

RS-17-145

10 CFR 50.90

November 15, 2017

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Supplement to Clinton Power Station, Unit 1 Application to Revise Technical Specifications to Adopt TSTF-542, "Reactor Pressure Vessel Water Inventory Control"

- References:
- (1) Letter from P. R. Simpson (Exelon Generation Company, LLC (EGC)) to NRC, "Application to Revise Technical Specifications to Adopt TSTF-542, 'Reactor Pressure Vessel Water Inventory Control,'" dated April 27, 2017
 - (2) Email from J. Rankin (NRC) to M. A. Mathews (EGC), "Clinton Power Station - Request for Additional Information Regarding License Amendment Request Related to Reactor Pressure Vessel Water Inventory Control (CAC No. MF9666)," dated October 3, 2017

In Reference 1, Exelon Generation Company, LLC (EGC) submitted a request for an amendment to the Technical Specifications (TS) for Clinton Power Station (CPS), Unit 1. In Reference 2, the NRC determined that additional information was required to complete its evaluation of the Reference 1 request. The requested information, along with one additional variation from TSTF-542 related to the manual operation of a required emergency core cooling subsystem is provided in the attachments to this letter.

Additionally, on May 26, 2017, the NRC issued Operating License Amendment No. 212 for CPS, Unit 1. This amendment allows for the adoption of TSTF-545, "TS Inservice Testing Program Removal and Clarify Surveillance Requirement Usage Rule Application to Section 5.5 Testing." Attachment 2 to this letter provides revised markups of the CPS, Unit 1 TS to address issues identified in Reference 2, the adoption of TSTF-545, and the additional variation discussed above. These markups supersede those provided in Reference 1, Attachment 2 in their entirety. Attachment 3 provides the accompanying revised TS pages associated with the modifications shown in Attachment 2 as discussed above. Likewise, these pages supersede those provided in Reference 1, Attachment 3. Attachment 4 provides a markup of the TS Bases pages affected by the additional variation discussed above for information only.

EGC has reviewed the information supporting a finding of no significant hazards consideration, and the environmental consideration, that were previously provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. In addition, the information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

EGC is notifying the State of Illinois of this supplement to a previous application for a change to the TS by sending a copy of this letter and its attachment to the designated State Official in accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b).

Based on the NRC's review timeline associated with the Reference 1 request and recent discussions with the Office of Nuclear Reactor Regulation Project Manager for CPS, Unit 1, Jennivine Rankin, EGC proposes a revision to the implementation period for the Reference 1 request. EGC proposes that once the Reference 1 request is approved, the amendment shall be implemented for CPS, Unit 1 prior to entering Mode 4 during the next refueling outage, C1R18, currently planned for April 2018.

There are no regulatory commitments contained within this letter.

Should you have any questions concerning this letter, please contact Mr. Mitchel A. Mathews at (630) 657-2819.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 15th day of November 2017.

Respectfully,



Patrick R. Simpson
Manager – Licensing
Exelon Generation Company, LLC

- Attachments:
1. Supplemental Information Related to Request to Adopt TSTF-542, "Reactor Pressure Vessel (RPV) Water Inventory Control," for Clinton Power Station, Unit 1
 2. Proposed Technical Specifications Changes (Mark-Up)
 3. Revised Technical Specifications Pages
 4. Technical Specifications Bases Pages Affected by the Additional Variation (Mark-Up)

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector – Clinton Power Station
Illinois Emergency Management Agency – Division of Nuclear Safety

Clinton Power Station, Unit 1

**Supplement to Clinton Power Station, Unit 1 Application to Revise Technical
Specifications to Adopt TSTF-542,
"Reactor Pressure Vessel Water Inventory Control"**

ATTACHMENT 1 –

**Supplemental Information Related to Request to Adopt TSTF-542, "Reactor Pressure
Vessel (RPV) Water Inventory Control," for Clinton Power Station, Unit 1**

**SUPPLEMENTAL INFORMATION RELATED TO REQUEST TO ADOPT TSTF-542,
"REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL," FOR CLINTON
POWER STATION, UNIT 1**

REQUEST FOR ADDITIONAL INFORMATION

EXELON GENERATION COMPANY, LLC

CLINTON POWER STATION, UNIT 1

LICENSE AMENDMENT REQUEST RELATED TO

REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL

DOCKET NO. 50-461

By application dated May 1, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17121A517), Exelon Generation Company, LLC (the licensee), requested a change to the technical specifications (TSs) for Clinton Power Station, Unit 1 (CPS). The proposed change adopts technical specifications task force (TSTF) traveler TSTF-542, "Reactor Pressure Vessel Water Inventory Control," Revision 2 (ADAMS Accession No. ML16074A448). Specifically, the proposed changes would replace the existing requirements in the TSs related to operation with a potential for draining the reactor vessels (OPDRVs) with revised TSs providing an alternative for reactor pressure vessel water inventory control (RPV WIC). These alternative requirements would protect Safety Limit 2.1.1.3, which requires RPV water level to be greater than the top of active fuel.

TSTF-542, Revision 2, was approved by the U.S. Nuclear Regulatory Commission (NRC) on December 20, 2016 (ADAMS Accession No. ML16343B008).

Based on its review of the amendment request, the NRC staff has determined that additional information is required to complete the review.

RAI 1

The staff has identified an apparent discrepancy in Attachment 2, page 3.5-11 of the license amendment request (LAR). Specifically, the current TSs (i.e., current TS surveillance requirements 3.5.2.5 and 3.5.2.6) contain text not shown in the proposed markup as being deleted.

For clarity, please correct the proposed TS markup, as appropriate

Exelon Generation Company, LLC (EGC) Response

The markups for SR 3.5.2.5 and SR 3.5.2.6 are incorporated in the revised TS markups included in Attachment 2 on Page 3.5-10.

**SUPPLEMENTAL INFORMATION RELATED TO REQUEST TO ADOPT TSTF-542,
"REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL," FOR CLINTON
POWER STATION, UNIT 1**

RAI 2

TSTF-542, Revision 2 changes the title of TS 3.5.2 from "ECCS – Shutdown" to "RPV Water Inventory Control." Current TS 3.8.2, "AC Sources – Shutdown," TS 3.8.5, "DC Sources – Shutdown," and TS 3.8.8, "Inverters – Shutdown," reference TS 3.5.2, "ECCS- Shutdown." There was not any revised TS pages submitted in the LAR to reflect the changes to these sections.

Please provide revised and markup TS pages for these sections, as appropriate.

EGC Response

The requested changes are incorporated in the revised markups included in Attachment 2 on Pages 3.8-16, 3.8-27, and 3.8-36.

RAI 3

Attachment 2, pages 3.3-54 through 3.3-59 of the LAR provides a markup of Table 3.3.6.1-1, "Primary Containment and Drywell Isolation Instrumentation." Due to the deletion of Footnote (c), which states, "During operations with a potential for draining the reactor vessel," the following instrumentation were affected.

Function 2 (Primary Containment and drywell isolation), Item a, "Reactor Vessel Water Level Low Low, Level 2"

Function 2, Item g, "Containment Building Fuel Transfer Pool Ventilation Plenum Radiation High"

Function 2, Item h, "Containment Building Exhaust Radiation High"

Function 2, Item i, "Containment Building Continuous Containment Purge (CCP) Exhaust Radiation High"

Function 2, Item j, "Reactor Vessel Water Level Low Low Low, Level 1"

Function 2, Item l, "Manual Initiation"

Function 4 (reactor water cleanup system isolation), Item f, "Reactor Vessel Level Low Low, Level 2"

Function 4, Item h, "Manual Initiation"

Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation" in TSTF-542, Revision 2 modifies Function 2.g, "Containment and Drywell Ventilation Exhaust Radiation High," in relation to the removal of Footnote (b) which states, "...or operations with a potential for draining the reactor vessel."

Compared to the TSTF-542, Revision 2, CPS proposed to delete additional instrumentation (related to the Applicability during Modes 4 and 5 or OPDRVs) from its TSs. Please provide a technical variation to describe the deviations between the proposed CPS TSs and TSTF 542, Revision 2.

**SUPPLEMENTAL INFORMATION RELATED TO REQUEST TO ADOPT TSTF-542,
"REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL," FOR CLINTON
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EGC Response

All of these instrument functions serve to isolate Primary Containment penetrations that bypass Secondary Containment; therefore, they function to isolate a portion of the Secondary Containment boundary for Clinton Power Station (CPS), Unit 1. Under the proposed Technical Specification (TS) 3.5.2 "Reactor Pressure Vessel Water Inventory Control," requirements, Secondary Containment must be isolated or capable of being isolated in less than the Drain Time when the Drain Time is less than 36 hours, but automatic Secondary Containment isolation is not required. A draining event is a slow evolution when compared to a design basis loss of coolant accident that is assumed to occur at full power, and thus there is adequate time to take manual actions (i.e., hours versus minutes). The proposed TS 3.5.2, Action E, prohibits plant conditions that could result in Drain Times less than one hour. Therefore, there is sufficient time for the licensed operators to take manual action to stop the draining event, or to establish the Secondary Containment boundary and to isolate the Secondary Containment penetration flow paths before Secondary Containment isolation would be required. Consequently, there is no need for automatic initiation of Secondary Containment isolation to respond to an unexpected draining event. The Required Actions of proposed TS 3.5.2 will require Secondary Containment isolation, or verification that it can be manually isolated, when the Drain Time is less than 8 hours and no draining event has occurred. This provides a greater level of safety. Excluding these functions from Table 3.3.5.2-1 is addressed by the proposed Limiting Condition for Operation (LCO) 3.5.2, "RPV Water Inventory Control." Specifically, by LCO 3.5.2, Required Actions C.1 and D.2 which are: "Verify secondary containment boundary is capable of being established in less than the DRAIN TIME," and "Initiate action to establish secondary containment boundary," respectively. This approach is consistent with Section 3.4.1.3 of the Justification for TSTF-542, Revision 2.

Additional Proposed Variation for Instrumentation Functions:

EGC proposes to revise Table 3.3.5.2-1, "RPV Water Inventory Control Instrumentation," to reflect the CPS, Unit 1 design. Specifically, Function 1, "Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems," Function 1.d, "Manual Initiation," Function 2, "LPCI B and LPCI C Subsystems," Function 2.c, "Manual Initiation," and Function 3, High Pressure Core Spray (HPCS) System, Function 3.a, "Reactor Vessel Water Level - High, Level 8," and Function 3.e, "Manual initiation," that appear in the BWR/6 Technical Specifications in TSTF-542 are no longer included in the CPS Technical Specifications as proposed. This corrects an issue in TSTF-542 associated with the BWR/5 and BWR/6 emergency core cooling system (ECCS) instrumentation requirements.

The purpose of the manual initiation functions is to allow manual actuation of the ECCS subsystems required by TS 3.5.2 to mitigate a draining event. Licensed operators in the Main Control Room have the capability to manually start the LPCI, LPCS, and HPCS pumps and to manually align valves to add water inventory, if needed. This can be accomplished without the "Manual Initiation" functions, and the "Reactor Vessel Water Level-High, Level 8" function associated with HPCS. If the water level is above Level 8, and HPCS is the required ECCS subsystem, the Level 8 function can be intentionally defeated to allow the HPCS injection valve to be opened, if needed to control inventory. All actions can be performed from the Main

**SUPPLEMENTAL INFORMATION RELATED TO REQUEST TO ADOPT TSTF-542,
"REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL," FOR CLINTON
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Control Room and can be accomplished well within the one-hour minimum drain time limit specified in TS 3.5.2, Condition E.

The Reactor Vessel Water Level High, Level 8 signal (i.e., TSTF-542, Table 3.3.5.2-1, Function 3.a) prevents overfilling of the reactor vessel into the main steam lines by closing the HPCS injection valves when the water level is above the Level 8 setpoint. Therefore, if HPCS is the required ECCS subsystem and the water level is above Level 8, using the "Manual Initiation" Function 3.e will not result in inventory injection into the reactor vessel until the water level drops below the Level 8 setpoint. If the Level 8 function is retained in Table 3.3.5.2-1, the function would need to be rendered inoperable in order to inject water when the water level is above the Level 8 setpoint.

