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Standard Technical Specifications
General Electric Plants, BWR/6

Specifications

Draft Report for Comment

Issued by the
U.S. Nuclear Regulatory Commission

Office of Nuclear Reactor Regulation

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PREFACE

This DRAFT NUREG presents the results of the Nuclear Regulatory Commission (NRC) staff review of the BWR Owners Group (BWROG) proposed new Standard Technical Specifications (STS) for the BWR/6 design. These new STS were developed based on the criteria in the interim Commission Policy Statement on Technical Specification Improvements for Nuclear Power Reactors, dated February 6, 1987.

The new STS will be used as bases for developing improved plant-specific technical specifications by individual nuclear power plant owners that have BWRs designed by General Electric. The NRC staff is issuing this draft new STS for a 30 working-day comment period. Following the comment period, the NRC staff will analyze comments received, finalize the new STS, and issue them for plant-specific implementation.

Comments should be submitted no later than March 15, 1991, in accordance with the following guidance: The exact wording of each proposed change should be marked in pen and ink on copies of all the affected pages of DRAFT NUREG-1434, "Standard Technical Specifications, General Electric Plants, BWR/6." Each proposed change should be numbered. Each proposed change should be accompanied with a separate technical justification, cross referenced to the applicable proposed change on the marked up pages.

Submit written comments to: David L. Meyer, Chief, Regulatory Publications Branch, Division of Freedom of Information and Publications Services, Office of Administration, U. S. Nuclear Regulatory Commission, Washington, DC 20555. Hand deliver comments to: 7920 Norfolk Avenue, Bethesda, Maryland, between 7:45 a.m. and 4:15 p.m. on Federal workdays.

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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.
ALLOWABLE VALUE	The least conservative value of the process variable at which trip actions must occur. The ALLOWABLE VALUE is measured at the point in the channel defined by the plant-specific setpoint calculations. Surveillance test procedures define specific acceptance criteria that relate to the ALLOWABLE VALUE. Operation with actual trip values less conservative than nominal trip setpoints is acceptable since an allowance has been made in the setpoint analysis to accommodate this error. Determination of channel inoperability is not the simple exceeding of the ALLOWABLE VALUE, but rather it is the verification that the setpoint calculation's total allowance for instrument and process measurement uncertainties is not exceeded.
AVERAGE BUNDLE EXPOSURE	The AVERAGE BUNDLE EXPOSURE shall be equal to the sum of the axially averaged exposure of the fuel rods in the specified bundle divided by the number of fuel rods in the fuel bundle.
AVERAGE PLANAR EXPOSURE	The AVERAGE PLANAR EXPOSURE shall be applicable to a specific planar height and is equal to the sum of the exposure of all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle.

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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 [LINEAR HEAT GENERATION RATES (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 the entire channel, including the sensor, alarm, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated. [Each facility shall describe here what the calibration of instrument channels with resistance temperature detectors or thermocouple sensors consists of.]
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 and/or status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be: a. Analog channels - the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including alarms, interlocks, trip functions, and channel failure trips.

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CHANNEL FUNCTIONAL TEST (continued)	b. Bistable channels (e.g., pressure switches and switch contacts) - the injection of a simulated or actual signal into the sensor to verify OPERABILITY, including alarm and trip functions.
	The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
	[Movement of source range monitors, local power range monitors, intermediate range monitors, transversing in-core probes, or special movable detectors (including undervessel replacement) is not considered a CORE ALTERATION.]
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit-specific document that provides core operating limits for the current reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 5.9.1.6. Plant operation within these core operating 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, 1988].

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$\bar{E}$ - AVERAGE DISINTEGRATION ENERGY	$\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than [15] minutes, making up at least 95% of the total non-iodine activity in the coolant.
EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME	The ECCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS actuation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by any series of sequential, overlapping, or total steps so that the entire response time is measured.
END-OF-CYCLE RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME	The EOC-RPT SYSTEM RESPONSE TIME shall be that time interval needed to complete suppression of the electric arc between fully open contacts of the recirculation pump circuit breaker from initial movement of the associated: a. Turbine stop valves; and b. Turbine control valves. [This total system response time consists of two components: the instrumentation response time and the breaker arc suppression time.] These times may be measured by any series of sequential, overlapping, or total steps so that the entire response time is measured.

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ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation actuation 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 any series of sequential, overlapping, or total steps so that the entire response time is measured.
LEAKAGE	LEAKAGE shall be: a. Identified LEAKAGE 1. LEAKAGE such as pump seal or valve packing leaks 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 that is not identified LEAKAGE; c. Total LEAKAGE Sum of the identified and unidentified LEAKAGE; or d. Pressure boundary LEAKAGE LEAKAGE through a non-isolable 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 per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.

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LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components (i.e., all relays and contacts, trip units, solid state logic elements, etc.) of a logic circuit, from sensor up to actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by 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 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.
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 shall be the ratio of 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, train, component, or device shall be OPERABLE when it is capable of performing its specified function(s) and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication, or other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified function(s) are also capable of performing their related support function(s).

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PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure nuclear characteristics important to validate the safety analyses. 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 Commission.
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PRESSURE AND TEMPERATURE LIMITS REPORT is the facility-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 5.9.1.7. Plant operation within these operating limits is addressed in LCO 3.4.10, "Reactor Coolant System Pressure and Temperature Limits."
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of [ ] 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 any series of sequential, overlapping, or total steps so that the entire response time is measured.
SHUTDOWN MARGIN (SDM)	SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical assuming that: a. All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn;

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SHUTDOWN MARGIN (SDM) (continued)	b. The reactor is xenon free; and c. The moderator temperature is 68°F. With a control rod not capable of being fully inserted, the reactivity worth of this control rod 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 specified 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.

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Table 1.1-1
MODES

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

[a] Fuel in the reactor vessel with one or more reactor vessel head closure bolts less than fully tensioned or with the head removed.

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 (TSs) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, and Surveillance Frequencies. The only logical connectors which appear in TSs are AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

BACKGROUND

Up to four levels of logic are used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and 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 second level of logic is identified by the second digit of the Required Action number and an indention of the logical connector to the second level of nesting. The third and fourth levels of logic are identified by the third and fourth digits of the Required Action number and additional indentation of the logical connector to the third and fourth levels of nesting, respectively.

When logical connectors are used to state a Condition, usually only the first level of logic is used, and the logical connector is left justified with the Condition statement. In a few cases, the second level of logic is used. This is identified solely by indenting the logical connector, since subparts of a Condition statement are not numbered separately.

When logical connectors are used to state a Completion Time or a Surveillance Requirement Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Completion Time or Frequency.

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EXAMPLES

The following examples illustrate the use of logical connectors in stating Required Actions. The use of the logical connectors in stating Conditions, Completion Times, and Frequencies is illustrated by examples in Sections 1.3 and 1.4 as needed.

EXAMPLE 1.2-1

ACTIONS

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

This example demonstrates that for Condition A, both Required Actions must be completed. This is because of the logical connector AND.

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EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

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

This example is a more complicated use of logical connectors. Required Actions A.1, A.2, and A.3 are alternative choices as indicated by the use of logical connector OR and because the ORs are left justified (first level of nesting). 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 indented to the second level of nesting. Required Action A.2.2 is met by choosing A.2.2.1 or A.2.2.2. The indented position of the logical connector OR to the third level of nesting indicates that A.2.2.1 and A.2.2.2 are alternative choices, 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. Because LCOs have been prepared to be consistent with the Completion Time convention, compliance with it is mandatory.

BACKGROUND

LCOs specify minimum requirements for assuring safe operation of the facility. The ACTIONS associated with an LCO state Conditions that usually describe most of the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Actions and Completion Times. The Completion Time is the amount of time allowed to complete a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable outside specified limits) that requires entering an LCO ACTIONS Condition, provided that the facility is in a MODE or other specified condition stated in the Applicability of the LCO. A Required Action must be completed prior to the expiration of the specified Completion Time.

Concurrent entry into all applicable ACTIONS Conditions is a requirement to be followed in each LCO. The amount of time that a facility can continue to operate with an applicable LCO not met is limited by the following principle, unless otherwise justified. The Completion Time for ultimately restoring compliance with an LCO is measured from the time it was initially discovered that the LCO was not met, and is limited to the longest Completion Time specified for correcting a Condition (e.g., restore equipment to OPERABLE status) among the Conditions entered concurrently. Adherence to this principle is accomplished by the use of "Condition-based" Completion Time clocks. Facility operation with an LCO not met entails an increased risk to safety. Keeping Completion Time clocks on a Condition basis assures that this risk will be maintained below an acceptable level.

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BACKGROUND (continued)

The implementation of Completion Time on a Condition basis is straightforward for most LCOs. There are a few LCOs, however, with ACTIONS that include several Conditions, and such Conditions may specify various Required Actions, each with a separate Completion Time. In order to provide guidance for the use of Condition-based Completion Time clocks for the simple as well as the more complex LCO ACTIONS, rules are established. These rules constitute the Completion Time convention.

COMPLETION TIME CONVENTION RULES

The Completion Time convention rules of the Technical Specifications (TS) address the following key issues and situations:

a. Independence of the ACTIONS for separate LCOs;

b. Starting a Completion Time clock;

c. Concurrent entry into more than one Condition in an LCO's ACTIONS; and

d. Resetting a Completion Time clock.

The examples discussed after the rules illustrate how the rules apply to the various types of LCO ACTIONS that occur in the TS. Following the examples is a listing of the various terms that are used to refer to various kinds of Conditions, Required Actions, and Completion Times. Use of these terms facilitates discussion about Completion Times.

These rules are consistent with the general Specifications, LCOs 3.0.1 through 3.0.5, and SRs 3.0.1 through 3.0.4. Exceptions to these specifications are noted when they are also exceptions to the Completion Time convention rules.

Some of the individual LCOs include Notes to convey exceptions to the Completion Time convention rules and to clarify for emphasis how the Completion Time convention rules must be interpreted for a given LCO.

1.3.1 Independence of the ACTIONS for separate LCOs.

Compliance with the ACTIONS of an entered LCO can usually be accomplished independently of the ACTIONS of any other LCO

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COMPLETION TIME CONVENTION RULES (continued)

entered concurrently. Exceptions to this are stated in the individual specifications. Notwithstanding these exceptions, the TS do not in general limit the number of LCOs that can be entered concurrently.

Whenever the performance of a Required Action conflicts with another Required Action required to be performed at the same time, whether these Actions are in the same or separate LCO ACTIONS, the more conservative Action shall be taken. (See Examples 1.3.3-3 and 1.3.4-1.)

1.3.2 Starting a Completion Time clock.

The Completion Time specified for the performance of a Required Action begins upon discovery of a failure to meet the LCO noted in the associated Condition, provided that the facility is in a MODE or other specified condition stated in the Applicability of the LCO. (See Example 1.3.2-1.)

If the facility is outside the Applicability of an LCO when it is discovered that the state of the facility corresponds to a Condition stated in the ACTIONS of that LCO, and entry into an applicable MODE or other specified condition is permitted (even though all the prerequisites for entry are not satisfied) by an exception to LCO 3.0.4 or SR 3.0.4, then the Completion Time begins upon the LCO becoming applicable, unless stated otherwise in the individual LCOs. (See Examples 1.3.2-2 through 1.3.2-5.)

1.3.3 Concurrent entry into more than one Condition in an LCO's ACTIONS.

Multiple entry into an LCO's ACTIONS is required. Upon initial entry into an LCO's ACTIONS, all of the stated individual Conditions that the facility is known to be in must be entered immediately. The Completion Time clocks for the associated Required Actions begin at the same time, but are tracked separately. (See Examples 1.3.3-1 through 1.3.3-3 and 1.3.4-1.)

If, prior to restoring compliance with the LCO, the facility is discovered to be in additional individual Conditions, then the Completion Time clock for each associated Required Action begins upon discovery.

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COMPLETION TIMES CONVENTION RULES (continued)

One entry Condition for LCO 3.0.3 is when an LCO's ACTIONS do not provide a Condition that corresponds to the state of the facility. LCO 3.0.3 is not required to be entered as long as two or more of the stated individual Conditions together correspond to the state of the facility. (See Examples 1.3.3-3 and 1.3.4-2.)

The Completion Time for ultimately restoring compliance with an LCO or complying with an unlimited remedial Required Action is limited to the longest Completion Time specified for a restoration Required Action of the individually designated Conditions that are concurrently entered, except as follows:

If the entered Conditions are not encompassed by another individually stated Condition in the same LCO's ACTIONS, then the Required Actions and Completion Times for the entered Conditions can be treated as if they were specified by separate LCO ACTIONS (Example 1.3.3-3), unless stated otherwise in the individual LCO. In such cases, compliance with the LCO is restored when all of the individual and independent Conditions are no longer applicable.

1.3.4 Resetting a Completion Time clock.

The Completion Time clock for each Required Action specified for an entered Condition is reset when one or more of the following occur:

a. The Required Action is completed;

b. The entered Condition is corrected by completion of a restoration Action;

c. An unlimited remedial Action, if specified for the entered Condition, is met; or

d. The entered Condition is no longer applicable either because the facility is outside the Applicability of the associated LCO, or because the state of the facility no longer corresponds to the entered Condition.

In addition, the Completion Time clocks for the shutdown Actions of default Conditions and LCO 3.0.3 are reset when corrective measures are completed that permit facility

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COMPLETION TIMES CONVENTION RULES (continued)

operation in accordance with the ACTIONS of the entered LCO(s), or when compliance with the entered LCO(s) is restored, or both. (See Examples 1.3.4-1 through 1.3.4-3.)

EXAMPLES

EXAMPLE 1.3.2-1

APPLICABILITY: MODES 1, 2, 3, and 4.
{VS-GE: MODES 1, 2, and 3.}

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required DC power subsystem inoperable.	A.1 Restore DC power subsystem to OPERABLE status.	2 hours

The other Required Actions stated for Condition A of this LCO are omitted for brevity.

If the facility is in an applicable MODE, and one DC power subsystem is discovered to be inoperable, then Condition A is entered and the 2-hour Completion Time clock starts immediately. Entry into MODE 4 {VS-GE: MODE 3} during facility startup with one DC power subsystem inoperable would not be allowed by LCO 3.0.4.

Note: Required Action A.1 is referred to as a "*restoration Action*." (See the list of terms following the Examples.) The Completion Time associated with a restoration Action is commonly referred to as the "*allowed outage time*," or "*AOT*."

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EXAMPLES (continued)

EXAMPLE 1.3.2-2

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One train inoperable.	A.1	-----NOTE----- LCO 3.0.4 is not applicable. -------------- Restore 1 train to OPERABLE status.	30 days

This example LCO ACTIONS is a simplified generalization for the purpose of discussing Completion Time convention rule 1.3.2 where there is an exception to LCO 3.0.4.

When one train is inoperable with the facility in MODE 3, entry into MODES 1 and 2 would be permitted because of the exception to LCO 3.0.4 stated in the ACTIONS. Upon entering MODE 2, the 30-day Completion Time clock would start immediately.

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EXAMPLES (continued)

EXAMPLE 1.3.2-3a {VS-B&W, CE, and W}

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
			------NOTE----- Completion Time is on a Condition basis ---------------
A. One or more components inoperable. AND At least 100% of the safety injection flow equivalent to a single OPERABLE Emergency Core Cooling System (ECCS) train available.	A.1	Restore components to OPERABLE status.	72 hours

Condition A is an example of a *"multiple-situation Condition."* Such Conditions contain the words, "one or more." (Conditions that state, "one or two," are also included.) The Completion Time clock(s) for the Required Action(s) of such Conditions can be kept in one of two possible ways, referred to as *"Condition-based clocks"* and *"function-based clocks."* Condition-based clocks are the rule for most LCO ACTIONS and for this example.

When a Condition-based clock is used, there is only one Completion Time clock for the Required Action to correct the entered Condition, the *"restoration Action,"* and it starts upon discovery of a failure to meet the LCO noted in the associated Condition. In this example, if a single valve in an ECCS flow path is determined to be inoperable, the

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EXAMPLES (continued)

EXAMPLE 1.3.2-3a {VS-B&W, CE, and W} (continued)

72-hour Completion Time clock starts and Condition A is entered. If another valve in the same train (to ensure the second part of the statement of Condition A is true) is subsequently found to be inoperable, then Condition A is still applicable; no new clock based on the second valve is kept. Even if the first valve is restored to OPERABLE status, the original Condition-based clock continues to run.

The reason for the use of Condition-based clocks is to limit how long facility operation can continue at risk with an LCO not met.

Condition A includes a Note to emphasize the importance of using a Condition-based Completion Time to ensure that one or more failures impacting the capability of the ECCS to perform its specified function are corrected within the allowed 72-hour Completion Time, and thus, minimizing how long facility operation can continue to be vulnerable to single failures.

EXAMPLE 1.3.2-3a {VS-GE}

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more jet pumps inoperable.	A.1 Be in MODE 3.	-------NOTE---- Completion Time is on a Condition basis --------------- 12 hours

Condition A is an example of a *"multiple-situation Condition."* Such Conditions contain the words "one or more." (Conditions that state "one or two" are also

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EXAMPLES (continued)

EXAMPLE 1.3.2-3a {VS-GE} (continued)

included.) The Completion Time clock(s) for the Required Action(s) of such Conditions can be kept in one of two possible ways, referred to as "*Condition-based clocks*," and "*function-based clocks*." Condition-based clocks are the rule for most LCO ACTIONS and for this example.

When a Condition-based clock is used, there is only one Completion Time clock for the Required Action to correct the entered Condition, the "*restoration Action*," and it starts upon discovery of a failure to meet the LCO noted in the associated Condition. (In the above example, the restoration Action is not stated because it is not anticipated that a jet pump can be restored to OPERABLE status without first shutting down the facility.) When restoration is not possible, an "*alternative Action*" is typically to place the facility outside the Applicability of the LCO (as in this example, MODE 3), i.e., a "*shutdown Action*."

In this example, if one jet pump is determined to be inoperable, Condition A is entered and the 12-hour Completion Time clock for shutdown Required Action A.1 starts. If a second jet pump is subsequently determined to be inoperable, then Condition A is still applicable; no new clock based on the second jet pump is kept. If it was possible, without shutting down, to restore the first jet pump to OPERABLE status, and it was restored, then the time left to complete Action A.1 would be whatever time remains on the Completion Time clock started when Condition A was first entered. The reason for the use of Condition-based clocks is to limit how long facility operation can continue at risk with an LCO not met.

(continued)

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EXAMPLES (continued)

EXAMPLE 1.3.2-3b

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

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

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

1. Normally locked or sealed closed isolation valves [except for 42-inch purge valves] may be opened intermittently under administrative controls.

2. Each penetration flow path is treated as an independent entity for this LCO, with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
	----------NOTE---------- Not applicable to those penetrations that have only 1 isolation valve. ------------------------	
A. ------NOTE------ Not applicable to those penetrations with only 1 containment isolation valve and a closed system inside containment. ---------------- One or more containment isolation valves inoperable.	A.1 Verify at least 1 isolation valve is OPERABLE in each affected open penetration. AND	1 hour

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EXAMPLES (continued)

EXAMPLE 1.3.2-3b (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.1	Restore the valve(s) to OPERABLE status.	4 hours

The other Required Actions stated for Condition A of this LCO are omitted for brevity.

This example illustrates the use of function-based Completion Time clocks. The number of LCOs with ACTIONS that use function-based clocks are relatively few. When a function-based clock is used, a Note is always provided in the LCO or the ACTIONS that defines when to use separate Completion Time clocks. Function-based clocks are used when the affected systems or subsystems are sufficiently independent such that they could have been placed in separate LCOs, but were not for the sake of brevity.

In this example, Note 2 says that each penetration flow path with one or more isolation valves inoperable has its own Completion Time. If one valve in one flow path is determined to be inoperable, then the Completion Time clocks start immediately for the Required Actions for that flow path and Condition A is entered. If a second valve in the same flow path is later determined to be inoperable, then, because it is in the same flow path, the time allowed to complete the Required Actions for that valve are whatever times are left on the Completion Time clocks started for that flow path.

If a second valve in a separate flow path is determined to be inoperable, however, either at the same time or at a later time, then Condition A would be entered separately for that flow path with separate Completion Time clocks for the Required Actions for the second valve that start when the valve is discovered to be inoperable.

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EXAMPLES (continued)

EXAMPLE 1.3.2-3b (continued)

For multiple-situation Conditions, there is frequently provided, along with a restoration Action (such as A.2.1), a "*companion remedial Action*" (such as A.1) that must be accomplished each time the Condition becomes applicable for an additional component or function. Such companion remedial Actions can occur regardless of whether the clocks are Condition-based or function-based. Thus, in the example, Action A.1 for the second valve in the same flow path would still be allowed up to 1 hour to be completed.

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EXAMPLES (continued)

EXAMPLE 1.3.2-4

LCO 3.6.2 [Two] containment air lock(s) shall be OPERABLE.

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

---------------------------NOTE---------------------------
All containment air locks are treated as an entity for this LCO, with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ------NOTE------ Entry and exit of containment is permissible under the control of a dedicated individual if 1 or more air locks are inoperable. ---------------	B.1	Verify an OPERABLE door closed in each affected air lock.	1 hour
	<u>AND</u>		
	B.2.1	Restore air lock interlock mechanism to OPERABLE status.	24 hours
	<u>OR</u>		
Containment air lock interlock mechanism inoperable in 1 or more containment air locks.	B.2.2.1	Lock the OPERABLE door closed in each affected air lock.	24 hours
		<u>AND</u>	

(continued)

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EXAMPLES (continued)

EXAMPLE 1.3.2-4 (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2.2.2	Verify an OPERABLE door is locked closed in each affected air lock.	Once per 31 days
D. Required Actions and associated Completion Times not met.	D.1	Be in MODE 3.	6 hours {VS-GE: 12 hours}
	AND		
	D.2	Be in MODE 5. {VS-GE: MODE 4}	36 hours

Note: Conditions A and C of this example LCO Actions have been omitted for brevity.

In this example a Note has been added under the Applicability to indicate that all containment air locks are treated as a single entity for this LCO with a single (Condition-based) Completion Time. This means that all of the specified containment air lock LCO ACTIONS Conditions (A, B, C) are within the same functional entity, and that all of the Conditions must be corrected within a Completion Time that is limited to the longest Completion Time specified for a restoration Required Action (e.g., B.2.1) of the three Conditions that are concurrently entered. (See Completion Time convention rule 1.3.3.) This limitation is discussed further in this example and in Example 1.3.3-2. For this example, it is assumed that only Condition B is affected by an inoperable air lock interlock mechanism.

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EXAMPLES (continued)

EXAMPLE 1.3.2-4 (continued)

Condition B is a multiple-situation Condition that uses Condition-based Completion Time clocks for its associated Required Actions. (Notice that no Note is provided that indicates use of function-based clocks.) The Logical Connector "AND" after Action B.1 means that B.1 is a *"companion remedial Action"* to restoration Action B.2.1. However, it is also, a companion remedial Action to *"alternative Actions,"* B.2.2.1 and B.2.2.2. This means Action B.1 must always be accomplished regardless of which of the other alternative Actions are chosen.

If the interlock mechanism in just one air lock is determined to be inoperable, the Completion Time clocks for the associated Required Actions start and Condition B is entered. Assuming Action B.1 is completed on time, then the ACTIONS provide an alternative to Action B.2.1 for restoring the interlock mechanism to OPERABLE status; these alternative Actions, B.2.2.1 and B.2.2.2, are known as *"unlimited remedial Actions."* Unlimited means that as long as the Actions are met, then operation of the facility in the associated Condition can continue indefinitely. This is because compliance with such Actions provides a level of safety equivalent to that provided by meeting the LCO.

Suppose that Action B.2.2.1 was completed before its 24-hour Completion Time expired (assuming that restoration Action B.2.1 could not be accomplished). This would allow facility operation to continue in Condition B. *"Periodic remedial Action,"* B.2.2.2, must be performed every 31 to 38 $\frac{3}{4}$ days (the 25% extension of SR 3.0.2 applies) in order to permit facility operation to continue in Condition B.

Once an unlimited remedial Action is met, with respect to an inoperable component or system, the Completion Time clock(s) associated with all of the Required Actions specified for the entered Condition are reset just as they would be if the restoration Action had been accomplished. Thus, if a separate component (addressed by that Condition) was later found to be inoperable, the time allowed to perform each Required Action for that component would be the entire Completion Time specified. This is the case whether Condition-based or function-based clocks are used.

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EXAMPLES (continued)

EXAMPLE 1.3.2-4 (continued)

However, when Condition-based clocks are used, as in this example (and also when function-based clocks are used and the affected components are within the same functional entity, such as two valves in the same penetration flow path as discussed in Example 1.3.2-3b), and the second component is found inoperable prior to completing either the restoration Action (B.2.1) or the unlimited remedial Actions (B.2.2.1 and B.2.2.2) for the first component, then the time allowed for completing these Actions for the second component is the time remaining for completing the same Actions for the first component.

To illustrate this point, consider this sequence of events. At time zero, Condition B is entered for one inoperable interlock mechanism. Later, at time 8 hours, a second interlock mechanism is determined to be inoperable. The time now allowed for completing either Action B.2.1 or Action B.2.2.1 for each interlock mechanism is 24 minus 8, or 16 hours. If one of these Actions is completed for the first mechanism, for example, at time 20 hours, then just 24 minus 20, or 4 hours remain to complete one of these Actions for the second mechanism.

Thus, by using the Condition-based Completion Time clock convention, the time that the facility can operate without either correcting a Condition or completing an associated unlimited remedial Action (if specified) is limited.

The Note under the Applicability conveys that the Completion Time for restoring compliance with this LCO starts upon discovery of the first inoperable component associated with Condition A, B, or C. Any subsequent component associated with either the same Condition or any of the other two Conditions found inoperable prior to completing the restoration Actions (e.g., B.2.1) or unlimited remedial Actions (e.g., B.2.2.1 and B.2.2.2) for the first component, then the time allowed for completing such Actions for the second component is the time remaining for completing these Actions for the first component. The same explanations as discussed in the above scenario for Condition B apply when more than one LCO Condition is involved.

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EXAMPLES (continued)

EXAMPLE 1.3.2-4 (continued)

Whenever any Required Action is not met within its specified Completion Time (nor any alternative Action that may be stated), entry into a *"default Condition"* is usually required. A default Condition stated in an LCO's ACTIONS is always worded in a manner equivalent to the following: "Required Actions and associated Completion Times not met." In this example, Condition D is a default Condition. The Completion Time clock for a default Condition is kept, without exception, on a Condition-basis.

If the ACTIONS do not state a default Condition and the facility is in an applicable MODE for LCO 3.0.3, then, for such LCOs, entry into LCO 3.0.3 would usually be required; thus, LCO 3.0.3 acts as a default condition in such cases.

In this example, Condition D has two Required Actions specified. The Completion Time for each Action starts when Condition D is first entered. If Action D.1 was accomplished in, for example, 4 hours, then there would still be 36 minus 4, or 32 hours remaining to accomplish Action D.2. The time allowed to complete D.2 is not diminished by completing D.1 in less than the time specified.

The Applicability of the LCO from which this example was taken is MODES 1, 2, 3, and 4. Thus, it can be seen that the Actions for Condition D are to place the facility in a MODE or other specified condition that is outside the Applicability of the LCO; this is the case for almost all default Conditions.

It is possible to exit default Conditions without restoring the LCO. However, because of the variety of situations that can occur, this provision is discussed separately in the examples for Completion Time convention rule 1.3.4.

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EXAMPLES (continued)

EXAMPLE 1.3.2-5

APPLICABILITY: When irradiated fuel assemblies are in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
	----------NOTE---------- LCOs 3.0.3 and 3.0.4 are not applicable. ------------------------		
A. Fuel storage pool water level not within limit.	A.1	Suspend movement of fuel assemblies in the fuel storage pool. AND	Immediately
	A.2	Initiate action to restore fuel storage pool water level.	Immediately

In this example, a Note states that LCOs 3.0.3 and 3.0.4 are not applicable. This is because the fuel storage pool's function is not affected by the operational MODE of the facility. Also, notice that no default Condition is stated. This is because the logical Actions to take upon failing to accomplish A.1 and A.2 are to accomplish A.1 and A.2; there are no alternatives.

Action A.2 is an example of a type of Action without a definite Completion Time. The Completion Time specified is related only to when the Action must be initiated. In this

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EXAMPLES (continued)

EXAMPLE 1.3.2-5 (continued)

example, "Immediately" is specified, but longer time periods such as 15 minutes or 24 hours do occur for Actions of this type.

When "Immediately" is specified as a Completion Time (as for A.1), the associated Required Action should be pursued continuously without delay. In this example, action must continue until the water level is restored to within limits.

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EXAMPLES (continued)

EXAMPLE 1.3.3-1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One subsystem inoperable.	A.1	Restore subsystem to OPERABLE status.	7 days
B. Two subsystems inoperable.	B.1	Restore 1 subsystem to OPERABLE status.	8 hours

This example LCO ACTIONS is a simplified generalization for purposes of discussing Completion Time convention rule 1.3.3.

If one subsystem is found inoperable, the 7-day Completion Time clock for restoration Action A.1 for that subsystem starts immediately and Condition A is entered. Later, at time 4 days, for instance, the second subsystem is determined to be inoperable. Condition A applies to the second subsystem, but it has already been entered. Now, because Condition-based clocks are used, the time allowed to restore the second subsystem is, at most, the same as the time remaining to restore the first subsystem (i.e., 7 days minus 4 days, or 3 days). Because two subsystems are now inoperable, however, Condition B must also be entered. Action B.1 requires that one of the subsystems be made OPERABLE in a much shorter time, 8 hours. Suppose the first subsystem is restored to OPERABLE status 6 hours later, then Condition B is exited and its Completion Time clock is reset. (See Completion Time convention rule 1.3.4.) The time remaining is now 7 days minus 4 days and 6 hours, or 2 days and 18 hours.

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EXAMPLES (continued)

EXAMPLE 1.3.3-1 (continued)

Suppose that the first subsystem is again determined to be inoperable, for example, at time 6 days and 20 hours. Condition A again applies to the first subsystem, but was never exited since it was initially entered. Therefore, only 4 hours remain to restore both subsystems to OPERABLE status. Condition B also applies again and is entered, but 4 hours, not 8 hours, are left in which to complete Action B.1. This scenario illustrates how using Condition-based Completion Time clocks limits how long facility operation can continue to be at risk with an LCO not met.

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EXAMPLES (continued)

EXAMPLE 1.3.3-2

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One train inoperable.	A.1	Restore train to OPERABLE status.	72 hours
B. Two trains inoperable. OR Required Action and associated Completion Time of Condition A not met.	B.1	Restore 1 train to OPERABLE status.	Immediately
	OR		
	B.2.1	Be in MODE 3.	6 hours
	AND		
	B.2.2	Be in MODE 4.	12 hours
	AND		
	B.2.3	Be in MODE 5, provided that 1 train is OPERABLE.	36 hours

This example LCO ACTIONS is a simplified generalization for purposes of discussing Completion Time convention rule 1.3.3.

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EXAMPLES (continued)

EXAMPLE 1.3.3-2 (continued)

If one train is found inoperable, the 72-hour Completion Time clock for restoration Action A.1 starts immediately, and Condition A is entered for that train. Later, at time 24 hours, for instance, the second train is determined to be inoperable. Condition A applies to the second train, but it has already been entered. Now, because Condition-based clocks are used, the time allowed to restore the second train is, at most, the same as the time remaining to restore the first train (i.e., 72 hours minus 24 hours, or 48 hours). Because both trains are now inoperable, however, Condition B must also be entered. If Required Action B.1 to restore one train to OPERABLE status cannot be immediately accomplished, then the Completion Time clocks for Required Actions B.2.1, B.2.2, and B.2.3 must continue to run.

If the first train is restored to OPERABLE status 4 hours later (and prior to changing MODES to comply with Action B.2.1), then Condition B is exited and its Completion Time clocks are reset. (See Completion Time convention rule 1.3.4.) The time remaining to restore the second train to OPERABLE status is 72 hours minus 28 hours, or 44 hours.

If the first train is again determined to be inoperable, for example, at time 70 hours, Condition A again applies to the first train. However, because Condition A was never exited since it was initially entered, only 2 hours remain to restore both trains to OPERABLE status. Since both trains are again inoperable, Condition B is reentered immediately and the Completion Time clocks for Actions B.1, B.2.1, B.2.2, and B.2.3 start again.

Even if one train was again made OPERABLE, at time 72 hours, facility shutdown would still be required by Action B.2.1, B.2.2, or B.2.3. This scenario (apart from the shutdown Actions of Condition B) illustrates how using Condition-based Completion Time clocks limit how long facility operation can continue to be at risk with an LCO not met.

If at time 106 hours (70 plus 36 hours) both trains are still inoperable, then entry into MODE 5 (outside the Applicability of the LCO) would not be possible as noted by Action B.2.3.

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EXAMPLES (continued)

EXAMPLE 1.3.3-3 (VS - W, B&W, and CE)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One containment spray train inoperable.	A.1	Restore containment spray train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	84 hours
C. One containment cooling train inoperable.	C.1	Restore containment cooling train to OPERABLE status.	7 days
D. Two containment cooling trains inoperable.	D.1	Restore 1 containment cooling train to OPERABLE status.	72 hours

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EXAMPLES (continued)

EXAMPLE 1.3.3-3 (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Two containment spray trains inoperable. OR Any combination of 3 or more trains inoperable.	E.1	Enter LCO 3.0.3.	Immediately
F. Required Actions and associated Completion Times of Condition C or D not met.	F.1 AND F.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

If one spray train is found inoperable, then the 72-hour Completion Time clock for restoration Action A.1 starts immediately, and Condition A is entered. Later, if at time 24 hours, one cooling train is also determined to be inoperable; Condition C is entered and the 7-day Completion Time clock for restoration Action C.1 starts immediately.

No single designated Condition (A through F) actually states one spray and one cooling train inoperable. Conditions A and C taken together, however, describe exactly that condition of the facility. Therefore, the LCO 3.0.3 entry condition, "because an ACTION is not provided," is not applicable.

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EXAMPLES (continued)

EXAMPLE 1.3.3-3 (continued)

Because entry into Condition A does not imply entry into Condition C (or vice versa), it is possible to enter the LCO as above and then, by alternative exit and entry into Conditions A and C, to continue facility operation indefinitely without restoring the LCO. In this scenario, use of Condition based clocks alone does not limit such operation. However, in this example, the ACTIONS do state a *"combination Condition"* that encompasses Conditions A and C; this is Condition E. Therefore, by Completion Time convention rule 1.3.3, if Conditions A and C are entered concurrently, compliance with the LCO must be restored within the limit of the longest Completion Time specified for these Conditions (i.e., the 7-day Completion Time of Action C.1).

To illustrate this point, continue the scenario started above. Suppose, at time 48 hours, Condition A is corrected and its Completion Time clock is reset. There are now 7 days minus 48 hours, or 5 days, remaining to complete Action C.1. (Note that the time limit to restore the LCO is based upon when the LCO's ACTIONS were first entered; 7 days minus 24 hours, or 6 days would not be correct.) Suppose that later, at time 6 days, Condition A is reentered and its Completion Time clock starts again. Because of the restriction discussed above, the Completion Time is only 7 days minus 6 days, or 24 hours, and not the stated 72 hours. If 12 hours later (at time 6 days and 12 hours), Condition C is corrected and upon reaching time 7 days, if Condition A has still not been corrected, then entry into default Condition B would be required.

Alternatively, if Condition C had also not been corrected, then, at time 7 days, entry into default Condition F would be required too. Notice that Action F.2 is more conservative than Action B.2; thus, F.2 should be followed as specified by Completion Time convention rule 1.3.1.

If no combination Condition, such as Condition E, that encompassed Conditions A and C had been provided in the ACTIONS, then the restriction of Completion Time convention rule 1.3.3 on facility operation with the LCO not met would not apply. The number of LCOs illustrated by this example are few.

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EXAMPLES (continued)

EXAMPLE 1.3.4-1 {VS - W, B&W, and CE}

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One containment spray train inoperable.	A.1	Restore containment spray train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	84 hours
C. One containment cooling train inoperable.	C.1	Restore containment cooling train to OPERABLE status.	7 days
D. Two containment cooling trains inoperable.	D.1	Restore 1 containment cooling train to OPERABLE status.	72 hours

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EXAMPLES (continued)

EXAMPLE 1.3.4-1 (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Two containment spray trains inoperable. OR Any combination of 3 or more trains inoperable.	E.1	Enter LCO 3.0.3.	Immediately
F. Required Actions and associated Completion Times of Condition C or D not met.	F.1 AND F.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

The ACTIONS used in Example 1.3.3-3 are used again for this example because, with it, several aspects of Completion Time convention rule 1.3.4 can be illustrated. (It is considered very unlikely that a scenario such as the following would ever occur, but it is instructive.)

The Required Actions in this Example are of two kinds, restoration Actions and shutdown Actions. If Condition A was entered for one spray train being inoperable, and restoration Action A.1 was not accomplished within the 72-hour Completion Time, then default Condition B would be entered and the Completion Time clocks for shutdown Actions B.1 and B.2 would start. Suppose that Condition C had also been entered for one cooling train being inoperable at time 24 hours after Condition A had been initially entered.

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EXAMPLES (continued)

EXAMPLE 1.3.4-1 (continued)

(Recall from Example 1.3.3-3 that this situation had imposed a 7-day limit on operation with the LCO not met.) Next suppose that Condition A is corrected at time 74 hours, which allows the Completion Time clock for Action A.1 (which had expired at time 72 hours) to be reset. Since Condition B applies only upon failure to meet the ACTIONS of Condition A, it no longer applies and the Completion Time clocks for Actions B.1 and B.2 can be reset. There now remain 7 days minus 74 hours, or 94 hours, to accomplish restoration Action C.1.

Next, suppose that a second cooling train is found inoperable at time 80 hours (i.e., there are now 7 days minus 80 hours, or 88 hours, to accomplish Action C.1). So Condition D is entered and the 72-hour Completion Time clock for restoration Action D.1 starts. After 72 hours have elapsed, if both cooling trains are still inoperable, then at time 152 hours (80 plus 72 hours) default Condition F is entered. The Completion Time clocks for shutdown Actions F.1 and F.2 start. If at time 154 hours, (prior to changing MODES to comply with Action F.1) the first cooling train is restored to OPERABLE status (i.e., Condition D is no longer applicable), then Condition F can be exited and the Completion Times for Actions F.1 and F.2 can be reset.

