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Standard Technical Specifications General Electric Plants, BWR/4

Specifications

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
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PREFACE

This NUREG contains the improved Standard Technical Specifications (STS) for General Electric (GE) BWR/4 plants. Revision 2 incorporates the cumulative changes to Revision 1, which was published in April 1995. The changes reflected in Revision 2 resulted from the experience gained from license amendment applications to convert to these improved STS or to adopt partial improvements to existing technical specifications. This publication is the result of extensive public technical meetings and discussions among the Nuclear Regulatory Commission (NRC) staff and various nuclear power plant licensees, Nuclear Steam Supply System (NSSS) Owners Groups, and the Nuclear Energy Institute (NEI). The improved STS were developed based on the criteria in the Final Commission Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 22, 1993 (58 FR 39132), which was subsequently codified by changes to Section 36 of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR 50.36) (60 FR 36953). Licensees are encouraged to upgrade their technical specifications consistent with those criteria and conforming, to the practical extent, to Revision 2 to the improved STS. The Commission continues to place the highest priority on requests for complete conversions to the improved STS. Licensees adopting portions of the improved STS to existing technical specifications should adopt all related requirements, as applicable, to achieve a high degree of standardization and consistency.

The Table of Contents is now a Table of Contents / Revision Summary where the revision number and date are listed for each specification and bases, in lieu of traditional page numbers. Each limiting condition for operation (LCO) starts with page 1, with a specification, e.g., "2.0" or bases "B 2.0" number prefix. Subsequent approved revisions to sections will be noted in the table of contents, as well as on each affected page, using a decimal number to indicate the number of revisions to that section, along with the date, e.g., (Rev 2.3, 04/01/01) indicates the third approved change and date since Revision 2.0 was published. Additionally, the final page of each LCO section will be a historical listing of the changes affecting that section. This publication will be maintained in electronic format. Subsequent revisions will not be printed in hard copy. Users may access the subsequent revisions to the STS in the PDF format at (http://www.nrc.gov/NRR/sts/sts.htm). This Web site will be updated as needed and the contents may differ from the last printed version. Users may print or download copies from the NRC Web site.

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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.

Term	Definition
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] [heat generation rate per unit length of fuel rod] 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 inplace 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

1.1 Definitions

CHANNEL FUNCTIONAL TEST (continued)

CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps.

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 thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in [Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites" or those listed in Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977, or ICRP 30, Supplement to Part 1, page 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity"].

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

1.1 Definitions

ECCS RESPONSE TIME (continued)

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. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

END OF CYCLE RECIRCULATION PUMP TRIP (EOC RPT) SYSTEM RESPONSE TIME

The EOC RPT SYSTEM RESPONSE TIME shall be that time interval from initial signal generation by [the associated turbine stop valve limit switch or from when the turbine control valve hydraulic oil control oil pressure drops below the pressure switch setpoint] 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, [except for the breaker arc suppression time, which is not measured but is validated to conform to the manufacturer's design value].

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. 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. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

LEAKAGE

LEAKAGE shall be:

a. <u>Identified LEAKAGE</u>

1. LEAKAGE into the drywell, such as that from pump

1.1 Definitions

LEAKAGE (continued)

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. Unidentified LEAKAGE

All LEAKAGE into the drywell that is not identified LEAKAGE,

c. Total LEAKAGE

Sum of the identified and unidentified LEAKAGE, and

d. Pressure Boundary LEAKAGE

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

[LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.]
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
[MAXIMUM FRACTION OF LIMITING POWER DENSITY (MFLPD)	The MFLPD shall be the largest value of the fraction of limiting power density in the core. The fraction of limiting power density shall be the LHGR existing at a given location divided by the specified LHGR limit for that bundle type.]

1.1 Definitions

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).
PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in Chapter [14, Initial Test Program] of the FSAR, b. Authorized under the provisions of 10 CFR 50.59, or c. Otherwise approved by the Nuclear Regulatory Commission.
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.6. Plant operation within these operating limits is addressed in LCO 3.4.10, "RCS Pressure and Temperature (P/T) Limits."

1.1 Definitions

RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of [2436] 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. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
SHUTDOWN MARGIN (SDM)	SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical assuming that: a. The reactor is xenon free, b. The moderator temperature is 68°F, and c. All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

1.1 Definitions

[TURBINE BYPASS SYSTEM RESPONSE TIME	The TURBINE BYPASS SYSTEM RESPONSE TIME consists of two components: a. The time from initial movement of the main turbine stop valve or control valve until 80% of the turbine bypass capacity is established and b. The time from initial movement of the main turbine stop valve or control valve until initial movement of the turbine bypass valve. 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.]

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel[a] or Startup/Hot Standby	NA
3	Hot Shutdown[a]	Shutdown	> [200]
4	Cold Shutdown[a]	Shutdown	≤ [200]
5	Refueling[b]	Shutdown or Refuel	NA

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

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

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE	The purpose of this section is to explain the meaning of logical connectors. Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.
BACKGROUND	Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentions of the logical connectors. When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.
EXAMPLES	The following examples illustrate the use of logical connectors.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Verify . . . AND A.2 Restore . . .	

In this example the logical connector AND is used to indicate that when in Condition A, both Required Actions A.1 and A.2 must be completed.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Trip . . .	
	OR	
	A.2.1 Verify . . .	
	AND	
	A.2.2.1 Reduce . . .	
	OR	
	A.2.2.2 Perform . . .	
	OR	
	A.3 Align . . .	

This example represents a more complicated use of logical connectors. Required Actions A.1, A.2, and A.3 are alternative choices, only one of which must be performed as indicated by the use of the logical connector OR and the left justified placement. Any one of these three Actions may be chosen. If A.2 is chosen, then both A.2.1 and A.2.2 must be performed as indicated by the logical connector AND. Required Action A.2.2 is met by performing A.2.2.1 or A.2.2.2. The indented position of the logical connector OR indicates that A.2.2.1 and A.2.2.2 are alternative choices, only one of which must be performed.

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Times.
DESCRIPTION	The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability. If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition. Once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will <u>not</u> result in separate entry into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition. However, when a <u>subsequent</u> division, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability: a. Must exist concurrent with the <u>first</u> inoperability and

1.3 Completion Times

DESCRIPTION (continued)

b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours or

b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each division, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ." Example 1.3-3 illustrates one use of this type of Completion Time. The 10 day Completion Time specified for Condition A and B in Example 1.3-3 may not be extended.

EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	AND	
	B.2 Be in MODE 4.	36 hours

Condition B has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

The Required Actions of Condition B are to be in MODE 3 within 12 hours AND in MODE 4 within 36 hours. A total of 12 hours is allowed for reaching MODE 3 and a total of 36 hours (not 48 hours) is allowed for reaching MODE 4 from the time that Condition B was entered. If MODE 3 is reached within 6 hours, the time allowed for reaching MODE 4 is the next 30 hours because the total time allowed for reaching MODE 4 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 4 is the next 36 hours.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

When a pump is declared inoperable, Condition A is entered. If the pump is not restored to OPERABLE status within 7 days, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable pump is restored to OPERABLE status after Condition B is entered, Conditions A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

When a second pump is declared inoperable while the first pump is still inoperable, Condition A is not re-entered for the second pump. LCO 3.0.3 is entered, since the ACTIONS do not include a Condition for more than one inoperable pump. The Completion Time clock for Condition A does not stop after LCO 3.0.3 is entered, but continues to be tracked from the time Condition A was initially entered.

While in LCO 3.0.3, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has not expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition A.

While in LCO 3.0.3, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition B. The Completion Time for Condition B is tracked from the time the Condition A Completion Time expired.

1.3 Completion Times

EXAMPLES (continued)

On restoring one of the pumps to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first pump was declared inoperable. This Completion Time may be extended if the pump restored to OPERABLE status was the first inoperable pump. A 24 hour extension to the stated 7 days is allowed, provided this does not result in the second pump being inoperable for > 7 days.

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X subsystem inoperable.	A.1 Restore Function X subsystem to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
B. One Function Y subsystem inoperable.	B.1 Restore Function Y subsystem to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO
C. One Function X subsystem inoperable. AND One Function Y subsystem inoperable.	C.1 Restore Function X subsystem to OPERABLE status. OR C.2 Restore Function Y subsystem to OPERABLE status.	72 hours 72 hours

When one Function X subsystem and one Function Y subsystem are

1.3 Completion Times

EXAMPLES (continued)

inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each subsystem starting from the time each subsystem was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second subsystem was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A. The remaining Completion Time in Condition A is measured from the time the affected subsystem was declared inoperable (i.e., initial entry into Condition A).

The Completion Times of Conditions A and B are modified by a logical connector with a separate 10 day Completion Time measured from the time it was discovered the LCO was not met. In this example, without the separate Completion Time, it would be possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. The separate Completion Time modified by the phrase "from discovery of failure to meet the LCO" is designed to prevent indefinite continued operation while not meeting the LCO. This Completion Time allows for an exception to the normal "time zero" for beginning the Completion Time "clock." In this instance, the Completion Time "time zero" is specified as commencing at the time the LCO was initially not met, instead of at the time the associated Condition was entered.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

A single Completion Time is used for any number of valves inoperable at the same time. The Completion Time associated with Condition A is based on the initial entry into Condition A and is not tracked on a per valve basis. Declaring subsequent valves inoperable, while Condition A is still in effect, does not trigger the tracking of separate Completion Times.

Once one of the valves has been restored to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first valve was declared inoperable. The Completion Time may be extended if the valve restored to OPERABLE status was the first inoperable valve. The Condition A Completion Time may be extended for up to 4 hours provided this does not result in any subsequent valve being inoperable for > 4 hours.

If the Completion Time of 4 hours (plus the extension) expires while one or more valves are still inoperable, Condition B is entered.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

- NOTE -
Separate Condition entry is allowed for each inoperable valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

The Note above the ACTIONS Table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific Condition, the Note would appear in that Condition rather than at the top of the ACTIONS Table.

The Note allows Condition A to be entered separately for each inoperable valve, and Completion Times tracked on a per valve basis. When a valve is declared inoperable, Condition A is entered and its Completion Time starts. If subsequent valves are declared inoperable, Condition A is entered for each valve and separate Completion Times start and are tracked for each valve.

If the Completion Time associated with a valve in Condition A expires, Condition B is entered for that valve. If the Completion Times associated with subsequent valves in Condition A expire, Condition B is entered separately for each valve and separate Completion Times start and are tracked for each valve. If a valve that caused entry into Condition B is restored to OPERABLE status, Condition B is exited for that valve.

1.3 Completion Times

EXAMPLES (continued)

Since the Note in this example allows multiple Condition entry and tracking of separate Completion Times, Completion Time extensions do not apply.

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x. OR A.2 Reduce THERMAL POWER to ≤ 50% RTP.	Once per 8 hours 8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per SR 3.0.2, to each performance after the initial performance. The initial 8 hour interval of Required Action A.1 begins when Condition A is entered and the initial performance of Required Action A.1 must be complete within the first 8 hour interval. If Required Action A.1 is followed and the Required Action is not met within the Completion Time (plus the extension allowed by SR 3.0.2), Condition B is entered. If Required Action A.2 is followed and the Completion Time of 8 hours is not met, Condition B is entered.

If after entry into Condition B, Required Action A.1 or A.2 is met, Condition B is exited and operation may then continue in Condition A.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	1 hour AND Once per 8 hours thereafter
	AND	
	A.2 Restore subsystem to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	AND	
	B.2 Be in MODE 4.	36 hours

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each "Once per 8 hours thereafter" interval begins upon performance of Required Action A.1.

