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## 1.0 USE AND APPLICATION

### 1.1 Definitions

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-----NOTE-----  
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

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<u>Term</u>	<u>Definition</u>
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the LHGRs for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an in-place qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps.

1.1 Definitions

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CORE ALTERATION

CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS:

- a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and
- b. Control rod movement, provided there are no fuel assemblies in the associated core cell.

Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

CORE OPERATING LIMITS REPORT (COLR)

The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.3. Plant operation within these limits is addressed in individual Specifications.

DOSE EQUIVALENT I-131

DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be those listed in Federal Guidance Report (FGR)-11, "Limiting Values of Radionuclide Intake and Air Concentration Factors for Inhalation, Submersion and Ingestion," September 1988, and FGR-12, "External Exposure to Radionuclides in Air, Water and Soil," September 1993.

DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

- a) The water inventory above the TAF is divided by the limiting drain rate;
- b) The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single

human error), for all penetration flow paths below the TAF except:

1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;
  2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or
  3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.
- c) The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;
- d) No additional draining events occur; and
- e) Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

## LEAKAGE

LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE into the drywell, such as that from pump seals or valve packing that is captured and conducted to a sump or collecting tank; or
2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE;

## 1.1 Definitions

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### LEAKAGE (continued)

b. Unidentified LEAKAGE

All LEAKAGE into the drywell that is not identified LEAKAGE;

c. Total LEAKAGE

Sum of the identified and unidentified LEAKAGE; and

d. Pressure Boundary LEAKAGE

LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.

LINEAR HEAT GENERATION RATE (LHGR)

The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.

LOGIC SYSTEM FUNCTIONAL TEST

A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.

MINIMUM CRITICAL POWER RATIO (MCPR)

The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.

MODE

A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.

## 1.1 Definitions

---

OPERABLE – OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.5.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2004 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from initiation of any RPS channel trip to the de-energization of the scram pilot valve solenoids. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
SHUTDOWN MARGIN (SDM)	SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that: <ol style="list-style-type: none"><li>The reactor is xenon free;</li><li>The moderator temperature is <math>\geq 68^{\circ}\text{F}</math> corresponding to the most reactive state; and</li><li>All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.</li></ol>

1.1 Definitions

---

STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during $n$ Surveillance Frequency intervals, where $n$ is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TURBINE BYPASS SYSTEM RESPONSE TIME	The TURBINE BYPASS SYSTEM RESPONSE TIME shall be that time interval from when the main turbine trip solenoid is activated until 80% of the turbine bypass capacity is established. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

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Table 1.1-1 (page 1 of 1)  
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel <sup>(a)</sup> or Startup/Hot Standby	NA
3	Hot Shutdown <sup>(a)</sup>	Shutdown	> 212
4	Cold Shutdown <sup>(a)</sup>	Shutdown	≤ 212
5	Refueling <sup>(b)</sup>	Shutdown or Refuel	NA

(a) All reactor vessel head closure bolts fully tensioned.

(b) One or more reactor vessel head closure bolts less than fully tensioned.

3.3 INSTRUMENTATION

3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

LCO 3.3.5.1 The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	<p>B.1 -----NOTES-----  <del>1. Only applicable in MODES 1, 2, and 3.</del>  <del>2. Only applicable for Functions 1.a, 1.b, 2.a, 2.b, 2.f, 2.h, and 2.k.</del></p> <p>Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.</p> <p><u>AND</u></p>	1 hour from discovery of loss of initiation capability for feature(s) in both divisions

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.2 -----NOTE----- Only applicable for Functions 3.a and 3.b. -----</p> <p>Declare High Pressure Coolant Injection (HPCI) System inoperable.</p> <p><u>AND</u></p> <p>B.3 Place channel in trip.</p>	<p>1 hour from discovery of loss of HPCI initiation capability</p> <p>24 hours</p>
<p>C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>C.1 -----NOTES----- 1. <del>Only applicable in MODES 1, 2, and 3.</del>  2. Only applicable for Functions 1.c, 1.d, 1.e, 1.f, 2.c, 2.d, 2.e, 2.i, 2.j, 2.l, and 2.m. -----</p> <p>Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore channel to OPERABLE status.</p>	<p>1 hour from discovery of loss of initiation capability for feature(s) in both divisions</p> <p>24 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>D.1 -----NOTE----- Only applicable if HPCI pump suction is not aligned to the suppression pool. -----</p> <p>Declare HPCI System inoperable.</p> <p><u>AND</u></p> <p>D.2.1 Place channel in trip.</p> <p><u>OR</u></p> <p>D.2.2 Align the HPCI pump suction to the suppression pool.</p>	<p>1 hour from discovery of loss of HPCI initiation capability</p> <p>24 hours</p> <p>24 hours</p>
<p>E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>E.1 -----NOTES----- 1. <del>Only applicable in MODES 1, 2, and 3.</del> <del>2.</del> Only applicable for Function 2.g. -----</p> <p>Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.</p> <p><u>AND</u></p> <p>E.2 Restore channel to OPERABLE status.</p>	<p>1 hour from discovery of loss of initiation capability for subsystems in both divisions</p> <p>7 days</p>

CTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>F.1 Declare Automatic Depressurization System (ADS) valves inoperable.</p> <p><u>AND</u></p> <p>F.2 Place channel in trip.</p>	<p>1 hour from discovery of loss of ADS initiation capability in both trip systems</p> <p>96 hours from discovery of inoperable channel concurrent with HPCI or reactor core isolation cooling (RCIC) inoperable</p> <p><u>AND</u></p> <p>8 days</p>
<p>G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>G.1 Declare ADS valves inoperable.</p> <p><u>AND</u></p> <p>G.2 Restore channel to OPERABLE status.</p>	<p>1 hour from discovery of loss of ADS initiation capability in both trip systems</p> <p>96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable</p> <p><u>AND</u></p> <p>8 days</p>
<p>H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.</p>	<p>H.1 Declare associated supported feature(s) inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 3.c and 3.f; and (b) for up to 6 hours for Functions other than 3.c and 3.f provided the associated Function or the redundant Function maintains ECCS initiation capability.
- 