Next suppose that the other spray train is found inoperable at time 160 hours. There are now just 7 days minus 160 hours, or 8 hours, to accomplish both Action C.1 and Action A.1. Assuming that neither Action is accomplished by time 168 hours (7 days), then both default Conditions B and F are entered, and the Completion Time clocks (previously reset) for shutdown Actions B.1, B.2, F.1, and F.2 start at the same time. Because Action F.2 is more conservative (36 hours to be in MODE 5) than Action B.2 (84 hours to be in MODE 5), Action F.2 should be followed as required by Completion Time convention rule 1.3.1.

If Action C.1 is accomplished prior to the expiration of the 36-hour Completion Time for Action F.2 (and prior to entry into MODE 5), then whatever time was left of the 84-hour Completion Time for Action B.2 would be allowed for reaching MODE 5. Also, the Completion Time clocks for Actions F.1, F.2, and C.1 are reset. If prior to the expiration of the 84-hour Completion Time for Action B.2, restoration

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EXAMPLES (continued)

EXAMPLE 1.3.4-1 (continued)

Action A.1 is accomplished, then the LCO is restored and the facility may be returned to MODE 1. Since Condition B no longer applies, there is no requirement to complete Action B.1. The Completion Time clocks for Actions A.1, B.1, and B.2 are reset.

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EXAMPLES (continued)

EXAMPLE 1.3.4-2

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One train inoperable.	A.1	-----NOTE---- LCO 3.0.4 is not applicable. -------------	
		Restore 1 train to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours

This example LCO ACTIONS is a simplified generalization for the purpose of discussing Completion Time convention rule 1.3.4 where there is an exception to LCO 3.0.4.

In this example, entry into MODE 1 or 2 is allowed when one train is inoperable because of the Note that states LCO 3.0.4 is not applicable. However, if this is done, then the 30-day Completion Time clock for restoration Action A.1 would begin immediately upon entering MODE 2 from MODE 3.

Failure to restore the train to OPERABLE status within 30 days requires entry into Condition B. Upon entering MODE 3 in compliance with Action B.1, the Completion Time clocks for Actions A.1 and B.1 reset. Entry into

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EXAMPLES (continued)

EXAMPLE 1.3.4-2 (continued)

MODE 1 or 2 would then be allowed again. Upon doing so, another 30 days of operation would be permitted, etc. This scenario, though possible, is not considered probable. For it to continue for more than one repetition is considered unlikely because intentionally operating a facility in this manner would be impractical. The consequences of operating more than 30 days with one train inoperable are considered to provide sufficient incentive to restore the train to OPERABLE status within a reasonable period of time.

Should both trains be determined to be inoperable, entry into LCO 3.0.3 would be required since no Condition or combination of Conditions corresponds to this situation. The exception to LCO 3.0.4 only applies when one train is inoperable, thus entry into MODE 1 or 2 would not be permitted in this Condition. LCO 3.0.3 would only require going to MODE 3 (outside the Applicability of the LCO). If already in MODE 3, then no shutdown Action to higher numbered MODES would be required by this LCO's ACTIONS.

If both trains are simultaneously found inoperable in MODE 1, the 30-day Completion Time clock for Action A.1 starts and Condition A is entered. LCO 3.0.3 is also entered; it requires being in MODE 3 within 7 hours. If, prior to reaching MODE 3, one train is restored to OPERABLE status, then LCO 3.0.3 is exited and its 7-hour Completion Time clock resets. Reentry into MODE 1 is allowed because of the exception to LCO 3.0.4 and the time remaining of the 30-day Completion Time clock of Action A.1. If MODE 3 had been entered without restoring any trains to OPERABLE status, then reentry into MODE 1 or 2 would not be allowed. The Completion Time for Action A.1 would be reset, however.

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EXAMPLES (continued)

EXAMPLE 1.3.4-3

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ------NOTE------ Entry and exit of containment is permissible under the control of a dedicated individual if 1 or more air locks are inoperable. ---------------- Containment air lock interlock mechanism inoperable in 1 or more containment air locks.	B.1	Verify an OPERABLE door closed in each affected air lock.	1 hour
	AND		
	B.2.1	Restore air lock interlock mechanism to OPERABLE status.	24 hours
	OR		
	B.2.2.1	Lock the OPERABLE door closed in each affected air lock.	24 hours
	AND		
	B.2.2.2	Verify an OPERABLE door is locked closed in each affected air lock.	Once per 31 days

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EXAMPLES (continued)

EXAMPLE 1.3.4-3 (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Actions and associated Completion Times not met.	D.1	Be in MODE 3.	6 hours (VS-GE: 12 hours)
	AND		
	D.2	Be in MODE 5. (VS-GE: MODE 4)	36 hours

The ACTIONS used in example 1.3.2-4 are used again for this Example because "default Conditions" were first discussed in that example.

Entry into default Condition D would be required upon occurrence of one or more of the following events:

a. Companion remedial Action B.1 not completed within 1 hour after an interlock mechanism was determined to be inoperable;

b. Failure to complete either restoration Action B.2.1 or unlimited remedial Action B.2.2.1 within 24 hours after entering Condition B;

c. Failure to perform periodic remedial Action B.2.2.2 within the specified interval, plus 25% of the interval; or

d. Failure to meet the Required Actions of any of the other designated Conditions (that have been omitted for brevity in this example) that may have been entered in the LCO's ACTIONS.

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EXAMPLES (continued)

EXAMPLE 1.3.4-3 (continued)

Since default Conditions always use Condition-based Completion Time clocks, determining when Condition D can be exited is the same regardless of how many entry events happen concurrently; Condition D can be exited only when all of the entry conditions that have occurred concurrently have been corrected. The following scenario illustrates this point.

Condition B is entered for one interlock mechanism being found inoperable. If Action B.1 is not accomplished within 1 hour, then Condition D is entered. If at time 2 hours, Action B.1 is performed, then Condition D is exited and the Completion Time clocks for shutdown Actions D.1 and D.2 and remedial Action B.1 are reset.

Next, upon failure to complete either Action B.2.1 or Action B.2.2.1, at time 24 hours, Condition D is entered again. Then suppose that, at time 26 hours, unlimited remedial Action B.2.2.1 is completed. This causes all the Completion Time clocks for Actions B.2.1, B.2.2.1, and B.2.2.2 to reset, so that if another interlock mechanism is found inoperable, then the entire Completion Time specified for each Action is available.

Operation of the facility can continue indefinitely as long as periodic remedial Action B.2.2.2 is met and no other entry conditions for Condition D occur.

If a Required Action for Condition A (not shown) of this LCO's ACTIONS was not met concurrently with Actions B.2.1 and B.2.2.1, then the scenario above would still be correct, except that Condition D would still apply and its shutdown Action Completion Time clocks would continue to run. While shutting down to comply with Actions D.1 and D.2, consideration should be given for continuing performance of any applicable periodic remedial Actions, if any, until the facility is outside the Applicability of the LCO.

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TERMS USED	The following terms were introduced in Section 1.3 to facilitate the description of the Completion Time convention. These terms and their meanings, as used therein, are provided here for reference. Unlike the terms defined in Section 1.1, Definitions, these terms do not appear in capitalized type and are not generally used throughout these TS and Bases; they primarily apply to Section 1.3. Where these terms are used in other sections of the TS or the Bases, the meanings stated here can be assumed to apply, unless otherwise stated in the specific application.
Action	This is short for Required Action.
allowed outage time (AOT)	This refers to a Completion Time associated with a restoration Action. This term is also commonly used when referring to the time allowed by TS for intentionally entering an LCO for maintenance or testing.
alternative Action	This refers to any Required Action that is stated as an option among other stated Actions for the same Condition by use of the logical connector "OR."
combination Condition	This refers to an individual Condition that corresponds to two or more other individual Conditions being applicable at the same time. A combination Condition is provided when the safety significance of the combination warrants more restrictive Required Actions and Completion Times than specified for the individual Conditions separately.
companion Action	This refers to any Required Action that is stated in addition to one or more other stated Actions for the same Condition by use of the logical connector "AND."
Completion Time clock	This is a convenient way of referring to the act of keeping track of how much of a Completion Time interval has elapsed.
Condition-based Completion Time clock	This refers to the normal way in which Completion Time clocks are tracked. The Completion Time specified for a Required Action is referenced to the time of discovery of a failure to meet the LCO that corresponds to a Condition stated in the LCO's ACTIONS. The Completion Time clock for performing the specified restoration Action, unlimited remedial Action, or shutdown Action, does not reset until

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TERMS USED (continued)	one of such Actions are completed and the Condition no longer exists or applies. (See Completion Time convention rule 1.3.4.)
default Condition	This refers to an individual Condition that is entered only upon failure to perform a Required Action within the specified Completion Time for any of the other individual Conditions specified. The Required Action for a default Condition is almost always to place the facility in a state outside the Applicability of the LCO. When no default Condition is provided in the ACTIONS, entry into LCO 3.0.3 is usually required; thus, LCO 3.0.3 serves as a general default Condition.
function-based Completion Time clock	This refers to a way of tracking a Completion Time clock on a basis other than a Condition basis. In practice, only ACTIONS Conditions that state the words "one or more," i.e., multiple-situation Conditions, use function-based clocks. Even so the majority of multiple-situation Conditions use Condition-based clocks. When function-based clocks are used, a Note is provided in the LCO or the LCO's ACTIONS, that specifies the basis for tracking the Completion Time clocks; i.e., when a separate clock should be kept.
individual Condition	This refers to a separately designated Condition stated in the ACTIONS.
multiple-situation Condition	This refers to an individual Condition that states the words, "one or more."
periodic Completion Time	This refers to a Completion Time that specifies the time intervals between performances of a periodic remedial Action. The 25% extension of SR 3.0.2 is permitted for periodic Completion Times.
periodic remedial Action	This refers to any remedial Action specified for periodic performance by a periodic Completion Time.
remedial Action	This refers to any Required Action except the restoration Action and the shutdown Action.
restoration Action	This refers to a Required Action to correct the entered Condition. Examples are: to restore equipment OPERABILITY, to place required equipment in operation, or to restore a

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TERMS USED (continued)	variable to within specified limits. If the restoration Action is not stated in the ACTIONS, it is understood to be an alternative Action.
shutdown Action	This refers to a Required Action to place the facility in a MODE or other operational condition in which the LCO is not applicable. Default Conditions usually specify a shutdown Action.
unlimited remedial Action	This refers to a remedial Action that, if met, permits facility operation to continue for an unlimited period of time without correcting the associated Condition. Such an Action is usually an alternative Action.

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. Each SR has a specified Frequency in which the SR 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 each SR.

EXAMPLES

The following examples illustrate the various ways that Frequencies are specified.

EXAMPLE 1.4-1

SURVEILLANCE	FREQUENCY
Perform a CHANNEL CHECK.	12 hours

This example contains the type of Frequency most often encountered in the Technical Specifications (TS) (referred to as a regular Frequency). It 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 stated Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of the Surveillance interval continues at all times, even when the SR is not required (such as when the equipment is inoperable, a variable is outside specified limits, or the facility is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while in a MODE or other specified condition in the Applicability of the LCO for which the performance of the Surveillance is required, then SR 3.0.3 becomes applicable. If the interval as specified by SR 3.0.2 is exceeded while not in a MODE or

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EXAMPLES (continued)

EXAMPLE 1.4-1 (continued)

other specified condition in the Applicability of the LCO for which performance of the Surveillance is required, the Surveillance must be performed prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4 and LCO 3.0.4, unless an exception to SR 3.0.4 is specified.

Sometimes special conditions dictate when a Surveillance is to be met. They may be stated as clarifying Notes or as part of the SR itself. The remaining examples discuss these special conditions.

EXAMPLE 1.4-2

SURVEILLANCE	FREQUENCY
-----------------NOTE----------------- SR 3.0.4 is not applicable. ------------------------------------- Demonstrate, with reactor pressure ≤ [1045] psig, that the reactor core isolation cooling (RCIC) pump can develop a flow rate ≥ [800] gpm against a system head corresponding to reactor pressure ≥ [945] psig.	92 days OR Once only 12 hours after reactor steam dome pressure is ≥ [945] psig

This example has two alternative Frequencies in which to satisfactorily perform the Surveillance. The first Frequency (92 days) is similar to that shown in Example 1.4-1. The alternative Frequency is one for which the measurement of the 12-hour interval does not continue at all times. The measurement of the 12-hour interval begins only upon reaching or exceeding [945] psig.

If reactor steam dome pressure is less than [945] psig at a time when the 92-day (plus 25%) interval expires, the second

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EXAMPLES (continued)

EXAMPLE 1.4-2 (continued)

Frequency can be selected. Because the Surveillance cannot be performed unless pressure is at least [945] psig, it is not to be considered that a failure to perform the Surveillance within the specified Frequency has occurred, even though the facility is in the Applicability of the LCO.

The Surveillance is modified by a Note that indicates that SR 3.0.4 is not applicable. This means that the facility can enter into a MODE or other specified condition in the Applicability of the LCO without this Surveillance being performed. In this case, entering into a lower-numbered MODE will provide the pressure increase needed for the performance of the Surveillance. However, upon reaching [945] psig, 12 hours would be allowed to complete the Surveillance. (The 25% extension does not apply because this is a one-time performance Frequency.) If not performed within this interval, it would then become a failure to perform a Surveillance within the specified Frequency. Only then would MODE changes be restricted in accordance with SR 3.0.4 and the provisions of SR 3.0.3 apply. Once the Surveillance is performed, the 92-day Frequency applies. If the 92-day interval (plus 25%) were to expire when pressure is ≥ [945] psig, then that would be a failure to perform the Surveillance within the specified Frequency. In summary, the second Frequency is meant to be chosen only if the first Frequency expires at a time when pressure is less than [945] psig, and not every time [945] psig is reached. The condition of the Frequency (e.g., when reactor steam dome pressure is ≥ [945] psig) may be expressed as a Note or as prose as in this example.

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EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE	FREQUENCY
Verify all AVERAGE PLANAR LINEAR HEAT GENERATION RATES (APLHGRs) are less than or equal to the limits specified in the CORE OPERATING LIMITS REPORT (COLR).	Once within 12 hours after ≥ 25% RATED THERMAL POWER (RPT) AND 24 hours thereafter

This example has two Frequencies. The first is a one-time performance Frequency, and the second is a regular Frequency. The logical connector "AND" requires that both Frequencies be met. Each time reactor power is increased (from a power level less than 25% RTP) to 25% RTP or greater, the Surveillance must be performed within 12 hours. Once the Surveillance is initially completed, the "thereafter" means that the regular 24-hour Frequency applies. If reactor power decreases below 25% RTP, the measurement of either interval stops. New intervals start upon power reaching 25% RTP.

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EXAMPLES (continued)

EXAMPLE 1.4-4

SURVEILLANCE	FREQUENCY
-------------------NOTES------------------ 1. Only required with THERMAL POWER ≥ 25% RATED THERMAL POWER (RTP). 2. SR 3.0.4 is not applicable. -- Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power [, plus any gain adjustment required by LCO 3.2.4,] is ≤ 25% RTP.	7 days

This example requires that the Surveillance be met only above 25% RTP. The Note "Only required . . ." means this Surveillance may be performed in any MODE or other specified condition where unit status would allow successful completion.

The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. If the Surveillance was not performed within the 7-day (plus 25%) interval, but operation was below 25% upon expiration of the interval, it would not constitute a failure to meet the LCO. The Surveillance is not required below 25% RTP, even though the LCO, per its Applicability, may be required to be met.

The Surveillance is modified by another Note that indicates that SR 3.0.4 is not applicable. This means that MODE changes are not restricted by the nonperformance of this Surveillance. However, upon reaching 25% RTP, if the Surveillance is not performed within 12 hours as required by the provisions of SR 3.0.4, only then would MODE changes be restricted in accordance with SR 3.0.4 and the provisions of SR 3.0.3 apply.

1.0 USE AND APPLICATION

1.5 OPERABILITY Definition Implementation Guidance

PURPOSE

This section sets forth the guidance used in the development of the new Standard Technical Specifications (STS) for implementing the definition of OPERABLE-OPERABILITY. The following guidance establishes an acceptable way to follow the rules for implementing the general principles embodied by the definition of OPERABILITY contained in Section 5.8.

The guidance will provide the necessary direction to lead and follow on facilities converting to the new STS to develop new Technical Specifications (TS) unique to their facilities and to properly integrate them into the new STS in a manner that satisfies the requirements set forth in the definition of OPERABILITY.

BACKGROUND

The definition of OPERABLE-OPERABILITY embodies a principle that a system, subsystem, train, component, or device (hereafter referred to as the system) can perform its function(s) only if all necessary support systems are capable of performing their related support functions. This definition extends the requirements of an LCO for those systems that directly perform a specified function (supported systems) to those that perform a required support function (support systems).

Establishing and maintaining the OPERABILITY of systems is an ongoing and continuous decision-making process. This process includes routine facility walkdowns or tours and following procedures governing the day-to-day operation of the facility. It also includes the performance of procedures that implement SRs, inservice testing and inspection programs, and other programs specified in Section 5.7.4, and procedures that implement preventive maintenance requirements. Many such procedures contain acceptance criteria for establishing, verifying, or demonstrating OPERABILITY.

In addition to the above proactive process for establishing and maintaining OPERABILITY, there is a reactive process

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BACKGROUND (continued)

which takes place as part of the corrective action for a nonconforming or degraded condition on a system. Upon identification of such a condition, the effect of that condition on the OPERABILITY of the affected system should be determined in a timely manner commensurate with the safety significance of the issue. Once a determination of inoperability is made that involves the TS, the actions to be followed are governed by the implementation rules presented in Section 5.8. These rules are repeated below for convenience.

IMPLEMENTATION RULES

RULE 1: Upon determining that a support or supported system is inoperable, the system is immediately declared inoperable.

RULE 2: When a support or supported system that is included in the TS is declared inoperable, the corresponding LCO is immediately entered.

RULE 3: When a support system is declared inoperable, all of its supported systems are immediately declared inoperable and the associated LCOs are entered unless otherwise justified:

a. In the Bases of the support system LCO; or

b. In the Bases of the supported system LCO, or FSAR, or both, if the support system is not included in the TS.

RULE 4: When a support or supported system is declared inoperable in one train, the corresponding independent support or supported systems and all other associated support systems in the opposite train(s) are verified to be OPERABLE to ensure that the complete capability to perform the specified safety function has not been lost (i.e., loss of functional capability).

RULE 5: Upon determining that a loss of functional capability condition exists, actions specified in the support or supported system LCOs are taken to mitigate the loss of the functional capability.

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IMPLEMENTATION GUIDANCE

The guidance for following the above rules for implementing the general principles of OPERABILITY contained in Section 5.8 is presented in three parts; each one is self contained. These parts explain how to implement the above rules for inoperable supported systems, inoperable support systems in the TS, and inoperable support systems outside the TS.

The examples discussed after the guidance illustrate how the guidance was applied to various cases of support and supported systems interactions encompassed in the TS.

a. Supported System Inoperability

1. Upon declaring a supported system inoperable, the ACTIONS of the supported system's LCO should be entered immediately for all of the Conditions that apply. The associated Required Actions should be accomplished within the specified Completion Times as required by LCO 3.0.2.

2. Upon failure to perform the Required Action to restore the supported system to an OPERABLE status (the restoration Action) by the end of the specified Completion Time; or any other remedial Required Action by the end of its specified Completion Time, Required Actions (either specified in the supported system LCO's ACTIONS or LCO 3.0.3), such as bringing the facility to a MODE outside the Applicability of the LCO, should be taken.

3. Upon declaring a supported system inoperable, a loss of function verification should be performed immediately. A supported system LCO's ACTIONS usually includes sufficient Actions to ascertain a loss of function as well as Actions to mitigate a loss of function. Therefore, the loss of function should need only be verified as directed by the supported system LCO's ACTIONS.

b. Technical Specifications Support System Inoperable

1. Upon declaring a TS support system inoperable, all of the systems that it supports should be declared

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IMPLEMENTATION GUIDANCE (continued)

inoperable at the same time, unless justified differently in the Bases for the support system LCO.

The ACTIONS for the support system LCO and the ACTIONS for all its supported system LCOs should be entered immediately for all ACTIONS Conditions that apply. All associated Required Actions should be accomplished within the specified Completion Times as required by LCO 3.0.2.

The Completion Time for accomplishing the Required Action to restore a support system to OPERABLE status (after the supported systems are declared inoperable) should not be greater than the most limiting restoration Action Completion Time of all the supported systems that are made inoperable.

2. Upon declaring a TS support system inoperable, a loss of function verification should be performed immediately. When a TS support system and its supported systems are declared inoperable at the same time, loss of function should need only be verified as directed by the LCO ACTIONS of the supported systems. This is because a supported system LCO's ACTIONS usually include sufficient Actions to ascertain a loss of function as well as Actions to mitigate a loss of function.

3. When a TS support system LCO's ACTIONS specifically permit an exception to immediately declaring a supported system inoperable, the exception is permitted for the time allowed as long as the justification for the exception is immediately verified and continues to be valid for the circumstances, and as long as no loss of function condition exists.

   Such exceptions should be disregarded when performing the loss of function verification, unless justified otherwise in the Bases of the support system LCO. The LCO ACTIONS for the supported systems may be utilized to guide the loss of function verification. However, this verification should always include verification of the OPERABILITY of:

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IMPLEMENTATION GUIDANCE (continued)

a) corresponding independent (redundant and diverse) support system(s) in the opposite train, and

b) corresponding independent (redundant and diverse) supported system(s) in the opposite train, and

c) all other associated support systems, for which an exception is permitted to immediately declaring their supported systems inoperable, in the opposite train.

If any of the above support or supported systems are found inoperable, then a loss of function condition may exist. If a loss of function exists or the justification for the exception is no longer valid for the circumstances, then all of the supported systems should be declared inoperable immediately, or the facility should be brought to a MODE outside the Applicability of the LCO by the support system LCO's ACTIONS, or both.

4. Upon failure to perform the Required Action to restore the TS support system to an OPERABLE status by the end of the specified Completion Time, or any other remedial Required Action by the end of its specified Completion Time, Required Actions such as bringing the facility to a MODE outside the Applicability of the LCO, or (if an exception was permitted) declaring supported systems inoperable, or both should be taken. Such Actions are usually specified in the TS support system LCO's ACTIONS.

c. Non-Technical Specifications Support System Inoperable

1. Upon declaring a non-TS support system inoperable, all of the systems that it supports should be declared inoperable at the same time, unless justified differently in the Bases of the supported system or the FSAR, or both. (If justification is in the FSAR, the supported system LCO's Bases should identify the FSAR section as a reference.) For those supported systems that are in the TS, the

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IMPLEMENTATION GUIDANCE (continued)

ACTIONS of the supported system LCOs should be entered immediately for all ACTIONS Conditions that apply. All associated Required Actions should be accomplished within the specified Completion Times as required by LCO 3.0.2.

The time allowed for restoring the non-TS support system to OPERABLE status (after the supported systems are declared inoperable) is the most limiting restoration Action Completion Time of all the supported systems that are made inoperable.

2. Upon declaring a non-TS support system inoperable, a loss of function verification should be performed immediately. When a non-TS support system and its supported systems are declared inoperable at the same time, loss of function should need only be verified as directed by the LCO ACTIONS of the supported systems.

3. When an exception to immediately declaring a supported system inoperable is justified either by the supported system LCO Bases section or the FSAR, or both, the exception is permitted for the time stated in the justification as long as the justification is immediately verified and continues to be valid for the circumstances, and as long as no loss of function condition exists.

   Such exceptions should be disregarded when performing the loss of function verification, unless justified otherwise in the Bases of the supported system(s) LCO, or the FSAR, or both. The LCO ACTIONS for the supported systems may be utilized to guide the loss of function verification. However, this verification should always include verification of the OPERABILITY of:

   a) corresponding independent (redundant and diverse) support system(s) in the opposite train, and

   b) corresponding independent (redundant and diverse) supported system(s) in the opposite train, and

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IMPLEMENTATION GUIDANCE (continued)

c) all other associated support systems, for which an exception is permitted to immediately declaring their supported systems inoperable, in the opposite train.

If any of the above support or supported systems are found inoperable, then a loss of function condition may exist. If a loss of function exists, or the justification for the exception is no longer valid for the circumstances, or the time allowed by the exception expires before restoring the non-TS support system to OPERABLE status, then all of the supported systems should be declared inoperable immediately, or the facility should be brought to a MODE outside the Applicability of the supported system LCOs, or both.

EXAMPLES

The above guidance for implementing the definition of OPERABILITY is intended to ensure that when a support system is found inoperable that:

a. Operation of the facility at risk is limited to the time specified by the most limiting LCO ACTIONS of the associated supported systems, or as otherwise justified;

b. The appropriate remedial Actions specified by the supported system LCO's ACTIONS (to compensate for the inoperable supported system) are taken; and

c. A total loss of the capability to perform a specified safety function does not go undetected.

As described in the above rules and guidance, these objectives are generally ensured by entering the ACTIONS of all of the supported system LCOs upon discovery of an inoperable necessary support system.

Ideally, the ACTIONS for the support system LCO should specify Required Actions that alone are sufficient to accomplish the above objectives, (i.e., that accomplish the same result that entering the ACTIONS of all of the supported system LCOs would accomplish). However, only a few of the ACTIONS for support system LCOs in the TS have been written this way.

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EXAMPLES (continued)

The following examples illustrate how implementation of the above guidance accomplishes the above objectives for three general situations based upon the three basic ways that support system LCO ACTIONS are related to the associated supported system LCO ACTIONS. For greater clarity, these examples use the commonly used term, allowed outage time (AOT). (As discussed in Section 1.3, the term AOT refers to a Completion Time associated with a Required Action to restore compliance with the entered LCO.) In most cases, failure to meet an AOT would require a facility shutdown.

EXAMPLE 1.5-1

Situation 1. In this situation the AOT for the support system is either the same as or less than the AOT for a system it supports. Additionally, the supported system LCO's ACTIONS do not specify any special Required Actions (such as verifying redundant component OPERABILITY or performance of a Surveillance) that have Completion Times equal to or shorter than the support system's AOT. Therefore, entry into the ACTIONS of the supported system LCO will not result in shutting down the facility prior to the expiration of the support system AOT. This is the most common situation that occurs in the TS.

In this situation, however, the supported system LCO's ACTIONS should still be entered and the Completion Time clocks for the Conditions that apply should still be started. This is because:

a. Only the supported system LCO's ACTIONS specify the appropriate Action in the event that a redundant or diverse component or system covered by that LCO is already inoperable or becomes inoperable;

b. If a second independent TS support system for one of the affected supported systems becomes inoperable and the first support system is then restored to OPERABLE status, then it would be possible to operate the facility at risk with an inoperable supported system for longer than its specified AOT. (This is similar to the multiple Condition scenario within a single LCO's ACTIONS that Completion Time convention rule 1.3.3 is specified to prevent.); and

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EXAMPLES (continued)

c. It should be also necessary to enter the ACTIONS of the supported system LCO to ensure that any special Required Action (even one with a Completion Time longer that the support system AOT) that is appropriate is recognized and accomplished.

Examples in the new STS of a support system LCO and supported system LCO corresponding to Situation 1

vs - B&W [3.5.4, Borated Water Storage Tank; and 3.5.2, Em[illegible] Core Cooling System.]

vs - W [3.5.4, Refueling Water Storage Tank; and 3.5.2, Emergency Core Cooling System.]

vs - CE [3.5.4, Refueling Water Tank; and 3.5.2, Emergency Core Cooling System.]

vs - BWR/4 [3.8.7, Distribution Systems - Operating; and 3.7.2 Service Water System and Ultimate Heat Sink.]

vs - BWR/6 [3.8.7, Distribution Systems - Operating; and 3.6.1.7, Residual Heat Removal Containment Spray.]

<u>EXAMPLE 1.5-2</u>

<u>Situation 2</u>. In this situation, the AOT for the support system is either the same as or less than the AOT for a system it supports (the same as in Situation 1). However, the ACTIONS of the supported system LCO specify special Required Actions (other than restoration Required Actions) that have Completion Times shorter than the support system's AOT. In most cases, upon failure to accomplish such required Actions, the supported system LCO's ACTIONS require shutting down the facility; this would occur prior to the expiration of the support system's AOT.

Therefore, the supported system LCO's ACTIONS must be entered upon discovery of an inoperable necessary support system to ensure that the special Actions required by the ACTIONS of the supported system LCO are accomplished. This is because the acceptability of the AOT for a supported system is based, in part, upon the assumption that these special Actions will be accomplished.

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EXAMPLES (continued)

EXAMPLE 1.5-2 (continued)

Examples in the new STS of a support system LCO and a supported system LCO corresponding to Situation 2 are:

vs - B&W, W, CE

[3.8.7, Distribution Systems - Operating; and 3.7.9, Ultimate Heat Sink. When the AC electrical bus that supplies a cooling tower fan is inoperable.]

vs - BWR/4/6

[3.8.7, Distribution Systems - Operating; and 3.5.3, Reactor Core Isolation Cooling System. When the electrical bus that supplies a motor operated valve in the RCIC system is inoperable.]

EXAMPLE 1.5-3

Situation 3. In this situation, the AOT for the support system may be the same as, less than, or greater than the AOT for a system it supports; however, the support system LCO's ACTIONS specify that the supported system(s) be declared inoperable either immediately or after a delay period, which is usually equal to the support system's AOT.

In this case, neither the AOT for the supported system is started nor its LCO's ACTIONS entered until the delay period has expired. When such a support system is determined to be inoperable, the associated LCO Bases section should be reviewed to verify that the existing circumstances are enveloped by the justification for the delay period as stated in the Bases. If not, then the supported system LCO's ACTIONS should be entered immediately. In some cases, the delay period is allowed because of the performance of special Actions specified in the support system LCO's ACTIONS; failure to perform such Actions would also require entry into the supported system LCO's ACTIONS.

Examples in the new STS of a support system LCO and a supported system LCO corresponding to Situation 3 are:

vs - B&W

[3.3.8, Emergency Diesel Generator Loss of Power Start; and 3.8.1, AC Sources - Operating.]

vs - W

[3.3.6, Miscellaneous Safeguards Actuation (Function 1, Emergency Diesel start on loss of voltage in single bus); and 3.8.1, AC Sources - Operating.]

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EXAMPLES (continued)

EXAMPLE 1.5-3 (continued)

vs - CE

[3.3.3, Emergency Diesel Generator Loss of Voltage Start; and 3.8.1, AC Sources - Operating.]

vs - BWR/4/6

[3.3.8.1, Loss of Power Instrumentation; and 3.8.1 AC Sources - Operating.]

[Final Note: A situation may still exist in the TS, in which the AOT for a support system is longer than the AOT for a system it supports (that does not correspond to Example 1.5-3). In this situation, the AOT for the supported system governs, unless otherwise justified. An example of this situation, if it exists, should be discussed here.]

2.0 SAFETY LIMITS (SLs)

2.1 SAFETY LIMITS

2.1.1 Reactor Core SLs

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

THERMAL POWER shall be ≤ 25% of RATED THERMAL POWER (RTP).

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

MINIMUM CRITICAL POWER RATIO (MCPR) shall be ≥ [1.07] for two-loop recirculation operation or ≥ [1.08] for single-loop recirculation operation.

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

2.1.2 Reactor Steam Dome Pressure SLs

Reactor steam dome pressure shall be ≤ 1325 psig.

2.2 SAFETY LIMIT VIOLATION

With any SL not met, the following actions shall be met:

2.2.1 Within 2 hours:

a. Restore compliance with all SLs; and

b. Insert all insertable control rods.

2.2.2 Within 1 hour, notify the NRC Operations Center in accordance with 10 CFR 50.72.

2.2.3 Within 24 hours, notify the [General Manager—Nuclear Plant and Vice President—Nuclear Operations] and the [plant review methods specified in Specification 5.5.2].

(continued)

(continued)

2.2 SAFETY LIMIT VIOLATION (continued)

2.2.4 Within 30 days of the violation, a Licensee Event Report (LER) shall be prepared pursuant to 10 CFR 50.73. The LER shall be submitted to the Commission, the [plant review methods specified in Specification 5.5.2], and the [General Manager—Nuclear Plant and Vice President—Nuclear Operations].

2.2.5 Operation of the unit shall not be resumed until authorized by the Commission.

3.0 APPLICABILITY

3.0 Limiting Conditions 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.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, immediately enter the associated ACTIONS for all the Conditions that apply at the time of discovery and subsequently for any other Conditions at the time they become applicable. Perform the Required Action(s) for each Condition within the specified Completion Time(s), in accordance with the Completion Time convention of Specification 1.3.

If an entered Condition is corrected or is no longer applicable prior to expiration of its specified Completion Time(s), completing the performance of the Required Action(s) for that Condition is not required unless otherwise stated.

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met or an associated ACTION is not provided, the facility 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 facility, as applicable, in:

a. MODE 2 within 7 hours;

b. MODE 3 within 13 hours; and

c. MODE 4 within 37 hours.

Exceptions to these requirements 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 applicable in MODES 1, 2, and 3.

(continued)

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 Conditions in the Applicability that are required to comply with ACTIONS. Other exceptions to this specification are stated in the individual specifications. These exceptions allow entry into MODES or other specified Conditions in the Applicability when the associated ACTIONS to be entered allow facility operation in the MODE or other specified Condition for only a limited period of time.

LCO 3.0.5

Special operations LCOs in Section 3.10 allow specified Technical Specification (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 taken in lieu of the ACTIONS of the applicable specifications. When a special operations LCO is not desired to be met, entry into a MODE or other specified Condition in its Applicability shall only be made in accordance with the other applicable specifications.

[NOTE: The decision to retain this LCO is pending review of the Bases for the special operations LCOs.]

3.0 APPLICABILITY

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 an SR, 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. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits; however, successful performance of the Surveillances is necessary for a determination of OPERABILITY.

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.

For Frequencies specified as "once," the above interval extension does not apply.

If a Required Action requires performance of a Surveillance or its Completion Time requires periodic performance of "once per...," the above Frequency extension applies to the repetitive portion, but not to the initial portion of the Completion Time.

Exceptions to these requirements 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 equipment inoperable or the variable outside the specified limits may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Surveillance interval, whichever is less. This delay period is permitted to allow performance of the Surveillance.

(continued)

(continued)

SR 3.0.3 (continued)

If the Surveillance is not performed within the delay period, then upon expiration of the delay period the equipment must be declared inoperable, or the variable declared outside the specified limits, and the applicable Condition(s) of the associated LCO must be entered. The Completion Times of the Required Actions begin immediately upon expiration of the delay period.

When the Surveillance is performed within the delay period but the Surveillance is failed, immediately upon failure of the Surveillance the equipment must be declared inoperable, or the variable declared outside the specified limits, and the applicable Condition(s) of the associated LCO must be entered. The Completion Times of the Required Actions begin immediately upon failure of the Surveillance.

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 SRs and the applicable Section 5.7.4 Program requirements have been met. This provision shall not prevent passage through or to MODES or other specified Conditions in compliance with Required Actions.

Exceptions to these requirements are stated in the individual specifications. Each SR, for which an exception to SR 3.0.4 is stated in the individual specifications, shall be met within a Completion Time of 12 hours after entering the prerequisite MODE or other specified Condition in the Applicability of the associated LCO, unless otherwise specified.

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.

-----NOTE-----
For this LCO, Condition A, Condition C, Condition D, or Condition E is treated as an independent entity with an independent Completion Time per each Condition.

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	Fully insert all insertable control rods.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. SDM not within limits in MODE 4.	D.1	Fully insert all insertable control rods.	1 hour
	AND		
	D.2	Initiate action to restore [secondary containment] to OPERABLE status.	1 hour
	AND		
	D.3	Initiate action to restore 1 Standby Gas Treatment System (SGTS) subsystem to OPERABLE status.	1 hour
	AND		
	D.4	Initiate action to restore 1 secondary containment isolation valve and associated instrumentation to OPERABLE status in each associated penetration not isolated.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
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 1 or more fuel assemblies.	Immediately
	AND		
	E.3	Initiate action to restore [secondary containment] to OPERABLE status.	1 hour
	AND		
	E.4	Initiate action to restore 1 SGTS subsystem to OPERABLE status.	1 hour
	AND		
	E.5	Initiate action to restore one secondary containment isolation valve and associated instrumentation to OPERABLE status in each associated penetration not isolated.	1 hour

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.1.1	Verify SDM is: a. $\geq$ [0.38]% $\Delta k/k$ with the highest worth control rod analytically determined, or b. $\geq$ [0.28]% $\Delta k/k$ with the highest worth control rod determined by test.	Prior to each fuel movement during fuel loading sequence AND -----NOTE----- Only required after fuel movement or control rod replacement within the reactor pressure vessel --------------- Once within 4 hours after criticality

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Reactivity Anomalies

LCO 3.1.2 The reactivity difference between the monitored core K_{eff} and the predicted core K_{eff} 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.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	Verify core reactivity difference between the monitored core K_{eff} and the predicted core K_{eff} is within $\pm$ 1% $\Delta k/k$.	Once within 24 hours after reaching equilibrium conditions following startup after fuel movement or control rod replacement within the reactor pressure vessel AND 31 effective full power days thereafter

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Control Rod OPERABILITY

LCO 3.1.3 Each control rod shall be OPERABLE.