Consequently, Table 3.3.5.2-1, Functions 1.d, 2.c, 3.a, and 3.e, and TS 3.3.5.2, Condition E and associated Required Actions E.1, and E.2 as described in TSTF-542 are not needed to actuate the LPCI, LPCS, and HPCS subsystem components to mitigate a draining event, and are not included in the proposed Table 3.3.5.2-1 for CPS. The remaining functions and Conditions have been renumbered accordingly.

To address the changes associated with the proposed additional variation discussed above, EGC also proposes that Surveillance Requirement (SR) SR 3.5.2.8 be modified to verify that the CPS, Unit 1 required ECCS injection/spray subsystem can be manually operated from the Main Control Room in accordance with the Surveillance Frequency Control Program as shown in Figure 1 below. This will ensure that the required ECCS injection/spray subsystem is Operable and can be manually aligned to provide RPV inventory makeup, if required to do so, without delay.

SR 3.5.2.8	<p align="center">-----NOTE-----</p> <p align="center">Vessel injection/spray may be excluded.</p> <p align="center">-----</p> <p align="center">Verify the required ECCS injection/spray subsystem can be manually operated.</p>	<p align="center">In Accordance with the Surveillance Frequency Control Program</p>
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Figure 1: Proposed SR 3.5.2.8

Clinton Power Station, Unit 1

**Supplement to Clinton Power Station, Unit 1 Application to Revise Technical
Specifications to Adopt TSTF-542,
"Reactor Pressure Vessel Water Inventory Control"**

ATTACHMENT 2

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1.0 USE AND APPLICATION

1.1 Definitions

-----NOTE-----

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

<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.

(continued)

1.1 Definitions (continued)

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 5.6.5. 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 inhalation CEDE dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The inhalation CEDE dose conversion factors used for this calculation shall be those listed in Table 2.1 of Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," ORNL, 1989.

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*

(continued)

Definitions

*DRAIN TIME
(continued)*

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 is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation devices 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.

EMERGENCY CORE COOLING
SYSTEM (ECCS) RESPONSE
TIME

The ECCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS initiation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. 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.

(continued)

1.1 Definitions (continued)

END OF CYCLE RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME	The EOC-RPT SYSTEM RESPONSE TIME shall be that time interval from initial movement of the associated turbine stop valve or turbine control valve to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. 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.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valves travel to their required positions. 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.
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 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; b. <u>Unidentified LEAKAGE</u> All LEAKAGE into the drywell that is not identified LEAKAGE; c. <u>Total LEAKAGE</u> Sum of the identified and unidentified LEAKAGE; d. <u>Pressure Boundary LEAKAGE</u> LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.

(continued)

1.1 Definitions (continued)

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.
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).
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3473 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until 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.

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. ----- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	<u>AND</u>	
	B.2 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 3.a and 3.b. ----- Declare High Pressure Core Spray (HPCS) System inoperable.	1 hour from discovery of loss of HPCS initiation capability
<u>AND</u>		
	B.3 Place channel in trip.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	<p>C.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3.</p> <p>2. Only applicable for Functions 1.c, 1.d, 2.c, and 2.d.</p> <p>-----</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>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.e, 1.f, and 2.e. ----- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	<u>AND</u> E.2 Restore channel to OPERABLE status.	7 days

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1, 2, 3 7 4 ⁽⁺⁾ , 5 ⁽⁺⁾	2 ^(ba)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(ec)	≥ -148.1 inches
b. Drywell Pressure-High	1, 2, 3	2 ^(ba)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. LPCI Pump A Start-Time Delay Logic Card	1, 2, 3 7 4 ⁽⁺⁾ , 5 ⁽⁺⁾	1	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 4.5 seconds and ≤ 5.5 seconds
d. Reactor Vessel Pressure-Low (Injection Permissive)	1, 2, 3 4 ⁽⁺⁾ , 5 ⁽⁺⁾	4 4	C B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.4 ^(ec) SR 3.3.5.1.5 SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3⁽⁺⁾ SR 3.3.5.1.4⁽⁺⁾ SR 3.3.5.1.5	≥ 454 psig and ≤ 494 psig ≥ 454 psig and ≤ 494 psig
e. LPCS Pump Discharge Flow-Low (Bypass)	1, 2, 3 7 4 ⁽⁺⁾ , 5 ⁽⁺⁾	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 750 gpm
f. LPCI Pump A Discharge Flow-Low (Bypass)	1, 2, 3 7 4 ⁽⁺⁾ , 5 ⁽⁺⁾	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 900 gpm
g. Manual Initiation	1, 2, 3 7 4 ⁽⁺⁾ , 5 ⁽⁺⁾	1	C	SR 3.3.5.1.5	NA

(continued)

~~(a) When associated subsystem(s) are required to be OPERABLE.~~

(ba) Also required to initiate the associated diesel generator.

- (ec) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

Table 3.3.5.1-1 (page 2 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI B and LPCI C Subsystems					
a. Reactor Vessel Water Level-Low Low, Level 1	1,2,3 7 4 ⁽⁺⁾ ,5 ⁽⁺⁾	2 ^(ba)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(ec)	≥ -148.1 inches
b. Drywell Pressure-High	1,2,3	2 ^(ba)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. LPCI Pump B Start-Time Delay Logic Card	1,2,3 7 4 ⁽⁺⁾ ,5 ⁽⁺⁾	1	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 4.5 seconds and ≤ 5.5 seconds
d. Reactor Vessel Pressure-Low (Injection Permissive)	1,2,3 4 ⁽⁺⁾ ,5 ⁽⁺⁾	4 4	C B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.4 ^(ec) SR 3.3.5.1.5 SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3⁽⁺⁾ SR 3.3.5.1.4⁽⁺⁾ SR 3.3.5.1.5	≥ 454 psig and ≤ 494 psig ≥ 454 psig and ≤ 494 psig
e. LPCI Pump B and LPCI Pump C Discharge Flow-Low (Bypass)	1,2,3 7 4 ⁽⁺⁾ ,5 ⁽⁺⁾	1 per pump	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 900 gpm
f. Manual Initiation	1,2,3 7 4 ⁽⁺⁾ ,5 ⁽⁺⁾	1	C	SR 3.3.5.1.5	NA

(continued)

~~(a) When associated subsystem(s) are required to be OPERABLE.~~

(ba) Also required to initiate the associated diesel generator.

- (ec) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

Table 3.3.5.1-1 (page 3 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Core Spray (HPCS) System					
a. Reactor Vessel Water Level-Low Low, Level 2	1,2,3 7 4 ^(a) , 5 ^(a)	4 ^(ba)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(ec)	≥ -48.1 inches
b. Drywell Pressure - High	1,2,3	4 ^(ba)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. Reactor Vessel Water Level-High, Level 8	1,2,3 7 4 ^(a) , 5 ^(a)	2	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(ec)	≤ 54.6 inches
d. RCIC Storage Tank Level-Low	1,2,3 7 4 ^(a) , 5 ^(a)	2	D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.4 ^(ec) SR 3.3.5.1.5	≥ 3.0 inches
e. Suppression Pool Water Level-High	1,2,3	2	D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.4 ^(ec) SR 3.3.5.1.5	≤ 11 inches
f. HPCS Pump Discharge Pressure-High (Bypass)	1,2,3 7 4 ^(a) , 5 ^(a)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 120 psig
g. HPCS System Flow Rate-Low (Bypass)	1,2,3 7 4 ^(a) , 5 ^(a)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 500 gpm
h. Manual Initiation	1,2,3 7 4 ^(a) , 5 ^(a)	1	C	SR 3.3.5.1.5	NA

(continued)

~~(a) When associated subsystem(s) are required to be OPERABLE-~~

~~(ba) Also required to initiate the associated diesel generator.~~

~~(c) When HPCS is OPERABLE for compliance with LCO 3.5.2, "ECCS Shutdown," and aligned to the RCIC storage tank while tank water level is not within the limits of SR 3.5.2.2.~~

- (ec) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

Table 3.3.5.1-1 (page 4 of 5)
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 1 (Logic A and E)					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2 ^(db) , 3 ^(db)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(ec)	≥ -148.1 inches
b. Drywell Pressure-High	1,2 ^(db) , 3 ^(db)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. ADS Initiation Timer	1,2 ^(db) , 3 ^(db)	1	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 117 seconds
d. Reactor Vessel Water Level-Low, Level 3 (Confirmatory)	1,2 ^(db) , 3 ^(db)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 8.3 inches
e. LPCS Pump Discharge Pressure-High	1,2 ^(db) , 3 ^(db)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.4 ^(ec) SR 3.3.5.1.5	≥ 125 psig and ≤ 176.3 psig
f. LPCI Pump A Discharge Pressure-High	1,2 ^(db) , 3 ^(db)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.4 ^(ec) SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. ADS Drywell Pressure Bypass Timer	1,2 ^(db) , 3 ^(db)	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 6.5 minutes
h. Manual Initiation	1,2 ^(db) , 3 ^(db)	2	G	SR 3.3.5.1.5	NA

(continued)

^(db) ^(b) With reactor steam dome pressure > 150 psig.

- ^(ec) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

Table 3.3.5.1-1 (page 5 of 5)
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 2 (Logic B and F)					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2 ^(ab) , 3 ^(ab)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(ec)	≥ -148.1 inches
b. Drywell Pressure-High	1,2 ^(ab) , 3 ^(ab)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. ADS Initiation Timer	1,2 ^(ab) , 3 ^(ab)	1	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 117 seconds
d. Reactor Vessel Water Level-Low, Level 3 (Confirmatory)	1,2 ^(ab) , 3 ^(ab)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 8.3 inches
e. LPCI Pumps B & C Discharge Pressure-High	1,2 ^(ab) , 3 ^(ab)	2 per pump	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(ec) SR 3.3.5.1.4 ^(ec) SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
f. ADS Drywell Pressure Bypass Timer	1,2 ^(ab) , 3 ^(ab)	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 6.5 minutes
g. Manual Initiation	1,2 ^(ab) , 3 ^(ab)	2	G	SR 3.3.5.1.5	NA

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

- (ec) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1 Declare 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 3.3.5.2-1.	C.1 Place channel in trip.	1 hour

(continued)

ACTIONS (continued)

<i>CONDITION</i>	<i>REQUIRED ACTION</i>	<i>COMPLETION TIME</i>
<i>D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</i>	<i>D.1 Declare HPCS system inoperable.</i>	<i>1 hour</i>
	<i><u>OR</u></i>	
	<i>D.2 Align the HPCS pump suction to the suppression pool.</i>	<i>1 hour</i>
<i>E. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</i>	<i>E.1 Restore channel to OPERABLE status.</i>	<i>24 hours</i>
<i>F. Required Action and associated Completion Time of Condition C, D, or E not met.</i>	<i>F.1 Declare associated ECCS injection/spray subsystem inoperable.</i>	<i>Immediately</i>

SURVEILLANCE REQUIREMENTS

-----*NOTE*-----
Refer to Table 3.3.5.2-1 to determine which SRs apply for each ECCS Function.

