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August 28, 2008

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

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

File No.: G9.5

RBG-46842
RBF1-08-0113

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 November 13, 2006, and August 28, 2008. This includes TRM revisions 108 through 117.

Pursuant to RBS Technical Specification (TS) 5.5.11, revised pages for the TS Bases pages are included. The revised pages cover the changes made during the same period stated above. This includes TS Bases revisions 128 through 134

As required by 10CFR50.71(e), the below affirmation 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 David Lorfing at 225-381-4157.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 28, 2008.

Sincerely,

Jerry C. Roberts
Director – Nuclear Safety Assessment

Enclosure: Technical Requirements Manual Revision Pages
Technical Specifications Bases Revision Pages

cc: U. S. Nuclear Regulatory Commission
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(w/o enclosure)

Senior Resident Inspector
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Enclosure

River Bend Station – Unit 1
RBG-46842

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LEAKAGE PATHS

1. SECONDARY CONTAINMENT BYPASS LEAKAGE PATHS TO THE FUEL BUILDING		
PENETRATION	VALVE NO.	VALVE NO.
Containment air lock	1JRB*DRA2	
KJB-Z26	SFC-MOV119	SFC-MOV101
KJB-Z27	SFC-MOV122	SFC-MOV120 SFC-V350
KJB-Z28	SFC-MOV121	SFC-MOV139
KJB-Z29	C11-MOVF083	C11-VF122
F42-G001	F42-MOVF003	
2. DELETED		

TABLE 3.6.1.3-1 (page 2 of 6)
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	9.9	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

continued

TABLE 3.6.1.3-1 (page 4 of 6)
PRIMARY CONTAINMENT ISOLATION VALVES

SYSTEM	VALVE NUMBER[a]	PENETRATION NUMBER	VALVE GROUP[1]	MAXIMUM ISOLATION TIME (Seconds)	SECONDARY CONTAINMENT BYPASS PATH (Yes/No)
b. Manual Isolation Valves continued					
RHR A Hx V&R to Supp. Pool	1E12*MOVF073A[e][j][q]	1KJB*Z23A			No
RHR B Hx V&R to Supp. Pool	1E12*MOVF073B[e][j][q]	1KJB*Z23B			No
RHR A Min. Flow Bypass	1E12*MOVF064A[e][j][p]	1KJB*Z24A			No
LPCS Min. Flow Bypass	1E21*MOVF011[e][j][p]	1KJB*Z24A			No
Post-Acc. Sample Return	1SSR*SOV139[e][j]	1KJB*Z23B			No
RHR B Min. Flow Bypass	1E12*MOVF064B[e][j][p]	1KJB*Z24B			No
RHR C Min. Flow Bypass	1E12*MOVF064C[e][j][p]	1KJB*Z24C			No
RHR A Suction-Supp. Pool	1E12*MOVF004A[e][j]	1KJB*Z25A			No
RHR B Suction-Supp. Pool	1E12*MOVF004B[e][j]	1KJB*Z25B			No
RHR C Suction-Supp. Pool	1E12*MOVF105[e][j]	1KJB*Z25C			No
CRD Hydraulic Sys. Sup.	1C11*MOVF083[e]	1KJB*Z29			Yes
Cont. Hydrogen Purge Outlet	1CPP*MOV104[e]	1KJB*Z33			No
Cont. Hydrogen Purge Outlet	1CPP*MOV105[e]	1KJB*Z33			No
SW Supply	1SWP*MOV507A[e]	1KJB*Z52A			No
SW Supply	1SWP*MOV507B[e]	1KJB*Z52B			No
SW Return	1SWP*MOV81A[e]	1KJB*Z53A			No
SW Return	1SWP*MOV81B[e]	1KJB*Z53B			No
SW Return	1SWP*MOV503A[e]	1KJB*Z53A			No
SW Return	1SWP*MOV503B[e]	1KJB*Z53B			No
Air Sup. for Main Steam SRV	1SVV*MOV1B[e]	1KJB*Z102			No
Air Sup. for Main Steam SRV	1SVV*MOV1A[e]	1KJB*Z103			No
Cont. Hydrogen Purge Sup.	1CPP*SOV140[e]	1KJB*Z31			No
Hydrogen Sample Sup.	1CMS*SOV35D[e][r]	1KJB*Z601E			No
Hydrogen Sample Sup.	1CMS*SOV31B[e][r]	1KJB*Z601E			No
Hydrogen Sample Rtn.	1CMS*SOV35B[e][r]	1KJB*Z601F			No
Hydrogen Sample Rtn.	1CMS*SOV31D[e][r]	1KJB*Z601F			No
Hydrogen Sample Sup.	1CMS*SOV35C[e][r]	1KJB*Z605E			No
Hydrogen Sample Sup.	1CMS*SOV31A[e][r]	1KJB*Z605E			No
Hydrogen Sample Rtn.	1CMS*SOV35A[e][r]	1KJB*Z605F			No
Hydrogen Sample Rtn.	1CMS*SOV31C[e][r]	1KJB*Z605F			No
IFTS Drain Line Isol. Vlv.	1F42-MOVF003[h]	1F42*G001			Yes

continued

TABLE 3.6.1.3-1 (page 5 of 6)
PRIMARY CONTAINMENT ISOLATION VALVES

SYSTEM	VALVE NUMBER[a]	PENETRATION NUMBER	VALVE GROUP[i]	MAXIMUM ISOLATION TIME (Seconds)	SECONDARY CONTAINMENT BYPASS PATH (Yes/No)
c. Other Isolation Valves					
Feedwater Line	1B21*AOVF032A[c]	1KJB*Z3A			Yes
Feedwater Line	1B21*VF010A[b]	1KJB*Z3A			Yes
Feedwater Line	1B21*AOVF032B[c]	1KJB*Z3B			Yes
Feedwater Line	1B21*VF010B[b]	1KJB*Z3B			Yes
RWCU Disch. to Condenser	1WCS*RV144	1KJB*Z4			Yes
RWCU Backwash Disch.	1WCS*RV154	1KJB*Z5			Yes
HPCS to Reactor	1E22*AOVF005[b][c]	1KJB*Z9, 1DRB*Z10			No
Supp. Pool Pump-Back Return Line	1DFR*V181[j]	1KJB*Z11			No
Supp. Pool Pump-Back Return Line	1DFR*V182[j]	1KJB*Z11			No
HPCS Th. Relief to Supp. Pool	1E22*RVF014[j]	1KJB*Z11			No
HPCS Th. Relief to Supp. Pool	1E22*RVF035[j]	1KJB*Z11			No
HPCS Th. Relief to Supp. Pool	1E22*RVF039[j]	1KJB*Z11			No
LPCS to Reactor	1E21*AOVF006[b][c]	1KJB*Z13, 1DRB*Z14			No
RHR Shutdown Cooling Sup.	1RHS*V240	1KJB*Z20			No
LPCI C to Reactor	1E12*AOVF041C[b][c]	1KJB*Z21C, 1DRB*Z22C			No
RCIC/RHR Isolation	1E12-VF102[q]	1KJB*Z18C			No
RHR A Thermal Relief to Supp Pool	RHS-RV67A[j][q]	1KJB*Z23A			No
RHR A Hx V&R to Supp. Pool	1E12*RVF025A[j][q]	1KJB*Z23A			No
RHR A Hx V&R to Supp. Pool	1E12*RVF017A[j][q]	1KJB*Z23A			No
RHR A Hx V&R to Supp. Pool	1E12*RVF005[j][q]	1KJB*Z23A			No
LPCS Th. Relief to Supp. Pool	1E21*RVF018[j][q]	1KJB*Z23A			No
LPCS Th. Relief to Supp. Pool	1E21*RVF031[j][q]	1KJB*Z23A			No
RHR Stm Condensing Th. Relief to Supp. Pool	1E12*RVF036[j][q]	1KJB*Z23A			No
RHR B Thermal Relief to Supp Pool	RHS-67B[j][q]	1KJB*Z23B			No
RHR B Hx V&R to Supp. Pool	1E12*RVF025C[j][q]	1KJB*Z23B			No
RHR B Hx V&R to Supp. Pool	1E12*RVF025B[j][q]	1KJB*Z23B			No
RHR B Hx V&R to Supp. Pool	1E12*RVF030[j][q]	1KJB*Z23B			No
RHR B Hx V&R to Supp. Pool	1E12*RVF101[j][q]	1KJB*Z23B			No
RHR B Hx V&R to Supp. Pool	1E12*RVF017B[j][q]	1KJB*Z23B			No
SPC Disch. to RHR Th. Relief	RHS-RV66[j]	1KJB*Z24C			No
SPC Suction from RHR Th. Relief	RHS-RV65[j]	1KJB*Z25C			No
Fuel Pool C&C Disch.	1SFC*V101	1KJB*Z26			Yes
Fuel Pool C&C Suction	1SFC*V350	1KJB*Z27			Yes
Fuel Pool Purif. Suction	1SFC*V351	1KJB*Z28			Yes
CRD Hyd. Sys. Sup.	1C11*VF122	1KJB*Z29			Yes

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TR 3.3-1 (6i)	5	TR 3.3-47 (67iii)	75	TR 3.4-3 (5ii)	86
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TR 3.6-17 (36i)	77	TR 3.8-3 (15iii)	76	TR 3.11-16	5
TR 3.6-18 (40i)	100	TR 3.8-4 (19i)	5	TR 3.11-17	5
TR 3.6-19 (50i)	107	TR 3.8-5 (20i)	76	TR 3.12-1	5
TR 3.6-20 (52i)	63	TR 3.8-6 (23i)	64	TR 3.12-2	5
TR 3.6-21 (54i)	98	TR 3.8-7 (27i)	55	TR 3.12-3	77
		TR 3.8-8 (42i)	81	TR 3.12-4	77
TR 3.6-23 (59i)	5	TR 3.8-9 (42ii)	81	TR 3.12-5	59
TR 3.6-24 (61i)	18	TR 3.8-10 (42iii)	81	TR 3.12-6	41
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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)	95	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)	5	TR 3.8-17 (42x)	95	TR 5-1	87
TR 3.7-5 (8i)	90	TR 3.8-18 (42xi)	30	TR 5-2	5
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
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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	23
TR 3.7-11 (15iv)	93	TR 3.9-1 (7i)	84	TR 5-8	5
TR 3.7-12 (15v)	5	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
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REMOTE SHUTDOWN SYSTEM CONTROLS

		MINIMUM CHANNELS OPERABLE RSP1	RSP2
1.	RCIC Suction from CST MOV (1E51*MOVF010)	1	NA
2.	RCIC Injection Shutoff MOV (1E51*MOVF013)	1	NA
3.	RCIC Min. Flow to Suppression Pool MOV (1E51*MOVF019)	1	NA
4.	RCIC Test Bypass to CST MOV (1E51*MOVF022)	1	NA
5.	RCIC Gland Seal Air Compressor (1E51-C002C)	1	NA
6.	RCIC Pump Suction from Suppression Pool MOV (1E51*MOVF031)	1	NA
7.	RCIC Steam to Turbine MOV (1E51*MOVF045)	1	NA
8.	Deleted		
9.	RCIC Test Bypass to CST MOV (1E51*MOVF059)	1	NA
10.	RCIC Steam Supply Inboard Isolation MOV (1E51*MOVF063)	1	NA
11.	RCIC Steam Supply Outboard Isolation MOV (1E51*MOVF064)	1	NA
12.	RCIC Turbine Exhaust to Suppression Pool MOV (1E51*MOVF068)	1	NA
13.	RCIC Steam Line Warmup Line Isolation MOV (1E51*MOVF076)	1	NA
14.	RCIC Vacuum Breaker Outboard Isolation MOV (1E51*MOVF077)	1	NA
15.	RCIC Vacuum Breaker Inboard Isolation MOV (1E51*MOVF078)	1	NA
16.	RCIC Turbine Flow Controller (1C61*FICR001)	1	NA
17.	RCIC Turbine Trip & Throttling MOV (1E51*MOVC002)	1	NA
18.	RCIC Turbine Local Control Select Switch (1C61A-S11)	1	NA
19.	RHR Pump (1E12*PC002A, 2B, 2C)	1	2[(a)]

