunction with an inservice leak or hydrostatic test. These control rod scram time tests would be performed in accordance with LCO 3.10.4, "Single Control Rod Withdrawal - Cold Shutdown," during MODE 4 operation.

Inservice hydrostatic testing and system leakage pressure tests required by Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Ref. 1) are performed prior to the reactor going critical after a refueling outage. Recirculation pump operation and a water solid RPV (except for an air bubble for pressure control) are used to achieve the necessary temperatures and pressures required for these tests. The minimum temperatures (at the required pressures) allowed for these tests are determined from the RPV pressure and temperature (P/T) limits required by LCO 3.4.11, "Reactor Coolant System (RCS) Pressure and Temperature (P/T) Limits." These limits are conservatively based on the fracture toughness of the reactor vessel, taking into account anticipated vessel neutron fluence.

With increased reactor vessel fluence over time, the minimum allowable vessel temperature increases at a given pressure. Periodic updates to the RCS P/T limit curves are performed as necessary, based on the results of analyses of irradiated surveillance specimens removed from the vessel. Hydrostatic and leak testing may eventually be required with minimum reactor coolant temperatures > 200°F. However, even with required minimum reactor coolant temperatures < 200°F, maintaining RCS temperatures within a small band during the test can be impractical. Removal of heat addition from recirculation pump operation and reactor core decay heat is coarsely controlled by control rod drive hydraulic system flow and reactor water cleanup system non-regenerative heat exchanger operation. Test conditions are focused on maintaining a steady state pressure, and tightly limited temperature control poses an unnecessary burden on the operator and may not be achievable in certain instances.

The hydrostatic and/or RCS system leakage tests requires increasing pressure to approximately 1055 psig., Scram time testing required by SR 3.1.4.1 and SR 3.1.4.4 requires reactor pressures > 950 psig.

Other testing may be performed in conjunction with the allowances for inservice leak or hydrostatic tests and control rod scram time tests.

(continued)

BASES

APPLICABLE SAFETY ANALYSES	Allowing the reactor to be considered in MODE 4 when the reactor coolant temperature is > 200°F, during, or as a consequence of, hydrostatic or leak testing, or as a consequence of control rod scram time testing initiated in conjunction with an inservice leak or hydrostatic test, effectively provides an exception to MODE 3 requirements, including OPERABILITY of primary containment and the full complement of redundant Emergency Core Cooling Systems (ECCS). Since the tests are performed nearly water solid, at low decay heat values, and near MODE 4 conditions, the stored energy in the reactor core will be very low. Under these conditions, the potential for failed fuel and a subsequent increase in coolant activity above the limits of LCO 3.4.8, "Reactor Coolant System (RCS) Specific Activity," are minimized. In addition, the secondary containment will be OPERABLE, in accordance with this Special Operations LCO, and will be capable of handling any airborne radioactivity or steam leaks that could occur during the performance of hydrostatic or leak testing. The required pressure testing conditions provide adequate assurance that the consequences of a steam leak will be conservatively bounded by the consequences of the postulated main steam line break outside of primary containment described in Reference 2. Therefore, these requirements will conservatively limit radiation releases to the environment. In the event of a large primary system leak, the reactor vessel would rapidly depressurize, allowing the low pressure core cooling systems to operate. The capability of the low pressure coolant injection and low pressure core spray subsystems, as required in MODE 4 by LCO 3.5.2, "ECCS - Shutdown," would be more than adequate to keep the core flooded under this low decay heat load condition. Small system leaks would be detected by leakage inspections before significant inventory loss occurred. For the purposes of this test, the protection provided by normally required MODE 4 applicable LCOs, in addition to the secondary containment requirements required to be met by this Special Operations LCO, will ensure acceptable consequences during normal hydrostatic test conditions and during postulated accident conditions. As described in LCO 3.0.7, compliance with Special Operations LCOs is optional, and therefore, no criteria of the NRC Policy Statement apply. Special Operations LCOs provide flexibility to perform certain operations by appropriately modifying requirements of other LCOs. A discussion of the criteria satisfied for the other LCOs is provided in their respective Bases.
LCO	As described in LCO 3.0.7, compliance with this Special Operations LCO is optional. Operation at reactor coolant temperatures > 200°F, can be in accordance with Table 1.1-1 for MODE 3 operation without meeting this Special Operations LCO or its ACTIONS. This option may be required due to P/T limits, however, which require testing at temperatures

(continued)

BASES

LCO (continued)

> 200°F, while the ASME inservice test itself requires the safety/relief valves to be gagged, preventing their OPERABILITY. Additionally, even with required minimum reactor coolant temperatures < 200°F, RCS temperatures may drift above 200°F during the performance of inservice leak and hydrostatic testing or during subsequent control rod scram time testing, which is typically performed in conjunction with inservice leak and hydrostatic testing. While this Special Operations LCO is provided for inservice leak and hydrostatic testing, and for scram time testing initiated in conjunction with an inservice leak or hydrostatic test, parallel performance of other tests and inspections is not precluded.