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

1.3 Completion Times

IMMEDIATE COMPLETION TIME	When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE	The purpose of this section is to define the proper use and application of Frequency requirements.
DESCRIPTION	Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated LCO. An understanding of the correct application of the specified Frequency is necessary for compliance with the SR. The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0.2, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR as well as certain Notes in the Surveillance column that modify performance requirements. Sometimes special situations dictate when the requirements of a Surveillance are to be met. They are "otherwise stated" conditions allowed by SR 3.0.1. They may be stated as clarifying Notes in the Surveillance, as part of the Surveillance, or both. Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction. The use of "met" or "performed" in these instances conveys specific meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met." "Performance" refers only to the requirement to specifically determine the ability to meet the acceptance criteria. Some Surveillances contain notes that modify the Frequency of performance or the conditions during which the acceptance criteria must be satisfied. For these Surveillances, the MODE-entry restrictions of SR 3.0.4 may not apply. Such a Surveillance is not required to be performed prior to entering a MODE or other specified condition in the Applicability of the associated LCO if any of the following three conditions are satisfied:

1.4 Frequency

DESCRIPTION (continued)

a. The Surveillance is not required to be met in the MODE or other specified condition to be entered; or

b. The Surveillance is required to be met in the MODE or other specified condition to be entered, but has been performed within the specified Frequency (i.e., it is current) and is known not to be failed; or

c. The Surveillance is required to be met, but not performed, in the MODE or other specified condition to be entered, and is known not to be failed.

Examples 1.4-3, 1.4-4, 1.4-5, and 1.4-6 discusses these special situations.

EXAMPLES

The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the LCO (LCO not shown) is MODES 1, 2, and 3.

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the interval specified in the Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Examples 1.4-3 and 1.4-4), then SR 3.0.3 becomes applicable.

1.4 Frequency

EXAMPLES (continued)

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify flow is within limits.	Once within 12 hours after ≥ 25% RTP AND 24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. Each time reactor power is increased from a power level < 25% RTP to ≥ 25% RTP, the Surveillance must be performed within 12 hours.

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the 25% extension allowed by SR 3.0.2. "Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If reactor power decreases to < 25% RTP, the measurement of both intervals stops. New intervals start upon reactor power reaching 25% RTP.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
- NOTE - Not required to be performed until 12 hours after ≥ 25% RTP.	
Perform channel adjustment.	7 days

The interval continues, whether or not the unit operation is < 25% RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches ≥ 25% RTP to perform the Surveillance. The Surveillance is still considered to be within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day interval (plus the extension allowed by SR 3.0.2), but operation was < 25% RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours with power ≥ 25% RTP.

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
- NOTE - Only required to be met in MODE 1.	
Verify leakage rates are within limits.	24 hours

Example 1.4-4 specifies that the requirements of this Surveillance do not have to be met until the unit is in MODE 1. The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), but the unit was not in MODE 1, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES, even with the 24 hour Frequency exceeded, provided the MODE change was not made into MODE 1. Prior to entering MODE 1 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

EXAMPLE 1.4-5

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
- NOTE - Only required to be performed in MODE 1.	
Perform complete cycle of the valve.	7 days

The interval continues, whether or not the unit operation is in MODE 1,2 or 3 (the assumed Applicability of the associated LCO) between performances.

1.4 Frequency

EXAMPLES (continued)

As the Note modifies the required performance of the Surveillance, the Note is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is not in MODE 1, this Note allows entry into and operation in MODES 2 and 3 to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency" if completed prior to entering MODE 1. Therefore, if the Surveillance were not performed within the 7 day (plus the extension allowed by SR 3.0.2) interval, but operation was not in MODE 1, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not result in entry into MODE 1.

Once the unit reaches MODE 1, the requirement for the Surveillance to be performed within its specified Frequency applies and would require that the Surveillance had been performed. If the Surveillance were not performed prior to entering MODE 1, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

EXAMPLE 1.4-6

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
- NOTE - Not required to be met in MODE 3.	
Verify parameter is within limits.	24 hours

Example 1.4-[6] specifies that the requirements of this Surveillance do not have to be met while the unit is in MODE 3 (the assumed Applicability of the associated LCO is MODES 1,2, and 3). The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), and the unit was in MODE 3, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES to enter MODE 3,

1.4 Frequency

EXAMPLES (continued)

even with the 24 hour Frequency exceeded, provided the MODE change does not result in entry into MODE 2. Prior to entering MODE 2 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 With the reactor steam dome pressure < 785 psig or core flow < 10% rated core flow:

THERMAL POWER shall be ≤ 25% RTP.

2.1.1.2 With the reactor steam dome pressure ≥ 785 psig and core flow ≥ 10% rated core flow:

MCPR shall be ≥ [1.07] for two recirculation loop operation or ≥ [1.08] for single recirculation loop operation.

2.1.1.3 Reactor vessel water level shall be greater than the top of active irradiated fuel.

2.1.2 Reactor Coolant System Pressure SL

Reactor steam dome pressure shall be ≤ 1325 psig.

2.2 SAFETY LIMIT VIOLATIONS

With any SL violation, the following actions shall be completed within 2 hours:

2.2.1 Restore compliance with all SLs; and

2.2.2 Insert all insertable control rods.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1	LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2 and LCO 3.0.7.
LCO 3.0.2	Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6. If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.
LCO 3.0.3	When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in: a. MODE 2 within [7] hours, b. MODE 3 within 13 hours, and c. MODE 4 within 37 hours. Exceptions to this Specification are stated in the individual Specifications. Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required. LCO 3.0.3 is only applicable in MODES 1, 2, and 3. **- REVIEWER'S NOTE -** The brackets around the time provided to reach MODE 2 allow a plant to extend the time from 7 hours to a plant specific time. Before the time can be changed, plant specific data must be provided to support the extended time.
LCO 3.0.4	When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in MODES or other specified

LCO Applicability

LCO 3.0.4 (continued)

conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications.

LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, and 3.

- REVIEWER'S NOTE -

LCO 3.0.4 has been revised so that changes in MODES or other specified conditions in the Applicability that are part of a shutdown of the unit shall not be prevented. In addition, LCO 3.0.4 has been revised so that it is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, and 3. The MODE change restrictions in LCO 3.0.4 were previously applicable in all MODES. Before this version of LCO 3.0.4 can be implemented on a plant-specific basis, the licensee must review the existing technical specifications to determine where specific restrictions on MODE changes or Required Actions should be included in individual LCOs to justify this change; such an evaluation should be summarized in a matrix of all existing LCOs to facilitate NRC staff review of a conversion to the STS.

LCO 3.0.5

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

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.12, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

LCO Applicability

LCO 3.0.6 (continued)

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7

Special Operations LCOs in Section 3.10 allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1	SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.
SR 3.0.2	The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met. For Frequencies specified as "once," the above interval extension does not apply. If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance. Exceptions to this Specification are stated in the individual Specifications.
SR 3.0.3	If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is less. This delay period is permitted to allow performance of the Surveillance. If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered. When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.
SR 3.0.4	Entry into a MODE or other specified condition in the Applicability of an LCO shall not be made unless the LCO's Surveillances have been met within their specified Frequency. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

SR Applicability

SR 3.0.4 (continued)

SR 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, and 3.

- REVIEWER'S NOTE -

SR 3.0.4 has been revised so that changes in MODES or other specified conditions in the Applicability that are part of a shutdown of the unit shall not be prevented. In addition, SR 3.0.4 has been revised so that it is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, and 3. The MODE change restrictions in SR 3.0.4 were previously applicable in all MODES. Before this version of SR 3.0.4 can be implemented on a plant-specific basis, the licensee must review the existing technical specifications to determine where specific restrictions on MODE changes or Required Actions should be included in individual LCOs to justify this change; such an evaluation should be summarized in a matrix of all existing LCOs to facilitate NRC staff review of a conversion to the STS.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 SDM shall be:

a. ≥ [0.38] % Δk/k, with the highest worth control rod analytically determined or

b. ≥ [0.28] % Δk/k, with the highest worth control rod determined by test.

APPLICABILITY: MODES 1, 2, 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. SDM not within limits in MODE 1 or 2.	A.1	Restore SDM to within limits.	6 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
C. SDM not within limits in MODE 3.	C.1	Initiate action to fully insert all insertable control rods.	Immediately
D. SDM not within limits in MODE 4.	D.1	Initiate action to fully insert all insertable control rods.	Immediately
	AND		
	D.2	Initiate action to restore [secondary] containment to OPERABLE status.	1 hour
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	D.3	Initiate action to restore one standby gas treatment (SGT) subsystem to OPERABLE status.	1 hour
	AND		
	D.4	Initiate action to restore isolation capability in each required [secondary] containment penetration flow path not isolated.	1 hour
E. SDM not within limits in MODE 5.	E.1	Suspend CORE ALTERATIONS except for control rod insertion and fuel assembly removal.	Immediately
	AND		
	E.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	E.3	Initiate action to restore [secondary] containment to OPERABLE status.	1 hour
	AND		
	E.4	Initiate action to restore one SGT subsystem to OPERABLE status.	1 hour
	AND		
	E.5	Initiate action to restore isolation capability in each required [secondary] containment penetration flow path not isolated.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SDM to be within limits.	Prior to each in vessel fuel movement during fuel loading sequence AND Once within 4 hours after criticality following fuel movement within the reactor pressure vessel or control rod replacement

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Reactivity Anomalies

LCO 3.1.2 The reactivity [difference] between the [monitored rod density and the predicted rod density] shall be within ± 1% Δk/k.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Core reactivity [difference] not within limit.	A.1	Restore core reactivity [difference] to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	Verify core reactivity [difference] between the [monitored rod density and the predicted rod density] is within ± 1% Δk/k.	Once within 24 hours after reaching equilibrium conditions following startup after fuel movement within the reactor pressure vessel or control rod replacement AND 1000 MWD/T thereafter during operations in MODE 1

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Control Rod OPERABILITY

LCO 3.1.3 Each control rod shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One withdrawn control rod stuck.		**- NOTE -** Rod worth minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1, "Control Rod Block Instrumentation," if required, to allow continued operation.	
	A.1	Verify stuck control rod separation criteria are met.	Immediately
	AND		
	A.2	Disarm the associated control rod drive (CRD).	2 hours
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.3	Perform SR 3.1.3.2 and SR 3.1.3.3 for each withdrawn OPERABLE control rod.	24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM
	AND		
	A.4	Perform SR 3.1.1.1.	72 hours
B. Two or more withdrawn control rods stuck.	B.1	Be in MODE 3.	12 hours
C. One or more control rods inoperable for reasons other than Condition A or B.	C.1	---------- **- NOTE -** RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation. ---------- Fully insert inoperable control rod.	3 hours
	AND		
	C.2	Disarm the associated CRD.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. ---------- **- NOTE -** Not applicable when THERMAL POWER > [10]% RTP. ---------- Two or more inoperable control rods not in compliance with banked position withdrawal sequence (BPWS) and not separated by two or more OPERABLE control rods.	D.1 Restore compliance with BPWS. OR D.2 Restore control rod to OPERABLE status.	4 hours 4 hours
E. ---------- **- NOTE -** [Not applicable when THERMAL POWER > [10]% RTP. ---------- One or more groups with four or more inoperable control rods.	E.1 Restore control rod to OPERABLE status.	4 hours]
F. Required Action and associated Completion Time of Condition A, C, D, or E not met. OR Nine or more control rods inoperable.	F.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	24 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.3.2	---------- **- NOTE -** Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of RWM. ---------- Insert each fully withdrawn control rod at least one notch.	7 days
SR 3.1.3.3	---------- **- NOTE -** Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. ---------- Insert each partially withdrawn control rod at least one notch.	31 days
SR 3.1.3.4	Verify each control rod scram time from fully withdrawn to notch position [06] is ≤ 7 seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4
SR 3.1.3.5	Verify each control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position <u>AND</u> Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Control Rod Scram Times

LCO 3.1.4

a. No more than [10] OPERABLE control rods shall be "slow," in accordance with Table 3.1.4-1, and

b. No more than 2 OPERABLE control rods that are "slow" shall occupy adjacent locations.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

- NOTE -

During single control rod scram time Surveillances, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator.

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify each control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ [800] psig.	Prior to exceeding 40% RTP after each reactor shutdown ≥ 120 days
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ [800] psig.	120 days cumulative operation in MODE 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ [800] psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell AND Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

- NOTES -

1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."

2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to notch position [06]. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."

NOTCH POSITION	SCRAM TIMES[(a)(b)] (seconds) WHEN REACTOR STEAM DOME PRESSURE ≥ [800] psig
[46]	[0.44]
[36]	[1.08]
[26]	[1.83]
[06]	[3.35]

(a) Maximum scram time from fully withdrawn position, based on de-energization of scram pilot valve solenoids at time zero.