(continued)

(a) One per control equipment

TABLE 3.3.3.2-2 page 2 of 3
REMOTE SHUTDOWN SYSTEM CONTROLS

		MINIMUM CHANNELS OPERABLE RSP1	RSP2
20.	RHR Hx Shell Side Outlet MOV (1E12*MOVF003A, B)	1	1
21.	RHR Pump Suction MOV (1E12*MOVF004A, B; 1E12*MOVF105)	1	2[a]
22.	RHR Shutdown Cooling MOV (1E12*MOVF006A, 6B)	2[a]	NA
23.	RHR Outboard Shutdown Isolation MOV (1E12*MOVF008)	1	NA
24.	RHR Inboard Shutdown Isolation MOV (1E12*MOVF009)	1	NA
25.	RHR Hx Flow to Suppression Pool MOV (1E12*MOVF011A, B)	1	1
26.	Deleted		
27.	RHR Test Line MOV (1E12*MOVF024A, B)	1	1
28.	RHR Injection Shutoff MOV (1E12*MOVF027A, B)	1	1
29.	RHR Upper Pool Cooling Shutoff MOV (1E12*MOVF037A, B)	1	1
30.	RHR Injection MOV (1E12*MOVF042A, B, C)	1	2[a]
31.	RHR Hx Shell Side Inlet MOV (1E12*MOVF047A, B)	1	1
32.	RHR Hx Shell Side Bypass MOV (1E12*MOVF048A, B)	1	1
33.	RHR Discharge to Radwaste MOV (1E12*MOVF040)	1	NA
34.	RHR Injection MOV (1E12*MOVF053A, B)	1	1
35.	RHR Pump Minimum Flow MOV (1E12*M0VF064A, B, C)	1	2[a]
36.	RHR Hx Water Discharge MOV (1E12*MOVF068A, B)	1	1
37.	Safety Relief Valves (1B21*RVF051C, G, D)	3[a]	3[a]
38.	SSW Pump (1SWP*P2A, 2C[b], 2B, 2D)	1[b]	2[a]

(continued)

(a) One per control equipment
(b) SSW pump 1SWP*P2C is provided on panel 1EGS*PNL4C.

TABLE 3.3.3.2-2 page 3 of 3
REMOTE SHUTDOWN SYSTEM CONTROLS

		MINIMUM CHANNELS OPERABLE RSP1	RSP2
39.	Normal Service Water Isolation MOV (1SWP*MOV96A, B)	1	1
40.	SSW Cooling Tower Inlet MOV (1SWP*MOV55A, B)	1	1
41.	SSW Component Cooling Water Inlet MOV (1SWP*MOV510A, B)	1	1
42.	SSW Component Cooling Water Outlet MOV (1SWP*MOV504A, B)	1	1

OTHER REMOTE LOCATION CONTROLS

	LOCATION AND MINIMUM CHANNELS OPERABLE	
	Division I EHS-MCC16A	Division II EHS-MCC16B
SSW Cooling Tower Fans (SWP-FN1A, C, E, G, J, L, N, Q, S, U)	10[a]	
(SWP-FN1B, D, F, H, K, M, P, R, T, V)		10[a]

(a) One per control equipment

TR 3.7.8 Sealed Source Contamination

TLCO 3.7.8 Each sealed source containing radioactive material in excess of either 100 microcuries of beta and/or gamma emitting material or 10 microcuries of alpha emitting material shall be free of greater than or equal to 0.005 microcuries of removable contamination.

APPLICABILITY: At all times.

ACTIONS

NOTES

1. Separate Condition entry is allowed for each sealed source
2. The provisions of TLCO 3.0.4 are not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. With a sealed source having removable contamination in excess of the above limit	A.1 withdraw the sealed source from use	Immediately
	AND	
	A.2.1 Decontaminate and repair the sealed source	Prior to subsequent use
	OR	
	A.2.2 Dispose of the sealed source in accordance with Commission Regulations.	Not specified
	AND	
	A.3 Prepare and submit to the Commission a report of Condition entry.	5 days

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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
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TR 3.6-20 (52i)	63	TR 3.8-6 (23i)	64	TR 3.12-2	5
TR 3.6-21 (54i)	98	TR 3.8-7 (27i)	55	TR 3.12-3	77
		TR 3.8-8 (42i)	81	TR 3.12-4	77
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TR 3.6-26 (70ii)	96	TR 3.8-12 (42v)	5	TR 3.12-8	5
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TR 3.7-2 (4ii)	5	TR 3.8-15 (42viii)	95	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)	5	TR 3.8-17 (42x)	95	TR 5-1	87
TR 3.7-5 (8i)	90	TR 3.8-18 (42xi)	110	TR 5-2	5
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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	23
TR 3.7-11 (15iv)	93	TR 3.9-1 (7i)	84	TR 5-8	5
TR 3.7-12 (15v)	5	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
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PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTION DEVICES

D. Air Circuit Breakers - GE Type ARR

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

* Square D Master Pack NT/NW Breaker

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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)	35	TR 3.7-35 (15xxviii)	5	TR 3.11-13	5
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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)	76	TR 3.11-16	5
TR 3.6-18 (40i)	100	TR 3.8-4 (19i)	5	TR 3.11-17	5
TR 3.6-19 (50i)	107	TR 3.8-5 (20i)	76	TR 3.12-1	5
TR 3.6-20 (52i)	63	TR 3.8-6 (23i)	64	TR 3.12-2	5
TR 3.6-21 (54i)	98	TR 3.8-7 (27i)	55	TR 3.12-3	77
		TR 3.8-8 (42i)	81	TR 3.12-4	77
TR 3.6-23 (59i)	5	TR 3.8-9 (42ii)	81	TR 3.12-5	59
TR 3.6-24 (61i)	18	TR 3.8-10 (42iii)	81	TR 3.12-6	41
TR 3.6-25 (70i)	96	TR 3.8-11 (42iv)	81	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)	95	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)	5	TR 3.8-17 (42x)	95	TR 5-1	87
TR 3.7-5 (8i)	90	TR 3.8-18 (42xi)	111	TR 5-2	5
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	23
TR 3.7-11 (15iv)	93	TR 3.9-1 (7i)	84	TR 5-8	5
TR 3.7-12 (15v)	5	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)	54	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				

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PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTION DEVICES

D. Air Circuit Breakers - GE Type ARR

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

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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)	35	TR 3.7-35 (15xxviii)	5	TR 3.11-13	5
TR 3.6-15 (30i)	5	TR 3.8-1 (15i)	76	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)	76	TR 3.11-16	5
TR 3.6-18 (40i)	100	TR 3.8-4 (19i)	5	TR 3.11-17	5
TR 3.6-19 (50i)	107	TR 3.8-5 (20i)	76	TR 3.12-1	5
TR 3.6-20 (52i)	63	TR 3.8-6 (23i)	64	TR 3.12-2	5
TR 3.6-21 (54i)	98	TR 3.8-7 (27i)	55	TR 3.12-3	77
		TR 3.8-8 (42i)	81	TR 3.12-4	77
TR 3.6-23 (59i)	5	TR 3.8-9 (42ii)	81	TR 3.12-5	59
TR 3.6-24 (61i)	18	TR 3.8-10 (42iii)	81	TR 3.12-6	41
TR 3.6-25 (70i)	96	TR 3.8-11 (42iv)	81	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)	95	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)	5	TR 3.8-17 (42x)	95	TR 5-1	87
TR 3.7-5 (8i)	90	TR 3.8-18 (42xi)	112	TR 5-2	5
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	23
TR 3.7-11 (15iv)	93	TR 3.9-1 (7i)	84	TR 5-8	5
TR 3.7-12 (15v)	5	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)	54	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				

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

D. Air Circuit Breakers - GE Type ARR

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

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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)	35	TR 3.7-35 (15xxviii)	5	TR 3.11-13	5
TR 3.6-15 (30i)	5	TR 3.8-1 (15i)	76	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)	76	TR 3.11-16	5
TR 3.6-18 (40i)	100	TR 3.8-4 (19i)	5	TR 3.11-17	5
TR 3.6-19 (50i)	107	TR 3.8-5 (20i)	76	TR 3.12-1	5
TR 3.6-20 (52i)	63	TR 3.8-6 (23i)	64	TR 3.12-2	5
TR 3.6-21 (54i)	98	TR 3.8-7 (27i)	55	TR 3.12-3	77
		TR 3.8-8 (42i)	81	TR 3.12-4	77
TR 3.6-23 (59i)	5	TR 3.8-9 (42ii)	81	TR 3.12-5	59
TR 3.6-24 (61i)	18	TR 3.8-10 (42iii)	81	TR 3.12-6	41
TR 3.6-25 (70i)	96	TR 3.8-11 (42iv)	81	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)	95	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)	5	TR 3.8-17 (42x)	95	TR 5-1	87
TR 3.7-5 (8i)	90	TR 3.8-18 (42xi)	113	TR 5-2	5
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	23
TR 3.7-11 (15iv)	93	TR 3.9-1 (7i)	84	TR 5-8	5
TR 3.7-12 (15v)	5	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)	54	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		
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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 Master Pack 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

