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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	K.1 Isolate the affected penetration flow path(s). OR K.2.1 ~~Suspend CORE ALTERATIONS.~~ ~~AND~~ ~~K.2.2~~ Suspend movement of irradiated fuel assemblies in the primary containment. AND K.2.2 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately ~~Immediately~~ recently Immediately Immediately
L. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	L.1 ~~Suspend CORE ALTERATIONS.~~ ~~AND~~ ~~L.2~~ Initiate actions to suspend operations with a potential for draining the reactor vessel.	~~Immediately~~ Immediately

Table 3.3.6.1-1 (page 2 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation					
a. Reactor Vessel Water Level–Low Low, Level 2 (continued)	(c)	2[b]	L	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ 127.6 inches
b. Drywell Pressure – High	1,2,3	2[b]	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig
c. Reactor Vessel Water Level – Low Low Low, Level 1 (ECCS Divisions 1 and 2)	1,2,3	2[b]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ 14.3 inches
	(c)	2[b]	L	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ 14.3 inches
d. Drywell Pressure – High (ECCS Divisions 1 and 2)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig
e. Reactor Vessel Water Level – Low Low, Level 2 (HPCS)	1,2,3	4	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ 127.6 inches
	(c)	4	L	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ 127.6 inches
f. Drywell Pressure – High (HPCS)	1,2,3	4	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 1.88 psig
g. Containment and Drywell Purge Exhaust Plenum Radiation – High	1,2,3	2[b]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 4.0 mR/hr above background

(continued)

(b) Required to initiate the drywell isolation function.

(c) During ~~CORE ALTERATIONS, and~~ operations with a potential for draining the reactor vessel.

Table 3.3.6.1-1 (page 3 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation					
g. Containment and Drywell Purge Exhaust Plenum Radiation – High (continued)	(d)	2	K	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 4.0 mR/hr above background
h. Manual Initiation	1,2,3	2[b]	G	SR 3.3.6.1.5	NA
	(d)	2	K	SR 3.3.6.1.5	NA
3. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 298.5 inches water
b. RCIC Steam Line Flow Time Delay	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ 3 seconds and ≤ 13 seconds
c. RCIC Steam Supply Line Pressure – Low	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ 55 psig
d. RCIC Turbine Exhaust Diaphragm Pressure – High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 20 psig
e. RCIC Equipment Area Ambient Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 145.9°F
f. Main Steam Line Pipe Tunnel Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 158.9°F

(continued)

(b) Required to initiate the drywell isolation function.

(d) During ~~CORE ALTERATIONS~~ operations with a potential for draining the reactor vessel, and movement of recently irradiated fuel assemblies in primary containment.

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Recirculation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level – Low Low Low, Level 1	1,2,3, (a)	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4 SR 3.3.7.1.5	≥ 14.3 inches
2. Drywell Pressure – High	1,2,3	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ 1.88 psig
3. Control Room Ventilation Radiation Monitor	1,2,3, (b)	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ 800 cpm

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

(b) During ~~CORE ALTERATIONS~~, operations with a potential for draining the reactor vessel, and movement of recently irradiated fuel assemblies in the primary containment or fuel handling building.

3.6 CONTAINMENT SYSTEMS

3.6.1.2 Primary Containment Air Locks

LCO 3.6.1.2 Two primary containment air locks shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the primary containment,
~~During CORE ALTERATIONS,~~
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

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

1. Entry and exit is permissible to perform repairs of the affected air lock components.

2. Separate Condition entry is allowed for each air lock.

3. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment–Operating," when air lock leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more primary containment air locks with one primary containment air lock door inoperable.	----------NOTES---------- 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls if both air locks are inoperable. ----------	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.3 Restore air lock to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 1, 2, or 3.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	12 hours 36 hours
E. Required Action and associated Completion Time of Condition A, B, or C not met during movement of irradiated fuel assemblies in the primary containment, ~~CORE ALTERATIONS,~~ or OPDRVs.	recently E.1 Suspend movement of irradiated fuel assemblies in the primary containment. AND E.2 ~~Suspend CORE ALTERATIONS.~~ ~~AND~~ ~~E.3~~ Initiate action to suspend OPDRVs.	Immediately ~~Immediately~~ Immediately

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	D.3	Perform SR 3.6.1.3.6 for the resilient seal purge valves closed to comply with Required Action D.1.	Once per 92 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, or 3.	E.1 AND	Be in MODE 3.	12 hours
	E.2	Be in MODE 4.	36 hours
F. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during movement of irradiated fuel assemblies in the primary containment.	F.1	Suspend movement of irradiated fuel assemblies in primary containment.	recently Immediately
~~G. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during CORE ALTERATIONS.~~	~~G.1~~	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G.N. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5 or during operations with a potential for draining the reactor vessel (OPDRVs).	G.N.1 Initiate action to suspend OPDRVs.	Immediately
	OR	
	G.N.2 Initiate action to restore valve(s) to OPERABLE status.	Immediately

3.6 CONTAINMENT SYSTEMS

3.6.1.10 Primary Containment—Shutdown

LCO 3.6.1.10 Primary containment shall be OPERABLE.

APPLICABILITY: During movement of recently irradiated fuel assemblies in the primary containment,
~~During CORE ALTERATIONS,~~
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Primary containment inoperable.	A.1	Suspend movement of recently irradiated fuel assemblies in the primary containment.	Immediately
	AND		
	A.2	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~		
	~~A.3~~	Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.10.1	~~Delete~~ NOTES 1. ~~Not required to be met for vent and drain line pathways provided the reactor has been subcritical for ≥ 7 days.~~ 2. Not required to be met for pathways capable of being closed by OPERABLE primary containment automatic isolation valves. 3. Not required to be met for the Fire Protection System manual hose reel containment isolation valves. 4. Not required to be met for manual isolation valves open under administrative controls. Verify each penetration flow path, required to be closed during accident conditions, is closed.	31 days

3.6 CONTAINMENT SYSTEMS

3.6.1.11 Containment Vacuum Breakers

LCO 3.6.1.11 Three containment vacuum breakers shall be OPERABLE and four containment vacuum breakers shall be closed.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the primary containment,
~~During CORE ALTERATIONS,~~
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

---NOTE---
Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment—Operating" when the containment vacuum relief subsystem leakage results in exceeding overall containment leakage acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---NOTE--- Separate Condition entry is allowed for each containment vacuum breaker. --- One or two containment vacuum breakers not closed. OR One required containment vacuum breaker inoperable for other reasons.	A.1 Close the associated motor operated isolation valve. AND A.2 Restore containment vacuum breaker to OPERABLE status.	4 hours 72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR Three or more containment vacuum breakers not closed. OR Two or more required containment vacuum breakers inoperable for other reasons.	----------NOTE---------- Only applicable in MODE 1, 2 or 3. ---------- B.1.1 Be in MODE 3. AND B.1.2 Be in MODE 4. AND ----------NOTE---------- Only applicable during recently movement of irradiated fuel assemblies in the primary containment, ~~CORE ALTERATIONS,~~ and OPDRVs. ---------- B.2.1 Suspend movement of recently irradiated fuel assemblies in the primary containment. AND B.2.2 ~~Suspend CORE ALTERATIONS.~~ ~~AND~~ ~~B.2.3~~ Initiate action to suspend OPDRVs.	12 hours 36 hours Immediately ~~Immediately~~ Immediately

3.6 CONTAINMENT SYSTEMS

3.6.1.12 Containment Humidity Control

LCO 3.6.1.12 Containment average temperature-to-relative humidity shall be maintained within limits.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the primary containment,
~~During CORE ALTERATIONS,~~
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO not met in MODE 1, 2, or 3.	A.1 Restore containment average temperature-to-relative humidity to within limits.	8 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met or in MODE 1, 2, or 3.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours
C. Required Action and associated Completion Time of Condition A not met during recently movement of irradiated fuel assemblies in the primary containment, ~~CORE ALTERATIONS,~~ and OPDRVs.	C.1	Suspend movement of irradiated fuel assemblies in the primary containment.	Immediately
	AND		
	C.2	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~		
	~~C.3~~	Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENT

SURVEILLANCE		FREQUENCY
SR 3.6.1.12.1	Verify containment average temperature-to-relative humidity to be within limits.	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the primary containment,
~~During CORE ALTERATIONS,~~
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1	Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Secondary containment inoperable ~~during~~ movement of irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS,~~ or during OPDRVs.	C.1 Suspend movement of irradiated fuel assemblies in the primary containment.	Immediately
	AND	
	C.2 ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	~~C.3~~ Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is ≥ 0.66 inch of vacuum water gauge.	24 hours
SR 3.6.4.1.2	Verify the primary containment equipment hatch is closed and sealed and the shield blocks are installed adjacent to the shield building.	31 days
SR 3.6.4.1.3	Verify each secondary containment access door is closed, except when the access opening is being used for entry and exit.	31 days

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the primary containment,
~~During CORE ALTERATIONS,~~
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

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

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed manual valve or blind flange. AND	8 hours (continued)

Provided for information only; no changes proposed to this page

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	----------NOTE---------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	 Once per 31 days
----------NOTE---------- Only applicable to penetration flow paths with two isolation valves. ---------- B. One or more penetration flow paths with two SCIVs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed manual valve or blind flange.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 AND C.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS,~~ or during OPDRVs.	D.1 Suspend movement of recently irradiated fuel assemblies in the primary containment.	Immediately
	AND	
	D.2 ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	~~D.3~~ Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	----------NOTES---------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for SCIVs that are open under administrative controls. ----------	
	Verify each secondary containment isolation manual valve and blind flange that is required to be closed during accident conditions is closed.	31 days

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Annulus Exhaust Gas Treatment (AEGT) System

LCO 3.6.4.3 Two AEGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the primary containment,
~~During CORE ALTERATIONS,~~
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One AEGT subsystem inoperable.	A.1	Restore AEGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 AND	Be in MODE 3.	12 hours
	B.2	Be in MODE 4.	36 hours
C. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS,~~ or during OPDRVs.	C.1 OR	Place OPERABLE AEGT subsystem in operation.	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1 Suspend movement of irradiated fuel assemblies in the primary containment.	recently Immediately
	AND	
	C.2.2 ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	~~C.2.3~~ Initiate action to suspend OPDRVs.	Immediately
D. Two AEGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately
E. Two AEGT subsystems inoperable during movement of irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS,~~ or during OPDRVs.	E.1 Suspend movement of irradiated fuel assemblies in the primary containment.	recently Immediately
	AND	
	E.2 ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	~~E.3~~ Initiate action to suspend OPDRVs.	Immediately

3.7 PLANT SYSTEM

3.7.3 Control Room Emergency Recirculation (CRER) System

LCO 3.7.3 Two CRER subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the primary containment or fuel handling building,
~~During CORE ALTERATIONS,~~
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CRER subsystem inoperable.	A.1	Restore CRER subsystem to OPERABLE status.	7 days
B. Required Action and Associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the primary containment or fuel handling building, ~~during CORE ALTERATIONS,~~ or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	C.1 Place OPERABLE CRER subsystem in emergency recirculation mode.	Immediately
	OR	
	C.2.1 Suspend movement of irradiated fuel assemblies in the primary containment and fuel handling building.	Immediately
	AND	
	C.2.2 ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	~~C.2.3~~ Initiate action to suspend OPDRVs.	Immediately
D. Two CRER subsystems inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two CRER subsystems inoperable ~~during~~ movement of irradiated fuel assemblies in the primary containment or fuel handling building ~~during CORE ALTERATIONS~~, or during OPDRVs.	E.1 Suspend movement of irradiated fuel assemblies in the primary containment and fuel handling building. recently	Immediately
	AND	
	E.2 ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	~~E.3~~ Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CRER subsystem for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.3.2	Perform required CRER filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.3.3	Verify each CRER subsystem actuates on an actual or simulated initiation signal.	18 months

(continued)

3.7 PLANT SYSTEMS

3.7.4 Control Room Heating, Ventilating, and Air Conditioning (HVAC) System

LCO 3.7.4 Two control room HVAC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the primary containment or fuel handling building,
~~During CORE ALTERATIONS,~~
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One control room HVAC subsystem inoperable.	A.1	Restore control room HVAC subsystem to OPERABLE status.	30 days
B. Two control room HVAC subsystems inoperable.	B.1	Verify control room air temperature is ≤ 90°F.	Once per 4 hours
	AND		
	B.2	Restore one control room HVAC subsystem to OPERABLE status.	7 days
C. Required Action and Associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the primary containment or fuel handling building, ~~during CORE ALTERATIONS,~~ or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	D.1 Place OPERABLE control room HVAC subsystem in operation.	Immediately
	OR recently	
	D.2.1 Suspend movement of irradiated fuel assemblies in the primary containment and fuel handling building.	Immediately
	AND	
	D.2.2 ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	~~D.2.3~~ Initiate action to suspend OPDRVs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies in the primary containment or fuel handling building, ~~during CORE ALTERATIONS,~~ or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	E.1 Suspend movement of recently irradiated fuel assemblies in the primary containment and fuel handling building.	Immediately
	AND	
	E.2 ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	~~E.3~~ Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify each control room HVAC subsystem has the capability to remove the assumed heat load.	18 months

3.7 PLANT SYSTEMS

3.7.8 Fuel Handling Building

LCO 3.7.8 The fuel handling building (FHB) shall be OPERABLE.

APPLICABILITY: During movement of recently irradiated fuel assemblies in the FHB.

ACTIONS

NOTE
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. FHB inoperable.	A.1 Suspend movement of recently irradiated fuel assemblies in the FHB.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify all FHB floor hatches and the shield blocks adjacent to the shield building are installed, and the FHB railroad track door is closed.	24 hours
SR 3.7.8.2	Verify each FHB access door is closed, except when the access opening is being used for entry and exit.	24 hours

3.7 PLANT SYSTEMS

3.7.9 Fuel Handling Building Ventilation Exhaust System

LCO 3.7.9 Three fuel handling building (FHB) ventilation exhaust subsystems shall be OPERABLE.

APPLICABILITY: During movement of recently irradiated fuel assemblies in the FHB.

ACTIONS

NOTE

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required FHB ventilation exhaust subsystem inoperable.	A.1 Restore FHB ventilation exhaust subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Place two OPERABLE FHB ventilation exhaust subsystems in operation. OR B.2 Suspend movement of recently irradiated fuel assemblies in the FHB.	Immediately Immediately
C. Two or three FHB ventilation exhaust subsystems inoperable.	C.1 Suspend movement of recently irradiated fuel assemblies in the FHB.	Immediately

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources—Shutdown

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

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems—Shutdown";

b. One diesel generator (DG) capable of supplying one division of the Division 1 or 2 onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8; and

c. One qualified circuit, other than the circuit in LCO 3.8.2.a, between the offsite transmission network and the Division 3 onsite Class 1E electrical power distribution subsystem, or the Division 3 DG capable of supplying the Division 3 onsite Class 1E AC electrical power distribution subsystem, when the Division 3 onsite Class 1E electrical power distribution subsystem is required by LCO 3.8.8.