(b) Scram times as a function of reactor steam dome pressure, when < 800 psig are within established limits.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Control Rod Scram Accumulators

LCO 3.1.5 Each control rod scram accumulator shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One control rod scram accumulator inoperable with reactor steam dome pressure ≥ [900] psig.	A.1	**- NOTE -** Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance. Declare the associated control rod scram time "slow."	8 hours
	OR		
	A.2	Declare the associated control rod inoperable.	8 hours
B. Two or more control rod scram accumulators inoperable with reactor steam dome pressure ≥ [900] psig.	B.1	Restore charging water header pressure to ≥ [940] psig.	20 minutes from discovery of Condition B concurrent with charging water header pressure < [940] psig
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.2.1	---------- **- NOTE -** Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance. ---------- Declare the associated control rod scram time "slow."	1 hour
	OR		
	B.2.2	Declare the associated control rod inoperable.	1 hour
C. One or more control rod scram accumulators inoperable with reactor steam dome pressure < [900] psig.	C.1	Verify all control rods associated with inoperable accumulators are fully inserted.	Immediately upon discovery of charging water header pressure < [940] psig
	AND		
	C.2	Declare the associated control rod inoperable.	1 hour
D. Required Action and associated Completion Time of Required Action B.1 or C.1 not met.	D.1	---------- **- NOTE -** Not applicable if all inoperable control rod scram accumulators are associated with fully inserted control rods. ---------- Place the reactor mode switch in the shutdown position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each control rod scram accumulator pressure is ≥ [940] psig.	7 days

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Rod Pattern Control

LCO 3.1.6 OPERABLE control rods shall comply with the requirements of the [banked position withdrawal sequence (BPWS)].

APPLICABILITY: MODES 1 and 2 with THERMAL POWER ≤ [10]% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more OPERABLE control rods not in compliance with [BPWS].	A.1	---------- **- NOTE -** Rod worth minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1, "Control Rod Block Instrumentation." ---------- Move associated control rod(s) to correct position.	8 hours
	OR		
	A.2	Declare associated control rod(s) inoperable.	8 hours
B. Nine or more OPERABLE control rods not in compliance with [BPWS].	B.1	---------- **- NOTE -** Rod worth minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1. ---------- Suspend withdrawal of control rods.	Immediately
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify all OPERABLE control rods comply with [BPWS].	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. [Concentration of boron in solution not within limits but > [ ] .	A.1	Restore concentration of boron in solution to within limits.	72 hours AND 10 days from discovery of failure to meet the LCO]
B. One SLC subsystem inoperable [for reasons other than Condition A].	B.1	Restore SLC subsystem to OPERABLE status.	7 days AND [10 days from discovery of failure to meet the LCO]
C. Two SLC subsystems inoperable [for reasons other than Condition A].	C.1	Restore one SLC subsystem to OPERABLE status.	8 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is [within the limits of Figure 3.1.7-1, or ≥ [4530] gallons].	24 hours
SR 3.1.7.2	[Verify temperature of sodium pentaborate solution is within the limits of [Figure 3.1.7-2].	24 hours]
SR 3.1.7.3	[Verify temperature of pump suction piping is within the limits of [Figure 3.1.7-2].	24 hours]
SR 3.1.7.4	Verify continuity of explosive charge.	31 days
SR 3.1.7.5	Verify the concentration of boron in solution is [within the limits of Figure 3.1.7-1].	31 days AND Once within 24 hours after water or boron is added to solution AND Once within 24 hours after solution temperature is restored within the limits of [Figure 3.1.7-2]
SR 3.1.7.6	Verify each SLC subsystem manual, power operated, [and automatic valve] in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	31 days
SR 3.1.7.7	Verify each pump develops a flow rate ≥ [41.2] gpm at a discharge pressure ≥ [1190] psig.	[In accordance with the Inservice Testing Program or 92 days]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	[18] months on a STAGGERED TEST BASIS
SR 3.1.7.9	[Verify all heat traced piping between storage tank and pump suction is unblocked.	[18] months AND Once within 24 hours after solution temperature is restored within the limits of [Figure 3.1.7-2]]
SR 3.1.7.10	[Verify sodium pentaborate enrichment is ≥ [60.0] atom percent B-10.	Prior to addition to SLC tank]

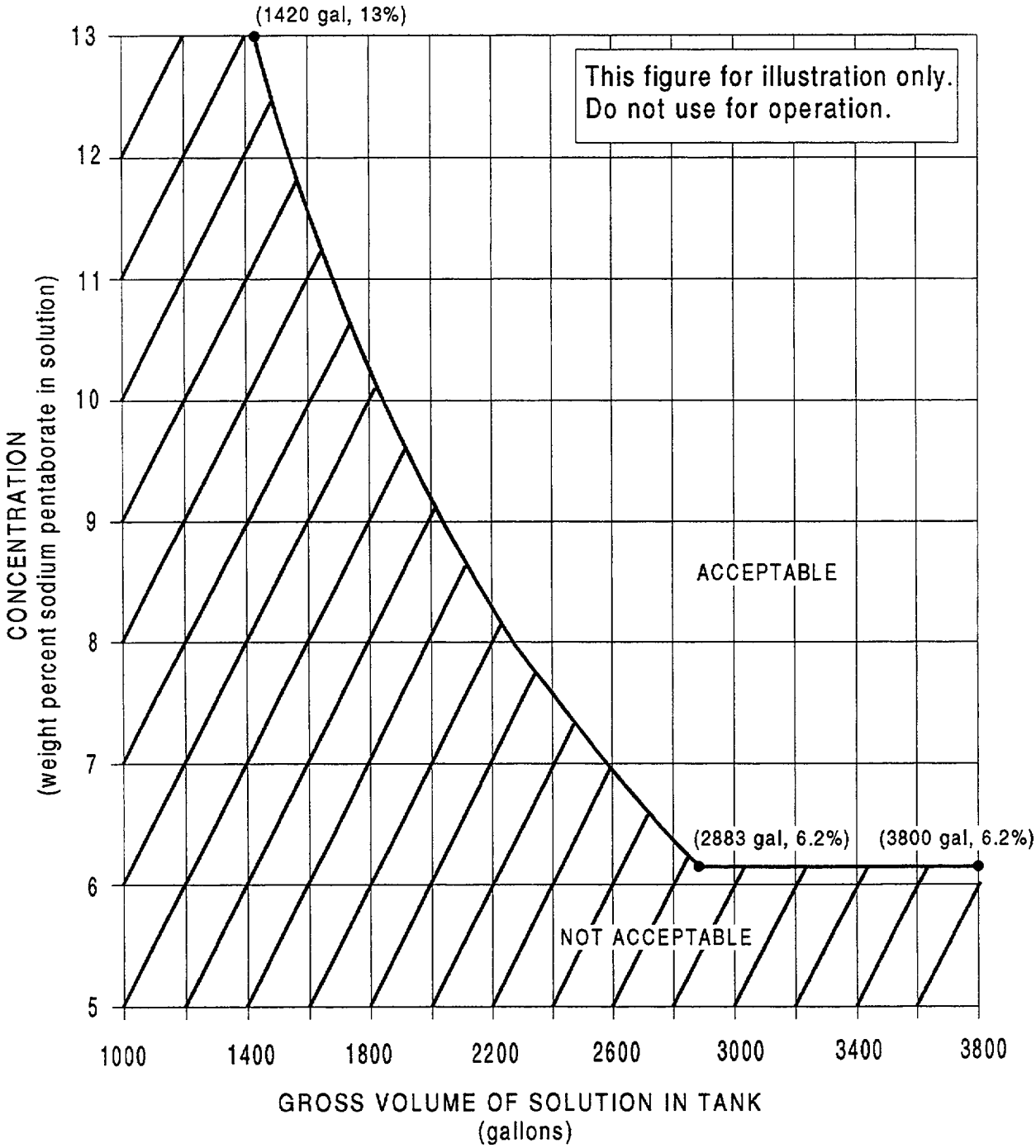

Figure 3.1.7-1 (page 1 of 1)
Sodium Pentaborate Solution Volume
Versus Concentration Requirements

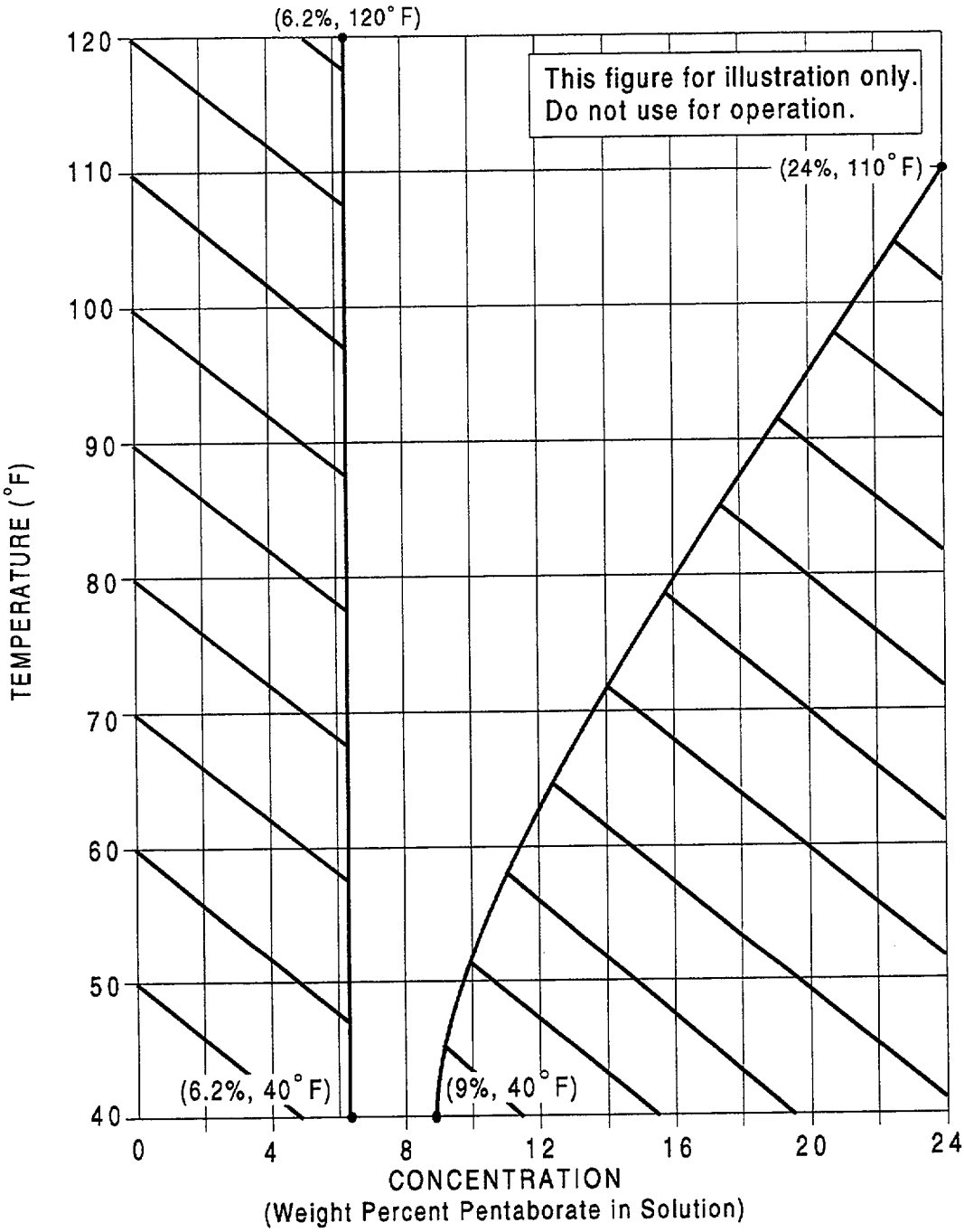

Figure 3.1.7-2 (page 1 of 1)
Sodium Pentaborate Solution Temperature Versus Concentration Requirements

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Scram Discharge Volume (SDV) Vent and Drain Valves

LCO 3.1.8 Each SDV vent and drain valve shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