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.1.3	Calibrate the trip unit.	92 days
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.5.1.5	Perform CHANNEL FUNCTIONAL TEST.	12 months
SR 3.3.5.1.6	Perform CHANNEL CALIBRATION.	12 months
SR 3.3.5.1.7	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.1.8	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months
SR 3.3.5.1.9	Perform CHANNEL FUNCTIONAL TEST.	24 months

Table 3.3.5.1-1 (page 1 of 6)  
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low	1, 2, 3, <del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	4 <sup>(ab)</sup>	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ -48 inches
b. Drywell Pressure - High	1, 2, 3	4 <sup>(ab)</sup>	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.8	≤ 2 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive)	1, 2, 3	2	C	SR 3.3.5.1.2 SR 3.3.5.1.4 <sup>(be)(c)</sup> SR 3.3.5.1.8	≥ 397 psig and ≤ 440 psig
	<del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	<del>2</del>	<del>B</del>	<del>SR 3.3.5.1.2 SR 3.3.5.1.4<sup>(e)(d)</sup> SR 3.3.5.1.8</del>	<del>≥ 397 psig and ≤ 440 psig</del>
d. Reactor Steam Dome Pressure Permissive - Low (Pump Permissive)	1, 2, 3	2	C	SR 3.3.5.1.2 SR 3.3.5.1.4 <sup>(be)(c)</sup> SR 3.3.5.1.8	≥ 397 psig
	<del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	<del>2</del>	<del>B</del>	<del>SR 3.3.5.1.2 SR 3.3.5.1.4<sup>(e)(d)</sup> SR 3.3.5.1.8</del>	<del>≥ 397 psig</del>
e. Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)	1, 2, 3	2	C	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ 18 minutes
	<del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	<del>2</del>	<del>B</del>	<del>SR 3.3.5.1.7 SR 3.3.5.1.8</del>	<del>≤ 18 minutes</del>

~~(a) — When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, "ECCS Shutdown."~~

~~(ab)~~ Also required to initiate the associated emergency diesel generator (EDG).

~~(be)~~ If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

~~(cd)~~ The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the nominal trip setpoint; otherwise, the channel shall be declared inoperable. The nominal trip setpoint and the methodology used to determine the as-found tolerance and the as-left tolerance are specified in the Technical Requirements Manual (TRM).

Table 3.3.5.1-1 (page 2 of 6)  
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
f. Core Spray Pump Start - Time Delay Relay	1, 2, 3 <del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	1 per pump	C	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ 15.86 seconds
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low	1, 2, 3 <del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ -48 inches
b. Drywell Pressure - High	1, 2, 3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.8	≤ 2 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive)	1, 2, 3	2	C	SR 3.3.5.1.2 SR 3.3.5.1.4 <sup>(be)(c)</sup> SR 3.3.5.1.8	≥ 397 psig and ≤ 440 psig
	<del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	<del>2</del>	<del>B</del>	<del>SR 3.3.5.1.2 SR 3.3.5.1.4<sup>(e)(d)</sup> SR 3.3.5.1.8</del>	<del>≥ 397 psig and ≤ 440 psig</del>
d. Reactor Steam Dome Pressure Permissive - Low (Pump Permissive)	1, 2, 3	2	C	SR 3.3.5.1.2 SR 3.3.5.1.4 <sup>(be)(c)</sup> SR 3.3.5.1.8	≥ 397 psig
	<del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	<del>2</del>	<del>B</del>	<del>SR 3.3.5.1.2 SR 3.3.5.1.4<sup>(e)(d)</sup> SR 3.3.5.1.8</del>	<del>≥ 397 psig</del>

~~(a) — When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2.~~

(be) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(cd) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the nominal trip setpoint; otherwise, the channel shall be declared inoperable. The nominal trip setpoint and the methodology used to determine the as-found tolerance and the as-left tolerance are specified in the TRM.

Table 3.3.5.1-1 (page 3 of 6)  
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System					
e. Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)	1, 2, 3 <del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	2 <del>2</del>	C <del>B</del>	SR 3.3.5.1.7 SR 3.3.5.1.8 <del>SR 3.3.5.1.7</del> <del>SR 3.3.5.1.8</del>	≤ 18 minutes <del>≤ 18 minutes</del>
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay	1, 2, 3, <del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	4 per pump	B	SR 3.3.5.1.7 SR 3.3.5.1.8	
Pumps A, B					≤ 5.33 seconds
Pumps C, D					≤ 10.59 seconds
g. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, 2, 3, <del>4<sup>(a)</sup>, 5<sup>(a)</sup></del>	1 per pump	E	SR 3.3.5.1.2 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ 360 gpm and ≤ 745 gpm
h. Reactor Steam Dome Pressure - Low (Break Detection)	1, 2, 3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ 873.6 psig and ≤ 923.4 psig
i. Recirculation Pump Differential Pressure - High (Break Detection)	1, 2, 3	4 per pump	C	SR 3.3.5.1.2 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ 63.5 inches wc
j. Recirculation Riser Differential Pressure - High (Break Detection)	1, 2, 3	4	C	SR 3.3.5.1.2 SR 3.3.5.1.7 <sup>(be)(cd)</sup> SR 3.3.5.1.8	≤ 100.0 inches wc

~~(a) — When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2.~~

(be) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(cd) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the nominal trip setpoint; otherwise, the channel shall be declared inoperable. The nominal trip setpoint and the methodology used to determine the as-found tolerance and the as-left tolerance are specified in the TRM.