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iii	98	TR 3.3-30 (52iv)	5	TR 3.3-76 (77ii)	5
iv	104	TR 3.3-31 (52v)	5	TR 3.3-77 (77iii)	44
v	77	TR 3.3-32 (57i)	80	TR 3.3-78 (77iv)	44
vi	77	TR 3.3-33 (57ii)	97	TR 3.3-79 (77v)	44
TR 1-1	77	TR 3.3-34 (57iii)	40	TR 3.3-80 (77vi)	5
TR 1-2	77	TR 3.3-35 (57iv)	13	TR 3.3-81 (77vii)	5
TR 1-3	77	TR 3.3-36 (57v)	13	TR 3.3-82 (77viii)	5
TR 1-4	77	TR 3.3-37 (57vi)	87	TR 3.3-83 (77ix)	5
TR 3.0-1	77	TR 3.3-38 (57vii)	16	TR 3.3-84 (77x)	5
TR 3.0-2	5	TR 3.3-39 (57viii)	28	TR 3.3-85 (77xi)	5
TR 3.0-3	92	TR 3.3-40 (60i)	62	TR 3.3-86 (77xii)	77
TR 3.0-4	5	TR 3.3-41 (60ii)	62	TR 3.3-87 (77xiii)	5
TR 3.1-1 (10i)	5	TR 3.3-42 (61i)	62	TR 3.3-88	86
TR 3.1-2 (17i)	84	TR 3.3-43 (61ii)	98	TR 3.3-89	90
TR 3.1-3 (17ii)	90	TR 3.3-44 (65i)	9	TR 3.3-90 (40i)	103
TR 3.1-4 (25i)	5	TR 3.3-45 (67i)	72	TR 3.4-1 (4i)	5
TR 3.2-1 (6i)	74	TR 3.3-46 (67ii)	75	TR 3.4-2 (5i)	48
TR 3.3-1 (6i)	5	TR 3.3-47 (67iii)	75	TR 3.4-3 (5ii)	86
TR 3.3-2 (9i)	48	TR 3.3-48 (71i)	85	TR 3.4-4 (11i)	5
TR 3.3-3 (9ii)	72	TR 3.3-49 (71ii)	91	TR 3.4-5 (13i)	5
TR 3.3-4 (9iii)	78	TR 3.3-50 (71iii)	5	TR 3.4-6 (16i)	49
TR 3.3-5 (15i)	5	TR 3.3-51 (71iv)	38	TR 3.4-7 (16ii)	107
TR 3.3-6 (15ii)	5	TR 3.3-52 (71v)	38	TR 3.4-8 (16iii)	75
TR 3.3-7 (17i)	5	TR 3.3-53 (71vi)	77	TR 3.4-9 (19i)	5
TR 3.3-8 (17ii)	18	TR 3.3-54 (71vii)	114	TR 3.4-10 (32i)	101
TR 3.3-9 (17iii)	18	TR 3.3-55 (71viii)	5	TR 3.4-11 (32ii)	71
TR 3.3-10 (18i)	61	TR 3.3-56 (71ix)	79	TR 3.4-12 (32iii)	5
TR 3.3-11 (18ii)	86	TR 3.3-57 (71x)	5	TR 3.4-13 (33i)	5
TR 3.3-12 (24i)	5	TR 3.3-58 (71xi)	40	TR 3.4-14 (33ii)	5
TR 3.3-13 (24ii)	109	TR 3.3-59 (71xii)	5	TR 3.4-15 (33iii)	39
TR 3.3-14 (24iii)	109	TR 3.3-60 (71xiii)	40	TR 3.4-16 (33iv)	5
TR 3.3-15 (24iv)	109	TR 3.3-61 (71xiv)	40	TR 3.4-17 (33v)	5
TR 3.3-16 (28i)	78	TR 3.3-62 (71xv)	106	TR 3.5-1 (5i)	5
TR 3.3-17 (31i)	72	TR 3.3-63 (71xvi)	5	TR 3.5-2 (5ii)	5
TR 3.3-18 (37i)	5	TR 3.3-64 (71xvii)	106	TR 3.5-3 (12i)	77
TR 3.3-19 (43i)	9	TR 3.3-65 (71xviii)	67	TR 3.5-4 (12ii)	77
TR 3.3-20 (43ii)	9	TR 3.3-66 (71xix)	96	TR 3.6-1 (2i)	11
TR 3.3-21 (43iii)	9	TR 3.3-67 (71xx)	51	TR 3.6-2 (2ii)	108
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
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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)	35	TR 3.7-35 (15xxviii)	5	TR 3.11-13	5
TR 3.6-15 (30i)	5	TR 3.8-1 (15i)	76	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)	76	TR 3.11-16	5
TR 3.6-18 (40i)	100	TR 3.8-4 (19i)	5	TR 3.11-17	5
TR 3.6-19 (50i)	107	TR 3.8-5 (20i)	76	TR 3.12-1	5
TR 3.6-20 (52i)	63	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	77
		TR 3.8-8 (42i)	81	TR 3.12-4	77
TR 3.6-23 (59i)	5	TR 3.8-9 (42ii)	81	TR 3.12-5	59
TR 3.6-24 (61i)	18	TR 3.8-10 (42iii)	81	TR 3.12-6	41
TR 3.6-25 (70i)	96	TR 3.8-11 (42iv)	81	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)	95	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)	5	TR 3.8-17 (42x)	95	TR 5-1	87
TR 3.7-5 (8i)	90	TR 3.8-18 (42xi)	113	TR 5-2	5
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	23
TR 3.7-11 (15iv)	93	TR 3.9-1 (7i)	84	TR 5-8	5
TR 3.7-12 (15v)	5	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
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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)	54	TR 5-16	53
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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				

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	----------NOTE---------- During Cycle 14, it is acceptable to extend the frequency of the following TSR to 18.5 months. ---------- Perform a CHANNEL CALIBRATION. The Allowable Value shall be ≤ 52.5 inches. The Nominal Setpoint is 50.7 inches.	18 months

TR 3.8.3 Diesel Fuel Oil, Lube Oil and Starting Air

---NOTE---
The following surveillance requirements apply to Technical Specification LCO 3.8.3. Failure to meet these surveillance requirements requires evaluation of Technical Specification LCO 3.8.3 operability.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.8.3.1 through TSR 3.8.3.6 (Not Used)		
TSR 3.8.3.7	Verify for Diesel 1A and 1B that the lube oil circulating pump is operating and the lube oil sump heater and jacket water heater are OPERABLE.	24 hours
TSR 3.8.3.8	Deleted	

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iii	98	TR 3.3-30 (52iv)	5	TR 3.3-76 (77ii)	5
iv	104	TR 3.3-31 (52v)	5	TR 3.3-77 (77iii)	44
v	77	TR 3.3-32 (57i)	80	TR 3.3-78 (77iv)	44
vi	77	TR 3.3-33 (57ii)	97	TR 3.3-79 (77v)	44
TR 1-1	77	TR 3.3-34 (57iii)	40	TR 3.3-80 (77vi)	5
TR 1-2	77	TR 3.3-35 (57iv)	13	TR 3.3-81 (77vii)	5
TR 1-3	77	TR 3.3-36 (57v)	13	TR 3.3-82 (77viii)	5
TR 1-4	77	TR 3.3-37 (57vi)	87	TR 3.3-83 (77ix)	5
TR 3.0-1	115	TR 3.3-38 (57vii)	16	TR 3.3-84 (77x)	5
TR 3.0-2	115	TR 3.3-39 (57viii)	28	TR 3.3-85 (77xi)	5
TR 3.0-3	92	TR 3.3-40 (60i)	62	TR 3.3-86 (77xii)	77
TR 3.0-4	115	TR 3.3-41 (60ii)	62	TR 3.3-87 (77xiii)	5
TR 3.1-1 (10i)	5	TR 3.3-42 (61i)	62	TR 3.3-88	86
TR 3.1-2 (17i)	84	TR 3.3-43 (61ii)	98	TR 3.3-89	90
TR 3.1-3 (17ii)	90	TR 3.3-44 (65i)	9	TR 3.3-90 (40i)	103
TR 3.1-4 (25i)	5	TR 3.3-45 (67i)	72	TR 3.4-1 (4i)	5
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TR 3.3-7 (17i)	5	TR 3.3-53 (71vi)	77	TR 3.4-9 (19i)	5
TR 3.3-8 (17ii)	18	TR 3.3-54 (71vii)	114	TR 3.4-10 (32i)	101
TR 3.3-9 (17iii)	18	TR 3.3-55 (71viii)	5	TR 3.4-11 (32ii)	71
TR 3.3-10 (18i)	61	TR 3.3-56 (71ix)	79	TR 3.4-12 (32iii)	5
TR 3.3-11 (18ii)	86	TR 3.3-57 (71x)	5	TR 3.4-13 (33i)	5
TR 3.3-12 (24i)	5	TR 3.3-58 (71xi)	40	TR 3.4-14 (33ii)	5
TR 3.3-13 (24ii)	109	TR 3.3-59 (71xii)	5	TR 3.4-15 (33iii)	39
TR 3.3-14 (24iii)	109	TR 3.3-60 (71xiii)	40	TR 3.4-16 (33iv)	5
TR 3.3-15 (24iv)	109	TR 3.3-61 (71xiv)	40	TR 3.4-17 (33v)	5
TR 3.3-16 (28i)	78	TR 3.3-62 (71xv)	106	TR 3.5-1 (5i)	5
TR 3.3-17 (31i)	72	TR 3.3-63 (71xvi)	5	TR 3.5-2 (5ii)	5
TR 3.3-18 (37i)	5	TR 3.3-64 (71xvii)	106	TR 3.5-3 (12i)	77
TR 3.3-19 (43i)	9	TR 3.3-65 (71xviii)	67	TR 3.5-4 (12ii)	77
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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
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TR 3.0 APPLICABILITY

3.0 LIMITING CONDITION FOR OPERATION (TLCO) APPLICABILITY

TLCO 3.0.1 TLCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in TLCO 3.0.2.

TLCO 3.0.2 Upon discovery of a failure to meet a TLCO, the Required Actions of the associated Conditions shall be met, except as provided in TLCO 3.0.5 and TLCO 3.0.6.

If the TLCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

TLCO 3.0.3 When a Technical Requirements Manual TLCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the following actions shall be taken:

1. Implement appropriate compensatory actions as needed.
2. Verify that a required safety function is not compromised by the inoperabilities.
3. Within 7 hours, obtain duty manager approval of the compensatory actions and a plan for exiting TLCO 3.0.3.

Where corrective measures are completed that permit operation in accordance with the TLCO or ACTIONS, completion of the actions required by TLCO 3.0.3 is not required.

TLCO 3.0.3 is always applicable to Technical Requirements Manual TLCOs.

Actions to exit TLCO 3.0.3 should be pursued without delay and in a controlled manner.

TLCO 3.0.4 When an TLCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

1. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;

(continued)

3.0 TLCO APPLICABILITY (continued)

TLCO 3.0.4 (continued)

2. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or

3. When an allowance is stated in the individual value, parameter, or other Specification.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

TLCO 3.0.5 Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to TLCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

TLCO 3.0.6 When a supported system TLCO or Technical Specification LCO is not met solely due to a support system TLCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system TLCO ACTIONS are required to be entered. This is an exception to TLCO 3.0.2 for the supported system. In this event, additional evaluations and limitations may be required in accordance with Technical Specification 5.5.10, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO or TLCO in which the loss of safety function exists are required to be entered.

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 TLCO 3.0.2.