- NOTE -
Separate Condition entry is allowed for each SDV vent and drain line.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SDV vent or drain lines with one valve inoperable.	A.1 Restore valve to OPERABLE status.	7 days
B. One or more SDV vent or drain lines with both valves inoperable.	B.1 **- NOTE -** An isolated line may be unisolated under administrative control to allow draining and venting of the SDV. Isolate the associated line.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	---------- **- NOTE -** Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. ---------- Verify each SDV vent and drain valve is open.	31 days
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	92 days
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ [60] seconds after receipt of an actual or simulated scram signal and b. Opens when the actual or simulated scram signal is reset.	[18] months

3.2 POWER DISTRIBUTION LIMITS

3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

LCO 3.2.1 All APLHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any APLHGR not within limits.	A.1 Restore APLHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	Verify all APLHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND 24 hours thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

LCO 3.2.2 All MCPRs shall be greater than or equal to the MCPR operating limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any MCPR not within limits.	A.1 Restore MCPR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify all MCPRs are greater than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND 24 hours thereafter

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.2.2	Determine the MCPR limits.	Once within 72 hours after each completion of SR 3.1.4.1 AND Once within 72 hours after each completion of SR 3.1.4.2 AND Once within 72 hours after each completion of SR 3.1.4.4

3.2 POWER DISTRIBUTION LIMITS

3.2.3 LINEAR HEAT GENERATION RATE (LHGR) (Optional)

LCO 3.2.3 All LHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any LHGR not within limits.	A.1 Restore LHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify all LHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND 24 hours thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.4 Average Power Range Monitor (APRM) Gain and Setpoints (Optional)

LCO 3.2.4

a. MFLPD shall be less than or equal to Fraction of RTP, or

b. Each required APRM setpoint specified in the COLR shall be made applicable, or

c. Each required APRM gain shall be adjusted such that the APRM readings are ≥ 100% times MFLPD.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Requirements of the LCO not met.	A.1	Satisfy the requirements of the LCO.	6 hours
B. Required Action and associated Completion Time not met.	B.1	Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	---------- **- NOTE -** Not required to be met if SR 3.2.4.2 is satisfied for LCO 3.2.4 Item b or c requirements. ---------- Verify MFLPD is within limits.	Once within 12 hours after ≥ 25% RTP <u>AND</u> 24 hours thereafter
SR 3.2.4.2	---------- **- NOTE -** Not required to be met if SR 3.2.4.1 is satisfied for LCO 3.2.4 Item a requirements. ---------- Verify APRM setpoints or gains are adjusted for the calculated MFLPD.	12 hours

3.3 INSTRUMENTATION

3.3.1.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1.1 The RPS instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.1-1.

ACTIONS

- NOTE -

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required channels inoperable.	A.1	Place channel in trip.	12 hours
	OR		
	A.2	Place associated trip system in trip.	12 hours
B. One or more Functions with one or more required channels inoperable in both trip systems.	B.1	Place channel in one trip system in trip.	6 hours
	OR		
	B.2	Place one trip system in trip.	6 hours
C. One or more Functions with RPS trip capability not maintained.	C.1	Restore RPS trip capability.	1 hour
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1 Reduce THERMAL POWER to < [30]% RTP.	4 hours
F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1 Be in MODE 2.	6 hours
G. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1 Be in MODE 3.	12 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTES -

1. Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS 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 RPS trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.2	---------- **- NOTE -** Not required to be performed until 12 hours after THERMAL POWER ≥ 25% RTP. ---------- Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is ≤ 2% RTP [plus any gain adjustment required by LCO 3.2.4, "Average Power Range Monitor (APRM) Setpoints"] while operating at ≥ 25% RTP.	7 days
SR 3.3.1.1.3	Adjust the channel to conform to a calibrated flow signal.	7 days
SR 3.3.1.1.4	---------- **- NOTE -** Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	7 days
SR 3.3.1.1.5	Perform CHANNEL FUNCTIONAL TEST.	7 days
SR 3.3.1.1.6	Calibrate the local power range monitors.	1000 MWD/T average core exposure
SR 3.3.1.1.7	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.1.1.8	[Calibrate the trip units.	[92] days]
SR 3.3.1.1.9	---------- **- NOTES -** 1. Neutron detectors are excluded. 2. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL CALIBRATION.	184 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.10	Perform CHANNEL FUNCTIONAL TEST.	[18] months
SR 3.3.1.1.11	---------- **- NOTES -** 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.1.1.12	Verify the APRM Flow Biased Simulated Thermal Power - High time constant is ≤ [7] seconds.	[18] months
SR 3.3.1.1.13	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
SR 3.3.1.1.14	Verify Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ [30]% RTP.	[18] months
SR 3.3.1.1.15	---------- **- NOTES -** 1 Neutron detectors are excluded. 2. For Function 5 "n" equals 4 channels for the purpose of determining the the STAGGERED TEST BASIS Frequency. ---------- Verify the RPS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

Table 3.3.1.1-1 (page 1 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitors					
a. Neutron Flux - High	2	[3]	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [120/125] divisions of full scale
	5[(a)]	[3]	H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [120/125] divisions of full scale
b. Inop	2	[3]	G	SR 3.3.1.1.4 SR 3.3.1.1.13	NA
	5[(a)]	[3]	H	SR 3.3.1.1.5 SR 3.3.1.1.13	NA
2. Average Power Range Monitors					
a. Neutron Flux - High, Setdown	2	[2]	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.6 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ [20]% RTP
b. Flow Biased Simulated Thermal Power - High	1	[2]	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.3 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [0.58 W + 62]% RTP and ≤ [115.5]% RTP[(b)]

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

(b) [0.58 W + 62% - 0.58 ΔW]RTP when reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating."

Table 3.3.1.1-1 (page 2 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors					
c. Fixed Neutron Flux - High	1	[2]	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [120]% RTP
[d. Downscale	1	[2]	F	SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.13	≥ [3]% RTP]
e. Inop	1,2	[2]	G	SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.13	NA
3. Reactor Vessel Steam Dome Pressure - High	1,2	[2]	G	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [1054] psig
4. Reactor Vessel Water Level - Low, Level 3	1,2	[2]	G	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.15	≥ [10] inches
5. Main Steam Isolation Valve - Closure	1	[8]	F	SR 3.3.1.1.7 SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [10]% closed
6. Drywell Pressure - High	1,2	[2]	G	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [1.92] psig

Table 3.3.1.1-1 (page 3 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Scram Discharge Volume Water Level - High					
a. Resistance Temperature Detector	1,2	[2]	G	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [57.15] gallons
	5[a]	[2]	H	SR 3.3.1.1.1 SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [57.15] gallons
b. Float Switch	1,2	[2]	G	SR 3.3.1.1.7 SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [57.15] gallons
	5[a]	[2]	H	SR 3.3.1.1.7 SR 3.3.1.1.11 SR 3.3.1.1.13	≤ [57.15] gallons
8. Turbine Stop Valve - Closure	≥ [30]% RTP	[4]	E	SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ [10]% closed
9. Turbine Control Valve Fast Closure, Trip Oil Pressure - Low	≥ [30]% RTP	[2]	E	SR 3.3.1.1.7 [SR 3.3.1.1.8] SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ [600] psig
10. Reactor Mode Switch - Shutdown Position	1,2	[2]	G	SR 3.3.1.1.10 SR 3.3.1.1.13	NA
	5[a]	[2]	H	SR 3.3.1.1.10 SR 3.3.1.1.13	NA

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

Table 3.3.1.1-1 (page 4 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
11. Manual Scram	1,2	[2]	G	SR 3.3.1.1.5 SR 3.3.1.1.13	NA
	5[a]	[2]	H	SR 3.3.1.1.5 SR 3.3.1.1.13	NA

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

3.3 INSTRUMENTATION

3.3.1.2 Source Range Monitor (SRM) Instrumentation

LCO 3.3.1.2 The SRM instrumentation in Table 3.3.1.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.2-1.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required SRMs inoperable in MODE 2 with intermediate range monitors (IRMs) on Range 2 or below.	A.1	Restore required SRMs to OPERABLE status.	4 hours
B. [Three] required SRMs inoperable in MODE 2 with IRMs on Range 2 or below.	B.1	Suspend control rod withdrawal.	Immediately
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	12 hours
D. One or more required SRMs inoperable in MODE 3 or 4.	D.1	Fully insert all insertable control rods.	1 hour
	AND		
	D.2	Place reactor mode switch in the shutdown position.	1 hour
E. One or more required SRMs inoperable in MODE 5.	E.1	Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTE -

Refer to Table 3.3.1.2-1 to determine which SRs apply for each applicable MODE or other specified conditions.

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2.2	**- NOTES -** 1. Only required to be met during CORE ALTERATIONS. 2. One SRM may be used to satisfy more than one of the following. Verify an OPERABLE SRM detector is located in: a. The fueled region, b. The core quadrant where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region, and c. A core quadrant adjacent to where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region.	12 hours
SR 3.3.1.2.3	Perform CHANNEL CHECK.	24 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.4	---------- **- NOTE -** Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. ----------	
	Verify count rate is: a. ≥ [3.0] cps with a signal to noise ratio ≥ [2:1] or b. ≥ [0.7] cps with a signal to noise ratio ≥ [20:1].	12 hours during CORE ALTERATIONS <u>AND</u> 24 hours
SR 3.3.1.2.5	Perform CHANNEL FUNCTIONAL TEST [and determination of signal to noise ratio].	7 days
SR 3.3.1.2.6	---------- **- NOTE -** Not required to be performed until 12 hours after IRMs on Range 2 or below. ----------	
	Perform CHANNEL FUNCTIONAL TEST [and determination of signal to noise ratio].	31 days
SR 3.3.1.2.7	---------- **- NOTES -** 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. ----------	
	Perform CHANNEL CALIBRATION.	[18] months

Table 3.3.1.2-1 (page 1 of 1)
Source Range Monitor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1. Source Range Monitor	2[a]	[3]	SR 3.3.1.2.1 SR 3.3.1.2.4 SR 3.3.1.2.6 SR 3.3.1.2.7
	3, 4	2	SR 3.3.1.2.3 SR 3.3.1.2.4 SR 3.3.1.2.6 SR 3.3.1.2.7
	5	2[b][c]	SR 3.3.1.2.1 SR 3.3.1.2.2 SR 3.3.1.2.4 SR 3.3.1.2.5 SR 3.3.1.2.7

(a) With IRMs on Range 2 or below.

(b) Only one SRM channel is required to be OPERABLE during spiral offload or reload when the fueled region includes only that SRM detector.

(c) Special movable detectors may be used in place of SRMs if connected to normal SRM circuits.

3.3 INSTRUMENTATION

3.3.2.1 Control Rod Block Instrumentation

LCO 3.3.2.1 The control rod block instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2.1-1.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One rod block monitor (RBM) channel inoperable.	A.1	Restore RBM channel to OPERABLE status.	24 hours
B. Required Action and associated Completion Time of Condition A not met. OR Two RBM channels inoperable.	B.1	Place one RBM channel in trip.	1 hour
C. Rod worth minimizer (RWM) inoperable during reactor startup.	C.1	Suspend control rod movement except by scram.	Immediately
	OR		
	C.2.1.1	Verify ≥ 12 rods withdrawn.	Immediately
		OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	C.2.1.2	Verify by administrative methods that startup with RWM inoperable has not been performed in the last calendar year.	Immediately
	AND		
	C.2.2	Verify movement of control rods is in compliance with banked position withdrawal sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.	During control rod movement
D. RWM inoperable during reactor shutdown.	D.1	Verify movement of control rods is in compliance with BPWS by a second licensed operator or other qualified member of the technical staff.	During control rod movement
E. One or more Reactor Mode Switch - Shutdown Position channels inoperable.	E.1	Suspend control rod withdrawal.	Immediately
	AND		
	E.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTES -

1. Refer to Table 3.3.2.1-1 to determine which SRs apply for each Control Rod Block Function.

2. When an RBM 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 control rod block capability.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.1	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.2.1.2	**- NOTE -** Not required to be performed until 1 hour after any control rod is withdrawn at ≤[10]% RTP in MODE 2. Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.2.1.3	**- NOTE -** Not required to be performed until 1 hour after THERMAL POWER is ≤ [10]% RTP in MODE 1. Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.2.1.4	**- NOTE -** [Neutron detectors are excluded.] Verify the RBM: a. Low Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 29% and ≤ 64% RTP, b. Intermediate Power Range - Upscale Function is not bypassed when THERMAL POWER is > 64% and ≤ 84% RTP, and c. High Power Range - Upscale Function is not bypassed when THERMAL POWER is > 84% RTP.	[18] months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is ≤ [10]% RTP.	[18] months
SR 3.3.2.1.6	---------- **- NOTE -** Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. ---------- Perform CHANNEL FUNCTIONAL TEST.	[18] months
SR 3.3.2.1.7	---------- **- NOTE -** Neutron detectors are excluded. ---------- Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

Table 3.3.2.1-1 (page 1 of 1)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Rod Block Monitor				
a. Low Power Range - Upscale	(a)	[2]	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.7	≤ [115.5/125] divisions of full scale
b. Intermediate Power Range - Upscale	(b)	[2]	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.7	≤ [109.7/125] divisions of full scale
c. High Power Range - Upscale	(c),(d)	[2]	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.7	≤ [105.9/125] divisions of full scale
d. Inop	(d),(e)	[2]	SR 3.3.2.1.1	NA
e. Downscale	(d),(e)	[2]	SR 3.3.2.1.1 SR 3.3.2.1.7	≥ [93/125] divisions of full scale
f. Bypass Time Delay	(d),(e)	[2]	SR 3.3.2.1.1 SR 3.3.2.1.7	≤ [2.0] seconds
2. Rod Worth Minimizer	1[(f)], 2[(f)]	[1]	SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.5 SR 3.3.2.1.8	NA
3. Reactor Mode Switch - Shutdown Position	(g)	[2]	SR 3.3.2.1.6	NA

(a) THERMAL POWER ≥ [29]% and ≤ [64]% RTP and MCPR < 1.70.