APPLICABILITY: MODES 4 and 5,
During movement of recently irradiated fuel assemblies in the primary containment or fuel handling building.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO Item a not met.	----------NOTE---------- Enter applicable Condition and Required Actions of LCO 3.8.8, when any required division is de-energized as a result of Condition A. --- A.1 Declare required feature(s) with no offsite power available from a required circuit inoperable. OR A.2.1 Suspend CORE ALTERATIONS. AND A.2.2 Suspend movement of irradiated fuel assemblies in the primary containment and fuel handling building. AND A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs). AND	Immediately Immediately Immediately Immediately Immediately (continued)

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ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (Continued)	A.2.4	Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. LCO Item b not met.	B.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	B.2	Suspend movement of irradiated fuel assemblies in primary containment and fuel handling building.	Immediately recently
	AND		
	B.3	Initiate action to suspend OPDRVs.	Immediately
	AND		
	B.4	Initiate action to restore required DG to OPERABLE status.	Immediately
C. LCO Item c not met.	C.1	Declare High Pressure Core Spray System inoperable.	72 hours

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources—Shutdown

LCO 3.8.5 The following DC electrical power subsystems shall be OPERABLE:

a. One Class 1E DC electrical power subsystem capable of supplying one division of the Division 1 or 2 onsite Class 1E electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems - Shutdown";

b. One Class 1E battery or battery charger, other than the DC electrical power subsystem in LCO 3.8.5.a, capable of supplying the remaining Division 1 or Division 2 onsite Class 1E DC electrical power distribution subsystem when required by LCO 3.8.8; and

c. The Division 3 DC electrical power subsystem capable of supplying the Division 3 onsite Class 1E DC electrical distribution subsystem when the Division 3 onsite Class 1E DC electrical power distribution subsystem is required by LCO 3.8.8.

APPLICABILITY: MODES 4 and 5,
During movement of recently irradiated fuel assemblies in the primary containment or fuel handling building.

This page provided for information only; no changes are proposed to this page.

ACTIONS

---NOTE---

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable	A.1 Declare affected required feature(s) inoperable. OR A.2.1 Suspend CORE ALTERATIONS. AND	Immediately Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend movement of recently irradiated fuel assemblies in the primary containment and fuel handling building.	Immediately
	AND	
	Delete; duplicative to above ACTION. A.2.2 Suspend movement of irradiated fuel assemblies in the primary containment and fuel handling building.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	A.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems—Shutdown

LCO 3.8.8 The necessary portions of the Division 1, Division 2, and Division 3 AC and DC electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 4 and 5,
During movement of recently irradiated fuel assemblies in the primary containment or fuel handling building.

ACTIONS

NOTE
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC or DC electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of recently irradiated fuel assemblies in the primary containment and fuel handling building.	Immediately
	AND	

(continued)

Provided for information only; no changes proposed to this page

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	A.2.4 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct breaker alignments and voltage to required AC and DC electrical power distribution subsystems.	7 days

MARKUP OF CURRENT TECH SPEC PAGES

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

ACTION

ACTION 20 - In OPERATIONAL CONDITION 1, 2 or 3, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours. In OPERATIONAL CONDITION #, suspend ~~CORE ALTERATIONS and~~ operations with a potential for draining the reactor vessel.

ACTION 21 - Close the affected system isolation valve(s) within one hour or:

a. In OPERATIONAL CONDITION 1, 2 or 3, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In Operational Condition *, suspend ~~CORE ALTERATIONS,~~ handling of ~~(recently)~~ irradiated fuel in the primary containment and operations with a potential for draining the reactor vessel.

ACTION 22 - Restore the manual initiation function to OPERABLE status within 48 hours or:

a. In OPERATIONAL CONDITION 1, 2, or 3, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION *, suspend ~~CORE ALTERATIONS,~~ operations with a potential for draining the reactor vessel, and handling of ~~(recently)~~ irradiated fuel in the primary containment.

ACTION 23 - Be in at least STARTUP with the associated isolation valves closed within 6 hours or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.

ACTION 24 - Be in at least STARTUP within 6 hours.

ACTION 25 - Verify SECONDARY CONTAINMENT INTEGRITY with the annulus exhaust gas treatment system operating within one hour.

ACTION 26 - Restore the manual initiation function to OPERABLE status within 8 hours or close the affected system isolation valves within 1 hour and declare the affected system inoperable.

ACTION 27 - Close the affected system isolation valves within one hour and declare the affected system inoperable.

ACTION 28 - Within one hour lock the affected system isolation valves closed, or verify, by remote indication, that the valve(s) is closed and electrically disarmed, or isolate the penetration(s) and declare the affected system inoperable.

ACTION 29 - Close the associated isolation valves within 6 hours or be in at least HOT SHUTDOWN within 12 hours.

NOTES

* When handling ~~(recently)~~ irradiated fuel in the primary containment and during ~~CORE ALTERATIONS and~~ operations with a potential for draining the reactor vessel.

** When any turbine stop valve is greater than 90% open and/or the key locked Condenser Low Vacuum Bypass Switch is in the normal position.

\# During ~~CORE ALTERATIONS and~~ operations with a potential for draining the reactor vessel.

*** OPERATIONAL CONDITION 1 or 2 when the mechanical vacuum pump lines are not isolated.

TABLE 4.3.2.1-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
6. RHR SYSTEM ISOLATION				
a. RHR Equipment Area Ambient Temperature - High	S	Q	R	1, 2, 3
b. RHR Equipment Area Δ Temperature - High	S	Q	R	1, 2, 3
c. RHR/RCIC Steam Line Flow - High	S	Q	R(b)	1, 2, 3
d. Reactor Vessel Water Level - Low, Level 3 ##	S	Q	R(b)	1, 2, 3
e. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	S	Q	R(b)	1, 2, 3
f. Drywell Pressure - High ##	S	Q	R(b)	1, 2, 3
g. Manual Initiation	NA	R	NA	1, 2, 3

* When handling recently irradiated fuel in the primary containment and during ~~CORE ALTERATIONS and~~ operations with a potential for draining the reactor vessel.
** When any turbine stop valve is greater than 90% open and/or the key locked bypass switch is in the normal position.
*** OPERATIONAL CONDITION 1 or 2 when the mechanical vacuum pump lines are not isolated.
# During ~~CORE ALTERATION and~~ operations with a potential for draining the reactor vessel.
(a) Each train or logic channel shall be tested at least every other 92 days.
(b) Calibrate trip unit setpoint at least once per 92 days.
These Trip Functions (1b, 3b, 6d, and 6f) utilize instruments which are common to RPS instrumentation.

TABLE 3.3.7.1-1

RADIATION MONITORING INSTRUMENTATION

INSTRUMENTATION	MINIMUM CHANNELS OPERABLE	APPLICABLE CONDITIONS	ALARM/TRIP SETPOINT	ACTION
1. Fuel Handling Area Vent Exhaust Radiation Monitor (Noble Gas)	1	**	$\leq$ 1500 cpm	70
2. Offgas Post-treatment Radiation Monitor	1	*	$\leq 1 \times 10^6$ cpm[(b)]	71
3. Control Room Ventilation Radiation Monitor (Noble Gas)	1	All OPERATIONAL CONDITIONS and ***	$\leq$ 800 cpm	72
4. Offgas Pre-treatment Radiation Monitor	1	*	[(c)]	73
5. Area Monitors				
a. (DELETED)				
b. Control Room Area Radiation Monitor	1	At all times	$\leq$ 2.5 mR/hr[(a)]	75

*When the offgas treatment system is operating.
**With irradiated fuel in the Fuel Handling Building.
***when irradiated fuel is being handled in the Fuel Handling Building or primary containment.

recently

(a) Alarm only.
(b) Isolates the offgas system.
(c) Alarm setpoint to be set in accordance with Specification 3.11.2.7.

TABLE 3.3.7.1-1 (Continued)

RADIATION MONITORING INSTRUMENTATION

ACTION

ACTION 70 - With the required monitor inoperable, obtain and analyze at least one grab sample of the monitored parameter at least once per 24 hours. In addition, with the Unit 1 Vent noble gas monitor inoperable, restore the inoperable noble gas monitor to OPERABLE status within 24 hours or place the inoperable noble gas monitor in the tripped condition.

ACTION 71 - With the required monitor inoperable, release via this pathway may continue provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.

ACTION 72 - With the required monitor inoperable, assure a portable continuous noble gas monitor or the Control Room Area Radiation Monitor is OPERABLE in the control room within 24 hours, and restore the inoperable monitor to OPERABLE status within 7 days.

Otherwise, within 1 hour, either:

a. Initiate and maintain operation of at least one of the control room emergency recirculation subsystems in the emergency recirculation mode of operation, or

b. In OPERATIONAL CONDITIONS 1, 2 or 3, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. In OPERATIONAL CONDITIONS 4, 5 or ***, suspend ~~CORE ALTERATIONS~~, handling of irradiated fuel in the Fuel Handling Building and the primary containment, and operations with a potential for draining the reactor vessel.

Recently

ACTION 73 - With the number of channels OPERABLE less than required by Minimum Channels OPERABLE requirement, release via this pathway may continue for up to 30 days provided:

a. The offgas system is not bypassed, and

b. The offgas post-treatment monitor is OPERABLE, and

c. Grab samples are taken at least once per 8 hours and analyzed within the following 4 hours;

Otherwise, be in at least HOT SHUTDOWN within 12 hours.

ACTION 74 - DELETED

ACTION 75 - With the required monitor inoperable, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

TABLE 4.3.7.1-1

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENTATION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	CONDITIONS IN WHICH SURVEILLANCE REQUIRED
1. Fuel Handling Area Vent Exhaust Radiation Monitor (Noble Gas)	S	M	R	**
2. Offgas Post-treatment Radiation Monitor	S	M	R	*
3. Control Room Ventilation Radiation Monitor (Noble Gas)	S	M	R	ALL OPERATIONAL CONDITIONS and ***
4. Offgas Pre-treatment Radiation Monitor	S	M	R	*
5. Area Monitors				
a. (DELETED)				
b. Control Room Area Radiation Monitor	S	M	R	At all times

*When the offgas treatment system is operating.
**With irradiated fuel in the Fuel Handling Building.
***When irradiated fuel is being handled in the Fuel Handling Building or primary containment.

recently

3/4.6.1 PRIMARY CONTAINMENT

PRIMARY CONTAINMENT INTEGRITY - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.6.1.1.2 PRIMARY CONTAINMENT INTEGRITY* shall be maintained.#

APPLICABILITY:

When irradiated fuel is being handled in the primary containment, and during ~~CORE ALTERATIONS, and~~ operations with a potential for draining the reactor vessel. Under these conditions, the requirements of PRIMARY CONTAINMENT INTEGRITY do not apply to normal operation of the inclined fuel transfer system.

ACTION: recently

Without PRIMARY CONTAINMENT INTEGRITY, suspend handling of irradiated fuel in the primary containment, ~~CORE ALTERATIONS,~~ and operations with a potential for draining the reactor vessel.

SURVEILLANCE REQUIREMENTS

4.6.1.1.2 PRIMARY CONTAINMENT INTEGRITY shall be demonstrated:

a. At least once per 31 days by verifying that all primary containment penetrations not capable of being closed by OPERABLE primary containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in position, except for valves that may be opened as permitted by Specification 3.6.4.#

b. By verifying each primary containment air lock is in compliance with the requirements of Specification 3.6.1.3.

*The primary containment leakage rates in accordance with Specification 3.6.1.2 are not applicable.

#Except that six (6) 3/4" vent and drain line ~~pathways~~ may be opened for the purpose of performing ~~containment~~ isolation valve leak rate testing provided ~~the plant has~~ been subcritical for at least seven (7) days.

CONTAINMENT SYSTEMS

PRIMARY CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

3.6.1.3 Each primary containment air lock shall be OPERABLE with:

a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed, and

b. An overall air lock leakage rate of less than or equal to 2.5 scf per hour at P_a.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3 and #.

ACTION:

a. With one or both air locks having:

1. an inoperable interlock mechanism, for each affected air lock,

a) Maintain at least one OPERABLE air lock door closed* and within 24 hours lock one OPERABLE air lock door closed.

b) Operation may then continue provided that at least once per 31 days, one OPERABLE air lock door is verified to be locked closed*.

2. one inoperable air lock door, or, both one inoperable door and an inoperable interlock mechanism, for each affected air lock,

a) Maintain at least the OPERABLE air lock door closed** and within 24 hours lock the OPERABLE air lock door closed.

b) Operation may then continue until performance of the next required overall air lock leakage test provided that at least once per 31 days the OPERABLE air lock door is verified to be locked closed**.

Otherwise, in OPERATIONAL CONDITION 1, 2, or 3, be in at least HOT

When handling recently irradiated fuel in the primary containment, ~~during CORE ALTERATIONS,~~ and operations with a potential for draining the reactor vessel.

* Entry into and exit from the air lock(s) or primary containment, including through a "locked closed" door, is permitted under administrative controls.

** If one or both air locks have one inoperable door, entry into and exit from the air lock(s) through the OPERABLE door is permitted under administrative controls to perform repairs of the affected air lock components. Also, if both air locks have one inoperable door, entry into and exit from primary containment is permitted under administrative controls for 7 days.

CONTAINMENT SYSTEMS

PRIMARY CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION (Continued)

SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

Otherwise, in OPERATIONAL CONDITION #, suspend handling of irradiated fuel in the primary containment, ~~CORE ALTERATIONS,~~ and operations with a potential for draining the reactor vessel.

The provisions of Specification 3.0.4 are not applicable.

b. With a primary containment air lock inoperable in OPERATIONAL CONDITIONS 1, 2 or 3, except as a result of an inoperable air lock door and/or interlock mechanism, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

c. With a primary containment air lock inoperable, in OPERATIONAL CONDITION #, except as a result of an inoperable air lock door and/or interlock mechanism, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or suspend all operations involving handling of irradiated fuel in the primary containment, ~~CORE ALTERATIONS,~~ and operations with a potential for draining the reactor vessel.

recently

3/4.6.4 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.4 Each containment isolation valve shall be OPERABLE.#

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, and **.

ACTION:

a. With one or more of the containment isolation valves inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 4 hours either:

   1. Restore the inoperable valve(s) to OPERABLE status, or

   2. Isolate each affected penetration by use of at least one deactivated automatic valve secured in the isolated position,* or

   3. Isolate each affected penetration by use of at least one closed manual valve or blind flange.*

   The provisions of Specification 3.0.4 are not applicable provided that the affected penetration is isolated in accordance with ACTION a.2 or a.3 above, and provided that the associated system, if applicable, is declared inoperable and the appropriate ACTION statements for that system are performed.

   Otherwise, in OPERATIONAL CONDITION 1, 2, or 3, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

   Otherwise, in OPERATIONAL CONDITION**, suspend all operations involving ~~CORE ALTERATIONS,~~ handling of irradiated fuel in the primary containment and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

recently

*Isolation valves closed to satisfy these requirements may be reopened on an intermittent basis under administrative controls.

**When handling irradiated fuel in the primary containment and during ~~CORE ALTERATIONS and~~ operations with a potential for draining the reactor vessel.

#The Containment Vessel and Drywell Purge system 42-inch inboard purge valves 1M14-F045 and -F085 are not required to be OPERABLE in OPERATIONAL CONDITIONS 1, 2 and 3. The RCIC system containment isolation valves are not required to be OPERABLE in OPERATIONAL CONDITION **. The Fire Protection system manual hose reel containment isolation valves 1P54-F726 and -F727 may be opened as necessary to supply fire mains in OPERATIONAL CONDITION **. Locked or sealed closed isolation valves may be opened on an intermittent basis under administrative controls.

3/4.6.6 SECONDARY CONTAINMENT

SECONDARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.6.1 SECONDARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3 and *.

ACTION:

Without SECONDARY CONTAINMENT INTEGRITY:

a. In OPERATIONAL CONDITION 1, 2 or 3, restore SECONDARY CONTAINMENT INTEGRITY within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION *, suspend handling of recently irradiated fuel in the primary containment, ~~CORE ALTERATIONS~~ and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.6.1 SECONDARY CONTAINMENT INTEGRITY shall be demonstrated by:

a. Verifying at least once per 24 hours that the vacuum within the secondary containment is greater than or equal to 0.66 inches of vacuum water gauge.

b. Verifying at least once per 31 days that:

1. The primary containment equipment hatch is closed and sealed and the shield blocks are installed adjacent to the shield building.