TLCO 3.0.7 (Not Used)

3.0 TSR APPLICABILITY (continued)

TSR 3.0.4	Entry into a MODE or other specified condition in the Applicability of a TLCO shall only be made when the TLCO's Surveillances have been met within their specified Frequency, except as provided by TSR 3.0.3. When a TLCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with TLCO 3.0.4. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

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iii	98	TR 3.3-30 (52iv)	116	TR 3.3-76 (77ii)	5
iv	104	TR 3.3-31 (52v)	5	TR 3.3-77 (77iii)	44
v	77	TR 3.3-32 (57i)	80	TR 3.3-78 (77iv)	44
vi	77	TR 3.3-33 (57ii)	97	TR 3.3-79 (77v)	44
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TR 1-4	77	TR 3.3-37 (57vi)	87	TR 3.3-83 (77ix)	5
TR 3.0-1	115	TR 3.3-38 (57vii)	16	TR 3.3-84 (77x)	5
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TR 3.0-3	92	TR 3.3-40 (60i)	62	TR 3.3-86 (77xii)	77
TR 3.0-4	115	TR 3.3-41 (60ii)	62	TR 3.3-87 (77xiii)	5
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TR 3.3-1 (6i)	5	TR 3.3-47 (67iii)	75	TR 3.4-3 (5ii)	86
TR 3.3-2 (9i)	48	TR 3.3-48 (71i)	85	TR 3.4-4 (11i)	5
TR 3.3-3 (9ii)	72	TR 3.3-49 (71ii)	91	TR 3.4-5 (13i)	5
TR 3.3-4 (9iii)	78	TR 3.3-50 (71iii)	5	TR 3.4-6 (16i)	49
TR 3.3-5 (15i)	5	TR 3.3-51 (71iv)	38	TR 3.4-7 (16ii)	107
TR 3.3-6 (15ii)	5	TR 3.3-52 (71v)	38	TR 3.4-8 (16iii)	75
TR 3.3-7 (17i)	5	TR 3.3-53 (71vi)	77	TR 3.4-9 (19i)	5
TR 3.3-8 (17ii)	18	TR 3.3-54 (71vii)	114	TR 3.4-10 (32i)	101
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TR 3.3-26 (47i)	9	TR 3.3-72 (71xxv)	26	TR 3.6-6 (20ii)	77
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TR 3.3.6.1 Primary Containment and Drywell Isolation Instrumentation

TLCO 3.3.6.1 The primary containment and drywell isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 1.1, 2.b, 5.b, 5.d, and 5.e AND 24 hours for Functions other than Functions 1.1, 2.b, 5.b, 5.d, and 5.e
	OR A.2 Enter Condition L for function 1.1 in MODES 1, 2 and 3.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. (not Used)		
J. (not Used)		
K. (not Used)		
L. Entry from Condition A for inoperable Main Steam Line Radiation Monitors.	L.1 Enter TLCO 3.0.3.	Immediately

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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
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TR 3.6-13 (28i)	90	TR 3.7-34 (15xxvii)	5	TR 3.11-12	5
TR 3.6-14 (28ii)	35	TR 3.7-35 (15xxviii)	5	TR 3.11-13	5
TR 3.6-15 (30i)	5	TR 3.8-1 (15i)	76	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)	76	TR 3.11-16	5
TR 3.6-18 (40i)	100	TR 3.8-4 (19i)	5	TR 3.11-17	5
TR 3.6-19 (50i)	107	TR 3.8-5 (20i)	76	TR 3.12-1	5
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TR 3.7-7 (14i)	5	TR 3.8-20 (42xiii)	5	TR 5-4	53
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TR 3.7-12 (15v)	5	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
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TR 5.2.2 Unit Staff

a. Each on duty shift shall be composed of at least minimum shift crew composition shown in Table 5.2.2-1, the health physics technician specified in Technical Specifications 5.2.2.d, and the fire brigade specified in Requirement 5.2.2.c, except as allowed in Technical Specifications 5.2.2.c, d, and Requirement 5.2.2.c. The provisions of Technical Specifications 5.2.2.c, d and Requirement 5.2.2.c allowing for unexpected absences are not to be used at shift turnover to accommodate oncoming personnel being late or absent.

b. As required by 10 CFR 50.54, all CORE ALTERATIONS shall be observed and directly supervised by either a person holding a license as a Senior Reactor Operator or Senior Reactor Operator Limited to Fuel Handling who has no other concurrent responsibilities during this operation.

c. A site fire brigade of at least five members shall be maintained on site at all times. The fire brigade shall not include the shift superintendent, the Shift Technical Advisor, the Control Room Supervisor, nor the two other members of the minimum shift crew necessary for safe shutdown of the unit and any personnel required for other essential functions during a fire emergency. Fire brigade composition may be one less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty fire brigade members provided immediate action is taken to restore the fire brigade composition to within the minimum requirements.

d. Persons performing on-shift duties as shift superintendent or Control Room Supervisor shall hold a senior reactor operator license. Persons performing on-shift duties as Nuclear Control Operators shall hold, as a minimum, a reactor operator license as specified in chapter 13 of the Updated Safety Analysis Report.

e. The objective of Technical Specification 5.2.2.e is to have operating personnel work a nominal 42-hour week while the unit is operating.

f. As required by 10 CFR 50.54 (m)(2)(iii), when a nuclear power unit is in an operational mode other than cold shutdown or refueling, as defined by the unit's technical specifications, each licensee shall have a person holding a senior operator license for the nuclear power unit in the control room at all times. In addition to this senior operator, for each fueled nuclear power unit, a licensed operator or senior operator shall be present at the controls at all times.

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B 3.4-18	0	B 3.4-58	0	B 3.6-10	2-3	B 3.6-50	6-13
B 3.4-19	109	B 3.4-59	0	B 3.6-11	2-3	B 3.6-51	110
B 3.4-20	109	B 3.4-60	0	B 3.6-12	128	B 3.6-52	110
B 3.4-21	109	B 3.4-61	6-13	B 3.6-13	6-10	B 3.6-53	0
B 3.4-21a	109	B 3.4-62	6-14	B 3.6-14	110	B 3.6-54	0
B 3.4-22	0	B 3.4-63	6-14	B 3.6-15	3-4	B 3.6-55	0
B 3.4-23	0	B 3.5-1	0	B 3.6-16	0	B 3.6-56	0
B 3.4-24	0	B 3.5-2	0	B 3.6-17	128	B 3.6-57	0
B 3.4-25	0	B 3.5-3	6-14	B 3.6-18	3-4	B 3.6-58	0
B 3.4-26	0	B 3.5-4	3-7	B 3.6-19	3-4	B 3.6-59	3-4
B 3.4-27	0	B 3.5-5	0	B 3.6-20	128	B 3.6-60	0
B 3.4-28	0	B 3.5-6	0	B 3.6-21	0	B 3.6-61	0
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
B 3.4-31	0	B 3.5-9	0	B 3.6-24	6-11	B 3.6-64	0
B 3.4-32	0	B 3.5-10	0	B 3.6-24a	6-11	B 3.6-65	0
B 3.4-33	3-4	B 3.5-11	113	B 3.6-25	126	B 3.6-66	122
B 3.4-34	0	B 3.5-12	109	B 3.6-26	3-9	B 3.6-67	122
B 3.4-35	0	B 3.5-13	109	B 3.6-27	121	B 3.6-68	122
B 3.4-36	0	B 3.5-13a	109	B 3.6-28	110	B 3.6-69	122
B 3.4-37	0	B 3.5-14	109	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	110	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	0
B 3.4-43	0	B 3.5-20	6-14	B 3.6-35	109	B 3.6-76	6-12
B 3.4-44	0	B 3.5-21	6-9	B 3.6-36	0	B 3.6-77	3-3
B 3.4-45	0	B 3.5-22	0	B 3.6-37	109	B 3.6-78	122
B 3.4-46	0	B 3.5-23	0	B 3.6-38	109	B 3.6-79	0
B 3.4-47	0	B 3.5-24	0	B 3.6-39	0	B 3.6-80	0
B 3.4-48	0	B 3.5-25	0	B 3.6-40	0	B 3.6-81	2-8
B 3.4-49	0	B 3.6-1	0	B 3.6-41	0	B 3.6-82	2-8
B 3.4-50	0	B 3.6-2	128	B 3.6-42	0	B 3.6-83	121
B 3.4-51	0	B 3.6-3	2-1	B 3.6-43	3-9	B 3.6-84	6-5
B 3.4-52	0	B 3.6-4	128	B 3.6-44	3-9	B 3.6-85	115
B 3.4-53	6-4	B 3.6-5	0	B 3.6-45	3-9	B 3.6-86	6-5
B 3.4-54	6-13	B 3.6-6	110	B 3.6-46	3-9	B 3.6-87	110
B 3.4-55	6-4	B 3.6-7	110	B 3.6-47	1	B 3.6-88	6-5
B 3.4-56	0	B 3.6-8	2-3	B 3.6-48	0	B 3.6-89	6-5
B 3.4-57	0	B 3.6-9	2-3	B 3.6-49	0		

BASES

BACKGROUND (continued)

2. SR 3.6.1.1.1 leakage rate requirements are in conformance with 10 CFR 50, Appendix J, Option B (Ref. 3), as modified by approved exemptions.

APPLICABLE SAFETY ANALYSES

The safety design basis for the primary containment is that it must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The DBA that postulates the maximum release of radioactive material within primary containment is a LOCA. In the analysis of this accident, it is assumed that primary containment is OPERABLE such that release of fission products to the environment is controlled by the rate of primary containment leakage.

Analytical methods and assumptions involving the primary containment are presented in References 1 and 2. The safety analyses assume a nonmechanistic fission product release following a DBA, which forms the basis for determination of offsite doses. The fission product release is, in turn, based on an assumed leakage rate from the primary containment. OPERABILITY of the primary containment ensures that the leakage rate assumed in the safety analyses is not exceeded.

The maximum allowable leakage rate for the primary containment (L_a) is 0.325% (Amendment #132) by weight of the containment and drywell air per 24 hours at the design basis LOCA maximum peak containment pressure (P_a) of 7.6 psig (Ref. 4).

Primary containment satisfies Criterion 3 of the NRC Policy Statement.

LCO

Primary containment OPERABILITY is maintained by limiting overall leakage to $\leq 1.0\ L_a$. During the first startup following testing in accordance with the Primary Containment Leakage Rate Testing Program (Ref. 5), the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for the Type B and Type C tests and $\leq 0.75\ L_a$ for Type A tests. Compliance with this LCO will ensure a primary containment configuration,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1.1 (continued)

test requirements of the Primary Containment Leakage Rate Testing Program (Ref. 5). Failure to meet air lock leakage testing (SR 3.6.1.2.1 and SR 3.6.1.2.4) resilient seal primary containment purge valve leakage testing (SR 3.6.1.3.5), secondary containment bypass leakage (SR 3.6.1.3.9), main steam positive leakage control system (SR 3.6.1.3.10), or hydrostatically tested valve leakage (SR 3.6.1.3.11) does not necessarily result in a failure of this SR. The impact of the failure to meet these SRs must be evaluated against the Type A, B, and C acceptance criteria of the Primary Containment Leakage Rate Testing Program. The Primary Containment overall leakage rate acceptance criteria is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ on a Maximum Pathway Leakage Rate (MXPLR) for the Type B and Type C tests and $\leq 0.75\ L_a$ for Type A tests. The MXPLR for combined Type B and C leakage is the measured leakage through the worst of the two isolation valves, unless a penetration is isolated by use of one closed and deactivated automatic valve, closed manual valve, or blind flange. In this case, the MXPLR of the isolated penetration is assumed to be the measured leakage through the isolation device. At $\leq 1.0\ L_a$ the offsite dose consequences are bounded by the assumptions of the safety analysis. The Frequency is required by the Primary Containment Leakage Testing Program.

REFERENCES

1. USAR, Section 6.2.
2. USAR, Section 15.6.5.
3. 10 CFR 50, Appendix J, Option B.
4. USAR, Section 6.2.6.
5. Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995.