Table 3.3.5.1-1 (page 4 of 6)  
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System					
k. Recirculation Steam Dome Pressure - Time Delay Relay (Break Detection)	1, 2, 3	2	B	SR 3.3.5.1.7 SR 3.3.5.1.8 SR 3.3.5.1.9	≤ 2.97 seconds
l. Recirculation Pump Differential Pressure - Time Delay Relay (Break Detection)	1, 2, 3	2	C	SR 3.3.5.1.7 SR 3.3.5.1.8 SR 3.3.5.1.9	≤ 0.75 seconds
m. Recirculation Riser Differential Pressure - Time Delay Relay (Break Detection)	1, 2, 3	2	C	SR 3.3.5.1.7 SR 3.3.5.1.8 SR 3.3.5.1.9	≤ 0.75 seconds
3. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level - Low Low	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ -48 inches
b. Drywell Pressure - High	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	4	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.8	≤ 2 psig
c. Reactor Vessel Water Level - High	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	2	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.7 SR 3.3.5.1.8	≤ 48 inches
d. Condensate Storage Tank Level - Low	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	2	D	SR 3.3.5.1.7 SR 3.3.5.1.8	≥ 29.3 inches
e. Suppression Pool Water Level - High	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	2	D	SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.8	≤ 3.0 inches
f. High Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	1	E	SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.8	≥ 362 gpm and ≤ 849 gpm

(de) With reactor steam dome pressure > 150 psig.

Table 3.3.5.1-1 (page 5 of 6)  
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level - Low Low	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ -48 inches
b. Automatic Depressurization System Initiation Timer	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	1	G	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ 120 seconds
c. Core Spray Pump Discharge Pressure - High	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 <sup>(be)(c)(e)</sup> SR 3.3.5.1.8	≥ 75 psig and ≤ 125 psig
d. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	4	G	SR 3.3.5.1.2 SR 3.3.5.1.4 <sup>(be)(c)(e)</sup> SR 3.3.5.1.8	≥ 75 psig and ≤ 125 psig
5. ADS Trip System B					
a. Reactor Vessel Water Level - Low Low	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ -48 inches
b. Automatic Depressurization System Initiation Timer	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	1	G	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ 120 seconds

(be) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(ce) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the nominal trip setpoint; otherwise, the channel shall be declared inoperable. The nominal trip setpoint and the methodology used to determine the as-found tolerance and the as-left tolerance are specified in the TRM.

(de) With reactor steam dome pressure > 150 psig.

Table 3.3.5.1-1 (page 6 of 6)  
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. ADS Trip System B					
c. Core Spray Pump Discharge Pressure - High	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 <sup>(be)(c)</sup> SR 3.3.5.1.8	≥ 75 psig and ≤ 125 psig
d. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, 2 <sup>(de)</sup> , 3 <sup>(de)</sup>	4	G	SR 3.3.5.1.2 SR 3.3.5.1.4 <sup>(be)(c)</sup> SR 3.3.5.1.8	≥ 75 psig and ≤ 125 psig

(be) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(ce) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the nominal trip setpoint; otherwise, the channel shall be declared inoperable. The nominal trip setpoint and the methodology used to determine the as-found tolerance and the as-left tolerance are specified in the TRM.

(de) With reactor steam dome pressure > 150 psig.

3.3 INSTRUMENTATION

3.3.5.3 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.3 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.3-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.3-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.3-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	B.1 Declare associated penetration flow path(s) incapable of automatic isolation.	Immediately
	<u>AND</u>	
	B.2 Calculate DRAIN TIME.	Immediately
C. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	C.1 Place channel in trip.	1 hour
D. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	D.1 Restore channel to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Declare associated low pressure ECCS injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----

Refer to Table 3.3.5.3-1 to determine which SRs apply for each ECCS Function.

-----

SURVEILLANCE	FREQUENCY
SR 3.3.5.3.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.5.3.2 Perform CHANNEL FUNCTIONAL TEST.	92 days

Table 3.3.5.3-1 (page 1 of 1)  
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	2	C	SR 3.3.5.3.2	≥ 397 psig and ≤ 440psig
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	2	C	SR 3.3.5.3.2	≥ 397 psig and ≤ 440 psig
b. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	4, 5	1 per pump(a)	D	SR 3.3.5.3.2	≥ 360 gpm and ≤ 745 gpm
3. RHR System Isolation					
a. Reactor Vessel Water Level - Low	(b)	2	B	SR 3.3.5.3.1 SR 3.3.5.3.2	≥ 7 inches
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low	(b)	2	B	SR 3.3.5.3.1 SR 3.3.5.3.2	≥ -48 inches

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "Reactor Pressure Vessel Water Inventory Control."

(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

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

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

NOTES

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, 5.c, 6.b, 7.a, and 7.b  <u>AND</u> 24 hours for Functions other than Functions 2.a, 2.b, 5.c, 6.b, 7.a, and 7.b
B. One or more Functions with primary containment isolation capability not maintained.	B.1 Restore primary containment isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL).  <u>OR</u>  D.2.1 Be in MODE 3.  <u>AND</u>  D.2.2 Be in MODE 4.	12 hours        12 hours        36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1 Isolate the affected penetration flow path(s).	24 hours
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1 Declare associated standby liquid control (SLC) subsystem inoperable.  <u>OR</u>  H.2 Isolate the Reactor Water Cleanup System.	1 hour        1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1 Initiate action to restore channel to OPERABLE status.  <del>I.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.</del>	Immediately  <del>Immediately</del>

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains primary containment isolation capability.

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.1.2 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3 Calibrate the trip unit.	92 days
SR 3.3.6.1.4 Perform CHANNEL CALIBRATION.	92 days

**SURVEILLANCE REQUIREMENTS** (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low	1, 2, 3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -48 inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 815 psig
c. Main Steam Line Flow - High	1, 2, 3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 116.9% rated steam flow
d. Main Steam Line Tunnel Temperature - High	1, 2, 3	2 per trip string	D	SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 209°F
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low	1, 2, 3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 7 inches
b. Drywell Pressure - High	1, 2, 3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 2.0 psig
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow - High	1, 2, 3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 300,000 lb/hour with ≤ 5.58 second time delay