<i>SURVEILLANCE</i>	<i>FREQUENCY</i>
<i>SR 3.3.5.2.1 Perform CHANNEL CHECK.</i>	<i>In accordance with the Surveillance Frequency Control Program</i>
<i>SR 3.3.5.2.2 Perform CHANNEL FUNCTIONAL TEST.</i>	<i>In accordance with the Surveillance Frequency Control Program</i>
<i>SR 3.3.5.2.3 Perform LOGIC SYSTEM FUNCTIONAL TEST.</i>	<i>In accordance with the Surveillance Frequency Control Program</i>

Table 3.3.5.2-1 (page 1 of 2)
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. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Pressure - Low (Injection Permissive)	4,5	4 ^(a)	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 494 psig
b. LPCS Pump Discharge Flow - Low (Bypass)	4,5	1 per pump ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 750 gpm
c. LPCI Pump A Discharge Flow - Low (Bypass)	4,5	1 per pump ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 900 gpm
2. LPCI B and LPCI C Subsystems					
a. Reactor Vessel Pressure - Low (Injection Permissive)	4,5	4 ^(a)	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 494 psig
b. LPCI Pump B and LPCI Pump C Discharge Flow - Low (Bypass)	4,5	1 per pump ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 900 gpm

(continued)

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

Table 3.3.5.2-1 (page 2 of 2)
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
3. High Pressure Core Spray (HPCS) System					
a. RCIC Storage Tank Level - Low	4 ^(b) , 5 ^(b)	2 ^(a)	D	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 3.0 inches
b. HPCS Pump Discharge Pressure - High (Bypass)	4, 5	1 ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 120 psig
c. HPCS System Flow Rate - Low (Bypass)	4, 5	1 ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 500 gpm
4. RHR System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	^(c)	2 in one trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 8.3 inches
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 2	^(c)	2 in one trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ -48.1 inches

- (a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."
- (b) When HPCS is OPERABLE for compliance with LCO 3.5.2, "RPV Water Inventory Control," and aligned to the RCIC storage tank while tank water level is not within the limits of SR 3.5.2.3.
- (c) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.5.2-3 Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.23 The RCIC System instrumentation for each Function in Table 3.3.5.23-1 shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.23-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.23-1.	B.1 Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	<u>AND</u> B.2 Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.23-1.	C.1 Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. As required by Required Action A.1 and referenced in Table 3.3.5.23-1.</p>	<p>D.1 -----NOTE----- Only applicable if RCIC pump suction is not aligned to the suppression pool. -----</p> <p>Declare RCIC 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 RCIC pump suction to the suppression pool.</p>	<p>1 hour from discovery of loss of RCIC initiation capability</p> <p>24 hours</p> <p>24 hours</p>
<p>E. Required Action and associated Completion Time of Condition B, C, or D not met.</p>	<p>E.1 Declare RCIC System inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.5.23-1 to determine which SRs apply for each RCIC Function.
 2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 5; and (b) for up to 6 hours for Functions 1, 3, and 4 provided the associated Function maintains RCIC initiation capability.
-

SURVEILLANCE	FREQUENCY
SR 3.3.5.23.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.23.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.23.3 Calibrate the analog trip module.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.23.4 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.23.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.23.6 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.23-1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS		SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
		REFERENCED FROM	REQUIRED ACTION		
			A.1		
1. Reactor Vessel Water Level-Low Low, Level 2	4		B	SR 3.3.5.23.1	≥ -48.1 inches
				SR 3.3.5.23.2	
				SR 3.3.5.23.3	
				SR 3.3.5.23.5	
				SR 3.3.5.23.6	
2. Reactor Vessel Water Level-High, Level 8	2		C	SR 3.3.5.23.1	≤ 52.6 inches
				SR 3.3.5.23.2	
				SR 3.3.5.23.3	
				SR 3.3.5.23.4	
				SR 3.3.5.23.5	
3. RCIC Storage Tank Level-Low	2		D	SR 3.3.5.23.1	≥ 3.0 inches
				SR 3.3.5.23.2	
				SR 3.3.5.23.3	
				SR 3.3.5.23.4	
				SR 3.3.5.23.5	
4. Suppression Pool Water Level-High	2		D	SR 3.3.5.23.1	≤ -5 inches
				SR 3.3.5.23.2	
				SR 3.3.5.23.3	
				SR 3.3.5.23.4	
				SR 3.3.5.23.5	
5. Manual Initiation	1		C	SR 3.3.5.23.5	NA

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment and Drywell Isolation Instrumentation

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

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Only applicable to Main Steam Line (MSL) isolation Functions. -----</p> <p>A. One or more Functions with one channel inoperable.</p>	<p>A.1 Place one channel in affected Function in trip.</p>	<p>48 hours</p>
<p>-----NOTE----- Only applicable to MSL isolation Functions. -----</p> <p>B. One or more Functions with two channels inoperable.</p>	<p>B.1 Place one channel in affected Function in trip.</p>	<p>6 hours</p>
<p>-----NOTE----- Only applicable to MSL isolation Functions. -----</p> <p>C. One or more Functions with three or more channels inoperable.</p>	<p>C.1 Restore two channels in affected Function to OPERABLE status.</p>	<p>1 hour</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Not applicable to MSL isolation Functions. -----</p> <p>D. One or more required channels inoperable.</p>	D.1 Place channel in trip.	24 hours
<p>-----NOTE----- Not applicable to MSL isolation Functions. -----</p> <p>E. One or more automatic Functions with isolation capability not maintained.</p>	E.1 Restore isolation capability.	1 hour
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately
G. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	G.1 Isolate associated MSL. <u>OR</u> G.2.1 Be in MODE 3. <u>AND</u> G.2.2 Be in MODE 4.	12 hours 12 hours 36 hours
H. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	H.1 Be in MODE 2.	6 hours
I. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	I.1 Isolate the affected penetration flow path(s).	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	J.1 Isolate the affected penetration flow path(s).	24 hours
K. As required by Required Action F.1 and referenced in Table 3.3.6.1-1. <u>OR</u> Required Action and associated Completion Time of Condition I or J not met.	K.1 Be in MODE 3. <u>AND</u> K.2 Be in MODE 4.	12 hours 36 hours
L. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	L.1 Declare associated standby liquid control subsystem inoperable. <u>OR</u> L.2 Isolate the Reactor Water Cleanup System.	1 hour 1 hour
M. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	M.1 Initiate action to restore channel to OPERABLE status. <u>OR</u> M.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System suction from the reactor vessel. <u>OR</u>	Immediately Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. (Continued)	M.3.1 Initiate action to restore secondary containment to OPERABLE status. <u>AND</u>	Immediately
	M.3.2 Initiate action to restore one standby gas treatment (SGT) subsystem to OPERABLE status. <u>AND</u>	Immediately
	M.3.3 Initiate action to restore isolation capability in each required secondary containment and secondary containment bypass penetration flow path not isolated. <u>AND</u>	Immediately
	M.3.4 -----NOTE----- Entry and exit is permissible under administrative control. ----- Initiate action to close one door in the upper containment personnel air lock.	Immediately
N. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	N.1 Isolate the affected penetration flow path(s). <u>OR</u>	Immediately
	N.2 Suspend movement of irradiated fuel assemblies in the primary and secondary containment. <u>AND</u>	Immediately
	N.2.2 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately

(continued)

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

CONDITION	REQUIRED ACTION	COMPLETION TIME
0. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	0.1 Isolate the affected penetration flow path(s).	Immediately
	<u>OR</u> 0.2 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.3 Calibrate the analog trip module.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.4 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.5 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.7 -----NOTE----- Channel sensors are excluded. ----- Verify the ISOLATION SYSTEM RESPONSE TIME for the main steam isolation valves is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.8 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ -148.1 inches
b. Main Steam Line Pressure-Low	1	4	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 841 psig
c. Main Steam Line Flow-High	1,2,3	4	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 SR 3.3.6.1.7	≤ 284 psid
d. Condenser Vacuum-Low	1,2 ^(a) , 3 ^(a)	4	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	≥ 7.6 inches Hg vacuum
e. Main Steam Tunnel Temperature-High	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
f. Main Steam Line Turbine Building Temperature-High	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	Modules 1-4 ≤ 142°F, Module 5 ≤ 150°F
g. Manual Initiation	1,2,3	4	J	SR 3.3.6.1.6	NA

(continued)

(a) With any turbine stop valve not closed.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

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 FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation					
a. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4 ^(b)	K	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -48.1 inches
	(c)	4	Ø	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -48.1 inches
b. Drywell Pressure-High	1,2,3	4 ^(b)	K	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.88 psig
c. Deleted					
d. Drywell Pressure-High (ECCS Divisions 1 and 2)	1,2,3	4 ^(b)	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	≤ 1.88 psig
e. Reactor Vessel Water Level-Low Low, Level 2 (HPCS NSPS Div 3 and 4)	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -48.1 inches
f. Drywell Pressure-High (HPCS NSPS Div 3 and 4)	1,2,3	4	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	≤ 1.88 psig
(continued)					

(b) Also required to initiate the associated drywell isolation function.

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

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

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 FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation (continued)					
g. Containment Building Fuel Transfer Pool Ventilation Plenum Radiation-High	(e) (dc)	4	N	SR 3.3.6.1.1	≤ 500 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
h. Containment Building Exhaust Radiation-High	1,2,3	4 ^(b)	I	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
(e) (dc)	4	N		SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
i. Containment Building Continuous Containment Purge (CCP) Exhaust Radiation-High	1,2,3	4 ^(b)	I	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
(e) (dc)	4	N		SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
j. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3	4 ^(b)	I	SR 3.3.6.1.1	≥ -148.1 inches
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.6	
(e)	4	Ø		SR 3.3.6.1.1	≥ -148.1 inches
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.56	
k. Containment Pressure-High	(ed)	2	I	SR 3.3.6.1.1	≤ 3.0 psid
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
l. Manual Initiation	1,2,3	2 ^(b)	J	SR 3.3.6.1.6	NA
				(e) (dc)	

(continued)

(b) Also required to initiate the associated drywell isolation function.

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

(dc) During movement of recently irradiated fuel assemblies in the primary or secondary containment.

(ed) MODES 1, 2, and 3 with the associated PCIVs not closed.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 4 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. Auxiliary Building RCIC Steam Line Flow-High	1,2,3	2	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	≤ 118.5 inches water
b. RCIC Steam Line Flow-High, Time Delay	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 13 seconds
c. RCIC Steam Supply Line Pressure-Low	1,2,3	2	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	≥ 52 psig
d. RCIC Turbine Exhaust Diaphragm Pressure-High	1,2,3	4	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	≤ 20 psig
e. RCIC Equipment Room Ambient Temperature-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 207°F
f. Main Steam Line Tunnel Ambient Temperature-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
g. Main Steam Line Tunnel Temperature Timer	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 28 minutes
h. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -48.1 inches
i. Drywell RCIC Steam Line Flow - High	1,2,3	2	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	≤ 188 inches water

(continued)

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 5 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. RCIC System Isolation (continued)					
j. Drywell Pressure - High	1,2,3	2	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	≤ 1.88 psig
k. Manual Initiation	1,2,3	1	J	SR 3.3.6.1.6	NA
4. Reactor Water Cleanup (RCU) System Isolation					
a. Differential Flow - High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.8	≤ 66.1 gpm
b. Differential Flow-Timer	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 47 seconds
c. RWCU Heat Exchanger Equipment Room Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 205°F
d. RWCU Pump Rooms Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 202°F
e. Main Steam Line Tunnel Ambient Temperature- High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
f. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -48.1 inches
	(e)	4	Ø	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.56 SR 3.3.6.1.68	≥ -48.1 inches
g. Standby Liquid Control System Initiation	1,2,3	2	L	SR 3.3.6.1.6	NA
h. Manual Initiation	1,2,3	2	J	SR 3.3.6.1.6	NA
	(e),(dc)	2	N	SR 3.3.6.1.6	NA

(continued)

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

(dc) During movement of recently irradiated fuel assemblies in the primary or secondary containment.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. RHR System Isolation					
a. RHR Heat Exchanger Ambient Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 160°F
b. Reactor Vessel Water Level - Low, Level 3	1,2,3 ^(fe)	4	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	≥ 8.3 inches
c. Reactor Vessel Water Level - Low, Level 3	3 ^(gf) , 4, 5	4 ^(hh)	M	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 8.3 inches
d. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -148.1 inches
e. Reactor Vessel Pressure-High	1,2,3	4	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	≤ 113 psig
f. Drywell Pressure-High	1,2,3	8	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	≤ 1.88 psig
g. Manual Initiation	1,2,3	2	J	SR 3.3.6.1.6	NA

(~~fe~~) With reactor steam dome pressure greater than or equal to the RHR cut in permissive pressure.

(~~gf~~) With reactor steam dome pressure less than the RHR cut in permissive pressure.