BASES

ACTIONS

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

thus placing the unit in a Condition that minimizes risk. If applicable, movement of recently irradiated fuel assemblies in the primary containment must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Action must continue until OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.2.1

Maintaining primary containment air locks OPERABLE requires compliance with the leakage rate test requirements of the Primary Containment Leakage Rate Testing Program (Ref. 5). This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). Following the removal of the fuel building as a secondary containment boundary in accordance with License Amendment 113, the leakage from primary containment air lock 1JRB*DRA2 represents secondary bypass leakage limit. The secondary containment leakage limit of 580,000 cc/hr accounted for the potential leakage paths and was assumed in the Alternate Source Term (AST) LOCA Analysis (Amendment 132). This provides assurance in MODES 1, 2, and 3 that the assumptions in the radiological evaluations are met. The leakage rate of each bypass leakage path is assumed to be the maximum pathway leakage (e.g., leakage through the air lock door with the highest leakage) unless the penetration is isolated by use of (for this Specification) one closed and locked air lock door. The leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation devices (e.g., air lock door). If both air lock doors are closed, the actual leakage rate is the lesser leakage rate of the two barriers (doors). This method of quantifying maximum pathway leakage is only to be used for this SR (i.e., Appendix J, Option B, maximum pathway leakage limits used to evaluate Type A, B and C limits are to be quantified in accordance with Appendix J, Option B).

During the operational conditions of moving irradiated fuel assemblies in the primary containment, CORE ALTERATIONS, or OPDRVS,

(continued)

BASES

LCO (continued)

are listed with their associated stroke times, if applicable, in the USAR (Ref. 3). Purge valves with resilient seals, secondary containment bypass valves, MSIVs, and hydrostatically tested valves must meet additional leakage rate requirements. Other PCIV leakage rates are addressed by LCO 3.6.1.1, "Primary Containment–Operating," as Type B or C testing.

This LCO provides assurance that the PCIVs will perform their designed safety functions to minimize the loss of reactor coolant inventory, and establish the primary containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, most PCIVs are not required to be OPERABLE. Certain valves are required to be OPERABLE, however, to prevent a potential flow path (the RHR Shutdown Cooling System suction from the reactor vessel) from lowering reactor vessel level to the top of the fuel. These valves are those whose associated instrumentation is required to be OPERABLE according to LCO 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation," Function 5.b. (This does not include the valves that isolate the associated instrumentation.)

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow path(s) to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for primary containment isolation is indicated.

A second Note has been added to provide clarification that, for the purpose of this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable PCIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable PCIVs are governed by subsequent Condition entry and application of associated Required Actions.

(continued)

BASES

ACTIONS (continued)

C.1

With the secondary containment bypass leakage rate, hydrostatic leakage rate, or MSIV leakage rate not within limit, the assumptions of the safety analysis may not be met. Therefore, the leakage must be restored to within limit within 4 hours. Restoration can be accomplished by isolating the penetration that caused the limit to be exceeded by use of one closed and de-activated power operated or automatic valve, closed manual valve, or blind flange. When a penetration is isolated, the leakage rate for the isolation penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration and the relative importance to the overall containment function.

D.1, D.2, and D.3

In the event one or more primary containment purge valves are not within the purge valve leakage limits, purge valve leakage must be restored to within limits or the affected penetration must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated power operated or automatic valve, closed manual valve, and blind flange. If a purge valve with resilient seals is utilized to satisfy Required Action D.1, it must have been demonstrated to meet the leakage requirements of SR 3.6.1.3.5. The specified Completion Time is reasonable, considering that one primary containment purge valve remains closed so that a gross breach of primary containment does not exist.

In accordance with Required Action D.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that primary containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be isolated should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves

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PAGE NUMBER	REV	PAGE NUMBER	REV	PAGE NUMBER	REV	PAGE NUMBER	REV
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B 3.4-19	109	B 3.4-59	0	B 3.6-11	2-3	B 3.6-51	110
B 3.4-20	109	B 3.4-60	0	B 3.6-12	128	B 3.6-52	110
B 3.4-21	109	B 3.4-61	6-13	B 3.6-13	6-10	B 3.6-53	0
B 3.4-21a	109	B 3.4-62	6-14	B 3.6-14	110	B 3.6-54	0
B 3.4-22	0	B 3.4-63	6-14	B 3.6-15	3-4	B 3.6-55	0
B 3.4-23	0	B 3.5-1	0	B 3.6-16	0	B 3.6-56	0
B 3.4-24	0	B 3.5-2	0	B 3.6-17	128	B 3.6-57	0
B 3.4-25	0	B 3.5-3	6-14	B 3.6-18	3-4	B 3.6-58	0
B 3.4-26	0	B 3.5-4	3-7	B 3.6-19	3-4	B 3.6-59	3-4
B 3.4-27	0	B 3.5-5	0	B 3.6-20	128	B 3.6-60	0
B 3.4-28	0	B 3.5-6	0	B 3.6-21	129	B 3.6-61	0
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
B 3.4-31	0	B 3.5-9	0	B 3.6-24	6-11	B 3.6-64	0
B 3.4-32	0	B 3.5-10	0	B 3.6-24a	6-11	B 3.6-65	0
B 3.4-33	3-4	B 3.5-11	113	B 3.6-25	129	B 3.6-66	122
B 3.4-34	0	B 3.5-12	109	B 3.6-26	3-9	B 3.6-67	122
B 3.4-35	0	B 3.5-13	109	B 3.6-27	121	B 3.6-68	122
B 3.4-36	0	B 3.5-13a	109	B 3.6-28	110	B 3.6-69	122
B 3.4-37	0	B 3.5-14	109	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	110	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	0
B 3.4-43	0	B 3.5-20	6-14	B 3.6-35	109	B 3.6-76	6-12
B 3.4-44	0	B 3.5-21	6-9	B 3.6-36	0	B 3.6-77	3-3
B 3.4-45	0	B 3.5-22	0	B 3.6-37	109	B 3.6-78	122
B 3.4-46	0	B 3.5-23	0	B 3.6-38	109	B 3.6-79	0
B 3.4-47	0	B 3.5-24	0	B 3.6-39	0	B 3.6-80	0
B 3.4-48	0	B 3.5-25	0	B 3.6-40	0	B 3.6-81	2-8
B 3.4-49	0	B 3.6-1	0	B 3.6-41	0	B 3.6-82	2-8
B 3.4-50	0	B 3.6-2	128	B 3.6-42	0	B 3.6-83	121
B 3.4-51	0	B 3.6-3	2-1	B 3.6-43	3-9	B 3.6-84	6-5
B 3.4-52	0	B 3.6-4	128	B 3.6-44	3-9	B 3.6-85	115
B 3.4-53	6-4	B 3.6-5	0	B 3.6-45	3-9	B 3.6-86	6-5
B 3.4-54	6-13	B 3.6-6	110	B 3.6-46	3-9	B 3.6-87	110
B 3.4-55	6-4	B 3.6-7	110	B 3.6-47	1	B 3.6-88	6-5
B 3.4-56	0	B 3.6-8	2-3	B 3.6-48	0	B 3.6-89	6-5
B 3.4-57	0	B 3.6-9	2-3	B 3.6-49	0		

BASES

ACTIONS

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

verification that those isolation devices outside primary containment and potentially capable of being mispositioned are in the correct position. For the isolation devices inside primary containment, the time period specified as "prior to entering MODE 2 or 3, from MODE 4 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

For a primary containment purge valve with a resilient seal that is isolated in accordance with Required Action D.1, SR 3.6.1.3.5 must be performed at least once every 92 days. This provides assurance that degradation of the resilient seal is detected and confirms that the leakage rate of the primary containment purge valve does not increase during the time the penetration is isolated. Since more reliance is placed on a single valve while in this Condition, it is prudent to perform the SR more often. Therefore, a Frequency of once per 92 days was chosen and has been shown acceptable based on operating experience.

E.1 and E.2

If any Required Action and associated Completion Time cannot be met in MODE 1, 2, or 3, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

F.1 and F.2

If any Required Action and associated Completion Time cannot be met, the plant must be placed in a condition in which the LCO does not apply. Action must be immediately initiated to suspend operations with a potential for draining the reactor

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.5

The SR is modified by a Note stating that the primary containment purge valves are only required to meet leakage rate testing requirements in MODES 1, 2, and 3. If a LOCA inside primary containment occurs in these MODES, purge valve leakage must be minimized to ensure offsite radiological release is within limits. At other times pressurization concerns are not present and the purge valves are not required to meet any specific leakage criteria.

SR 3.6.1.3.6

Verifying that the full closure isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The full closure isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. The maximum closure time has been selected to contain fission products and to ensure the core is not uncovered following line breaks. The minimum closure time is consistent with the assumptions in the safety analyses to prevent pressure surges. The Frequency of this SR is in accordance with the Inservice Testing Program.

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B 3.3-81	0	B 3.3-121	0	B 3.3-161	0	B 3.3-201	115
B 3.3-82	0	B 3.3-122	0	B 3.3-162	0	B 3.3-202	0
B 3.3-83	0	B 3.3-123	4-1	B 3.3-163	0	B 3.3-203	0
B 3.3-84	0	B 3.3-124	0	B 3.3-164	0	B 3.3-204	3-4
B 3.3-85	0	B 3.3-125	2-6	B 3.3-165	0	B 3.3-205	0
B 3.3-86	0	B 3.3-126	0	B 3.3-166	0	B 3.3-206	0
B 3.3-87	0	B 3.3-127	0	B 3.3-167	0	B 3.3-207	0
B 3.3-88	0	B 3.3-128	0	B 3.3-168	0	B 3.3-208	0
B 3.3-89	0	B 3.3-129	0	B 3.3-169	0	B 3.3-209	1
B 3.3-90	0	B 3.3-130	0	B 3.3-170	110	B 3.3-210	1
B 3.3-91	0	B 3.3-131	130	B 3.3-171	6-5	B 3.3-211	1
B 3.3-92	0	B 3.3-132	0	B 3.3-172	6-5	B 3.3-212	107
B 3.3-93	0	B 3.3-133	0	B 3.3-173	6-5	B 3.3-213	0
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
B 3.3-96	6-12	B 3.3-136	0	B 3.3-176	6-5	B 3.3-216	0
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
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
B 3.3-105	0	B 3.3-145	2-6	B 3.3-185	0	B 3.4-3	114
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B 3.3-111	0	B 3.3-151	0	B 3.3-191	0	B 3.4-9	0
B 3.3-112	0	B 3.3-152	0	B 3.3-192	0	B 3.4-10	0
B 3.3-113	0	B 3.3-153	116	B 3.3-193	0	B 3.4-11	0
B 3.3-114	0	B 3.3-154	0	B 3.3-194	0	B 3.4-12	0
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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 3.3-118	0	B 3.3-158	115	B 3.3-198	3-4	B 3.4-16	6-7
B 3.3-119	0	B 3.3-159	0	B 3.3-199	0	B 3.4-17	1

BASES (continued)

SURVEILLANCE REQUIREMENTS

As noted in the beginning of the SRs, the SRs for each RCIC System instrumentation Function are found in the SRs column of Table 3.3.5.2-1.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 5; and (b) for up to 6 hours for Functions 1, 3, and 4 provided the associated Function maintains initiation capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 1) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the RCIC will initiate when necessary.