Table 3.3.6.1-1 (page 2 of 3)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCI System Isolation					
b. HPCI Steam Supply Line Pressure - Low	1, 2, 3	4	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 95.5 psig
c. HPCI Steam Line Area Temperature - High	1, 2, 3	16	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 196°F
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow - High	1, 2, 3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 45,903 lb/hour with ≤ 7.16 second time delay
b. RCIC Steam Supply Line Pressure - Low	1, 2, 3	4	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 54 psig
c. RCIC Steam Line Area Temperature - High	1, 2, 3	16	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 196°F
5. Reactor Water Cleanup (RWCU) System Isolation					
a. RWCU Flow - High	1, 2, 3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 500 gpm with ≤ 11.4 second time delay
b. RWCU Room Temperature - High	1, 2, 3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 188°F
c. Drywell Pressure - High	1, 2, 3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 2.0 psig

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. RWCU System Isolation					
d. SLC System Initiation	1, 2, 3	1	H	SR 3.3.6.1.6	NA
e. Reactor Vessel Water Level - Low Low	1, 2, 3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -48 inches
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1, 2, 3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 81.8 psig
b. Reactor Vessel Water Level - Low	3, 4, 5	2 <sup>(a)</sup>	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 7 inches
7. Traversing Incore Probe System Isolation					
a. Reactor Vessel Water Level - Low	1, 2, 3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 7 inches
b. Drywell Pressure - High	1, 2, 3	2	G	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 2.0 psig

~~(a) Only one channel per trip system, with an isolation signal available to one shutdown cooling supply isolation valve, is required in MODES 4 and 5, provided RHR Shutdown Cooling System integrity is maintained.~~

3.3 INSTRUMENTATION

3.3.6.2 Secondary Containment Isolation Instrumentation

LCO 3.3.6.2 The secondary containment isolation instrumentation for each Function in Table 3.3.6.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 1 and 2  <u>AND</u> 24 hours for Functions other than Functions 1 and 2
B. One or more Functions with secondary containment isolation capability not maintained.	B.1 Restore secondary containment isolation capability.	1 hour
C. Required Action and associated Completion Time not met.	C.1.1 Isolate the associated penetration flow path(s).  <u>OR</u> C.1.2 Declare associated secondary containment isolation valves inoperable.  <u>AND</u>	1 hour   1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Place the associated standby gas treatment (SGT) subsystem in operation.	1 hour
	<u>OR</u>	
	C.2.2 Declare associated SGT subsystem inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains secondary containment isolation capability.
- 

SURVEILLANCE	FREQUENCY
SR 3.3.6.2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2.2 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.2.3 Calibrate the trip unit.	92 days
SR 3.3.6.2.4 Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.2.5 Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.2.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Table 3.3.6.2-1 (page 1 of 1)  
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low	1, 2, 3, <del>(a)</del>	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.5 SR 3.3.6.2.6	≥ -48 inches
2. Drywell Pressure - High	1, 2, 3	2	SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.6	≤ 2 psig
3. Reactor Building Ventilation Exhaust Radiation - High	1, 2, 3, (a), <del>(b)</del>	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.6	≤ 100 mR/hr
4. Refueling Floor Radiation - High	1, 2, 3, (a), <del>(b)</del>	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.6	≤ 100 mR/hr

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

(~~ab~~) During movement of recently irradiated fuel assemblies in secondary containment.

3.3 INSTRUMENTATION

3.3.7.1 Control Room Emergency Filtration (CREF) System Instrumentation

LCO 3.3.7.1 The CREF System instrumentation for each Function in Table 3.3.7.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.7.1-1

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Declare associated CREF subsystem inoperable.	1 hour from discovery of loss of CREF initiation capability in both trip systems
	<u>AND</u>	
	A.2 Place channel in trip.	12 hours
B. Required Action and associated Completion Time not met.	B.1 Place the associated CREF subsystem in the pressurization mode of operation.	1 hour
	<u>OR</u>	
	B.2 Declare associated CREF subsystem inoperable.	1 hour

**SURVEILLANCE REQUIREMENTS**

-----NOTES-----

1. Refer to Table 3.3.7.1-1 to determine which SRs apply for each CREF System Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains CREF System initiation capability.
- 

SURVEILLANCE	FREQUENCY
SR 3.3.7.1.1      Perform CHANNEL CHECK.	12 hours
SR 3.3.7.1.2      Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.7.1.3      Calibrate the trip unit.	92 days
SR 3.3.7.1.4      Perform CHANNEL CALIBRATION.	92 days
SR 3.3.7.1.5      Perform CHANNEL CALIBRATION.	24 months
SR 3.3.7.1.6      Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Table 3.3.7.1-1 (Page 1 of 1)  
Control Room Emergency Filtration System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED ALLOWABLE CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE	
			REQUIREMENTS	VALUE
1. Reactor Vessel Water Level - Low Low	1, 2, 3, <del>(a)</del>	2	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.5 SR 3.3.7.1.6	≥ - 48 inches
2. Drywell Pressure - High	1, 2, 3	2	SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.6	≤ 2 psig
3. Reactor Building Ventilation Exhaust Radiation - High	1, 2, 3, (a), <del>(b)</del>	2	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.6	≤ 100 mR/hr
4. Refueling Floor Radiation - High	1, 2, 3, (a), <del>(b)</del>	2	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.6	≤ 100 mR/hr

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

~~(b)~~(a) During movement of recently irradiated fuel assemblies in the secondary containment.

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM (RCIC)

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of three safety/relief valves shall be OPERABLE.

-----NOTE-----  
Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) shutdown cooling supply isolation interlock in MODE 3, if capable of being manually realigned and not otherwise inoperable.  
-----

APPLICABILITY: MODE 1, MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig.