2. The door in each access to the secondary containment is closed, except for routine entry and exit.

3. All penetrations terminating in the annulus not capable of being closed by OPERABLE automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in position.

*When recently irradiated fuel is being handled in the primary containment and during ~~CORE ALTERATIONS and~~ operations with a potential for draining the reactor vessel.

CONTAINMENT SYSTEMS

ANNULUS EXHAUST GAS TREATMENT SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.6.2 Two independent annulus exhaust gas treatment subsystems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3 and *.

ACTION:

a. With one annulus exhaust gas treatment subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days, or:

1. In OPERATIONAL CONDITION 1, 2 or 3, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. In Operational Condition *, suspend handling of irradiated fuel in the primary containment, ~~CORE ALTERATIONS~~ and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

b. With both annulus exhaust gas treatment subsystems inoperable in Operational Condition *, suspend handling of irradiated fuel in the primary containment, ~~CORE ALTERATIONS~~ and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.6.2 Each annulus exhaust gas treatment subsystem shall be demonstrated OPERABLE:

a. At least once per 31 days by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates for at least 10 hours with the heaters OPERABLE.

*When irradiated fuel is being handled in the primary containment and during ~~CORE ALTERATIONS and~~ operations with a potential for draining the reactor vessel.

PLANT SYSTEMS

3/4.7.2 CONTROL ROOM EMERGENCY RECIRCULATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.2 Two independent control room emergency recirculation system subsystems shall be OPERABLE

APPLICABILITY: All OPERATIONAL CONDITIONS and *.

ACTION:

a. In OPERATIONAL CONDITION 1, 2 or 3, with one control room emergency recirculation subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION 4, 5 or *:

1. With one control room emergency recirculation subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or initiate and maintain operation of the OPERABLE subsystem in the emergency recirculation mode of operation.

2. With both control room emergency recirculation subsystems inoperable, suspend ~~CORE ALTERATIONS~~, handling of irradiated fuel in the Fuel Handling Building and the primary containment, and operations with a potential for draining the reactor vessel.

c. The provisions of Specification 3.0.3 are not applicable in Operational Condition *.

recently

SURVEILLANCE REQUIREMENTS

4.7.2 Each control room emergency recirculation subsystem shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 90°F.

b. At least once per 31 days by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates for at least 10 hours with the heaters OPERABLE.

*When irradiated fuel is being handled in the Fuel Handling Building or primary containment.

PLANT SYSTEMS

3/4.7.7 FUEL HANDLING BUILDING

FUEL HANDLING BUILDING VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7.1 At least three Fuel Handling Building (FHB) ventilation exhaust subsystems shall be OPERABLE.

APPLICABILITY: When irradiated fuel is being handled in the Fuel Handling Building.

ACTION:

With one FHB ventilation exhaust subsystem inoperable, restore the inoperable system to OPERABLE status within 7 days or suspend handling of irradiated fuel in the FHB. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.7.1 Each of the required FHB ventilation exhaust subsystem shall be demonstrated OPERABLE:

a. At least once per 31 days by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates for at least 10 hours with the heaters OPERABLE.

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housing, or (2) following painting, fire or chemical release in any ventilation zone communicating with the subsystem by:

1. Verifying that the subsystem satisfies the in-place penetration testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the subsystem flow rate is 15000 scfm $\pm$ 10%.

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1% when tested at a temperature of 30°C and a relative humidity of 70% in accordance with ASTM D3803; and

3. Verifying a subsystem flow rate of 15000 scfm ± 10% during system operation when tested in accordance with ANSI N510-1980.

PLANT SYSTEMS

FUEL HANDLING BUILDING INTEGRITY

LIMITING CONDITION FOR OPERATION

3.7.7.2 FUEL HANDLING BUILDING (FHB) INTEGRITY shall be maintained.

APPLICABILITY: When irradiated fuel is being handled in the Fuel Handling Building.

ACTION:

Without FUEL HANDLING BUILDING INTEGRITY suspend handling of irradiated fuel in Fuel Handling Building. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.7.2 FHB INTEGRITY shall be demonstrated by:

a. Verifying at least once per 24 hours that the FHB ventilation exhaust system is operable as required by Specification 3.7.7.1.

b. Verifying within 24 hours prior to the start of handling of irradiated fuel in the FHB and at least once per 24 hours ~~while~~ handling irradiated fuel in the FHB that:

1. The doors in each access to the 620-foot elevation of the FHB are closed, except for normal entry and exit,

2. The FHB railroad track door is closed, and

3. The fuel handling area floor hatches are in place.

4. The shield blocks are installed adjacent to the shield building.

ELECTRICAL POWER SYSTEMS

A.C. SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and

b. Diesel generator Div 1 or Div 2, and diesel generator Div 3 when the HPCS system is required to be OPERABLE, with each diesel generator having:

1. A day tank containing a minimum of 225 gallons of fuel for Div 1 and Div 2 and 204 gallons of fuel for Div 3.

2. A fuel storage system containing a minimum of 73,700 gallons of fuel for Div 1 and Div 2 and 36,100 gallons of fuel for Div 3.

3. A fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5 and *.

ACTION:

a. With less than the offsite circuits and/or diesel generators Div 1 or Div 2 of the above required A.C. electrical power sources OPERABLE, suspend CORE ALTERATIONS, handling of irradiated fuel in the primary containment and Fuel Handling Building, operations with a potential for draining the reactor vessel and crane operations over the spent fuel storage pool when fuel assemblies are therein. In addition, when in OPERATIONAL CONDITION 5 with the water level less than 22 feet 9 inches above the reactor pressure vessel flange, immediately initiate corrective action to restore the required power sources to OPERABLE status as soon as practical.

b. With diesel generator Div 3 of the above required A.C. electrical power sources inoperable, restore the inoperable diesel generator Div 3 to OPERABLE status within 72 hours or declare the HPCS system inoperable and take the ACTION required by Specifications 3.5.2 and 3.5.3.

c. With the fuel oil contained in the storage tank not meeting the properties specified in TS 4.8.1.1.2.d.2 or 4.8.1.1.2.e, the fuel oil shall be brought back within the specified limits within 7 days or the associated diesel generator shall be declared inoperable.

d. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.1.2 At least the above required A.C. electrical power sources shall be demonstrated OPERABLE per Surveillance Requirements 4.8.1.1.1, 4.8.1.1.2 (except for the requirement of 4.8.1.1.2.a.5), and 4.8.1.1.3.

*When handling irradiated fuel in the Fuel Handling Building or primary containment.

ELECTRICAL POWER SYSTEMS

D.C. SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, Division 1 or Division 2, and, when the HPCS system is required to be OPERABLE, Division 3, of the D.C. electrical power sources shall be OPERABLE with:

a. Division 1 consisting of:
   1. 125 volt battery 1R42-S002 or 2R42-S002.
   2. 125 volt full capacity charger 1R42-S006 or 0R42-S007.

b. Division 2 consisting of:
   1. 125 volt battery 1R42-S003 or 2R42-S003.
   2. 125 volt full capacity charger 1R42-S008 or 0R42-S009.

c. Division 3 consisting of:
   1. 125 volt battery 1E22-S005 or 2E22-S005.
   2. 125 volt full capacity charger 1E22-S006 or 0R42-S011.

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5 and *.

ACTION:

a. With the Unit 1 and Unit 2 Division 1 batteries and/or both chargers of the above required Division 1 D.C. electrical power sources and the Unit 1 and Unit 2 Division 2 batteries and/or both chargers of the above required Division 2 D.C. electrical power sources inoperable, suspend CORE ALTERATIONS, handling of irradiated fuel in the fuel handling building or primary containment and operations with a potential for draining the reactor vessel.

b. With the Unit 1 and Unit 2 Division 3 batteries and/or both chargers of the above required D.C. electrical power sources inoperable, declare the HPCS system inoperable and take the ACTION required by Specification 3.5.2 and 3.5.3.

c. The provisions of Specification 3.0.3 are not applicable.

Recently

SURVEILLANCE REQUIREMENTS

4.8.2.2 Each of the above required battery and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.1.

*When handling irradiated fuel in the Fuel Handling Building or primary containment.

Provided for information only; no changes proposed to this page.

ELECTRICAL POWER SYSTEMS

DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.3.2 As a minimum, the following power distribution system divisions shall be energized:

a. For A.C. power distribution, Division 1 or Division 2, and when the HPCS system is required to be OPERABLE, Division 3, with:

1. Division 1 consisting of:

a) 4160 volt A.C. bus EH11.
b) 480 volt A.C. busses EF-1-A and EF-1-B.
c) 480 volt A.C. MCCs EF-1-A-07, EF-1-A-08, EF-1-A-09, EF-1-A-12, EF-1-B-07, EF-1-B-08, EF-1-B-09, and EF-1-B-10/EF-1-D-10.* TSPS 0048
d) 120 volt A.C. distribution panels EB-1-A1 and EK-1-A1 in 480 volt MCCs EF-1-B-07 and EF-1-A-07.
e) 120 volt A.C. bus EV-1-A energized from inverter 1R14-S012 connected to D.C. bus ED-1-A-06, or energized from A.C. bus EF-1-B-07.

2. Division 2 consisting of:

a) 4160 volt A.C. bus EH12.
b) 480 volt A.C. busses EF-1-C and EF-1-D.
c) 480 volt A.C. MCCs EF-1-C-07, EF-1-C-08, EF-1-C-09, EF-1-C-12, EF-1-D-07, EF-1-D-08, and EF-1-D-09.
d) 120 volt A.C. distribution panels EB-1-B1 and EK-1-B1 in 480 volt MCCs EF-1-D-07 and EF-1-C-07.
e) 120 volt A.C. bus EV-1-B energized from inverter 1R14-S013 connected to D.C. bus ED-1-B-08 or energized from A.C. bus EF-1-D-09.

3. Division 3 consisting of:

a) 4160 volt A.C. bus EH13.
b) 480 volt A.C. MCCs EF-1-E-1 and EF-1-E-2.
c) 120 volt A.C. distribution panel EK-1-C1 in 480 volt MCC EF-1-E-1.

b. For D.C. power distribution, Division 1 or Division 2, and when the HPCS system is required to be OPERABLE, Division 3, with:

1. Division 1 consisting of 125 volt D.C. distribution panels ED-1-A-06 and MCC ED-1-A-09.

2. Division 2 consisting of 125 volt D.C. distribution panels ED-1-B-06 and ED-1-B-08.

*480 volt MCC EF-1-B-10/EF-1-D-10 is normally energized from Division 1. Division 2 provides an alternate power source.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

3. Division 3 consisting of 125 volt D.C. distribution panel 1R42-S037.

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5 and *.

ACTION:

a. For A.C. power distribution:

1. With less than Division 1 and/or Division 2 of the above required A.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the Fuel Handling Building and primary containment and operations with a potential for draining the reactor vessel.

Recently

2. With Division 3 of the above required A.C. distribution system not energized, declare the HPCS system inoperable and take the ACTION required by Specification 3.5.2 and 3.5.3.

b. For D.C. power distribution:

1. With less than Division 1 and/or Division 2 of the above required D.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the Fuel Handling Building and primary containment and operations with a potential for draining the reactor vessel.

2. With Division 3 of the above required D.C. distribution system not energized, declare the HPCS system inoperable and take the ACTION required by Specification 3.5.2 and 3.5.3.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.3.2 At least the above required power distribution system divisions shall be determined energized at least once per 7 days by verifying voltage and correct breaker alignment on the busses/MCCs/panels.

*When handling irradiated fuel in the Fuel Handling Building or primary containment.

MARKUP OF IMPROVED TECH SPEC BASES PAGES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.a, 2.e. Reactor Vessel Water Level—Low Low, Level 2 (continued)

since isolation of these valves is not critical to orderly plant shutdown.

This Function is required to be OPERABLE during ~~CORE ALTERATIONS and~~ operations with a potential for draining the reactor vessel (OPDRVs) because the capability of isolating potential sources of leakage must be provided to ensure that offsite dose limits are not exceeded if core damage occurs. However, OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, this Function is not required to be OPERABLE.

This Function isolates the 1E22-F023 Valve (Function 2.e), and the Group 1, 5, 7, and 8 valves (Function 2.a).

2.b, 2.d, 2.f Drywell Pressure—High

High drywell pressure can indicate a break in the RCPB. The isolation of some of the PCIVs on high drywell pressure supports actions to ensure that offsite dose limits of 10 CFR 100 are not exceeded. The Drywell Pressure—High Function associated with isolation of the primary containment is implicitly assumed in the USAR accident analysis as these leakage paths are assumed to be isolated post LOCA. In addition, Functions 2.b and 2.d provide isolation signals to certain drywell isolation valves. The isolation of drywell isolation valves, in combination with other accident mitigation systems, functions to ensure that steam and water releases to the drywell are channeled to the suppression pool to maintain the drywell suppression function of the drywell.

High drywell pressure signals are initiated from pressure transmitters that sense the pressure in the drywell. Four channels of Drywell Pressure—High per Function are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected to be the same as the ECCS Drywell Pressure—High Allowable Value (LCO 3.3.5.1), since this may be indicative of a LOCA inside primary containment.

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.c. Reactor Vessel Water Level - Low Low Low, Level 1 (continued)

This Function is required to be OPERABLE during ~~CORE ALTERATIONS and~~ operations with a potential for draining the reactor vessel (OPDRVs) because the capability of isolating potential sources of leakage must be provided to ensure that offsite dose limits are not exceeded if core damage occurs. However, OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, this Function is not required to be OPERABLE.

This Function isolates the Group 2 isolation valves.

2.g. Containment and Drywell Purge Exhaust-Plenum Radiation - High

High purge exhaust plenum ventilation exhaust radiation is an indication of possible gross failure of the fuel cladding. The release may have originated from the primary containment due to a break in the RCPB. When Purge Exhaust-Plenum Radiation - High is detected, valves whose penetrations communicate with the primary containment atmosphere are isolated to limit the release of fission products. Additionally, the Purge Exhaust-Plenum Radiation - High is assumed to initiate isolation of the primary containment during a fuel handling accident (Ref. 2). In addition, this Function provides an isolation signal to certain drywell isolation valves. The isolation of drywell isolation valves, in combination with other accident mitigation systems, functions to ensure that steam and water releases to the drywell are channeled to the suppression pool to maintain the drywell suppression function of the drywell.

The Purge Exhaust-Plenum Radiation - High signals are initiated from radiation detectors that are located on the purge exhaust plenum ductwork coming from the drywell and containment. The signal from each detector is input to an individual monitor whose trip outputs are assigned to an isolation channel.

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.g Containment and Drywell Purge Exhaust-Plenum Radiation - High (continued)

Four channels of Containment and Drywell Purge Exhaust-Plenum Radiation-High Function are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Values are chosen to promptly detect gross failure of the fuel cladding and to ensure offsite doses remain below 10 CFR 20 and 10 CFR 100 limits.

The Function is required to be OPERABLE during ~~CORE ALTERATIONS,~~ operations with a potential for draining the reactor vessel (OPDRVs), and movement of irradiated fuel assemblies in the primary containment ~~because~~ the capability of detecting radiation releases due to fuel failures (due to fuel uncovery or dropped fuel assemblies) must be provided to ensure offsite dose limits are not exceeded. However, OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, this Function is not required to be OPERABLE.

Due to radioactive decay, handling of fuel only requires OPERABILITY of this Function when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

These Functions isolate the Group 8 valves.

2.h. Manual Initiation

The Manual Initiation push button channels introduce signals into the primary containment and drywell isolation logic that are redundant to the automatic protective instrumentation and provide manual isolation capability. There is no specific USAR safety analysis that takes credit for this Function. It is retained for the isolation function as required by the NRC in the plant licensing basis.