~~(h) Only one trip system required in MODES 4 and 5 with RHR Shutdown Cooling System integrity maintained.~~

Secondary Containment Isolation Instrumentation
3.3.6.2

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 Low, Level 2	1, 2, 3, (a)	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	≥ -48.1 inches
2. Drywell Pressure-High	1, 2, 3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 1.88 psig
3. Containment Building Fuel Transfer Pool Ventilation Plenum Exhaust Radiation-High	^(a) (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 500 mR/hr
4. Containment Building Exhaust Radiation-High	1, 2, 3, ^(a) (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 400 mR/hr
5. Containment Building Continuous Containment Purge (CCP) Exhaust Radiation-High	1, 2, 3, ^(a) (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 400 mR/hr
6. Fuel Building Exhaust Radiation-High	1, 2, 3, ^(eb)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 17 mR/hr
7. Manual Initiation	1, 2, 3, ^(a) (b)	1	SR 3.3.6.2.5	NA

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

~~(ba)~~ During movement of recently irradiated fuel assemblies in the primary or secondary containment.

~~(eb)~~ During movement of recently irradiated fuel assemblies in the fuel building.

Control Room Ventilation System Instrumentation
3.3.7.1

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Control Room Air Intake Radiation Monitors	1,2,3, ^(a) 7,(b)	1/Intake	SR 3.3.7.1.1	≤ 26 mR/hr
			SR 3.3.7.1.2	
			SR 3.3.7.1.3	

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

(ba) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in the primary or secondary containment.

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

3.5.1 ECCS—Operating

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

-----NOTE-----
One low pressure coolant injection (LPCI) subsystem may be inoperable during alignment and operation for decay heat removal with reactor steam dome pressure less than the residual heat removal cut in permissive pressure.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
B. High Pressure Core Spray (HPCS) System inoperable.	B.1 Verify by administrative means RCIC System is OPERABLE when RCIC is required to be OPERABLE.	1 hour
	<u>AND</u> B.2 Restore HPCS System to OPERABLE status.	14 days

(continued)

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

3.5.2 ~~ECCS — Shutdown~~ RPV Water Inventory Control

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

AND

~~Two~~ One ECCS injection/spray subsystems shall be OPERABLE.

-----NOTE-----One low pressure coolant injection (LPCI) subsystem may be inoperable during alignment and operation for decay heat removal with reactor steam dome pressure less than the residual heat removal cut in permissive pressure.

APPLICABILITY: MODES 4 ~~and~~
~~MODE 5 except with the reactor cavity to steam dryer pool gate removed and water level ≥ 22 ft 8 inches over the top of the reactor pressure vessel flange.~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to <i>establish a method of water injection capable of operating without offsite electrical power.</i> suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
C. Two required ECCS injection/spray subsystems inoperable.	C.1 Initiate action to suspend OPDRVs. <u>AND</u> C.2 Restore one ECCS injection/spray subsystem to OPERABLE status.	Immediately 4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><i>C. DRAIN TIME < 36 hours and ≥ 8 hours.</i></p>	<p><i>C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.</i></p>	<p><i>4 hours</i></p>
	<p><u>AND</u></p> <p><i>C.2 Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.</i></p>	<p><i>4 hours</i></p>
	<p><u>AND</u></p> <p><i>C.3 Verify one standby gas treatment subsystem is capable of being placed in operation in less than the DRAIN TIME.</i></p>	<p><i>4 hours</i></p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. DRAIN TIME < 8 hours. Required Action C.2 and associated Completion Time not met.</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. -----</p> <p>Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.</p>	Immediately
	<p><u>AND</u></p> <p>D.2 Initiate action to restore establish secondary containment to to OPERABLE status boundary.</p>	Immediately
	<p><u>AND</u></p> <p>D.23 Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room. Initiate action to restore one standby gas treatment subsystem to OPERABLE status.</p>	Immediately
	<p><u>AND</u></p> <p>D.34 Initiate action to verify one standby gas treatment subsystem is capable of being placed in operation.</p>	Immediately
	<p><u>AND</u></p> <p>D.4 NOTE Entry and exit is permissible under administrative control. ----- Initiate action to close one door in the upper containment personnel air lock.</p>	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><i>E. Required Action and associated Completion Time of Condition C or D not met.</i></p> <p><u>OR</u></p> <p><i>DRAIN TIME < 1 hour.</i></p>	<p><i>E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.</i></p>	<p><i>Immediately</i></p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p><i>SR 3.5.2.1 Verify DRAIN TIME ≥ 36 hours.</i></p>	<p><i>In accordance with the Surveillance Frequency Control Program</i></p>
<p>SR 3.5.2.12 Verify, for each-a required low pressure ECCS injection/spray subsystem, the suppression pool water level is ≥ 12 ft 8 inches.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.2.23 Verify, for the-a required High Pressure Core Spray (HPCS) System, the:</p> <p style="margin-left: 40px;">a. Suppression pool water level is ≥ 12 ft 8 inches; or</p> <p style="margin-left: 40px;">b. RCIC storage tank available water volume is ≥ 125,000 gal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.2.34 Verify, for each-the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY												
<p>SR 3.5.2.45 -----NOTES----- ---</p> <p>1. 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.</p> <p>2. Not required to be met for system vent flow paths opened under administrative control.</p> <p>-----</p> <p>Verify, each <i>for the</i> required ECCS injection/spray subsystem, <i>each</i> 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>In accordance with the Surveillance Frequency Control Program</p>												
<p>SR 3.5.2.56 Operate the required ECCS injection/spray subsystem through the recirculation line for ≥ 10 minutes. Verify each required ECCS pump develops the specified flow rate with the specified pump differential pressure.</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">SYSTEM</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">FLOW RATE</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">PUMP DIFFERENTIAL PRESSURE</td> </tr> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">LPCS</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">≥ 5010 gpm</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">≥ 290 psid</td> </tr> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">LPCI</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">≥ 5050 gpm</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">≥ 113 psid</td> </tr> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">HPCS</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">≥ 5010 gpm</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; text-align: center;">≥ 363 psid</td> </tr> </table>	SYSTEM	FLOW RATE	PUMP DIFFERENTIAL PRESSURE	LPCS	≥ 5010 gpm	≥ 290 psid	LPCI	≥ 5050 gpm	≥ 113 psid	HPCS	≥ 5010 gpm	≥ 363 psid	<p>In accordance with the Surveillance Frequency Control Program</p>
SYSTEM	FLOW RATE	PUMP DIFFERENTIAL PRESSURE											
LPCS	≥ 5010 gpm	≥ 290 psid											
LPCI	≥ 5050 gpm	≥ 113 psid											
HPCS	≥ 5010 gpm	≥ 363 psid											
<p>SR 3.5.2.7 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>In accordance with the Surveillance Frequency Control Program</p>												
<p>SR 3.5.2.68 -----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each <i>the</i> required ECCS injection/spray subsystem <i>can be manually operated. actuates on an actual or simulated automatic initiation signal.</i></p>	<p>In Accordance with the Surveillance Frequency Control Program</p>												

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

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCIC System inoperable.	A.1 Verify by administrative means High Pressure Core Spray System is OPERABLE.	1 hour
	<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
SR 3.5.3.1 Verify the RCIC System locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.5.3.2 -----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>In accordance with the Surveillance Frequency Control 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 RCIC steam supply pressure ≤ 1045 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.3.4 -----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 RCIC steam supply pressure ≤ 150 psig and ≥ 135 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.3.5 -----NOTE----- Vessel injection may be excluded. -----</p> <p>Verify the RCIC System actuates on an actual or simulated automatic initiation signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

3.6 CONTAINMENT SYSTEMS

3.6.1.2 Primary Containment Air Locks

LCO 3.6.1.2 Each primary containment air lock shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

-----NOTE-----
The following Applicability~~ies~~ appli~~es~~y only to the upper
containment personnel air lock.

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

ACTIONS

- NOTES-----
1. Entry and exit is permissible to perform repairs of the affected air lock components.
 2. Separate Condition entry is allowed for each air lock.
 3. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when air lock leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.
-

(continued)

ACTIONS (continued)

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

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
~~MODES 4 and 5 for RHR Shutdown Cooling System suction from
the reactor vessel isolation valves when associated
isolation instrumentation is required to be OPERABLE per
LCO 3.3.6.1, "Primary Containment and Drywell Isolation
Instrumentation," Function 5.e.~~

-----NOTE-----
The following Applicability ~~ies apply~~ *applies* only to
secondary containment bypass leakage isolation valves.

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

ACTIONS

- NOTES-----
1. Penetration flow paths may be unisolated intermittently under administrative controls.
 2. Separate Condition entry is allowed for each penetration flow path.
 3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
 4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.
 5. Not applicable for the Inclined Fuel Transfer System (IFTS) penetration when the associated primary containment blind flange is removed, provided that the fuel building fuel transfer pool water is maintained \geq el. 753 ft., the steam dryer pool to reactor cavity pool gate is installed with the seal inflated and a backup air supply provided, the total time the flange is open does not exceed 40 days per operating cycle, and the IFTS transfer tube drain valve(s) remain(s) closed, except that the IFTS tube drain valve(s) may be opened under administrative controls.

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.3 Perform SR 3.6.1.3.5 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 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	12 hours 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 recently irradiated fuel assemblies in the primary or secondary containment.	F.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of recently irradiated fuel assemblies in primary and secondary containment.	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 MODE 4 or 5 or during OPDRVs.	G.1 Initiate action to suspend OPDRVs. OR G.2 Initiate action to restore valve(s) to OPERABLE status.	Immediately Immediately

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1 Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	<p>-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. -----</p> <p>B.1 Be in MODE 3.</p>	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the primary or secondary containment, or during OPDRVs.</p>	<p>C.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.</p> <p><u>AND</u></p> <p>C.2 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.4.1.1 Verify secondary containment vacuum is ≥ 0.25 inch of vacuum water gauge.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.6.4.1.2 Verify all secondary containment equipment hatches are closed and sealed.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Dampers (SCIDs)

LCO 3.6.4.2 Each SCID shall be OPERABLE.

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

ACTIONS

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

(continued)

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 primary or secondary containment, or during OPDRVs. OPDRVs.</p>	<p>D.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.</p> <p><u>AND</u></p> <p>D.2 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</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 primary or secondary containment,
~~During operations with a potential for draining the reactor
vessel (OPDRVs).~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. ----- B.1 Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the primary or secondary containment, or during OPDRVs.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>C.1 Place OPERABLE SGT subsystem in operation.</p> <p><u>OR</u></p> <p>C.2.1 Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.</p> <p>AND</p> <p>C.2.2 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>D. Two SGT subsystems inoperable in MODE 1, 2, or 3.</p>	<p>-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. -----</p> <p>D.1 Be in MODE 3.</p>	<p>12 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the primary or secondary containment, or during OPDRVs.	E.1 Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment. E.2 Initiate action to suspend OPDRVs. <u>AND</u>	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 15 continuous minutes with heaters operating.	In accordance with the Surveillance Frequency Control Program
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.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.3.4	Verify each SGT filter cooling bypass damper can be opened and the fan started.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEM

3.7.3 Control Room Ventilation System

LCO 3.7.3 Two Control Room Ventilation 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 irradiated fuel assemblies in the primary or secondary containment,
During CORE ALTERATIONS,
~~During operations with a potential for draining the reactor vessel (OPDRVs).~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Control Room Ventilation subsystem inoperable for reasons other than Condition C.	A.1 Restore Control Room Ventilation subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. ----- B.1 Be in MODE 3.	12 hours
C. One or more Control Room Ventilation subsystems inoperable due to inoperable CRE boundary in MODE 1, 2, or 3.	C.1 Initiate action to implement mitigating actions. <u>AND</u> C.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. <u>AND</u> C.3 Restore CRE boundary to OPERABLE status.	Immediately 24 hours 90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and Associated Completion Time of Condition C not met in MODE 1, 2, or 3.</p>	<p>D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.</p>	<p>12 hours 36 hours</p>
<p>E. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the primary or secondary containment, <i>or</i> during CORE ALTERATIONS, or during OPDRVs.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. ----- E.1 Place OPERABLE Control Room Ventilation subsystem in high radiation mode. <u>OR</u> E.2.1 Suspend movement of irradiated fuel assemblies in the primary and secondary containment. <u>AND</u> E.2.2 Suspend CORE ALTERATIONS. <u>AND</u> E.2.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately Immediately Immediately Immediately</p>
<p>F. Two Control Room Ventilation subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition C.</p>	<p>-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. ----- F.1 Be in MODE 3.</p>	<p>12 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two Control Room Ventilation subsystems inoperable during movement of irradiated fuel assemblies in the primary or secondary containment, <i>or</i> during CORE ALTERATIONS, or during OPDRVs.</p> <p><u>OR</u></p> <p>One or more Control Room Ventilation subsystems inoperable due to inoperable CRE boundary during movement of irradiated fuel assemblies in the primary or secondary containment, <i>or</i> during CORE ALTERATIONS, or during OPDRVs.</p>	<p>G.1 Suspend movement of irradiated fuel assemblies in the primary and secondary containment.</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>G.2 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>G.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.3.1 Operate each Control Room Ventilation subsystem with flow through the makeup filter for ≥ 15 continuous minutes with the heaters operating.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.3.2 Operate each Control Room Ventilation subsystem with flow through the recirculation filter for ≥ 15 minutes.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Two control room AC subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One control room AC subsystem inoperable.	A.1 Restore control room AC subsystem to OPERABLE status.	30 days
B. Two control room AC subsystems inoperable.	B.1 Verify control room area temperature ≤ 86 °F.	Once per 4 hours
	<u>AND</u> B.2 Restore one control room AC 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.	-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. -----	
	C.1 Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