(b) THERMAL POWER > [64]% and ≤ [84]% RTP and MCPR < 1.70.

(c) THERMAL POWER > [84]% and < 90% RTP and MCPR < 1.70.

(d) THERMAL POWER ≥ 90% RTP and MCPR < 1.40.

(e) THERMAL POWER ≥ [64]% and < 90% RTP and MCPR < 1.70.

(f) With THERMAL POWER ≤ [10]% RTP.

(g) Reactor mode switch in the shutdown position.

3.3 INSTRUMENTATION

3.3.2.2 Feedwater and Main Turbine High Water Level Trip Instrumentation

LCO 3.3.2.2 [Three] channels of feedwater and main turbine high water level trip instrumentation shall be OPERABLE.

APPLICABILITY: THERMAL POWER ≥ [25]% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One feedwater and main turbine high water level trip channel inoperable.	A.1	Place channel in trip.	7 days
B. Two or more feedwater and main turbine high water level trip channels inoperable.	B.1	Restore feedwater and main turbine high water level trip capability.	2 hours
C. Required Action and associated Completion Time not met.		**- NOTE -** Only applicable if inoperable channel is the result of inoperable feedwater pump [valve] or main turbine stop valve.	
	C.1	Remove affected feedwater pump(s) and main turbine valve(s) from service.	4 hours
	OR		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Reduce THERMAL POWER to < [25]% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

- NOTE -

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided feedwater and main turbine high water level trip capability is maintained.

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	[Perform CHANNEL CHECK.	24 hours]
SR 3.3.2.2.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ [58.0] inches.	[18] months
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including [valve] actuation.	[18] months

3.3 INSTRUMENTATION

3.3.3.1 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3.1 The PAM instrumentation for each Function in Table 3.3.3.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

- NOTES -

1. LCO 3.0.4 is not applicable.
2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1	Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1	Initiate action in accordance with Specification 5.6.7.	Immediately
C. **- NOTE -** Not applicable to [hydrogen monitor] channels. One or more Functions with two required channels inoperable.	C.1	Restore one required channel to OPERABLE status.	7 days
D. Two [required hydrogen monitor] channels inoperable.	D.1	Restore one [required hydrogen monitor] channel to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met.	E.1	Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately
F. As required by Required Action E.1 and referenced in Table 3.3.3.1-1.	F.1	Be in MODE 3.	12 hours
G. [As required by Required Action E.1 and referenced in Table 3.3.3.1-1.	G.1	Initiate action in accordance with Specification 5.6.7.	Immediately]

SURVEILLANCE REQUIREMENTS

- NOTE -

These SRs apply to each Function in Table 3.3.3.1-1.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK.	31 days
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION.	[18] months

Table 3.3.3.1-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION E.1
1. Reactor Steam Dome Pressure	2	F
2. Reactor Vessel Water Level	2	F
3. Suppression Pool Water Level	2	F
4. Drywell Pressure	2	F
5. Primary Containment Area Radiation	2	[G]
[6. Drywell Sump Level	2	F]
[7. Drywell Drain Sump Level	2	F]
8. Penetration Flow Path PCIV Position	2 per penetration flow path[(a) (b)]	F
9. Wide Range Neutron Flux	2	F
10. Drywell H_2 & O_2 Analyzer	2	F
11. Containment H_2 & O_2 Analyzer	2	F
12. Primary Containment Pressure	2	F
13. [Relief Valve Discharge Location] Suppression Pool Water Temperature	2[(c)]	F

(a) Not required for isolation valves whose associated penetration flow path is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) Monitoring each [relief valve discharge location].

- REVIEWER'S NOTE -

Table 3.3.3.1-1 shall be amended for each plant as necessary to list:
1. All Regulatory Guide 1.97, Type A instruments and
2. All Regulatory Guide 1.97, Category 1, non-Type A instruments specified in the plant's Regulatory Guide 1.97, Safety Evaluation Report.

3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

- NOTES -

1. LCO 3.0.4 is not applicable.
2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	[Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days]
SR 3.3.3.2.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] month
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel.	[18] months

3.3 INSTRUMENTATION

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

LCO 3.3.4.1

a. Two channels per trip system for each EOC-RPT instrumentation Function listed below shall be OPERABLE:

1. Turbine Stop Valve (TSV) - Closure and

2. Turbine Control Valve (TCV) Fast Closure, Trip Oil Pressure - Low.

[OR

b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for inoperable EOC-RPT as specified in the COLR are made applicable.]

APPLICABILITY: THERMAL POWER > [30]% RTP.

ACTIONS

- NOTE -

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Restore channel to OPERABLE status.	72 hours
	OR	
	A.2 **- NOTE -** Not applicable if inoperable channel is the result of an inoperable breaker.	
	Place channel in trip.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with EOC-RPT trip capability not maintained. AND [MCPR limit for inoperable EOC-RPT not made applicable.]	B.1 Restore EOC-RPT trip capability. OR [B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.	2 hours 2 hours]
C. Required Action and associated Completion Time not met.	C.1 ---------- **- NOTE -** Only applicable if inoperable channel is the result of an inoperable RPT breaker. ---------- Remove the affected recirculation pump from service. OR C.2 Reduce THERMAL POWER to < [30]% RTP.	 4 hours 4 hours

SURVEILLANCE REQUIREMENTS

- NOTE -

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains EOC-RPT trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.4.1.2	[Calibrate the trip units.	[92] days]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. TSV - Closure: ≤ [10]% closed and b. TCV Fast Closure, Trip Oil Pressure - Low: ≥ [600] psig.	[18] months
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	[18] months
SR 3.3.4.1.5	Verify TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ [30]% RTP.	[18] months
SR 3.3.4.1.6	--- **- NOTE -** Breaker [interruption] time may be assumed from the most recent performance of SR 3.3.4.1.7. --- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS
SR 3.3.4.1.7	Determine RPT breaker [interruption] time.	60 months

3.3 INSTRUMENTATION

3.3.4.2 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

LCO 3.3.4.2 Two channels per trip system for each ATWS-RPT instrumentation Function listed below shall be OPERABLE:

a. Reactor Vessel Water Level - Low Low, Level 2 and

b. Reactor Steam Dome Pressure - High.

APPLICABILITY: MODE 1.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more channels inoperable.	A.1	Restore channel to OPERABLE status.	14 days
	OR		
	A.2	**- NOTE -** Not applicable if inoperable channel is the result of an inoperable breaker. Place channel in trip.	14 days
B. One Function with ATWS-RPT trip capability not maintained.	B.1	Restore ATWS-RPT trip capability.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1 ---------- **- NOTE -** Only applicable if inoperable channel is the result of an inoperable RPT breaker. ---------- Remove the affected recirculation pump from service.	6 hours
	OR	
	D.2 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

- NOTE -

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains ATWS-RPT trip capability.

SURVEILLANCE	FREQUENCY
SR 3.3.4.2.1 [Perform CHANNEL CHECK.	12 hours]
SR 3.3.4.2.2 Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.4.2.3 [Calibrate the trip units.	[92] days]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.4	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - Low Low, Level 2: ≥ [-47] inches and b. Reactor Steam Dome Pressure - High: ≤ [1095] psig.	[18] months
SR 3.3.4.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	[18] months

3.3 INSTRUMENTATION

3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

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

APPLICABILITY: According to Table 3.3.5.1-1.

ACTIONS

- NOTE -

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	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. AND	1 hour from discovery of loss of initiation capability for feature(s) in both divisions

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.2	---------- **- NOTE -** Only applicable for Functions 3.a and 3.b. ----------	
		Declare High Pressure Coolant Injection (HPCI) System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	AND		
	B.3	Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	---------- **- NOTES -** 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.c, 2.c, 2.d, and 2.f. ----------	
		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
	AND		
	C.2	Restore channel to OPERABLE status.	24 hours

ACTIONS (continued)

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	F.1	Declare Automatic Depressurization System (ADS) valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	AND		
	F.2	Place channel in trip.	96 hours from discovery of inoperable channel concurrent with HPCI or reactor core isolation cooling (RCIC) inoperable AND 8 days
G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	G.1	---------- **- NOTE -** Only applicable for Functions 4.c, 4.e, 4.f, 4.g, 5.c, 5.e, 5.f, and 5.g. ----------	
		Declare ADS valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	AND		
	G.2	Restore channel to OPERABLE status.	96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable AND 8 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.	H.1 Declare associated supported feature(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTES -

1. Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.5.1.3	[Calibrate the trip unit.	[92] days]
SR 3.3.5.1.4	[Perform CHANNEL CALIBRATION.	92 days]
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
SR 3.3.5.1.7	Verify the ECCS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3, 4[a], 5[a]	[4][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [-113] inches
b. Drywell Pressure - High	1, 2, 3	[4][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ [1.92] psig
c. Reactor Steam Dome 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] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [390] psig and ≤ [500] psig
	4[a], 5[a]	[4]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [390] psig and ≤ [500] psig
[d. Core Spray Pump Discharge Flow - Low (Bypass)	1, 2, 3, 4[a], 5[a]	[2] - [1 per pump]	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	NA]
[e. Manual Initiation	1, 2, 3, 4[a], 5[a]	[2] - [1 per subsystem]	C	SR 3.3.5.1.6	NA]

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

(b) Also required to initiate the associated [diesel generator (DG) and isolate the associated plant service water (PSW) turbine building (T/B) isolation valves].

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3, 4[a], 5[a]	[4][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [-113] inches
b. Drywell Pressure - High	1, 2, 3	[4][b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ [1.92] psig
c. Reactor Steam Dome 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] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [390] psig and ≤ [500] psig
	4[a], 5[a]	[4]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥ [390] psig and ≤ [500] psig
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive)	1[c],2[c],3[c]	[4]	C	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [335] psig
e. Reactor Vessel Shroud Level - Level 0	1, 2, 3	[2]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [-202] inches

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

(b) Also required to initiate the associated [DG and isolate the associated PSW T/B isolation valves].