There are four push buttons for the logic, two manual initiation push buttons per trip system. There is no Allowable Value for this Function since the channels are mechanically actuated based solely on the position of the push buttons.

Four channels of the Manual Initiation Function are required to be OPERABLE in MODES 1, 2, and 3, and during ~~CORE ALTERATIONS,~~ movement of recently irradiated fuel assemblies in primary containment, or operations with a potential for draining the reactor vessel, since these are the MODES in

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.h Manual Initiation (continued)

which the Primary Containment and Drywell Isolation automatic Functions are required to be OPERABLE. ~~However,~~ OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, this Function is not required to be OPERABLE.

The manual initiation channels for the RCIC System is discussed in Section 3.k below, and for the HPCS System is discussed in the Bases description for ECCS Instrumentation (LCO 3.3.5.1).

Due to radioactive decay, handling of fuel only requires OPERABILITY of this Function when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

3. Reactor Core Isolation Cooling System Isolation

3.a. RCIC Steam Line Flow—High

RCIC Steam Line Flow—High Function is provided to detect a break of the RCIC steam lines and initiates closure of the steam line isolation valves. If the steam is allowed to continue flowing out of the break, the reactor will depressurize and core uncovery can occur. Therefore, the isolation is initiated on high flow to prevent or minimize core damage. The isolation action, along with the scram function of the Reactor Protection System (RPS), ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46. Specific credit for this Function is not assumed in any USAR accident analyses since the bounding analysis is performed for large breaks such as recirculation and MSL breaks. However, these instruments prevent the RCIC steam line break from becoming bounding.

The RCIC Steam Line Flow—High signals are initiated from two transmitters that are connected to the system steam lines. Two channels of RCIC Steam Line Flow—High Functions are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value is chosen to be low enough to ensure that the trip occurs to prevent fuel damage and maintains the MSLB event as the bounding event.

This Function isolates the Group 9 valves.

(continued)

ACTIONS

J.1, J.2, J.3.1, J.3.2, and J.3.3 (continued)

function is needed to provide core cooling, these Required Actions allow the penetration flow path to remain unisolated provided action is immediately initiated to restore the channel to OPERABLE status or to provide an alternate decay heat removal capability and subsequently isolate the RHR Shutdown Cooling System, or to provide means for control of potential radioactive releases. This includes ensuring primary containment is OPERABLE, and primary containment isolation capability (i.e., at least one primary containment isolation valve and associated instrumentation are OPERABLE or other acceptable administrative controls to assure isolation capability) in each associated penetration flow path not isolated that is assumed to be isolated to mitigate radioactivity releases. This may be performed as an administrative check, by examining logs or other information, to determine if the components are out of service for maintenance or other reasons. It is not necessary to perform the surveillances needed to demonstrate the OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, the Surveillances may need to be performed to restore the component to OPERABLE status.

In addition, at least one door in each primary containment air lock must be closed. The closed air lock door completes the boundary for control of potential radioactive releases. With the appropriate administrative controls however, the closed door can be opened intermittently for entry and exit. This allowance is acceptable due to the need for containment access and due to the slow progression of events which may result from a reactor vessel draindown event. Reactor vessel draindown events would not be expected to result in the immediate release of appreciable fission products to the containment atmosphere. Actions must continue until all requirements of the Condition are satisfied.

K.1, K.2.1, K.2.2, and ~~K.2.3~~

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path(s) should be isolated (Required Action K.1). Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable

(continued)

ACTIONS

K.1, K.2.1, ~~K.2.2,~~ and K.2.3 (continued)

instrumentation. Alternately, the plant must be placed in a condition in which the LCO does not apply. If applicable, ~~CORE ALTERATIONS and~~ movement of 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 condition. Also, if applicable, action must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission production release. Actions must continue until OPDRVs are suspended.

L.1 ~~and L.2~~

~~If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, CORE ALTERATIONS must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe condition. Also,~~ If applicable, action must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each Primary Containment and Drywell Isolation Instrumentation Function are found in the SRs column of Table 3.3.6.1-1.

The Surveillances are also modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains primary containment isolation capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. 5 and 6) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the automatic isolation valves will isolate the penetration flow path(s) when necessary.

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2. Drywell Pressure-High (continued)

Drywell Pressure-High signals are initiated from four pressure transmitters that sense drywell pressure. Four channels of Drywell Pressure-High Function are (two channels per trip system) required to be OPERABLE to ensure that no single instrument failure can preclude CRER System initiation.

The Drywell Pressure-High Allowable Value was chosen to be the same as the ECCS Drywell Pressure-High Allowable Value (LCO 3.3.5.1).

The Drywell Pressure-High Function is required to be OPERABLE in MODES 1, 2, and 3 to ensure that control room personnel are protected during a LOCA. In MODES 4 and 5, the Drywell Pressure-High Function is not required since there is insufficient energy in the reactor to pressurize the drywell to the Drywell Pressure-High setpoint.

3. Control Room Ventilation Radiation Monitor

The Control Room Ventilation Radiation Monitor measures radiation levels downstream of the supply plenum discharge of the control room. A high radiation level may pose a threat to control room personnel; thus, the Control Room Ventilation Radiation Monitor Function will automatically initiate the CRER System.

The Control Room Ventilation Radiation Monitor Function consists of one noble gas monitor. One channel (which provides input to both Trip Systems) of the Control Room Ventilation Radiation Monitor is required to be OPERABLE. Since a LOCA signal will also initiate the CRER System isolating the control room from the environment, and considering the fact that a LOCA signal itself incorporates sufficient redundancy, the airborne radiation monitor signal is considered a diverse signal, and does not require redundancy. The Allowable Value was selected to ensure protection of the control room personnel.

The Control Room Ventilation Radiation Monitor Function is required to be OPERABLE in MODES 1, 2, and 3 and during ~~CORE ALTERATIONS~~, OPDRVs, and movement of recently irradiated fuel in the primary containment or Fuel Handling Building to ensure

(continued)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3. Control Room Ventilation Radiation Monitor (continued)

that control room personnel are protected during a LOCA, fuel handling event, or a vessel draindown event. ~~However,~~ OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, this Function is not required to be OPERABLE. During MODES 4 and 5, when these specified conditions are not in progress (e.g., ~~CORE ALTERATIONS~~), the probability of a LOCA or fuel damage is low; thus, the Function is not required.

OPDRVs

ACTIONS

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

Due to radioactive decay, handling of fuel only requires OPERABILITY of this Function when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.7.1-1. The applicable Condition specified in the Table is Function dependent. Each time an inoperable channel is discovered, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Because of the diversity of sensors available to provide initiation signals and the redundancy of the CRER System design, an allowable out of service time of 24 hours has been shown to be acceptable (Refs. 4 and 5) to permit restoration of any inoperable channel to OPERABLE status. However, this out of service time is only acceptable

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BASES

BACKGROUND (continued)

DBA. Not maintaining air lock integrity or leak tightness may result in a leakage rate in excess of that assumed in the unit safety analysis.

APPLICABLE SAFETY ANALYSES

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. The primary containment is designed with a maximum allowable leakage rate (L_a) of 0.20% by weight of the containment and drywell air per 24 hours at the calculated maximum peak containment pressure (P_a) of 7.80 psig. This allowable leakage rate forms the basis for the acceptance criteria imposed on the SRs associated with the air locks.

Primary containment air lock OPERABILITY is also required to minimize the amount of fission product gases that may escape primary containment through the air lock and contaminate and pressurize the auxiliary building.

involving handling of recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous seven days)

During plant operations in other than MODES 1, 2, and 3, the primary containment contains the fission products from a Fuel Handling Accident inside the primary containment (Ref. 4), to limit doses at the site boundary to within limits. The primary containment air lock OPERABILITY assures a leak tight fission product barrier during activities with the unit shutdown.

Primary containment air locks satisfy Criterion 3 of the NRC Policy Statement.

LCO

As part of the primary containment, the air lock's safety function is related to control of containment leakage rates following a DBA. Thus, the air lock's structural integrity and leak tightness are essential to the successful mitigation of such an event.

The primary containment air locks are required to be OPERABLE. For each air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door to be open at a time. This provision ensures that a gross breach of primary containment

(continued)

LCO (continued)

does not exist when primary containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into and exit from primary containment.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining OPERABLE primary containment air locks in MODE 4 or 5 to ensure a control volume is only required during situations for which significant releases of radioactive material can be postulated; such as during operations with a potential for draining the reactor vessel (OPDRVs), ~~during CORE ALTERATIONS,~~ or during movement of recently irradiated fuel assemblies in the primary containment. ~~However,~~ OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, the primary containment air locks are not required to be OPERABLE.

ACTIONS

Due to radioactive decay, handling of fuel only requires primary containment air lock OPERABILITY when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

The ACTIONS are modified by Note 1, which allows entry and exit to perform repairs of the affected air lock component. If the outer door is inoperable, then it may be easily accessed for most repairs. If the inner door is the one that is inoperable, then it is preferred that the air lock be accessed from inside primary containment by entering through the other OPERABLE air lock. However, if this is not practicable, or if repairs on either door must be performed from the barrel side of the door, then it is permissible to enter the air lock through the OPERABLE door, which means there is a short time during which the primary containment boundary is not intact (during access through the OPERABLE door). The ability to open the OPERABLE door, even if it means the primary containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the primary containment during the short time in which the OPERABLE door is expected to be open. After each entry and exit, the OPERABLE door must be immediately closed.

(continued)

ACTIONS

D.1 and D.2 (continued)

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.

E.1, E.2, and E.3

If the inoperable primary containment air lock cannot be restored to OPERABLE status within the associated Completion Time during CORE ALTERATIONS, during operations with a potential for draining the reactor vessel (OPDRVs), or during movement of irradiated fuel assemblies in the primary containment, action is required to immediately suspend activities that represent a potential for releasing significant amounts of radioactive material, thus placing the unit in a condition that minimizes risk. If applicable, movement of irradiated fuel assemblies in the primary containment and CORE ALTERATIONS 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 10 CFR 50, Appendix J (Ref. 2), as modified by approved exemptions when in MODES 1, 2, and 3. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established prior to initial air lock and primary containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall primary containment leakage rate. The Frequency is required by

(continued)

APPLICABLE SAFETY ANALYSES

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

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

involving handling of recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous seven days)

The inboard 42 inch purge supply and exhaust valves may be unable to close in the environment following a LOCA. Therefore, each of the purge valves is required to remain sealed closed during MODES 1, 2, and 3.

PCIVs satisfy Criterion 3 of the NRC Policy Statement.

LCO

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

The power operated isolation valves are required to have isolation times within limits. Additionally, power operated automatic valves are required to actuate on an automatic isolation signal. Primary containment purge supply and exhaust valves are not qualified to close under accident conditions and therefore must be sealed closed (inboard) or blocked to prevent full opening (outboard valves) to be OPERABLE.

(continued)

LCO (continued)

The normally closed PCIVs or blind flanges are considered OPERABLE when, as applicable, manual valves are closed or opened in accordance with applicable administrative controls, automatic valves are de-activated and secured in their closed position, check valves with flow through the valve secured, or blind flanges are in place. The valves covered by this LCO with their associated stroke times, if applicable, are listed in Reference 3. Primary containment 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 and the primary containment purge valves are not required to be sealed closed in MODES 4 and 5. Certain valves are required to be OPERABLE, however, to prevent inadvertent reactor vessel draindown and release of radioactive material during a postulated fuel handling accident involving handling of recently irradiated 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." (This does not include the valves that isolate the associated instrumentation.)

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow path(s) except for the inboard 42 1M14-F045 and 1M14-F085 inch primary containment purge supply and exhaust isolation valve flow paths 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. Due to the size of the containment purge supply and exhaust

Due to radioactive decay, handling of fuel only requires containment isolation valve OPERABILITY when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

(continued)

ACTION (continued)

F.1, ~~G.1~~, H.1, and H.2

If any Required Action and associated Completion Time cannot be met, the plant must be placed in a condition in which the LCO does not apply. If applicable, movement of recently irradiated fuel assemblies in the primary containment ~~AND CORE ALTERATIONS~~ must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe condition. Also, if applicable, action must be immediately initiated to suspend operations with a potential for draining the reactor vessel (OPDRVs) to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended. If suspending the OPDRVs would result in closing the residual heat removal (RHR) shutdown cooling isolation valves, an alternative Required Action is provided to immediately initiate action to restore the valves to OPERABLE status. This allows RHR to remain in service while actions are being taken to restore the valves.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1

Each inboard 42 inch (M14-F045 and M14-F085) primary containment purge supply and exhaust isolation valve is required to be verified sealed closed at 31 day intervals because the primary containment purge valves are not fully qualified to close under accident conditions. This SR is designed to ensure that a gross breach of primary containment is not caused by an inadvertent or spurious opening of a primary containment purge valve. Detailed analysis of these purge supply and exhaust isolation valves failed to conclusively demonstrate their ability to close during a LOCA in time to limit offsite doses. Primary containment purge valves that are sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leak tightness. The 31 day Frequency is based on primary containment purge valve use during unit operations.

This SR allows a valve that is open under administrative controls to not meet the SR during the time the valve is open. Opening a purge valve under administrative controls

(continued)

SURVEILLANCE REQUIREMENT

SR 3.6.3.1 (contin...

is restricted to one valve in a penetration flow path at a given time (refer to discussion for Note 1 of the ACTIONS) in order to effect repairs to that valve. This allows one purge valve to be opened without resulting in a failure of the Surveillance and resultant entry into the ACTIONS for this purge valve, provided the stated restrictions are met. Condition D must be entered during this allowance, and the valve opened only as necessary for effecting repairs. Each purge valve in the penetration flow path may be alternately opened, provided one remains sealed closed, if necessary, to complete repairs on the penetration.

The SR is modified by a Note stating that the inboard 42 inch primary containment purge supply and exhaust isolation valves are only required to be sealed closed in MODES 1, 2, and 3. If a LOCA inside primary containment occurs in these MODES, the purge valves may not be capable of closing before the pressure pulse affects systems downstream of the purge valves and the subsequent release of radioactive material will exceed limits prior to the closing of the purge valves. At other times when the purge valves are required to be capable of closing (e.g., during movement of irradiated fuel assemblies), pressurization concerns are not present and the purge valves are allowed to be open.

SR 3.6.1.3.2

This SR verifies that the 18 inch (1M14-F190, 1M14-F195, 1M14-F200, and 1M14-F205) and outboard 42 inch (1M14-F040 and 1M14-F090) primary containment purge supply and exhaust isolation valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have purge valve leakage outside the limits (Condition D).

The SR is also modified by a Note (Note 1) stating that primary containment purge valves are only required to be closed in MODES 1, 2, and 3. At times other than MODE 1, 2, or 3 when the purge valves are required to be capable of closing (e.g., during movement of irradiated fuel assemblies) pressurization concerns are not present and the purge valves are allowed to be open (automatic isolation capability would be required by SR 3.6.1.3.5, SR 3.6.1.3.7, and SR 3.6.1.3.8).

(continued)

SURVEILLANCE REQUIREMENT

SR 3.6.1.3.5 (continued)

full closure isolation time is demonstrated by SR 3.6.1.3.7. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analysis. The isolation time and Frequency of this SR are in accordance with the Inservice Testing Program.

SR 3.6.1.3.6

For primary containment purge valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J (Ref. 4), is required to ensure OPERABILITY. Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than do other seal types. Based on this observation, and the importance of maintaining this penetration leak tight (due to the direct path between primary containment and the environment), a Frequency of 184 days was established. Additionally, this SR must be performed within 92 days after opening the valve. The 92 day Frequency was chosen recognizing that cycling the valve could introduce additional seal degradation (beyond that which occurs to a valve that has not been opened). Thus, decreasing the interval (from 184 days) is a prudent measure after a valve has been opened.