-----------------------------NOTE-----------------------------
For this LCO, all control rods are treated as an entity for this LCO with a single Completion Time.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One withdrawn control rod stuck.	A.1	--------NOTE-------- A stuck rod may be bypassed in the Rod Action Control System (RACS) in accordance with SR 3.1.6.2, if required, to allow continued operation. -------------------- Restore stuck control rod to OPERABLE status.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 AND	Disarm the associated control rod drive (CRD).	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	---------NOTE-------- Not applicable when > [10]% RATED THERMAL POWER (RTP). -------------------- Verify all inoperable control rods not in compliance with [banked position withdrawal sequence (BPWS)] are separated by ≥ 2 OPERABLE control rods.	1 hour
	AND		
	B.3	---------NOTE-------- Not applicable when ≤ low power setpoint of the Reactor Protection System. -------------------- Perform SR 3.1.3.2 and SR 3.1.3.3 for each withdrawn OPERABLE control rod.	24 hours
	AND		
	B.4	Verify SHUTDOWN MARGIN is within the limits of LCO 3.1.1.	72 hours
C. Required Actions and associated Completion Times of Condition B not met.	C.1	Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two or more withdrawn control rods stuck.	D.1	Disarm the associated control rod drives.	1 hour
	AND		
	D.2	Be in MODE 3.	12 hours
E. Eight or fewer control rods inoperable for reasons other than Condition A or D.	E.1	Restore the control rod(s) to OPERABLE status.	2 hours
F. Required Action and associated Completion Time of Condition E not met.	F.1	---------NOTE-------- Inoperable control rods may be bypassed in RACS in accordance with SR 3.1.6.2, if required, to allow insertion of inoperable control rod(s) and continued operation. --------------------	
		Fully insert inoperable control rod(s).	1 hour
	AND		
	F.2	Disarm the associated control rod drive(s).	2 hours
	AND		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. (continued)	F.3	--------NOTE-------- Not applicable when > [10%] RTP. -------------------- Verify all inoperable control rods not in compliance with [BPWS] are separated by ≥ 2 OPERABLE control rods.	2 hours
G. Required Actions and associated Completion Times of Condition F not met. <u>OR</u> [Nine or more] control rods inoperable.	G.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
SR 3.1.3.2	Insert each fully withdrawn control rod at least 1 notch.	7 days after THERMAL POWER > [10]% RTP

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.3.3	Insert each partially withdrawn control rod at least 1 notch.	31 days after THERMAL POWER > [10]% RTP
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 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4
SR 3.1.3.5	Demonstrate each control rod does not go to the overtraval position.	Once each time the control rod is withdrawn to "Full Out" position AND Once prior to declaring control rod(s) OPERABLE when work on control rod(s) or CRD System could affect coupling

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Control Rod Scram Times

LCO 3.1.4 No more than [14] OPERABLE control rods shall be "slow," in accordance with Table 3.1.4-1.

AND

No more than 2 OPERABLE control rods which 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

SURVEILLANCE		FREQUENCY
------NOTE------ During single control rod scram time test, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator. ------------		
SR 3.1.4.1	Demonstrate each control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ [950] psig.	-------NOTE----- Only required after fuel movement within the reactor pressure vessel or after each reactor shutdown ≥ 120 days --------------- Once prior to exceeding 40% RATED THERMAL POWER (RTP)
SR 3.1.4.2	Demonstrate, 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 [950] psig.	120 days of cumulative operation in MODE 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.3	Demonstrate each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure ≤ [800] psig.	------NOTE----- Only required when work on control rod or CRD System could affect scram times --------------- Once prior to declaring control rod(s) OPERABLE
SR 3.1.4.4	Demonstrate each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ [950] psig.	------NOTE----- Only required when work on control rod or CRD System could affect scram times --------------- Once prior to exceeding 40% RTP

TABLE 3.1.4-1 (Page 1 of 1)

Control Rod Scram Times

-----------------------------------NOTE-----------------------------------

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

2. Control rods with scram times > [ ] seconds are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."

SCRAM TIMES (a)
(seconds)

NOTCH POSITION	REACTOR STEAM DOME PRESSURE(b) 0 psig	[950] psig	[1050] psig
[43]	(c)	[0.30]	[0.31]
[29]	(c)	[0.78]	[0.84]
[13]	[ ]	[1.40]	[1.53]

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

(b) For intermediate reactor steam dome pressures, the scram time criteria are determined by linear interpolation.

(c) For reactor steam dome pressure < [950] psig, only notch position [13] scram time limit applies.

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.

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

1. When the pressure in any one of the control rod scram accumulators cannot be verified, this LCO must be entered, and the applicable Required Actions of Conditions A, B, and C apply.

2. For this LCO, all control rod scram accumulators are treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One control rod scram accumulator inoperable with reactor steam dome pressure ≥ [800] psig.	A.1	Restore control rod scram accumulator to OPERABLE status.	8 hours
	<u>OR</u>		
	A.2.1	Declare the associated control rod scram time slow.	8 hours
	<u>AND</u>		
	A.2.2	Declare the associated control rod inoperable.	8 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Two or more control rod scram accumulator(s) inoperable with reactor steam dome pressure ≥ [900] psig.	B.1	Verify pressure supplied to charging water header is ≥ [1520] psig.	20 minutes
	AND		
	B.2.1	Restore control rod scram accumulator(s) to OPERABLE status.	1 hour
	OR		
	B.2.2.1	Declare the associated control rod(s) scram time "slow."	1 hour
		AND	
	B.2.2.2	Declare the associated control rod(s) inoperable.	1 hour
C. One or more control rod scram accumulator(s) inoperable with reactor steam dome pressure < [900] psig.	C.1	Verify pressure supplied to charging water header is ≥ [1520] psig.	Immediately
	AND		
	C.2.1	Restore control rod scram accumulator(s) to OPERABLE status.	1 hour
		OR	
	C.2.2	Declare the associated control rod(s) inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Actions and associated Completion Times of Condition not met. OR Reactor steam dome pressure inoperable, or changing water header pressure inoperable. AND One or more control rod scram accumulators inoperable, or one or more control rod scram times "slow."	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 $\geq$ [1520] psig.	7 days

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Rod Pattern Control

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

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Eight or fewer OPERABLE control rods not in compliance with [BPWS].	A.1	---------NOTE-------- Affected control rods may be bypassed in Rod Action Control System (RACS) in accordance with SR 3.1.6.2. --------------------- Move affected control rod(s) to correct position.	8 hours
	OR		
	A.2	Declare affected control rods inoperable.	8 hours
B. Nine or more OPERABLE control rods not in compliance with [BPWS].	B.1	---------NOTE-------- Affected control rods may be bypassed in RACS in accordance with SR 3.1.6.2 for insertion only. ---------------------	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)		Suspend withdrawal of control rods.	Immediately
	AND		
	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
SR 3.1.6.2	Verify the bypassing and movement of control rods required to be bypassed in RACS by a second licensed operator or other qualified member of the technical staff.	Prior to and during the movement of control rods bypassed in RACS

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC System subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One SLC System subsystem inoperable.	A.1	Restore SLC System subsystem to OPERABLE status.	7 days
B. Two SLC System subsystems inoperable AND Less than a total of 8 control rods stuck, scram time "slow," and inoperable.	B.1	Restore 1 SLC System subsystem to OPERABLE status.	8 hours
C. Required Actions and associated Completion Times not met.	C.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 limits of Figure 3.1.7-1] [≥ [4530] gallons].	24 hours
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is within the limits of [Figure 3.1.7-1].	24 hours
SR 3.1.7.3	Verify temperature of pump suction piping is within the limits of [Figure 3.1.7-1].	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 added to solution AND Once within 24 hours after solution temperature is restored within the limits of [Figure 3.1.7-1]

(continued)

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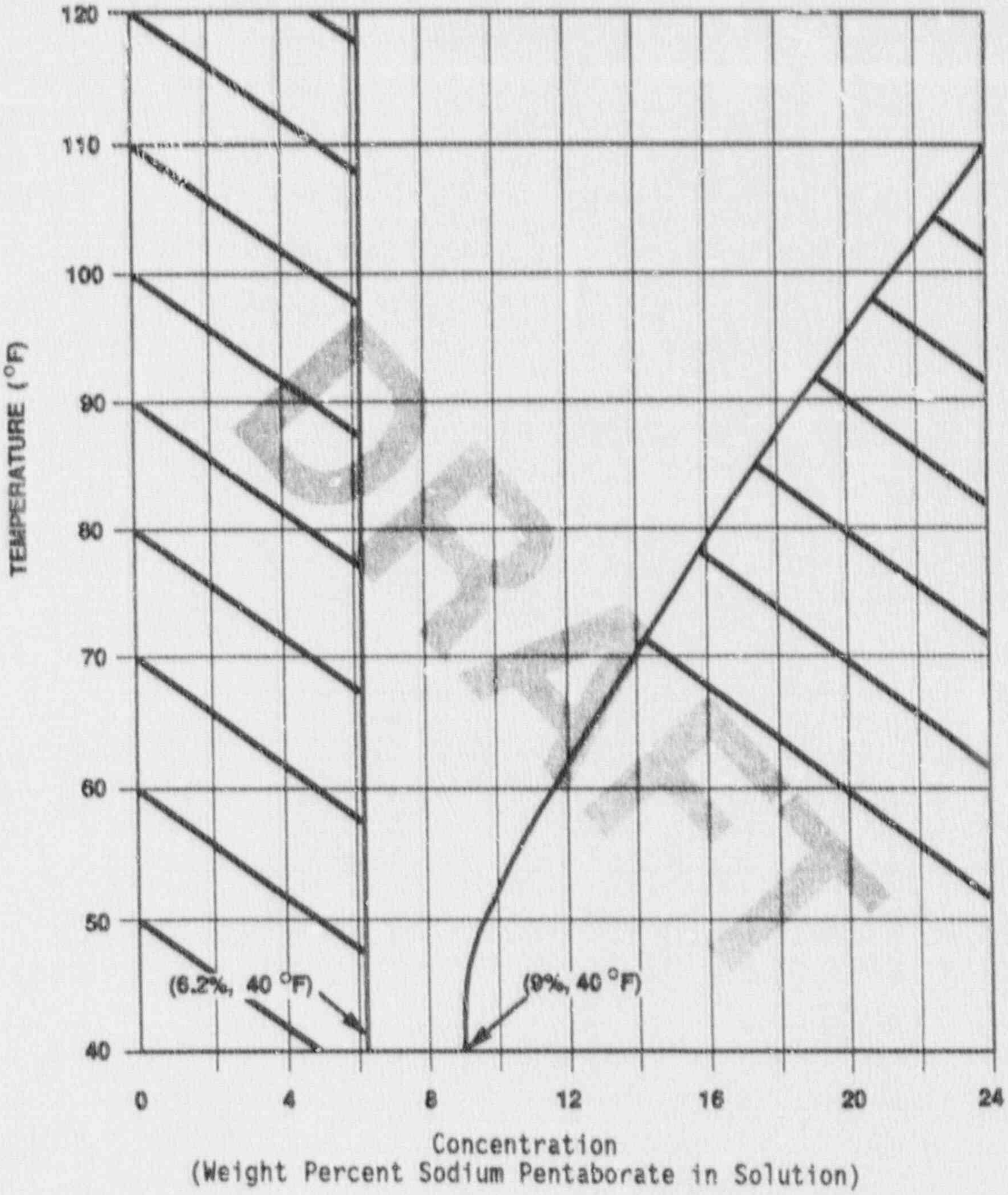
SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.6	Verify each SLC System manual, power-operated, or automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.1.7.7	Demonstrate each pump develops a flow rate ≥ [41.2] gpm at a discharge pressure ≥ [1300] psig.	[In accordance with the Inservice Testing Program OR 92 days]
SR 3.1.7.8	Demonstrate flow through one SLC System subsystem from pump into reactor pressure vessel.	[18] months on a STAGGERED TEST BASIS
SR 3.1.7.9	Demonstrate 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 3.1.7-1]
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ [60.0] atom percent B-10.	[18] months



[Figure 3.1.7-1 (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.

---NOTE---
For this LCO, all SDV vent and drain valves are treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One valve inoperable in 1 or more SDV vent or drain lines.	A.1	Verify that the redundant valve in the associated line is OPERABLE.	Immediately
	AND		
	A.2	Restore valves to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Both valves inoperable in 1 or more SDV vent or drain lines.	B.1	---------NOTE-------- Valves in an isolated line may be opened under administrative control to allow draining and venting of the SDV. ---------------------	
	B.1	Isolate the associated line.	8 hours
	AND		
	B.2	Verify that the SDV Water Level-High scram instrumentation (LCO 3.3.1.1) is OPERABLE.	8 hours
	AND		
	B.3	Restore valve(s) to OPERABLE status.	7 days
C. Required Actions and associated Completion Times not met.	C.1	Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	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	Demonstrate each SDV vent and drain valve: a. Closes in ≤ [30] seconds after receipt of an actual or simulated scram signal. b. Opens when the actual or simulated scram signal is reset.	[18] months

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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 CORE OPERATING LIMITS REPORT (COLR).

APPLICABILITY: THERMAL POWER ≥ 25% RATED THERMAL POWER (RTP).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any APLHGR not within limits.	A.1 Restore APLHGR to within limits.	2 hours
B. Required Action and associated Completion Time not met. OR APLHGR cannot be determined because the instrumentation for computing APLHGR is inoperable.	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 $\geq$ 25% RTP <u>AND</u> 24 hours thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

LCO 3.2.2 The MCPR shall be greater than or equal to the MCPR limit specified in the CORE OPERATING LIMITS REPORT (COLR).

APPLICABILITY: THERMAL POWER $\geq$ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MCPR not within limit.	A.1 Restore MCPR to within limit.	2 hours
B. Required Action and associated Completion Time not met. OR MCPR cannot be determined because the instrumentation for computing MCPR is inoperable.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify MCPR is greater than or equal to the limit specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND 24 hours thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.3 LINEAR HEAT GENERATION RATE (LHGR) (Applicable to non-GE Fuel Only)

LCO 3.2.3 The LHGR shall be less than or equal to the limits specified in the CORE OPERATING LIMITS REPORT (COLR).

APPLICABILITY: THERMAL POWER ≥ 25% RATED THERMAL POWER (RTP).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any LHGR not within limits.	A.1 Restore LHGR to within limits.	2 hours
B. Required Action and associated Completion Time not met. OR LHGR cannot be determined because the instrumentation for computing LHGR is inoperable.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify that all LHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after $\geq$ 25% RTP <u>AND</u> 24 hours thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.4 Average Power Range Monitor (APRM) Gain and Setpoints

LCO 3.2.4 The APRM gain or setpoints shall be set such that MAXIMUM FRACTION OF LIMITING POWER DENSITY (MFLPD) shall effectively be less than or equal to Fraction of RATED THERMAL POWER (FRTP).

APPLICABILITY: THERMAL POWER ≥ 25% RATED THERMAL POWER (RTP).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. APRM gain, setpoints, or MFLPD not within limit.	A.1	Restore MFLPD to within limit.	6 hours
	OR		
	A.2	Adjust the APRM setpoints to the relationship specified in the CORE OPERATING LIMITS REPORT.	6 hours
	OR		
	A.2	Adjust the APRM gain such that APRM readings are ≥ 100% of MFLPD.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Actions and associated Completion Times not met. OR MFLPD cannot be determined because the instrumentation for computing MFLPD is inoperable.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.4.1 Verify MFLPD less than or equal to FRTP.	Once within 12 hours after $\geq$ 25% RTP AND 24 hours thereafter

3.3 INSTRUMENTATION

3.3.1.1 Reactor Protection System (RPS) Instrumentation

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

APPLICABILITY: According to Table 3.3.1.1-1.

------------------------------NOTE------------------------------
For this LCO, each function is treated as an independent entity with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required channel inoperable in 1 or more functions.	A.1 Restore channel(s) to OPERABLE status. OR A.2 --------NOTE-------- Only applicable if placing inoperable channel(s) in trip would not result in a scram [or a recirculation pump trip]. -------------------- Place inoperable channel(s) or the trip system in trip.	12 hours 12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. With 2 or more required channels inoperable in 1 or more functions.	B.1	Ensure each function maintains trip capability for each trip system.	1 hour
	AND		
	B.2	Ensure for each function the channel(s) in 1 trip system are OPERABLE or in trip.	6 hours
C. Required Actions and associated Completion Times of Condition A or B not met.	C.1	Enter the Condition(s) referenced in Table 3.3.1.1-1 for each function whose trip system or channel(s) have not been placed in trip.	Immediately
D. As required by Required Action C.1 and referenced in Table 3.3.1.1-1.	D.1	Reduce THERMAL POWER to < [40]% RATED THERMAL POWER (RTP).	2 hours
E. As required by Required Action C.1 and referenced in Table 3.3.1.1-1.	E.1	Be in MODE 2.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. As required by Required Action C.1 and referenced in Table 3.3.1.1-1.	F.1	Be in MODE 3.	12 hours
G. As required by Required Action C.1 and referenced in Table 3.3.1.1-1.	G.1	Initiate action to insert all insertable control rods in core cells containing 1 or more fuel assemblies.	Immediately
H. One required channel inoperable.	H.1	Verify that all required support features associated with the other redundant channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
NOTES 1. Refer to Table 3.3.1.1-1 to determine which SRs shall be performed for each RPS function. [2. A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the trip system in trip, provided at least 1 OPERABLE channel in the same trip system is monitoring that parameter.]		
SR 3.3.1.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.1.2	NOTE Only required with THERMAL POWER ≥ 25% RTP. Verify the absolute difference between the APRM channels and the calculated power ≤ 2% [plus any gain adjustment required by LCO 3.2.4] 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	Perform CHANNEL FUNCTIONAL TEST.	7 days <u>OR</u> 12 hours after entering MODE 2 from MODE 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.5	Perform CHANNEL FUNCTIONAL TEST.	7 days
SR 3.3.1.1.6	Demonstrate the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap at least ½ decade.	Prior to withdrawing SRMs from the fully inserted position
SR 3.3.1.1.7	Demonstrate the IRM and average power range monitor (APRM) channels overlap at least ½ decade.	Prior to entering MODE 2 from MODE 1 if not performed in the previous 7 days
SR 3.3.1.1.8	Calibrate the local power range monitors (LPRMs).	1000 MWD/T average core exposure
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.1.1.10	Calibrate the trip units.	[92] days
SR 3.3.1.1.11	-------------------NOTE-------------------- Neutron detectors may be excluded. --- Perform CHANNEL CALIBRATION.	 184 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	[18] months
SR 3.3.1.1.13	-------------------NOTE------------------- Neutron detectors may be excluded. -- Perform CHANNEL CALIBRATION.	 [18] months
SR 3.3.1.1.14	Demonstrate the APRM Flow Biased Simulated Thermal Power--High time constant is ≥ [5] seconds and ≤ [7] seconds.	[18] months
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
SR 3.3.1.1.16	Verify Turbine Stop Valve (TSV)--Closure and Turbine Closure Valve (TCV)--Fast Closure functions are not bypassed when ≥ [40]% RTP.	[18] months
SR 3.3.1.1.17	-------------------NOTE------------------- Neutron detectors may be excluded. -- Demonstrate the RPS RESPONSE TIME is within limits.	 [18] months on a STAGGERED TEST BASIS

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

	FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Intermediate Range Monitors					
	a. Neutron Flux--High	2	[3]	F,H	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [120/125] divisions of full scale
		5(a)	[3]	G,H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [120/125] divisions of full scale
	b. Inop	2	[3]	F,H	SR 3.3.1.1.4 SR 3.3.1.1.15	N/A
		5(a)	[3]	G,H	SR 3.3.1.1.5 SR 3.3.1.1.15	N/A
2.	Average Power Range Monitors					
	a. Neutron Flux--High, Setdown	2	[3]	F,H	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.11 SR 3.3.1.1.15	≤ [20]% RTP
		5(a)	[3]	G,H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.8 SR 3.3.1.1.11 SR 3.3.1.1.15	≤ [20]% RTP
	b. Flow Biased Simulated Thermal Power--High	1	[3]	E,H	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.3 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.11 SR 3.3.1.1.12 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ [0.66 W + 67]% RTP and ≤ [113]% RTP[(b)]

(continued)

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

[(b) Allowable value is [≤ 0.66 W + 43%] RTP when reset for single loop operation per LCO 3.4.1.]

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Fixed Neutron Flux--High	1	[3]	E,H	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.11 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ [120]% RTP
d. Inop	1,2	[3]	F,H	SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.15	N/A
	5(a)	[3]	G,H	SR 3.3.1.1.5 SR 3.3.1.1.8 SR 3.3.1.1.15	N/A
3. Reactor Vessel Steam Dome Pressure--High	1,2	[2]	F,H	SR 3.3.1.1.1 SR 3.3.1.1.9 [SR 3.3.1.1.10] SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ [1079.7] psig
4. Reactor Vessel Water Level--Low, Level 3	1,2	[2]	F,H	SR 3.3.1.1.1 SR 3.3.1.1.9 [SR 3.3.1.1.10] SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≥ [10.8] inches
5. Reactor Vessel Water Level--High, Level 8	1	[2]	E,H	SR 3.3.1.1.1 SR 3.3.1.1.9 [SR 3.3.1.1.10] SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ [54.1] inches
6. Main Steam Isolation Valve--Closure	1	[8]	E,H	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ [7]% closed
7. Drywell Pressure--High	1,2	[2]	F,H	SR 3.3.1.1.1 SR 3.3.1.1.9 [SR 3.3.1.1.10] SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [1.43] psig

(continued)

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

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

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8. Scram Discharge Volume Water Level--High					
a. Trip Unit	1,2	[2]	F,H	SR 3.3.1.1.1 SR 3.3.1.1.9 [SR 3.3.1.1.10] SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [63]% of full scale
	$5^{(a)}$	[2]	G,H	SR 3.3.1.1.1 SR 3.3.1.1.9 [SR 3.3.1.1.10] SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [63]% of full scale
b. Float Switch	1,2	[2]	F,H	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [65] inches
	$5^{(a)}$	[2]	G.H	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ [65] inches
9. Turbine Stop Valve Closure, Trip Oil Pressure--Low	≥ [40]% RTP	[4]	D,H	SR 3.3.1.1.9 [SR 3.3.1.1.10] SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.16 SR 3.3.1.1.17	≥ [37] psig
10. Turbine Control Valve Fast Closure, Trip Oil Pressure--Low	≥ [40]% RTP	[2]	D,H	SR 3.3.1.1.9 [SR 3.3.1.1.10] SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.16 SR 3.3.1.1.17	≥ [42] psig
11. Reactor Mode Switch--Shutdown Position	1,2	[2]	F,H	SR 3.3.1.1.12 SR 3.3.1.1.15	N/A
	$5^{(a)}$	[2]	G,H	SR 3.3.1.1.12 SR 3.3.1.1.15	N/A
12. Manual Scram	1,2	[2]	F,H	SR 3.3.1.1.5 SR 3.3.1.1.15	N/A
	$5^{(a)}$	[2]	G,H	SR 3.3.1.1.5 SR 3.3.1.1.15	N/A

(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 for the function in Table 3.3.1.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.2-1.

-----------------------------NOTE-----------------------------
For this LCO, Condition A and Condition B are treated as separate entities with independent Completion Times.

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ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or 2 [or 3] required SRMs inoperable in MODE 2 with intermediate range monitors (IRMs) on Range 2 or below.	A.1 Restore SRMs to OPERABLE status.	4 hours
B. All required SRMs inoperable in MODE 2 with IRMs on Range 2 or below.	B.1 Suspend control rod withdrawal. AND B.2 Restore SRMs to OPERABLE status.	Immediately 4 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or 2 required SRM channels inoperable in MODE 3 or 4.	D.1	Fully insert all insertable control rods.	1 hour
	<u>AND</u>		
	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
	<u>AND</u>		
	E.2	Initiate action to insert all insertable control rods in core cells containing 1 or more fuel assemblies.	Immediately
	<u>AND</u>		
	E.3	Initiate action to restore SRMs to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
---NOTE--- Refer to Table 3.3.1.2-1 to determine which SRs shall be performed for each SRM function.		
SR 3.3.1.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2.2	---NOTES--- 1. Only required 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. 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.4	Verify count rate is: a. ≥ [3.0] cps with a signal-to-noise ratio ≥ [2:1]. <u>OR</u> b. ≥ [illegible] 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.	7 days
SR 3.3.1.2.6	Perform CHANNEL FUNCTIONAL TEST.	31 days <u>OR</u> 12 hours after entering MODE 2 and IRMs on range 2 or below
SR 3.3.1.2.7	-------------------NOTE------------------- Neutron detectors may be excluded. -- Perform CHANNEL CALIBRATION.	[18] months

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

FUNCTION		APPLICABLE MODES	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1.	Source Range Monitor	$2^{(a)}$	[4]	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	$2^{(b)(c)(d)}$	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) An SRM is not required to be OPERABLE with [illegible] fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant.

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

(d) Only 1 SRM channel is required to be OPERABLE during spiral off load/reload when the fueled region includes only that 1 SRM detector.

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 or more required rod withdrawal limiter channel(s) inoperable.	A.1 Suspend control rod withdrawal.	Immediately
B. One or more required rod pattern controller channel(s) inoperable.	B.1 Suspend control rod movement except by scram.	Immediately
	OR	
	B.2 Verify bypassing and movement of control rods required to be bypassed in RACS by a second licensed operator or other qualified member of the technical staff.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more required Reactor Mode Switch--Shutdown Position channels inoperable.	C.1	Suspend control rod withdrawal.	Immediately
	AND		
	C.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
-----NOTE----- Refer to Table 3.3.2.1-1 to determine which SR shall be performed for each control rod block function.	
SR 3.3.2.1.1 Perform CHANNEL FUNCTIONAL TEST.	[92] days OR 1 hour after > 70% RATED THERMAL POWER (RTP)

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.2.1.2 Perform CHANNEL FUNCTIONAL TEST.	1 hour after in MODE 1 < [70]% RTP, if not performed within previous [92] days AND 1 hour after ≥ [35]% RTP, if not performed within previous [92] days
SR 3.3.2.1.3 Perform CHANNEL FUNCTIONAL TEST.	1 hour after any control rod is withdrawn in MODE 2, if not performed within previous [92] days AND 1 hour after ≤ [10]% RTP in MODE 1 if not performed within previous [92] days

(continued)

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.2.1.4 Calibrate the low power setpoint ALLOWABLE VALUE to be ≥ [10]% RTP and ≤ [35]% RTP.	184 days
SR 3.3.2.1.5 Calibrate the high power setpoint ALLOWABLE VALUE to be ≤ [[illegible]0]% RTP.	184 days
SR 3.3.2.1.6 Perform CHANNEL FUNCTIONAL TEST.	[18] months OR 1 hour after reactor mode switch is in shutdown position
SR 3.3.2.1.7 Verify the bypassing and movement of control rods required to be bypassed in Rod Action Control System (RACS) by a second licensed operator or other qualified member of the technical staff.	Prior to and during the movement of control rods bypassed in RACS

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

	FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Rod Pattern Control System				
	a. Rod withdrawal limiter	[(a)]	2	SR 3.3.2.1.2 SR 3.3.2.1.4	[ ]
		> [70]% RTP	2	SR 3.3.2.1.1 SR 3.3.2.1.5	[ ]
	b. Rod [illegible] control[illegible]	1(b), 2(b)	2	SR 3.3.2.1.3 SR 3.3.2.1.4 SR 3.3.2.1.7	[ ]
2.	Reactor Mode Switch-- Shutdown Position	[illegible]	2	SR 3.3.2.1.6	N/A

(a) With THERMAL POWER > [35]% RTP and < [illegible]

(b) With THERMAL POWER ≤ [10]% RTP.

(c) With reactor mode switch in the shutdown pos[illegible].

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.

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

1. LCO 3.0.4 is not applicable.

2. For this LCO, each function shall be treated as an independent entity with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required channel in 1 or more functions inoperable.	A.1	Restore channel to OPERABLE status.	30 days
B. Two required channels in 1 or more functions inoperable.	B.1	Restore 1 channel to OPERABLE status.	7 days
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Enter the Condition(s) referenced in Table 3.3.3.1-1 for each inoperable channel.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.3.1-1.	D.1 Be in MODE 3.	12 hours
[E. As required by Required Action C.1 and referenced in Table 3.3.3.1-1.	E.1 Initiate actions in accordance with Specification 5.9.2.c.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
-----NOTE----- These SRs apply to each function in Table 3.3.1.1-1.	
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 D.1
1. Reactor Steam Dome Pressure	2	D
2. Reactor Vessel Water Level	2	D
3. Suppression Pool Water Level	2	D
4. Drywell Pressure	2	D
5. Primary Containment Area Radiation	2	[E]
6. Drywell Sump Level	2	D
7. Drywell Drain Sump Level	2	D
8. Primary Containment Isolation Valve Position	1/valve[a]	D
9. Wide Range Neutron Flux	2	D
10. Drywell Hydrogen and Oxygen Analyzer	2	D
11. Containment Hydrogen and Oxygen Analyzer	2	D
12. Primary Containment Pressure	2	D
13 Suppression Pool Water Temperature	2[b]	D

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

(a) Not required for isolation valves that are closed and deactived.

(b) Monitoring each relief valve discharge locator.

3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

------------------------------NOTE------------------------------
LCO 3.0.4 not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Each [division] is treated as an independent entity for this LCO with an independent Completion Time. ---------------------- One or more [divisions] inoperable.	A.1 Restore [division(s)] to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2. AND B.2 Be in MODE 3.	6 hours 12 hours

Note: Bases shall describe the required instrumentation and controls for the Remote Shutdown System in accordance with the requirements of GDC 19, 10 CFR 50, Appendix R.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
[SR 3.3.3.2.1 Perform CHANNEL CHECK for each required Remote Shutdown System instrumentation channel.	31 days]
SR 3.3.3.2.2 Verify each required control circuit and transfer switch is capable of performing their intended functions.	[18] months
SR 3.3.3.2.3 Perform CHANNEL CALIBRATION for each required Remote Shutdown System 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 Two channels per trip system for each EOC-RPT instrumentation function listed below shall be OPERABLE:

a. Turbine Stop Valve Closure (trip oil pressure low); and

b. Turbine Control Valve Fast Closure (trip oil pressure low).

APPLICABILITY: THERMAL POWER ≥ [40]% RATED THERMAL POWER (RTP)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------- NOTE -------- Completion Time shall be on a Condition basis for each function. ----------------------- One or more required channel(s) inoperable for 1 or more functions.	A.1 Ensure each channel per function in 1 trip system is OPERABLE or in trip.	1 hour
	AND	
	A.2.1 Restore channel(s) to OPERABLE status.	72 hours
	OR	
	A.2.2 --------NOTE-------- Only applicable if placing inoperable channel(s) in trip would not result in an RPT or scram. --------------------- Place inoperable channel(s) in trip.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Actions and associated Completion Times of Condition A not met.	B.1	Apply the EOC-RPT inoperable MINIMUM CRITICAL POWER RATIO limit specified in the [CORE OPERATING LIMITS REPORT].	6 hours
	<u>OR</u>		
	B.2	Reduce THERMAL POWER to < [40]% RTP.	6 hours
C. One or more required channels inoperable for 1 or more functions.	C.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support trip system(s) have been initiated.	1 hour
	<u>AND</u>		
	C.2	Verify that all required support and supported features associated with the other redundant trip system are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
-----NOTE----- One trip system may be placed in an inoperable status for a single function for up to 2 hours for required Surveillance, provided the other trip system is OPERABLE. ----------	
SR 3.3.4.1.1 -----NOTE----- RPT breaker actuation may be excluded. ---------- Perform CHANNEL FUNCTIONAL TEST.	[31] days
SR 3.3.4.1.2 Calibrate the trip units.	[31] days
SR 3.3.4.1.3 Perform CHANNEL CALIBRATION with the following ALLOWABLE VALUES: a. Turbine Stop Valve (TSV) Closure: ≥ [37] psig. b. Turbine Control Valve (TCV) Fast Closure: ≥ [42] 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 functions are not bypassed when ≥ [40]% RTP.	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.6	------------------- NOTE ------------------- Breaker arc suppression time may be assumed from the most recent performance of SR 3.3.4.1.7. --- Demonstrate the EOC-RPT RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS
SR 3.3.4.1.7	Determine RPT breaker arc suppression time.	60 months

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3.3 INSTRUMENTATION

3.3.4.2 <u>Anticipated Transient Without Scram-Recirculation Pump Trip (ATWS-RPT) Instrumentation</u>

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Completion Time is on a Condition basis for each function. --------------------- One or more required channel(s) inoperable for 1 or more functions.	A.1	Ensure each channel per function in 1 trip system is OPERABLE or in trip.	1 hour
	<u>AND</u>		
	A.2.1	Restore channel(s) to OPERABLE status.	72 hours
	<u>OR</u>		
	A.2.2	---------NOTE------- Only applicable if placing inoperable channel(s) in trip would not result in an RPT. --------------------- Place inoperable channel(s) in trip.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 2.	6 hours
C. One or more required channels inoperable for 1 or more functions.	C.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support trip systems(s) have been initiated.	1 hour
	AND		
	C.2	Verify that all required support and supported features associated with the other redundant trip system are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
------------------------------NOTE------------------------------ One trip system may be placed in an inoperable status for up to 2 hours for required Surveillance, provided the other trip system is OPERABLE. --		
SR 3.3.4.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.4.2.2	------------------NOTE------------------ RPT breaker actuation may be excluded. -- Perform CHANNEL FUNCTIONAL TEST.	[31] days
[SR 3.3.4.2.3	Calibrate the trip units.	31 days]
SR 3.3.4.2.4	Perform CHANNEL CALIBRATION with the following ALLOWABLE VALUES: a. Reactor Vessel Water Level--Low Low, Level 2: ≥ [-43.8] inches; and b. Reactor Steam Dome Pressure--High: ≤ [1102] psig.	[18] months
SR 3.3.4.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST, including breaker actuation.	[18] months

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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.

-----------------------------NOTE-----------------------------
For this LCO, each function shall be treated as an independent entity with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channel(s) inoperable for 1 or more functions.	A.1 Enter the Condition(s) referenced in Table 3.3.5.1-1 for each inoperable channel.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1	----------NOTE------ If verification determines loss of functional capability, declare the associated supported subsystem(s) inoperable immediately. -------------------	
		Verify each function has capability to initiate the associated subsystem(s).	1 hour
	<u>AND</u>		
	B.2.1	Restore channel(s) to OPERABLE status.	24 hours
	<u>OR</u>		
	B.2.2	----------NOTE--- Only applicable if placing inoperable channel(s) in trip would not result in an initiation. --------------------	
		Place inoperable channel(s) in trip.	24 hours
	<u>OR</u>		
	B.2.3	Declare the associated subsystem(s) inoperable.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1 ----------NOTE------- If verification determines loss of functional capability, declare the associated supported subsystem(s) inoperable immediately. --------------------	
	Verify each function has capability to initiate the associated subsystems.	1 hour
	AND	
	C.2.1 Restore channel(s) to OPERABLE status.	24 hours
	OR	
	C.2.2 Declare the associated subsystem(s) inoperable.	24 hours

(continued)

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------ If verification determines loss of functional capability, declare the associated supported subsystem(s) inoperable immediately. ------------------	
		Verify each function has capability to initiate the associated functions.	1 hour
	AND		
	D.2.1	Restore channel(s) to OPERABLE status.	24 hours
	OR		
	D.2.2	Place inoperable channel(s) in trip.	24 hours
	OR		
	D.2.3	Align the high pressure core spray (HPCS) pump suction to the suppression pool.	24 hours
	OR		
	D.2.4	Declare the HPCS System inoperable.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	---------------NOTE----------- If verification determines loss of functional capability, declare the associated supported subsystem(s) inoperable immediately. -----------------------------		
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1	Verify each function has capability to initiate the associated subsystems.	1 hour
	<u>AND</u>		
	E.2.1	Restore channel(s) to OPERABLE status.	7 days
	<u>OR</u>		
	E.2.2	Declare the associated ECCS subsystem(s) inoperable.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	-------------NOTE------------- If verification determines loss of functional capability, declare the associated supported subsystem(s) inoperable immediately. -------------------------------		
F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	F.1	Verify each function has capability to initiate the associated subsystems.	1 hour
	<u>AND</u>		
	F.2.1	Restore channel(s) to OPERABLE status.	24 hours
	<u>OR</u>		
	F.2.2	----------NOTE---------- Only applicable if placing the inoperable channel(s) in trip would not result in an initiation. ------------------------	
		Place inoperable channel(s) in trip.	24 hours
	<u>OR</u>		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. (continued)	F.2.3	Declare the associated subsystem(s) inoperable.	24 hours
G. One or more required channels inoperable for 1 or more functions.	G.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support channel(s) have been initiated.	1 hour
	AND		
	G.2	Verify that all required support and supported features associated with the other redundant channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY

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

1. Refer to Table 3.3.5.1-1 to determine which SRs shall be performed for each ECCS function.

[2. A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the trip system in trip, provided at least 1 OPERABLE channel in the same trip system is monitoring that parameter.]

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 Perform CHANNEL FUNCTIONAL TEST.	[18] months

(continued)

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.8	Demonstrate the ECCS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

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

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Water Level--Low Low Low, Level 1	1,2,3, 4(a),5(a)	[2](b)	B,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 [SR 3.3.5.1.8]	≥ [-152.5] inches
b. Drywell Pressure--High	1,2,3	[2](b)	B,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 [SR 3.3.5.1.8]	≤ [1.44] psig
c. LPCI Pump A Start--Time Delay Relay	1,2,3, 4(a),5(a)	[illegible]	C,G	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ [5.25] ± [ ] seconds
d. Reactor Steam Dome Pressure--Low (Injection Permissive)	1,2,3	[4]	[illegible]	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	≥ [452] psig and ≤ [534] psig
	4(a),5(a)	[4]	B,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	≥ [452] psig and ≤ [534] psig
e. [LPCS Pump Discharge Flow--Low (Bypass)]	1,2,3, 4(a),5(a)	[1]	E,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	≥ [ ] gpm and ≤ [ ] gpm
f. [LPCI Pump A Discharge Flow--Low (Bypass)]	1,2,3, 4(a),5(a)	[1]	E,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	≥ [ ] gpm and ≤ [ ] gpm
[g. Manual Initiation	1,2,3, 4(a),5(a)	[2] [1 per subsystem]	C,G	SR 3.3.5.1.7	N/A]

(continued)

(a) When the associated ECCS subsystem is required to be OPERABLE by LCO 3.5.2.