(c) With associated recirculation pump discharge valve open.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System					
[f. Low Pressure Coolant Injection Pump Start - Time Delay Relay	1, 2, 3, 4[a], 5[a]	[4] - [1 per pump]	C	SR 3.3.5.1.5 SR 3.3.5.1.6	
Pumps A,B,D					≥ 9 seconds and ≤ 11 seconds
Pump C					≤ 1 second]
[g. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, 2, 3, 4[a], 5[a]	[4] - [1 per pump]	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥[ ] gpm and ≤ [ ] gpm]
[h. Manual Initiation	1, 2, 3, 4[a], 5[a]	[2] - [1 per subsystem]	C	SR 3.3.5.1.6	NA]
3. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level - Low Low, Level 2	1, 2[d], 3[d]	[4]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≥[-47] inches
b. Drywell Pressure - High	1, 2[d], 3[d]	[4]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ [1.92] psig
c. Reactor Vessel Water Level - High, Level 8	1, 2[d], 3[d]	[2]	C	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.7	≤ [56.5] inches

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

(d) With reactor steam dome pressure > [150] psig.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCI System					
d. Condensate Storage Tank Level - Low	1, 2[(d)], 3[(d)]	[2]	D	[SR 3.3.5.1.1] SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	≥ [0] inches
e. Suppression Pool Water Level - High	1, 2[(d)], 3[(d)]	[2]	D	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [154] inches
[f. High Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, 2[(d)], 3[(d)]	[1]	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥[ ] gpm and ≤ [ ] gpm]
[g. Manual Initiation	1, 2[(d)], 3[(d)]	[1]	C	SR 3.3.5.1.6	NA]
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2[(d)], 3[(d)]	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [-113] inches
b. Drywell Pressure - High	1, 2[(d)], 3[(d)]	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [1.92 psig
c. Automatic Depressurization System Initiation Timer	1, 2[(d)], 3[(d)]	[1]	G	[SR 3.3.5.1.5] SR 3.3.5.1.6	≤ [120] seconds

(d) With reactor steam dome pressure > [150] psig.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. ADS Trip System A					
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)	1, 2[d], 3[d]	[1]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [10] inches
e. Core Spray Pump Discharge Pressure - High	1, 2[d], 3[d]	[2]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [137] psig and ≤ [ ] psig
f. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, 2[d], 3[d]	[4]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [112] psig and ≤ [ ] psig
g. Automatic Depressurization System Low Water Level Actuation Timer	1, 2[d], 3[d]	[2]	G	[SR 3.3.5.1.5] SR 3.3.5.1.6	≤ [13] minutes
[h. Manual Initiation	1, 2[d], 3[d]	[2]	G	SR 3.3.5.1.6	N/A
5. ADS Trip System B					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2[d], 3[d]	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [-113] inches
b. Drywell Pressure - High	1, 2[d], 3[d]	[2]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [1.92] psig
c. Automatic Depressurization System Initiation Timer	1, 2[d], 3[d]	[1]	G	[SR 3.3.5.1.5] SR 3.3.5.1.6	≤ [120] seconds

(d) With reactor steam dome pressure > [150] psig.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. ADS Trip System B					
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)	1, 2[d], 3[d]	[1]	F	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [10] inches
e. Core Spray Pump Discharge Pressure - High	1, 2[d], 3[d]	[2]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [137] psig and ≤ [ ] psig
f. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, 2[d], 3[d]	[4]	G	SR 3.3.5.1.1 SR 3.3.5.1.2 [SR 3.3.5.1.3] SR 3.3.5.1.5 SR 3.3.5.1.6	≥ [112] psig and ≤ [ ] psig
g. Automatic Depressurization System Low Water Level Actuation Timer	1, 2[d], 3[d]	[2]	G	[SR 3.3.5.1.5] SR 3.3.5.1.6	≥ [13] minutes
[h. Manual Initiation	1, 2[d], 3[d]	[2]	G	SR 3.3.5.1.6	NA]

(d) With reactor steam dome pressure > [150] psig.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.2 The RCIC System instrumentation for each Function in Table 3.3.5.2-1 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 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1	Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	AND		
	B.2	Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1	Restore channel to OPERABLE status.	24 hours

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	---------- **- NOTE -** Only applicable if RCIC pump suction is not aligned to the suppression pool. ---------- Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	AND		
	D.2.1	Place channel in trip.	24 hours
	OR		
	D.2.2	Align RCIC pump suction to the suppression pool.	24 hours
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1	Declare RCIC System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTES -

1. Refer to Table 3.3.5.2-1 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 3.3.5.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.3	[Calibrate the trip units.	[92] days]
SR 3.3.5.2.4	[Perform CHANNEL CALIBRATION.	92 days]
SR 3.3.5.2.5	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.5.2.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

Table 3.3.5.2-1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2	[4]	B	SR 3.3.5.2.1 SR 3.3.5.2.2 [SR 3.3.5.2.3] SR 3.3.5.2.5 SR 3.3.5.2.6	≥ [-47] inches
2. Reactor Vessel Water Level - High, Level 8	[2]	C	SR 3.3.5.2.1 SR 3.3.5.2.2 [SR 3.3.5.2.3] SR 3.3.5.2.5 SR 3.3.5.2.6	≤ [56.5] inches
3. Condensate Storage Tank Level - Low	[2]	D	[SR 3.3.5.2.1] SR 3.3.5.2.2 [SR 3.3.5.2.3] [SR 3.3.5.2.4] SR 3.3.5.2.6	≥ [0] inches
[4. Suppression Pool Water Level - High	[2]	D	[SR 3.3.5.2.1] SR 3.3.5.2.2 [SR 3.3.5.2.3] SR 3.3.5.2.5 SR 3.3.5.2.6	≤ [151] inches]
[5. Manual Initiation	[1]	C	SR 3.3.5.2.6	NA]

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

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

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

- NOTES -

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

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1	Isolate associated main steam line (MSL).	12 hours
	OR		
	D.2.1	Be in MODE 3.	12 hours
	AND		
	D.2.2	Be in MODE 4.	36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1	Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1	Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1	Isolate the affected penetration flow path(s).	24 hours
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1	Be in MODE 3.	12 hours
	AND		
OR	H.2	Be in MODE 4.	36 hours
Required Action and associated Completion Time for Condition F or G not met.			

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1	Declare associated standby liquid control subsystem (SLC) inoperable.	1 hour
	OR		
	I.2	Isolate the Reactor Water Cleanup System.	1 hour
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1	Initiate action to restore channel to OPERABLE status.	Immediately
	OR		
	J.2	Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTES -

1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability.

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.5	[Perform CHANNEL FUNCTIONAL TEST.	[184] days]
SR 3.3.6.1.6	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.6.1.7	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
---------- **- REVIEWER'S NOTE -** This SR is applied only to Functions of Table 3.3.6.1-1 with required response times not corresponding to DG start time. ----------		
SR 3.3.6.1.8	---------- **- NOTE -** [Radiation detectors may be excluded.] ---------- Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

Table 3.3.6.1-1 (page 1 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3	[2]	D	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ [-113] inches
b. Main Steam Line Pressure - Low	1	[2]	E	[SR 3.3.6.1.1] [SR 3.3.6.1.2] SR 3.3.6.1.4 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ [825] psig
c. Main Steam Line Flow - High	1, 2, 3	[2] per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ [138]% rated steam flow
d. Condenser Vacuum - Low	1, 2[(a)], 3[(a)]	[2]	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≥ [7] inches Hg vacuum
e. Main Steam Tunnel Temperature - High	1, 2, 3	[8]	D	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	≤ [194]°F
[f. Main Steam Tunnel Differential Temperature - High	1,2,3	[2]	D	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [ ] °F]
g. Turbine Building Area Temperature - High	1, 2, 3	[32]	D	[SR 3.3.6.1.1] SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [200]°F
[h. Manual Initiation	1, 2, 3	[1]	G	SR 3.3.6.1.7	NA]

(a) With any turbine [stop valve] not closed.

Table 3.3.6.1-1 (page 2 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1, 2, 3	[2]	H	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	≥ [10] inches
b. Drywell Pressure - High	1, 2, 3	[2]	H	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	≥ [1.92] psig
c. Drywell Radiation - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [138] R/hr
[d. Reactor Building Exhaust Radiation - High	1, 2, 3	[2]	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ [60] mR/hr]
[e. Refueling Floor Exhaust Radiation - High	1, 2, 3	[2]	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ [20] mR/hr]
[f. Manual Initiation	1, 2, 3	[1 per group]	G	SR 3.3.6.1.7	NA]
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ [303]% rated steam flow

Table 3.3.6.1-1 (page 3 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Coolant Injection (HPCI) System Isolation					
b. HPCI Steam Supply Line Pressure - Low	1, 2, 3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ [100] psig
c. HPCI Turbine Exhaust Diaphragm Pressure - High	1, 2, 3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [20] psig
d. Drywell Pressure - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7 [SR 3.3.6.1.8]	≤ [1.92] psig
e. HPCI Pipe Penetration Room Temperature - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [169]°F
f. Suppression Pool Area Ambient Temperature - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [169]°F
g. Suppression Pool Area Temperature - Time Delay Relays	1, 2, 3	[1]	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [NA] [minutes]
h. Suppression Pool Area Differential Temperature - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [42]°F

Table 3.3.6.1-1 (page 4 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCI System Isolation					
i. Emergency Area Cooler Temperature - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [169]°F
[j. Manual Initiation	1, 2, 3	[1 per group]	G	SR 3.3.6.1.7	NA]
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow - High	1,2,3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ [307]% rated steam flow
b. RCIC Steam Supply Line Pressure - Low	1, 2, 3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [60] psig
c. RCIC Turbine Exhaust Diaphragm Pressure - High	1, 2, 3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [20] psig
d. Drywell Pressure - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7 [SR 3.3.6.1.8]	≤ [1.92] psig
e. RCIC Suppression Pool Ambient Area Temperature - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [169]°F

Table 3.3.6.1-1 (page 5 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. RCIC System Isolation					
f. Suppression Pool Area Temperature - Time Delay Relays	1, 2, 3	[1]	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ [NA] [minutes]
g. RCIC Suppression Pool Area Differential Temperature - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [42]°F
h. Emergency Area Cooler Temperature - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [169]°F
[i. RCIC Equipment Room Temperature - High	1, 2, 3	[1]	F	[SR 3.3.6.1.1] SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.4 SR 3.3.6.1.7	≤ [ ] °F]
[j. RCIC Equipment Room Differential Temperature - High	1, 2, 3	[1]	F	[SR 3.3.6.1.1] SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.4 SR 3.3.6.1.7	≤ [ ] °F]
[k. Manual Initiation	1, 2, 3	[1 per group]	G	SR 3.3.6.1.7	NA]
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Differential Flow - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ [79] gpm
b. Area Temperature - High	1, 2, 3	[3] [1 per room]	F	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]	≤ [150]°F

Table 3.3.6.1-1 (page 6 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
c. Area Ventilation Differential Temperature - High	1, 2, 3	[3] [1 per room]	F	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]	≤ [67]°F
d. SLC System Initiation	1, 2	[2][(b)]	I	SR 3.3.6.1.7	NA
e. Reactor Vessel Water Level - Low Low, Level 2	1, 2, 3	[2]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ [-47] inches
[f. Manual Initiation	1, 2, 3	[1 per group]	G	SR 3.3.6.1.7	NA]
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1, 2, 3	[1]	F	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [145] psig
b. Reactor Vessel Water Level - Low, Level 3	3, 4, 5	[2][(c)]	J	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	≥ [10] inches

(b) SLC System Initiation only inputs into one of the two trip systems.

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

Table 3.3.6.1-1 (page 7 of 7)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Traversing Incore Probe Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1,2,3	[2]	G	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≥[10] inches
b. Drywall Pressure - High	1,2,3	[2]	G	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.6 SR 3.3.6.1.7	≤ [1.92] psig

3.3 INSTRUMENTATION

3.3.6.2 Secondary Containment Isolation Instrumentation

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

APPLICABILITY: According to Table 3.3.6.2-1.

ACTIONS

- NOTE -

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	12 hours for Function 2 AND 24 hours for Functions other than Function 2
B. One or more automatic Functions with secondary containment isolation capability not maintained.	B.1 Restore secondary containment isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1.1 Isolate the associated [zone(s)]. OR C.1.2 Declare associated secondary containment isolation valves inoperable. AND	1 hour 1 hour

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

- NOTES -

1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains secondary containment isolation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.6.2.3	[Calibrate the trip unit.	[92] days]
SR 3.3.6.2.4	[Perform CHANNEL CALIBRATION.	92 days]
SR 3.3.6.2.5	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.6.2.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
	- REVIEWER'S NOTE - This SR is applied only to Functions of Table 3.3.6.2-1 with required response times not corresponding to DG start time.	
SR 3.3.6.2.7	**- NOTE -** [Radiation detectors may be excluded.] Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

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 SR 3.3.6.2.7	≥ [-47] 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 3.3.6.2.5 SR 3.3.6.2.6 SR 3.3.6.2.7	≤ [1.92] psig
3. Reactor Building Exhaust Radiation - High	1, 2, 3, [(a), (b)]	[2]	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.5 SR 3.3.6.2.6 SR 3.3.6.2.7	≤ [60] mR/hr
[4. 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 3.3.6.2.6 SR 3.3.6.2.7	≤ [20] mR/hr]
[5. Manual Initiation	1, 2, 3, [(a), (b)]	[1 per group]	SR 3.3.6.2.6	NA]

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

(b) During movement of [recently] irradiated fuel assemblies in [secondary] containment.