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

(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 or secondary containment, <i>or</i> during CORE ALTERATIONS, or during OPDRVs.	-----NOTE----- LCO 3.0.3 is not applicable. -----	
	E.1 Suspend movement of irradiated fuel assemblies in the primary and secondary containment.	Immediately
	<u>AND</u>	
	E.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	E.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.4.1 Verify each control room AC subsystem has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources—Shutdown

- LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:
- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems—Shutdown";
 - b. One diesel generator (DG) capable of supplying one division of the Division 1 or 2 onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10; and
 - c. One qualified circuit, other than the circuit in LCO 3.8.2.a, between the offsite transmission network and the Division 3 onsite Class 1E AC 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 High Pressure Core Spray System is OPERABLE for compliance with LCO 3.5.2, "~~ECCS—Shutdown~~RPV Water Inventory Control."

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

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. LCO Item a not met.</p>	<p>-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.10, when any required division is de-energized as a result of Condition A. -----</p>	
	<p>A.1 Declare affected required feature(s) with no offsite power available from a required circuit 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 movement of irradiated fuel assemblies in the primary and secondary containment.</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).</p>	<p>Immediately</p>
<p><u>AND</u></p>		
<p>A.2.43 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p>	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. LCO Item b not met.</p>	<p>B.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>B.2 Suspend movement of irradiated fuel assemblies in primary and secondary containment.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
<p>C. LCO Item c not met.</p>	<p>B.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>B.43 Initiate action to restore required DG to OPERABLE status.</p>	<p>Immediately</p>
	<p>C.1 Declare High Pressure Core Spray System inoperable.</p>	<p>72 hours</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources—Shutdown

LCO 3.8.5 The following 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 DC electrical power distribution subsystem(s) required by LCO 3.8.10, "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(s) when required by LCO 3.8.10; and
- c. The Division 3 and 4 DC electrical power subsystems capable of supplying the Division 3 and 4 onsite Class 1E DC electrical power distribution subsystems, when the High Pressure Core Spray System is OPERABLE for compliance with LCO 3.5.2, "~~ECCS Shutdown~~RPV Water Inventory Control."

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One battery charger on one division inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	<u>AND</u>	
	A.2 Verify battery float current \leq 2 amps.	Once per 12 hours
	<u>AND</u>	
	A.3 Restore battery charger to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One or more required DC electrical power subsystems inoperable for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Declare affected required feature(s) inoperable.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>B.2.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>B.2.2 Suspend movement of irradiated fuel assemblies in the primary and secondary containment.</p>	<p>Immediately</p>
<p><u>AND</u></p>		
<p>B.2.3 Initiate action to suspend operations with a potential for draining the reactor.</p>	<p>Immediately</p>	
<p><u>AND</u></p>		
<p>B.2.43 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p>	

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters—Shutdown

- LCO 3.8.8 The following Divisional inverters shall be OPERABLE:
- a. One Divisional inverter capable of supplying one division of the Division 1 or 2 onsite Class 1E uninterruptible AC bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown"; and
 - b. The Division 3 and 4 Divisional inverters capable of supplying the Division 3 and 4 onsite Class 1E uninterruptible AC bus electrical power distribution subsystems, when the High Pressure Core Spray System is OPERABLE for compliance with LCO 3.5.2, "~~ECCS-Shutdown~~RPV Water Inventory Control."

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required divisional inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend handling of irradiated fuel assemblies in the primary and secondary containment.	Immediately
<u>AND</u>		
A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately	
<u>AND</u>		
A.2.43 Initiate action to restore required divisional inverters to OPERABLE status.	Immediately	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.</p> <p>AND</p> <p>A.2.43 Initiate actions to restore required AC, DC, and uninterruptible AC bus electrical power distribution subsystems to OPERABLE status.</p> <p>AND</p> <p>A.2.54 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.10.1 Verify correct breaker alignments and voltage to required AC, DC, and uninterruptible AC bus electrical power distribution subsystems.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

Clinton Power Station, Unit 1

**Supplement to Clinton Power Station, Unit 1 Application to Revise Technical
Specifications to Adopt TSTF-542,
"Reactor Pressure Vessel Water Inventory Control"**

ATTACHMENT 3

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1.0 USE AND APPLICATION

1.1 Definitions

-----NOTE-----

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

<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.

(continued)

1.1 Definitions (continued)

CORE ALTERATION	<p>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:</p> <ul style="list-style-type: none">a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); andb. Control rod movement, provided there are no fuel assemblies in the associated core cell. <p>Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.</p>
CORE OPERATING LIMITS REPORT (COLR)	<p>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 5.6.5. Plant operation within these limits is addressed in individual Specifications.</p>
DOSE EQUIVALENT I-131	<p>DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same inhalation CEDE dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The inhalation CEDE dose conversion factors used for this calculation shall be those listed in Table 2.1 of Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," ORNL, 1989.</p>
DRAIN TIME	<p>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:</p> <ul style="list-style-type: none">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

(continued)

Definitions

DRAIN TIME
(continued)

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 is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation devices 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.

EMERGENCY CORE COOLING
SYSTEM (ECCS) RESPONSE
TIME

The ECCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS initiation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. 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.

(continued)

1.1 Definitions (continued)

END OF CYCLE RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME	The EOC-RPT SYSTEM RESPONSE TIME shall be that time interval from initial movement of the associated turbine stop valve or turbine control valve to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. 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.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valves travel to their required positions. 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.
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 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; b. <u>Unidentified LEAKAGE</u> All LEAKAGE into the drywell that is not identified LEAKAGE; c. <u>Total LEAKAGE</u> Sum of the identified and unidentified LEAKAGE; d. <u>Pressure Boundary LEAKAGE</u> LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.

(continued)

1.1 Definitions (continued)

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.
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).
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3473 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until 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.

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1 -----NOTE----- Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. ----- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. <u>AND</u>	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	B.2 -----NOTE----- Only applicable for Functions 3.a and 3.b. ----- Declare High Pressure Core Spray (HPCS) System inoperable. <u>AND</u>	1 hour from discovery of loss of HPCS initiation capability
	B.3 Place channel in trip.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1 -----NOTE----- Only applicable for Functions 1.c, 1.d, 2.c, and 2.d. ----- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	<u>AND</u> C.2 Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.</p>	<p>E.1 -----NOTE----- Only applicable for Functions 1.e, 1.f, and 2.e. -----</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 feature(s) in both divisions</p> <p>7 days</p>

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3	2 ^(a)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(c)	≥ -148.1 inches
b. Drywell Pressure-High	1,2,3	2 ^(a)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. LPCI Pump A Start-Time Delay Logic Card	1,2,3	1	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 4.5 seconds and ≤ 5.5 seconds
d. Reactor Vessel Pressure-Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.4 ^(c) SR 3.3.5.1.5	≥ 454 psig and ≤ 494 psig
e. LPCS Pump Discharge Flow-Low (Bypass)	1,2,3	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 750 gpm
f. LPCI Pump A Discharge Flow-Low (Bypass)	1,2,3	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 900 gpm
g. Manual Initiation	1,2,3	1	C	SR 3.3.5.1.5	NA

(continued)

- (a) Also required to initiate the associated diesel generator.
- (c) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

Table 3.3.5.1-1 (page 2 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI B and LPCI C Subsystems					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3	2 ^(a)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(c)	≥ -148.1 inches
b. Drywell Pressure- High	1,2,3	2 ^(a)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. LPCI Pump B Start-Time Delay Logic Card	1,2,3	1	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 4.5 seconds and ≤ 5.5 seconds
d. Reactor Vessel Pressure-Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.4 ^(c) SR 3.3.5.1.5	≥ 454 psig and ≤ 494 psig
e. LPCI Pump B and LPCI Pump C Discharge Flow-Low (Bypass)	1,2,3	1 per pump	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 900 gpm
f. Manual Initiation	1,2,3	1	C	SR 3.3.5.1.5	NA

(continued)

- (a) Also required to initiate the associated diesel generator.
- (c) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

Table 3.3.5.1-1 (page 3 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Core Spray (HPCS) System					
a. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4 ^(a)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(c)	≥ -48.1 inches
b. Drywell Pressure - High	1,2,3	4 ^(a)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. Reactor Vessel Water Level-High, Level 8	1,2,3	2	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(c)	≤ 54.6 inches
d. RCIC Storage Tank Level-Low	1,2,3	2	D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.4 ^(c) SR 3.3.5.1.5	≥ 3.0 inches
e. Suppression Pool Water Level-High	1,2,3	2	D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.4 ^(c) SR 3.3.5.1.5	≤ 11 inches
f. HPCS Pump Discharge Pressure-High (Bypass)	1,2,3	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 120 psig
g. HPCS System Flow Rate-Low (Bypass)	1,2,3	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 500 gpm
h. Manual Initiation	1,2,3	1	C	SR 3.3.5.1.5	NA

(continued)

(a) Also required to initiate the associated diesel generator.

- (c) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

Table 3.3.5.1-1 (page 4 of 5)
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 1 (Logic A and E)					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2 ^(b) ,3 ^(b)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(c)	≥ -148.1 inches
b. Drywell Pressure-High	1,2 ^(b) ,3 ^(b)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. ADS Initiation Timer	1,2 ^(b) ,3 ^(b)	1	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 117 seconds
d. Reactor Vessel Water Level-Low, Level 3 (Confirmatory)	1,2 ^(b) ,3 ^(b)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 8.3 inches
e. LPCS Pump Discharge Pressure-High	1,2 ^(b) ,3 ^(b)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.4 ^(c) SR 3.3.5.1.5	≥ 125 psig and ≤ 176.3 psig
f. LPCI Pump A Discharge Pressure- High	1,2 ^(b) ,3 ^(b)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.4 ^(c) SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. ADS Drywell Pressure Bypass Timer	1,2 ^(b) ,3 ^(b)	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 6.5 minutes
h. Manual Initiation	1,2 ^(b) ,3 ^(b)	2	G	SR 3.3.5.1.5	NA

(continued)

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

- (c) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

Table 3.3.5.1-1 (page 5 of 5)
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 2 (Logic B and F)					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2 ^(b) ,3 ^(b)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.5 SR 3.3.5.1.6 ^(c)	≥ -148.1 inches
b. Drywell Pressure-High	1,2 ^(b) ,3 ^(b)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. ADS Initiation Timer	1,2 ^(b) ,3 ^(b)	1	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 117 seconds
d. Reactor Vessel Water Level-Low, Level 3 (Confirmatory)	1,2 ^(b) ,3 ^(b)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 8.3 inches
e. LPCI Pumps B & C Discharge Pressure-High	1,2 ^(b) ,3 ^(b)	2 per pump	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 ^(c) SR 3.3.5.1.4 ^(c) SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
f. ADS Drywell Pressure Bypass Timer	1,2 ^(b) ,3 ^(b)	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 6.5 minutes
g. Manual Initiation	1,2 ^(b) ,3 ^(b)	2	G	SR 3.3.5.1.5	NA

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

- (c) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined As-Found Tolerance band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.
2. The instrument channel setpoint shall be reset to a value within the As-Left Tolerance of the Actual Trip Setpoint; otherwise, the channel shall be declared inoperable.
3. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined As-Found Tolerance and As-Left Tolerance bands shall be specified in the ORM.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1 Declare 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 3.3.5.2-1.	C.1 Place channel in trip.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1 Declare HPCS system inoperable.	1 hour
	<u>OR</u>	
	D.2 Align the HPCS pump suction to the suppression pool.	1 hour
E. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	E.1 Restore channel to OPERABLE status.	24 hours
F. Required Action and associated Completion Time of Condition C, D, or E not met.	F.1 Declare associated ECCS injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.5.2-1 to determine which SRs apply for each ECCS Function.