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

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

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Low Pressure Coolant Injection-B and Low Pressure Coolant Injection-C Subsystems					
a. Reactor Vessel Water Level--Low Low Low, Level 1	1,2,3, $4^{(a)}$,$5^{(a)}$	$[2]^{(b)}$	B,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 [SR 3.3.5.1.8]	≥ [-152.5] inches
b. Drywell Pressure--High	1,2,3	$[2]^{(b)}$	B,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 [SR 3.3.5.1.8]	≤ [1.44] psig
c. LPCI Pump B Start--Time Delay Relay	1,2,3, $4^{(a)}$,$5^{(a)}$	[1]	C,G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≤ [5.25] seconds
d. Reactor Steam Dome Pressure--Low (Injection Permissive)	1,2,3	[4]	C,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	≥ [452] psig and ≤ [534] psig
	$4^{(a)}$,$5^{(a)}$	[4]	B,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	≥ [452] psig and ≤ [534] psig
e. [LPCI Pump B and LPCI Pump C Discharge Flow--Low (Bypass)]	1,2,3, $4^{(a)}$,$5^{(a)}$	[2] [1 per pump]	[illegible]	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	≥ [ ] gpm and ≤ [ ] gpm
[f. Manual Initiation	1,2,3, $4^{(a)}$,$5^{(a)}$	[2] [1 per subsystem]	C,G	SR 3.3.5.1.7	N/A]

(continued)

(a) When the associated ECCS subsystem is required to be OPERABLE by LCO 3.5.2.

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

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

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Core Spray (HPCS) System					
a. Reactor Vessel Water Level--Low Low, Level 2	1,2,3, 4(a),5(a)	[4](b)	B,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 SR 3.3.5.1.8	≥ [-43.8] inches
b. Drywell Pressure--High	1,2(a),3(a)	[4](b)	B,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 SR 3.3.5.1.8	≤ [1.44] inches
c. Reactor Vessel Water Level--High, Level 8	1,2,3, 4(a),5(a)	[2]	C,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 SR 3.3.5.1.8	≤ [55.7] inches
d. Condensate Storage Tank Level--Low	1,2,3, 4(a),5(a)	[2]	D,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	≥ [-3] inches
e. Suppression Pool Water Level--High	1,2,3, 4(a),5(a)	[2]	D,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	≤ [7.0] inches
f. [HPCS Pump Discharge Pressure--High (Bypass)]	1,2,3, 4(a),5(a)	[1]	E,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	≥ [ ] psig
g. [HPCS System Flow Rate--Low (Bypass)]	1,2,3, 4(a),5(a)	[1]	E,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	≥ [ ] gpm and ≤ [ ] gpm
[h. Manual Initiation	1,2,3, 4(a),5(a)	[1]	C,G	SR 3.3.5.1.7	N/A]

(continued)

(a) When the associated ECCS subsystem is required to be OPERABLE by LCO 3.5.2.

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

Table 3.3.5.1-1 (page 4 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level--Low Low Low, Level 1	1,2,$3^{(c)}$	[2]	F,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	≥ [-152.5] inches
b. Drywell Pressure--High	1,$2^{(c)}$,$3^{(c)}$	[2]	F,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	≤ [1.44] psig
c. ADS Initiation Timer	1,$2^{(c)}$,$3^{(c)}$	[1]	F,G	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	≤ [117] seconds
d. Reactor Vessel Water Level--Low, Level 3 (Confirmatory)	1,$2^{(c)}$,$3^{(c)}$	[illegible]	F,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	≥ [10.8] inches
e. LPCS Pump Discharge Pressure--High	1,$2^{(c)}$,$3^{(c)}$	[2]	F,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	≥ [125] psig and ≤ [165] psig
f. LPCI Pump A Discharge Pressure--High	1,$2^{(c)}$,$3^{(c)}$	[2]	F,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	≥ [115] psig and ≤ [135] psig
g. [ADS Bypass Timer (High Drywell Pressure)]	1,$2^{(c)}$,$3^{(c)}$	[2]	F,G	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	≤ [9.4] minutes
[h. Manual Initiation	1,$2^{(c)}$,$3^{(c)}$	[2]	F,G	SR 3.3.5.1.7	N/A
i. Manual Inhibit	1,$2^{(c)}$,$3^{(c)}$	[2]	F,G	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	N/A]

(continued)

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

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

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Automatic Depressurization System (ADS) Trip System B					
a. Reactor Vessel Water Level--Low Low Low, Level 1	[illegible],$3^{(c)}$	[2]	F,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	≥ [-152.5] inches
b. Drywell Pressure--[illegible]	1,[illegible],$3^{(c)}$	[2]	F,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	≤ [1.44] psig
c. ADS Initiation Timer	1,[illegible],$3^{(c)}$	[illegible]	F,G	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	≤ [117] seconds
d. Reactor Vessel Water Level--Low, Level 3 (Confirmatory)	$1,2^{(c)}$,[illegible]	[illegible]	F,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	≥ [10.8] inches
e. LPCI Pump B & C Discharge Pressure--High	$1,2^{(c)},3^{(c)}$	[4] [2 per pump]	[illegible]	[illegible] 3.3.5.1.1 [illegible] 3.3.5.1.2 [SR [illegible]3.5.1.3] SR [illegible]5.1.5 SR [illegible]1.6	≥ [115] gpm and ≤ [135] gpm
f. [ADS Bypass Timer (High Drywell Pressure)]	$1,2^{(c)},3^{(c)}$	[2]	F,G	[illegible] [illegible] 3.3.5.[illegible]4] [illegible] 3.3.5.1.6	≤ [9.4] minutes
[g. Manual Initiation	$1,2^{(c)},3^{(c)}$	[2]	C,G	SR 3.3.5.1.7	N/A
h. Manual Inhibit	$1,2^{(c)},3^{(c)}$	[1]	F,G	SR 3.3.5.1.2 [SR 3.3.5.1.4] SR 3.3.5.1.6	N/A]

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

3.3 INSTRUMENTATION

3.3.5.2 Reactor Core Isolation Cooling (RCIC) Instrumentation

LCO 3.3.5.2 The RCIC instrumentation for each function in Table 3.3.5.2-1 shall be OPERABLE.

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

-----NOTE-----
For this LCO, each function shall be treated as an independent entity with an independent Completion Time.

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ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required channels inoperable for 1 or more functions.	A.1	Enter the Condition(s) referenced in Table 3.3.5.2-1 for each inoperable channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1	-----NOTE----- If capability is not established, declare RCIC System inoperable. -----	
		Ensure each function has capability to initiate RCIC System components.	1 hour
	AND		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2.1	Restore channel(s) to OPERABLE status.	1 hour
	<u>OR</u>		
	B.2.2	--------NOTE-------- Only applicable if placing inoperable channel(s) in trip would not result in an initiation. --------------------	
		Place inoperable channel(s) in trip.	1 hour
	<u>OR</u>		
	B.2.3	Declare RCIC System inoperable.	1 hour
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1	--------NOTE-------- If capability is not established declare RCIC System inoperable. --------------------	
		Ensure each function has capability to initiate RCIC System components.	1 hour
	<u>AND</u>		
	C.2.1	Restore channel(s) to OPERABLE status.	1 hour
	<u>OR</u>		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2.2	Declare RCIC System inoperable.	1 hour
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1	--------NOTE--------- If capability is not established declare RCIC System inoperable. --------------------- Ensure each function has capability to initiate RCIC System components.	 1 hour
	<u>OR</u>		
	D.2.1	Restore channel(s) to OPERABLE status.	1 hour
	<u>OR</u>		
	D.2.2	Place inoperable channel(s) in trip.	1 hour
	<u>OR</u>		
	D.2.3	Align RCIC pump suction to the suppression pool.	1 hour
	<u>OR</u>		
	D.2.4	Declare RCIC System inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	E.1	--------NOTE-------- If capability is not established, declare RCIC System inoperable. -------------------- Ensure each function has capability to initiate RCIC System components.	 1 hour
	E.2.1	Restore channel(s) to OPERABLE status.	8 hours
	E.2.2	Declare RCIC System inoperable.	8 hours
F. One or more required channel(s) inoperable for 1 or more functions.	F.1	Verify that the Required Actions for those support systems declared inoperable by the inoperability of the support channel(s) have been initiated.	1 hour
	AND		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. (continued)	F.2	Verify that all required support and supported features associated with the other redundant channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
-------------NOTES------------- 1. Refer to Table 3.3.5.2-1 to determine which SRs shall be performed for each RCIC function. 2. A channel may be placed in an inoperable status for up to 2 hours for required surveillance without placing the trip system in trip provided at least 1 OPERABLE channel in the same trip system is monitoring that parameter. -----------------------------------	
SR 3.3.5.2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.5.2.2 Perform CHANNEL FUNCTIONAL TEST.	[31] days
SR 3.3.5.2.3 Calibrate the trip units.	[31] days
SR 3.3.5.2.4 Perform CHANNEL CALIBRATION.	[92] days
SR 3.3.5.2.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
SR 3.3.5.2.6 Perform CHANNEL FUNCTIONAL TEST.	[18] months
SR 3.3.5.2.7 Perform CHANNEL CALIBRATION.	[18] months

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

	FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENT(S)	ALLOWABLE VALUE
1.	Reactor Vessel Water Level--Low Low, Level 2	[4]	B,F	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	≥ [-43.8] inches
2.	Reactor Vessel Water Level--High, Level 8	[2]	C,F	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	≤ [55.7] inches
3.	Condensate Storage Tank Level--Low	[2]	D,F	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 2.5 SR 3.3.5.2.6	≥ [-3] inches
4.	Suppression Pool Water Level--High	[illegible]	[illegible],F	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 3.3.5.2.5 SR 3.3.5.2.6	≤ [7.0] inches
5.	Manual Initiation	1	E,F	[illegible] 3.3.5.2.7	N/A

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation (PCI) Instrumentation

LCO 3.3.6.1 The PCI instrumentation for each function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

------------------------------NOTE------------------------------
For this LCO, each function shall be treated as an independent entity with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channel(s) inoperable in 1 or more functions.	A.1 Ensure each function maintains isolation capability for each associated line. AND A.2.1 Restore channel(s) to OPERABLE status. OR	1 hour 12 hours for functions 2b,5c,5e AND 24 hours for functions other than functions 2b,5c,5e

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.2	--------NOTE-------- Only applicable if placing inoperable channel(s) in trip would not result in an isolation. ------------------- Place inoperable channel(s) in trip.	12 hours for functions 2b,5c,5e <u>AND</u> 24 hours for functions other than functions 2b,5c,5e
B. Required Actions and associated Completion Times of Condition A not met.	B.1	Enter the Condition(s) referenced in Table 3.3.6.1-1 for each function where channels have not been placed in trip.	Immediately
C. As required by Required Action B.1 and referenced in Table 3.3.6.1-1.	C.1	Isolate all main steam lines.	6 hours
	<u>OR</u>		
	C.2.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	C.2.2	Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. As required by Required Action B.1 and referenced in Table 3.3.6.1-1.	D.1	Be in MODE 2.	6 hours
E. As required by Required Action B.1 and referenced in Table 3.3.6.1-1.	E.1	Isolate the affected line(s).	1 hour
F. As required by Required Action B.1 and referenced in Table 3.3.6.1-1. OR Required Actions and associated Completion Times of Condition E not met.	F.1	Be in MODE 3.	12 hours
	AND		
	F.2	Be in MODE 4.	36 hours
G. As required by Required Action B.1 and referenced in Table 3.3.6.1-1.	G.1	Declare the associated Standby Liquid Control (SLC) System subsystem(s) inoperable.	1 hour
	OR		
	G.2	Isolate the Reactor Water Cleanup (RWCU) System.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
H. As required by Required Action B.1 and referenced in Table 3.3.6.1-1.	H.1	Restore channel(s) to OPERABLE status.	1 hour
I. As required by Required Action B.1 and referenced in Table 3.3.6.1-1.	I.1	Isolate the affected line(s).	Immediately
	OR		
	I.2.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	I.2.2	Suspend movement of irradiated fuel assemblies and loads over irradiated fuel in the primary and secondary containment].	Immediately
	AND		
	I.2.3	Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRV).	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
J. One or more required channels inoperable for 1 or more functions.	J.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support channel(s) have been initiated.	1 hour
	AND		
	J.2	Verify that all required support and supported features associated with the other redundant channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
-----NOTES----- 1. Refer to Table 3.3.6.1-1 to determine which SRs shall be performed for each function. [2. A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the trip system in trip provided at least 1 OPERABLE channel in the same trip system is monitoring that parameter.]		
SR 3.3.6.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.1.2	-----NOTE----- Radiation detectors may be excluded. ----- Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.6.1.3	Calibrate the trip unit.	[92] days
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	[92] days
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.7 Perform CHANNEL FUNCTIONAL TEST.	[18] months
SR 3.3.6.1.8 ---------------NOTE--------------- Radiation det[illegible] excluded. ------------------------------------ Demonstrate the ISOLATION SYSTEM RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

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

	FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION B.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Main Steam Line Isolation					
	a. Reactor Vessel Water Level--Low Low Low, Level [illegible]	1,2,3	[2]	C,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ [-152.5] inches
	b. Main Steam Line Pressure--Low	1	[illegible]	D,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ [837] psig
	c. Main Steam Line Flow--High	1,2,3	[illegible]	C,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≤ [176.5] psig
	d. Condenser Vacuum--Low	1,2,3	[2]	C,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≥ [8.7] inches Hg vacuum
	Main Steam Tunnel Temperature--High	1,2,3	[8]	C,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [191]°F
	f. Main Steam Tunnel Differential Temperature--High	1,2,3	[2]	C,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [104]°F
[	g. Manual Initiation	1,2,3	[2]	C,J	SR 3.3.6.1.7	N/A]

(continued)

Table 3.3.6.1-1 (page 2 of 5)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION B.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation					
a. Reactor Vessel Water Level--Low Low, Level 2	1,2,3	[2]	F,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ [-43.8] inches
b. Drywell Pressure--High	1,2,3	[2]	F,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≤ [1.43] psig
c. Containment and Drywell Ventilation Exhaust Radiation--High	1,2,3	[2]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≤ [4.0] mR/hr
	[(a)]	[2]	[illegible]	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≤ [4.0] mR/hr
[d. Manual Initiation	1,2,3	[2]	[illegible]	SR 3.3.6.1.7	N/A]
3. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≤ [64] inches water
b. [RCIC Steam Line Flow Time Delay]	[1,2,3]	[1]	E,J	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	[5 ± 2] seconds
c. RCIC Steam Supply Line Pressure--Low	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ [53] psig

(continued)

(a) During CORE ALTERATIONS, during movement of irradiated fuel assemblies or loads over irradiated fuel in [primary or secondary] containment, or OPDRV.

Table 3.3.6.1-1 (page 3 of 5)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Reactor Core Isolation Cooling (RCIC) System Isolation (continued)					
d. RCIC Turbine Exhaust Diaphragm Pressure--High	1,2,3	[2]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [20] psig
e. RCIC Equipment Room Ambient Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [191]°F
f. RCIC Equipment Room Differential Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [128]°F
g. Main Steam Line Tunnel Ambient Temperature--High	1,2,3	[illegible]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [191]°F
h. Main Steam Line Tunnel Differential Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [104]°F
i. Main Steam Line Tunnel Temperature Timer	1,2,3	[1]	E,J	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ [30] minutes
j. RHR Equipment Room Ambient Temperature--High	1,2,3	[1/room]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [171]°F
k. RHR Equipment Room Differential Temperature--High	1,2,3	[1/room]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [102]°F
l. RCIC/RHR Steam Line Flow--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [43] inches water
m. Drywell Pressure--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≤ [1.44] psig

(continued)

Table 3.3.6.1-1 (page 4 of 5)
Primary Containment Isolation Instrumentation

	FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION B.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3.	Reactor Core Isolation Cooling (RCIC) System Isolation (continued)					
[	n. Manual Initiation	1,2,3	[2]	E,J	SR 3.3.6.1.7	N/A]
4.	Reactor Water Cleanup (RWCU) System Isolation					
	a. Differential Flow--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 [SR 3.3.6.1.8]	≤ [89] gpm
	b. Differential Flow--Timer	1,2,3	[1]	E,J	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ [57] seconds
	c. RWCU Heat Exchanger Equipment Room Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [126]°F
	d. RWCU Heat Exchanger Equipment Room Differential Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [66]°F
	e. RWCU Pump Rooms Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [176]°F
	f. RWCU Pump Rooms Differential Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [118]°F
	g. RWCU Valve Nest Room Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [141]°F
	h. RWCU Valve Nest Room Differential Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [73]°F
	i. Main Steam Line Tunnel Ambient Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [191]°F

(continued)

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

FUNCTION		APPLICABLE MODES	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION B.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4.	Reactor Water Cleanup (RWCU) System Isolation (continued)					
	j. Main Steam Line Tunnel Differential Temperature--High	1,2,3	[1]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [104]°F
	k. Reactor Vessel Water Level--Low Low, Level 2	1,2,3	[2]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ [-43.8] inches
	l. Standby Liquid Control System Initiation	1,2	[1]	G,J	[SR 3.3.6.1.2] SR 3.3.6.1.6	N/A
[	m. Manual Initiation	1,2,3	[2]	E,J	SR 3.3.6.1.7	N/A]
5.	Shutdown Cooling System Isolation					
	a. RHR Equipment Room Ambient Temperature--High	1,2,3	[1/room]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [171]°F
	b. RHR Equipment Room Differential Temperature--High	1,2,3	[1/room]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [102]°F
	c. Reactor Vessel Water Level--Low, Level 3	3,4,5	[2]	H(b),J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.8	≥ [10.8] inches
	d. Reactor Steam Dome Pressure--High	1,2,3	[2]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [150] psig
	e. Drywell Pressure--High	1,2,3	[2]	E,J	SR 3.3.6.1.1 SR 3.3.6.1.2 [SR 3.3.6.1.3] SR 3.3.6.1.5 SR 3.3.6.1.6	≤ [1.43] psig

(b) Only 1 trip system required in Mode 4 or 5 when RHR Shutdown Cooling System integrity maintained.

3.3 INSTRUMENTATION

3.3.6.2 Secondary Containment Isolation (SCI) Instrumentation

LCO 3.3.6.2 The SCI instrumentation for each function in Table 3.3.6.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.2-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Completion Time shall be on a Condition basis for each function. --------------------- One or more required channels inoperable for 1 or more functions.	A.1 Ensure each function maintains isolation capability for each associated line. AND A.2.1 Restore channel(s) to OPERABLE status. OR	1 hour 12 hours for function 2 AND 24 hours for functions other than function 2

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 ---------NOTE------- Only applicable if placing inoperable channel(s) in trip would not result in initiation. ------------------- Place inoperable channel(s) in trip.	12 hours for function 2 <u>AND</u> 24 hours for functions other than function 2
B. Required Actions and associated Completion Times of Condition A not met.	B.1.1 Isolate the associated line(s).	1 hour
	<u>OR</u>	
	B.1.2 Declare the associated secondary containment isolation valve(s) inoperable.	1 hour
	<u>AND</u>	
	B.2.1 Place the associated Standby Gas Treatment System (SGTS) subsystem(s) in operation.	1 hour
	<u>OR</u>	
	B.2.2 Declare the associated SGTS subsystem(s) inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more channels inoperable for 1 or more functions.	C.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support channel(s) have been initiated.	1 hour
	AND		
	C.2	Verify that all required support and supported features associated with the other redundant channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
---NOTES--- 1. Refer to Table 3.3.6.2-1 to determine which SRs shall be performed for each function. [2. A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the trip system in trip, provided at least 1 OPERABLE channel in the same trip system is monitoring that parameter.]		
SR 3.3.6.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2.2	---NOTE--- Radiation detectors may be excluded. --- 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.	[18] months
SR 3.3.6.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
SR 3.3.6.2.6	Perform CHANNEL FUNCTIONAL TEST.	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
[SR 3.3.6.2.7	------------------NOTE------------------ Radiation detectors may be excluded. -- Demonstrate 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 Instrumentation

	FUNCTION	APPLICABLE MODES	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 3.3.6.2.4 SR 3.3.6.2.5 [SR 3.3.6.2.7]	≥ [-43.8] inches
2.	Drywell Pressure--High	1,2,3	[2]	SR 3.3.6.2.1 SR 3.3.6.2.2 [SR 3.3.6.2.3] SR 3.3.6.2.4 SR 3.3.6.2.5 [SR 3.3.6.2.7]	≤ [1.43] psig
3.	Fuel Handling Area Ventilation Exhaust Radiation--High	1,2,3, [(a),(b)]	[2]	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5 [SR 3.3.6.2.7]	≤ [4.0] mR/hr
4.	Refueling Floor Exhaust Radiation--High	1,2,3, [(a),(b)]	[2]	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5 [SR 3.3.6.2.[illegible]	≤ [35] mR/hr
[5.	Manual Initiation	1,2,3, [(a),(b)]	[1] [1/group]	SR 3.3.6.2.[illegible]	N/A]

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

(b) During movement of irradiated fuel assemblies or loads over irradiated fuel in the primary or secondary containment.

3.3 INSTRUMENTATION

3.3.6.3 Containment Spray System Instrumentation

LCO 3.3.6.3 The Containment Spray System instrumentation for each function in Table 3.3.6.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

-----NOTE-----
For this LCO, each function shall be treated as an independent entity with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required channels inoperable for 1 or more functions.	A.1	Enter the Condition(s) referenced in Table 3.3.6.3-1 for each inoperable function.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.6.3-1.	B.1	-----NOTE----- If capability is not established, declare containment spray subsystem(s) inoperable. -----	
		Ensure each function has capability to initiate containment spray subsystem(s) components.	1 hour
	<u>AND</u>		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2.1	Restore channel(s) to OPERABLE status.	1 hour
	OR		
	B.2.2	---------NOTE------- Only applicable if placing the inoperable channel(s) in trip would not result in an initiation. -------------------	
		Place inoperable channel(s) in trip.	1 hour
	OR		
	B.2.3	Declare associated containment spray subsystem(s) inoperable.	1 hour
C. As required by Required Action A.1 and referenced in Table 3.3.6.3-1.	C.1	--------NOTE-------- If capability is not established, declare containment spray subsystem(s) inoperable. -------------------	
		Ensure each function has capability to initiate containment spray subsystem(s) components.	1 hour
	AND		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2.1	Restore the inoperable channel(s) to OPERABLE status.	1 hour
	OR		
	C.2.2	Declare associated containment spray subsystem(s) inoperable.	1 hour
D. One or more required channels inoperable for 1 or more functions.	D.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support channel(s) have been initiated.	1 hour
	AND		
	D.2	Verify that all required support and supported features associated with the other redundant channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
------------------------------NOTE------------------------------ Refer to Table 3.3.6.3-1 to determine which SRs shall be performed for each Containment Spray System function. --	
SR 3.3.6.3.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.3.2 Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.6.3.3 Calibrate the trip unit.	31 days
SR 3.3.6.3.4 Perform CHANNEL CALIBRATION.	[92] days
SR 3.3.6.3.5 Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.6.3.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
SR 3.3.6.3.7 Perform CHANNEL FUNCTIONAL TEST.	[18] months

Table 3.3.6.3-1 (page 1 of 1)
Containment Spray System Instrumentation

FUNCTION	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITION REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Drywell Pressure--High	[2]	B,D	SR 3.3.6.3.1 SR 3.3.6.3.2 [SR 3.3.6.3.3] SR 3.3.6.3.5 SR 3.3.6.3.6	≤ [1.44] psig
2. Containment Pressure--High	[1]	C,D	SR 3.3.6.3.1 SR 3.3.6.3.2 [SR 3.3.6.3.3] SR 3.3.6.3.5 SR 3.3.6.3.6	≤ [8.34] psig
3. Reactor Vessel Water Level--Low Low Low, Level 1	[2]	B,D	SR 3.3.6.3.1 SR 3.3.6.3.2 [SR 3.3.6.3.3] SR 3.3.6.3.5 SR 3.3.6.3.6	≥ [-152.5] inches
4. System A and B Timers	[1]	C,D	SR 3.3.6.3.2 SR 3.3.6.3.4 SR 3.3.6.3.6	(a)
[5. Manual Initiation	[illegible]	[illegible]	SR 3.3.6.3.7	N/A]

(a) [≥ [10.26] minutes and ≤ [11.44] minutes. Trip system B timer is the sum of [E12-K093B plus E12-K116]. [E12-K116] shall be ≤ 10.00 seconds.]

3.3 INSTRUMENTATION

3.3.6.4 Suppression Pool Makeup System (SPMS) Instrumentation

LCO 3.3.6.4 The SPMS instrumentation for each function in Table 3.3.6.4-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

------------------------------NOTE------------------------------
For this LCO, each function shall be treated as an independent entity with an independent Completion Time.

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ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable for 1 or more functions.	A.1 Enter the Condition(s) referenced in Table 3.3.6.4-1 for each inoperable function.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.6.4-1.	B.1 ---------NOTE--------- If capability is not established, declare SPMS subsystem(s) inoperable. --------------------- Ensure each function has capability to initiate SPMS subsystem(s) components.	1 hour
	AND	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.1 Restore channel(s) to OPERABLE status.	1 hour
	OR	
	B.2.2 ----------NOTE------ Only applicable if placing the inoperable channel(s) in trip would not result in an initiation. ------------------	
	Place inoperable channel(s) in trip.	1 hour
	OR	
	B.2.3 Declare associated SPMS subsystem(s) inoperable.	1 hour
C. As required by Required Action A.1 and referenced in Table 3.3.6.4-1.	C.1 ---------NOTE--------- If capability is not established, declare SPMS subsystem(s) inoperable. ---------------------	
	Ensure each function has capability to initiate SPMS subsystem(s) components.	1 hour
	AND	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2.1	Restore channel(s) to OPERABLE status.	1 hour
	<u>OR</u>		
	C.2.2	Declare associated SPMS subsystem(s) line inoperable.	1 hour
D. One or more channels inoperable for 1 or more functions.	D.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support channel(s) have been initiated.	1 hour
	<u>AND</u>		
	D.2	Verify that all required support and supported features associated with the other redundant channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
-------------------------------NOTE------------------------------- Refer to Table 3.3.6.4-1 to determine which SRs shall be performed for each SPMS function. --	
SR 3.3.6.4.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.4.2 Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.6.4.3 Calibrate the trip unit.	31 days
SR 3.3.6.4.4 Perform CHANNEL CALIBRATION.	[92] days
SR 3.3.6.4.5 Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.6.4.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months
SR 3.3.6.4.7 Perform CHANNEL FUNCTIONAL TEST.	[18] months

Table 3.3.6.4-1 (page 1 of 1)
Suppression Pool Makeup System Instrumentation

FUNCTION		REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENT(S)	ALLOWABLE VALUE
1.	Drywell Pressure--High	[2]	B, D	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≤ [1.44] psig
2.	Reactor Vessel Water Level--Low Low Low, Level 1	[2]	B, D	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≥ [-152.5] inches
3.	Suppression Pool Water Level--Low Low	[1]	C, D	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≥ [17' 2"]
4.	Drywell Pressure--High	[2]	B, D	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≤ [1.43] psig
5.	Reactor Vessel Water Level--Low Low, Level 2	[2]	B, D	SR 3.3.6.4.1 SR 3.3.6.4.2 [SR 3.3.6.4.3] SR 3.3.6.4.5 SR 3.3.6.4.6	≥ [-43.8] inches
6.	Timer	[1]	C, D	SR 3.3.6.4.2 SR 3.3.6.4.4 SR 3.3.6.4.6	≤ [29.5] minutes
[7.	Manual Initiation	[1]	C, D	SR 3.3.6.4.7	N/A]

3.3 INSTRUMENTATION

3.3.6.5 Relief and Low-Low Set (LLS) Instrumentation

LCO 3.3.6.5 Two relief and LLS instrumentation trip systems shall be OPERABLE.

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

------------------------------NOTE------------------------------
For this LCO, Condition A and Condition B shall be treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required trip system inoperable.	A.1 Restore trip system to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR Two required trip systems inoperable.	B.1 Be in MODE 3. AND B.2 Reduce reactor steam dome pressure to ≤[150] psig.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One required trip system inoperable.	C.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support trip system(s) have been initiated.	1 hour
	AND		
	C.2	Verify that all required support and supported features associated with the other redundant trip system channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.6.5.1 Perform CHANNEL FUNCTIONAL TEST.	31 days
[SR 3.3.6.5.2 Calibrate the trip unit.	31 days]
SR 3.3.6.5.3 Perform CHANNEL CALIBRATION with the following ALLOWABLE VALUES: a. Relief Function Low: 1103 ± 15 psig Medium: 1113 ± 15 psig High: 1123 ± 15 psig b. LLS Function Low open: 1033 ± 15 psig close: 926 ± 15 psig Medium open: 1073 ± 15 psig close: 936 ± 15 psig High open: 1113 ± 15 psig close: 946 ± 15 psig	[18] months
SR 3.3.6.5.4 --------------------NOTE-------------------- Valve actuation may not be excluded. -- Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

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3.3 INSTRUMENTATION

3.3.7.1 Control Room Fresh Air (CRFA) Instrumentation

LCO 3.3.7.1 The CRFA instrumentation for each function in Table 3.3.7.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.7.1-1.

-----NOTE-----
For this LCO, each function shall be treated as an independent entity with an independent Completion Time.

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ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channel(s) inoperable in 1 or more functions.	A.1 Ensure each function maintains trip capability for each trip system.	1 hour
	AND	
	A.2 Enter the Condition(s) referenced in Table 3.3.7.1-1 for each inoperable function.	1 hour
B. As required by Required Action A.2 and referenced in Table 3.3.7.1-1.	B.1 Restore channel(s) to OPERABLE status.	24 hours
	OR	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	--------NOTE--------- Only applicable if placing inoperable channel(s) in trip would not result in initiation. ---------------------	
		Place inoperable channel(s) in trip.	24 hours
C. As required by Required Action A.2 and referenced in Table 3.3.7.1-1.	C.1	Restore channel(s) to OPERABLE status.	12 hours
	OR		
	C.2	---------NOTE------- Only applicable if placing inoperable channel(s) in trip would not result in initiation. --------------------	
		Place inoperable channel(s) in trip.	12 hours
D. As required by Required Action A.2 and referenced in Table 3.3.7.1-1.	D.1	Restore channel(s) to OPERABLE status.	6 hours
	OR		
	D.2	---------NOTE------- Only applicable if placing inoperable channel(s) in trip would not result in initiation. --------------------	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)		Place inoperable channel(s) in trip.	6 hours
E. Required Actions and associated Completion Times of Condition A, B, C, or D not met.	E.1	Declare the associated CRFA subsystem(s) inoperable.	Immediately
F. One required channel inoperable.	F.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support channel(s) have been initiated.	1 hour
	<u>AND</u>		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. (continued)	F.2	Verify that all required support and supported features associated with the other redundant channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
------NOTE------ Refer to Table 3.3.7.1-1 to determine which SRs shall be performed for each function.	
SR 3.3.7.1.1 Perform CHANNEL CHECK.	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.7.1.2 ---------NOTE--------- Radiation detectors may be excluded. ------------------ Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.7.1.3 Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.7.1.4 Calibrate the trip units.	[92] days
SR 3.3.7.1.5 Perform CHANNEL CALIBRATION.	[18] months
SR 3.3.7.1.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	[18] months

Table 3.3.7.1-1 (page 1 of 1)
Control Room Fresh Air Instrumentation

FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.2	SURVEILLANCE REQUIREMENT(S)	ALLOWABLE VALUE
1. Reactor Vessel Water Level--Low Low, Level 2	1,2,3	[2]	B,F	SR 3.3.7.1.1 SR 3.3.7.1.3 [SR 3.3.7.1.4] SR 3.3.7.1.5 SR 3.3.7.1.6	≥ [-43.8] inches
2. Drywell Pressure--High	1,2,3	[2]	C,F	SR 3.3.7.1.1 SR 3.3.7.1.3 [SR 3.3.7.1.4] SR 3.3.7.1.5 SR 3.3.7.1.6	≤ [1.43] psig
3. Control Room Ventilation Radiation Monitors	1,2,3, (a),(b)	[2]	D,F	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ [5] mR/hr

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

(b) During movement of irradiated fuel or loads over irradiated fuel in the [primary or 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;
MODES 4 and 5 when the associated diesel generator is required to be OPERABLE by LCO 3.8.2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
--------NOTE-------- Completion Time shall be on a Condition basis for each function. --------------------			
A. One required channel inoperable for 1 or more functions.	A.1	Restore channel(s) to OPERABLE status.	1 hour
	<u>OR</u>		
	A.2.1	-------NOTE------- Only applicable if placing inoperable channel(s) in trip would not result in an initiation. ------------------ Place inoperable channel(s) in trip.	1 hour
	<u>AND</u>		
	A.2.2	Restore channel(s) to OPERABLE status.	Prior to the next CHANNEL FUNCTIONAL TEST

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Actions and associated Completion Times of Condition A not met. OR Two required channels inoperable for one or more functions.	B.1	Declare the associated diesel generator(s) and other supported systems inoperable.	Immediately
C. One required channel inoperable.	C.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support channel(s) have been initiated.	1 hour
	AND		
	C.2	Verify that all required support and supported features associated with the other redundant channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
------------------------------NOTE------------------------------ Refer to Table 3.3.8.1-1 to determine which SRs must be performed for each function.	
SR 3.3.8.1.1 Perform CHANNEL CHECK.	12 hours
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 2)
Loss of Power Instrumentation

FUNCTION	REQUIRED CHANNELS PER DIVISION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Divisions 1 and 2--4.16 kV Emergency Bus Undervoltage			
a. Loss of Voltage	[4]	[SR 3.3.8.1.1] SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	
- 4.16 kV basis			≥ [2621] and ≤ [2912] V
- 120 V basis			≥ [74.9] and ≤ [83.2] V with time delay:
- Time Delay			≥ [0.4] and ≤ [1.0] seconds
[b. Balance of Plant Load Shed	[illegible]	[SR 3.3.8.1.1] SR 3.3.8.1.2 SR 3.3.8.1.3 [illegible].8.1.4	]
- 4.16 kV basis			≥ [3161] and ≤ [3328] V
- 120 V basis			≥ [90.3] and ≤ [95.1] V with time delay:
- Time Delay]			≥ [0.4] and ≤ [1.0] seconds
c. Degraded Voltage	[4]	[SR [illegible]] SR [illegible].8.1.[illegible] SR 3.3.8.1.3 SR 3.3.8.1.4	
- 4.16 kV basis			≥ [ ] and ≤ [ ] V
- 120 V basis			≥ [ ] and ≤ [ ] V with time delay:
- Time Delay			≥ [9.5] and ≤ [10.5] seconds

(continued)

Table 3.3.8.1-1 (page 2 of 2)
Loss of Power Instrumentation

FUNCTION	REQUIRED CHANNELS PER DIVISION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Division 3--4.16 kV Emergency Bus Undervoltage			
a. Loss of Voltage	[4]	[SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	
- 4.16 kV basis			≥ [ ] and ≤ [ ] V
- 120 V basis			≥ [ ] and ≤ [ ] V with time delay:
- Time Delay			≥ [0.75] and ≤ [1.25] seconds
b. Degraded Voltage	[4]	[SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	
- 4.16 kV basis			≥ [ ] and ≤ [ ] V
- 120 V basis			≥ [ ] and ≤ [ ] V with time delay:
- Time Delay			≥ [9.5] and ≤ [10.[illegible]] seconds
- Time Delay			≥ [ ] and ≤ [ ] seconds

3.3 INSTRUMENTATION

3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring (EPM)

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, 3,
MODES 4, 5 with any control rod withdrawn from a core cell containing 1 or more fuel assemblies or with residual heat removal (RHR) shutdown cooling isolation valves open.

------------------------------NOTE------------------------------
For this LCO, Condition A and Condition B shall be treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required electric power monitoring assembly inoperable on 1 or both inservice power sources.	A.1	Restore all electric power monitoring assembly(ies) to OPERABLE status.	72 hours
	OR		
	A.2	---------NOTE--------- Only applicable if removing power source would not result in scram [or isolation]. ---------------------	
		Remove associated inservice power source(s) from service.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Both required electric power monitoring assemblies for 1 or both inservice power source(s) inoperable.	B.1	Restore at least 1 electric power monitoring assembly to OPERABLE status, for each inservice power source.	1 hour
	<u>OR</u>		
	B.2	----------NOTE------- Applicable only if removing power source would not result in scram [or isolation]. -------------------- Remove associated inservice power source(s) from service.	1 hour
C. Required Actions and associated Completion Times of Condition A or Condition B not met in MODE 1, 2, or 3.	C.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	C.2	Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Actions and associated Completion Times of Condition A or Condition B not met in MODE 4 or 5 with any control rod withdrawn from a core cell containing 1 or more fuel assemblies or with RHR shutdown cooling isolation valves open.	D.1	Initiate action to fully insert all insertable control rods in core cells containing 1 or more fuel assemblies.	Immediately
	<u>AND</u>		
	D.2	Isolate RHR shutdown cooling line.	Immediately

(continued)

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ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One required electric power monitoring assembly inoperable in 1 or both inservice power sources.	E.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support electric power monitoring assemblies have been initiated.	1 hour
	<u>AND</u>		
	E.2	Verify that all required support and supported features associated with the other redundant electric power monitoring assemblies channel(s) are OPERABLE. If verification determines loss of functional capability, enter LCO 3.0.3 immediately unless the loss of functional capability is allowed in the support or supported feature LCO.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.8.2.1 Perform CHANNEL FUNCTIONAL TEST.	-----NOTE----- Only required if not performed in the previous 184 days -------------- Once each time in MODE 4 for ≥ 24 hours
SR 3.3.8.2.2 Perform CHANNEL CALIBRATION with the following ALLOWABLE VALUES: a. Overvoltage Bus A ≤ [132.9] Vac Bus B ≤ [133.0] Vac b. Undervoltage Bus A ≥ [115.0] Vac Bus B ≥ [115.9] Vac c. Underfrequency (with time delay set to 0) Bus A ≥ [57] Hz Bus B ≥ [57] Hz	[18] months
SR 3.3.8.2.3 Perform a system functional test.	[18] months

3.4 PEACTOR 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 made applicable:

a. LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," single loop operation limits specified in the [CORE OPERATING LIMITS REPORT (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, "Reactor Protection System (RPS) Instrumentation," function 2.b of Table 3.3.1-1, Allowable Value is ≤ [0.58W + 62 - 0.58ΔW]% of RATED THERMAL POWER.]