3.3 INSTRUMENTATION

3.3.6.3 Low-Low Set (LLS) Instrumentation

LCO 3.3.6.3 The LLS valve instrumentation for each Function in Table 3.3.6.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One LLS valve inoperable due to inoperable channel(s).	A.1 Restore channel(s) to OPERABLE status.	24 hours
B. One or more safety/relief valves (S/RVs) with one Function 3 channel inoperable.	B.1 ---------- **- NOTE -** LCO 3.0.4 is not applicable. ---------- Restore tailpipe pressure switches to OPERABLE status.	Prior to entering MODE 2 or 3 from MODE 4
C. ---------- **- NOTE -** Separate Condition entry is allowed for each S/RV. ---------- One or more S/RVs with two Function 3 channels inoperable.	C.1 Restore one tailpipe pressure switch to OPERABLE status.	[14] days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met. OR Two or more LLS valves inoperable due to inoperable channels.	D.1 Declare the associated LLS valve(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTES -

1. Refer to Table 3.3.6.3-1 to determine which SRs apply for each Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains LLS initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.3.2	Perform CHANNEL FUNCTIONAL TEST for portion of the channel outside primary containment.	[92] days
SR 3.3.6.3.3	**- NOTE -** Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment. Perform CHANNEL FUNCTIONAL TEST for portions of the channel inside primary containment.	[92] days
SR 3.3.6.3.4	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.6.3.5	[Calibrate the trip unit.	[92] days]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.6	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.6.3.7	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

Table 3.3.6.3-1 (page 1 of 1)
Low-Low Set Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Steam Dome Pressure - High	[1 per LLS valve]	[SR 3.3.6.3.1] SR 3.3.6.3.4 [SR 3.3.6.3.5] SR 3.3.6.3.6 SR 3.3.6.3.7	≤ [1054] psig
2. Low-Low Set Pressure Setpoints	[2 per LLS valve]	[SR 3.3.6.3.1] SR 3.3.6.3.4 [SR 3.3.6.3.5] SR 3.3.6.3.6 SR 3.3.6.3.7	Low: Open ≤ [1010] psig Close ≤ [860] psig Medium-Low: Open ≤ [1025] psig Close ≤ [875] psig Medium-High: Open ≤ [1040] psig Close ≤ [890] psig High: Open ≤ [1050] psig Close ≤ [900] psig
3. Tailpipe Pressure Switch	[22] [2 per S/RV]	[SR 3.3.6.3.1] SR 3.3.6.3.2 [SR 3.3.6.3.3] SR 3.3.6.3.6 [SR 3.3.6.3.7]	≥ [80] psig and ≤ [100] psig

3.3 INSTRUMENTATION

3.3.7.1 [Main Control Room Environmental Control (MCREC)] System Instrumentation

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

APPLICABILITY: According to Table 3.3.7.1-1.

ACTIONS

- NOTE -

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required channels inoperable.	A.1	Enter the Condition referenced in Table 3.3.7.1-1 for the channel.	Immediately
B. [As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	B.1	Declare associated [MCREC] subsystem inoperable.	1 hour from discovery of loss of [MCREC] initiation capability in both trip systems
	AND		
	B.2	Place channel in trip.	24 hours]
C. As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	C.1	Declare associated [MCREC] subsystem inoperable.	1 hour from discovery of loss of [MCREC] initiation capability in both trip system
	AND		
	C.2	Place channel in trip.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition B or C not met.	D.1	---------- **- NOTE -** [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] ---------- Place the associated [MCREC] subsystem(s) in the [pressurization] mode of operation.	1 hour
	OR		
	D.2	---------- **- NOTE -** Only applicable to Function 3 channels. ---------- Isolate associated main steam line (MSL).	1 hour
	OR		
	D.3	Declare associated [MCREC] subsystem inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

- NOTES -

1. Refer to Table 3.3.7.1-1 to determine which SRs apply for each [MCREC] 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 [MCREC] initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.7.1.3	[Calibrate the trip units.	[92] days]
SR 3.3.7.1.4	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.7.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

Table 3.3.7.1-1 (page 1 of 1)
[Main Control Room Environmental Control] System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
[1. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3, [a]	[2]	B	SR 3.3.7.1.1 SR 3.3.7.1.2 [SR 3.3.7.1.3] SR 3.3.7.1.4 SR 3.3.7.1.5	≥ [-113] inches]
[2. Drywell Pressure - High	1, 2, 3	[2]	B	SR 3.3.7.1.1 SR 3.3.7.1.2 [SR 3.3.7.1.3] SR 3.3.7.1.4 SR 3.3.7.1.5	≤ [1.92] psig]
[3. Main Steam Line Flow - High	1, 2, 3	[2 per MSL]	B	SR 3.3.7.1.1 SR 3.3.7.1.2 [SR 3.3.7.1.3] SR 3.3.7.1.4 SR 3.3.7.1.5	[138]% rated steam flow]
[4. Refueling Floor Area Radiation - High	1, 2, 3, [(a), (b)]	[1]	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ [20] mR/hr]
5. Control Room Air Inlet Radiation - High	1, 2, 3, (a), (b)	[1]	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.5	≤ [1] mR/hr

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

(b) During movement of [recently] irradiated fuel assemblies in the [secondary] containment.

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

- NOTE -

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Declare associated diesel generator (DG) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTES -

1. Refer to Table 3.3.8.1-1 to determine which SRs apply for each LOP 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 2 hours provided the associated Function maintains DG initiation capability.

SURVEILLANCE	FREQUENCY
SR 3.3.8.1.1 [Perform CHANNEL CHECK.	12 hours]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.2	Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.8.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

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

FUNCTION	REQUIRED CHANNELS PER BUS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)			
a. Bus Undervoltage	[2]	[SR 3.3.8.1.1] SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ [2800] V and ≤ [ ] V
b. Time Delay	[2]	[SR 3.3.8.1.2] SR 3.3.8.1.3 SR 3.3.8.1.4	≥ [ ] seconds and ≤ [6.5] seconds
2. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)			
a. Bus Undervoltage	[2]	[SR 3.3.8.1.1] SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ [3280] V and ≤ [ ] V
b. Time Delay	[2]	[SR 3.3.8.1.2] SR 3.3.8.1.3 SR 3.3.8.1.4	≥ [ ] seconds and ≤ [21.5] seconds

3.3 INSTRUMENTATION

3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

LCO 3.3.8.2 Two RPS electric power monitoring assemblies shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.

APPLICABILITY: MODES 1, 2, and 3,
MODES 4 and 5 [with any control rod withdrawn from a core cell containing one or more fuel assemblies].

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or both inservice power supplies with one electric power monitoring assembly inoperable.	A.1	Remove associated inservice power supply(s) from service.	72 hours
B. One or both inservice power supplies with both electric power monitoring assemblies inoperable.	B.1	Remove associated inservice power supply(s) from service.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5 [with any control rod withdrawn from a core cell containing one or more fuel assemblies].	D.1	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2.1 [Initiate action to restore one electric power monitoring assembly to OPERABLE status for inservice power supply(s) supplying required instrumentation.	Immediately]
	OR	
	D.2.2 [Initiate action to isolate the Residual Heat Removal Shutdown Cooling System.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	---------- **- NOTE -** Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. ---------- Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ [132] V. b. Undervoltage ≥ [108] V, with time delay set to [zero]. c. Underfrequency ≥ [57] Hz, with time delay set to [zero].	[18] months
SR 3.3.8.2.3	Perform a system functional test.	[18] months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 Recirculation Loops Operating

LCO 3.4.1 Two recirculation loops with matched flows shall be in operation,

OR

[One recirculation loop may be in operation provided the following limits are applied when the associated LCO is applicable:

a. LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," single loop operation limits [specified in the COLR],

b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," single loop operation limits [specified in the COLR], and

c. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," Function 2.b (Average Power Range Monitors Flow Biased Simulated Thermal Power - High), Allowable Value of Table 3.3.1.1-1 is reset for single loop operation.]

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.* *Pending resolution of stability issue.	A.1 Satisfy the requirements of the LCO.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> No recirculation loops in operation.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	---------- **- NOTE -** Not required to be performed until 24 hours after both recirculation loops are in operation. ---------- Verify recirculation loop jet pump flow mismatch with both recirculation loops in operation is: a. ≤ [10]% of rated core flow when operating at < [70]% of rated core flow and b. ≤ [5]% of rated core flow when operating at ≥ [70]% of rated core flow.	24 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 Jet Pumps

LCO 3.4.2 All jet pumps shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more jet pumps inoperable.	A.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	**- NOTES -** 1. Not required to be performed until 4 hours after associated recirculation loop is in operation. 2. Not required to be performed until 24 hours after > 25% RTP. Verify at least one of the following criteria (a, b, or c) is satisfied for each operating recirculation loop: a. Recirculation pump flow to speed ratio differs by ≤ 5% from established patterns, and jet pump loop flow to recirculation pump speed ratio differs by ≤ 5% from established patterns. b. Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns. c. Each jet pump flow differs by ≤ 10% from established patterns.	24 hours

- REVIEWER'S NOTE -

An acceptable option to these criteria for jet pump OPERABILITY can be found in the BWR/6 STS, NUREG-1434.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 Safety/Relief Valves (S/RVs)

LCO 3.4.3 The safety function of [11] S/RVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. [One [or two] [required] S/RV[s] inoperable.	A.1	Restore the [required] S/RV[s] to OPERABLE status.	14 days]
B. [Required Action and associated Completion Time of Condition A not met.] OR [Three] or more [required] S/RVs inoperable.	B.1 AND B.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	---------- **- NOTE -** No more than [2] [required] S/RVs may be set with a setpoint for the next lower group. ---------- Verify the safety function lift setpoints of the [required] S/RVs are as follows: Number of S/RVs — Setpoint (psig) [4] — [1090 ± 32.7] [4] — [1100 ± 33.0] [3] — [1110 ± 33.3] Following testing, lift settings shall be within ± 1%.	[In accordance with the Inservice Testing Program or [18] months]
SR 3.4.3.2	---------- **- NOTE -** Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each [required] S/RV opens when manually actuated.	[18] months [on a STAGGERED TEST BASIS for each valve solenoid]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Operational LEAKAGE

LCO 3.4.4 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE,

b. ≤ 5 gpm unidentified LEAKAGE,

c. ≤ [30] gpm total LEAKAGE averaged over the previous 24 hours period, and

[d. ≤ 2 gpm increase in unidentified LEAKAGE within the previous [4] hours period in MODE 1.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Unidentified LEAKAGE not within limit. OR Total LEAKAGE not within limit.	A.1	Reduce LEAKAGE to within limits.	4 hours
B. Unidentified LEAKAGE increase not within limit.	B.1	Reduce LEAKAGE to within limits.	4 hours
	OR		
	B.2	Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR Pressure boundary LEAKAGE exists.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	8 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.5 The leakage from each RCS PIV shall be within limit.

APPLICABILITY: MODES 1 and 2,
MODE 3, except valves in the residual heat removal (RHR) shutdown cooling flow path when in, or during the transition to or from, the shutdown cooling mode of operation.

ACTIONS

- NOTES -

1. Separate Condition entry is allowed for each flow path.

2. Enter applicable Conditions and Required Actions for systems made inoperable by PIVs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more flow paths with leakage from one or more RCS PIVs not within limit.	**- NOTE -** Each valve used to satisfy Required Action A.1 and Required Action A.2 must have been verified to meet SR 3.4.5.1 and be in the reactor coolant pressure boundary [or the high pressure portion of the system].	
	A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, de-activated automatic, or check valve.	4 hours
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.2	Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, de-activated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	---------- **- NOTE -** Not required to be performed in MODE 3. ----------	
	Verify equivalent leakage of each RCS PIV is ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm, at an RCS pressure ≥ [ ] and ≤ [ ] psig.	[In accordance with the Inservice Testing Program or [18] months]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Leakage Detection Instrumentation

LCO 3.4.6 The following RCS leakage detection instrumentation shall be OPERABLE:

a. Drywell floor drain sump monitoring system,

b. One channel of either primary containment atmospheric particulate or atmospheric gaseous monitoring system, and

[c. Primary containment air cooler condensate flow rate monitoring system.]