ACTIONS

-----NOTE-----  
LCO 3.0.4.b is not applicable to HPCI.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One LPCI pump inoperable.	A.1 Restore LPCI pump to OPERABLE status.	30 days
B. One LPCI subsystem inoperable for reasons other than Condition A.  <u>OR</u> One Core Spray subsystem inoperable.	B.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One LPCI pump in both LPCI subsystems inoperable.	C.1 Restore one LPCI pump to OPERABLE status.	7 days
D. Two LPCI subsystems inoperable for reasons other than Condition C or G.	D.1 Restore one LPCI subsystem to OPERABLE status.	72 hours
<p>E. One Core Spray subsystem inoperable.</p> <p><u>AND</u></p> <p>One LPCI subsystem inoperable.</p> <p><u>OR</u></p> <p>One or two LPCI pump(s) inoperable.</p>	<p>E.1 Restore Core Spray subsystem to OPERABLE status.</p> <p><u>OR</u></p> <p>E.2 Restore LPCI subsystem to OPERABLE status.</p> <p><u>OR</u></p> <p>E.3 Restore LPCI pump(s) to OPERABLE status.</p>	<p>72 hours</p> <p>72 hours</p> <p>72 hours</p>
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	<p>F.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>F.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>
G. Two LPCI subsystems inoperable due to open RHR intertie return line isolation valve(s).	G.1 Isolate the RHR intertie line.	18 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion Time of Condition G not met.	H.1 Be in MODE 2.	6 hours
I. HPCI System inoperable.	I.1 Verify by administrative means RCIC System is OPERABLE.  <u>AND</u> I.2 Restore HPCI System to OPERABLE status.	Immediately  14 days
J. HPCI System inoperable.  <u>AND</u> Condition A, B, or C entered.	J.1 Restore HPCI System to OPERABLE status.  <u>OR</u> J.2 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	72 hours  72 hours
K. One ADS valve inoperable.	K.1 Restore ADS valve to OPERABLE status.	14 days



SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.	31 days
SR 3.5.1.2	<p>-----NOTE-----                      Not required to be met for system vent flow paths opened under administrative control.                      -----</p> <p>Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
SR 3.5.1.3	<p>Verify ADS pneumatic pressure is as follows for each required ADS pneumatic supply:</p> <ul style="list-style-type: none"> <li>a. S/RV Accumulator Bank header pressure <math>\geq</math> 88.3 psig; and</li> <li>b. Alternate Nitrogen System pressure is <math>\geq</math> 1060 psig.</li> </ul>	31 days
SR 3.5.1.4	<p>-----NOTE-----                      Only required to be met in MODE 1.                      -----</p> <p>Verify the RHR System intertie return line isolation valves are closed.</p>	31 days
SR 3.5.1.5	Verify correct breaker alignment to the LPCI swing bus.	31 days
SR 3.5.1.6	Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY												
SR 3.5.1.7	<p>Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified reactor to containment pressure.</p> <table border="1"> <thead> <tr> <th>System</th> <th>Flow Rate</th> <th>No. of Pumps</th> <th>System Head Corresponding to a Reactor to Containment Pressure of</th> </tr> </thead> <tbody> <tr> <td>Core Spray</td> <td>≥ 2835 gpm</td> <td>1</td> <td>≥ 130 psi</td> </tr> <tr> <td>LPCI</td> <td>≥ 3870 gpm</td> <td>1</td> <td>≥ 20 psi</td> </tr> </tbody> </table>	System	Flow Rate	No. of Pumps	System Head Corresponding to a Reactor to Containment Pressure of	Core Spray	≥ 2835 gpm	1	≥ 130 psi	LPCI	≥ 3870 gpm	1	≥ 20 psi	In accordance with the Inservice Testing Program
System	Flow Rate	No. of Pumps	System Head Corresponding to a Reactor to Containment Pressure of											
Core Spray	≥ 2835 gpm	1	≥ 130 psi											
LPCI	≥ 3870 gpm	1	≥ 20 psi											
SR 3.5.1.8	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor steam dome pressure ≤ 1025.3 psig and ≥ 950 psig, the HPCI pump can develop a flow rate ≥ 2700 gpm against a system head corresponding to reactor pressure.</p>	In accordance with the Inservice Testing Program												
SR 3.5.1.9	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 2700 gpm against a system head corresponding to reactor pressure.</p>	24 months												

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.10 -----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>
<p>SR 3.5.1.11 -----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>
<p>SR 3.5.1.12 -----NOTE----- Not required to be performed until 12 hours after reactor steam flow is adequate to perform the test. -----</p> <p>Verify each ADS valve is capable of being opened.</p>	<p>In accordance with the Inservice Testing Program</p>
<p>SR 3.5.1.13</p> <p>Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.</p>	<p>24 months</p>

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS), **RPV WATER INVENTORY CONTROL**, AND REACTOR CORE ISOLATION COOLING (**RCIC**) SYSTEM (~~RCIC~~)

3.5.2 **RPV Water Inventory Control** ~~ECCS--Shutdown~~

LCO 3.5.2 **DRAIN TIME** of RPV water inventory to the top of active fuel (TAF) shall be  $\geq 36$  hours.

**AND**

~~OneTwo~~ low pressure ECCS injection/spray subsystems shall be OPERABLE.

-----NOTE-----  
A ~~One~~ Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.  
-----

APPLICABILITY: ~~MODE 4 ;~~  
~~MODE and 5~~  
~~except with the spent fuel storage pool gates removed and water level  $\geq 21$  ft 11 inches over the top of the reactor pressure vessel flange.~~

**ACTIONS**

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. <del>One</del> Required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 <b>Initiate action to establish a method of water injection capable of operating without offsite electrical power.</b> <del>Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).</del>	Immediately
C. <b>DRAIN TIME &lt; 36 hours</b>	C.1 <b>Verify secondary</b>	4 hours

ACTIONS (continued)

<p>and <math>\geq 8</math> hours.</p> <p><del>C. Two required ECCS injection/spray subsystems inoperable.</del></p>	<p>containment boundary is capable of being established in less than the DRAIN TIME.</p> <p><u>AND</u></p> <p>C.2 Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.</p> <p><u>AND</u></p> <p>C.3 Verify one standby gas treatment subsystem is capable of being placed in operation in less than the DRAIN TIME.</p> <p><del>C.1 Initiate action to suspend OPDRVs.</del></p> <p><u>AND</u></p> <p><del>C.2 Restore one required ECCS injection/spray subsystem to OPERABLE status.</del></p>	<p></p> <p>4 hours</p> <p>4 hours Immediately</p> <p>4 hours</p>
<p>D. DRAIN TIME &lt; 8 hours.</p>	<p>D.1 ----- NOTE ----- Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ----- Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level &gt; TAF for <math>\geq 36</math> hours.</p>	<p>Immediately</p>