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. * [Requirements of the LCO not met with] 1 recirculation loop not in operation.	A.1 Satisfy the requirements of the LCO.	24 hours
B. Both recirculation loops not in operation. OR	B.1 Be in MODE 3.	12 hours

*Pending resolution of stability issue.

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued) Required Action and associated Completion Time of Condition A not met.		

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.1.1 Verify recirculation loop jet pump flow mismatch is: a. ≤ [10]% of rated core flow when operating at < [70]% of rated core flow. b. ≤ [5]% of rated core flow when operating at ≥ [70]% of rated core flow.	------NOTE----- Only required when both loops are in operation --------------- 24 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 Flow Control Valves (FCVs)

LCO 3.4.2 Two recirculation loop FCVs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or two FCVs inoperable.	A.1	Lock up the inoperable FCV(s).	4 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Demonstrate each FCV fails "as is" on loss of hydraulic pressure at the hydraulic unit.	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.2.2	Demonstrate average rate of each FCV movement is:	
	a. ≤ [11]% of stroke per second for opening.	[18] months
	AND	
	b. ≤ [11]% of stroke per second for closing.	[18] months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 Jet Pumps

LCO 3.4.3 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.	------NOTE----- Completion Time is on a Condition basis --------------- 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify each jet pump in each loop with forced recirculation flow satisfies at least two of the following criteria (a, b, and c): a. Recirculation loop drive flow versus flow control valve position differs by ≤ 10% from established patterns. b. Recirculation loop drive flow versus total core flow differs by ≤ 10% from the normal range. c. Each jet pump diffuser-to-lower plenum differential pressure differs by ≤ 20% from established patterns. OR Each jet pump flow differs by ≤ 10% from established patterns.	24 hours when > 25% RATED THERMAL POWER

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 Safety/Relief Valves (S/RVs)

LCO 3.4.4 The safety function of ≥ [7] S/RVs shall be OPERABLE,

AND

The relief function of ≥ [6] additional S/RVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Demonstrate the safety function lift setpoints of the required S/RVs are as follows: Number of S/RVs — Setpoint (psig) [ ] — [1165 ± 11.6] [ ] — [1180 ± 11.8] [ ] — [1190 ± 11.9]	[According to the Inservice Testing Program or 18 months]
SR 3.4.4.2	Demonstrate each [required] S/RV opens when manually actuated.	[18] months OR Within 12 hours after reactor steam dome pressure is ≥ [100] psig

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Operational LEAKAGE

LCO 3.4.5 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE;

b. ≤ 5 gpm total unidentified LEAKAGE;

c. ≤ [30] gpm total LEAKAGE averaged over any 24-hour period; [and

d. ≤ 2 gpm increase in unidentified LEAKAGE within any [24]-hour period in MODE 1].

APPLICABILITY: MODES 1, 2, and 3.

-----NOTE-----
For this LCO, Conditions A, B, and C are to be treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Unidentified LEAKAGE not within limit.	A.1	Reduce LEAKAGE to within limits.	4 hours
B. Total LEAKAGE not within limit.	B.1	Reduce LEAKAGE to within limit.	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
[C. Unidentified LEAKAGE increase not within limit.	C.1	Verify source of LEAKAGE increase is not service-sensitive type 304 or 316 austenitic stainless steel.	4 hours
	OR		
	C.2	Reduce leakage to within limits.	4 hours]
D. Required Actions and associated Completion Times not met. OR Pressure boundary LEAKAGE exists.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify RCS operational LEAKAGE is within limits.	8 hours
SR 3.4.5.2	Verify, by visual inspection, the reactor coolant pressure boundary is leaktight.	[18] months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.6 The leakage from each RCS PIV shall be ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm, at a RCS pressure ≥ [ ] and ≤ [ ] psig.

APPLICABILITY: MODES 1, 2, and 3.

---------------------------NOTE---------------------------
For this LCO, each flow path is treated as an independent entity with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Leakage from 1 or more RCS PIVs not within limit.	A.1	Restore RCS PIV leakage to within limit.	4 hours
	OR		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	------------NOTE------------ Each valve used to satisfy Required Action A.2.1 and Required Action A.2.2 must have been demonstrated to meet SR 3.4.6.1 and be on the reactor coolant pressure boundary. ----------------------------		
	A.2.1	Isolate the high pressure portion of the affected system from the low pressure portion by use of 1 closed manual, deactivated automatic, or check valve.	4 hours
	<u>AND</u>		
	A.2.2	Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	-------------------NOTE------------------- SR 3.0.4 is not applicable for entry into MODE 3 for the purpose of testing the isolation valves. --- Verify leakage of each RCS PIV ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm, at an RCS pressure ≥ [ ] and ≤ [ ] psig.	[18] months AND [Prior to entry into MODE 2 whenever the unit has been in MODE 4 for 7 days or more, if testing has not been performed in the previous 9 months AND] Within 24 hours following valve actuation due to automatic or manual action, or flow through the valve

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS LEAKAGE Detection Instrumentation

LCO 3.4.7 The following RCS LEAKAGE detection instrumentation shall be OPERABLE:

a. Drywell floor drain sump monitoring system; and

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

c. Primary containment air coolers condensate flow rate monitoring system].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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.	24 hours
	OR		
	A.2.1	Perform leak rate measurement by manually pumping sump or measuring sump level differences.	Once per 4 hours
	AND		
	A.2.2	Restore drywell floor drain sump monitoring system to OPERABLE status.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required primary containment atmospheric particulate or atmospheric gaseous monitoring system inoperable.	B.1 Take and analyze grab samples of containment atmosphere.	Once per 12 hours
	[AND	
	B.2 Restore required primary containment atmospheric monitoring system to OPERABLE status.]	[30 days]
[C. Primary containment air coolers condensate flow rate monitoring system inoperable.]	C.1 Take and analyze grab samples of containment atmosphere.	[Once per 12 hours]
[D. Required primary containment atmospheric particulate or atmospheric gaseous monitoring system inoperable.	D.1 Restore primary containment atmospheric monitoring system to OPERABLE status.	[30 days
	OR	
AND		
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]

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Actions and associated Completion Times not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	12 hours 36 hours
F. All required leakage detection systems inoperable.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Perform CHANNEL CHECK of required drywell floor drain sump monitoring system.	12 hours
SR 3.4.7.2	Perform CHANNEL CHECK of required primary containment atmospheric monitoring system.	12 hours
[SR 3.4.7.3	Perform CHANNEL CHECK of required primary containment air cooler condensate flow rate monitoring system.	12 hours]
SR 3.4.7.4	Perform CHANNEL FUNCTIONAL TEST of required drywell floor drain sump monitoring system.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.7.5	Perform CHANNEL FUNCTIONAL TEST of required primary containment atmospheric monitoring system.	31 days
[SR 3.4.7.6	Perform CHANNEL FUNCTIONAL TEST of required primary containment air cooler condensate flow rate atmospheric monitoring system.	31 days]
SR 3.4.7.7	Perform CHANNEL CALIBRATION of required drywell floor drain sump monitoring system.	[18] months
SR 3.4.7.8	Perform CHANNEL CALIBRATION of required primary containment atmospheric monitoring system.	[18] months
[SR 3.4.7.9	Perform CHANNEL CALIBRATION of required primary containment air cooler condensate flow rate monitoring system.	[18] months]

[For units with only 2 monitors required by the LCO, Required Action B.2 applies but neither Condition C nor Condition D apply, nor do SR 3.4.6.3, SR 3.4.6.6, and SR 3.4.6.9.

For units with 3 monitors required by the LCO, Required Action B.2 does not apply and Condition C and Condition D do apply, along with SR 3.4.6.3, SR 3.4.6.6, and SR 3.4.6.9.]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Specific Activity

LCO 3.4.8 The specific activity of the primary coolant shall be limited to:

a. ≤ [0.2] μCi/gm DOSE EQUIVALENT I-131; and

b. A gross specific activity ≤ 100/Ē μCi/gm.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary coolant specific activity > [0.2] μCi/gm DOSE EQUIVALENT I-131, but ≤ 4.0 μCi/gm.	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. OR Primary coolant specific activity > [4.0] μCi/gm.	B.1 Determine DOSE EQUIVALENT I-131.	Once per 4 hours
	AND	
	B.2 Isolate all main steam lines.	12 hours
C. Primary coolant specific activity > 100/Ē μCi/gm.	C.1 Be in MODE 3 with all main steam lines isolated.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Demonstrate primary coolant gross specific activity is $\leq 100/\bar{E}$ μCi/gm.	7 days
SR 3.4.8.2	-----NOTE----- Only required in MODE 1. ----- Demonstrate primary coolant specific activity is $\leq$ [0.2] μCi/gm DOSE EQUIVALENT I-131.	14 days <u>AND</u> Between 2 and 6 hours after a THERMAL POWER change $\geq$ 15% of RATED THERMAL POWER within a 1-hour period
SR 3.4.8.3	-----NOTES----- 1. SR 3.0.4 is not applicable. 2. Sample after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for $\geq$ 48 hours. ----- Determine $\bar{E}$.	184 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Residual Heat Removal (RHR)—Shutdown

LCO 3.4.9 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least 1 RHR shutdown cooling subsystem shall be in operation.

APPLICABILITY: MODE 3 with reactor steam dome pressure < [the RHR cut-in permissive pressure],
MODE 4.

-----NOTES-----

1. Both RHR shutdown cooling subsystems may be removed from operation for up to 2 hours per 8-hour period provided 1 subsystem is OPERABLE.

2. Both RHR shutdown cooling subsystems may be removed from operation during hydrostatic testing.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR shutdown cooling subsystem inoperable.	A.1 Restore RHR shutdown cooling subsystem to OPERABLE status.	8 hours
	OR	
	A.2.1 Establish an alternate method of decay heat removal.	8 hours
	AND	
	A.2.2 Demonstrate an alternate safety-grade method of decay heat removal is OPERABLE.	24 hours
	AND	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.3	Restore RHR shutdown cooling subsystem to OPERABLE status.	14 days
B. Required Actions and associated Completion Times of Condition A not met. OR Two RHR shutdown cooling subsystems inoperable.	B.1	Initiate action to restore 1 RHR shutdown cooling subsystem to OPERABLE status.	Immediately
	OR		
	B.2.1	Initiate action to establish an alternate method of decay heat removal for each inoperable subsystem.	Immediately
	AND		
	B.2.2	Demonstrate an alternate safety-grade method of decay heat removal is OPERABLE for each inoperable subsystem.	24 hours
	B.2.3	Restore 1 RHR shutdown cooling subsystem to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	C.1	Restore 1 RHR shutdown cooling subsystem or 1 recirculation pump to operation.	2 hours
	OR		
	C.2.1	Establish reactor coolant circulation by an alternate method.	2 hours
	AND		
	C.2.2	Monitor reactor coolant temperature and pressure.	Once per hour
	AND		
	C.2.3	Demonstrate an alternate safety-grade method of decay heat removal is OPERABLE.	24 hours
	AND		
	C.2.4	Restore 1 RHR shutdown cooling subsystem or recirculation pump to operation.	72 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify each required RHR shutdown cooling manual, power-operated or automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, can be aligned to its correct position.	31 days <u>OR</u> Within 12 hours after reactor steam dome pressure is < [the RHR cut-in permissive pressure]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.10 The combination of RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be maintained within the limits specified in Figure 3.4.10-1.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Required Action A.1 and Required Action A.2 must be completed whenever this Condition is entered. --------------------- Requirements of the LCO not met.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Actions and associated Completion Times not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	------------------NOTE------------------ Only required during system heatup, cooldown, and inservice leak and hydrostatic testing. -- Verify RCS pressure, temperature, and heatup and cooldown rates are within limits.	30 minutes
SR 3.4.10.2	Verify RCS P/T are within criticality limits.	Once within 15 minutes prior to control rod withdrawal for the purpose of achieving criticality
SR 3.4.10.3	------------------NOTE------------------ Only required in MODES 1, 2, 3, and 4 [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 ≤ [145]°F.	Once within 15 minutes prior to each startup of a recirculation pump

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.10.4	---------------------NOTE-------------------- Only required in MODES 1, 2, 3, and 4. --- Verify the difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is ≤ [50]°F.	Once within 15 minutes prior to each startup of a recirculation pump
SR 3.4.10.5	Verify reactor vessel flange and head flange temperature are ≥ 70°F.	30 minutes before and when tensioning the reactor vessel head bolting studs AND 30 minutes when in MODE 4 with RCS temperature ≤ 80°F AND 12 hours when in MODE 4 with RCS temperature ≤ 100°F

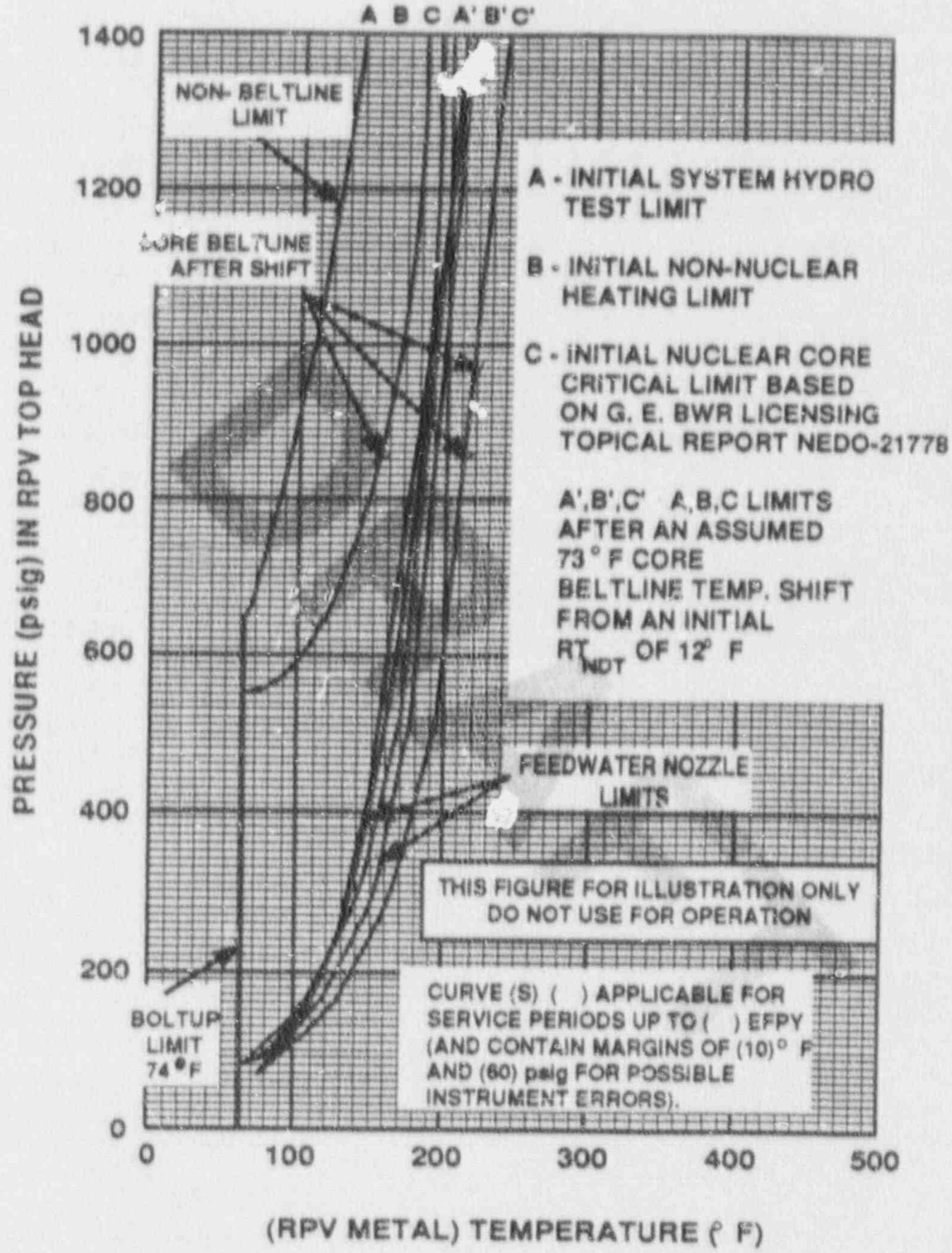

Figure 3.4.10-1
Minimum (RPV Metal) Temperature vs.
Reactor Vessel Pressure

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Reactor Steam Dome Pressure

LCO 3.4.11 The reactor steam dome pressure shall be ≤ [1045] psig.

APPLICABILITY: MODES 1 and 2, except during anticipated transients.

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 ≤ [1045] psig.	12 hours

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

3.5.1 ECCS — Operating

LCO 3.5.1 All ECCS subsystems shall be OPERABLE.

AND

[Eight] required Automatic Depressurization System (ADS) valves shall be OPERABLE.

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

------------------------------NOTE------------------------------
For this LCO, all ECCS subsystems and all ADS valves are treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One low-pressure ECCS subsystem inoperable.	A.1	Restore low-pressure ECCS subsystem to OPERABLE status.	7 days
B. Two ECCS subsystems inoperable.	B.1 AND	Verify at least 1 ECCS spray subsystem is OPERABLE.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	---------NOTE-------- Only required if High Pressure Core Spray (HPCS) System is inoperable. --------------------- Verify RCIC System is OPERABLE.	Immediately
	AND		
	B.3	Restore 1 ECCS subsystem to OPERABLE status.	72 hours
C. HPCS System inoperable.	C.1	Verify RCIC System is OPERABLE.	Immediately
	AND		
	C.2	Restore HPCS System to OPERABLE status.	14 days
D. Required Actions and associated Completion Times of Condition A, B, or C not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours
E. One required ADS valve inoperable.	E.1	Restore ADS valve to OPERABLE status.	14 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One required ADS valve inoperable. AND One low-pressure ECCS subsystem inoperable.	F.1 Restore ADS valve to OPERABLE status. OR F.2 Restore low-pressure ECCS subsystem to OPERABLE status.	72 hours 72 hours
G. Two or more required ADS valves inoperable. OR Required Actions and associated Completion Times of Condition E or F not met.	G.1 Be in MODE 3. AND G.2 Reduce reactor steam dome pressure to ≤ [150] psig.	12 hours 36 hours
H. Three or more low-pressure ECCS subsystems inoperable. OR One or more low-pressure ECCS subsystems inoperable. AND Two or more required ADS valves inoperable. OR	H.1 Enter LCO 3.0.3.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. (continued) HPCS System inoperable. <u>AND</u> One or more ADS valves inoperable. <u>OR</u> Other combinations of ECCS equipment or systems not identified in A through H inoperable.		

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.1.1 Demonstrate that ECCS subsystem piping is filled with water from the pump discharge valve to the isolation valve.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.2	-------------------NOTE------------------- Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment to and operation in the residual heat removal (RHR) shutdown cooling mode when below [the RHR cut-in permissive pressure] in MODE 3, if capable of being manually realigned and not otherwise inoperable. -- Verify that each ECCS subsystem manual, power-operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in its correct position.	31 days
SR 3.5.1.3	Verify that ADS [air receiver] pressure is ≥ [150] psig.	31 days
SR 3.5.1.4	Demonstrate that each ECCS pump develops the specified flow rate [against a system head corresponding to the specified reactor pressure]: SYSTEM / FLOW RATE / [SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF] LPCS[a] / ≥ [7115] gpm / ≥ [290] psig LPCI / ≥ [7450] gpm / ≥ [125] psig HPCS / ≥ [7115] gpm / ≥ [445] psig	[In accordance with the Inservice Testing Program or 92 days]

(continued)

[a] Low pressure core spray

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.5	-------------------NOTE------------------- Vessel injection or spray may be excluded. --- Demonstrate that each ECCS subsystem actuates on an actual or simulated automatic initiation signal.	[18] months
SR 3.5.1.6	-------------------NOTE------------------- Valve actuation may be excluded. --- Demonstrate that the ADS actuates on an actual or simulated automatic initiation signal.	[18] months
SR 3.5.1.7	-------------------NOTE------------------- SR 3.0.4 is not applicable. --- Demonstrate that each ADS valve opens when manually actuated at reactor steam dome pressure ≥ [100] psig.	[18] months OR Once only, 12 hours after reactor steam dome pressure is ≥ [100] psig

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

3.5.2 ECCS — Shutdown

LCO 3.5.2 Two ECCS subsystems shall be OPERABLE.

APPLICABILITY: MODE 4,
MODE 5 except with the upper containment [cavity-to-dryer] pool [gate] removed and water level ≥ [22 ft 8 inches] over the top of the reactor pressure vessel (RPV) flange.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required ECCS subsystem inoperable.	A.1	Restore the required ECCS 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 subsystems inoperable.	C.1	Initiate action to suspend OPDRVs.	Immediately
	AND		
	C.2	Restore 1 ECCS subsystem to OPERABLE status.	1 hour

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify, for each required low-pressure ECCS subsystem, that the suppression pool water level is ≥ [12 ft 8 inches].	12 hours
SR 3.5.2.2	Verify, for the required High Pressure Core Spray (HPCS) System, that: a. Suppression pool water level is ≥ [12 ft 8 inches]. <u>OR</u> b. Condensate storage tank water level is ≥ [18 ft].	12 hours
SR 3.5.2.3	Demonstrate that required ECCS subsystem piping is filled with water from the pump discharge valve to the isolation valve.	31 days
SR 3.5.2.4	-------------------NOTE------------------- One low pressure coolant injection (LPCI) subsystem may be considered OPERABLE during alignment to and operation in the residual heat removal (RHR) shutdown cooling mode, if capable of being manually realigned and not otherwise inoperable. -- Verify that each required ECCS subsystem manual, power-operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in its correct position.	 31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.5	Demonstrate that each required ECCS pump develops the specified flow rate [against a system head corresponding to the specified reactor pressure]: SYSTEM / FLOW RATE / [SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF] LPCS[a] ≥ [7115] gpm ≥ [290] psig LPCI ≥ [7450] gpm ≥ [125] psig HPCS ≥ [7115] gpm ≥ [445] psig	[In accordance with the Inservice Testing Program or 92 days]
SR 3.5.2.6	-----------------NOTE----------------- Vessel injection or spray may be excluded. --- Demonstrate that each required ECCS subsystem actuates on an actual or simulated automatic initiation signal.	[18] months

(a) Low pressure core spray

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

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RCIC System inoperable.	A.1	Verify High Pressure Core Spray (HPCS) System is OPERABLE.	Immediately
	AND		
	A.2	Restore RCIC System to OPERABLE status.	14 days
B. Required Actions and associated Completion Times not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Reduce reactor steam dome pressure to ≤ [150] psig.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Demonstrate that RCIC System piping is filled with water from the pump discharge valve to the isolation valve.	31 days
SR 3.5.3.2	Verify that each RCIC System manual, power-operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in its correct position.	31 days
SR 3.5.3.3	---------------------NOTE-------------------- SR 3.0.4 is not applicable. -- Demonstrate, with reactor pressure ≤ [1045] psig, that the RCIC pump can develop a flow rate ≥ [800] gpm [against a system head corresponding to reactor pressure ≥ [945] psig].	92 days OR Once only, 12 hours after reactor steam dome pressure is ≥ [945] psig
SR 3.5.3.4	Demonstrate, with reactor pressure ≤ [165] psig, that the RCIC pump can develop a flow rate ≥ [800] gpm [against a system head corresponding to a reactor pressure ≥ [150] psig].	[18] months OR Once only, 12 hours after reactor steam dome pressure is ≥ [150] psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.5	---------------------NOTE--------------------- Vessel injection may be excluded. --- Demonstrate that the RCIC System actuates on an actual or simulated automatic initiation signal.	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.1.1 Primary Containment

LCO 3.6.1.1 Primary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Primary containment inoperable.	A.1	Restore primary containment to OPERABLE status.	1 hour
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
		-----NOTE------ SR 3.0.2 is not applicable ---------------
SR 3.6.1.1.1	Perform required visual examinations and leakage-rate testing except for primary containment air-lock testing, in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions as contained in the Primary Containment Leakage Rate Testing Program. The maximum allowable leakage rate, L_a, is [ ]% of containment air weight per day at the calculated peak containment pressure, P_a.	In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions as contained in the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2	Demonstrate primary containment structural integrity in accordance with the Primary Containment Tendon Surveillance Program.	In accordance with the Primary Containment Tendon Surveillance Program

3.6 CONTAINMENT SYSTEMS

3.6.1.2 Primary Containment Air Locks

LCO 3.6.1.2 [Two] primary containment air locks shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

-----NOTES-----

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

2. For this LCO, all primary containment air locks are treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One primary containment air-lock door inoperable in one or more primary containment air locks.	A.1 Verify an OPERABLE air-lock door is closed in the affected air lock(s).	1 hour
	AND	
	A.2.1 Restore the air lock(s) to OPERABLE status.	24 hours
	OR	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.2.1	Lock an OPERABLE air-lock door closed in the affected air lock.	24 hours
		AND	
	A.2.2.2	Verify an OPERABLE door is locked-closed in each affected air lock	Once per 31 days
B. ---------NOTE-------- Entry and exit of primary containment is permissible under the control of a dedicated individual if 1 or more air locks are inoperable. -------------------- Primary containment air-lock interlock mechanism inoperable in 1 or more primary containment air locks.	B.1	Verify an OPERABLE air lock door is closed in each affected air lock.	1 hour
	AND		
	B.2.1	Restore air-lock interlock mechanism(s) to OPERABLE status.	24 hours
	OR		
	B.2.2.1	Lock an OPERABLE air-lock door closed in each affected air lock.	24 hours
		AND	
	B.2.2.2	Verify an OPERABLE door locked is closed in each affected air lock.	Once per 31 days

(continued)

ACTIONS (continued)

CONDITIONS	REQUIRED ACTION		COMPLETION TIME
	--------------NOTE----------- If both doors in an air lock have failed the seal test, primary containment shall be declared inoperable in accordance with LCO 3.6.1.1. ---------------------------		
C. One or more primary containment air lock inoperable for reasons other than Condition A or B.	C.1	Verify a door is closed in each affected air lock.	1 hour
	AND		
	C.2	Restore air lock(s) to OPERABLE status.	24 hours
D. Required Actions and associated Completion Times not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.2.1	-------------------NOTE------------------ An inoperable air-lock door does not invalidate the previous successful performance of an overall air-lock leakage test. -- Perform required primary containment air lock leakage-rate testing in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions as contained in the Primary Containment Leakage Rate Testing Program. The acceptance criteria for air lock testing are: a. Overall air-lock leakage rate is $\leq$ [2] scfh when tested at $\geq$ [ ] P_a. b. For each door, leakage rate is $\leq$ [2] scfh when the gap between the door seals is pressurized to $\geq$ [ ] P_a.	-----NOTE----- SR 3.0.2 is not applicable -------------- In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions as contained in the Primary Containment Leakage Rate Testing Program
SR 3.6.1.2.2	Demonstrate only 1 door in each primary containment air lock can be opened at a time.	-----NOTE----- Only required if not performed within previous 184 days -------------- Prior to entry into primary containment

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.1.2.3 Verify primary containment air-lock seal air-flask pressure is $\geq$ [90] psig.	7 days
SR 3.6.1.2.4 Demonstrate from an initial pressure of [90] psig the seal pneumatic system does not decay at a rate of > [2] psig for a period of [48] hours.	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODES 4 and 5 when associated instrumentation is required to be OPERABLE per LCO 3.3.6.1.

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

1. Normally locked- or sealed-closed PCIVs [except for [ ]-inch purge valves] may be opened intermittently under administrative controls.

2. For this LCO, each penetration flow path is treated as an independent entity with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
	-------------NOTE------------- Not applicable to penetrations that have only 1 PCIV. ------------------------------	
A. --------NOTE--------- Not applicable to those penetrations with only one PCIV and a closed system inside primary containment. --------------------- One or more PCIVs inoperable.	A.1 Verify at least 1 PCIV is OPERABLE in each affected open penetration. AND A.2.1 Restore the PCIVs to OPERABLE status. OR	1 hour 4 hours for valves except main steam isolation valves (MSIVs) AND

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)			8 hours for MSIVs
	A.2.2.1	Isolate each affected penetration by use of at least 1 closed and deactivated automatic valve, closed manual valve, blind flange, or check valve inside primary containment with flow through the valve secured. AND	4 hours for valves except MSIVs AND 8 hours for MSIVs
	A.2.2.2	Verify each affected penetration is isolated.	Once per 31 days for valves outside primary containment, drywell, and steam tunnel AND Prior to entering MODE 3 from MODE 4, if not performed more often than once per 92 days for valves inside primary containment, drywell, and steam tunnel

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. --------NOTE-------- Only applicable to penetrations with only 1 PCIV and a closed system inside primary containment. ------------------ One or more PCIVs inoperable.	B.1	Restore the PCIV(s) to OPERABLE status.	4 hours
	<u>OR</u>		
	B.2.1	Isolate each affected penetration by use of at least 1 closed and deactivated automatic valve, closed manual valve, or blind flange.	4 hours
	<u>AND</u>		
	B.2.2	Verify each affected penetration is isolated.	Once per 31 days
C. One or more primary containment purge valves (PCPVs) not within purge valve leakage limits.	C.1	Restore leakage to within limits.	24 hours
	<u>OR</u>		
	C.2.1	Isolate each affected penetration by use of at least 1 closed and deactivated automatic valve, closed manual valve, or blind flange.	24 hours
	<u>AND</u>		
	C.2.2	Perform SR 3.6.1.3.8.	Once per 92 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more PCIVs inoperable in one or more penetration flow paths.	D.1	Verify the Required Actions for those supported systems declared inoperable by the inoperability of the support PCIVs have been initiated.	[ ] hours [where [ ] hours is the most limiting Completion Time of all the supported systems' Required Actions]
E. One or more PCIVs inoperable in one or more penetration flow paths. AND One or more required support or supported features inoperable associated with the other redundant penetration flow paths.	E.1	Enter LCO 3.0.3, unless the loss of functional capability is allowed in the support or supported feature LCO.	Immediately
F. Required Actions and associated Completion Times of Condition A, B, C, D, or E not met in MODES 1, 2, or 3.	F.1 AND F.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
[G. Required Actions and associated Completion Times of Condition A, B, C, D, or E not met for PCIV(s) required to be OPERABLE during CORE ALTERATIONS.	G.1	Suspend CORE ALTERATIONS.	Immediately]
[H. Required Actions and associated Completion Times of Condition A, B, C, D, or E not met for PSIV(s) required to be OPERABLE when handling irradiated fuel assemblies in the [primary or secondary containment].	H.1	Suspend handling of irradiated fuel assemblies in the [primary and secondary containment].	Immediately]
[I. Required Actions and associated Completion Times of Condition A, B, C, D, or E not met for PSIV(s) required to be OPERABLE during operations with a potential for draining the reactor vessel (OPDRVs).	I.1	Initiate action to suspend OPDRVs.	Immediately
	<u>AND</u>		
	I.2	Initiate action to restore the valve(s) to OPERABLE status.	Immediately]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
[SR 3.6.1.3.1	Verify each [ ]-inch PCPV is sealed-closed.	31 days]
[SR 3.6.1.3.2	------------------NOTE------------------ The [6]- or [20]-inch PCPVs may be opened for inerting, de-inerting, pressure control, as low as reasonably achievable and air quality considerations for personnel entry, and for Surveillance tests that require the valves to be open -- Verify each [6]- and [20]-inch PCPV is closed.	31 days]
SR 3.6.1.3.3	------------------NOTES------------------ 1. Valves and blind flanges in high-radiation areas may be verified by use of administrative controls. 2. Normally locked- or sealed-closed isolation valves may be opened intermittently under administrative controls. 3. This SR is not required to be met on valves that are open under administrative controls. -- Verify all primary containment manual valves and blind flanges that are located outside the primary containment, drywell, and steam tunnel and are required to be closed during accident conditions are closed.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.4	----------------NOTES---------------- 1. Normally locked- or sealed-closed isolation valves may be opened intermittently under administrative controls. 2. This SR is not required to be met on valves that are open under administrative controls. --- Verify all primary containment manual valves and blind flanges that are located inside primary containment and are required to be closed during accident conditions are closed.	Prior to entering MODE 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed more than once per 92 days
SR 3.6.1.3.5	------------------NOTE------------------ For MSIVs, see SR 3.6.1.3.6. --- Demonstrate the isolation time of each power-operated and each automatic PCIV, except MSIVs, is within limits.	[In accordance with the Inservice Inspection and Testing Program, or 92 days]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.1.3.6 Demonstrate full-closure isolation time of each MSIV is ≥ [3] and ≤ [5] seconds.	[In accordance with Inservice Inspection and Testing Program, or 92 days]
[SR 3.6.1.3.7 Cycle, through one complete cycle of full travel, each weight- or spring-loaded check valve testable during plant operation and verify that each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.]	[92 days]
SR 3.6.1.3.8 --------------------NOTE-------------------- Results shall be evaluated against acceptance criteria of SR 3.6.1.1.1 in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions as described in the Primary Containment Leakage Rate Testing Program. -- Perform additional required leakage-rate testing for PCPVs with resilient seals in accordance with the Primary Containment Leakage Rate Testing Program.	184 days AND Once within 92 days after opening the valve

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.9	Demonstrate each automatic PCIV actuates to its isolation position on an actual or simulated actuation signal(s).	[18] months
[SR 3.6.1.3.10	Cycle, through one complete cycle of full travel, each weight- or spring-loaded check valve not testable during plant operation and verify that each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.	[18] months]
SR 3.6.1.3.11	Demonstrate leakage rate through each MSIV is ≤ [100] scfh when tested at [11.5] psig.	In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions as contained in the Primary Containment Leakage Rate Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.1.3.12 Demonstrate combined leakage rate of 1 gpm times the total number of PCIVs in hydrostatically tested lines that penetrate the primary containment is not exceeded when these isolation valves are tested at [12.65] psig.	In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions as contained in the Primary Containment Leakage Rate Testing Program
[SR 3.6.1.3.13 Demonstrate that each [ ]-inch PCPV is blocked to restrict the valve from opening more than [50]%.	[18] months]

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Primary Containment Pressure

LCO 3.6.1.4 Primary containment[-to-secondary containment differential] pressure shall be ≥ [-0.1] psid and ≤ [1.0] psid.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Primary containment [-to-secondary containment differential] pressure not within limits.	A.1	Restore primary containment [-to-secondary containment differential] pressure within limits.	1 hour
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 3.6.1.4.1	Verify primary containment[-to-secondary containment differential] pressure is ≥ [-0.1] psid and ≤ [1.0] psid.	12 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Primary Containment Air Temperature

LCO 3.6.1.5 Primary containment average air temperature shall be ≤ [95]°F.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Primary containment average air temperature not within limit.	A.1	Restore primary containment average air temperature within limit.	8 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 3.6.1.5.1	Verify primary containment average air temperature is ≤ [95]°F.	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Low-Low Set (LLS) Safety/Relief Valves (S/RVs)

LCO 3.6.1.6 [Six] LLS S/RVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
	------NOTE----- SR 3.0.4 is not applicable ---------------
SR 3.6.1.6.1 Demonstrate each required LLS S/RV opens when manually actuated.	[18] months OR Once only, 12 hours after reactor steam dome pressure is ≥ [950] psig

3.6 CONTAINMENT SYSTEMS

3.6.1.7 Residual Heat Removal (RHR) Containment Spray System

LCO 3.6.1.7 Two RHR containment spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RHR containment spray subsystem inoperable.	A.1	Restore RHR containment spray subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.1	------------------NOTE------------------ RHR containment spray subsystems may be considered OPERABLE during alignment to and operation in the RHR shutdown cooling mode when below [the RHR cut-in permissive pressure in MODE 3] if capable of being manually realigned and not otherwise inoperable. --- Verify each RHR containment spray subsystem manual, power-operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.	31 days
SR 3.6.1.7.2	Demonstrate each RHR pump develops a flow rate of ≥ [5650] gpm on recirculation flow through the heat exchanger to the suppression pool.	[In accordance with Inservice Inspection and Testing Program, or 92 days]
SR 3.6.1.7.3	Demonstrate each RHR containment spray subsystem automatic valve in the flow path actuates to its correct position on an actual or simulated automatic initiation signal(s).	[18] months
SR 3.6.1.7.4	Demonstrate each spray nozzle is unobstructed.	5 years

3.6 CONTAINMENT SYSTEMS

3.6.1.8 Penetration Valve Leakage Control System (PVLCS)

LCO 3.6.1.8 [Two] PVLCS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One PVLCS subsystem inoperable.	A.1	Restore PVLCS subsystems to OPERABLE status.	30 days
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 3.6.1.8.1	Verify air pressure in each subsystem is ≥ [101] psig.	24 hours
SR 3.6.1.8.2	Perform a system functional test of each PVLCS subsystem.	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.1.9 Main Steam Isolation Valve (MSIV) Leakage Control System (LCS)

LCO 3.6.1.9 Two MSIV LCS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One MSIV LCS subsystem inoperable.	A.1	Restore MSIV LCS subsystem to OPERABLE status.	30 days
B. Required Actions and associated Completion Times not met.	B.1	Be in MODE 3.	12 hours
		AND	
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1	Operate each MSIV LCS blower ≥ [15] minutes.	31 days
SR 3.6.1.9.2	Demonstrate electrical continuity of each inboard MSIV LCS subsystem heater element circuitry.	31 days
SR 3.6.1.9.3	Perform a system functional test of each MSIV LCS subsystem.	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.2.1 Suppression Pool Average Temperature

LCO 3.6.2.1 Suppression pool average temperature shall be:

a. ≤ [95]°F with THERMAL POWER ≥ 1% RATED THERMAL POWER (RTP) and no heat being added to the suppression pool by testing;

b. ≤ [105]°F with THERMAL POWER ≥ 1% RTP and heat being added to the suppression pool by testing; and

c. ≤ [110]°F with THERMAL POWER ≤ 1% RTP.

APPLICABILITY: MODES 1, 2, and 3.