SURVEILLANCE	FREQUENCY
SR 3.3.5.2.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.3 Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.2-1 (page 1 of 2)
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. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Pressure - Low (Injection Permissive)	4,5	4 ^(a)	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 494 psig
b. LPCS Pump Discharge Flow - Low (Bypass)	4,5	1 per pump ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 750 gpm
c. LPCI Pump A Discharge Flow - Low (Bypass)	4,5	1 per pump ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 900 gpm
2. LPCI B and LPCI C Subsystems					
a. Reactor Vessel Pressure - Low (Injection Permissive)	4,5	4 ^(a)	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 494 psig
b. LPCI Pump B and LPCI Pump C Discharge Flow - Low (Bypass)	4,5	1 per pump ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 900 gpm

(continued)

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

Table 3.3.5.2-1 (page 2 of 2)
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
3. High Pressure Core Spray (HPCS) System					
a. RCIC Storage Tank Level - Low	4 ^(b) , 5 ^(b)	2 ^(a)	D	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 3.0 inches
b. HPCS Pump Discharge Pressure - High (Bypass)	4, 5	1 ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 120 psig
c. HPCS System Flow Rate - Low (Bypass)	4, 5	1 ^(a)	E	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 500 gpm
4. RHR System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	^(c)	2 in one trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 8.3 inches
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 2	^(c)	2 in one trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ -48.1 inches

- (a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."
- (b) When HPCS is OPERABLE for compliance with LCO 3.5.2, "RPV Water Inventory Control," and aligned to the RCIC storage tank while tank water level is not within the limits of SR 3.5.2.3.
- (c) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.5.3 Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.3 The RCIC System instrumentation for each Function in Table 3.3.5.3-1 shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.3-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	B.1 Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	<u>AND</u> B.2 Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	C.1 Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.</p>	<p>D.1 -----NOTE----- Only applicable if RCIC pump suction is not aligned to the suppression pool. -----</p> <p>Declare RCIC 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 RCIC pump suction to the suppression pool.</p>	<p>1 hour from discovery of loss of RCIC initiation capability</p> <p>24 hours</p> <p>24 hours</p>
<p>E. Required Action and associated Completion Time of Condition B, C, or D not met.</p>	<p>E.1 Declare RCIC System inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.5.3-1 to determine which SRs apply for each RCIC Function.
 2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 5; and (b) for up to 6 hours for Functions 1, 3, and 4 provided the associated Function maintains RCIC initiation capability.
-

SURVEILLANCE	FREQUENCY
SR 3.3.5.3.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.3 Calibrate the analog trip module.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.4 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.6 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.3-1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS		SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
		REFERENCED FROM	REQUIRED ACTION		
			A.1		
1. Reactor Vessel Water Level-Low Low, Level 2	4		B	SR 3.3.5.3.1	≥ -48.1 inches
				SR 3.3.5.3.2	
				SR 3.3.5.3.3	
				SR 3.3.5.3.5	
				SR 3.3.5.3.6	
2. Reactor Vessel Water Level-High, Level 8	2		C	SR 3.3.5.3.1	≤ 52.6 inches
				SR 3.3.5.3.2	
				SR 3.3.5.3.3	
				SR 3.3.5.3.4	
				SR 3.3.5.3.5	
3. RCIC Storage Tank Level-Low	2		D	SR 3.3.5.3.1	≥ 3.0 inches
				SR 3.3.5.3.2	
				SR 3.3.5.3.3	
				SR 3.3.5.3.4	
				SR 3.3.5.3.5	
4. Suppression Pool Water Level-High	2		D	SR 3.3.5.3.1	≤ -5 inches
				SR 3.3.5.3.2	
				SR 3.3.5.3.3	
				SR 3.3.5.3.4	
				SR 3.3.5.3.5	
5. Manual Initiation	1		C	SR 3.3.5.3.5	NA

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment and Drywell Isolation Instrumentation

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

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Only applicable to Main Steam Line (MSL) isolation Functions. -----</p> <p>A. One or more Functions with one channel inoperable.</p>	<p>A.1 Place one channel in affected Function in trip.</p>	<p>48 hours</p>
<p>-----NOTE----- Only applicable to MSL isolation Functions. -----</p> <p>B. One or more Functions with two channels inoperable.</p>	<p>B.1 Place one channel in affected Function in trip.</p>	<p>6 hours</p>
<p>-----NOTE----- Only applicable to MSL isolation Functions. -----</p> <p>C. One or more Functions with three or more channels inoperable.</p>	<p>C.1 Restore two channels in affected Function to OPERABLE status.</p>	<p>1 hour</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Not applicable to MSL isolation Functions. -----</p> <p>D. One or more required channels inoperable.</p>	D.1 Place channel in trip.	24 hours
<p>-----NOTE----- Not applicable to MSL isolation Functions. -----</p> <p>E. One or more automatic Functions with isolation capability not maintained.</p>	E.1 Restore isolation capability.	1 hour
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately
G. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	<p>G.1 Isolate associated MSL.</p> <p><u>OR</u></p> <p>G.2.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>G.2.2 Be in MODE 4.</p>	<p>12 hours</p> <p>12 hours</p> <p>36 hours</p>
H. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	H.1 Be in MODE 2.	6 hours
I. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	I.1 Isolate the affected penetration flow path(s).	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	J.1 Isolate the affected penetration flow path(s).	24 hours
K. As required by Required Action F.1 and referenced in Table 3.3.6.1-1. <u>OR</u> Required Action and associated Completion Time of Condition I or J not met.	K.1 Be in MODE 3.	12 hours
	<u>AND</u> K.2 Be in MODE 4.	36 hours
L. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	L.1 Declare associated standby liquid control subsystem inoperable.	1 hour
	<u>OR</u> L.2 Isolate the Reactor Water Cleanup System.	1 hour
M. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	M.1 Initiate action to restore channel to OPERABLE status.	Immediately
	<u>OR</u> M.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System suction from the reactor vessel.	Immediately
	<u>OR</u>	(continued)

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. (Continued)	M.3.1 Initiate action to restore secondary containment to OPERABLE status. <u>AND</u>	Immediately
	M.3.2 Initiate action to restore one standby gas treatment (SGT) subsystem to OPERABLE status. <u>AND</u>	Immediately
	M.3.3 Initiate action to restore isolation capability in each required secondary containment and secondary containment bypass penetration flow path not isolated. <u>AND</u>	Immediately
	M.3.4 -----NOTE----- Entry and exit is permissible under administrative control. ----- Initiate action to close one door in the upper containment personnel air lock.	Immediately
N. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	N.1 Isolate the affected penetration flow path(s). <u>OR</u>	Immediately
	N.2 Suspend movement of irradiated fuel assemblies in the primary and secondary containment.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.3 Calibrate the analog trip module.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.4 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.5 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.7 -----NOTE----- Channel sensors are excluded. ----- Verify the ISOLATION SYSTEM RESPONSE TIME for the main steam isolation valves is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.8 Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ -148.1 inches
b. Main Steam Line Pressure-Low	1	4	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 841 psig
c. Main Steam Line Flow-High	1,2,3	4	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 SR 3.3.6.1.7	≤ 284 psid
d. Condenser Vacuum-Low	1,2 ^(a) , 3 ^(a)	4	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	≥ 7.6 inches Hg vacuum
e. Main Steam Tunnel Temperature-High	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
f. Main Steam Line Turbine Building Temperature-High	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	Modules 1-4 ≤ 142°F, Module 5 ≤ 150°F
g. Manual Initiation	1,2,3	4	J	SR 3.3.6.1.6	NA

(continued)

(a) With any turbine stop valve not closed.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

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 FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation					
a. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4 ^(b)	K	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -48.1 inches
b. Drywell Pressure-High	1,2,3	4 ^(b)	K	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.88 psig
c. Deleted					
d. Drywell Pressure-High (ECCS Divisions 1 and 2)	1,2,3	4 ^(b)	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	≤ 1.88 psig
e. Reactor Vessel Water Level-Low Low, Level 2 (HPCS NSPS Div 3 and 4)	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -48.1 inches
f. Drywell Pressure-High (HPCS NSPS Div 3 and 4)	1,2,3	4	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	≤ 1.88 psig
(continued)					

(b) Also required to initiate the associated drywell isolation function.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

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 FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation (continued)					
g. Containment Building Fuel Transfer Pool Ventilation Plenum Radiation-High	(c)	4	N	SR 3.3.6.1.1	≤ 500 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
h. Containment Building Exhaust Radiation-High	1,2,3	4 ^(b)	I	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
	(c)	4	N	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
i. Containment Building Continuous Containment Purge (CCP) Exhaust Radiation-High	1,2,3	4 ^(b)	I	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
	(c)	4	N	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
j. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3	4 ^(b)	I	SR 3.3.6.1.1	≥ -148.1 inches
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.6	
				SR 3.3.6.1.8	
k. Containment Pressure-High	(d)	2	I	SR 3.3.6.1.1	≤ 3.0 psid
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
l. Manual Initiation	1,2,3	2 ^(b)	J	SR 3.3.6.1.6	NA
	(c)	2	N	SR 3.3.6.1.6	NA

(continued)

(b) Also required to initiate the associated drywell isolation function.

(c) During movement of recently irradiated fuel assemblies in the primary or secondary containment.

(d) MODES 1, 2, and 3 with the associated PCIVs not closed.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 4 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. Auxiliary Building RCIC Steam Line Flow-High	1,2,3	2	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	≤ 118.5 inches water
b. RCIC Steam Line Flow-High, Time Delay	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 13 seconds
c. RCIC Steam Supply Line Pressure-Low	1,2,3	2	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	≥ 52 psig
d. RCIC Turbine Exhaust Diaphragm Pressure-High	1,2,3	4	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	≤ 20 psig
e. RCIC Equipment Room Ambient Temperature-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 207°F
f. Main Steam Line Tunnel Ambient Temperature-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
g. Main Steam Line Tunnel Temperature Timer	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 28 minutes
h. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -48.1 inches
i. Drywell RCIC Steam Line Flow - High	1,2,3	2	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	≤ 188 inches water

(continued)

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 5 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. RCIC System Isolation (continued)					
j. Drywell Pressure - High	1,2,3	2	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	≤ 1.88 psig
k. Manual Initiation	1,2,3	1	J	SR 3.3.6.1.6	NA
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Differential Flow - High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.8	≤ 66.1 gpm
b. Differential Flow-Timer	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 47 seconds
c. RWCU Heat Exchanger Equipment Room Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 205°F
d. RWCU Pump Rooms Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 202°F
e. Main Steam Line Tunnel Ambient Temperature- High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
f. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -48.1 inches
g. Standby Liquid Control System Initiation	1,2,3	2	L	SR 3.3.6.1.6	NA
h. Manual Initiation	1,2,3	2	J	SR 3.3.6.1.6	NA
	(c)	2	N	SR 3.3.6.1.6	NA

(continued)

(c) During movement of recently irradiated fuel assemblies in the primary or secondary containment.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. RHR System Isolation					
a. RHR Heat Exchanger Ambient Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 160°F
b. Reactor Vessel Water Level - Low, Level 3	1,2,3 ^(e)	4	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	≥ 8.3 inches
c. Reactor Vessel Water Level - Low, Level 3	3 ^(f)	4	M	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 8.3 inches
d. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ -148.1 inches
e. Reactor Vessel Pressure-High	1,2,3	4	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	≤ 113 psig
f. Drywell Pressure-High	1,2,3	8	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	≤ 1.88 psig
g. Manual Initiation	1,2,3	2	J	SR 3.3.6.1.6	NA

(e) With reactor steam dome pressure greater than or equal to the RHR cut in permissive pressure.