ACTIONS (continued)

	<p><u>AND</u></p> <p>D.2 Initiate action to establish secondary containment boundary.</p> <p><u>AND</u></p> <p>D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room.</p> <p><u>AND</u></p> <p>D.4 Initiate action to verify one standby gas treatment subsystem is capable of being placed in operation.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>E. Required Action and associated Completion Time of Condition C or D not met.</p> <p><u>OR</u></p> <p>DRAIN TIME &lt; 1 hour.</p>	<p>E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.</p>	<p>Immediately</p>

ACTIONS (continued)  
~~ACTIONS (continued)~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
<del>D. Required Action C.2 and associated Completion Time not met.</del>	<del>D.1 Initiate action to restore secondary containment to OPERABLE status.</del>  <u>AND</u>  <del>D.2 Initiate action to restore one standby gas treatment subsystem to OPERABLE status.</del>  <u>AND</u>  <del>D.3 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.</del>	<del>Immediately</del>  <del>Immediately</del>  <del>Immediately</del>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	12 hours
SR 3.5.2.24	Verify, for <del>each</del> a required ECCS injection/spray subsystem, the: <ul style="list-style-type: none"> <li>a. Suppression pool water level is ≥ -3 ft; or</li> <li>b. <del>NOTE</del></li> </ul> <del>Only one required ECCS injection/spray subsystem may take credit for this option during OPDRVs.</del>  Condensate storage tank(s) water level is ≥ 7 ft for one tank operation and ≥ 4 ft for two tank operation.	12 hours

ACTIONS (continued)

SURVEILLANCE	FREQUENCY
SR 3.5.2.3      Verify, for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.	31 days

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY																																								
<p><del>SR 3.5.2.2</del> Verify, for each required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>31 days</p>																																								
<p>SR 3.5.2.43 -----NOTE----- Not required to be met for system vent flow paths opened under administrative control. ----- Verify for each the required ECCS injection/spray subsystem, each manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	<p>31 days</p>																																								
<p>SR 3.5.2.54 Operate the required ECCS injection/spray subsystem through the recirculation line for <math>\geq 10</math> minutes. <del>Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor to containment pressure.</del></p> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black; width: 30%;"></td> <td style="border-bottom: 1px solid black; width: 20%; text-align: center;">System Head</td> <td style="border-bottom: 1px solid black; width: 20%;"></td> <td style="border-bottom: 1px solid black; width: 20%;"></td> <td style="border-bottom: 1px solid black; width: 20%;"></td> </tr> <tr> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black; text-align: center;">Corresponding</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black; text-align: center;">to a Reactor to</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black; text-align: center;">No. of Containment</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black; text-align: center;"><u>System</u></td> <td style="border-bottom: 1px solid black; text-align: center;"><u>Flow Rate</u></td> <td style="border-bottom: 1px solid black; text-align: center;"><u>Pumps</u></td> <td style="border-bottom: 1px solid black; text-align: center;"><u>Pressure of</u></td> </tr> <tr> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black; text-align: center;">Core</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black; text-align: center;">Spray</td> <td style="border-bottom: 1px solid black; text-align: center;"><math>\geq 2835</math> gpm</td> <td style="border-bottom: 1px solid black; text-align: center;">1</td> <td style="border-bottom: 1px solid black; text-align: center;"><math>\geq 130</math> psi</td> </tr> <tr> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black; text-align: center;">LPCI</td> <td style="border-bottom: 1px solid black; text-align: center;"><math>\geq 3870</math> gpm</td> <td style="border-bottom: 1px solid black; text-align: center;">1</td> <td style="border-bottom: 1px solid black; text-align: center;"><math>\geq 20</math> psi</td> </tr> </table>		System Head					Corresponding					to a Reactor to					No. of Containment					<u>System</u>	<u>Flow Rate</u>	<u>Pumps</u>	<u>Pressure of</u>		Core					Spray	$\geq 2835$ gpm	1	$\geq 130$ psi		LPCI	$\geq 3870$ gpm	1	$\geq 20$ psi	<p>In accordance with the INSERVICE TESTING PROGRAM 92 days</p>
	System Head																																								
	Corresponding																																								
	to a Reactor to																																								
	No. of Containment																																								
	<u>System</u>	<u>Flow Rate</u>	<u>Pumps</u>	<u>Pressure of</u>																																					
	Core																																								
	Spray	$\geq 2835$ gpm	1	$\geq 130$ psi																																					
	LPCI	$\geq 3870$ gpm	1	$\geq 20$ psi																																					
<p>SR 3.5.2.6 Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.</p>	<p>24 months</p>																																								
<p>SR 3.5.2.75 -----NOTE----- Vessel injection/spray may be excluded. ----- Verify the each required ECCS injection/spray</p>																																									

SURVEILLANCE	FREQUENCY
subsystem <del>operates</del> <del>actuates</del> on a manual <del>an actual</del> <del>or simulated automatic</del> initiation signal.	24 months

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3.5 EMERGENCY CORE COOLING SYSTEM (ECCS), **RPV WATER INVENTORY CONTROL**, AND REACTOR CORE ISOLATION COOLING (**RCIC**) SYSTEM (**RCIC**)

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

APPLICABILITY: MODE 1,  
MODES 2 and 3 with reactor steam dome pressure > 150 psig.

ACTIONS

-----NOTE-----  
LCO 3.0.4.b is not applicable to the RCIC System.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCIC System inoperable.	A.1 Verify by administrative means High Pressure Coolant Injection System is OPERABLE.	Immediately
	<u>AND</u> A.2 Restore RCIC System to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.3.1 -----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	<p>31 days</p>
<p>SR 3.5.3.2 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure <math>\leq 1025.3</math> psig and <math>\geq 950</math> psig, the RCIC pump can develop a flow rate <math>\geq 400</math> gpm against a system head corresponding to reactor pressure.</p>	<p>In accordance with the Inservice Testing Program</p>
<p>SR 3.5.3.3 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure <math>\leq 165</math> psig, the RCIC pump can develop a flow rate <math>\geq 400</math> gpm against a system head corresponding to reactor pressure.</p>	<p>24 months</p>
<p>SR 3.5.3.4 -----NOTE----- Vessel injection may be excluded. -----</p> <p>Verify the RCIC System actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>
<p>SR 3.5.3.5 Verify the RCIC System locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>31 days</p>

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Instrumentation."