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 when the purge valves are required to be capable of closing (e.g., during handling of recently irradiated fuel), pressurization concerns are not present and the purge valves are not required to meet any specific leakage criteria.

SR 3.6.1.3.7

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.11 (continued)

This SR is modified by a Note that states these valves are only required to meet the combined leakage rate in MODES 1, 2, and 3 since this is when the Reactor Coolant System is pressurized and primary containment is required. In some instances, the valves are required to be capable of automatically closing during MODES other than MODES 1, 2, and 3. However, specific leakage rate limits are not applicable in these other MODES or conditions.

SR 3.6.1.3.12

Verifying that each outboard 42 inch (1M14-F040 and 1M14-F090) primary containment purge supply and exhaust isolation valve is blocked to restrict opening to ≤ 50° is required to ensure that the valves can close under DBA conditions within the time limits assumed in the analyses of References 2 and 3.

The SR is modified by a Note stating that this SR is only required to be met in MODES 1, 2, and 3. If a LOCA inside primary containment occurs in these MODES, the purge valves must close to maintain containment leakage within the values assumed in the accident analysis. At other times when the purge valves are required to be capable of closing (e.g., during movement of irradiated fuel assemblies in the primary containment), pressurization concerns are not present, thus the purge valves can be fully open. The 18 month Frequency is appropriate because the blocking devices are typically removed only during a refueling outage.

REFERENCES

1. USAR, Chapter 15.

2. USAR, Section 6.2.

3. USAR, Table 6.2-32.

4. 10 CFR 50, Appendix J.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.10 Primary Containment—Shutdown

BASES

BACKGROUND

The function of the primary containment is to isolate and contain fission products released from the Reactor Coolant System following a Design Basis Accident (DBA) and to confine the postulated release of radioactive material to within limits. The primary containment surrounds the Reactor Coolant System and provides an essentially leak tight barrier against an uncontrolled release of radioactive material to the environment. Additionally, this structure provides shielding from the fission products that may be present in the primary containment atmosphere following accident conditions.

The isolation devices for the penetrations in the primary containment boundary are a part of the primary containment leak tight barrier. To maintain this leak tight barrier for accidents during shutdown conditions:

a. All primary containment penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE primary containment automatic isolation system, or

   2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)";

b. Primary containment air locks are OPERABLE, except as provided in LCO 3.6.1.2, "Primary Containment Air Locks"; and

c. The equipment hatch is closed.

Additionally, administrative controls ensure that open vent and drain pathways will: (1) only be opened to support leakage rate testing; (2) not exceed 6; (3) control room operators will be aware of the openings; and (4) test engineers will make reasonable attempts to isolate vent/drain lines prior to evacuating if evacuation is announced over the public address system (Ref. 1).

(continued)

BACKGROUND (continued)

This Specification ensures that the performance of the primary containment, in the event of a fuel handling accident, ~~inadvertent criticality,~~ or reactor vessel draindown, provides an acceptable leakage barrier to contain fission products, thereby minimizing offsite doses.

APPLICABLE SAFETY ANALYSES

The safety design basis for the primary containment is that it contain the fission products from a fuel handling accident inside the primary containment (Ref.2), to limit doses at the site boundary to within limits. The primary containment OPERABILITY in conjunction with the automatic closure of selected OPERABLE containment isolation valves (LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," and LCO 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation"), assures a leak tight fission product barrier. Its leak tightness is required to ensure that the release of radioactive materials from the primary containment is restricted to those leakage rates assumed in safety analyses.

involving handling of recently irradiated fuel

The fuel handling accident inside the primary containment has been analyzed for two cases. In ~~each~~ the first scenario, the containment purge system is in operation and isolates on high radiation. This produces ~~an immediate unfiltered~~ release to the environment. ~~In the first case,~~ The fission products which remain within the primary containment are conservatively assumed to be released at rates consistent with the DBA LOCA assumptions (e.g., 0.2% of the containment volume per day), and be filtered by the Annulus Exhaust Gas Treatment System prior to release to the environment.

the fuel bundles involved are recently irradiated, i.e., they have occupied part of a critical reactor core within the previous seven days.

In the second case, the fuel handling accident inside the primary containment is assumed to ~~occur only after ≥ 7 days since the reactor was last critical~~. With the radioactive decay provided with this delay, all gaseous fission products released from the damaged fuel bundles are assumed to be immediately discharged directly to the environment.

involve fuel bundles that have not been in a critical reactor core within the previous seven days.

Primary containment satisfies Criterion 3 of the NRC Policy Statement.

LCO

Primary containment OPERABILITY is maintained by providing a contained volume to limit fission product escape following a fuel handling accident, or other unanticipated ~~reactivity or~~ water level excursion. Compliance with this LCO will ensure a primary containment configuration, including the equipment

(continued)

LCO (continued)

hatch, that is structurally sound and that will limit leakage to those leakage rates assumed in the safety analysis. Since offsite dose analyses conservatively assume LOCA leakage pathways and rates, the isolation and closure times of automatic containment isolation valves supports an OPERABLE primary containment during shutdown conditions.

~~However, analysis demonstrated that any number of primary containment penetration vent and drain valves may remain opened, and the primary containment considered OPERABLE provided the reactor has been subcritical for ≥ 7 days.~~ Furthermore, normal operation of the inclined fuel transfer system (IFTS) without the IFTS blind flange installed is considered acceptable for meeting Primary Containment-Shutdown OPERABILITY.

Leakage rates specified for the primary containment and air locks, addressed in LCO 3.6.1.1 and LCO 3.6.1.2 are not directly applicable during the shutdown conditions addressed in this LCO.

APPLICABILITY

In MODES 4 and 5, the probability and consequences of the LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining an OPERABLE primary containment in MODE 4 or 5 to ensure a control volume, is only required during situations for which significant releases of radioactive material can be postulated; such as during movement of irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS,~~ or during operations with a potential for draining the reactor vessel (OPDRVs). ~~However,~~ OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, the primary containment is not required to be OPERABLE.

Due to radioactive decay, handling of fuel only requires OPERABILITY of Primary Containment when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

ACTIONS

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

In the event that primary containment is inoperable, action is required to immediately suspend activities that represent a potential for releasing significant amounts of radioactive material, thus placing the unit in a condition that minimizes risk. If applicable, movement of irradiated fuel assemblies in the primary containment ~~and CORE ALTERATIONS~~ must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe

(continued)

BASES

ACTIONS

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

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 3.6.1.10.1

This SR verifies that each primary containment penetration that could communicate gaseous fission products to the environment during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive gases outside of the primary containment boundary is within design limits. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed manual valve, a closed and de-activated automatic valve, and a blind flange. This SR does not require any testing or isolation device manipulation. Rather, it involves verification that these isolation devices capable of being mispositioned are in the correct position. The 31 day Frequency was chosen to provide added assurance that the isolation devices remain in the correct positions.

This SR is modified by four Notes. The first Note has been deleted. ~~does not require the SR to be met for vent and drain line pathways provided that the reactor has been subcritical for at least 7 days.~~ The second Note does not require this SR to be met for pathways capable of being isolated by OPERABLE primary containment automatic isolation valves. The third Note permits the Fire Protection System manual hose reel containment isolation valves (1P54-F726 and 1P54-F727) to be open during shutdown conditions to supply fire mains. The fourth Note is included to clarify that manual valves opened under administrative controls are not required to meet the SR during the time the manual valves are open.

REFERENCES

1. Deleted ~~NRC Safety Evaluation Report for Technical Specification Amendment #35, dated September 28, 1990.~~
2. USAR, Section 15.7.6.

APPLICABLE SAFETY ANALYSES (continued)

b. Inadvertent actuation of both primary RHR containment spray subsystems during normal operation;

The results of these two cases show that the containment vacuum breakers, with an opening setpoint of 0.1 psid, are capable of maintaining the differential pressure within design limits.

The containment vacuum breakers satisfy Criterion 3 of the NRC Policy Statement.

LCO

Only 3 of the 4 vacuum breakers must be OPERABLE for opening. All containment vacuum breakers, however, are required to be closed (except during testing or when the vacuum breakers are performing their intended design function). The vacuum breaker OPERABILITY requirement provides assurance that the containment negative differential pressure remains below the design value. The requirement that the vacuum breakers be closed ensures that there is no excessive bypass leakage should a LOCA occur.

APPLICABILITY

In MODES 1, 2, and 3, the RHR Containment Spray System is required to be OPERABLE to mitigate the effects of a DBA. Excessive negative pressure inside the containment could occur due to inadvertent actuation of this system. The vacuum breakers, therefore, are required to be OPERABLE in MODES 1 2. and 3, to mitigate the effects of inadvertent actuation of the RHR Containment Spray System.

In MODES 4 and 5, the probability and consequences of these events are reduced by the pressure and temperature limitations in these MODES; therefore, maintaining containment vacuum breakers OPERABLE is not required in MODE 4 or 5.

When handling recently irradiated fuel in the primary containment, ~~during CORE ALTERATIONS,~~ and during operations with a potential for draining the reactor vessel (OPDRVs) the primary containment is required to be OPERABLE. Containment vacuum breakers are therefore required to be OPERABLE during these evolutions to protect the primary containment against an inadvertent initiation of the Containment Spray System. Since OPDRVs assume that one or more fuel assemblies are loaded into the core, this LCO would not be applicable for OPDRVs if no fuel is in the reactor vessel.

Due to radioactive decay, handling of fuel only requires OPERABILITY of Containment Vacuum Breakers when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

(continued)

ACTIONS

A.1 and A.2 (continued)

A Note has been added to provide clarification that separate Condition entry is allowed for each containment vacuum breaker.

B.1 and B.2

If the Required Action of Condition A cannot be met, or if there are three or more containment vacuum breakers not closed, or if there are two or three required vacuum breakers inoperable for other reasons, the plant must be brought to a MODE or condition in which the LCO does not apply. To achieve this status, if the plant is operating, ACTION B.1 requires that the plant be brought to at least MODE 3 within 12 hours and that the plant be brought to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. A Note has been added to stipulate that these Required Actions are only applicable if the plant is in MODE 1, 2, or 3.

If the Condition occurs during movement of irradiated fuel in the primary containment, ~~during CORE ALTERATIONS,~~ or during operations with a potential for draining the reactor vessel (OPDRVs), then ACTION B.2 requires that action be taken to immediately suspend activities that represent a potential for releasing radioactive material, thus placing the unit in a Condition that minimizes risk. If applicable, ~~CORE ALTERATIONS and~~ movement of irradiated fuel in the primary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be taken 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. A Note has been added to the Required Actions to stipulate that these requirements are only applicable while moving irradiated fuel assemblies in the primary containment ~~during CORE ALTERATIONS,~~ or during OPDRVs.

(continued)

LCO (continued)

containment spray are deactivated, the average temperature and relative humidity are not required to be maintained within the prescribed limits.

APPLICABILITY

In MODES 1, 2, and 3, the RHR Containment Spray System is required to be OPERABLE to mitigate the effects of a DBA. Excessive negative pressure inside the containment could occur due to inadvertent actuation of this system. The containment average temperature relationship with relative humidity, therefore, is required to be within limits in MODES 1, 2, and 3, to mitigate the effects of inadvertent actuation of the RHR Containment Spray System.

In MODES 4 and 5, the probability and consequences of these events are reduced by the pressure and temperature limitations in these MODES. Therefore, maintaining limits on containment relative humidity and temperature is not required in MODE 4 or 5.

When handling recently irradiated fuel in the primary containment, ~~during CORE ALTERATIONS,~~ and during operations with a potential for draining the reactor vessel (OPDRVs) the primary containment is required to be OPERABLE. Therefore, the proper relationship between containment average temperature and relative humidity must exist during these evolutions.

Due to radioactive decay, handling of fuel only requires control over Containment humidity when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

ACTIONS

A.1

With the primary containment average temperature and relative humidity not within the established limits, actions must be taken to restore the primary containment relative humidity and temperature to within limits. With the plant operating in MODE 1, 2, or 3, Required Action A.1 stipulates that restoration must occur within 8 hours. The eight hour Completion Time is based on the time required to restore the relative humidity and temperature limits, and the low probability of an event occurring during this time period.

(continued)

ACTIONS (continued)

B.1, B.2, B.3, B.4, and B.5

If the primary containment relative humidity and temperature cannot be restored to within limits within the required Completion Time of Condition A, actions must be taken to place the plant in a MODE or condition in which the LCO does not apply.

Required Action B.1 requires that the plant be brought to at least MODE 3 within 12 hours and Required Action B.2 requires that the plant be brought to MODE 4 within 36 hours.

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

C.1 and C.2

If the primary containment relative humidity and temperature are not within limits during movement of recently irradiated fuel in the primary containment, during CORE ALTERATIONS, or during OPDRVs, action is required to place the plant in a MODE or condition in which the LCO does not apply.

Required Actions C.1 and C.2 require that actions be taken to immediately suspend activities that represent a potential for releasing significant amounts of radioactive material, thus placing the unit in a condition that minimizes risk.

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

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.4.1 Secondary Containment

BASES

BACKGROUND

The function of the secondary containment is to contain, dilute, and hold up fission products that may leak from primary containment following a Design Basis Accident (DBA). In conjunction with operation of the Annulus Exhaust Gas Treatment (AEGT) System and manual closure of certain valves whose lines penetrate the secondary containment, the secondary containment is designed to reduce the activity level of the fission products prior to release to the environment and to isolate and contain fission products that are released during certain operations that take place inside primary containment, such as during movement of recently irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS,~~ or during operations with a potential for draining the reactor vessel (OPDRVs).

The secondary containment is a structure that completely encloses the primary containment. This structure forms a control volume that serves to hold up and dilute the fission products. It is possible for the pressure in the control volume to rise relative to the external pressure. To prevent ground level exfiltration while allowing the secondary containment to be designed as a conventional structure, the secondary containment requires support systems to maintain the control volume pressure at less than the external pressure. Requirements for these systems are specified separately in LCO 3.6.4.2, "Secondary Containment Isolation Valves (SCIVs)," and LCO 3.6.4.3, "Annulus Exhaust Gas Treatment (AEGT) System."

The isolation devices for the penetrations in the secondary containment boundary are a part of the secondary containment barrier. To maintain this barrier:

a. All penetrations terminating in the secondary containment required to be closed during accident conditions are closed by at least one manual valve or blind flange, as applicable, secured in its closed position, except as provided in LCO 3.6.4.2, Secondary Containment Isolation Valves (SCIVs)";

(continued)

BACKGROUND (continued)

b. The containment equipment hatch is closed and sealed and the shield blocks are installed adjacent to the shield building; and

c. The door in each access to the secondary containment is closed, except for entry and exit.

APPLICABLE SAFETY ANALYSES

There are two principal accidents for which credit is taken for secondary containment OPERABILITY. These are a LOCA (Ref. 1) and a fuel handling accident inside primary containment (Ref. 2). The secondary containment performs no active function in response to each of these limiting events; however, its leak tightness is required to ensure that the release of radioactive materials from the primary containment is restricted to those leakage paths and associated leakage rates assumed in the accident analysis, and that fission products entrapped within the secondary containment structure will be treated by the AEGT System prior to discharge to the environment.

involving handling of recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous seven days)

Secondary containment satisfies Criterion 3 of the NRC Policy Statement.

LCO

An OPERABLE secondary containment provides a control volume into which fission products that bypass or leak from primary containment, or are released from the reactor coolant pressure boundary components located in secondary containment, can be diluted and processed prior to release to the environment. For the secondary containment to be considered OPERABLE, it must have adequate leak tightness to ensure that the required vacuum can be established and maintained.