If it is desired to perform these tests while complying with this Special Operations LCO, then the MODE 4 applicable LCOs and specified MODE 3 LCOs must be met. This Special Operations LCO allows changing Table 1.1-1 temperature limits for MODE 4 to "NA" and suspending the requirements of LCO 3.4.10, "Residual Heat Removal (RHR) Shutdown Cooling System- Cold Shutdown." The additional requirements for secondary containment LCOs to be met will provide sufficient protection for operations at reactor coolant temperatures > 200°F for the purposes of performing an inservice leak or hydrostatic test and for control rod scram time testing initiated in conjunction with an inservice leak or hydrostatic test.

This LCO allows primary containment to be open for frequent unobstructed access to perform inspections, and for outage activities on various systems to continue consistent with the MODE 4 applicable requirements.

APPLICABILITY

The MODE 4 requirements may only be modified for the performance of, or as a consequence of, inservice leak or hydrostatic tests, or as a consequence of control rod scram time testing initiated in conjunction with an inservice leak or hydrostatic test, so that these operations can be considered as in MODE 4, even though the reactor coolant temperature is > 200°F. The additional requirement for secondary containment OPERABILITY according to the imposed MODE 3 requirements provides conservatism in the response of the unit to any event that may occur. Operations in all other MODES are unaffected by this LCO.

ACTIONS

A Note has been provided to modify the ACTIONS related to inservice leak and hydrostatic testing operation. 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 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 each requirement of the

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B 3.0-4	0	B 3.1-33	6-13	B 3.3-11	1	B 3.3-48	6-13
B 3.0-5	133	B 3.1-34	6-13	B 3.3-12	0	B 3.3-49	1
B 3.0-5a	133	B 3.1-35	6-13	B 3.3-13	6-4	B 3.3-50	0
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B 3.0-11	0	B 3.1-43	143	B 3.3-21	1	B 3.3-58	0
B 3.0-12	108	B 3.1-44	143	B 3.3-22	1	B 3.3-59	143
B 3.0-13	108	B 3.1-45	115	B 3.3-23	1	B 3.3-60	0
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B 3.1-11	3-10	B 3.2-10	6-4	B 3.3-35	0	B 3.3-74	143
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B 3.1-19	1	B 3.2-18	4-8	B 3.3-39d	4-8		
B 3.1-20	0						

BASES

APPLICABLE SAFETY ANALYSES (continued)	The criteria governing the design and the specific system requirements of the Remote Shutdown System are located in 10 CFR 50, Appendix A, GDC 19 (Ref. 1). The Remote Shutdown System is considered an important contributor to reducing the risk of accidents; as such, it has been retained in the Technical Specifications (TS) as indicated in the NRC Policy Statement.
LCO	The Remote Shutdown System LCO provides the requirements for the OPERABILITY of the instrumentation and controls necessary to place and maintain the plant in MODE 3 from a location other than the control room. The instrumentation and controls required are listed in Reference 2. For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required is based on the plant licensing basis as described in the NRC unit specific Safety Evaluation Report. The controls, instrumentation, and transfer switches are those required for: • Reactor pressure vessel (RPV) pressure control; • Decay heat removal; • RPV inventory control; and • Safety support systems for the above functions, including service water, component cooling water, and onsite power. The Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the remote shutdown function are OPERABLE. In some cases the required information or control capability may be available from several alternate sources. In these cases, the Remote Shutdown System is OPERABLE as long as one channel of any of the alternate information or control sources for each Function is OPERABLE. The Remote Shutdown System instruments and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure that the instruments and control circuits will be OPERABLE if plant conditions require that the Remote Shutdown System be placed in operation.