SR 3.3.5.2.1

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

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

(continued)

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B 3.3-80	0	B 3.3-120	113	B 3.3-160	104	B 3.3-200	0
B 3.3-81	0	B 3.3-121	0	B 3.3-161	0	B 3.3-201	115
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B 3.3-83	0	B 3.3-123	4-1	B 3.3-163	0	B 3.3-203	0
B 3.3-84	0	B 3.3-124	0	B 3.3-164	0	B 3.3-204	3-4
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B 3.3-86	131	B 3.3-126	0	B 3.3-166	0	B 3.3-206	0
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 3.3-93	0	B 3.3-133	0	B 3.3-173	6-5	B 3.3-213	0
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
B 3.3-96	6-12	B 3.3-136	0	B 3.3-176	6-5	B 3.3-216	0
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
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
B 3.3-105	0	B 3.3-145	2-6	B 3.3-185	0	B 3.4-3	114
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B 3.3-107	0	B 3.3-147	0	B 3.3-187	0	B 3.4-5	112
B 3.3-108	0	B 3.3-148	109	B 3.3-188	0	B 3.4-6	4-8
B 3.3-109	0	B 3.3-149	0	B 3.3-189	0	B 3.4-7	4-8
B 3.3-110	0	B 3.3-150	109	B 3.3-190	0	B 3.4-8	4-8
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B 3.3-112	0	B 3.3-152	0	B 3.3-192	0	B 3.4-10	0
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B 3.3-115	0	B 3.3-155	0	B 3.3-195	0	B 3.4-13	0
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B 3.3-118	0	B 3.3-158	115	B 3.3-198	3-4	B 3.4-16	6-7
B 3.3-119	0	B 3.3-159	0	B 3.3-199	0	B 3.4-17	1

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, "ECC-Operating."

Low Pressure Core Spray System

The LPCS System may be initiated by 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)

BASES

BACKGROUND Low Pressure Core Spray System (continued)

low enough that pump overheating may occur, the minimum flow return line valve is opened. The valve is automatically closed if flow is above the minimum flow setpoint to allow the full system flow assumed in the accident analysis.

The LPCS System also monitors the pressure in the reactor vessel to ensure that, before the injection valve opens, the reactor pressure has fallen to a value below the LPCS System's maximum design pressure. The variable is monitored by four redundant transmitters, which are, in turn, connected to trip units. The outputs of the trip units are connected to relays whose contacts are arranged in a one-out-of-two taken twice logic.

Low Pressure Coolant Injection Subsystems

The LPCI is an operating mode of the Residual Heat Removal (RHR) System, with three LPCI subsystems. The LPCI subsystems may be initiated by 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 per Division, which are, in turn, connected to two trip units. The outputs of the four Division 2 LPCI (loops B and C) 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 Division 1 LPCI (loop A) receives its initiation signal from the LPCS logic, which uses a similar one-out-of-two taken twice logic. The two Divisions can also be initiated by use of a manual push button (one per Division). Once an initiation signal is received by the LPCI control circuitry, the signal is sealed in until manually reset.

Upon receipt of an initiation signal, the LPCI Pump C is started after an approximate 2 second delay when power is available while LPCI A and LPCI B pumps are started after an approximate 7 second delay, to limit the loading on the standby power sources.

Each LPCI subsystem's discharge flow is monitored by a flow transmitter. When a pump is running and discharge flow is low enough that pump overheating may occur, the respective

(continued)

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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
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B 3.6-97	1	B 3.6-137	2-8	B 3.8-4	0	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	0	B 3.6-139	2-8	B 3.8-6	0	B 3.8-45	0
B 3.6-100	0	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	105	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	3-2
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	102	B 3.8-52b	125
B 3.6-110	6-5	B 3.7-8	1	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	127	B 3.8-55	0
B 3.6-113	110	B 3.7-11	132	B 3.8-19	117	B 3.8-56	120
B 3.6-114	6-5	B 3.7-12	132	B 3.8-20	117	B 3.8-57	120
B 3.6-115	0	B 3.7-12a	132	B 3.8-21	102	B 3.8-58	120
B 3.6-116	0	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	113	B 3.8-60	110
B 3.6-118	0	B 3.7-15	132	B 3.8-24	113	B 3.8-61	115
B 3.6-119	110	B 3.7-16	132	B 3.8-25	102	B 3.8-62	0
B 3.6-120	121	B 3.7-17	4-4	B 3.8-26	102	B 3.8-63	0
B 3.6-121	119	B 3.7-18	110	B 3.8-27	113	B 3.8-64	0
B 3.6-122	2-4	B 3.7-19	6-13	B 3.8-28	113	B 3.8-65	0
B 3.6-123	2-4	B 3.7-20	115	B 3.8-29	113	B 3.8-66	1
B 3.6-124	2-4	B 3.7-21	6-13	B 3.8-30	113	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	110	B 3.7-25	6-14	B 3.8-34	110		
B 3.6-129	3-4	B 3.7-26	6-7	B 3.8-35	0		
		B 3.7-27	0				

B 3.7 PLANT SYSTEMS

B 3.7.2 Control Room Fresh Air (CRFA) System

BASES

BACKGROUND

The CRFA System provides a protected environment from which occupants can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke.

The safety related function of the CRFA System used to control radiation exposure consists of two independent and redundant high efficiency air filtration subsystems for treatment of recirculated air or outside supply air and a CRE boundary that limits the inleakage of unfiltered air. Each CRFA subsystem consists of a demister, an electric heater, a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section, a second HEPA filter, a fan, and the associated ductwork valves or dampers, doors, barriers, and instrumentation. Demisters remove water droplets from the airstream. Prefilters and HEPA filters remove particulate matter which may be radioactive. The charcoal adsorbers provide a holdup period for gaseous iodine, allowing time for decay.

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected for normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations, and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

In addition to the safety related standby emergency filtration function, parts of the CRFA System are operated to maintain the CRE environment during normal operation. Upon receipt of the initiation signal(s) (indicative of conditions that could result in radiation exposure to CRE occupants, the CRFA System automatically switches to the isolation mode of operation to minimize infiltration of contaminated air into the CRE. A system of dampers isolates the CRE, and CRE air flow is recirculated and processed through either of the two filter subsystems.

The CRFA System is designed to maintain a habitable environment in the CRE for a 30 day continuous occupancy after a DBA, per the requirements of GDC 19 and 10CFR50.67. CRFA System operation in maintaining the CRE habitability is discussed in the USAR, Sections 6.4.1 and 9.4.1 (Refs. 1 and 2, respectively).

APPLICABLE SAFETY ANALYSES

The ability of the CRFA System to maintain the habitability of the CRE is an explicit assumption for the safety analyses presented in the USAR, Chapters 6

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

and 15 (Refs. 3 and 4, respectively). The isolation mode of the CRFA System is assumed to operate following a DBA. The radiological doses to CRE occupants as a result of the various DBAs are summarized in Reference 4. No single active or passive failure will cause the loss of outside or recirculated air from the CRE.

The CRFA System provides protection from smoke and hazardous chemicals to the CRE occupants. The analysis of hazardous chemical releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release (Ref. 5). The evaluation of a smoke challenge demonstrates that it will not result in the inability of the CRE occupants to control the reactor either from the control room or from the remote shutdown panels (Ref. 6).

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

LCO

Two redundant subsystems of the CRFA System are required to be OPERABLE to ensure that at least one is available, if a single active failure disables the other subsystem. Total CRFA system failure, such as from a loss of both ventilation subsystems or from an inoperable CRE boundary, could result in a failure to meet the dose requirements of GDC 19 and 10CFR50.67 in the event of a DBA.

Each CRFA subsystem is considered OPERABLE when the individual components necessary to limit CRE occupant exposure are OPERABLE. A subsystem is considered OPERABLE when its associated:

a. Fan is OPERABLE;

b. HEPA filter and charcoal adsorber are not excessively restricting flow and are capable of performing their filtration functions; and

c. Heater, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

In order for the CRFA subsystems to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke.

The LCO is modified by a Note allowing the CRE boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated.

(continued)

BASES

APPLICABILITY

In MODES 1, 2, and 3, the CRFA System must be OPERABLE to ensure that the CRE will remain habitable during and following a DBA, since the DBA could lead to a fission product release.

In MODES 4 and 5, the probability and consequences of a DBA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the CRFA System

OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:

a. During operations with a potential for draining the reactor vessel (OPDRVs); and

b. During the movement of recently irradiated fuel assemblies in the primary containment or fuel building.

ACTIONS

A.1

With one CRFA subsystem inoperable for reasons other than an inoperable CRE boundary, the inoperable CRFA subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE CRFA subsystem is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE subsystem could result in loss of CRFA System function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

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

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem TEDE), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for

(continued)

BASES

ACTIONS (continued)

implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

C.1 and C.2

In MODE 1, 2, or 3, if the inoperable CRFA subsystem or the CRE boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1, D.2.1, and D.2.2

The Required Actions of Condition D are modified by a Note indicating that LCO 3.0.3 does not apply. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the

(continued)

BASES

ACTIONS

D.1, D.2.1, and D.2.2 (continued)

fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of recently irradiated fuel assemblies in the primary containment or fuel building or during OPDRVs, if the inoperable CRFA subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CRFA subsystem may be placed in the emergency mode. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent automatic actuation will occur, and that any active failure will be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk.

If applicable, movement of recently irradiated fuel assemblies in the primary containment or fuel building must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

E.1

If both CRFA subsystems are inoperable in MODE 1, 2, or 3, for reasons other than an inoperable CRE, the CRFA System may not be capable of performing the intended function and the unit is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

(continued)

BASES

ACTIONS (continued)

F.1 and F.2

During movement of recently irradiated fuel assemblies in the primary containment or fuel building or during OPDRVs, with two CRFA subsystems inoperable, or with one or more CRFA subsystems inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk.

If applicable, movement of recently irradiated fuel assemblies in the primary containment and fuel building must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. If applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that a subsystem in a standby mode starts on demand from the control room and continues to operate with flow through the HEPA filters and charcoal adsorbers. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem once every month provides an adequate check on this system. Monthly heater operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. Systems with heaters must be operated for $\geq$ 10 continuous hours with the heaters energized to demonstrate the function of the system. Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.

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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. While this Surveillance can be performed with the reactor at power, operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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 (continued)

REFERENCES

1. USAR, Section 6.4.1.
2. USAR, Section 9.4.1.
3. USAR, Chapter 6.
4. USAR, Chapter 15.
5. USAR, Chapter 6.4
6. USAR, Chapter 9.5
7. Regulatory Guide 1.196
8. NEI 99-03, "Control Room Habitability Assessment," June 2001
9. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).
10. 10CFR50.67.

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LCO 3.0.3 (continued)

assemblies in the associated fuel storage pool." Therefore, this LCO can be applicable in any or all MODES. If the LCO and the Required Actions of LCO 3.7.6 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.6 of "Suspend movement of irradiated fuel assemblies in the associated fuel storage pool(s)" is the appropriate Required Action to complete in lieu of the actions of LCO 3.0.3. These exceptions are addressed in the individual Specifications.

LCO 3.0.4

LCO 3.0.4 establishes limitations on changes in MODES or other specified conditions in the Applicability when an LCO is not met. It allows placing the unit in a MODE or other specified condition stated in that Applicability (e.g., the Applicability desired to be entered) when unit conditions are such that the requirements of the LCO would not be met, in accordance with LCO 3.0.4.a, LCO 3.0.4.b, or LCO 3.0.4.c.

LCO 3.0.4.a allows entry into a MODE or other specified condition in the Applicability with the LCO not met when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. Compliance with Required Actions that permit continued operation of the unit for an unlimited period of time in a MODE or other specified condition provides an acceptable level of safety for continued operation. This is without regard to the status of the unit before or after the MODE change. Therefore, in such cases, entry into a MODE or other specified condition in the Applicability may be made in accordance with the provisions of the Required Actions.

LCO 3.0.4.b allows entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the applicability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate.