APPLICABILITY

In MODES 1, 2, and 3, a LOCA could lead to a fission product release to primary containment that leaks to secondary containment. Therefore, secondary containment OPERABILITY is required during the same operating conditions that require primary containment OPERABILITY.

In MODES 4 and 5, the probability and consequences of the LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining secondary containment OPERABLE is not required in MODE 4

(continued)

APPLICABILITY (continued)

or 5 to ensure a control volume, except for other situations for which significant releases of radioactive material can be postulated, such as during movement of irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS,~~ or during operations with a potential for draining the reactor vessel (OPRDVs). ~~However~~, OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, ~~if~~ the fuel is fully off-loaded from the reactor vessel, ~~this~~ the secondary containment is not required to be OPERABLE.

ACTIONS

A.1

If secondary containment is inoperable, it must be restored to OPERABLE status within 4 hours. The 4 hour Completion Time provides a period of time to correct the problem that is commensurate with the importance of maintaining secondary containment during MODES 1, 2, and 3. This time period also ensures that the probability of an accident (requiring secondary containment OPERABILITY) occurring during periods where secondary containment is inoperable is minimal.

Due to radioactive decay, handling of fuel only requires OPERABILITY of Secondary Containment when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

B.1 and B.2

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

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

Movement of recently irradiated fuel assemblies in the primary containment, ~~CORE ALTERATIONS,~~ and OPDRVs can be postulated to cause significant fission product releases ~~to the secondary containment.~~ In such cases, the secondary containment is one of the ~~the only~~ barriers to release of fission products to the environment. If applicable, movement of recently irradiated fuel assemblies in the primary containment ~~and CORE ALTERATIONS~~ must be immediately suspended if the secondary containment is inoperable. Suspension of these activities shall not

(continued)

ACTIONS

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

preclude completing an action that involves moving 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. Actions must continue until OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.1

This SR ensures that the secondary containment boundary is sufficiently leak tight to preclude exfiltration under expected wind conditions. The 24 hour Frequency of this SR was developed based on operating experience related to secondary containment vacuum variations during the applicable MODES and the low probability of a DBA occurring between surveillances.

Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal secondary containment vacuum condition.

SR 3.6.4.1.2 and SR 3.6.4.1.3

Verifying that the primary containment equipment hatch is closed and the shield blocks are installed adjacent to the shield building, and secondary containment access doors are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur. In this application, the term "sealed" has no connotation of leak tightness. Verifying that all such openings are closed provides adequate assurance that exfiltration from the secondary containment will not occur. Maintaining secondary containment OPERABILITY requires verifying each door in both access openings are closed, except when the access opening is being used for entry and exit. The 31 day Frequency for these SRs has been shown to be adequate based on operating experience, and is considered adequate in view of the other controls on secondary containment access openings.

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

BASES

BACKGROUND

The function of the SCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) (Ref. 1).

The OPERABILITY requirements for SCIVs help ensure that an adequate secondary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. Isolation barrier(s) for the penetration are discussed in Reference 2. The isolation devices addressed by this LCO are passive. Manual valves and blind flanges are considered passive devices.

Penetrations are isolated by the use of manual valves in the closed position or blind flanges.

APPLICABLE SAFETY ANALYSES

The SCIVs must be OPERABLE to ensure the secondary containment barrier to fission product releases is established. The principal accidents for which the secondary containment boundary is required are a loss of coolant accident (Ref. 1), and a fuel handling accident inside primary containment (Ref. 3). The secondary containment performs no active function in response to each of these limiting events, but the boundary established by SCIVs is required to ensure that leakage from the primary containment is processed by the Annulus Exhaust Gas Treatment (AEGT) System before being released to the environment.

involving handling of recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous seven days)

Maintaining SCIVs OPERABLE ensures that fission products will remain trapped inside secondary containment so that they can be treated by the AEGT System prior to discharge to the environment.

SCIVs satisfy Criterion 3 of the NRC Policy Statement.

(continued)

BASES (continued)

LCO

SCIVs form a part of the secondary containment boundary. The SCIV safety function is related to control of offsite radiation releases resulting from DBAs.

The normally closed isolation valves or blind flanges are considered OPERABLE when manual valves are closed, or open in accordance with appropriate administrative controls, or blind flanges are in place.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could lead to a fission product release to the primary containment that leaks to the secondary containment. Therefore, OPERABILITY of SCIVs is required.

In MODES 4 and 5, the pr ility and consequences of these events are reduced du ssure and temperature limitations in these herefore, maintaining SCIVs OPERABLE is not requi. MODE 4 or 5, except for other situations under which significant releases of radioactive material can be postulated, such as during movement of recently irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS~~, or during operations with a potential for draining the reactor vessel (OPDRVs). ~~However,~~ OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, the SCIVs are not required to be OPERABLE.

Due to radioactive decay, handling of fuel only requires OPERABILITY of secondary containment isolation valves when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

ACTIONS

The ACTIONS are modified by three Notes. The first Note allows penetration flow paths to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when the need for secondary containment isolation is indicated.

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

(continued)

ACTIONS

A.1 and A.2 (continued)

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment, once they have been verified to be in the proper position, is low.

B.1

With two SCIVs in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 4 hours. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed manual valve, and a blind flange. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the low probability of a DBA occurring during this short time.

The Condition has been modified by a Note stating that Condition B is only applicable to penetration flow paths with two isolation valves. This clarifies that only Condition A is entered if one SCIV is inoperable in each of two penetrations.

C.1 and C.2

If any Required Action and associated Completion Time of Condition A or B 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.

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

If any Required Action and associated Completion Time of Conditions A or B cannot be met during movement of recently irradiated fuel assemblies in the primary containment,

(continued)

ACTIONS

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

~~during CORE ALTERATIONS,~~ or during OPDRVs the plant must be placed in a condition in which the LCO does not apply. If applicable, movement of irradiated fuel assemblies in the primary containment ~~and CORE ALTERATIONS~~ must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be immediately initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

This SR verifies that each secondary containment isolation manual valve and blind flange that is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the secondary containment boundary is within design limits. This SR does not require any testing or isolation device manipulation. Rather, it involves verification that those isolation device in secondary containment that are capable of being mispositioned are in the correct position.

Since these isolation devices are readily accessible to personnel during normal unit operation and verification of their position is relatively easy, the 31 day Frequency was chosen to provide added assurance that the isolation devices are in the correct positions.

Two Notes have been added to this SR. The first Note applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these isolation devices once they have been verified to be in the proper position, is low. A second Note has been included to clarify that

(continued)

BACKGROUND (continued)

humidity of the airstream to less than 70% (Ref. 2). The roughing filter removes large particulate matter, while the HEPA filter is provided to remove fine particulate matter and protect the charcoal from fouling. The charcoal adsorber removes gaseous elemental iodine and organic iodides, and the final HEPA filter is provided to collect any carbon fines exhausted from the charcoal adsorber.

The AEGT System automatically starts and operates in response to actuation signals indicative of conditions or an accident that could require operation of the system. AEGT System flows are controlled by two motor operated control dampers installed in branch ducts. One duct exhausts air to the unit vent, (AEGT Subsystem A exhausts to the Unit 1 plant vent; AEGT Subsystem B exhausts to the Unit 2 plant vent), while the other recirculates air back to the annulus.

involving handling of recently irradiated fuel, i.e., fuel that has occupied part of a critical reactor core within the previous seven days

APPLICABLE SAFETY ANALYSES

The design basis for the AEGT System is to mitigate the consequences of a loss of coolant accident and fuel handling accidents (Ref. 2). For all events analyzed, the AEGT System is shown to be automatically initiated to reduce, via filtration and adsorption, the radioactive material released to the environment.

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

LCO

Following a DBA, a minimum of one AEGT subsystem is required to maintain the secondary containment at a negative pressure with respect to the environment and to process gaseous releases. Meeting the LCO requirements for two operable subsystems ensures operation of at least one AEGT subsystem in the event of a single active failure.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could lead to a fission product release to primary containment that leaks to secondary containment. Therefore, AEGT System OPERABILITY is required during these MODES.

In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the AEGT System OPERABLE is not required in MODE 4 or 5, except for

(continued)

APPLICABILITY (continued)

other situations under which significant releases of radioactive material can be postulated, such as during movement of recently irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS,~~ or during operations with a potential for draining the reactor vessel (OPDRVs). ~~However,~~ OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, the AEGT System is not required to be OPERABLE.

ACTIONS

A.1

With one AEGT subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days. In this Condition, the remaining OPERABLE AEGT subsystem is adequate to perform the required radioactivity release control function. However, the overall system reliability is reduced because a single failure in the OPERABLE subsystem could result in the radioactivity release control function not being adequately performed. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE redundant AEGT subsystem and the low probability of a DBA occurring during this period.

Due to radioactive decay, handling of fuel only requires OPERABILITY of the AEGT System when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

B.1 and B.2

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

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

During movement of recently irradiated fuel assemblies in the primary containment, ~~during CORE ALTERATIONS,~~ or during OPDRVs, when Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE AEGT subsystem should be immediately placed in operation. This Required Action ensures that the remaining subsystem is OPERABLE, that no

(continued)

ACTIONS

C.1, C.2.1, C.2.2, and C.2.3 (continued)

failures that could prevent automatic actuation have occurred, and that any other failure would be readily detected. An alternative to Required Action C.1 is to immediately suspend activities that represent a potential for releasing radioactive material, to the secondary containment, thus placing the unit in a Condition that minimizes risk. If applicable, movement of irradiated fuel assemblies in the primary containment and CORE ALTERATIONS must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

D.1

If both AEGT subsystems are inoperable in MODE 1, 2 or 3, the AEGT System may not be capable of supporting the required radioactivity release control function. Therefore, LCO 3.0.3 must be entered immediately.

E.1, E.2, and E.3

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

SURVEILLANCE REQUIREMENTS

SR 3.6.4.3.1

Operating each AEGT subsystem for ≥ 10 continuous hours ensures that both subsystems are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. Operation with the heaters on for ≥ 10 continuous hours every 31 days

(continued)

BASES (continued)

APPLICABLE SAFETY ANALYSES

The ability of the CRER System to maintain the habitability of the control room is an explicit assumption for the safety analyses presented in the USAR, Chapters 6 and 15 (Refs. 3 and 4, respectively). The emergency recirculation mode of the CRER System is assumed to operate following a loss of coolant accident, main steam line break, fuel handling accidents involving handling of recently irradiated fuel, i.e., fuel that has occupied part of a critical reactor core within the previous seven days, and control rod drop accident. The radiological doses to control room personnel as a result of the various DBAs are summarized in Reference 4. No single active or passive failure will cause the loss of ability to recirculate air in the control room.

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

LCO

Two independent and redundant subsystems of the CRER System are required to be OPERABLE to ensure that at least one is available, assuming a single failure disables the other subsystem. Total system failure could result in a failure to meet the dose requirements of GDC 19 in the event of a DBA.

The CRER System is considered OPERABLE when the individual components necessary to control operator exposure are OPERABLE in both subsystems. A CRER subsystem is considered OPERABLE when its associated:

a. Fans are 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 addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.

APPLICABILITY

In MODES 1, 2, and 3, the CRER System must be OPERABLE to control operator exposure during and following a DBA, since the DBA could lead to a fission product release.

(continued)

APPLICABILITY (continued)

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 CRER 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 movement of recently irradiated fuel assemblies in the primary containment or fuel handling building;

~~b. During CORE ALTERATIONS;~~ and

b.c. During operations with a potential for draining the reactor vessel (OPDRVs).

~~However,~~ OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, the CRER System is not required to be OPERABLE.

Due to radioactive decay, handling of fuel only requires OPERABILITY of the Control Room Emergency Recirculation System when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

ACTIONS

A.1

With one CRER subsystem inoperable, the inoperable CRER subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE CRER subsystem is adequate to perform control room radiation protection. However, the overall reliability is reduced because a single failure in the OPERABLE CRER subsystem could result in loss of CRER 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 CRER subsystem can provide the required capabilities.

B.1 and B.2

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

(continued)

ACTIONS
(continued)

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

The Required Actions of Condition C are modified by a Note indicating that LCO 3.0.3 does not apply. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require a reactor shutdown. During movement of recently irradiated fuel assemblies in the primary containment or fuel handling building, ~~during CORE ALTERATIONS,~~ or during OPDRVs, if the inoperable CRER subsystem cannot be restored to OPERABLE status within the required Completion Time of Condition A, the OPERABLE CRER subsystem may be placed in the emergency recirculation 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 C.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, movement of recently irradiated fuel assemblies in the primary containment and fuel handling building ~~and CORE ALTERATIONS~~ 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.

D.1

If both CRER subsystems are inoperable in MODE 1, 2, or 3, the CRER 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)

ACTIONS (continued)

E.1, E.2, and E.3

During movement of recently irradiated fuel assemblies in the primary containment or fuel handling building, ~~during CORE ALTERATIONS,~~ or during OPDRVs, with two CRER subsystems inoperable, action must be taken immediately to suspend activities that present a potential for releasing significant amounts of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

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

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

Operating each CRER subsystem for ≥ 10 continuous hours ensures that both subsystems are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. Operation with the heaters on for ≥ 10 continuous hours every 31 days eliminates moisture on the adsorbers and HEPA filters. The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.

SR 3.7.3.2

This SR verifies that the required CRER testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CRER 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.

(continued)

BASES (continued)

LCO

Two independent and redundant subsystems of the Control Room HVAC System are required to be OPERABLE to ensure that at least one is available, assuming a single failure disables the other subsystem. Total system failure could result in the equipment operating temperature exceeding limits.

The Control Room HVAC System is considered OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both subsystems. These components include the cooling coils, fans, chillers with compressors, ductwork, dampers, and associated instrumentation and controls. The heating coils are not required for control room HVAC OPERABILITY.

APPLICABILITY

In MODE 1, 2, or 3, the Control Room HVAC System must be OPERABLE to ensure that the control room temperature will not exceed equipment OPERABILITY limits.

In MODES 4 and 5, the probability and consequences of a Design Basis Accident are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the Control Room HVAC System OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:

Due to radioactive decay, handling of fuel only requires OPERABILITY of the Control Room HVAC System when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

a. During movement of recently irradiated fuel assemblies in the primary containment or fuel handling building; and

~~b. During CORE ALTERATIONS; and~~

b. During operations with a potential for draining the reactor vessel (OPRDVs).

~~However,~~ OPDRVs assume that one or more fuel assemblies are loaded into the core. Therefore, if the fuel is fully off-loaded from the reactor vessel, the Control Room HVAC System is not required to be OPERABLE.

ACTIONS

A.1

With one control room HVAC subsystem inoperable, the inoperable control room HVAC subsystem must be restored to OPERABLE status within 30 days. With the unit in this condition, the remaining OPERABLE control room HVAC subsystem is adequate to perform the control room air

(continued)

BASES

ACTIONS (continued)

D.1, D.2.1, D.2.2, and ~~D.2.3~~

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 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 handling building, ~~during CORE ALTERATIONS,~~ or during OPDRVs, if the inoperable control room HVAC subsystem cannot be restored to OPERABLE status within the required Completion Time of Condition A, the OPERABLE control room HVAC subsystem may be placed immediately in operation. 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 significant amounts of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, movement of recently irradiated fuel assemblies in the primary containment and fuel handling building ~~and CORE ALTERATIONS~~ 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.