(f) With reactor steam dome pressure less than the RHR cut in permissive pressure.

Secondary Containment Isolation Instrumentation
3.3.6.2

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 Low, Level 2	1,2,3	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	≥ -48.1 inches
2. Drywell Pressure-High	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 1.88 psig
3. Containment Building Fuel Transfer Pool Ventilation Plenum Exhaust Radiation-High	(a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 500 mR/hr
4. Containment Building Exhaust Radiation-High	1,2,3,(a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 400 mR/hr
5. Containment Building Continuous Containment Purge (CCP) Exhaust Radiation-High	1,2,3,(a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 400 mR/hr
6. Fuel Building Exhaust Radiation-High	1,2,3,(b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 17 mR/hr
7. Manual Initiation	1,2,3,(a)	1	SR 3.3.6.2.5	NA

(a) During movement of recently irradiated fuel assemblies in the primary or secondary containment. |

(b) During movement of recently irradiated fuel assemblies in the fuel building. |

Control Room Ventilation System Instrumentation
3.3.7.1

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Control Room Air Intake Radiation Monitors	1,2,3, ^(a)	1/Intake	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3	≤ 26 mR/hr

(a) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in the primary or secondary containment.

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

3.5.1 ECCS—Operating

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

-----NOTE-----
One low pressure coolant injection (LPCI) subsystem may be inoperable during alignment and operation for decay heat removal with reactor steam dome pressure less than the residual heat removal cut in permissive pressure.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
B. High Pressure Core Spray (HPCS) System inoperable.	B.1 Verify by administrative means RCIC System is OPERABLE when RCIC is required to be OPERABLE.	1 hour
	<u>AND</u> B.2 Restore HPCS System to OPERABLE status.	14 days

(continued)

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

3.5.2 RPV Water Inventory Control

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

AND

One ECCS injection/spray subsystem shall be OPERABLE.

-----NOTE-----
One low pressure coolant injection (LPCI) subsystem may be inoperable during alignment and operation for decay heat removal with reactor steam dome pressure less than the residual heat removal cut in permissive pressure.

APPLICABILITY: MODES 4 and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. DRAIN TIME < 36 hours and ≥ 8 hours.	C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.	4 hours
	<u>AND</u>	
	C.2 Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
<u>AND</u>		
C.3 Verify one standby gas treatment subsystem is capable of being placed in operation in less than the DRAIN TIME.	4 hours	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. DRAIN TIME < 8 hours.	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 > TAF for ≥ 36 hours.	Immediately
	<u>AND</u>	
	D.2 Initiate action to establish secondary containment boundary.	Immediately
	<u>AND</u>	
	D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room.	Immediately
<u>AND</u>		
	D.4 Initiate action to verify one standby gas treatment subsystem is capable of being placed in operation.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. Required Action and associated Completion Time of Condition C or D not met.</p> <p><u>OR</u></p> <p>DRAIN TIME < 1 hour.</p>	<p>E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.2.1 Verify DRAIN TIME ≥ 36 hours.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.2.2 Verify, for a required low pressure ECCS injection/spray subsystem, the suppression pool water level is ≥ 12 ft 8 inches.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.2.3 Verify, for a required High Pressure Core Spray (HPCS) System, the:</p> <p>a. Suppression pool water level is ≥ 12 ft 8 inches; or</p> <p>b. RCIC storage tank available water volume is $\geq 125,000$ gal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.2.4 Verify, for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.5.2.5 -----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify, for 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>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.2.6 Operate the required ECCS injection/spray subsystem through the recirculation line for ≥ 10 minutes.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.2.7 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>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.2.8 -----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify the required ECCS injection/spray subsystem can be manually operated.</p>	<p>In Accordance with the Surveillance Frequency Control Program</p>

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

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCIC System inoperable.	A.1 Verify by administrative means High Pressure Core Spray System is OPERABLE.	1 hour
	<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
SR 3.5.3.1 Verify the RCIC System locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.5.3.2 -----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>In accordance with the Surveillance Frequency Control 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 RCIC steam supply pressure ≤ 1045 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.3.4 -----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 RCIC steam supply pressure ≤ 150 psig and ≥ 135 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.3.5 -----NOTE----- Vessel injection may be excluded. -----</p> <p>Verify the RCIC System actuates on an actual or simulated automatic initiation signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

3.6 CONTAINMENT SYSTEMS

3.6.1.2 Primary Containment Air Locks

LCO 3.6.1.2 Each primary containment air lock shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

-----NOTE-----
The following Applicability applies only to the upper
containment personnel air lock.

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

ACTIONS

- NOTES-----
1. Entry and exit is permissible to perform repairs of the affected air lock components.
 2. Separate Condition entry is allowed for each air lock.
 3. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when air lock leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.
-

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. Required Action and associated Completion Time of Condition A, B, or C not met during movement of recently irradiated fuel assemblies in the primary or secondary containment.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>E.1 Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.</p>	<p>Immediately</p>

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

-----NOTE-----
The following Applicability applies only to secondary
containment bypass leakage isolation valves.

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

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 in MODES 1, 2, and 3.
 5. Not applicable for the Inclined Fuel Transfer System (IFTS) penetration when the associated primary containment blind flange is removed, provided that the fuel building fuel transfer pool water is maintained \geq el. 753 ft., the steam dryer pool to reactor cavity pool gate is installed with the seal inflated and a backup air supply provided, the total time the flange is open does not exceed 40 days per operating cycle, and the IFTS transfer tube drain valve(s) remain(s) closed, except that the IFTS tube drain valve(s) may be opened under administrative controls.

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.3 Perform SR 3.6.1.3.5 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 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	12 hours 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 recently irradiated fuel assemblies in the primary or secondary containment.	F.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of recently irradiated fuel assemblies in primary and secondary containment.	Immediately

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in
the primary or secondary containment.

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.	<p style="text-align: center;">-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. -----</p> <p>B.1 Be in MODE 3.</p>	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the primary or secondary containment.	C.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.1.1 Verify secondary containment vacuum is ≥ 0.25 inch of vacuum water gauge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2 Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Dampers (SCIDs)

LCO 3.6.4.2 Each SCID shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in
the primary or secondary containment. |

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 SCIDs.
-

(continued)

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 primary or secondary containment.</p>	<p>D.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.</p>	<p>Immediately</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 primary or secondary containment.

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.	<p>-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. -----</p> <p>B.1 Be in MODE 3.</p>	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the primary or secondary containment.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>C.1 Place OPERABLE SGT subsystem in operation.</p> <p><u>OR</u></p> <p>C.2 Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.</p>	<p>Immediately</p> <p>Immediately</p>
<p>D. Two SGT subsystems inoperable in MODE 1, 2, or 3.</p>	<p>-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. -----</p> <p>D.1 Be in MODE 3.</p>	<p>12 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the primary or secondary containment.	E.1 Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.3.1 Operate each SGT subsystem for ≥ 15 continuous minutes with heaters operating.	In accordance with the Surveillance Frequency Control Program
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.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.3.4 Verify each SGT filter cooling bypass damper can be opened and the fan started.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEM

3.7.3 Control Room Ventilation System

LCO 3.7.3 Two Control Room Ventilation 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 irradiated fuel assemblies in the primary or secondary containment,
During CORE ALTERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Control Room Ventilation subsystem inoperable for reasons other than Condition C.	A.1 Restore Control Room Ventilation subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. ----- B.1 Be in MODE 3.	12 hours
C. One or more Control Room Ventilation subsystems inoperable due to inoperable CRE boundary in MODE 1, 2, or 3.	C.1 Initiate action to implement mitigating actions. <u>AND</u> C.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. <u>AND</u> C.3 Restore CRE boundary to OPERABLE status.	Immediately 24 hours 90 days

(continued)

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Two control room AC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the primary
or secondary containment,
During CORE ALTERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One control room AC subsystem inoperable.	A.1 Restore control room AC subsystem to OPERABLE status.	30 days
B. Two control room AC subsystems inoperable.	B.1 Verify control room area temperature ≤ 86 °F.	Once per 4 hours
	<u>AND</u> B.2 Restore one control room AC 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.	-----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. -----	
	C.1 Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the primary or secondary containment, or during CORE ALTERATIONS.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p>	
	<p>D.1 Place OPERABLE control room AC subsystem in operation.</p>	<p>Immediately</p>
	<p><u>OR</u></p> <p>D.2.1 Suspend movement of irradiated fuel assemblies in the primary and secondary containment.</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>D.2.2 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>

(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 or secondary containment, or during CORE ALTERATIONS.	-----NOTE----- LCO 3.0.3 is not applicable. -----	
	E.1 Suspend movement of irradiated fuel assemblies in the primary and secondary containment.	Immediately
	<u>AND</u>	
	E.2 Suspend CORE ALTERATIONS.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.4.1 Verify each control room AC subsystem has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources—Shutdown

- LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:
- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems—Shutdown";
 - b. One diesel generator (DG) capable of supplying one division of the Division 1 or 2 onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10; and
 - c. One qualified circuit, other than the circuit in LCO 3.8.2.a, between the offsite transmission network and the Division 3 onsite Class 1E AC 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 High Pressure Core Spray System is OPERABLE for compliance with LCO 3.5.2, "RPV Water Inventory Control."

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

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. LCO Item a not met.</p>	<p>-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.10, when any required division is de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s) with no offsite power available from a required circuit inoperable.</p> <p><u>OR</u></p> <p>A.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>A.2.2 Suspend movement of irradiated fuel assemblies in the primary and secondary containment.</p> <p><u>AND</u></p> <p>A.2.3 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. LCO Item b not met.	B.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	B.2 Suspend movement of irradiated fuel assemblies in primary and secondary containment.	Immediately
	<u>AND</u>	
	B.3 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 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 DC electrical power distribution subsystem(s) required by LCO 3.8.10, "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(s) when required by LCO 3.8.10; and
- c. The Division 3 and 4 DC electrical power subsystems capable of supplying the Division 3 and 4 onsite Class 1E DC electrical power distribution subsystems, when the High Pressure Core Spray System is OPERABLE for compliance with LCO 3.5.2, "RPV Water Inventory Control."

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One battery charger on one division inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	<u>AND</u>	
	A.2 Verify battery float current \leq 2 amps.	Once per 12 hours
	<u>AND</u>	
	A.3 Restore battery charger to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One or more required DC electrical power subsystems inoperable for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Declare affected required feature(s) inoperable.</p> <p><u>OR</u></p>	<p>Immediately</p>
	<p>B.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p>	<p>Immediately</p>
	<p>B.2.2 Suspend movement of irradiated fuel assemblies in the primary and secondary containment.</p> <p><u>AND</u></p>	<p>Immediately</p>
	<p>B.2.3 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters—Shutdown

- LCO 3.8.8 The following Divisional inverters shall be OPERABLE:
- a. One Divisional inverter capable of supplying one division of the Division 1 or 2 onsite Class 1E uninterruptible AC bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown"; and
 - b. The Division 3 and 4 Divisional inverters capable of supplying the Division 3 and 4 onsite Class 1E uninterruptible AC bus electrical power distribution subsystems, when the High Pressure Core Spray System is OPERABLE for compliance with LCO 3.5.2, "RPV Water Inventory Control."