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

- NOTE -

LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell floor drain sump monitoring system inoperable.	A.1 Restore drywell floor drain sump monitoring system to OPERABLE status.	30 days
B. Required primary containment atmospheric monitoring system inoperable.	B.1 Analyze grab samples of primary containment atmosphere.	Once per 12 hours
	AND	
	B.2 [Restore required primary containment atmospheric monitoring system to OPERABLE status.	30 days]

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. [Primary containment air cooler condensate flow rate monitoring system inoperable.	C.1	---------- **- NOTE -** Not applicable when required primary containment atmospheric monitoring system is inoperable. ---------- Perform SR 3.4.6.1.	Once per 8 hours]
D. [Required primary containment atmospheric monitoring system inoperable.	D.1	Restore required primary containment atmospheric monitoring system to OPERABLE status.	30 days
<u>AND</u>	<u>OR</u>		
Primary containment air cooler condensate flow rate monitoring system inoperable.	D.2	Restore primary containment air cooler condensate flow rate monitoring system to OPERABLE status.	30 days]
E. Required Action and associated Completion Time of Condition A, B, [C, or D] not met.	E.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	36 hours
F. All required leakage detection systems inoperable.	F.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Perform a CHANNEL CHECK of required primary containment atmospheric monitoring system.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.6.2	Perform a CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	31 days
SR 3.4.6.3	Perform a CHANNEL CALIBRATION of required leakage detection instrumentation.	[18] months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Specific Activity

LCO 3.4.7 The specific activity of the reactor coolant shall be limited to DOSE EQUIVALENT I-131 specific activity ≤ [0.2] μCi/gm.

APPLICABILITY: MODE 1,
MODES 2 and 3 with any main steam line not isolated.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor coolant specific activity > [0.2] μCi/gm and ≤ 4.0 μCi/gm DOSE EQUIVALENT I-131.	---------- **- NOTE -** LCO 3.0.4 is not applicable. ----------	
	A.1 Determine DOSE EQUIVALENT I-131.	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limits.	48 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Determine DOSE EQUIVALENT I-131.	Once per 4 hours
	AND	
OR	B.2.1 Isolate all main steam lines.	12 hours
Reactor Coolant specific activity >[4.0] μCi/gm Dose EQUIVALENT I-131.	OR	
	B.2.2.1 Be in MODE 3.	12 hours
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.2.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	---------- **- NOTE -** Only required to be performed in MODE 1. ---------- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity is ≤ [0.2] μCi/gm.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown

LCO 3.4.8 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

- NOTES -

1. Both RHR shutdown cooling subsystems and recirculation pumps may be not in operation for up to 2 hours per 8 hours period.

2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.

APPLICABILITY: MODE 3, with reactor steam dome pressure < [the RHR cut in permissive pressure].

ACTIONS

- NOTES -

1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each RHR shutdown cooling subsystem.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1	Initiate action to restore RHR shutdown cooling subsystem(s) to OPERABLE status.	Immediately
	AND		
	A.2	Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.3	Be in MODE 4.	24 hours
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1	Initiate action to restore one RHR shutdown cooling subsystem or one recirculation pump to operation.	Immediately
	AND		
	B.2	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	B.3	Monitor reactor coolant temperature and pressure.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	---------- **- NOTE -** Not required to be met until 2 hours after reactor steam dome pressure is < [the RHR cut in permissive pressure]. ---------- Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	12 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown

LCO 3.4.9 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

- NOTES -

1. Both RHR shutdown cooling subsystems and recirculation pumps may be not in operation for up to 2 hours per 8 hours period.

2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.

APPLICABILITY: MODE 4.

ACTIONS

- NOTE -

Separate Condition entry is allowed for each shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour AND Once per 24 hours thereafer
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1 Verify reactor coolant circulating by an alternate method. AND	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	12 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.10 RCS pressure, RCS temperature, RCS heatup and cooldown rates, and the recirculation pump starting temperature requirements shall be maintained within the limits specified in the PTLR.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------- **- NOTE -** Required Action A.2 shall be completed if this Condition is entered. ---------- Requirements of the LCO not met in MODES 1, 2, and 3.	A.1	Restore parameter(s) to within limits.	30 minutes
	AND		
	A.2	Determine RCS is acceptable for continued operation.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours
C. ---------- **- NOTE -** Required Action C.2 shall be completed if this Condition is entered. ---------- Requirements of the LCO not met in other than MODES 1, 2, and 3.	C.1	Initiate action to restore parameter(s) to within limits.	Immediately
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2 Determine RCS is acceptable for operation.	Prior to entering MODE 2 or 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	---------- **- NOTE -** Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. ---------- Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within the limits specified in the PTLR.	30 minutes
SR 3.4.10.2	Verify RCS pressure and RCS temperature are within the criticality limits specified in the PTLR.	Once within 15 minutes prior to control rod withdrawal for the purpose of achieving criticality
SR 3.4.10.3	---------- **- NOTE -** Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup [with reactor steam dome pressure ≥ 25 psig]. ---------- Verify the difference between the bottom head coolant temperature and the reactor pressure vessel (RPV) coolant temperature is within the limits specified in the PTLR.	Once within 15 minutes prior to each startup of a recirculation pump

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.10.4	---------- **- NOTE -** Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. ---------- Verify the difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is within the limits specified in the PTLR.	Once within 15 minutes prior to each startup of a recirculation pump
SR 3.4.10.5	---------- **- NOTE -** [Only required to be met during a THERMAL POWER increase or recirculation flow increase in MODES 1 and 2 with one idle recirculation loop when [THERMAL POWER is ≤ 30% RTP or when operating loop flow is ≤ 50% rated loop flow]. ---------- Verify the difference between the bottom head coolant temperature and the RPV coolant temperature is [≤145°F].	Once within 15 minutes prior to a THERMAL POWER increase or recirculation flow increase]
SR 3.4.10.6	---------- **- NOTE -** [Only required to be met during a THERMAL POWER increase or recirculation flow increase in MODES 1 and 2 with one non-isolated idle recirculation loop when [THERMAL POWER is ≤ 30% RTP or when operating loop flow is ≤ 50% rated loop flow]. ---------- Verify the difference between the reactor coolant temperature in the idle recirculation loop and the RPV coolant temperature is [≤50°F].	Once within 15 minutes prior to a THERMAL POWER increase or recirculation flow increase]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.10.7	---------- **- NOTE -** Only required to be performed when tensioning the reactor vessel head bolting studs. ---------- Verify reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	30 minutes
SR 3.4.10.8	---------- **- NOTE -** Not required to be performed until 30 minutes after RCS temperature ≤ 80°F in MODE 4. ---------- Verify reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	30 minutes
SR 3.4.10.9	---------- **- NOTE -** Not required to be performed until 12 hours after RCS temperature ≤ 100°F in MODE 4. ---------- Verify reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	12 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Reactor Steam Dome Pressure

LCO 3.4.11 The reactor steam dome pressure shall be ≤ [1020] psig.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor steam dome pressure not within limit.	A.1 Restore reactor steam dome pressure to within limit.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	Verify reactor steam dome pressure is ≤ [1020] psig.	12 hours

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

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.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. OR One LPCI pump in both LPCI subsystems inoperable.	A.1	Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours
C. HPCI System inoperable.	C.1	Verify by administrative means RCIC System is OPERABLE.	Immediately
	AND		
	C.2	Restore HPCI System to OPERABLE status.	14 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. HPCI System inoperable. AND Condition A entered.	D.1	Restore HPCI System to OPERABLE status.	72 hours
	OR		
	D.2	Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours
E. One ADS valve inoperable.	E.1	Restore ADS valve to OPERABLE status.	14 days
F. One ADS valve inoperable. AND Condition A entered.	F.1	Restore ADS valve to OPERABLE status.	72 hours
	OR		
	F.2	Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours
G. Two or more ADS valves inoperable. OR Required Action and associated Completion Time of Condition C, D, E, or F not met.	G.1	Be in MODE 3.	12 hours
	AND		
	G.2	Reduce reactor steam dome pressure to ≤ [150] psig.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A. OR HPCI System and one or more ADS valves inoperable.	H.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.1.2	---------- **- NOTE -** Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than [the Residual Heat Removal (RHR) cut in permissive pressure] in MODE 3, if capable of being manually realigned and not otherwise inoperable. ---------- Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.1.3	Verify ADS [air supply header] pressure is ≥ [90] psig.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.4	[Verify the [RHR] System cross tie valve[s] [is] closed and power is removed from the valve operator[s].	31 days]
SR 3.5.1.5	[Verify each LPCI inverter output voltage is ≥ [570] V and ≤ [630] V while supplying the respective bus.	31 days]
SR 3.5.1.6	---------- **- NOTE -** Not required to be performed if performed within the previous 31 days. ---------- Verify each recirculation pump discharge valve [and bypass valve] cycles through one complete cycle of full travel [or is de-energized in the closed position].	Once each startup prior to exceeding 25% RTP
SR 3.5.1.7	Verify the following ECCS pumps develop the specified flow rate [against a system head corresponding to the specified reactor pressure]. System / Flow Rate / No. Of Pumps / [System Head Corresponding to a Reactor Pressure Of] Core Spray: ≥ [4250] gpm, [1], ≥ [113] psig LPCI: ≥ [17,000] gpm, [2], ≥ [20] psig	[In accordance with the Inservice Testing Program or 92 days]
SR 3.5.1.8	---------- **- NOTE -** Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify, with [reactor pressure] ≤ [1020] and ≥ [920] psig, the HPCI pump can develop a flow rate ≥ [4250] gpm [against a system head corresponding to reactor pressure].	92 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.9	---------- **- NOTE -** Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify, with [reactor pressure] ≤ [165] psig, the HPCI pump can develop a flow rate ≥ [4250] gpm [against a system head corresponding to reactor pressure].	[18] months
SR 3.5.1.10	---------- **- NOTE -** Vessel injection/spray may be excluded. ---------- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	[18] months
SR 3.5.1.11	---------- **- NOTE -** Valve actuation may be excluded. ---------- Verify the ADS actuates on an actual or simulated automatic initiation signal.	[18] months
SR 3.5.1.12	---------- **- NOTE -** Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each ADS valve opens when manually actuated.	[18] months [on a STAGGERED TEST BASIS for each valve solenoid]

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.2 ECCS - Shutdown

LCO 3.5.2 Two low pressure ECCS injection/spray subsystems shall be OPERABLE.

APPLICABILITY: MODE 4,
MODE 5, except with the spent fuel storage pool gates removed and water level ≥ [23 ft] 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 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.	Immediately
	AND		
	C.2	Restore one ECCS injection/spray subsystem to OPERABLE status.	4 hours
D. Required Action C.2 and associated Completion Time not met.	D.1	Initiate action to restore [secondary] containment to OPERABLE status.	Immediately
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2 [Initiate action torestore one standbygas treatment subsystem to OPERABLE status.	Immediately]
	AND	
	D.3 Initiate action to restore isolation capability in each required [secondary] containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify, for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ [12 ft 2 inches].	12 hours
SR 3.5.2.2	Verify, for each required core spray (CS) subsystem, either the: a. Suppression pool water level is ≥ [12 ft 2 inches] or --- **- NOTE -** Only one required CS subsystem may take credit for this option during OPDRVs. --- b. Condensate storage tank water level is ≥ [12 ft].	12 hours
SR 3.5.2.3	Verify, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	**- NOTE -** One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable. Verify each required ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate [against a system head corresponding to the specified reactor pressure]. System / Flow Rate / No. Of Pumps / [System Head Corresponding to a Reactor Pressure Of] CS / ≥ [4250] gpm / [1] / ≥ [113] psig LPCI / ≥ [7700] gpm / [1] / ≥ [20] psig	[In accordance with the Inservice Testing Program or 92 days]
SR 3.5.2.6	**- NOTE -** Vessel injection/spray may be excluded. Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	[18] months