(continued)

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B 3.6-90	6-5	B 3.6-130	2-4	B 3.7-28	143	B 3.8-36	0
B 3.6-91	115	B 3.6-131	2-4	B 3.7-29	115	B 3.8-37	115
B 3.6-92	6-5	B 3.6-132	3-4	B 3.7-30	0	B 3.8-38	110
B 3.6-93	115	B 3.6-133	3-4	B 3.7-31	115	B 3.8-39	102
B 3.6-94	143	B 3.6-134	2-8	B 3.8-1	0	B 3.8-40	102
B 3.6-95	6-5	B 3.6-135	143	B 3.8-2	5-3	B 3.8-41	3-2
B 3.6-96	0	B 3.6-136	6-2	B 3.8-3	0	B 3.8-42	0
B 3.6-97	1	B 3.6-137	2-8	B 3.8-4	133	B 3.8-43	0
B 3.6-98	0	B 3.6-138	2-8	B 3.8-5	105	B 3.8-44	0
B 3.6-99	143	B 3.6-139	2-8	B 3.8-6	0	B 3.8-45	0
B 3.6-100	143	B 3.6-140	2-8	B 3.8-7	0	B 3.8-46	0
B 3.6-101	121	B 3.6-141	2-8	B 3.8-8	143	B 3.8-47	0
B 3.6-102	121	B 3.6-142	2-8	B 3.8-8a	105	B 3.8-48	3-2
B 3.6-103	121	B 3.7-1	110	B 3.8-9	105	B 3.8-49	134
B 3.6-104	6-5	B 3.7-2	110	B 3.8-10	0	B 3.8-50	0
B 3.6-105	110	B 3.7-3	110	B 3.8-11	0	B 3.8-51	125
B 3.6-106	0	B 3.7-4	1	B 3.8-12	0	B 3.8-51a	125
B 3.6-107	6-5	B 3.7-5	1	B 3.8-13	0	B 3.8-52	125
B 3.6-108	6-5	B 3.7-6	0	B 3.8-14	127	B 3.8-52a	125
B 3.6-109	6-5	B 3.7-7	3-1	B 3.8-15	139	B 3.8-52b	148
B 3.6-110	6-5	B 3.7-8	143	B 3.8-16	102	B 3.8-53	125
B 3.6-111	6-5	B 3.7-9	0	B 3.8-17	102	B 3.8-54	125
B 3.6-112	0	B 3.7-10	132	B 3.8-18	143	B 3.8-55	143
B 3.6-113	110	B 3.7-11	132	B 3.8-19	143	B 3.8-56	143
B 3.6-114	6-5	B 3.7-12	132	B 3.8-20	143	B 3.8-57	120
B 3.6-115	143	B 3.7-12a	132	B 3.8-21	143	B 3.8-58	120
B 3.6-116	143	B 3.7-13	132	B 3.8-22	113	B 3.8-59	110
B 3.6-117	0	B 3.7-14	132	B 3.8-23	143	B 3.8-60	110
B 3.6-118	0	B 3.7-15	143	B 3.8-24	143	B 3.8-61	115
B 3.6-119	143	B 3.7-16	132	B 3.8-25	143	B 3.8-62	0
B 3.6-120	135	B 3.7-17	4-4	B 3.8-26	143	B 3.8-63	0
B 3.6-121	119	B 3.7-18	110	B 3.8-27	143	B 3.8-64	0
B 3.6-122	2-4	B 3.7-19	6-13	B 3.8-28	143	B 3.8-65	0
B 3.6-123	2-4	B 3.7-20	115	B 3.8-29	143	B 3.8-66	1
B 3.6-124	2-4	B 3.7-21	143	B 3.8-30	143	B 3.8-67	4-5
B 3.6-125	2-4	B 3.7-22	0	B 3.8-31	102	B 3.8-68	4-5
B 3.6-126	2-4	B 3.7-23	0	B 3.8-32	3-1	B 3.8-69	1
B 3.6-127	2-4	B 3.7-24	1	B 3.8-33	3-1		
B 3.6-128	143	B 3.7-25	137	B 3.8-34	110		
B 3.6-129	3-4	B 3.7-26	137	B 3.8-35	0		
		B 3.7-27	143				

BASES

ACTIONS

A.1, A.2, and A.3 (continued)

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. This action is applicable if the balance of plant non-Class 1E battery charger and Station Blackout (SBO) diesel are available, during the completion time duration, as an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. The 7 day completion time reflects a reasonable time to effect restoration of the qualified battery charger (ENB-CHGR1A or ENB-CHGR1B) to operable status.

B.1

Condition B 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

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