-----------------------NOTE-----------------------
For this LCO, all suppression pool average temperature conditions are treated as an entity within a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool average temperature > [95]°F but ≤ [110]°F. AND With THERMAL POWER > 1% RTP. AND Not performing testing that adds heat to the suppression pool.	A.1 Verify suppression pool average temperature is ≤ [110]°F. AND A.2 Restore suppression pool average temperature to ≤ [95]°F.	Once per hour 24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Actions and associated Completion Times of Condition A not met.	B.1	Reduce THERMAL POWER to ≤ 1% RTP.	12 hours
C. Suppression pool average temperature > [105]°F. AND With THERMAL POWER ≥ 1% RTP. AND Performing testing that adds heat to the suppression pool.	C.1	Suspend all testing that adds heat to the suppression pool.	Immediately
	AND		
	C.2	Verify suppression pool average temperature ≤ [110]°F.	Once per hour
	AND		
	C.3	Restore suppression pool average temperature ≤ [95]°F.	24 hours
D. Required Actions and associated Completion Times of Condition C not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Suppression pool average temperature > [110]°F but ≤ [120]°F.	E.1	Place the reactor MODE switch in the shutdown position.	Immediately
	AND		
	E.2	Verify average temperature ≤ [120]°F.	Once per 30 minutes
F. Suppression pool average temperature > [120]°F.	F.1	Depressurize the reactor vessel to < [200] psig.	12 hours
	AND		
	F.2	Be in MODE 4.	36 hours
G. One or more required suppression pool temperature channels inoperable.	G.1	Suspend all testing that adds heat to the suppression pool.	Immediately
OR	AND		
One or more required intermediate range monitor (IRM) or THERMAL POWER channels inoperable.	G.2	Restore required suppression pool temperature and THERMAL POWER channels to OPERABLE status.	8 hours
	OR		
	G.3	Be in MODE 4.	44 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1.1	Verify suppression pool average temperature is within applicable limits.	24 hours AND 5 minutes when performing testing that adds heat to the suppression pool

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression Pool water level shall be $\geq$[18'4$\frac{1}{2}$"] and $\leq$ [18'9$\frac{3}{4}$"].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool water level not within limits.	A.1 Restore suppression pool water level within limits.	2 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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.2.2.1 Verify suppression pool water level is $\geq$ [18'4$\frac{1}{2}$"] and $\leq$ [18'9$\frac{3}{4}$"].	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling System

LCO 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1	Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
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 3.6.2.3.1 Verify each RHR suppression pool cooling manual, power-operated, or automatic valve that is not locked, sealed, or otherwise secured in position is in its correct position or can be aligned to its correct position.	31 days
SR 3.6.2.3.2 Demonstrate each RHR pump develops a flow rate ≥ [7450] gpm through the associated RHR heat exchanger(s) while operating in the suppression pool cooling mode.	[In accordance with the Inservice Inspection and Testing Program, or 92 days]

3.6 CONTAINMENT SYSTEMS

3.6.2.4 Suppression Pool Makeup System (SPMS)

LCO 3.6.2.4 Two SPMS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

-----NOTE-----
For this LCO, Conditions A, B, and C are treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Upper containment pool water level not within limits.	A.1	Restore upper containment pool water level within limits.	4 hours
B. Upper containment pool water temperature not within limits.	B.1	Restore upper containment pool water temperature within limits.	24 hours
C. One SPMS subsystem inoperable, for other reasons than Condition A or B.	C.1	Restore SPMS subsystem to OPERABLE status.	7 days
D. Required Actions and associated Completion Times not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify upper containment pool water level is ≥ [23'3"] above the pool bottom.	24 hours
SR 3.6.2.4.2	Verify upper containment pool water temperature is ≤ [120]°F.	24 hours
SR 3.6.2.4.3	Verify each SPMS subsystem manual, power-operated, or automatic valve that is not locked, sealed, or otherwise secured in position is in its correct position.	31 days
[SR 3.6.2.4.4	Verify all upper containment pool gates are in the stored position or are otherwise removed from the upper containment pool.	31 days]
SR 3.6.2.4.5	Demonstrate each SPMS subsystem automatic valve actuates to its correct position on an actual or simulated automatic initiation signal(s).	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.3.1 Primary Containment Hydrogen Recombiner System (PCHRS)—MODES 1 & 2 (if permanently installed)

LCO 3.6.3.1 Two PCHRS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One PCHRS subsystem inoperable.	A.1	Restore 1 PCHRS subsystem 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 3.6.3.1.1	Perform a system functional test for each PCHRS subsystem.	[18] months
SR 3.6.3.1.2	Visually examine each PCHRS subsystem enclosure and ensure there is no evidence of abnormal conditions.	[18] months
SR 3.6.3.1.3	Perform a resistance-to-ground test for each heater phase.	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Primary Containment and Drywell Hydrogen Ignition System (HIS)—MODES 1 & 2

LCO 3.6.3.2 Two primary containment and drywell HIS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One primary containment and drywell HIS subsystem inoperable.	A.1 Restore primary containment and drywell HIS subsystem to OPERABLE status.	7 days
B. [Two] hydrogen ignitors in 1 or more primary containment and drywell regions inoperable.	------------NOTE------------ Each containment region is treated as an independent entity for this Required Action, with an independent Completion Time. ---------------------------- B.1 Verify both hydrogen ignitors in each of 2 adjacent regions are not inoperable. AND B.2 Restore 1 hydrogen ignitor in each region to OPERABLE status.	1 hour 7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Actions and associated Completion Times not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.2.1 Verify each accessible glow plug is energized.	92 days
SR 3.6.3.2.2 Demonstrate each ignitor circuit is OPERABLE.	92 days
SR 3.6.3.2.3 Visually examine each glow plug to ensure cleanliness.	[18] months
SR 3.6.3.2.4 Verify each normally inaccessible glow plug is energized.	[18] months
SR 3.6.3.2.5 Demonstrate the surface temperature of each glow plug is $\geq$ [1700]°F	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.3.3 Primary Containment Hydrogen Mixing System (HMS)—MODES 1 & 2

LCO 3.6.3.3 Two primary containment HMS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required primary containment HMS subsystem inoperable.	A.1	Restore 1 primary containment HMS subsystem 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 3.6.3.3.1	Operate each required primary containment HMS subsystem for $\geq$ [15] minutes.	92 days
[SR 3.6.3.3.2	Demonstrate each required primary containment HMS subsystem flow rate is $\geq$ [500] scfm.	[18] months]

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

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

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	---NOTE--- LCO 3.0.3 is not applicable.		
C. Secondary containment inoperable when handling irradiated fuel assemblies in the primary or secondary containment, when moving loads over irradiated fuel, during CORE ALTERATIONS, or during OPDRVs.	C.1	Suspend handling of irradiated fuel assemblies or other loads in the primary or secondary containment.	Immediately
	<u>AND</u>		
	C.2	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	C.3	Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
[SR 3.6.4.1.1	Verify secondary containment vacuum is ≥ [0.25] inches of vacuum water gauge.	12 hours]
SR 3.6.4.1.2	Verify all secondary containment equipment hatches are closed and sealed.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.3	Verify each secondary containment access door is closed, except when the access opening is being used for normal transient entry and exit, then at least one door shall be closed.	31 days
SR 3.6.4.1.4	Verify secondary containment structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the secondary containment.	During shutdown for SR 3.6.1.1.1 Type A tests
SR 3.6.4.1.5	Demonstrate one Standby Gas Treatment System (SGTS) subsystem will draw down the secondary containment to $\geq$ [0.25] inches of vacuum water gauge in $\leq$ [120] seconds.	[18] months on a STAGGERED TEST BASIS
SR 3.6.4.1.6	Demonstrate one SGTS subsystem can maintain $\geq$ [0.25] inches of vacuum water gauge in the secondary containment for 1 hour at a flow rate $\leq$ [4000] cfm.	[18] months on a STAGGERED TEST BASIS

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

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

------------------------NOTE------------------------
For this LCO, each penetration flow path is treated as an individual entity with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
	------------NOTES------------ 1. Normally locked- or sealed-closed SCIVs may be opened intermittently under administrative controls. 2. Not applicable to penetrations that have only one SCIV. ----------------------------	
A. One or more SCIVs inoperable.	A.1 Verify at least one SCIV is OPERABLE in each affected open penetration. <u>AND</u>	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.1	Restore the SCIV(s) to OPERABLE status.	4 hours
	<u>OR</u>		
	A.2.2.1	Isolate each affected penetration by use of at least 1 closed and deactivated automatic valve, closed manual valve, or blind flange.	4 hours
		<u>AND</u>	
	A.2.2.2	Verify each affected penetration is isolated.	Once per 31 days
B. One or more SCIVs inoperable in one or more penetration flow paths.	B.1	Verify the Required Actions for those supported systems declared inoperable by the inoperability of the support SCIVs have been initiated.	[ ] hours, [where [ ] hours is the most limiting Completion Time of all supported systems' Required Actions]

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more SCIVs inoperable in one or more penetration flow paths. AND One or more required support or supported features, or both, inoperable associated with the other redundant penetration flow paths.	C.1	Enter LCO 3.0.3, unless the loss of functional capability is allowed in the support or supported feature LCO.	Immediately
D. Required Actions and associated Completion Times of Condition A, B, or C not met in MODE 1, 2, or 3.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours
	------------NOTE------------ LCO 3.0.3 is not applicable. ----------------------------		
E. Required Actions and associated Completion Times of Condition A, B, or C not met when handling irradiated fuel in the primary or secondary containment, when moving loads over irradiated fuel, during CORE ALTERATIONS, or during OPDRVs.	E.1	Suspend handling of irradiated fuel assemblies or other loads in the primary or secondary containment.	Immediately
	AND		
	E.2	Suspend CORE ALTERATIONS.	Immediately
	AND		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. (continued)	E.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	-----------------NOTES----------------- 1. Valves and blind flanges in high-radiation areas may be verified by use of administrative controls. 2. Normally locked- or sealed-closed SCIVs may be opened intermittently under administrative control. 3. This SR is not required to be met on SCIVs that are open under administrative controls. --------------------------------------- Verify all secondary containment isolation manual valves and blind flanges that are required to be closed during accident conditions are closed.	31 days
SR 3.6.4.2.2	Demonstrate the isolation time of each power-operated and each automatic SCIV is within limits.	[In accordance with the Inservice Inspection and Testing Program, or 92 days]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
[SR 3.6.4.2.3 Cycle each weight- or spring-loaded check valve testable during plant operation through one complete cycle of full travel and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.	92 days]
SR 3.6.4.2.4 Demonstrate each automatic SCIV actuates to its isolation position on an actual or simulated automatic isolation signal(s).	[18] months
[SR 3.6.4.2.5 Cycle each weight- or spring-loaded check valve not testable during plant operation through one complete cycle of full travel and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ 1.2 psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.	[18] months]

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment System (SGTS)

LCO 3.6.4.3 Two SGTS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When handling irradiated fuel in the primary or secondary containment,
When moving loads over irradiated fuel,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	--------------NOTE----------- LCO 3.0.3 is not applicable. ----------------------------		
C. Required Action and associated Completion Time not met when handling irradiated fuel assemblies in the primary or secondary containment, when moving loads over irradiated fuel, during CORE ALTERATIONS, or during OPDRVs.	C.1	Place OPERABLE SGTS subsystem in operation.	Immediately
	<u>OR</u>		
	C.2.1	Suspend handling of irradiated fuel assemblies or other loads in the primary or secondary containment.	Immediately
	<u>AND</u>		
	C.2.2	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	C.2.3	Initiate action to suspend OPDRVs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two SGTS subsystems inoperable when handling irradiated fuel assemblies in the primary or secondary containment, when moving loads over irradiated fuel, during CORE ALTERATIONS, or during OPDRVs.	D.1	Suspend handling of irradiated fuel assemblies or other loads in the primary or secondary containment.	Immediately
	<u>AND</u>		
	D.2	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	D.3	Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGTS subsystem for $\geq$ [10] continuous hours [with heaters operating].	31 days
SR 3.6.4.3.2	Perform required filter testing in accordance with the Ventilation Filter Testing Program.	In accordance with the Ventilation Filter Testing Program
SR 3.6.4.3.3	Demonstrate each SGTS subsystem actuates on an actual or simulated initiation signal(s).	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
[SR 3.6.4.3.4	Demonstrate each SGTS filter cooler bypass damper can be opened and the fan started.	[18] months]

3.6 CONTAINMENT SYSTEMS

3.6.5.1 Drywell

LCO 3.6.5.1 The drywell shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Drywell inoperable.	A.1	Restore drywell to OPERABLE status.	1 hour
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 3.6.5.1.1	Demonstrate bypass leakage is < [10]% of the required minimum analyzed bypass leakage.	[18] months
SR 3.6.5.1.2	Visually inspect the exposed accessible interior and exterior surfaces of the drywell.	[40] months

3.6 CONTAINMENT SYSTEMS

3.6.5.2 Drywell Air Lock

LCO 3.6.5.2 The drywell air lock shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

-----NOTES-----

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

2. For this LCO, the drywell air lock is treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One drywell air-lock door inoperable.	A.1 Verify an OPERABLE drywell air-lock door is closed.	1 hour
	AND	
	A.2.1 Restore the drywell air lock to OPERABLE status.	24 hours
	OR	
	A.2.2.1 Lock the OPERABLE Drywell air-lock door closed.	24 hours
	AND	
	A.2.2.2 Verify an OPERABLE drywell air-lock door is locked-closed.	Once per 31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. --------NOTE--------- Entry and exit of drywell is permissible under the control of a dedicated individual if the drywell air lock is inoperable. ------------------- Drywell air-lock interlock mechanism inoperable.	B.1	Verify an OPERABLE drywell air-lock door is closed.	1 hour
	AND		
	B.2.1	Restore drywell air-lock interlock mechanism to OPERABLE status.	24 hours
	OR		
	B.2.2.1	Lock the OPERABLE drywell air lock door closed.	24 hours
	AND		
	B.2.2.2	Verify an OPERABLE drywell air-lock door is locked-closed.	Once per 31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	------------NOTE------------ If both doors in the air lock have failed the seal test, drywell shall be declared inoperable in accordance with LCO 3.6.5.1. ----------------------------		
C. Drywell air lock inoperable for reasons other than Condition A or B.	C.1	Verify a drywell air-lock door is closed.	1 hour
	AND		
	C.2	Restore the drywell air lock to OPERABLE status.	24 hours
D. Required Actions and associated Completion Times not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.2.1	Demonstrate seal leakage rate is ≤ [200] scfh when the gap between the door seals is pressurized to ≥ [11.5] psig.	Once within 72 hours after each closing

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
		-----NOTE----- Only required if not performed within previous 184 days --------------
SR 3.6.5.2.2	Demonstrate only one door in the drywell air lock can be opened at a time.	Prior to entry into Drywell
SR 3.6.5.2.3	Verify drywell air-lock seal air-flask pressure is ≥ [90] psig.	7 days
SR 3.6.5.2.4	------------------NOTE------------------ An inoperable air-lock door does not invalidate the previous successful performance of an overall air-lock leakage test. --	-----NOTE----- Only required if not performed within the previous 184 days --------------
	Demonstrate overall drywell air-lock leakage rate is ≤ [200] scfh by performing an overall air-lock leakage test at ≥ [11.5] psig.	Each COLD SHUTDOWN
SR 3.6.5.2.5	Demonstrate from an initial pressure of [90] psig the seal pneumatic system does not decay at a rate of [30] psig for a period of [10] days.	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.5.3 Drywell Isolation Valves (DIVs)

LCO 3.6.5.3 Each DIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

-----------------------------NOTE-----------------------------
For this LCO, each penetration flow path is treated as an independent entity with an independent Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
	------------NOTES------------ 1. Normally locked DIVs [except for purge valves] may be opened intermittently under administrative controls. 2. Not applicable to those penetrations that have only 1 DIV. -----------------------------	
A. One or more DIVs inoperable.	A.1 Verify at least 1 DIV is OPERABLE in each affected open penetration.	1 hour
	<u>AND</u>	
	A.2.1 Restore the DIV(s) to OPERABLE status.	4 hours
	<u>OR</u>	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.2.1	Isolate each affected penetration by use of at least 1 closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. **AND**	4 hours
	A.2.2.2	Verify each affected penetration is isolated.	Prior to entering MODE 3 from MODE 4, but not more often than once per 92 days
B. One or more DIVs inoperable in one or more penetration flow paths.	B.1	Verify the Required Actions for those supported systems declared inoperable by the inoperability of the support DIVs have been initiated.	[ ] hours [where [ ] hours is the most limiting Completion Time of all supported systems' Required Actions]

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more DIVs inoperable in 1 or more penetration flow paths. AND One or more required support or supported features inoperable associated with the other redundant penetration flow paths.	C.1	Enter LCO 3.0.3, unless the loss of functional capability is allowed in the support or supported feature LCO.	Immediately
D. Required Actions and associated Completion Times not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
[SR 3.6.5.3.1	Verify each [ ]-inch drywell purge isolation valve (DPIV) is sealed-closed.	31 days]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
[SR 3.6.5.3.2	------------------NOTE------------------ The [20]-inch DPIVs may be open for pressure control, as low as reasonably achievable and air quality considerations for personnel entry, and Surveillance tests that require the valves to be open. -- Verify each [20]-inch DPIV is closed.	31 days]
SR 3.6.5.3.3	------------------NOTES------------------ 1. Normally locked- or sealed-closed isolation valves may be opened intermittently under administrative controls. 2. This SR is not required to be met on valves that are open under administrative controls. -- Verify all drywell isolation manual valves and blind flanges that are required to be closed during accident conditions are closed.	Prior to entering MODE 3 from MODE 4 but not more often than once per 92 days
SR 3.6.5.3.4	Demonstrate the isolation time of each power-operated and automatic DIV is within limits.	[In accordance with the Inservice Inspection and Testing Program, or 92 days]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.5.3.5	Demonstrate each drywell automatic isolation valve actuates to its isolation position on an actual or simulated automatic isolation signal(s).	[18] months
[SR 3.6.5.3.6	Demonstrate each [ ]-inch DPIV is blocked to restrict the valve from opening more than 50%.	[18] months]

3.6 CONTAINMENT SYSTEMS

3.6.5.4 Drywell Pressure

LCO 3.6.5.4 Drywell-to-primary containment differential pressure shall be ≥ [-0.26] psid and ≤ [2.0] psid.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Drywell-to-primary containment differential pressure not within limits.	A.1	Restore drywell-to-primary containment differential pressure within limits.	1 hour
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 3.6.5.4.1	Verify drywell-to-primary containment differential pressure is ≥ [-0.26] psid and ≤ [2.0] psid.	12 hours

3.6 CONTAINMENT SYSTEMS

3.6.5.5 Drywell Air Temperature

LCO 3.6.5.5 Drywell average air temperature shall be ≤ [135]°F.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Drywell average air temperature not within limit.	A.1	Restore drywell average air temperature within limit.	8 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 3.6.5.5.1 Verify drywell average air temperature is ≤ [135]°F.	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.5.6 Drywell Vacuum Relief System

LCO 3.6.5.6 [Two] drywell post-LOCA and [2] drywell purge vacuum relief subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One drywell Post-LOCA vacuum relief subsystem inoperable. OR One drywell purge vacuum relief subsystem inoperable. OR One drywell post-LOCA and 1 drywell purge vacuum relief subsystem inoperable. OR Two drywell post-LOCA vacuum relief subsystems inoperable.	A.1 AND A.2	Verify the inoperable vacuum relief subsystem(s) are closed. Restore the subsystem(s) to OPERABLE status.	1 hour 30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two drywell purge vacuum relief subsystems inoperable.	B.1 Verify the inoperable vacuum relief subsystems are closed.	1 hour
	<u>AND</u>	
	B.2 Restore at least 1 drywell purge vacuum relief subsystem to OPERABLE status.	72 hours
C. Two drywell post-LOCA vacuum relief subsystems inoperable. <u>AND</u> One drywell purge vacuum relief subsystem inoperable.	C.1 Verify the inoperable vacuum relief subsystems are closed.	1 hour
	<u>AND</u>	
	C.2 Restore at least 1 subsystem to OPERABLE status.	72 hours
D. Required Actions and associated Completion Times not met. <u>OR</u> Two drywell purge vacuum relief subsystems inoperable. <u>AND</u> One or two drywell post-LOCA vacuum relief subsystem(s) inoperable.	D.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	D.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5.6.1 Verify each vacuum breaker and its associated isolation valve is closed.	7 days
SR 3.6.5.6.2 Perform a functional test of each vacuum breaker and its associated isolation valve.	31 days
SR 3.6.5.6.3 Demonstrate opening setpoint of each vacuum breaker is ≤ [0.5] psid.	[18] months

3.7 PLANT SYSTEMS

3.7.1 [Standby] Service Water (SSW) System and Ultimate Heat Sink (UHS)

LCO 3.7.1 Division I and II SSW subsystems and UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

---------------------------NOTE---------------------------
For this LCO, all the components of the SSW System and UHS are treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more cooling tower fans inoperable.	A.1	Verify at least [one] cooling tower fan in each cooling tower OPERABLE.	1 hour
	AND		
	A.2	Restore cooling tower fans to OPERABLE status.	7 days
B. One SSW subsystem inoperable.	B.1	Restore the SSW subsystem to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (a) One SSW subsystem inoperable. OR (b) Less than [one] cooling tower fan(s) in one or more cooling towers inoperable. OR (c) Both (a) and (b) above.	C.1 Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support SSW subsystem or cooling tower fans have been initiated.	[ ] hours, [where [ ] hours is the most limiting Completion Time of all the supported systems' Required Actions]
D. One SSW subsystem inoperable, or no more than [one] cooling tower fan inoperable in one or more cooling towers, or both. AND One or more required support or supported features inoperable associated with the other redundant SSW subsystem, or cooling tower fans, or both.	D.1 Enter LCO 3.0.3, unless the loss of functional capability is allowed in the support or supported feature LCO.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Actions and associated Completion Times not met. OR Both SSW subsystems inoperable. OR UHS inoperable for reasons other than Condition A.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify the water level of each SSW cooling tower basin is ≥ [ ] ft.	24 hours
SR 3.7.1.2	Verify the water level in each SSW pump well of the intake structure is ≥ [ ] ft.	24 hours
SR 3.7.1.3	Verify that the average water temperature of the UHS is ≤ [ ]°F.	24 hours
SR 3.7.1.4	Operate each SSW cooling tower fan for ≥ [15] minutes.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.1.5	Verify each SSW manual, power-operated, and automated valve in the flow path servicing safety-related systems or components, not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.7.1.6	Demonstrate each SSW subsystem actuates on an actual or simulated initiation signal.	[18] months

3.7 PLANT SYSTEMS

3.7.2 High Pressure Core Spray (HPCS) Service Water System (SWS)

LCO 3.7.2 The HPCS SWS shall be OPERABLE.

APPLICABILITY: When the HPCS System is required to be OPERABLE.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. HPCS SWS inoperable.	A.1	Restore HPCS SWS to OPERABLE status.	[72 hours]
B. HPCS SWS inoperable.	B.1	Verify that the Required Actions for those supported systems declared inoperable by the inoperability of the support HPCS SWS have been initiated.	[ ] hours, [where [ ] hours is the more limiting Completion Time of all the supported systems' Required Actions]
C. Required Actions and associated Completion Times not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify each HPCS SWS manual, power-operated, and automatic valve in the flow path that is servicing safety-related systems or components and is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.2.2	Demonstrate the HPCS SWS actuates on an actual or simulated actuation signal.	[18] months

3.7 PLANT SYSTEM

3.7.3 Control Room Air Intake, Recirculation, and Purification (AIRP) System

LCO 3.7.3 Two control room AIRP subsystems shall be OPERABLE.

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

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	------------NOTE------------- LCO 3.0.3 is not applicable. ----------------------------	
C. Required Action and associated Completion Time not met when handling irradiated fuel assemblies in the primary or secondary containment, when moving loads over irradiated fuel, during CORE ALTERATIONS, or during OPDRVs.	C.1 -------NOTE-------- Place in toxic gas protection mode if auto-swapover to toxic gas protection mode is inoperable. -------------------- Place OPERABLE control room AIRP subsystem in [isolation] mode.	Immediately
	<u>OR</u>	
	C.2.1 Suspend handling of irradiated fuel assemblies or other loads in the primary and secondary containment.	Immediately
	<u>AND</u>	
	C.2.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	C.2.3 Initiate action to suspend OPDRVs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two control room AIRP subsystems inoperable when handling irradiated fuel assemblies in the primary or secondary containment, when moving loads over irradiated fuel, during CORE ALTERATIONS, or during OPDRVs.	D.1	------NOTE---------- LCO 3.0.3 is not applicable. -------------------- Suspend handling of irradiated fuel assemblies or other loads in primary and secondary containment.	Immediately
	<u>AND</u>		
	D.2	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	D.3	Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each control room AIRP subsystem for [≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.7.3.2	Perform required control room AIRP filter testing in accordance with the [Ventilation Filter Testing Program].	In accordance with the [Ventilation Filter Testing Program]
SR 3.7.3.3	Demonstrate that each control room AIRP subsystem actuates on an actual or simulated actuation signal.	[18] months
[SR 3.7.3.4	Demonstrate that one control room AIRP subsystem can maintain a positive pressure of ≥ [0.1] inches water gauge relative to [adjacent buildings] during the isolation or pressurization mode of operation at a flow rate of ≤ [400] cfm.	[18] months months on a STAGGERED TEST BASIS]

3.7 PLANT SYSTEMS

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

LCO 3.7.4 Two control room HVAC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3,
When handling irradiated fuel assemblies in the primary or secondary containment,
When moving loads over irradiated fuel,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One control room HVAC system inoperable.	A.1	Restore control room HVAC subsystem to OPERABLE status.	30 days
B. Required Action and Associated Completion Time not met in MODE 1, 2, or 3.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met when handling irradiated fuel assemblies in the primary or secondary containment, when moving loads over irradiated fuel, during CORE ALTERATIONS, or during OPDRVs.	C.1	---------NOTE-------- LCO 3.0.3 is not applicable. ------------------- Place OPERABLE control room HVAC subsystem in operation.	Immediately
	OR		
	C.2	Suspend handling of irradiated fuel assemblies or other loads in the primary and secondary containment.	Immediately
	AND		
	C.2.2	Suspend CORE ALTERATIONS.	Immediately
	AND		
	C.2.3	Initiate action to suspend OPDRVs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two control room HVAC subsystems inoperable when handling irradiated fuel assemblies in the primary or secondary containment, when moving loads over irradiated fuel, during CORE ALTERATIONS, or during OPDRVs.	D.1	----------NOTE------- LCO 3.0.3 is not applicable. -------------------- Suspend handling of irradiated fuel assemblies or other loads in the primary and secondary containment.	Immediately
	AND		
	D.2	Suspend CORE ALTERATIONS.	Immediately
	AND		
	D.3	Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.5 Main Condenser Offgas

LCO 3.7.5 The gross gamma activity flow rate of the noble gases measured at [the offgas recombiner effluent] shall be ≤ [ ] mCi/second [after 30-minutes decay].

APPLICABILITY: MODE 1,
MODES 2 and 3 with any main steam line not isolated and steam jet air ejector (SJAE) in operation.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Gross gamma activity flow rate of the noble gases not within limit.	A.1	Restore gross gamma activity flow rate of the noble gases to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1	Isolate all main steam lines.	12 hours
	<u>OR</u>		
	B.2	Isolate SJAE.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify that the gross gamma activity flow rate of the noble gases is ≤ [ ] mCi/second [after 30-minutes decay].	-----NOTE----- Only required with any main steam line not isolated and SJAE in operation --------------- 31 days <u>AND</u> Once within 4 hours after a ≥ 50% increase in the nominal steady-state fission-gas release after factoring out increases due to changes in THERMAL POWER level

3.7 PLANT SYSTEMS

3.7.6 Main Turbine Bypass System

LCO 3.7.6 The Main Turbine Bypass System shall be OPERABLE.

[OR

LCO 3.2.2, "Minimum Critical Power Ratio," limits for Main Turbine Bypass System when inoperable, as specified in the [CORE OPERATING LIMITS REPORT (COLR)], are made applicable.]

APPLICABILITY: THERMAL POWER ≥ 25% RATED THERMAL POWER (RTP).

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Cycle each main turbine bypass valve.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.7.6.2 Perform a Turbine Bypass System functional test.	[18] months
SR 3.7.6.3 Determine the Turbine Bypass System response time.	[18] months

3.7 PLANT SYSTEMS

3.7.7 Fuel Pool Water Level

LCO 3.7.7 The fuel pool water level shall be ≥ [23] ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool and upper containment fuel storage pool racks.

APPLICABILITY: When irradiated fuel assemblies are seated in the spent fuel storage pool or upper containment fuel storage pool racks.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Fuel pool water level not within limit.	A.1	----------NOTE------- LCO 3.0.3 and LCO 3.0.4 are not applicable. -------------------- Suspend movement of fuel assemblies in the associated storage pool(s).	Immediately
	<u>AND</u>		
	A.2	Initiate action to restore water level in the associated storage pool(s).	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify that the fuel pool water level is ≥ [23] ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool and upper containment fuel storage pool racks.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources—Operating

LCO 3.8.1 The required [Division 1] {VS-BW,CE,W,BWR/4: and [Division 2]} {VS-BWR/6: , [Division 2], and [Division 3]} AC electrical power sources shall be OPERABLE, and the required [Division 1] {VS-BW,CE,W,BWR/4: and [Division 2]} {VS-BWR/6: [,] [Division 2] [and Division 3]} [automatic sequencers] shall be OPERABLE.

APPLICABILITY: {VS-BW,CE,W: MODES 1, 2, 3, and 4.} {VS-GE: MODES 1, 2, and 3.}

---------------------------NOTE---------------------------
For this LCO, all required [Division 1] {VS-BW,CE,W,BWR/4: and [Division 2]} {VS-BWR/6: , [Division 2], and [Division 3]} AC electrical power sources and all required [Division 1] {VS-BW,CE,W,BWR/4: and [Division 2]} {VS-BWR/6: [,] [Division 2] [and Division 3]} [automatic sequencers] shall be treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. --------NOTE--------- Other offsite SRs: see SR 3.8.1.1. --------------------- One required offsite circuit inoperable.	A.1	Restore all required AC electrical power sources to OPERABLE status.	72 hours {VS-BWR/6: OR [72 hours] provided that the only offsite circuit that is inoperable is the [Division 3] offsite circuit}

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. No offsite power source to one [division] of the onsite Class 1E Power Distribution System. AND One or more required support or supported features, inoperable that are associated with the other {VS-BW,CE,W, BWR/4: [division] that has} {VS-BWR/6: [divisions] that have} offsite power or associated with opposite OPERABLE DC power sub-system(s), or both. {VS-BW,CE,W: OR The turbine-driven auxiliary feedwater pump inoperable.	B.1	Restore all required AC electrical power sources to OPERABLE status.	[BX] hours
	OR		
	{VS-BW,CE,W: B.2.1} {VS-GE: B.2}	Restore all required support and supported features to OPERABLE status that are associated with the other {VS-BW,CE,W,BWR/4: [division] that has} {VS-BWR/6: [divisions] that have} offsite power and opposite OPERABLE DC power subsystem(s).	[BX] hours
	AND		
	B.2.2	--------NOTE-------- Required Action B.2.2 is required only in MODES 1, 2, and 3, and in MODE 4 when auxiliary feedwater is being used for plant shutdown or startup. -------------------- Restore turbine-driven auxiliary feedwater pump to OPERABLE status.	[BX] hours}

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ---------NOTES-------- 1. Other offsite SRs: See SR 3.8.1.2. 2. Other onsite SRs: See SR 3.8.1.3. 3. Must complete SRs: SR 3.8.1.3 shall be completed if this Condition is entered. --------------------- One required diesel generator (DG) inoperable.	C.1	Restore all required AC electrical power sources to OPERABLE status.	72 hours {VS-BWR/6: OR [72 hours] provided that the only DG that is inoperable is the [Division 3] DG}

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One required DG inoperable. AND One or more required support or supported features inoperable that are associated with the other {VS-BW,CE,W,BWR/4: [division] that has} {VS-BWR/6: [divisions] that have} a required OPERABLE DG or associated with opposite OPERABLE DC power sub-system(s), or both. {VS-BW,CE,W: OR The turbine-driven auxiliary feedwater pump inoperable.	D.1	Restore all required AC electrical power sources to OPERABLE status.	[DX] hours
	OR		
	{VS-BW, CE, W: D.2.1} {VS-GE: D.2}	Restore all required support and supported features to OPERABLE status that are associated with the other {VS-BW,CE,W,BWR/4: [division] that has} {VS-BWR/6: [divisions] that have} a required OPERABLE DG or opposite OPERABLE DC power subsystem(s), or both.	[DX] hours
	AND		
	D.2.2	---------NOTE--------- Required Action D.2.2 is required in MODES 1, 2, and 3, and in MODE 4 when auxiliary feedwater is being used for plant shutdown or startup. -------------------- Restore turbine-driven auxiliary feedwater pump to OPERABLE status.	[DX] hours}

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	--------------NOTE------------ When Condition E is entered with no AC power source to one [division], LCO 3.8.7 shall be immediately entered. ------------------------------	
E. One required offsite circuit inoperable.	E.1 Restore all required offsite circuits to OPERABLE status.	12 hours OR Within the Completion Time of Required Action A.1 of LCO 3.8.7, if Condition E was entered with no AC power source to one [division]
AND	OR	
One required DG inoperable.	E.2 Restore all required DGs to OPERABLE status.	12 hours OR Within the Completion Time of Required Action A.1 of LCO 3.8.7, if Condition E was entered with no AC power source to one [division]

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Two required offsite circuits inoperable.	F.1	Restore at least {VS-BW,CE,W,BWR/4: [1]} {VS-BWR/6: 2} required offsite {VS-BW,CE,W,BWR/4: circuit[s]} {VS-BWR/6: circuits} to OPERABLE status.	24 hours
G. Two required DGs inoperable.	G.1	Restore at least {VS-BW,CE,W,BWR/4: [1] required DG[s]} {VS-BWR/6: 2 required DGs} to OPERABLE status.	2 hours
H. Three required AC sources inoperable.	H.1	Enter LCO 3.0.3.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. One required [automatic load sequencer] inoperable.	I.1	Restore all required [automatic load sequencers] to OPERABLE status.	[2] hours {VS-BWR/6: [OR [2] hours if [automatic load sequencer] is associated with [Division 3]]}
J. Required Actions and Associated Completion Times of Condition A, B, C, D, E, F, G, or I not met.	J.1	Be in MODE 3.	{VS-BW,CE,W: 6 hours} {VS-GE: 12 hours}
	AND		
	J.2	{VS-BW,CE,W: Be in MODE 5.} {VS-GE: Be in MODE 4.}	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	-----NOTE----- SR 3.8.1.1 is only required when in Condition A. ----- Perform the Surveillance of SR 3.8.1.4 for any remaining required offsite circuits that are OPERABLE.	Once within 1 hour of entering Condition A AND Once per 8 hours thereafter
SR 3.8.1.2	-----NOTE----- SR 3.8.1.2 is only required when in Condition C. ----- Perform the Surveillance of SR 3.8.1.4 for any required offsite circuits that are OPERABLE.	Once within 1 hour of entering Condition C AND Once per 8 hours thereafter