BASES

The risk assessment may use quantitative, qualitative, or blended approaches, and the risk assessment will be conducted using the plant program, procedures, and criteria in place to implement 10CFR50.65 (a)(4), which requires that risk impacts of maintenance activities to be assessed and managed. The risk assessment, for the purposes of LCO 3.0.4 (b), must take into account all inoperable Technical Specification equipment regardless of whether the equipment is included in the normal 10CFR50.65 (a)(4) risk assessment scope. The risk assessments will be conducted using the procedures and guidance endorsed by Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." Regulatory Guide 1.182 endorses the guidance in Section 11 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." These documents address general guidance for conduct of the risk assessment, quantitative and qualitative guidelines for establishing risk management actions, and example risk management actions. These include actions to plan and conduct other activities in a manner that controls overall risk, increased risk awareness by shift and management personnel, actions to reduce the duration of the condition, actions to minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures), and determination that the proposed MODE change is acceptable. Consideration should also be given to the probability of completing restoration such that the requirements of the LCO would be met prior to the expiration of ACTIONS Completion Times that would require exiting the Applicability.

LCO 3.0.4.b may be used with single, or multiple systems and components unavailable. NUMARC 93-01 provides guidance relative to consideration of simultaneous unavailability of multiple systems and components.

The results of the risk assessment shall be considered in determining the acceptability of entering the MODE or other specified condition in the Applicability, and any corresponding risk management actions. The LCO 3.0.4.b risk assessments do not have to be documented.

The Technical Specifications allow continued operation with equipment unavailable in MODE 1 for the duration of the Completion Time. Since this is allowable, and since in general the risk impact in that particular MODE bounds the risk of transitioning into and through the applicable MODES or other specified conditions in the Applicability of the LCO, the use of the LCO 3.0.4.b allowance should be generally acceptable, as long as the risk is assessed and managed as stated above. However, there is a small subset of systems and components that have been determined to be more important to risk and use of the LCO 3.0.4.b allowance is prohibited. The LCOs governing these systems and components contain Notes prohibiting the use of LCO 3.0.4.b by stating that LCO 3.0.4.b is not applicable.

BASES

LCO 3.0.4.c allows entry into a MODE or other specified condition in the Applicability with the LCO not met based on a Note in the Specification which states LCO 3.0.4.c is applicable. These specific allowances permit entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for continued operation for an unlimited period of time and a risk assessment has not been performed. This allowance may apply to all the ACTIONS or to a specific Required Action of a Specification. The risk assessments performed to justify the use of LCO 3.0.4.b usually only consider systems and components. For this reason, LCO 3.0.4.c is typically applied to Specifications which describe values and parameters (e.g., RCS Specific Activity), and may be applied to other Specifications based on NRC plant-specific approval.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

The provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the

(continued)

BASES

LCO 3.0.4 (continued)

provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, and MODE 3 to MODE 4.

Upon entry into a MODE or other specified condition in the Applicability with the LCO not met, LCO 3.0.1 and LCO 3.0.2 require entry into the applicable Conditions and Required Actions until the Condition is resolved, until the LCO is met, or until the unit is not within the Applicability of the Technical Specification.

Surveillances do not have to be performed on the associated inoperable equipment (or on variables outside the specified limits), as permitted by SR 3.0.1. Therefore, utilizing LCO 3.0.4 is not a violation of SR 3.0.1 or SR 3.0.4 for any Surveillances that have not been performed on inoperable equipment. However, SRs must be met to ensure OPERABILITY prior to declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected LCO.

LCO 3.0.5

LCO 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of SRs to demonstrate:

a. The OPERABILITY of the equipment being returned to service; or

b. The OPERABILITY of other equipment.

(continued)

BASES

SR 3.0.3 (continued)

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a MODE or other specified condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into MODES or other specified conditions in the Applicability for which these systems and components ensure safe operation of the unit. The provisions of this specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

A provision is included to allow entry into a MODE or other specified condition in the Applicability when an LCO is not met due to Surveillance not being met in accordance with LCO 3.0.4.

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a MODE change or other specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated SR(s) are not required to be performed, per SR 3.0.1, which states that surveillances do not have to be performed on inoperable equipment. When equipment is inoperable, SR 3.0.4 does not apply to the associated SR(s) since the requirement for the SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in an SR 3.0.4 restriction to changing MODES or other specified conditions of the Applicability. However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to MODE or other specified condition changes. SR 3.0.4 does not restrict changing MODES or other specified conditions of the Applicability when a Surveillance has not been performed within the specified Frequency, provided the requirement to declare the LCO not met has been delayed in accordance with SR 3.0.3.

The provisions of SR 3.0.4 shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, and MODE 3 to MODE 4.

(continued)

BASES

SR 3.0.4 (continued)

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the MODE or other specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO's Applicability, would have its Frequency specified such that it is not "due" until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been reached. Further discussion of the specific formats of SRs' annotation is found in Section 1.4, Frequency.

BASES

LCO

12. Penetration Flow Path, Automatic Primary Containment Isolation Valve (PCIV) Position (continued)

two total channels of PCIV position indication for a penetration flow path with two automatic valves. For containment penetrations with only one automatic PCIV having control room indication, Note (c) requires a single channel of valve position indication to be OPERABLE. This is sufficient to verify redundantly the isolation status of each isolable penetration via indicated status of the automatic valve and, as applicable, prior knowledge of passive valve or system boundary status. If a penetration is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured, position indication for the PCIV(s) in the associated penetration flow path is not needed to determine status. Therefore, the position indication for valves in an isolated penetration is not required to be OPERABLE.

The PCIV position PAM instrumentation consists of individual position indication (open - closed) in the control room for each automatic containment isolation valve as described in USAR Section 7.5 (Reference 3). Automatic PCIVs are listed in Technical Requirements Manual, Table TR 3.6.1.3-1 (Reference 4).

APPLICABILITY

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

(continued)

BASES

ACTIONS

A Note has been provided to modify the ACTIONS related to PAM instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable PAM instrumentation channels provide appropriate compensatory measures for separate inoperable functions. As such, a Note has been provided that allows separate Condition entry for each inoperable PAM Function.

A.1

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

B.1

If a channel has not been restored to OPERABLE status in 30 days, this Required Action specifies initiation of actions to prepare and submit a Special Report to the NRC. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative actions. The Special Report shall be submitted in accordance with 10 CFR 50.4 within 14 days of entering Condition B. This Action is appropriate in lieu of a shutdown requirement since alternative Actions are identified before loss of functional capability, and given the likelihood of plant conditions that would require information provided by this instrumentation.

(continued)

BASES

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1 and 2. This is required so that the plant can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODES 3, 4, and 5. In these MODES, the plant is already subcritical and in a condition of reduced Reactor Coolant System energy. Under these conditions, considerable time is available to restore necessary instrument control Functions if control room instruments or control becomes unavailable. Consequently, the TS do not require OPERABILITY in MODES 3, 4, and 5.

ACTIONS

Note A has been provided to modify the ACTIONS related to Remote Shutdown System Functions. 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 Remote Shutdown System Functions provide appropriate compensatory measures for separate Functions. As such, a Note has been provided that allows separate Condition entry for each inoperable Remote Shutdown System Function.

A.1

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System is inoperable. This includes the control and transfer switches for any required Function.

(continued)

BASES (continued)

ACTIONS

A.1

With the drywell or pedestal floor drain sump monitoring system inoperable, no other form of sampling can provide the equivalent information to quantify leakage. However, the drywell atmospheric activity monitor and the drywell air cooler condensate flow rate monitor will provide indications of changes in leakage.

With the drywell or pedestal floor drain sump monitoring system inoperable, but with RCS unidentified and total LEAKAGE being determined every 12 hours (SR 3.4.5.1), operation may continue for 30 days. The 30 day Completion Time of Required Action A.1 is acceptable, based on operating experience, considering the multiple forms of leakage detection that are still available.

B.1

With both gaseous and particulate drywell atmospheric monitoring channels inoperable, grab samples of the drywell atmosphere shall be taken and analyzed to provide periodic leakage information. Provided a sample is obtained and analyzed every 24 hours, the plant may continue operation since at least one other form of drywell leakage detection (i.e., air cooler condensate flow rate monitor) is available.

The 24 hour interval provides periodic information that is adequate to detect LEAKAGE.

C.1

With the required drywell air cooler condensate flow rate monitoring system inoperable, SR 3.4.7.1 is performed every 8 hours to provide periodic information of activity in the drywell at a more frequent interval than the routine Frequency of SR 3.4.7.1. The 8 hour interval provides

(continued)

BASES

ACTIONS

C.1 (continued)

periodic information that is adequate to detect LEAKAGE and recognizes that other forms of leakage detection are available. However, this Required Action is modified by a Note that allows this action to be not applicable if the required drywell atmospheric monitoring system is inoperable. Consistent with SR 3.0.1, Surveillances are not required to be performed on inoperable equipment.

D.1 and D.2

With both the gaseous and particulate drywell atmospheric monitor channels and the drywell air cooler condensate flow rate monitor inoperable, the only means of detecting LEAKAGE is the drywell floor drain sump monitoring system. This Condition does not provide the required diverse means of leakage detection. The Required Action is to restore either of the inoperable monitoring systems to OPERABLE status within 30 days to regain the intended leakage detection diversity. The 30 day Completion Time ensures that the plant will not be operated in a degraded configuration for a lengthy time period.

E.1 and E.2

If any Required Action of Condition A, B, C, or D cannot be met within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

A Note permits the use of the provisions of LCO 3.0.4.c. This allowance permits entry into the applicable MODE(S) while relying on the ACTIONS. This allowance is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of a limiting event while exceeding this limit, and the ability to restore transient specific activity excursions while the plant remains at, or proceeds to, power operation.

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

If the DOSE EQUIVALENT I-131 cannot be restored to $\leq$ 0.2 μCi/gm within 48 hours, or if at any time it is > 4.0 μCi/gm, it must be determined at least every 4 hours and all the main steam lines must be isolated within 12 hours. Isolating the main steam lines precludes the possibility of releasing radioactive material to the environment in an amount that is more than a small fraction of the requirements of 10 CFR 100 during a postulated MSLB accident.

Alternately, the plant can be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. This option is provided for those instances when isolation of main steam lines is not desired (e.g., due to the decay heat loads). In MODE 4, the requirements of the LCO are no longer applicable.

The Completion Time of once every 4 hours is based on the time needed to take and analyze a sample. The 12 hour Completion Time is reasonable, based on operating experience, to isolate the main steam lines in an orderly manner and without challenging plant systems. Also, the allowed Completion Times for Required Actions B.2.2.1 and B.2.2.2 for bringing the plant to MODES 3 and 4 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.

(continued)

BASES

APPLICABILITY (continued)

The requirements for decay heat removal in MODES 4 and 5 are discussed in LCO 3.4.10, "Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown"; LCO 3.9.8, "Residual Heat Removal (RHR) - High Water Level"; and LCO 3.9.9, "Residual Heat Removal (RHR) - Low Water Level."

ACTIONS

A Note has been provided to modify the ACTIONS related to RHR shutdown cooling subsystems. Section 1.3, Completion Times, specifies once a Condition has been entered, subsequent divisions, subsystems, components or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable shutdown cooling subsystems provide appropriate compensatory measures for separate inoperable shutdown cooling subsystems. As such, a Note has been provided that allows separate Condition entry for each inoperable RHR shutdown cooling subsystem.