(continued)

BASES

ACTIONS (continued)

E.1, E.2, and E.3

The Required Actions of Condition E.1 are modified by a Note indicating that LCO 3.0.3 does not apply. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of recently irradiated fuel assemblies in the primary containment or fuel handling building, ~~during CORE ALTERATIONS,~~ or during OPDRVs if the Required Action and associated Completion Time of Condition B is not met, action must be taken to immediately suspend activities that present a potential for releasing significant amounts of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

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

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the safety analysis. The SR consists of a combination of testing and calculation. The 18 month Frequency is appropriate since significant degradation of the Control Room HVAC System is not expected over this time period.

REFERENCES

1. USAR, Section 6.4.
2. USAR, Section 9.4.1.

BASES

BACKGROUND (continued)

With the boundaries in place, the FHB Ventilation Exhaust System will assure that any releases occurring as a result of a FHA are filtered.

APPLICABLE SAFETY ANALYSES

There is only one principal accident for which credit is taken for FHB OPERABILITY. This is the FHA involving handling of recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous seven days) in the FHB (Ref. 1). The FHB performs no active function in response to the FHA; however, proper air flow patterns are required to ensure that the release of radioactive materials is restricted to those leakage rates assumed in the accident analysis.

FHB satisfies Criterion 3 of the NRC Policy Statement.

LCO

An OPERABLE FHB provides a control volume into which fission products can be diluted and processed prior to release to the environment. For the FHB to be considered OPERABLE, it must provide proper air flow patterns to ensure that there is no uncontrolled release of radioactive material during a FHA involving handling of recently irradiated fuel in the FHB.

APPLICABILITY

In plant operating MODES, OPERABILITY of the FHB is not required since leakage from the primary containment will not be released into the FHB. Regardless of the plant operating MODE, anytime recently irradiated fuel is being handled in the FHB there is the potential for a FHA, and the FHB is required to mitigate the consequences.

ACTIONS

The Required Actions have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

(continued)

Due to radioactive decay, handling of fuel only requires OPERABILITY of the Fuel Handling Building when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

BASES

ACTIONS (continued)

A.1

With the FHB inoperable, the plant must be brought to a condition in which the LCO does not apply since the FHB is incapable of performing its required accident mitigation function. To achieve this, ~~irradiated fuel~~ handling of recently irradiated fuel must be suspended immediately. Suspension shall not preclude completion of fuel movement to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1 and SR 3.7.8.2

Verifying that FHB floor hatches and access doors are closed, that the shield blocks are in place adjacent to the shield building, and that the FHB railroad track door is closed ensures that proper air flow patterns will exist in the FHB, and that any release following a FHA in the FHB will be filtered prior to release. Verifying that all such openings are closed provides adequate assurance that exfiltration from the FHB will not occur. Maintaining FHB OPERABILITY requires verifying each door in the access opening is closed, except when the access opening is being used for entry and exit.

The 24 hour Frequency for these SRs has been shown to be adequate based on operating experience.

REFERENCES

1. USAR, Section 15.7.4.

BASES

BACKGROUND (continued)

radiation condition, an alarm will occur in the control room, and the operating supply fan from the FHB Ventilation Supply System will trip.. The exhaust subsystems remain operational to continue exhausting contaminated air from the fuel handling area through the charcoal filter trains, thus precluding any uncontrolled release of radioactivity to the outside environment.

APPLICABLE SAFETY ANALYSES

The design basis for the FHB Ventilation Exhaust System is to mitigate the consequences of a FHA involving handling of recently irradiated fuel, i.e., fuel that has occupied part of a critical reactor core within the previous seven days (Ref. 3). For all events analyzed, the FHB Ventilation Exhaust System reduces, via filtration and adsorption, the radioactive material released to the environment.

The FHB Ventilation Exhaust System satisfies Criterion 3 of the NRC Policy Statement.

LCO

Following a FHA involving handling of recently irradiated fuel, a minimum of two FHB ventilation exhaust subsystems are required to maintain the FHB at a negative pressure with respect to the environment and to process gaseous releases. Meeting the LCO requirements for three OPERABLE subsystems ensures operation of at least two FHB ventilation exhaust subsystems in the event of a single active failure.

APPLICABILITY

In plant operating MODES, OPERABILITY of the FHB Ventilation Exhaust System is not required since leakage from the primary containment will not be released into the FHB. Regardless of the plant operating MODE, anytime recently irradiated fuel is being handled in the FHB there is the potential for a FHA, and the FHB Ventilation Exhaust System is required to mitigate the consequences.

ACTIONS

The Required Actions have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

Due to radioactive decay, handling of fuel only requires OPERABILITY of the Fuel Handling Building Ventilation Exhaust System when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

(continued)

BASES

ACTIONS (continued)

A.1

With one FHB ventilation exhaust subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days. In this condition, the remaining OPERABLE FHB ventilation exhaust subsystems are adequate to perform the required radioactivity release control function. However, the overall system reliability is reduced because a single failure in one OPERABLE subsystem could result in the radioactivity release control function not being adequately performed. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE FHB ventilation exhaust subsystems and the low probability of a FHA occurring during this period.

B.1 and B.2

If the FHB ventilation exhaust subsystem cannot be restored to OPERABLE status within the required Completion Time the two remaining OPERABLE FHB ventilation exhaust subsystems should be immediately placed in operation. This Required Action ensures that the remaining subsystems are OPERABLE, and that any other failure would be readily detected.

An alternative to Required Action B.1 is to immediately suspend activities that represent a potential for releasing significant amounts of radioactive material to the FHB, thus placing the unit in a condition that minimizes risk by suspending movement of recently irradiated fuel assemblies. Suspension of this activity shall not preclude completion of fuel movement to a safe position.

C.1

With two or three FHB ventilation exhaust subsystems inoperable the plant must be brought to a condition in which the LCO does not apply since the system is incapable of performing its required accident mitigation function. To achieve this, ~~irradiated fuel~~ handling in the FHB must be suspended immediately. Suspension shall not preclude completion of fuel movement to a safe position. of recently irradiated fuel

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.2 AC Sources—Shutdown

BASES

BACKGROUND

A description of the AC sources is provided in the Bases for LCO 3.8.1, "AC Sources—Operating."

APPLICABLE SAFETY ANALYSES

The OPERABILITY of the minimum AC sources during MODES 4 and 5 and during movement of recently irradiated fuel assemblies in the primary containment or fuel handling building ensures that:

a. The unit can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate AC electrical power is provided to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident.

involving handling of recently irradiated fuel, i.e., fuel that has occupied part of a critical reactor core within the previous seven days

In general, when the unit is shut down the Technical Specifications (TS) requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or loss of all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, and 3 have no specific analyses in MODES 4 and 5. Worst case bounding events are deemed not credible in MODES 4 and 5 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence significantly reduced or eliminated, and minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCOs for required systems.

(continued)

LCO (continued)

powered from offsite power. An OPERABLE DG, associated with a Division 1 or Division 2 Distribution System Engineered Safety Feature (ESF) bus required OPERABLE by LCO 3.8.8, ensures a diverse power source is available to provide electrical power support, assuming a loss of the offsite circuit. Similarly, when the high pressure core spray (HPCS) system is required to be OPERABLE, a separate offsite circuit to the Division 3 Class 1E onsite electrical power distribution subsystem, or an OPERABLE Division 3 DG, ensure an additional source of power for the HPCS. This additional source for Division 3 is not necessarily required to be connected to be OPERABLE. Either the circuit required by LCO Item a, or a circuit required to meet LCO Item c may be connected, with the second source available for connection. Together, OPERABILITY of the required offsite circuit(s) and DG(s) ensure the availability of sufficient AC sources to operate the plant in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents involving handling of recently irradiated fuel, reactor vessel draindown).

The qualified offsite circuit(s) must be capable of maintaining rated frequency and voltage while connected to their respective ESF bus(es), and accepting required loads during an accident. Qualified offsite circuits are those that are described in the USAR and are part of the licensing basis for the plant. One offsite circuit consists of the Unit 1 startup transformer through the Unit 1 interbus transformer, to the Class 1E 4.16 kV ESF buses through source feeder breakers for each required division. A second acceptable offsite circuit consists of the Unit 2 startup transformer through the Unit 2 interbus transformer, to the Class 1E 4.16 kV ESF buses through source feeder breakers for each required division.

The required DG must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective ESF bus on detection of bus undervoltage, and accepting required loads. This sequence must be accomplished within 10 seconds for Division 1 and 2 and 13 seconds for Division 3. Each DG must also be capable of accepting required loads within the assumed loading sequence intervals, and must continue to operate until offsite power can be restored to the ESF buses. These capabilities are required to be met from a variety of initial conditions such as: DG in standby with the engine hot and DG in standby

(continued)

BASES

LCO (continued)

with the engine at ambient conditions. Additional DG capabilities must be demonstrated to meet required Surveillances, e.g., capability of the DG to revert to standby status on an ECCS signal while operating in parallel test mode.

Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG OPERABILITY. In addition, proper load sequence operation is an integral part of offsite circuit and DG OPERABILITY since its inoperability impacts the ability to start and maintain energized loads required OPERABLE by LCO 3.8.8. It is acceptable for divisions to be cross tied during shutdown conditions, permitting a single offsite power circuit to supply all required AC electrical power distribution subsystems.

As described in Applicable Safety Analyses, in the event of an accident during shutdown, the TS are designed to maintain the plant in a condition such that, even with a single failure, the plant will not be in immediate difficulty.

APPLICABILITY

The AC sources required to be OPERABLE in MODES 4 and 5 and during movement of recently irradiated fuel assemblies in the primary containment or fuel handling building provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core in case of an inadvertent draindown of the reactor vessel;

b. Systems needed to mitigate a fuel handling accident involving handling of recently irradiated fuel are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

Due to radioactive decay, handling of fuel only requires OPERABILITY of the AC Sources when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

The AC power requirements for MODES 1, 2, and 3 are covered in LCO 3.8.1.

(continued)

BASES (continued)

ACTIONS

The ACTIONS are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of irradiated fuel assemblies is not sufficient reason to require reactor shutdown.

A.1

A required offsite circuit is considered inoperable if no qualified circuit is supplying power to one required ESF division. If two or more ESF 4.16 kV buses are required per LCO 3.8.8, division(s) with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, ~~irradiated fuel~~ movement, and operations with a potential for draining the reactor vessel.

By allowing the option to declare required features inoperable which are not powered from offsite power, appropriate restrictions can be implemented in accordance with the required feature(s) LCOs' ACTIONS. Required features remaining powered from offsite power (even though that circuit may be inoperable due to failing to power other features) are not declared inoperable by this Required Action.

A.2.1, A.2.2, A.2.3, A.2.4, B.1, B.2, B.3, and B.4

With the offsite circuit not available to all required divisions, the option still exists to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With the required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies in the primary containment and fuel handling building, and operations with a potential for draining the reactor vessel.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to initiate

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.5 DC Sources – Shutdown

BASES

BACKGROUND

A description of the DC sources is provided in the Bases for LCO 3.8.4, "DC Sources – Operating."

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident and transient analyses in the USAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 2), assume that Engineered Safety Feature systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the diesel generators, emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum DC electrical power sources during MODES 4 and 5 and during movement of irradiated fuel assemblies in the primary containment or fuel handling building ensures that:

a. The facility can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate DC electrical power is provided to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident.

involving handling of recently irradiated fuel, i.e., fuel that has occupied part of a critical reactor core within the previous seven days

The DC sources satisfy Criterion 3 of the NRC Policy Statement.

LCO

One DC electrical power subsystem (consisting of either the Unit 1 or 2 battery, either the normal or reserve battery charger, and all the associated control equipment and interconnecting cabling supplying power to the associated

(continued)

BASES

LCO (continued)

bus), associated with the Division 1 or Division 2 onsite Class 1E DC electrical power distribution subsystem(s) required OPERABLE by LCO 3.8.8, "Distribution Systems-Shutdown," is required to be OPERABLE. Similarly, when the High Pressure Core Spray (HPCS) System is required to be OPERABLE, the Division 3 DC electrical power subsystem associated with the Division 3 onsite Class 1E DC electrical power distribution subsystem required OPERABLE by LCO 3.8.8 is required to be OPERABLE. In addition to the preceding subsystems required to be OPERABLE, a Class 1E battery or battery charger and the associated control equipment and interconnecting cabling capable of supplying power to the remaining Division 1 or Division 2 onsite Class 1E DC electrical power distribution subsystem, when portions of both Division 1 and Division 2 DC electrical power distribution subsystems are required to be OPERABLE by LCO 3.8.8. This ensures the availability of sufficient DC electrical power sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents involving handling of recently irradiated fuel and inadvertent reactor vessel draindown).

APPLICABILITY

The DC electrical power sources required to be OPERABLE in MODES 4 and 5 and during movement of recently irradiated fuel assemblies in the primary containment and fuel handling building provide assurance that:

a. Required features to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core in case of an inadvertent draindown of the reactor vessel;

b. Required features needed to mitigate a fuel handling accident are available;

c. Required features necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

Due to radioactive decay, handling of fuel only requires OPERABILITY of the DC Sources when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

The DC electrical power requirements for MODES 1, 2, and 3 are covered in LCO 3.8.4.

(continued)

BASES (continued)

ACTIONS

The ACTIONS are modified by a Note indicating that LCO 3.0.3 does not apply. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require reactor shutdown.

A.1, A.2.1, A.2.2, A.2.3, and A.2.4

If more than one DC distribution subsystem is required according to LCO 3.8.8, the DC subsystems remaining OPERABLE with one or more DC power sources inoperable may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, ~~irradiated fuel~~ movement of recently irradiated fuel, and operations with a potential for draining the reactor vessel. By allowing the option to declare required features associated with an inoperable DC power source(s) inoperable, appropriate restrictions are implemented in accordance with the Required Actions of the LCOs for these associated required features. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative alternate actions (i.e., to suspend CORE ALTERATIONS, movement of recently irradiated fuel assemblies in the primary containment and fuel handling building, and operations with a potential for draining of the reactor vessel) is made.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required DC electrical power subsystems and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

(continued)

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B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.8 Distribution Systems – Shutdown

BASES

BACKGROUND

A description of the AC and DC electrical power distribution systems is provided in the Bases for LCO 3.8.7, "Distribution Systems – Operating."

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident and transient analyses in the USAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 2), assume Engineered Safety Feature (ESF) systems are OPERABLE. The AC and DC electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded.

The OPERABILITY of the AC and DC electrical power distribution systems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum AC and DC electrical power sources and associated power distribution subsystems during MODES 4 and 5 and during movement of irradiated fuel assemblies in the primary containment or fuel handling building ensures that:

a. The facility can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate power is provided to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident involving handling of recently irradiated fuel, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

The AC and DC electrical power distribution systems satisfy Criterion 3 of the NRC Policy Statement.

(continued)

BASES (continued)

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the AC and DC electrical power distribution systems necessary to support OPERABILITY of Technical Specifications' required systems, equipment, and components - both specifically addressed by their own LCOs, and implicitly required by the definition of OPERABILITY.

Maintaining these portions of the AC and DC electrical power distribution systems energized ensures the availability of sufficient power to operate the plant in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents involving handling of recently irradiated fuel and inadvertent reactor vessel draindown).

APPLICABILITY

The AC and DC electrical power distribution subsystems required to be OPERABLE in MODES 4 and 5 and during movement of recently irradiated fuel assemblies in the primary containment or fuel handling building provide assurance that:

a. Required features needed to provide adequate coolant inventory makeup are available for the irradiated fuel in the core in case of an inadvertent draindown of the reactor vessel;

b. Required features needed to mitigate a fuel handling accident are available;

c. Required features necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown or refueling condition.

(Due to radioactive decay, handling of fuel only requires OPERABILITY of the Distribution Systems when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.)

The AC and DC electrical power distribution subsystem requirements for MODES 1, 2, and 3 are covered in LCO 3.8.7.