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	-------------------NOTE------------------- SR 3.8.1.3 is only required when in Condition C. -- A.1 Determine absence of common cause for the DG inoperability for any remaining required DGs that are OPERABLE. OR B.1 Perform the Surveillance of SR 3.8.1.5 for any remaining required DGs that are OPERABLE.	Once within [8] hours of entering Condition C Once within [8] hours of entering Condition C
SR 3.8.1.4	Verify correct breaker alignment and indicated power availability for each required offsite circuit and OPERABILITY of devices providing the independence and separability.	7 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.5	--------------------NOTES------------------- 1. Performance of SR 3.8.1.17 satisfies this SR. 2. All DG starts may be preceded by prelube procedures as recommended by the manufacturer. [3. Following DG start, warmup procedures such as idling and gradual acceleration may be used as recommended by the manufacturer. When they are not used, the time, voltage, and frequency tolerances specified in SR 3.8.1.17 must be met.] 4 Following this SR, satisfy SR 3.8.1.6. (Exceptions: Do not follow with SR 3.8.1.6 under the following circumstances: a. If SR 3.8.1.5 was required by SR 3.8.1.3, or b. If SR 3.8.1.5 was required by SR 3.8.2.1.) --- Demonstrate each DG starts from standby conditions and achieves steady-state voltage and frequency within the ranges: a. [3744] V $\leq$ voltage $\leq$ [4576] V; and b. [58.8] Hz $\leq$ frequency $\leq$ [61.2] Hz.	As specified by Table 3.8.1-1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.6	---NOTES--- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This surveillance shall be conducted on only one DG at a time. --- Demonstrate each DG is synchronized and loaded and operates for ≥ 60 minutes at a load within the range: [4500]kW ≤ load ≤ [5000]kW for [Division 1 and 2] DGs, {VS-BWR/6: and within the range: [2970]kW ≤ load ≤ [3300]kW for [Division 3] DG,} and at a power factor within the range: [0.8] ≤ power factor ≤ [0.90] for [Division 1 and 2] DGs {VS-BWR/6: and within the range: [0.8] ≤ power factor ≤ [0.90] for [Division 3] DG}.	As specified by Table 3.8.1-1
SR 3.8.1.7	Verify pressure in required air-start receivers ≥ [160] psig for [Division 1 and 2] {VS-BWR/6: and ≥ [150] psig for [Division 3]}.	31 days
SR 3.8.1.8	Verify each fuel day tank [and engine-mounted fuel tank] contains ≥ [220] gal of fuel for [Division 1 and 2] {VS-BWR/6: and ≥ [200] gal for [Division 3]}.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	{VS-BW,CE,W,BWR/4: Verify each fuel storage tank contains ≥ [60,000] gal of fuel.} {VS-BWR/6: Verify each fuel storage tank contains: a. ≥ [60,000] gal of fuel for [Division 1 and 2] DGs; and b. ≥ [40,000] gal of fuel for [Division 3] DG.}	31 days
SR 3.8.1.10	Verify lubricating oil inventory is ≥ [500] gal.	31 days
SR 3.8.1.11	Demonstrate the flash point, gravity, viscosity, and appearance of new fuel are within limits when tested in accordance with applicable American Society for Testing Materials (ASTM) standards.	Once within 31 days prior to addition of new fuel to storage tank(s)
SR 3.8.1.12	Demonstrate that the properties of new fuel, other than those listed in SR 3.8.1.11, are within applicable ASTM limits.	Once within 31 days following performance of SR 3.8.1.11
SR 3.8.1.13	Demonstrate that the total particulate in stored fuel is less than 10 mg/l when tested in accordance with applicable ASTM standards.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	Check for and remove accumulated water from each storage tank.	[31] days
SR 3.8.1.15	Check for and remove accumulated water from each day tank [and engine-mounted tank].	[31] days
SR 3.8.1.16	Demonstrate the fuel transfer system operates to [automatically] transfer fuel from storage tank(s) to the day tank [and engine-mounted tank].	[92] days
SR 3.8.1.17	-----NOTES----- 1. All DG starts may be preceded by an engine prelube period. 2. Following this SR (except when required by SR 3.8.2.1), perform SR 3.8.1.6. ---------- Demonstrate each DG starts from standby condition and achieves in ≤ [10] seconds, voltage and frequency within the ranges: a. [3744] V ≤ voltage ≤ [4576] V; and b. [58.8] Hz ≤ frequency ≤ [61.2] Hz.	184 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
[SR 3.8.1.18	-----------------NOTES-------------------- 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Credit may be taken for unplanned events that satisfy this SR. -- Demonstrate [automatic/manual] transfer of [safety-related power supply] from the [normal circuit to each required offsite circuit and between the required] offsite circuits.]	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.19	------------------NOTES------------------ 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Credit may be taken for unplanned events that satisfy this SR. --- Demonstrate each DG operating at a power factor within the range: [0.80] ≤ power factor ≤ [0.90] for [Division 1 and 2] DGs, {VS-BWR/6: and within the range: [0.80] ≤ power factor ≤ [0.90] for [Division 3] DG,} rejects a load ≥ [1200]kW for [Division 1 and 2] DGs, {VS-BWR/6: and rejects a load ≥ [2500]kW for [Division 3] DG, and: a. Following load rejection, the frequency is ≤ [63] Hz; and b. Within [3] seconds following load rejection, the voltage is within the range: [3744] V ≤ voltage ≤ [4576] V; and c. Within [3] seconds following load rejection, the frequency is within the range: [58.8] Hz ≤ frequency ≤ [61.2] Hz.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.20	-------------------NOTES------------------- 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Credit may be taken for unplanned events that satisfy this SR. --- Demonstrate each DG, operating at a power factor within the range: [0.8] ≤ power factor ≤ [0.9] for [Division 1 and 2] DGs, {VS-BWR/6: and within the range: [0.8] ≤ power factor ≤ [0.9] for [Division 3] DG,} does not trip and voltage is maintained ≤ [5000] V during and following a load rejection of a load within the range: [4500]kW ≤ load ≤ [5000]kW for [Division 1 and 2] DGs {VS-BWR/6: and within the range: [2970]kW ≤ load ≤ [3300]kW for [Division 3] DG}.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.21	-----NOTES----- 1. All DG starts may be preceded by prelube procedures as recommended by the manufacturer. 2. This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4.} {VS-GE: MODE 1, 2, or 3.} 3. Credit may be taken for unplanned events that satisfy this SR. ---------- Demonstrate on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ [10] seconds, 2. energizes auto-connected shutdown loads through automatic load sequencer; 3. maintains steady-state voltage in the range: [3744] V ≤ voltage ≤ [4576] V; 4. maintains steady-state frequency in the range: [58.8] Hz ≤ frequency ≤ [61.2] Hz, and 5. supplies permanently connected and auto-connected shutdown loads for ≥ [5] minutes.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.22	-------------------NOTES------------------- 1. All DG starts may be preceded by prelube procedures as recommended by the manufacturer. 2. This Surveillance shall not be performed in MODE 1 or 2. 3. Credit may be taken for unplanned events that satisfy this SR. --- Demonstrate on an actual or simulated [Engineered Safety Feature (ESF)] signal each DG auto-starts from standby condition and: a. In ≤ [10] seconds after auto-start and during tests, achieves voltage in the range: [3744] V ≤ voltage ≤ [4576] V; b. In ≤ [10] seconds after auto-start and during tests, achieves Frequency in the range: [58.8] Hz ≤ Frequency ≤ [61.2] Hz, c. Operates for ≥ [5] minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are energized [or auto-connected through the automatic load sequencer] to the offsite power system.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.23	-------------------NOTES------------------- 1. This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4.} {VS-GE: MODE 1, 2, or 3.} 2. Credit may be taken for unplanned events that satisfy this SR. --- Demonstrate each DG's automatic trips are bypassed on [actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated [ESF] actuation signal] except: a. Engine overspeed; b. Generator differential current; c. [Low lube oil pressure]; d. [High crankcase pressure]; and e. [Start failure relay].	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.24	------------------NOTES------------------ 1. Momentary transients outside the load range do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. 3. Credit may be taken for unplanned events that satisfy this SR. ---	
	Demonstrate each DG operating at a power factor within the range: [0.8] ≤ power factor ≤ [0.9] for [Division 1 and 2] DGs, {VS-BWR/6: and within the range: [0.8] ≤ power factor ≤ [0.9] for [Division 3] DG,} operates for ≥ 24 hours: a. During the first 2 hours loaded within the range: [5250]kW ≤ load ≤ [5,500]kW for [Division 1 and 2] DGs, {VS-BWR/6: and within the range: [3465]kW ≤ load ≤ [3630]kW for [Division 3] DG,}; and b. During the remaining 22 hours of the test loaded within the range: [4500]kW ≤ load ≤ [5000]kW for [Division 1 and 2] DGs, {VS-BWR/6: and within the range: [2970]kW ≤ load ≤ [3300]kW for [Division 3] DG}.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.25 ----------NOTES---------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours at a power factor in the range: [0.8] ≤ power factor ≤ [0.9] for [Division 1 and 2] DGs, {VS-BWR/6: and within the range: [0.8] ≤ power factor ≤ [0.9] for [Division 3] DG,} and at a load in the range: [4500]kW ≤ load ≤ [5000]kW for [Division 1 and 2] DGs, {VS-BWR/6: and within the range: [2970]kW ≤ load ≤ [3300]kW for [Division 3] DG}. 2. All DG starts may be preceded by prelube procedures as recommended by the manufacturer. 3. Momentary transients outside of load range do not invalidate this test. ------------------------------ Demonstrate each DG starts and achieves in ≤ [10] seconds, voltage and frequency within the ranges: a. [3744] V ≤ voltage ≤ [4576] V; and b. [58.8] Hz ≤ frequency ≤ [61.2] Hz.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.26	-------------------NOTES------------------- 1. This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4.} {VS-GE: MODE 1, 2, or 3.} 2. Credit may be taken for unplanned events that satisfy this SR. -- Demonstrate each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	[18 months]
SR 3.8.1.27	-----------------NOTES------------------- 1. This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4.} {VS-GE: MODE 1, 2, or 3.} 2. Credit may be taken for unplanned events that satisfy this SR. -- Demonstrate with a DG operating in test mode and connected to its bus, an actual or simulated [ESF] actuation signal overrides the test mode by: a. Returning DG to ready-to-load operation [; and] [b. Automatically energizing the emergency load with offsite power].	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.28	------------------NOTES------------------ 1. This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4.} {VS-GE: MODE 1, 2, or 3.} 2. Credit may be taken for unplanned events that satisfy this SR. --- Demonstrate the interval between each load block is within ± [10% of design interval] for each emergency [and shutdown] load sequencer.	[18 months]
SR 3.8.1.29	------------------NOTES------------------ 1. All DG starts may be preceded by prelube procedures as recommended by the manufacturer. 2. This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4.} {VS-GE: MODE 1, 2, or 3.} 3. Credit may be taken for unplanned events that satisfy this SR. --- Demonstrate on an actual or simulated [ESF] actuation signal with delayed loss of offsite power: a. Each DG auto-starts from standby conditions and: 1. achieves in ≤ [10] seconds after auto-start and during test, voltage within the range: [3744] V ≤ voltage ≤ [4576] V,	[36 months] alternated with SR 3.8.1.30

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.29 (continued) 2. achieves in ≤ [10] seconds after auto-start and during test, frequency within the range: [58.8] Hz ≤ frequency ≤ [61.2] Hz; b. Permanently connected loads remain energized from the offsite power system; and c. Emergency loads are energized [or auto-connected through the load sequencer] to the offsite power system. Before the last load step, simulate loss of offsite power and demonstrate: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG from ready-to-load condition: 1. energizes permanently connected loads, 2. energizes auto-connected emergency loads through load sequencer, 3. achieves steady-state voltage within the range: [3744] V ≤ voltage ≤ [4576] V, 4. achieves steady-state frequency within the range: [58.8] Hz ≤ frequency ≤ [61.2] Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.30 ------------------NOTES------------------ 1. All DG starts may be preceded by prelube procedures as recommended by the manufacturer. 2. This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4.} {VS-GE: MODE 1, 2, or 3.} 3. Credit may be taken for unplanned events that satisfy this SR. --- Demonstrate on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated [ESF] actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ [10] seconds, 2. energizes auto-connected emergency loads through load sequencer, 3. achieves steady-state voltage within the range: [3744] V ≤ voltage ≤ [4576] V, 4. achieves steady-state frequency within the range: [58.8] Hz ≤ frequency ≤ [61.2] Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ [5] minutes.	[36 months] alternated with SR 3.8.1.29

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.31 For the fuel subsystem: a. Drain each fuel storage tank; b. Remove the sediment from the storage tank; and c. Clean the storage tank.	10 years
SR 3.8.1.32 ------------------NOTE------------------ All DG starts may be preceded by prelube procedures as recommended by the manufacturer. -- Demonstrate that when started simultaneously from standby condition, the {VS-BW, CE, W, BWR/4: [Division 1 and 2]} {VS-BWR/6: [Division 1, 2, and 3]} DGs each achieve in ≤ [10] seconds voltage and frequency within the range: a. [3744] V ≤ voltage ≤ [4576] V; and b. [58.8] Hz ≤ frequency ≤ [61.2] Hz.	10 years

Table 3.8.1-1 (Page 1 of 1)
Diesel Generator Test Schedule

NUMBER OF FAILURES IN LAST 25 VALID TESTS[a]	FREQUENCY
≤ 3	31 days
≥ 4	7 days[b] (but no less than 24 hours)

a. Criteria for determining number of failures and valid demands shall be in accordance with Regulatory Position C.2.1 of Regulatory Guide 1.9, Revision 3, where the number of demands and failures is determined on a per DG basis.

b. This test frequency shall be maintained until seven consecutive failure-free starts from standby conditions and load-run demands have been performed. This is consistent with Regulatory Position [ ], of Regulatory Guide 1.9, Revision 3. If subsequent to the seven failure-free tests one or more additional failures occur such that there are again four or more failures in the last 25 tests, the testing interval shall again be reduced as noted above and maintained until seven consecutive failure-free tests have been performed.

[Note: If Revision 3 of Regulatory Guide 1.9 is not approved, the above table will be modified to be consistent with the existing version of Regulatory Guide 1.108.]

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources—Shutdown

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

a. One circuit between the offsite transmission network and the one [division] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.a;

b. One diesel generator (DG) capable of supplying the one [division] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.a;

c. When redundant loads are required to be OPERABLE, a third separate and independent, readily available AC electrical power source (offsite circuit or DG) capable of supplying the one [division] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.b. {VS-GE: This third readily available AC source is always required in MODE 4.} {VS-BWR/6: ; and

d. When [the High Pressure Core Spray (HPCS) System is required to be OPERABLE, or other loads assigned to the HPCS System [division] are required to be OPERABLE, or both], one circuit between the offsite transmission network and [Division 3] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.c.}

The following required [automatic sequencers] shall be OPERABLE:

a. The [Division 1 or 2] [automatic sequencer] associated with the one [division] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.a;

b. When redundant loads are required to be OPERABLE, the other [Division 2 or 1] [automatic sequencer] associated with the one [division] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.b. {VS-GE: This other [Division 2 or 1] [automatic sequencer] is always required in MODE 4.} {VS-BWR/6: ; and

(continued)

(continued)

LCO 3.8.2 (continued)

c. When [the HPCS System is required to be OPERABLE, or other loads assigned to the HPCS System [division] are required to be OPERABLE, or both], the [Division 3] [automatic sequencer] associated with the onsite Class 1E power distribution subsystem of LCO 3.8.8.c].}

APPLICABILITY: {VS-BW,CE,W: MODES 5 and 6} {VS GE: MODES 4 and 5}, When handling irradiated fuel {VS-GE: [, When moving loads over irradiated fuel in the primary or secondary containment]}.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required AC electrical power sources inoperable.	A.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	A.2	Suspend handling of irradiated fuel {VS-GE: [, or moving loads over irradiated fuel in the primary or secondary containment]}.	Immediately
	<u>AND</u>		
	A.3	Suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.4	Suspend operations involving positive reactivity additions.	Immediately
	AND		
	A.5	Initiate action to restore required AC electrical power sources to OPERABLE status.	Immediately
	AND		
	A.6	--------NOTE-------- This Required Action applies when there is no AC power source to one or more [divisions] of the onsite Class 1E Power Distribution System. -------------------- Initiate action to verify that the Required Actions for those supported systems declared inoperable by the total loss of power to a power distribution subsystem have been initiated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	For all equipment required to be OPERABLE the following SRs are required to be met: SR 3.8.1.4, SR 3.8.1.10, SR 3.8.1.15, SR 3.8.1.5, SR 3.8.1.11, SR 3.8.1.16, SR 3.8.1.7, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.8, SR 3.8.1.13, SR 3.8.1.21, SR 3.8.1.9, SR 3.8.1.14, SR 3.8.1.28, SR 3.8.1.31.	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 DC Sources—Operating

LCO 3.8.3 The required [Division 1]
{VS-BW,CE,W,BWR/4: and [Division 2]}
{VS-BWR/6: , [Division 2], and [Division 3]}
DC power subsystems shall be OPERABLE.

APPLICABILITY: {VS-BW,CE,W: MODES 1, 2, 3, and 4.}
{VS-GE: MODES 1, 2, and 3.}

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required DC electrical power subsystem inoperable.	A.1 Restore DC electrical power subsystem to OPERABLE status.	2 hours {VS-BWR/6: OR [2 hours] if [Division 3] DC electrical power subsystem is the inoperable [division]}
	AND	
	A.2 Verify the Required Actions for those supported systems declared inoperable by the inoperability of one [division] DC electrical power subsystem have been initiated.	2 hours {VS-BWR/6: OR [2 hours] if [Division 3] DC electrical power subsystem is the inoperable [division]}

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Two {VS-BWR/6: or more} required DC electrical power subsystems inoperable.	B.1	Enter LCO 3.0.3.	Immediately
C. One [division] DC electrical power subsystem inoperable. AND One or more required support or supported features inoperable associated with the other OPERABLE [divisions] of DC electrical power subsystems, or with opposite OPERABLE AC and DC electrical power distribution subsystems, or both.	C.1	Enter LCO 3.0.3, unless the loss of functional capability is allowed in the support or supported feature LCO.	Immediately
D. Required Actions and Associated Completion Times of Condition A not met.	D.1	Be in MODE 3.	{VS,BW,CE,W: 6 hours} {VS-GE: 12 hours}
	AND		
	D.2	{VS-BW,CE,W: Be in MODE 5.} {VS-GE: Be in MODE 4.}	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.3.1	A.1 Verify battery cell parameters meet Table 3.8.3-1 Category A limits.	7 days
	OR	
	B.1.1 Verify pilot cells' electrolyte level and float voltage meet Table 3.8.3-1 Category C allowable values.	Once within 1 hour of Category A parameters found outside limits
	AND	
	B.1.2 Verify battery cell parameters meet Table 3.8.3-1 Category C allowable values.	Once within 24 hours of Category A parameters found outside limits
	AND	
	B.1.3 Verify battery cell parameters have been restored to Category A and B limits of Table 3.8.3-1.	Once within 31 days of Category A parameters found outside limits
SR 3.8.3.2	Verify battery terminal voltage is ≥ [258/129] V on float charge.	7 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.3	A.1 Verify battery cell parameters meet Table 3.8.3-1 Category B limits.	92 days AND Once within 24 hours after a battery discharge below [110] V AND Once within 24 hours after a battery overcharge above [150] V
	OR	
	B.1.1 Verify pilot cells' electrolyte level and float voltage meet Table 3.8.3-1 Category C allowable values. AND	Once within 1 hour of Category B parameters found outside limits
	B.1.2 Verify battery cell parameters meet Table 3.8.3-1 Category C allowable values. AND	Once within 24 hours of Category B parameters found outside limits
	B.1.3 Verify battery cell parameters have been restored to Category A and B limits of Table 3.8.3-1.	Once within 31 days of Category B parameters found outside limits

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.4	Verify average electrolyte temperature of representative cells is ≥ [60]°F.	92 days
SR 3.8.3.5	Verify no visible corrosion at terminals and connectors. OR Verify connection resistance [of these items is ≤ [10 x 10^{-6} ohms] for inter-cell connections, ≤ [10 x 10^{-6} ohms] for inter-rack connections, ≤ [10 x 10^{-6} ohms] for inter-tier connections, and ≤ [10 x 10^{-6} ohms] for terminal connections].	92 days
SR 3.8.3.6	Verify cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration.	12 months
SR 3.8.3.7	Verify cell-to-cell and terminal connections are clean, tight, free of visible corrosion, and coated with anti-corrosion material.	12 months
SR 3.8.3.8	Verify connection resistance [of these items is ≤ [10 x 10^{-6} ohms] for inter-cell connections, ≤ [10 x 10^{-6} ohms] for inter-rack connections, ≤ [10 x 10^{-6} ohms] for inter-tier connections, and ≤ [10 x 10^{-6} ohms] for terminal connections].	12 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.9	----------NOTE---------- This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4} {VS-GE: MODE 1, 2, or 3}. -------------------- Demonstrate each battery charger will supply ≥ [400] amps at ≥ [250/125] V for ≥ [8] hours.	[18 months]
SR 3.8.3.10	----------NOTES---------- 1. SR 3.8.3.11 may be performed in lieu of SR 3.8.3.10 once per 60 months. 2. This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4} {VS-GE: MODE 1, 2, or 3}. -------------------- Demonstrate battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery-service test.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.11	-------------------NOTES------------------- This Surveillance shall not be performed in {VS-BW,CE,W: MODE 1, 2, 3, or 4} {VS-GE: MODE 1, 2, or 3}. --- Demonstrate battery capacity is ≥ [80%] of the manufacturer's rating when subjected to a performance discharge test.	60 months __AND__ Once within 24 months after new battery installation __AND__ -----NOTE----- Only applicable when battery shows degradation or has reached [85%] of the expected life -------------- 12 months

Table 3.8.3-1 (Page 1 of 1)

Battery Cell Parameter Requirements

	CATEGORY A	CATEGORY B	CATEGORY C
Parameter	Limits for each designated pilot cell	Limits for each connected cell	Allowable Value for each connected cell
Electrolyte Level	> Minimum level indication mark, and ≤ 1/4" above maximum level indication mark[a]	> Minimum level indication mark, and ≤ 1/4" above maximum level indication mark[a]	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity[b]	≥ [1.200][c]	≥ [1.195] <u>AND</u> Average of all connected cells > [1.205]	Not more than 0.020 below average of all connected cells <u>AND</u> Average of all connected cells ≥ [1.195][c]

a. It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during equalizing charges provided it is not overflowing.

b. Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < [2] amps when on float charge.

c. Or battery charging current is < [2] amps when on float charge. This is acceptable only during a maximum of [7 days] following a battery recharge.

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources—Shutdown

LCO 3.8.4 The following required DC sources shall be OPERABLE:

a. The [Division 1 or 2] DC electrical power subsystem associated with the one [division] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.a; and

b. When redundant loads are required to be OPERABLE, the other [Division 2 or 1] DC electrical power subsystem associated with the one [division] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.b. {VS-GE: This other [Division 2 or 1] DC electrical power subsystem is always required in MODE 4.} {VS-BWR/6: ; and

c. When [the High Pressure Core Spray (HPCS) System is required to be OPERABLE, or other loads assigned to the HPCS System [division] are required to be OPERABLE, or both], the [Division 3] DC electrical power subsystem associated with the onsite Class 1E power distribution subsystem of LCO 3.8.8.c.}

APPLICABILITY: {VS-BW,CE,W: MODES 5 and 6} {VS-GE: MODES 4 and 5}, When handling irradiated fuel {VS-GE: [, When moving loads over irradiated fuel in the primary or secondary containment]}.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1 Suspend CORE ALTERATIONS. AND	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	Suspend handling of irradiated fuel [VS-GE: [and moving loads over irradiated fuel in the primary or secondary containment]].	Immediately
	AND		
	A.3	Suspend operations with a potential for draining the reactor vessel.	Immediately
	AND		
	A.4	Suspend operations involving positive reactivity additions.	Immediately
	AND		
	A.5	Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately
	AND		
	A.6	Initiate action to verify that the Required Actions for those supported systems declared inoperable by the inoperability of 1 or more DC electrical power subsystems have been initiated.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.1	For all equipment required to be OPERABLE the following SRs are required to be met: SR 3.8.3.1 SR 3.8.3.5 SR 3.8.3.9 SR 3.8,3.2 SR 3.8.3.6 SR 3.8.3.10 SR 3.8.3.3 SR 3.8.3.7 SR 3.8.3.11 SR 3.8.3.4 SR 3.8.3.8	In accordance with applicable SRs

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3.8 ELECTRICAL POWER SYSTEMS

3.8.5 Inverters—Operating

LCO 3.8.5 The required [Division 1]
{VS-BW,CE,W,BWR/4: and [Division 2]}
{VS-BWR/6: , [Division 2], and [Division 3]}
inverters shall be OPERABLE.

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

[Two] inverters may be disconnected [from their associated DC buses] for ≤ 24 hours to perform an equalizing charge [on associated battery banks] providing:

1. Associated AC vital buses are energized from their [Class 1E] constant voltage source transformer; and

2. AC vital buses for other battery banks are energized from their associated inverters connected to their DC buses.

APPLICABILITY: {VS-BW,CE,W: MODES 1, 2, 3, and 4.}
{VS-GE: MODES 1, 2, and 3.}

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required inverter inoperable.	A.1 Power AC vital bus from its [Class 1E] constant voltage source transformer. AND	2 hours {VS-BWR/6: OR [2 hours if [Division 3] inverter is the inoperable inverter]}

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	Restore required inverter to OPERABLE status.	24 hours {VS-BWR/6: OR [24 hours] if [Division 3] inverter is the inoperable inverter}
	AND		
	A.3	Power AC vital bus from its associated inverter and DC bus.	24 hours {VS-BWR/6: OR [24 hours] if [Division 3] inverter is the inoperable inverter}
	AND		
	[illegible]	Verify the Required Actions for those supported systems declared inoperable by the inoperability of 1 inverter have been initiated.	2 hours {VS-BWR/6: OR [2 hours] if [Division 3] inverter is the inoperable inverter}

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One required inverter inoperable. AND One or more required support or supported features inoperable associated with the other OPERABLE inverters, or with opposite OPERABLE AC and DC electrical power distribution subsystems, or with opposite OPERABLE DC electrical power subsystems, or all three.	B.1	Enter LCO 3.0.3, unless the loss of functional capability is allowed in the support or supported feature LCO.	Immediately
C. Required Actions and associated Completion Times not met.	C.1	Be in MODE 3.	{VS-BW,CE,W: 6 hours} {VS-GE: 12 hours}
	AND		
	C.2	{VS-BW,CE,W: Be in MODE 5.} {VS-GE: Be in MODE 4.}	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	Verify correct inverter voltage, frequency, and alignment to required AC vital buses.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Inverters—Shutdown

LCO 3.8.6 The following required inverters shall be OPERABLE:

a. The [Division 1 or 2] inverters associated with the one [division] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.a; and

b. When redundant loads are required to be OPERABLE, the other [Division 2 or 1] inverters associated with the one [division] of the onsite Class 1E power distribution subsystem of LCO 3.8.8.b. {VS-GE: These other [Division 2 or 1] inverters are always required in MODE 4.} {VS-BWR/6: ; and

c. When [the High Pressure Core Spray (HPCS) System is required to be OPERABLE, or other loads assigned to the HPCS System [division] are required to be OPERABLE, or both], the [Division 3] inverters associated with the onsite Class 1E power distribution subsystem of LCO 3.8.8.c.}

APPLICABILITY:
{VS-BW,CE,W: MODES 5 and 6} {VS-GE: MODES 4 and 5},
When handling irradiated fuel
{VS-GE: [, Moving loads over irradiated fuel in the primary or secondary containment]}.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required inverters inoperable.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend handling of irradiated fuel {VS-GE: [and moving loads over irradiated fuel in the primary or secondary containment]}.	Immediately
	AND		
	A.3	Suspend operations with a potential for draining the reactor vessel.	Immediately
	AND		
	A.4	Suspend operations involving positive reactivity additions.	Immediately
	AND		
	A.5	Initiate action to restore required inverters to OPERABLE status.	Immediately
	AND		
	A.6	Initiate action to verify the Required Actions for those supported systems declared inoperable by the inoperability of 1 or more inverters have been initiated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify correct inverter voltage, frequency, and alignments to required AC vital buses.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Distribution Systems—Operating

LCO 3.8.7 The required [Division 1] {VS-BW,CE,W,BWR/4: and [Division 2]} {VS-BWR/6: , [Division 2], and [Division 3]} AC and DC electrical power distribution subsystems shall be OPERABLE.

APPLICABILITY: {VS-BW,CE,W: MODES 1, 2, 3, and 4.}
{VS-GE: MODES 1, 2, and 3.}

---------------------------NOTE---------------------------
For this LCO, all required [divisions] of AC and DC electrical power distribution subsystems shall be treated as an entity with a single Completion Time.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC buses, load centers, motor control centers, or distribution panels, except AC vital buses, in one [division's] AC and DC electrical power distribution subsystem inoperable.	A.1 Restore all required AC and DC electrical power distribution subsystems to OPERABLE status.	[ ] hours, [where [ ] hours is the most limiting Completion Time of all the supported systems Required Actions; furthermore, [ ] is not to exceed 8 hours if more than 2 systems are made inoperable because of the distribution system inoperability]

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One required AC vital bus inoperable.	B.1	Restore all required AC and DC electrical power distribution subsystems to OPERABLE status.	2 hours {VS-BWR/6: OR [2 hours] if [Division 3] DC electrical power subsystem is the inoperable [division]}
C. One or more required DC buses inoperable in one [division's] AC and DC electrical power distribution subsystem.	C.1	Restore all required AC and DC electrical power distribution subsystems to OPERABLE status.	2 hours {VS-BWR/6: OR [2 hours] if [Division 3] DC electrical power subsystem is the inoperable [division]}

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more features specified under Condition A, B, or C inoperable in one [division] of the AC and DC electrical power distribution subsystem. AND One or more required support or supported features inoperable associated with the other OPERABLE AC and DC electrical power distribution subsystems, or with opposite OPERABLE DC electrical power subsystems, or both.	D.1	Enter LCO 3.0.3, unless the loss of functional capability is allowed in the support or supported feature LCO.	Immediately
E. One or more features specified under Condition A, B, or C inoperable in one [division] of the AC and DC electrical power distribution subsystem.	E.1	Verify the Required Actions for those supported systems declared inoperable by the support features governed by this LCO have been initiated.	[ ] hours, [where [ ] hours is the most limiting Completion Time of all the supported systems' Required Actions]

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required Actions and associated Completion Times not met.	F.1	Be in MODE 3.	{VS-BW,CE,W: 6 hours} {VS-GE: 12 hours}
	<u>AND</u>		
	F.2	{VS-BW,CE,W: Be in MODE 5.} {VS-GE: Be in MODE 4.}	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct breaker alignments and voltage to required AC and DC electrical power distribution subsystems.	7 days
[SR 3.8.7.2	Verify correct AC vital bus frequency.	7 days]

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems—Shutdown

LCO 3.8.8 The following required AC and DC electrical power distribution subsystems shall be OPERABLE:

a. One [Division 1 or 2] AC and DC electrical power distribution subsystem identified in Table B 3.8.7-1. All required OPERABLE loads shall be powered from this [Division 1 or 2], except for redundant counterpart loads (See b below); and

b. When redundant counterpart loads are required to be OPERABLE, the [necessary portions of the] other [Division 2 or 1] identified in Table B 3.8.7-1 AC and DC electrical power distribution subsystem. {VS-GE: [The necessary portions of] this other [Division 2 or 1] AC and DC electrical power distribution subsystem is always required in MODE 4.} {VS-BWR/6:, and

c. When [the High Pressure Core Spray (HPCS) System is required to be OPERABLE, or other loads assigned to the HPCS System [division] are required to be OPERABLE, or both], the [Division 3] AC and DC electrical power distribution subsystem identified in Table B 3.8.7-1.}

APPLICABILITY: {VS-BW,CE,W: MODES 5 and 6} {VS-GE: MODES 4 and 5}, When handling irradiated fuel {VS-GE: [, Moving loads over irradiated fuel in the primary or secondary containment]}.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required AC and DC electrical power distribution subsystems inoperable.	A.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	A.2	Suspend handling of irradiated fuel {VS-GE: [and moving loads over irradiated fuel in the primary or secondary containment]}.	Immediately
	<u>AND</u>		
	A.3	Suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>		
	A.4	Suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>		
	A.5	Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.6	Initiate action to verify the Required Actions for those supported systems declared inoperable by the inoperability of 1 or more AC and DC electrical power distribution subsystems have been initiated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct breaker alignments and voltage to required AC and DC electrical power distribution subsystems.	7 days
[SR 3.8.8.2	Verify correct AC vital bus frequency.	7 days]

3.9 REFUELING OPERATIONS

3.9.1 <u>Refueling Equipment Interlocks</u>

LCO 3.9.1 The refueling equipment interlocks shall be OPERABLE.

APPLICABILITY: During CORE ALTERATIONS involving handling fuel assemblies with equipment associated with the interlocks.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more of the required refueling equipment interlocks inoperable.	A.1	Suspend CORE ALTERATIONS involving handling fuel assemblies with equipment associated with the inoperable interlock(s).	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Perform a refueling equipment interlock CHANNEL FUNCTIONAL TEST on each of the following required inputs: a. All-rods-in, b. Refuel platform over-core position, and c. Refuel platform main hoist, fuel-loaded.	7 days

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

LCO 3.9.2 The refuel position one-rod-out interlock shall be OPERABLE.

APPLICABILITY: MODE 5 with the reactor MODE switch in the refuel position and any control rod withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Refuel position one-rod-out Interlock inoperable.	A.1	Suspend control rod withdrawal.	Immediately
	AND		
	A.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform a CHANNEL FUNCTIONAL TEST.	7 days OR 1 hour when any control rod is withdrawn

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core, [and not following an approved spiral reload sequence].

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more control rods not fully inserted.	A.1	Suspend loading fuel assemblies into the core.	Immediately
	<u>AND</u>		
	A.2	Initiate action to verify that the Required Actions for those supported systems declared inoperable because one or more control rods are not fully inserted have been initiated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify all control rods are fully inserted.	12 hours

3.9 REFUELING OPERATIONS

3.9.4 Control Rod Position Indication

LCO 3.9.4 Two control rod full-in position indication channels for each control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required control rod position indication channels inoperable.	A.1	Initiate action to verify that the Required Actions for those supported systems declared inoperable by the inoperability of one or more control rod position indication channels have been initiated.	Immediately
	AND		
	A.2.1	Suspend CORE ALTERATIONS.	Immediately
		AND	
	A.2.2	Suspend control rod withdrawal.	Immediately
		AND	
	A.2.3	Initiate action to fully insert all insertable control rods.	Immediately
	OR		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3.1 Initiate action to fully insert the control rod(s) associated with the inoperable position indicator. <u>AND</u> A.3.2 Initiate action to disarm the associated fully inserted control rod drive(s).	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.4.1 Verify each required control rod full-in position indicator is OPERABLE.	24 hours

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY—Refueling

LCO 3.9.5 All withdrawn control rods shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more withdrawn control rods inoperable.	A.1 Initiate action to fully insert inoperable withdrawn control rod(s).	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Demonstrate each withdrawn control rod will insert at least one notch.	7 days
SR 3.9.5.2	Verify each withdrawn control rod scram accumulator pressure is $\geq$ [940] psig.	7 days

3.9 REFUELING OPERATIONS

3.9.6 [Reactor Pressure Vessel (RPV)] Water Level

LCO 3.9.6 [RPV] water level shall be ≥ [23] ft above the top of the [RPV] flange.

APPLICABILITY: With irradiated fuel assemblies seated within the RPV, When handling fuel assemblies over or within the RPV.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. [RPV] water level not within limit.	A.1	Suspend handling fuel assemblies over or within the [RPV].	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify [RPV] water level is ≥ [23] ft above the top of the [RPV flange].	24 hours

3.9 REFUELING OPERATIONS

3.9.7 Residual Heat Removal (RHR)—High Water Level

LCO 3.9.7 One RHR shutdown cooling subsystem shall be OPERABLE and in operation.

APPLICABILITY: MODE 5 with the water level ≥ [23] ft above the top of the [Reactor Pressure Vessel flange].

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RHR shutdown cooling subsystem inoperable or not in operation.	A.1	Suspend operations involving an increase in reactor decay heat load.	Immediately
	AND		
	A.2	Initiate action to restore RHR shutdown cooling subsystem to OPERABLE status and to operation.	15 minutes
	AND		
	A.3	Initiate action to restore secondary containment to OPERABLE status.	Immediately
	AND		
	A.4	Initiate action to restore one Standby Gas Treatment System subsystem to OPERABLE status.	Immediately
	AND		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.5	Initiate action to restore one secondary containment isolation valve and associated instrumentation to OPERABLE status in each associated penetration not isolated.	Immediately
	<u>AND</u>		
	A.6	Initiate action to verify that the Required Actions for those supported systems declared inoperable by the inoperability of required RHR shutdown cooling subsystems have been initiated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify one RHR shutdown cooling subsystem is OPERABLE, in operation, and circulating reactor coolant.	12 hours

3.9 REFUELING OPERATIONS

3.9.8 Residual Heat Removal (RHR)—Low Water Level

LCO 3.9.8 Two RHR shutdown cooling subsystems shall be OPERABLE and one RHR shutdown cooling subsystem shall be in operation.

APPLICABILITY: MODE 5 with the water level < [23] ft above the top of the [Reactor Pressure Vessel (RPV) flange].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR shutdown cooling subsystem inoperable or not in operation.	A.1 Initiate action to restore RHR shutdown cooling subsystem to OPERABLE status and to operation. OR A.2 Initiate action to establish ≥ [23] ft of water above the top of the RPV flange.	15 minutes 15 minutes
B. No RHR shutdown cooling subsystems OPERABLE or in operation.	B.1 Initiate action to restore one RHR shutdown cooling subsystem to OPERABLE status and to operation. AND	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	Initiate action to restore secondary containment to OPERABLE status.	Immediately
	<u>AND</u>		
	B.3	Initiate action to restore one Standby Gas Treatment System subsystem to OPERABLE status.	Immediately
	<u>AND</u>		
	B.4	Initiate action to restore one secondary containment isolation valve and associated instrumentation to OPERABLE status in each associated penetration not isolated.	Immediately
	<u>AND</u>		
	B.5	Initiate action to verify that the Required Actions for those supported systems declared inoperable by the inoperability of required RHR shutdown cooling subsystems have been initiated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify that one RHR shutdown cooling subsystem is OPERABLE, in operation, and circulating reactor coolant, and that the other RHR shutdown cooling subsystem is OPERABLE.	12 hours

3.10 SPECIAL OPERATIONS

3.10.1 Inservice Leak and Hydrostatic (ISLH) Testing Operation

LCO 3.10.1 The average reactor coolant temperature specified in Table 1.1-1 for MODE 4 operation may be changed to "N/A" to allow performance of an ISLH Test provided the following MODE 3 LCOs are met:

a. LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation," Functions 1, 3, and 4 of Table 3.3.6.2-1;

b. LCO 3.6.4.1 "Secondary Containment";

c. LCO 3.6.4.2, "Secondary Containment Isolation Valves";

d. LCO 3.6.4.3, "Standby Gas Treatment System (SGTS)"; and

e. LCO 3.7.2, "RHR Service Water System (SWS)—Shutdown."

APPLICABILITY: MODE 4 with average reactor coolant temperature > [200]°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above required LCOs not met.	A.1 --------NOTE-------- Required Actions to be in MODE 4 include reducing average reactor coolant temperature to ≤ [200]°F. -------------------- Enter the applicable Condition of the affected LCOs. OR	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.1	Suspend activities that could increase the average reactor coolant temperature or pressure. AND	Immediately
	A.2.2	Reduce average reactor coolant temperature to ≤ [200]°F.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.1.1	Perform the applicable SRs for the required MODE 3 LCOs.	According to the applicable SRs

3.10 SPECIAL OPERATIONS

3.10.2 Reactor Mode Switch Interlock Testing

LCO 3.10.2 The reactor mode switch position specified in Table 1.1-1 for MODES 3, 4, and 5 operation may be changed to include the run, startup or hot standby, and refuel position to allow testing of instrumentation associated with the reactor mode switch interlock functions, provided all control rods remain fully inserted in core cells containing one or more fuel assemblies and no other CORE ALTERATIONS are in progress.