A.1, A.2, and A.3

With one required RHR shutdown cooling subsystem inoperable for decay heat removal, except as permitted by LCO Note 2, the inoperable subsystem must be restored to OPERABLE status without delay. In this condition, the remaining OPERABLE subsystem can provide the necessary decay heat removal. The overall reliability is reduced, however, because a single failure in the OPERABLE subsystem could result in reduced RHR shutdown cooling capability. Therefore, an alternate method of decay heat removal must be provided.

(continued)

BASES (continued)

ACTIONS

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

A.1

If any one low pressure ECCS injection/spray subsystem is inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days. In this Condition, the remaining OPERABLE subsystems provide adequate core cooling during a LOCA. However, overall ECCS reliability is reduced because a single failure in one of the remaining OPERABLE subsystems concurrent with a LOCA may result in the ECCS not being able to perform its intended safety function. The 7 day Completion Time is based on a reliability study (Ref. 12) that evaluated the impact on ECCS availability by assuming that various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowed outage times (i.e., Completion Times).

B.1 and B.2

If the HPCS System is inoperable, and the RCIC System is verified to be OPERABLE (when RCIC is required to be OPERABLE), the HPCS System must be restored to OPERABLE status within 14 days. In this Condition, adequate core cooling is ensured by the OPERABILITY of the redundant and diverse low pressure ECCS injection/spray subsystems in conjunction with the ADS. Also, the RCIC System will automatically provide makeup water at most reactor operating pressures. Verification of RCIC OPERABILITY within 1 hour is therefore required when HPCS is inoperable and RCIC is required to be OPERABLE. This may be performed by an administrative check, by examining logs or other information, to determine if RCIC is out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the RCIC System. However, if the OPERABILITY of the RCIC System cannot be verified and RCIC is required to be OPERABLE, Condition D must be immediately entered. If a single active component fails concurrent with a design basis LOCA, there is a potential, depending on the specific failure, that the minimum required ECCS equipment will not be available. A 14 day Completion Time is based on the results of a reliability study (Ref. 12) and has been found to be acceptable through operating experience.

(continued)

BASES

BACKGROUND (continued)	The RCIC pump is provided with a minimum flow, bypass line which discharges to the suppression pool. The valve in this line automatically opens to prevent pump damage due to overheating when other discharge line valves are closed. To ensure rapid delivery of water to the RPV and to minimize water hammer effects, the RCIC System discharge line "keep fill" system is designed to maintain the pump discharge line filled with water.
APPLICABLE SAFETY ANALYSES	The function of the RCIC system is to respond to transient events by providing makeup coolant to the reactor. The RCIC system is not an Engineered Safety Feature system, and the safety analysis does not consider RCIC to be a system needed to mitigate the consequences of a control rod drop accident. Based on its contribution to the reduction of overall plant risk, however, the system is included in the Technical Specifications as required by the NRC Policy Statement.
LCO	The OPERABILITY of the RCIC System provides adequate core cooling such that actuation of any of the ECCS subsystems is not required in the event of RPV isolation accompanied by a loss of feedwater flow. The RCIC System has sufficient capacity to maintain RPV inventory during an isolation event.
APPLICABILITY	The RCIC System is required to be OPERABLE in MODE 1, and MODES 2 and 3 with reactor steam dome pressure > 150 psig since RCIC is the primary non-ECCS water source for core cooling when the reactor is isolated and pressurized. In MODES 2 and 3 with reactor steam dome pressure ≤ 150 psig, and in MODES 4 and 5, RCIC is not required to be OPERABLE since the ECCS injection/spray subsystems can provide sufficient flow to the vessel.
ACTIONS	A Note prohibits the application of LCO 3.0.4.b to an inoperable RCIC system. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable RCIC system and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

(continued)

BASES

ACTIONS

A.1 and A.2

If the RCIC System is inoperable during MODE 1, or MODES 2 or 3 with reactor steam dome pressure > 150 psig, and the HPCS System is verified to be OPERABLE, the RCIC System must be restored to OPERABLE status within 14 days. In this Condition, loss of the RCIC System will not affect the overall plant capability to provide makeup inventory at high RPV pressure since the HPCS System is the only high pressure system assumed to function during a loss of coolant accident (LOCA). OPERABILITY of the HPCS is therefore verified within 1 hour when the RCIC System is inoperable. This may be performed as an administrative check, by examining logs or other information, to determine if the HPCS is out of service for maintenance or other reasons. Verification does not require performing the Surveillances needed to demonstrate the OPERABILITY of the HPCS System. If the OPERABILITY of the HPCS System cannot be verified, however, Condition B must be immediately entered. For transients and certain abnormal events with no LOCA, RCIC (as opposed to HPCS) is the preferred source of makeup coolant because of its relatively small capacity, which allows easier control of RPV water level. Therefore, a limited time is allowed to restore the inoperable RCIC to OPERABLE status.

The 14 day Completion Time is based on a reliability study (Ref. 3) that evaluated the impact on ECCS availability, assuming that various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowed outage times (AOTs). Because of the similar functions of the HPCS and RCIC, the AOTs (i.e., Completion Times) determined for the HPCS are also applied to RCIC.

B.1 and B.2

If the RCIC System cannot be restored to OPERABLE status within the associated Completion Time, or if the HPCS System is simultaneously inoperable, the plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to ≤ 150 psig within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

ACTION

B.1 and B.2

With two primary containment and drywell igniter divisions inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The alternate hydrogen control capabilities are provided by at least one hydrogen recombiner and one hydrogen mixing subsystem. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist. The verification may be performed as an administrative check by examining logs or other information to determine the availability of the alternate hydrogen control capabilities. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of the alternate hydrogen control capabilities. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two igniter divisions inoperable for up to 7 days. Seven days is a reasonable time to allow two igniter divisions to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit.

C.1

If any Required Action and required Completion Time cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on

(continued)

BASES

APPLICABILITY

In MODES 1 and 2, the two primary containment/drywell hydrogen mixing subsystems ensure the capability to prevent localized hydrogen concentrations above the flammability limit of 4.0 v/o in the drywell, assuming a worst case single active failure.

In MODE 3, both the hydrogen production rate and the total hydrogen produced after a LOCA would be less than that calculated for the DBA LOCA. Also, because of the limited time in this MODE, the probability of an accident requiring the Primary Containment/Drywell Hydrogen Mixing System is low. Therefore, the Primary Containment/Drywell Hydrogen Mixing System is not required in MODE 3.

In MODES 4 and 5, the probability and consequences of a LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, the Primary Containment/Drywell Hydrogen Mixing System is not required in these MODES.

ACTIONS

A.1

With one primary containment/drywell hydrogen mixing subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 30 days. In this condition, the remaining OPERABLE subsystem is adequate to perform the hydrogen mixing function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced hydrogen mixing capability. The 30 day Completion Time is based on the low probability of failure of the OPERABLE primary containment/drywell hydrogen mixing subsystem, the low probability of a LOCA that would generate hydrogen in amounts capable of exceeding the flammability limit, and the amount of time available after the event for operator action to prevent hydrogen accumulation from exceeding this limit.

(continued)

BASES

LCO (continued)

The AC sources in one division must be separate and independent (to the extent possible) of the AC sources in the other division(s). For the DGs, the separation and independence are complete. For the offsite AC sources, the separation and independence are to the extent practical.

APPLICABILITY

The AC sources are required to be OPERABLE in MODES 1, 2, and 3 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients; and

b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

A Note has been added taking exception to the Applicability requirements for Division III sources, provided the HPCS System and SSW pump 2C is declared inoperable. This exception is intended to allow declaring of the HPCS System inoperable either in lieu of declaring the Division III source inoperable, or at any time subsequent to entering ACTIONS for an inoperable Division III source. This exception is acceptable since, with the HPCS System inoperable and the associated ACTIONS entered, the Division III AC sources provide no additional assurance of meeting the above criteria.

AC power requirements for MODES 4 and 5 are covered in LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

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

A.1

To ensure a highly reliable power source remains, it is necessary to verify the availability of the remaining required offsite circuits on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in the Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

A Note permits the use of the provisions of LCO 3.0.4.c. This allowance permits entry into the applicable MODE(S) while relying on the ACTIONS. This allowance is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of a limiting event while exceeding this limit, and the ability to restore transient specific activity excursions while the plant remains at, or proceeds to, power operation.

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

If the DOSE EQUIVALENT I-131 cannot be restored to $\leq$ 0.2 μCi/gm within 48 hours, or if at any time it is $>$ 4.0 μCi/gm, it must be determined at least every 4 hours and all the main steam lines must be isolated within 12 hours. Isolating the main steam lines precludes the possibility of releasing radioactive material to the environment in an amount that is more than a small fraction of the requirements of 10 CFR 50.67 during a postulated MSLB accident.

Alternately, the plant can be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. This option is provided for those instances when isolation of main steam lines is not desired (e.g., due to the decay heat loads). In MODE 4, the requirements of the LCO are no longer applicable.

The Completion Time of once every 4 hours is based on the time needed to take and analyze a sample. The 12 hour Completion Time is reasonable, based on operating experience, to isolate the main steam lines in an orderly manner and without challenging plant systems. Also, the allowed Completion Times for Required Actions B.2.2.1 and B.2.2.2 for bringing the plant to MODES 3 and 4 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.

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B 3.6-101	121	B 3.6-141	2-8	B 3.8-8	105	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	102	B 3.8-52b	125
B 3.6-110	6-5	B 3.7-8	1	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	127	B 3.8-55	0
B 3.6-113	110	B 3.7-11	132	B 3.8-19	117	B 3.8-56	120
B 3.6-114	6-5	B 3.7-12	132	B 3.8-20	117	B 3.8-57	120
B 3.6-115	0	B 3.7-12a	132	B 3.8-21	102	B 3.8-58	120
B 3.6-116	0	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	113	B 3.8-60	110
B 3.6-118	0	B 3.7-15	132	B 3.8-24	113	B 3.8-61	115
B 3.6-119	110	B 3.7-16	132	B 3.8-25	102	B 3.8-62	0
B 3.6-120	121	B 3.7-17	4-4	B 3.8-26	102	B 3.8-63	0
B 3.6-121	119	B 3.7-18	110	B 3.8-27	113	B 3.8-64	0
B 3.6-122	2-4	B 3.7-19	6-13	B 3.8-28	113	B 3.8-65	0
B 3.6-123	2-4	B 3.7-20	115	B 3.8-29	113	B 3.8-66	1
B 3.6-124	2-4	B 3.7-21	6-13	B 3.8-30	113	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	110	B 3.7-25	6-14	B 3.8-34	110		
B 3.6-129	3-4	B 3.7-26	6-7	B 3.8-35	0		
		B 3.7-27	0				

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 Code, Section XI, 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 3.8.3.5 (continued)

of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 2). This SR is for preventive maintenance. The presence of water does not necessarily represent a failure of this SR provided that accumulated water is removed during performance of the Surveillance.

REFERENCES

1. USAR, Section 9.5.4.
2. Regulatory Guide 1.137.
3. ANSI N195, Appendix B, 1976.
4. USAR, Chapter 6.
5. USAR, Chapter 15.
6. ASTM Standards: D4057-81; D975-81; D4176-82; D1522-79; D2622-82; D2276-78.
7. ASME, Boiler and Pressure Vessel Code, Section XI.