(continued)

BASES (continued)

ACTIONS

The ACTIONS are modified by a Note indicating that LCO 3.0.3 does not apply. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require reactor shutdown.

A.1, A.2.1, A.2.2, A.2.3, A.2.4, and A.2.5

Although redundant required features may require redundant divisions of electrical power distribution subsystems to be OPERABLE, one OPERABLE distribution subsystem division may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, ~~irradiated fuel~~ movement of recently irradiated fuel, and operations with a potential for draining the reactor vessel. By allowing the option to declare required features associated with an inoperable distribution subsystem inoperable, appropriate restrictions are implemented in accordance with the Required Actions of the LCOs for these associated required features. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of recently irradiated fuel assemblies in the primary containment and ~~fuel~~ handling building and operations with a potential for draining of the reactor vessel).

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC and DC electrical power distribution subsystems and to continue this action until restoration is accomplished in order to provide the necessary power to the plant safety systems.

Notwithstanding performance of the above conservative Required Actions, a required residual heat removal – shutdown cooling (RHR-SDC) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.4 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the RHR-SDC ACTIONS

(continued)

MARKUP OF CURRENT TECH SPEC BASES PAGES

3/4.6.1 CONTAINMENT

3/4.6.1.1 PRIMARY CONTAINMENT INTEGRITY

PRIMARY CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

Replace with Insert A

During shutdown when irradiated fuel is being handled in the primary containment, and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel, the # footnote permits the opening of six vent and drain pathways for the purpose of performing containment isolation valve leak rate surveillance testing provided the reactor has been subcritical for at least seven days. Offsite doses were calculated assuming the postulated fuel handling accident inside primary containment after a seven day decay time, and assuming all the airborne activity existing inside containment after a seven day decay time, and assuming all the airborne activity existing inside containment after the accident is immediately discharged directly to the environment (i.e., no containment). Although this analysis would indicate that no restriction on the number of vent and drain pathways was required, the number of open pathways was restricted to six for conservatism.

3/4.6.1.2 PRIMARY CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure of 7.80 psig, P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to less than or equal to 0.75 L_a during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

Overall integrated leakage rate means the leakage rate which obtains from a summation of leakage through all potential leakage paths. Where a leakage path contains more than one valve, fitting, or component in series, the leakage for that path will be that leakage of the worst leaking valve, fitting, or component and not the summation of the leakage of all valves, fittings, or components in that leakage path.

Operating experience with the main steam line isolation valves has indicated that degradation has occasionally occurred in the leak tightness of the valves; therefore the special requirement for testing these valves.

INSERT A

In Operational Conditions 4 and 5, the probability and consequences of LOCAs are reduced due to the pressure and temperature limitations in these Operational Conditions. Therefore, maintaining Primary Containment Integrity - Shutdown is only required during situations for which significant releases of radioactive material can be postulated; such as during operations with the potential for draining the reactor vessel, or during handling of recently irradiated fuel assemblies. Due to radioactive decay, handling of fuel only requires Primary Containment Integrity - Shutdown when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

3/4.6.1 CONTAINMENT (Continued)

3/4.6.1.2 CONTAINMENT LEAKAGE (Continued)

The surveillance testing for measuring leakage rates is consistent with the requirements of Appendix J to 10 CFR 50 with the exception of exemptions granted for testing the air locks after each opening.

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on PRIMARY CONTAINMENT INTEGRITY and the containment leakage rate given in Specifications 3.6.1.1 and 3.6.1.2. The specification makes allowances for the fact that there may be long periods of time when the air locks will be in a closed and secured position during reactor operation. Only one closed door in each air lock is required to maintain the integrity of the containment.

Insert B here

An allowance has been provided within Action a.1 for access into or through the containment air locks when an interlock mechanism in one or both air locks is inoperable. Action a.1 requires that at least one of the two OPERABLE doors for each affected air lock be maintained closed, and if the interlock mechanism has not been restored to OPERABLE status within 24 hours, one door must be locked closed. The provisions of footnote * may be utilized for entries and exits. The administrative controls of footnote * allow the unlocking and use of the air lock provided that an individual is stationed at the air lock, dedicated to assuring that at least one OPERABLE air lock door remains closed at all times. This allowance is provided to address those situations when the use of an air lock with only an inoperable interlock mechanism may be preferred over the use of the other air lock, such as when the other air lock has an inoperable door.

An allowance has also been provided in Action a.2 for access into or through the containment air locks when one air lock door in one or both air locks is inoperable. The first sentence of footnote ** provides that entry and exit through the OPERABLE door on one or both air locks is permissible under administrative controls for the performance of repairs of the affected air lock components. The second sentence of footnote ** provides for entry into and exit from the containment for activities other than just the repairs of affected air lock components under administrative controls, but only permits these entries when both air locks have an inoperable door, and limits such use to a 7 day period. The administrative controls for the second sentence shall define limits on entry and exit, in order to minimize openings of the OPERABLE door.

INSERT B

In Operational Conditions 4 and 5, the probability and consequences of LOCAs are reduced due to the pressure and temperature limitations in these Operational Conditions. Therefore, maintaining primary containment air lock OPERABILITY is only required during situations for which significant releases of radioactive material can be postulated; such as during operations with the potential for draining the reactor vessel, or during handling of recently irradiated fuel assemblies. Due to radioactive decay, handling of fuel only requires primary containment air lock OPERABILITY when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

DEPRESSURIZATION SYSTEMS (Continued)

The suppression pool cooling function is a mode of the RHR system and functions as part of the containment heat removal system. The purpose of the system is to ensure containment integrity following a LOCA by preventing excessive containment pressures and temperatures. The suppression pool cooling mode is designed to limit the long term bulk temperature of the pool to 185°F considering all of the post-LOCA energy additions. The suppression pool cooling trains, being an integral part of the RHR system, are redundant, safety-related component systems that are initiated following the recovery of the reactor vessel water level by ECCS flows from the RHR system. Heat rejection to the emergency service water is accomplished in the RHR heat exchangers.

The suppression pool make-up system provides water from the upper containment pool to the suppression pool by gravity flow through two 100% capacity dump lines following a LOCA. The quantity of water provided is sufficient to account for all conceivable post-accident entrapment volumes, ensuring the long term energy sink capabilities of the suppression pool and maintaining the water coverage over the uppermost drywell vents. During refueling, there will be administrative control to ensure the make-up dump valves will not be opened.

The upper containment pool water level may be reduced (for example, for maintenance of the inclined fuel transfer system), provided the minimum required suppression pool level (volume) is raised to compensate. Raising the minimum required suppression pool water level provides the same effective volume of water (by transferring a portion of the upper pool dump volume to the suppression pool) and ensures that after a suppression pool make-up system dump, adequate water coverage over the uppermost drywell horizontal vents and the long-term energy sink capability of the suppression pool is maintained.

3/4.6.4 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of GDC 54 through 57 of Appendix A to 10 CFR 50. Containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

Insert C here

INSERT C

In Operational Conditions 4 and 5, the probability and consequences of LOCAs are reduced due to the pressure and temperature limitations in these Operational Conditions. Therefore, maintaining containment isolation valve OPERABILITY is only required during situations for which significant releases of radioactive material can be postulated; such as during operations with the potential for draining the reactor vessel, or during handling of recently irradiated fuel assemblies. Due to radioactive decay, handling of fuel only requires containment isolation valve OPERABILITY when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

All required Containment Isolation Valves are listed in the PNPP Unit 1 Plant Data Book. The opening of normally locked or sealed closed containment isolation valves under administrative controls in accordance with footnote # includes the following considerations: (1) stationing an operator, who is in constant communication with the control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment. The above considerations do not apply to the normally locked closed (LC) Fire Protection system manual hose reel containment isolation valves 1P54-F726 and -F727 when opened as necessary to supply fire mains when handling irradiated fuel in the primary containment, ~~during CORE ALTERATIONS~~ and operations with a potential for draining the reactor vessel.

during

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3/4.6.5 VACUUM RELIEF

3/4.6.5.1 CONTAINMENT VACUUM RELIEF AND 3/4.6.5.2 CONTAINMENT HUMIDITY CONTROL

Vacuum breakers are provided on the containment to prevent an excessive vacuum from developing inside containment during an inadvertent or improper operation of the containment spray. Four vacuum breakers and their associated isolation valves are provided. Any two vacuum breakers provide 100% vacuum relief.

The containment vacuum relief system is designed to prevent an excessive vacuum from being created inside the containment following inadvertent initiation of the containment spray system. By maintaining temperature/relative humidity within the limits for acceptable operation shown on Figure 3.6.5.2-1, the maximum containment vacuum created by actuation of both containment spray loops will be limited to approximately -0.7 psig.

3/4.6.5.3 DRYWELL VACUUM BREAKERS

Drywell vacuum breakers are provided on the drywell to prevent drywell flooding due to differential pressure across the drywell and to equalize pressure between the drywell and containment.

Two drywell vacuum breakers and their associated isolation valves are provided. Any one vacuum breaker can provide full vacuum relief capability.

3/4.6.6 SECONDARY CONTAINMENT

Secondary containment is designed to minimize any ground level release of radioactive material which may result from an accident. The Shield Building provides secondary containment during ~~normal operation~~ periods when the primary containment integrity is required. ~~sealed and in service. At other times, the containment may be open and, when required, secondary containment integrity is specified.~~

Establishing and maintaining a vacuum in the annulus with the annulus exhaust gas treatment system, along with the surveillance of the doors, hatches, and valves, is adequate to ensure that there are no violations of the integrity of the secondary containment.

The OPERABILITY of the annulus exhaust gas treatment systems ensures that sufficient iodine removal capability will be available in the event of a LOCA. The reduction in containment iodine inventory reduces the resulting site

3/4.6.6 SECONDARY CONTAINMENT (Continued)

boundary radiation doses associated with containment leakage. The operation of this system and resultant iodine removal capacity are consistent with the assumptions used in the LOCA analyses. Continuous operation of the system with the heaters OPERABLE for 10 hours during each 31 day period is sufficient to reduce the buildup of moisture on the absorbers and HEPA filters.

Insert D here

3/4.6.7 ATMOSPHERE CONTROL

The OPERABILITY of the systems required for the detection and control of hydrogen gas ensures that these systems will be available to maintain the hydrogen concentration within the containment below its flammable limit during post-LOCA conditions. The containment hydrogen recombiner system is capable of controlling the expected hydrogen generation associated with (1) zirconium-water reactions, (2) radiolytic decomposition of water and (3) corrosion of metals within containment. The combustible gas mixing system is provided to ensure adequate mixing of the containment atmosphere following a LOCA. This mixing action will prevent localized accumulations of hydrogen from exceeding the flammable limit.

Two 100% combustible gas mixing subsystems are the primary means of H_2 control within the drywell, purging hydrogen produced following a LOCA into the containment volume. Hydrogen generated from the metal-water reaction and radiolysis is assumed to evolve to the drywell atmosphere and form a homogenous mixture through natural forces and mechanical turbulence (ECCS pipe break flow). The combustible gas mixing system forces drywell atmosphere into the containment.

The hydrogen control system is consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA", November, 1978.

The OPERABILITY of the primary containment/drywell hydrogen igniters ensures that hydrogen combustion can be accomplished in a controlled manner following a degraded core event that produces hydrogen concentrations in excess of LOCA conditions.

Inaccessible areas are defined as areas that have high radiation levels during the entire refueling outage period. These areas are the heat exchanger, filter demineralizer, backwash, and holding pump rooms of the RWCU system.

INSERT D

In Operational Conditions 4 and 5, the probabiiity and consequences of LOCAs are reduced due to the pressure and temperature limitations in these Operational Conditions. Therefore, maintaining Secondary Containment Integrity and Annulus Exhaust Gas Treatment System OPERABILITY is only required during situations for which significant releases of radioactive material can be postulated; such as during operations with the potential for draining the reactor vessel, or during handling of recently irradiated fuel assemblies. Due to radioactive decay, handling of fuel only requires Secondary Containment Integrity and Annulus Exhaust Gas Treatment System OPERABILITY when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

3/4.7.1 COOLING WATER SYSTEMS

The OPERABILITY of the service water systems ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of these systems, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.

3/4.7.2 CONTROL ROOM EMERGENCY RECIRCULATION SYSTEM

The OPERABILITY of the control room emergency recirculation system ensures that 1) the ambient air temperature does not exceed the allowable temperature for continucus duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and following all design basis accident conditions. Continuous operation of the system with the heaters OPERABLE for 10 hours during each 31 day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criteria 19 of Appendix "A", 10 CFR Part 50.

Insert E here

3/4.7.3 REACTOR CORE ISOLATION COOLING SYSTEM

The reactor core isolation cooling (RCIC) system is provided to assure adequate core cooling in the event of reactor isolation from its primary heat sink and the loss of feedwater flow to the reactor vessel without requiring actuation of any of the Emergency Core Cooling System equipment. The RCIC system is conservatively required to be OPERABLE whenever reactor pressure exceeds 150 psig. This pressure is substantially below that for which the low pressure core cooling systems can provide adequate core cooling for events requiring the RCIC system.

The RCIC system specifications are applicable during OPERATIONAL CONDITIONS 1, 2 and 3 when reactor vessel pressure exceeds 150 psig because RCIC is the primary non-ECCS source of emergency core cooling when the reactor is pressurized.

With the RCIC system inoperable, adequate core cooling is assured by the OPERABILITY of the HPCS system and justifies the specified 14 day out-of-service period.

The surveillance requirements provide adequate assurance that RCIC will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation during reactor operation, a complete functional test requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage and to start cooling at the earliest possible moment.

INSERT E

In Operational Conditions 4 and 5, the probability and consequences of LOCAs are reduced due to the pressure and temperature limitations in these Operational Conditions. Therefore, maintaining Control Room Emergency Recirculation System OPERABILITY is only required during situations for which significant releases of radioactive material can be postulated; such as during operations with the potential for draining the reactor vessel, or during handling of recently irradiated fuel assemblies. Due to radioactive decay, handling of fuel only requires Control Room Emergency Recirculation System OPERABILITY when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

3/4.7.6 MAIN TURBINE BYPASS SYSTEM

The main turbine bypass system is required to be OPERABLE consistent with the assumptions of the feedwater controller failure analysis in FSAR Chapter 15.

3/4.7.7 FUEL HANDLING BUILDING

FUEL HANDLING BUILDING INTEGRITY ensures that the release of radioactive materials from the Fuel Handling Building following a fuel handling accident will be consistent with the accident analyses. The Fuel Handling Building Ventilation Exhaust System ensures that no significant fraction of the radioactive release from a postulated fuel handling accident involving recently irradiated fuel could escape untreated.

Insert new paragraph here

Due to radioactive decay, handling of fuel only requires Fuel Handling Building INTEGRITY and Ventilation Exhaust System OPERABILITY when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.

3/4.8.1, 3/4.8.2 and 3/4.8.3 A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least Division 1 or 2 of the onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. or D.C. source. Division 3 supplies the high pressure core spray (HPCS) system only. (Insert F here)

The A.C. and D. C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974 as modified by plant specific analysis and diesel generator manufacturer recommendations. When diesel generator Division 1 or Division 2 is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator Division 1 or Division 2 as a source of emergency power, are also OPERABLE. This requirement is intended to provide assurance that a loss of offsite power event will not result in a complete loss of safety function of critical systems during the period diesel generator Division 1 or Division 2 is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that (1) the facility can be maintained in the shutdown or refueling condition for extended time periods and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977 as modified by plant specific analyses and diesel generator manufacturer recommendations.

INSERT F

Due to radioactive decay, handling of fuel only requires OPERABILITY of electrical power sources and distribution systems when the fuel being handled is recently irradiated, i.e., fuel that has occupied part of a critical reactor core within the previous seven days.