ACTIONS

NOTES

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to penetration flow paths with two PCIVs. -----</p> <p>One or more penetration flow paths with one PCIV inoperable for reasons other than Condition D or E.</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p><u>AND</u></p>	<p>4 hours except for main steam line</p> <p><u>AND</u></p> <p>8 hours for main steam line</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Isolation devices in high radiation areas may be verified by use of administrative means.</li> <li>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</li> </ol> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days for isolation devices outside primary containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-energized while in MODE 4, if not performed within the previous 92 days, for isolation devices inside primary containment</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable to penetration flow paths with two PCIVs. -----</p> <p>One or more penetration flow paths with two PCIVs inoperable for reasons other than Condition D or E.</p>	<p>B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>1 hour</p>
<p>C. -----NOTE----- Only applicable to penetration flow paths with only one PCIV. -----</p> <p>One or more penetration flow paths with one PCIV inoperable.</p>	<p>C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p> <p><u>AND</u></p>	<p>4 hours except for excess flow check valves (EFCVs) and penetrations with a closed system</p> <p><u>AND</u></p> <p>72 hours for EFCVs and penetrations with a closed system</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>C.2 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Isolation devices in high radiation areas may be verified by use of administrative means.</li> <li>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</li> </ol> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days for isolation devices outside primary containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days, for isolation devices inside primary containment</p>



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Required Action and associated Completion Time of Condition A or B not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.</p>	<p><del>G.1 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).</del></p> <p><del>OR</del></p> <p>G.12 Initiate action to restore valve(s) to OPERABLE status.</p>	<p><del>Immediately</del></p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.3.1 -----NOTE-----</p> <p>Not required to be met when the 18 inch primary containment purge and vent valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open.</p> <p>-----</p> <p>Verify each 18 inch primary containment purge and vent valve is closed.</p>	<p>31 days</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.3.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.</li> <li>2. Not required to be met for PCIVs that are open under administrative controls.</li> </ol> <p>-----</p> <p>Verify each primary containment isolation manual valve and blind flange that is located outside primary containment and not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed.</p>	<p>31 days</p>
<p>SR 3.6.1.3.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.</li> <li>2. Not required to be met for PCIVs that are open under administrative controls.</li> </ol> <p>-----</p> <p>Verify each primary containment manual isolation valve and blind flange that is located inside primary containment and not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed.</p>	<p>Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days</p>
<p>SR 3.6.1.3.4</p> <p>Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.</p>	<p>31 days</p>
<p>SR 3.6.1.3.5</p> <p>Verify the isolation time of each power operated automatic PCIV, except for MSIVs, is within limits.</p>	<p>24 months</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq 3$ seconds and $\leq 9.9$ seconds.	24 months
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates on a simulated instrument line break to restrict flow to $\leq 2$ gpm.	24 months
SR 3.6.1.3.9	Verify each 18 inch primary containment purge and vent valve is blocked to restrict the valve from opening $> 40^\circ$ .	24 months
SR 3.6.1.3.10	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.11	Perform leakage rate testing for each 18 inch primary containment purge and vent valve with resilient seals.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.12	Verify leakage rate through each MSIV is: (a) $\leq 100$ scfh when tested at $\geq 44.1$ psig ( $P_a$ ); or (b) $\leq 75.3$ scfh when tested at $\geq 25$ psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.13	Verify leakage rate through the main steam pathway is: (a) $\leq 200$ scfh when tested at $\geq 44.1$ psig ( $P_a$ ); or (b) $\leq 150.6$ scfh when tested at $\geq 25$ psig.	In accordance with the Primary Containment Leakage Rate Testing Program



SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is $\geq 0.25$ inch of vacuum water gauge.	24 hours
SR 3.6.4.1.2	Verify all secondary containment equipment hatches are closed and sealed.	31 days
SR 3.6.4.1.3	Verify one secondary containment access door in each access opening is closed.	31 days
SR 3.6.4.1.4	Verify the secondary containment can be maintained $\geq 0.25$ inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate $\leq 4000$ cfm.	24 months on a STAGGERED TEST BASIS for each SGT subsystem

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3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

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

ACTIONS

NOTES

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.  <u>AND</u>	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Isolation devices in high radiation areas may be verified by use of administrative means.</li> <li>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</li> </ol> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days</p>
<p>B. -----NOTE----- Only applicable to penetration flow paths with two isolation valves. -----</p> <p>One or more penetration flow paths with two SCIVs inoperable.</p>	<p>B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>4 hours</p>
<p>C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment <del>or during OPDRVs.</del></p>	<p>D.1 -----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>Suspend movement of recently irradiated fuel assemblies in the secondary containment.</p> <p><del>D.2</del> <del>Initiate action to suspend OPDRVs.</del></p>	<p>Immediately</p> <p><del>Immediately</del></p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.4.2.1 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.</li> <li>2. Not required to be met for SCIVs that are open under administrative controls.</li> </ol> <p>-----</p> <p>Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed.</p>	<p>31 days</p>
<p>SR 3.6.4.2.2 Verify the isolation time of each power operated, automatic SCIV is within limits.</p>	<p>92 days</p>
<p>SR 3.6.4.2.3 Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.</p>	<p>24 months</p>

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours  36 hours
C. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the secondary containment <del>or during OPDRVs.</del>	-----NOTE----- LCO 3.0.3 is not applicable. ----- C.1 Place OPERABLE SGT subsystem in operation. <u>OR</u> C.2.4 Suspend movement of recently irradiated fuel assemblies in secondary containment.  <del>AND</del>	Immediately    Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<del>C.2.2 — Initiate action to suspend OPDRVs.</del>	<del>Immediately</del>
D. Two SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately
E. Two SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment <del>or during OPDRVs.</del>	<p>E.1 -----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>Suspend movement of recently irradiated fuel assemblies in secondary containment.</p> <p><del>AND</del></p> <p><del>E.2 — Initiate action to suspend OPDRVs.</del></p>	<p>Immediately</p> <p><del>Immediately</del></p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.3.1 Operate each SGT subsystem for $\geq 15$ continuous minutes.	31 days
SR 3.6.4.3.2 Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3 Verify each SGT subsystem actuates on an actual or simulated initiation signal.	24 months

3.7 PLANT SYSTEMS

3.7.4 Control Room Emergency Filtration (CREF) System

LCO 3.7.4 Two CREF subsystems shall be OPERABLE.