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required divisional inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend handling of irradiated fuel assemblies in the primary and secondary containment.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to restore required divisional inverters to OPERABLE status.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate actions to restore required AC, DC, and uninterruptible AC bus electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>	
	A.2.4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.10.1 Verify correct breaker alignments and voltage to required AC, DC, and uninterruptible AC bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

Clinton Power Station, Unit 1

**Supplement to Clinton Power Station, Unit 1 Application to Revise Technical
Specifications to Adopt TSTF-542,
"Reactor Pressure Vessel Water Inventory Control"**

ATTACHMENT 4

**TECHNICAL SPECIFICATIONS BASES PAGES AFFECTED BY THE ADDITIONAL
VARIATION (MARK-UP)**

B 3.3-122c
B 3.3-122d
B 3.3-122e
B 3.3-122f
B 3.3-122g
B 3.3-122h
B 3.3-122i
B 3.5-26

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued) Low Pressure Core Spray and Low Pressure Coolant Injection Systems
1.a, 2.a. Reactor Vessel Pressure - Low (Injection Permissive)

Low reactor vessel pressure signals are used as permissives for the low pressure ECCS subsystems. This ensures that, prior to opening the injection valves of the low pressure ECCS subsystems, the reactor pressure has fallen to a value below these subsystems' maximum design pressure. While it is assured during Modes 4 and 5 that the reactor vessel pressure will be below the ECCS maximum design pressure, the Reactor vessel Pressure - Low signals are assumed to be operable and capable of permitting initiation of the ECCS.

The Reactor Vessel Pressure - Low signals are initiated from four pressure transmitters that sense the reactor dome pressure. The four pressure transmitters each drive ATMs (with a total of eight trip channels).

The Allowable Value is low enough to prevent overpressurizing the equipment in the low pressure ECCS.

Four channels of Reactor Vessel Pressure - Low Function per associated ECCS Division are required to be OPERABLE in MODES 4 and 5 when ECCS Manual Initiation is required to be OPERABLE, since these channels support the manual initiation Function. In addition, the channels are only required when the associated ECCS subsystem is required to be OPERABLE by LCO 3.5.2.

1.b, 1.c, 2.b. Low Pressure Coolant Injection and Low Pressure Core Spray Pump Discharge Flow - Low (Bypass)

The minimum flow instruments are provided to protect the associated low pressure ECCS pump from overheating when the pump is operating and the associated injection valve is not fully open. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump.

One flow transmitter per ECCS pump is used to detect the associated subsystems' flow rates. The logic is arranged such that each transmitter causes its associated minimum flow valve to open. The logic will close the minimum flow valve once the closure setpoint is exceeded. The LPCI minimum flow valves are time delayed such that the valves will not open for 8 seconds after the ATMs detect low-flow. The time delay is provided to limit reactor vessel inventory loss during the startup of the Residual Heat Removal (RHR) shutdown cooling mode (for RHR A and RHR B).

(continued)

BASES

APPLICABLE
SAFETY
ANALYSES, LCO,
and APPLICABILITY
(continued)

The Pump Discharge Flow - Low Allowable Values are high enough to ensure that the pump flow rate is sufficient to protect the pump, yet low enough to ensure that the closure of the minimum flow valve is initiated to allow full flow into the core.

One channel of the Pump Discharge Flow - Low Function is required to be OPERABLE in MODES 4 and 5 when the associated LPCS or LPCI pump is required to be OPERABLE by LCO 3.5.2 to ensure the pumps are capable of injecting into the Reactor Pressure Vessel when manually initiated.

High Pressure Core Spray System

3.a. Reactor Core Isolation Cooling (RCIC) Storage Tank Level - Low

Low level in the RCIC Storage Tank indicates the unavailability of an adequate supply of makeup water from this normal source. Normally the suction valves between HPCS and the RCIC Storage Tank are open and water for HPCS injection would be taken from the RCIC Storage Tank. However, if the water level in the RCIC Storage Tank falls below a preselected level, first the suppression pool suction valve automatically opens, and then the RCIC Storage Tank suction valve automatically closes. This ensures that an adequate supply of makeup water is available to the HPCS pump. To prevent losing suction to the pump, the suction valves are interlocked so that the suppression pool suction valve must be open before the RCIC Storage Tank suction valve automatically closes.

RCIC Storage Tank Level - Low signals are initiated from two level transmitters. The logic is arranged such that either transmitter and associated ATM can cause the suppression pool suction valve to open and the RCIC Storage Tank suction valve to close.

The RCIC Storage Tank Level - Low Function Allowable Value is high enough to ensure adequate pump suction head while water is being taken from the RCIC Storage Tank.

Two channels of the RCIC Storage Tank Level - Low Function are only required to be OPERABLE when HPCS is required to be OPERABLE to fulfill the requirements of LCO 3.5.2, HPCS is aligned to the RCIC Storage Tank, and the RCIC Storage Tank water level is not within the limits of SR 3.5.2.3.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued) 3.b, 3.c. HPCS Pump Discharge Pressure - High (Bypass) and HPCS System Flow Rate - Low (Bypass)

The minimum flow instruments are provided to protect the HPCS pump from overheating when the pump is operating and the associated injection valve is not fully open. The minimum flow line valve is opened when low flow and high pump discharge pressure are sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump or the discharge pressure is low (indicating the HPCS pump is not operating).

One flow transmitter is used to detect the HPCS System's flow rate. The logic is arranged such that the transmitter causes the minimum flow valve to open, provided the HPCS pump discharge pressure, sensed by another transmitter, is high enough (indicating the pump is operating). The logic will close the minimum flow valve once the closure setpoint is exceeded. (The valve will also close upon HPCS pump discharge pressure decreasing below the setpoint.)

The HPCS System Flow Rate - Low and HPCS Pump Discharge Pressure - High Allowable Value is high enough to ensure that pump flow rate is sufficient to protect the pump, yet low enough to ensure that the closure of the minimum flow valve is initiated to allow full flow into the core.

The HPCS Pump Discharge Pressure - High Allowable Value is set high enough to ensure that the valve will not be open when the pump is not operating.

One channel of each Function is required to be OPERABLE when HPCS is required to be OPERABLE by LCO 3.5.2 in MODES 4 and 5.

(continued)

BASES

APPLICABLE
SAFETY
ANALYSES, LCO,
and APPLICABILITY
(continued)

RHR System Isolation

4.a - Reactor Vessel Water Level - Low, Level 3

The definition of DRAIN TIME allows crediting the closing of penetration flow paths that are capable of being automatically isolated by RPV water level isolation instrumentation prior to the RPV water level being equal to the TAF. The Reactor Vessel Water Level - Low, Level 3 Function is only required to be OPERABLE when automatic isolation of the associated RHR penetration flow path is credited in calculating DRAIN TIME.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters (two per trip system) that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. While four channels (two channels per trip system) of the Reactor Vessel Water Level - Low, Level 3 Function are available, only two channels (all in the same trip system) are required to be OPERABLE.

The Reactor Vessel Water Level - Low, Level 3 Allowable Value was chosen to be the same as the RPS Reactor Vessel Water Level - Low, Level 3 Allowable Value (LCO 3.3.1.1), since the capability to cool the fuel may be threatened.

(continued)

BASES

APPLICABLE
SAFETY
ANALYSES, LCO,
and APPLICABILITY
(continued)

Reactor Water Cleanup (RWCU) System Isolation

5.a - Reactor Vessel Water level - Low Low, Level 2

The definition of DRAIN TIME allows crediting the closing of penetration flow paths that are capable of being automatically isolated by RPV water level isolation instrumentation prior to the RPV water level being equal to the TAF. The Reactor Vessel Water Level - Low Low, Level 2 Function associated with RWCU System isolation may be credited for automatic isolation of penetration flow paths associated with the RWCU System.

Reactor Vessel Water Level - Low Low, Level 2 is initiated from two channels per trip system that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. While four channels (two channels per trip system) of the Reactor Vessel Water Level - Low, Level 2 Function are available, only two channels (all in the same trip system) are required to be OPERABLE.

The Reactor Vessel Water Level - Low Low, Level 2 Allowable Value was chosen to be the same as the ECCS Reactor Vessel Water Level - Low Low, Level 2 Allowable Value (LCO 3.3.5.1), since the capability to cool the fuel may be threatened.

The Reactor Vessel Water Level - Low Low, Level 2 Function is only required to be OPERABLE when automatic isolation of the associated penetration flow path is credited in calculating DRAIN TIME.

ACTIONS

A Note has been provided to modify the ACTIONS related to RPV Water Inventory Control 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

(continued)

BASES

ACTIONS
(continued)

will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable RPV Water Inventory Control instrumentation channels provide appropriate compensatory measures for separate inoperable Condition entry for each inoperable RPV Water Inventory Control instrumentation channel.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.2-1. The applicable Condition referenced in the Table is Function dependent. Each time a channel is discovered inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

RHR System Isolation, Reactor Vessel Water Level - Low Level 3, and Reactor Water Cleanup System, Reactor Vessel Water Level - Low Low, Level 2 functions are applicable when automatic isolation of the associated penetration flow path is credited in calculating Drain Time. If the instrumentation is inoperable, Required Action B.1 directs an immediate declaration that the associated penetration flow path(s) are incapable of automatic isolation. Required Action B.2 directs calculation of DRAIN TIME. The calculation cannot credit automatic isolation of the affected penetration flow paths.

C.1

Low reactor vessel pressure signals are used as permissives for the low pressure ECCS injection/spray subsystem manual initiation functions. If this permissive is inoperable, manual initiation of ECCS is prohibited. Therefore, the permissive must be placed in the trip condition within 1 hour. With the permissive in the trip condition, manual initiation may be performed. Prior to placing the permissive in the tripped condition, the operator can take manual control of the pump and the injection valve to inject water into the RPV.

The Completion Time of 1 hour is intended to allow the operator time to evaluate any discovered inoperabilities and to place the channel in trip.

(continued)

BASES

ACTIONS
(continued)

D.1 and D.2

Required Actions D.1 and D.2 are intended to ensure that appropriate actions are taken if multiple, inoperable channels within the same Function result in a loss of automatic suction swap for the HPCS system from the RCIC storage tank to the suppression pool. The HPCS system must be declared inoperable within 1 hour or the HPCS pump suction must be aligned to the suppression pool, since, if aligned, the function is already performed.

The 1 hour Completion Time is acceptable because it minimizes the risk of HPCS being needed without an adequate water source while allowing time for restoration or alignment of HPCS pump suction to the suppression pool.

E.1

If an LPCI or LPCS Discharge Flow - Low bypass function or HPCS System Discharge Pressure - High or Flow Rate - Low bypass function is inoperable, there is a risk that the associated ECCS pump could overheat when the pump is operating and the associated injection valve is not fully open. In this condition, the operator can take manual control of the pump and the injection valve to ensure the pump does not overheat. If a manual initiation function is inoperable, the ECCS subsystem pumps can be started manually and the valves can be opened manually, but this is not the preferred condition.

The 24 hour Completion Time was chosen to allow time for the operator to evaluate and repair any discovered inoperabilities. The Completion Time is appropriate given the ability to manually start the ECCS pumps and open the injection valves and to manually ensure the pump does not overheat.

F.1

With the Required Action and associated Completion Time of Conditions C, D, E, or F not met, the associated ECCS injection/spray subsystem may be incapable of performing the intended function, and must be declared inoperable immediately.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

~~SR 3.5.2.8SR-3.5.2.4 (continued)~~

~~in the correct position. The required ECCS subsystem shall be capable of being manually operated. This Surveillance verifies that the required LCPI subsystem, LPCS System, or HPCS System (including the associated pump and valve(s)) can be manually operated to provide additional RPV Water Inventory, if needed, without delay.~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

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

REFERENCES

1. Information Notice 84-81 "Inadvertent Reduction in Primary Coolant Inventory in Boiling Water Reactors During Shutdown and Startup," November 1984.
2. Information Notice 86-74, "Reduction of Reactor Coolant Inventory Because of Misalignment of RHR Valves," August 1986.
3. Generic Letter 92-04, "Resolution of the Issues Related to Reactor Vessel Water Level Instrumentation in BWRs Pursuant to 10 CFR 50.54(f)," August 1992.
4. NRC Bulletin 93-03, "Resolution of Issues Related to Reactor Vessel Water Level Instrumentation in BWRs," May 1993.
5. Information Notice 94-52, "Inadvertent Containment Spray and Reactor Vessel Draindown at Millstone 1," July 1994.
6. General Electric Service Information Letter No. 388, "RHR Valve Misalignment During Shutdown Cooling Operation for BWR 3/4/5/6," February 1983.