-----NOTE-----  
The control room envelope (CRE) boundary may be opened intermittently under administrative control.  
-----

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREF subsystem inoperable for reasons other than Condition B.	A.1 Restore CREF subsystem to OPERABLE status.	7 days
B. One or more CREF subsystems inoperable due to inoperable CRE boundary in MODE 1, 2, or 3.	B.1 Initiate action to implement mitigating actions.	Immediately
	<u>AND</u> B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical and smoke hazards will not exceed limits.	24 hours
	<u>AND</u> B.3 Restore CRE boundary to OPERABLE status.	90 days

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.</p>	<p>C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.</p>	<p>12 hours  36 hours</p>
<p>D. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the secondary containment <del>or during OPDRVs.</del></p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>D.1 Place OPERABLE CREF subsystem in pressurization mode. <u>OR</u> D.2.1 Suspend movement of recently irradiated fuel assemblies in the secondary containment. <u>AND</u> <del>D.2.2 Initiate action to suspend OPDRVs.</del></p>	<p>Immediately  Immediately  Immediately</p>
<p>E. Two CREF subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.</p>	<p>E.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Two CREF subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment <del>or during OPDRVs.</del></p> <p><u>OR</u></p> <p>One or more CREF subsystems inoperable due to an inoperable CRE boundary during movement of recently irradiated fuel assemblies in the secondary containment <del>or during OPDRVs.</del></p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>F.1 Suspend movement of recently irradiated fuel assemblies in the secondary containment.</p> <p><del>AND</del></p> <p><del>F.2 Initiate action to suspend OPDRVs.</del></p>	<p>Immediately</p> <p><del>Immediately</del></p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.4.1 Operate each CREF subsystem for <math>\geq 15</math> continuous minutes.</p>	<p>31 days</p>
<p>SR 3.7.4.2 Perform required CREF filter testing in accordance with the Ventilation Filter Testing Program (VFTP).</p>	<p>In accordance with the VFTP</p>
<p>SR 3.7.4.3 Verify each CREF subsystem actuates on an actual or simulated initiation signal.</p>	<p>24 months</p>
<p>SR 3.7.4.4 Perform required CRE unfiltered air in-leakage testing in accordance with the Control Room Envelope Habitability Program.</p>	<p>In accordance with the Control Room Envelope Habitability Program</p>

3.7 PLANT SYSTEMS

3.7.5 Control Room Ventilation System

LCO 3.7.5 Two control room ventilation subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One control room ventilation subsystem inoperable.	A.1 Restore control room ventilation subsystem to OPERABLE status.	30 days
B. Two control room ventilation subsystems inoperable.	B.1 Verify control room area temperature < 90°F.	Once per 4 hours
	<u>AND</u> B.2 Restore one control room ventilation subsystem to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment <del>or during OPDRVs.</del>	-----NOTE----- LCO 3.0.3 is not applicable. -----	Immediately
	D.1 Place OPERABLE control room ventilation subsystem in operation.  <u>OR</u>	



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;" and
- b. One emergency diesel generator (EDG) capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8.

APPLICABILITY: MODES 4 and 5,  
During movement of recently irradiated fuel assemblies in the secondary containment.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required offsite circuit inoperable.</p>	<p>-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.8, with one required division de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s), with no offsite power available, inoperable.</p> <p><u>OR</u></p>	<p>Immediately</p>



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.7, and SR 3.8.1.8 through SR 3.8.1.13.</li> <li>2. SR 3.8.1.8 and SR 3.8.1.12 are not required to be met when associated ECCS subsystem(s) are not required to be OPERABLE per LCO 3.5.2, "ECCS - Shutdown."</li> </ol> <p>-----</p> <p>For AC sources required to be OPERABLE the SRs of Specification 3.8.1, except SR 3.8.1.6, are applicable.</p>	<p>In accordance with applicable SRs</p>

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3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 Division 1 or Division 2 125 VDC electrical power subsystem shall be OPERABLE to support one division of the DC Electrical Power Distribution System required by LCO 3.8.8, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 4 and 5,  
During movement of recently irradiated fuel assemblies in the secondary containment.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required DC electrical power subsystem inoperable.	A.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2 Suspend movement of recently irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	Immediately
	<del>A.3 Initiate action to suspend operations with a potential for draining the reactor vessel.</del>	
	<u>AND</u>	
	A.34 Initiate action to restore required DC electrical power subsystem to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.5.1</p> <p>-----NOTE----- The following SR is not required to be performed: SR 3.8.4.3. -----</p> <p>For DC sources required to be OPERABLE, the following SRs are applicable:  SR 3.8.4.1, SR 3.8.4.2, and SR 3.8.4.3.</p>	<p>In accordance with applicable SRs</p>

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3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems - Shutdown

LCO 3.8.8 The necessary portions of the 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 secondary containment.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required AC or DC electrical power distribution subsystems inoperable.</p>	<p>A.1 Declare associated supported required feature(s) inoperable.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>A.2.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.2 Suspend handling of recently irradiated fuel assemblies in the secondary containment.</p>	<p>Immediately</p>
	<p><del><u>AND</u></del></p>	
	<p><del>A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.</del></p>	<p><del>Immediately</del></p>
	<p><u>AND</u></p>	