APPLICABILITY: MODES 3 and 4 with the reactor mode switch in the run, startup or hot standby, or refuel position,
MODE 5 with the reactor mode switch in the run, or startup or hot standby, position.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Requirements of the LCO not met.	A.1	Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u>		
	A.2	Fully insert all insertable control rods in core cells containing one or more fuel assemblies.	1 hour
	<u>AND</u>		
	A.3.1	Place the reactor mode switch in the shutdown position. <u>OR</u>	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3.2	--------NOTE-------- Not applicable in MODES 3 and 4. -------------------- Place the reactor mode switch in the refuel position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.2.1	Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	12 hours
SR 3.10.2.2	Verify no other CORE ALTERATIONS are in progress.	24 hours

3.10 SPECIAL OPERATIONS

3.10.3 Single Control Rod Withdrawal—Hot Shutdown

LCO 3.10.3 The reactor mode switch position specified in Table 1.1-1 for MODE 3 operation may be changed to include the refuel position to allow withdrawal of a single control rod, provided the following LCOs and requirements are met:

a. LCO 3.9.2, "Refuel Position One-Rod-Out Interlock";

b. LCO 3.9.4, "Control Rod Position Indication";

c. All other control rods are fully inserted;

d. 1. LCO 3.3.1.1, "MODE 5, Reactor Protection System Instrumentation," functions [1.a, 1.b, 2.a, 2.e, 11, and 12 of Table 3.3.1.1-1,]

[LCO 3.3.8.2, "MODE 5, Reactor Protection System Electric Power Monitoring,"]

LCO 3.9.5, "Control Rod OPERABILITY—Refueling,"

OR

2. All other control rods in a five-by-five array centered on the control rod being withdrawn are disarmed and

LCO 3.1.1, "MODE 5, SHUTDOWN MARGIN (SDM)," except the single control rod to be withdrawn may be assumed to be the highest worth control rod.

APPLICABILITY: MODE 3 with the reactor mode switch in the refuel position.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more of the above LCOs or requirements not met.	A.1	---------NOTE-------- Required Actions to fully insert all insertable control rods include placing the reactor mode switch in the shutdown position. -------------------- Enter the applicable Condition of the affected LCOs.	Immediately
	<u>OR</u>		
	A.2.1	Fully insert all insertable control rods.	1 hour
		<u>AND</u>	
	A.2.2	Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.3.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.3.2	Verify all other control rods in a five-by-five array centered on the control rod being withdrawn are disarmed.	24 hours
SR 3.10.3.3	Verify all other control rods are fully inserted.	24 hours

3.10 SPECIAL OPERATIONS

3.10.4 Single Control Rod Withdrawal—Cold Shutdown

LCO 3.10.4 The reactor mode switch position specified in Table 1.1-1 for MODE 4 operation may be changed to include the refuel position to allow withdrawal of a single control rod (and subsequent removal of the associated control rod drive (CRD) if desired), provided the following LCOs and requirements are met:

a. All other control rods are fully inserted;

b. 1. LCO 3.9.2, "Refuel Position One-Rod-Out Interlock,"

LCO 3.9.4, "Control Rod Position Indication,"

OR

2. A control rod withdrawal block is inserted;

c. 1. LCO 3.3.1.1, "MODE 5, Reactor Protection System Instrumentation," [functions 1.a, 1.b, 2.a, 2.e, 11 and 12 of Table 3.3.1.1-1],

[LCO 3.3.8.2, "MODE 5, Reactor Protection System Electric Power Monitoring"],

LCO 3.9.5, "Control Rod OPERABILITY—Refueling,"

OR

2. All other control rods in a five-by-five array centered on the control rod being withdrawn are disarmed, and

LCO 3.1.1, "MODE 5, SHUTDOWN MARGIN, (SDM)" except the single control rod to be withdrawn may be assumed to be the highest worth control rod.

APPLICABILITY: MODES 4 with reactor mode switch in the refuel position.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more of the above LCOs or requirements not met with the affected control rod insertable.	A.1	--------NOTE-------- Required Actions to fully insert all insertable control rods include placing the reactor mode switch in the shutdown position. -------------------- Enter the applicable Condition of the affected LCOs.	Immediately
	<u>OR</u>		
	A.2.1	Fully insert all insertable control rods.	1 hour
		<u>AND</u>	
	A.2.2	Place the reactor mode switch in the shutdown position.	1 hour
B. One or more of the above LCOs or requirements not met with the affected control rod not insertable.	B.1	Suspend withdrawal of the control rod and removal of associated CRD.	Immediately
	<u>AND</u>		
	B.2.1	Initiate action to fully insert all control rods.	Immediately
		<u>OR</u>	
	B.2.2	Satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.4.1	Perform the applicable SRs for the required LCOs.	According to applicable SRs
SR 3.10.4.2	Verify all other control rods in a five-by-five array centered on the control rod being withdrawn are disarmed.	24 hours
SR 3.10.4.3	Verify all other control rods are fully inserted.	24 hours
SR 3.10.4.4	Verify a control rod withdrawal block is inserted.	24 hours

3.10 SPECIAL OPERATIONS

3.10.5 Single Control Rod Drive (CRD) Removal—Refueling

LCO 3.10.5 The requirements of LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation"; LCO 3.3.1.3, "Reactor Protection System (RPS) Short Links"; [LCO 3.3.8.2, "Reactor Protection System (RPS) Electrical Power Monitoring"]; LCO 3.9.1, "Refueling Equipment Interlocks"; LCO 3.9.2, "Refueling Position One-Rod-Out Interlock"; LCO 3.9.4, "Control Rod Position Indication"; and LCO 3.9.5, "Control Rod OPERABILITY—Refueling," may be suspended during MODE 5 operation to allow the removal of a single CRD associated with a control rod withdrawn from a core cell containing one or more fuel assemblies, provided the following requirements are met:

a. All other control rods are fully inserted;

b. All other control rods in a five-by-five array centered on the control rod being removed are disarmed;

c. A control rod withdrawal block is inserted;

d. LCO 3.1.1, "MODE 5, SHUTDOWN MARGIN (SDM)," except the single control rod to be withdrawn may be assumed to be the highest worth control rod; and

e. No other CORE ALTERATIONS are in progress.

APPLICABILITY: MODE 5 with LCO 3.9.5, "Control Rod OPERABILITY—Refueling," not met.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more of the above requirements not met.	A.1	Suspend removal of the control rod and associated control rod drive mechanism.	Immediately
	AND		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.1	Initiate action to fully insert all control rods.	Immediately
		<u>OR</u>	
	A.2.2	Satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.5.1	Verify all other controls rods are fully inserted.	24 hours
SR 3.10.5.2	Verify all control rods in a five-by-five array centered on the control rod being removed are disarmed.	24 hours
SR 3.10.5.3	Verify a control rod withdrawal block is inserted.	24 hours
SR 3.10.5.4	Perform the applicable SRs for LCO 3.1.1.	According to the applicable SRs
SR 3.10.5.5	Verify no other CORE ALTERATIONS are in progress.	24 hours

3.10 SPECIAL OPERATIONS

3.10.6 Multiple Control Rod Withdrawal—Refueling

LCO 3.10.6 The requirements of LCO 3.9.3, "Control Rod Position"; LCO 3.9.4, "Control Rod Position Indication"; and LCO 3.9.5, "Control Rod OPERABILITY—Refueling," may be suspended and the "full in" position indicators may be bypassed for any number of control rods during MODE 5 operation to allow withdrawal of these control rods, removal of associated control rod drives (CRDs), or both, provided the following requirements are met:

a. The 4 fuel assemblies are removed from the core cells associated with each control rod or CRD to be removed;

b. All other control rods in core cells containing one or more fuel assemblies are fully inserted; and

c. Fuel assemblies shall only be loaded in compliance with an approved [spiral] reload sequence.

APPLICABILITY: MODE 5 with LCO 3.9.3, "Control Rod Position"; LCO 3.9.4, "Control Rod Position Indication"; or LCO 3.9.5, "Control Rod OPERABILITY—Refueling," not met.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Requirements of the LCO not met.	A.1	Suspend withdrawal of control rods and removal of associated CRDs.	Immediately
	AND		

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.1	Initiate action to fully insert all control rods in core cells containing 1 or more fuel assemblies.	Immediately
		<u>OR</u>	
	A.2.2	Satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.6.1	Verify the 4 fuel assemblies are removed from core cells associated with each control rod or CRD removed.	24 hours
SR 3.10.6.2	Verify all other control rods in core cells containing 1 or more fuel assemblies are fully inserted.	24 hours
SR 3.10.6.3	-------------------NOTE-------------------- Only required during fuel loading. ---	
	Verify fuel assemblies being loaded are in compliance with an approved [spiral] reload sequence.	24 hours

3.10 SPECIAL OPERATIONS

3.10.7 Control Rod Testing—Operating

LCO 3.10.7 The requirements of LCO 3.1.6, "Rod Pattern Control," may be suspended and control rods bypassed in Rod Action Control System as allowed by SR 3.3.2.1.9, "Control Rod Bypass and Movement Verification," during MODES 1 and 2 with THERMAL POWER less than or equal to the low power setpoint of the Rod Pattern Control System to allow performance of SHUTDOWN MARGIN demonstrations, control rod scram time testing, control rod friction testing, and the Startup Test Program, provided conformance to the approved control rod sequence for the specified test is verified by a second licensed operator or other qualified member of the technical staff.

APPLICABILITY: MODES 1 and 2 with LCO 3.1.6, "Rod Pattern Control," not met.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Requirements of the LCO not met.	A.1	Suspend performance of the test and exception to LCO 3.1.6, "Rod Pattern Control."	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.7.1	Verify movement of control rods is in compliance with the approved control rod sequence for the specified test, by a second licensed operator or other qualified member of the technical staff.	During control rod movement

3.10 SPECIAL OPERATIONS

3.10.8 Shutdown Margin (SDM) Test—MODE 5

LCO 3.10.8 The reactor mode switch position specified in Table 1.1-1 for MODE 5 operation may be changed to include the startup or hot standby position to allow SDM testing to demonstrate compliance with LCO 3.1.1 and remain subcritical, provided the following requirements are met:

a. 1. LCO 3.3.2.1, "Control Rod Block Instrumentation," function 2 for MODE 2, with the banked position withdrawal sequence requirements of SR 3.3.2.1.8 changed to require the control rod sequence to conform to the SDM test sequence,

<u>OR</u>

2. Conformance to the SDM test sequence is verified by a second licensed operator or other qualified member of the technical staff;

b. All control rod withdrawals [during out-of-sequence control rod moves] shall be made in notch out mode;

c. No other CORE ALTERATIONS are in progress; and

d. The provisions of LCO 3.10.6, "Multiple Control Rod Withdrawal," are suspended.

APPLICABILITY: MODE 5 with the reactor mode switch in startup or hot standby position.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more of the above requirements not met.	A.1	Place the reactor mode switch in the shutdown or refuel position.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.10.8.1	-------------------NOTE------------------- Not required if SR 3.10.8.2 satisfied. -- Perform the applicable SRs for the required LCOs.	 According to the applicable SRs
SR 3.10.8.2	-------------------NOTE------------------- Not required if SR 3.10.8.1 satisfied. -- Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test, by a second licensed operator or other qualified member of the technical staff.	 During control rod movement
SR 3.10.8.3	Verify no other CORE ALTERATIONS are in progress.	12 hours

3.10 SPECIAL OPERATIONS

3.10.9 Recirculation Loops—Testing

LCO 3.10.9 The requirements of LCO 3.4.1, "Recirculation Loops—Operating," may be suspended for ≤ 24 hours to allow:

a. PHYSICS TESTS provided THERMAL POWER is ≤ [5]% RATED THERMAL POWER (RTP); and

b. Performance of the Startup Test Program.

APPLICABILITY: MODES 1 and 2 with fewer than two recirculation loops in operation.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Requirements of LCO 3.4.1 not met for > 24 hours.	A.1	Insert all insertable control rods.	[1] hour
B. Requirements of the LCO not met for reasons other than Condition A.	B.1	Place the reactor mode switch in the shutdown position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.9.1	Verify LCO 3.4.1, "Recirculation Loops—Operating," requirements suspended for ≤ 24 hours.	1 hour
SR 3.10.9.2	Verify THERMAL POWER is ≤ [5]% RTP during PHYSICS TESTS.	1 hour

3.10 SPECIAL OPERATIONS

3.10.10 Training Startups

LCO 3.10.10 The low pressure coolant injection (LPCI) OPERABILITY requirements specified in LCO 3.5.1, "Emergency Core Cooling System (ECCS)—Operating," may be changed to allow one residual heat removal subsystem to be aligned in the shutdown cooling mode for training startups, provided the following requirements are met:

a. All OPERABLE intermediate range monitor (IRM) channels are ≤ [25 or 40] divisions of full scale on range 7; and

b. Reactor coolant temperature is < 200°F.

APPLICABILITY: MODE 2 with one LPCI subsystem suction valve closed.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more of the above requirements not met.	A.1	Place the reactor mode switch in the shutdown position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.10.1	Verify all OPERABLE IRM channels are ≤ [25 or 40] divisions of full scale on range 7.	1 hour
SR 3.10.10.2	Verify reactor coolant temperature is < 200°F.	1 hour

4.0 DESIGN FEATURES

4.1 SITE

4.1.1 Site and Exclusion Boundaries

The site and exclusion boundaries shall be as shown in Figure 4.1-1.

4.1.2 Low Population Zone

The low population zone shall be as shown in Figure 4.1-2.

4.2 REACTOR CORE

4.2.1 Fuel Assemblies

The reactor shall contain [800] fuel assemblies. Each assembly shall consist of a matrix of Zircaloy clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material [, and water rods]. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with NRC staff-approved codes and methods, and shown by tests or analyses to comply with all safety design bases. A limited number of lead test assemblies (LTAs) that have not completed representative testing may be placed in non-limiting core regions.

4.2.2 Control Rod Assemblies

The reactor core shall contain [ ] cruciform shaped control rod assemblies. The control material shall be [boron carbide, hafnium metal] as approved by the NRC. The control rod assemblies shall be full length [, with a nominal "[ ]" containing control material].

(continued)

<u>This figure for illustration only. Do not use for operation.</u>

[Figure to be included in plant-specific TS for that facility.]

This figure shall consist of a map of the site area and provide, as a minimum, the information described in Section [2.1.2] of the FSAR relating to the map.

Figure 4.1-1 (Sheet 1 of 1)
Site and Exclusion Area Boundaries

This figure for illustration only. Do not use for operation.

[Figure to be included in plant-specific TS for that facility.]

This figure shall consist of a map of the site area showing the low population zone boundary. Features such as towns, roads, and recreational areas shall be indicated in sufficient detail to allow identification of significant shifts in population distribution within the low population zone.

Figure 4.1-2 (Sheet 1 of 1)
Low Population Zone

4.3 FUEL STORAGE

4.3.1 Criticality

4.3.1.1 The spent fuel storage racks are designed and shall be maintained with:

a. Fuel assemblies having a maximum $K_{infinity}$ of [ ] and a $K_{eff} \leq 0.95$ when moderated by unborated water, which includes an allowance for uncertainties as described in Section [9.1] of the FSAR;

b. A fuel assembly center-to-center storage spacing of [7] inches within rows and [12.25] inches between rows in the [low density storage racks] in the upper containment pool; and

c. A nominal fuel assembly center-to-center storage spacing of [6.26] inches, with a neutron poison material between storage spaces, in the [high density storage racks] in the spent fuel storage pool and in the upper containment pool.

4.3.1.2 The new fuel storage racks are designed and shall be maintained with:

1. Fuel assemblies having a maximum $K_{infinity}$ of [ ] and a K_{eff} [≤ 0.95 when flooded with unborated water or] [≤ 0.98 when moderated by aqueous foam or means to prevent aqueous foam entry], [both of] which include an allowance for uncertainties as described in Section [9.1] of the FSAR; and

2. A nominal [ ] inch center-to-center distance between fuel assemblies placed in storage racks.

4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation [202'5.25"].

(continued)

4.3.3 <u>Capacity</u>

a. The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than [23[illegible]] fuel assemblies.

b. No more than [800] fuel assemblies in the upper containment pool.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

5.1.1 The [Plant Superintendent] shall be responsible for overall unit operation and shall delegate in writing the succession to this responsibility during his absence.

5.1.2 The [Shift Supervisor] shall be responsible for the control room command function. A management directive to this effect, signed by the [highest level of corporate management] shall be reissued to all station personnel on an annual basis. During any absence of the Shift Supervisor from the control room while the unit is in [MODE 1, 2, or 3 - BWRs] [MODE 1, 2, 3, or 4 - PWRs], an individual with a valid Senior Reactor Operator license shall be designated to assume the control room command function. During any absence of the Shift Supervisor from the control room while the unit is in [MODE 4 or 5 - BWRs] [MODE 5 or 6 - PWRs], an individual with a valid Senior Reactor Operator license or Reactor Operator license shall be designated to assume the control room command function.

5.0 ADMINISTRATIVE CONTROLS

5.2 Organization

5.2.1 Onsite and Offsite Organizations

Onsite and offsite organizations shall be established for unit operation and corporate management, respectively. The onsite and offsite organizations shall include the positions for activities affecting the safety of the nuclear power plant.

a. Lines of authority, responsibility, and communication shall be established and defined for the highest management levels through intermediate levels to and including all operating organization positions. These relationships shall be documented and updated, as appropriate, in the form of organization charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements shall be documented in the FSAR;

b. The [Plant Superintendent] shall be responsible for overall plant safe operation and shall have control over those onsite activities necessary for safe operation and maintenance of the plant;

c. The [a specified corporate executive position] shall have corporate responsibility for overall plant nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the plant to ensure nuclear safety; and

d. The individuals who train the operating staff and those who carry out health physics and quality assurance functions may report to the appropriate onsite manager; however, they shall have sufficient organizational freedom to ensure their independence from operating pressures.

5.2.2 Unit Staff

The unit staff organization shall be as follows:

a. Each on-duty shift shall be composed of at least the minimum shift crew composition shown in Table 5.2.2-1;

(continued)

(continued)

b. At least one licensed Reactor Operator (RO) shall be in the control room when fuel is in the reactor. In addition, while the unit is in [MODE 1, 2, or 3 - BWRs] [MODE 1, 2, 3, or 4 - PWRs], at least one licensed Senior Reactor Operator shall be in the control room;

c. A [Health Physics Technician] shall be on site when fuel is in the reactor. The position may be vacant for a period of time not to exceed 2 hours in order to provide for unexpected absence provided immediate action is taken to fill the required position;

d. Either a licensed Senior Reactor Operator (SRO) or licensed SRO limited to fuel handling who has no other concurrent responsibilities during this operation shall be present at the location of fuel handling and directly supervise all CORE ALTERATIONS; and

e. Administrative procedures shall be developed and implemented to limit the working hours of unit staff who perform safety-related functions (e.g., licensed SROs, licensed ROs, health physicists, auxiliary operators, and key maintenance personnel).

   Adequate shift coverage shall be maintained without routine heavy use of overtime. The objective shall be to have operating personnel work a nominal 8-hour day, 40-hour week while the unit is operating. However, in the event that unforeseen problems require substantial amounts of overtime to be used, or during extended periods of shutdown for refueling, major maintenance, or major plant modification, on a temporary basis the following guidelines shall be followed:

   1. An individual should not be permitted to work more than 16 hours straight, excluding shift turnover time,

   2. An individual should not be permitted to work more than 16 hours in any 24-hour period, nor more than 24 hours in any 48-hour period, nor more than 72 hours in any 7-day period, all excluding shift turnover time,

   3. A break of at least 8 hours should be allowed between work periods, including shift turnover time,

(continued)

(continued)

4. Except during extended shutdown periods, the use of overtime should be considered on an individual basis and not for the entire staff on a shift.

Any deviation from the above guidelines shall be authorized in advance by the [Plant Superintendent] or his deputy or higher levels of management, in accordance with established procedures and with documentation of the basis for granting the deviation.

Controls shall be included in the procedures such that individual overtime shall be reviewed monthly by the [Plant Superintendent] or his designee to assure that excessive hours have not been assigned. Routine deviation from the above guidelines is not authorized;

f. The [off-shift position below] shall hold a Senior Reactor Operator license; and

[Operations Manager
Assistant Operations Manager]

g. The Shift Technical Advisor (STA) shall provide advisory technical support to the Shift Supervisor (SS) in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit.

(continued)

Table 5.2.2-1 (Page 1 of 1)
Minimum Shift Crew Composition[1]
[Single Unit Facility]

POSITION[2]	UNIT IN MODE	
	[1, 2, or 3 [1, 2, 3, or 4	4 or 5 - BWRs] 5 or 6 - PWRs]
SS	1	1
SRO	1	None
RO	2	1
AO	2	1
STA[3]	1	None

[1] The shift crew composition may be one less than the minimum requirements of Table 5.2.2-1 for a period of time not to exceed 2 hours in order to accommodate unexpected absences of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements of Table 5.2.2-1. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

[2] Table Notation:

SS - Shift Supervisor with a Senior Reactor Operator license;
SRO - Individual with a Senior Reactor Operator license;
RO - Individual with a Reactor Operator license;
AO - Auxiliary Operator;
STA - Shift Technical Advisor.

[3] The STA position may be filled by an on-shift SS or SRO provided the individual meets the Commission Policy Statement on Engineering Expertise on Shift.

(continued)

Table 5.2.2-1 (Page 1 of 2)
Minimum Shift Crew Composition[1]
[Two Units With a Common Control Room]
(Totals for Both Units)

POSITION[2]	[EACH UNIT IN MODE 1, 2, OR 3 - BWRs] [EACH UNIT IN MODE 1, 2, 3, OR 4 - PWRs]
SS SRO RO AO STA[3]	1 1 3 3 1
POSITION[2]	[ONE UNIT IN MODE 1, 2, OR 3, AND ONE UNIT IN MODE 4, MODE 5, OR DEFUELED - BWRs] [ONE UNIT IN MODE 1, 2, 3, OR 4, AND ONE UNIT IN MODE 5, MODE 6, OR DEFUELED - PWRs]
SS SRO RO AO STA[3]	1 None 2 3 None
POSITION[2]	[EACH UNIT IN MODE 4, MODE 5, OR DEFUELED - BWRs] [EACH UNIT IN MODE 5, MODE 6, OR DEFUELED - PWRs]
SS SRO RO AO STA[3]	1 None 2 3 None

(continued)

Table 5.2.2-1 (Page 2 of 2)
Minimum Shift Crew Composition[1]
[Two Units With a Common Control Room]
(Totals for Both Units)

[1] The shift crew composition may be one less than the minimum requirements of Table 5.2.2-1 for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members, provided immediate action is taken to restore the shift crew composition to within the minimum requirements of Table 5.2.2-1. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

[2] Table Notation:

SS - Shift Supervisor with a Senior Reactor Operator license for each unit whose reactor contains fuel;
SRO - Individual with a Senior Reactor Operator license for each unit whose reactor contains fuel. Otherwise, provide an individual for each unit who holds a Senior Reactor Operator license for the unit assigned. During CORE ALTERATIONS on either unit at least one licensed SRO or licensed SRO limited to fuel handling, who has no other concurrent responsibilities, must be present;
RO - Individual with a Reactor Operator license or a Senior Reactor Operator license for unit assigned. At least one RO shall be assigned to each unit whose reactor contains fuel and one RO shall be assigned as relief operator for unit(s) in [MODE 1, 2, or 3 - BWRs] [MODE 1, 2, 3, or 4 - PWRs]. Individuals acting as relief operators shall hold a license for both units. Otherwise, for each unit, provide a relief operator who holds a license for the unit assigned;
AO - At least one auxiliary operator shall be assigned to each unit whose reactor contains fuel;
STA - Shift Technical Advisor.

[3] The STA position may be filled by an on-shift SS or SRO provided the individual meets the Commission Policy Statement on Engineering Expertise on Shift.

(continued)

Table 5.2.2-1 (Page 1 of 2)
Minimum Shift Crew Composition[1]
[Two Units With Two Control Rooms]

[WITH THE OTHER UNIT IN MODE 1, 2, OR 3 - BWRs]
[WITH THE OTHER UNIT IN MODE 1, 2, 3, OR 4 - PWRs]

POSITION[2]	UNIT IN MODE	
	[1, 2, or 3 [1, 2, 3, or 4	4 or 5 - BWRs] 5 or 6 - PWRs]
SS	1[4]	1[4]
SRO	1	None
RO	2	1
AO	2	1
STA[3]	1[4]	None

[WITH THE OTHER UNIT IN MODE 4 OR 5 DEFUELED - BWRs]
[WITH THE OTHER UNIT IN MODE 5 OR 6 DEFUELED - PWRs]

POSITION[2]	UNIT IN MODE	
	[1, 2, or 3 [1, 2, 3, or 4	4 or 5 - BWRs] 5 or 6 - PWRs]
SS	1[4]	1[4]
SRO	1	None
RO	2	1
AO	2	2[5]
STA[3]	1	None

(continued)

Table 5.2.2-1 (Page 2 of 2)
Minimum Shift Crew Composition[1]
[Two Units With Two Control Rooms]

[1] The shift crew composition may be one less than the minimum requirements of Table 5.2.2-1 for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements of Table 5.2.2-1. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

[2] Table Notation:

SS - Shift Supervisor with a Senior Reactor Operator license;
SRO - Individual with a Senior Reactor Operator license;
RO - Individual with a Reactor Operator license;
AO - Auxiliary Operator;
STA - Shift Technical Advisor.

[3] The STA position may be filled by an on-shift SS or SRO provided the individual meets the Commission Policy Statement on Engineering Expertise on Shift.

[4] Individual may fill the same position on the other unit if licensed for both.

[5] One of the two required individuals may fill the same position on the other unit.

5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

[Minimum qualifications for members of the unit staff shall be specified by use of an overall qualification statement referencing an American National Standard Institute (ANSI) standard acceptable to the NRC staff or, alternately, by specifying individual position qualifications. Generally, the first method is preferable; however, the second method is adaptable to those unit staffs requiring special qualification statements because of an unique organizational structure.]

Each member of the unit staff shall meet or exceed the minimum qualifications of Regulatory Guide 1.8, Revision 2, 1987 [or more recent revision or ANSI Standard acceptable to the NRC staff]. The staff not covered by this Regulatory Guide shall meet or exceed the minimum qualifications of [Regulations, Regulatory Guides, or ANSI standards acceptable to the NRC staff]. In addition, the Shift Technical Advisor shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift.

5.0 ADMINISTRATIVE CONTROLS

5.4 Training

A retraining and replacement training program for the unit staff shall be maintained under the direction of the [position title] and shall meet or exceed the requirements and recommendations of Section [ ] of [an ANSI standard acceptable to the NRC staff] and 10 CFR 55, and, for appropriate designated positions, shall include familiarization with relevant industry operational experience.

5.0 ADMINISTRATIVE CONTROLS

5.5 Reviews and Audits

[The licensee shall describe the method(s) established to conduct independent reviews and audits. The methods may take a range of forms acceptable to the NRC. These may include creating an organizational unit, a standing or ad hoc committee, or assigning individuals capable of conducting these reviews and audits. When an individual performs a review function, a cross-disciplinary review determination is necessary. If deemed necessary, such reviews shall be performed by the review personnel of the appropriate discipline. Individual reviewers shall not review their own work or work for which they have direct responsibility. Regardless of the method used, the licensee shall specify the functions, organizational arrangement, responsibilities, appropriate ANSI/ANS 3.1-1981 qualifications, and reporting requirements of each functional element or unit that contributes to these processes.

Reviews and audits of activities affecting plant safety have two distinct elements. The first of these is the review performed by plant staff personnel to ensure that day-to-day activities are conducted in a safe manner. These are described in Section 5.5.1. The second of these, described in Section 5.5.2, is the [offsite] review and audit of facility activities and programs affecting nuclear safety that are performed independent of the plant staff. The [offsite] review and audit should provide for the integration of the reviews and audits into a cohesive program to provide senior level utility management with an assessment of facility operation and recommend actions to improve nuclear safety and plant reliability. It should include an assessment of the effectiveness of reviews conducted according to Section 5.5.1.]

5.5.1 Plant Reviews

[The licensee shall describe here the provisions for plant reviews (organization, reporting, records) and appropriate ANSI/ANS standard for personnel qualification.]

a. Functions:

The [plant review method specified in 5.5.1] shall, as a minimum, incorporate the following functions:

1. Advise the [Plant Superintendent] on all matters related to nuclear safety,

(continued)

(continued)

2. Recommend to the [Plant Superintendent] approval or disapproval of items considered under Specification 5.5.1.b.1 through 5.5.1.b.6 prior to their implementation, except as provided in Specification 5.7.3,

3. Obtain approval from the [Plant Superintendent] of each proposed test or experiment and proposed changes and modifications to unit systems or equipment that affect nuclear safety prior to implementation,

4. Determine whether each item considered under Specifications 5.5.1.b.1 through 5.5.1.b.5 constitutes an unreviewed safety question,

5. Notify the [Vice President-Nuclear Operations] of any safety-significant disagreement between the [review organization or individual specified in 5.5.1] and the [Plant Superintendent] within 24 hours. However, the [Plant Superintendent] shall have responsibility for resolution of such disagreements pursuant to Specification 5.1.1;

b. Responsibilities:

The [plant review method specified in 5.5.1] shall be used to conduct, as a minimum, the following reviews:

1. Review of all proposed procedures required by Specification 5.7.1 and changes thereto,

2. Review of all proposed programs required by Specification 5.7.4 and changes thereto,

3. Review of all proposed changes and modifications to unit systems or equipment that affect nuclear safety,

4. Review of the Fire Protection Program and changes thereto,

5. Review of all proposed tests and experiments that affect nuclear safety; and

(continued)

(continued)

6. Review of all proposed changes to these Technical Specifications (TS), their Bases, and the operating license.

5.5.2 [Offsite] Review and Audit

[The licensee shall describe here the provisions for reviews and audits independent of the plant's staff (organization, reporting, records) and appropriate ANSI/ANS standards for personnel qualifications. These individuals may be located onsite or offsite provided organizational independence from plant staff is maintained. The technical review responsibility, 5.5.2.d, shall include several individuals located onsite.]

a. Functions:

The [offsite review and audit provisions specified in 5.5.2] shall as a minimum incorporate the following functions:

1. Advise the [Vice President - Nuclear Operations] on all matters related to nuclear safety and make recommendations for improving nuclear safety and plant reliability,

2. Advise the management of the audited organization, and the [Vice President - Nuclear Operations], of the audit results as they relate to nuclear safety,

3. Recommend to the management of the audited organization, and its management, any corrective action to improve nuclear safety and plant operation,

4. Notify the [Vice President - Nuclear Operations] of any safety-significant disagreement between the [review organization or individual specified in 5.5.2] and the [organization or function being reviewed] within 24 hours;

b. [Offsite] Review Responsibilities:

The [review method specified in 5.5.2] shall be responsible for the review of:

(continued)

(continued)

1. The safety evaluations for changes to procedures, equipment, or systems, and tests or experiments completed under the provision of 10 CFR 50.59, to verify that such actions did not constitute an unreviewed safety question,

2. Proposed changes to procedures, equipment, or systems which involve an unreviewed safety question as defined in 10 CFR 50.59,

3. Proposed tests or experiments which involve an unreviewed safety question as defined in 10 CFR 50.59,

4. Proposed changes to TSs and the operating license,

5. Violations of codes, regulations, orders, license requirements, and of internal procedures or instructions having nuclear safety significance,

6. All Licensee Event Reports required by 10 CFR 50.73,

7. Plant staff performance,

8. Indications of unanticipated deficiencies in any aspect of design or operation of structures, systems, or components that could affect nuclear safety,

9. Significant accidental, unplanned, or uncontrolled radioactive releases including corrective action to prevent recurrence,

10. Significant operating abnormalities or deviations from normal and expected performance of equipment that affect nuclear safety,

11. The performance of the corrective action system,

Reports or records of these reviews shall be forwarded to the [Vice President - Nuclear Operations] within 30 days following completion of the review;

(continued)

(continued)

c. Audit Responsibilities

The audit responsibilities shall encompass:

1. The conformance of unit operation to provisions contained within the TSs and applicable license conditions,

2. The training and qualifications of the unit staff,

3. The implementation of all programs required by Specification 5.7.2,

4. Actions taken to correct deficiencies occurring in equipment, structures, systems, components, or method of operation that affect nuclear safety,

5. The performance of activities required to meet the requirements of Appendix B to 10 CFR 50,

6. Other activities and documents as requested by the [Vice President-Nuclear Operations];

Reports or records of these audits shall be forwarded to the [Vice President-Nuclear Operations] within 30 days following completion of the review;

d. [Technical] Review Responsibilities:

The [technical] review responsibilities shall encompass:

1. Plant operating characteristics, NRC issuances, industry advisories, Licensee Event Reports, and other sources which may indicate areas for improving plant safety,

2. Plant operations, modifications, maintenance, and surveillance to independently verify that these activities are performed safely and correctly and that human errors are reduced as much as practical,

3. Internal and external operational experience information that may indicate areas for improving plant safety, and

(continued)

(continued)

4. Making detailed recommendations through the [Vice President-Nuclear Operations] for revising procedures, equipment modifications or other means of improving nuclear safety and plant reliability.

5.5.3 Records

Written records of reviews and audits shall be maintained. Reports or records of activities shall be forwarded to the [Vice President-Nuclear Operations] within 30 days following completion of the review or audit. As a minimum these records shall include:

a. Results of the activities conducted under the provisions of Specification 5.5;

b. Recommendations to the management of the organization being audited;

c. An assessment of the safety significance of the review or audit findings;

d. Recommended approval or disapproval of items considered under Specifications 5.5.1.b.1 through 5.5.1.b.6; and

e. Determination of whether each item considered under Specifications 5.5.1.b.1 through 5.5.1.b.5 constitutes an unreviewed safety question.

5.0 ADMINISTRATIVE CONTROLS

5.6 Technical Specifications (TS) Bases Control

Changes to the Bases of the TS shall be made under appropriate administrative controls and reviewed according to Specification 5.5.1.

Licensees may make changes to Bases without prior NRC approval provided the changes do not involve any of the following:

a. A change in the TS incorporated in the license;

b. A change to the updated FSAR that involves an unreviewed safety question as defined in 10 CFR 50.59;

One criterion for determining whether an unreviewed safety question is involved is if the change would reduce the "margin of safety as defined in the basis for any technical specification" (10 CFR 50.59(2)(iii)). The applicable safety analyses discussion for each TS Bases section should address the acceptance limits to which the margin of safety relates as defined by [the NRC document endorsing industry guidance for performing 10 CFR 50.59 safety evaluations]. If a specification does not relate to any margin of safety, then the corresponding Bases (Sections 2.0 and 3.1 through 3.9 {VS-GE: 3.10}) should so state;

c. A change to the way that OPERABILITY or the TS could be met, applied, or interpreted;

d. A change in the organization of the Bases for TS Sections 2.0 and 3.1 through 3.9 {VS-GE: 3.10}. Each of these Bases sections shall be organized into the following subsections:

1. Background,

2. Applicable Safety Analysis,

3. LCOs (or Safety Limits for Section 2.0),

4. Applicability (not applicable to Section 2.0),

5. ACTIONS (or Safety Limit Violations for Section 2.0),

(continued)

(continued)

6. Surveillance Requirements (not applicable to Section 2.0), and

7. References.

Proposed changes which meet the criteria of (a), (b), (c), or (d) above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases which may be implemented without prior NRC approval will be provided to the NRC at least annually.

5.0 ADMINISTRATIVE CONTROLS

5.7 Procedures, Programs, and Manuals

5.7.1 Procedures

Written procedures shall be established, implemented, and maintained covering the activities referenced below:

a. The applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978;

b. The emergency operating procedures required to implement the requirements of NUREG-0737 and Supplement 1 to NUREG-0737 as stated in Generic Letter 82-33;

c. Security plan implementation;

d. Emergency plan implementation;

e. Quality assurance for effluent and environmental monitoring;

f. Fire Protection Program implementation; and

g. All programs specified in Specification 5.7.4 [; and]

VS-CE [h. Modification of core protection calculator (CPC) addressable constants. These procedures should include provisions to assure that sufficient margin is maintained in CPC type I addressable constants to avoid excessive operator interaction with the CPCs during reactor operation.

Modifications to the CPC software (including changes of algorithms and fuel cycle specific data) shall be performed in accordance with the most recent version of "CPC Protection Algorithm Software Change Procedure," CEN-39(A)-P that has been determined to be applicable to the facility. Additions or deletions to CPC addressable constants or changes to addressable constant software limit values shall not be implemented without prior NRC approval.]

(continued)

(continued)

5.7.2 Review and Approval

Each procedure of Specification 5.7.1, and changes thereto, shall be reviewed in accordance with Specification 5.5.1, approved by the [Plant Superintendent] prior to implementation and reviewed periodically as set forth in administrative procedures.

5.7.3 Temporary Changes

Temporary changes to procedures of Specification 5.7.1 may be made provided:

a. The intent of the existing procedure is not altered;

b. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator license on the unit affected; and

c. The change is documented and reviewed in accordance with Specifications 5.5.1 and approved by the [Plant Superintendent] within 14 days of implementation.

5.7.4 Programs and Manuals

The following programs shall be established, implemented, and maintained:

a. Radiation Protection Program:

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR 20 and shall be approved, maintained, and adhered to for all operations involving personnel radiation exposure;

b. Process Control Program (PCP):

The PCP shall contain the current formulas, sampling, analyses, tests, and determinations to be made to ensure that processing and packaging of solid radioactive wastes will be accomplished in such a way as to assure compliance with 10 CFR 20, 61, and 71, state regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste;

(continued)

(continued)

Licensee-initiated changes to the PCP:

1. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:

   a) Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and

   b) A determination that the change(s) will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations,

2. Shall be effective after review and acceptance by the [review method of Specification 5.5.1] and the approval of the [Plant Superintendent];

c. Offsite Dose Calculation Manual (ODCM):

The ODCM shall contain the methodology and parameters used:

1. In the calculation of offsite doses resulting from radioactive gaseous and liquid effluents,

2. In the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints,

3. In the conduct of the environmental Radiological Monitoring Program;

The ODCM shall also contain:

1. The Radioactive Effluent Controls and Radiological Environmental Monitoring programs required by Specification 5.7.4,

2. Descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Semiannual Radioactive Effluent Release Reports required by Specifications [5.9.1.3] and [5.9.1.4];

(continued)

(continued)

Licensee-initiated changes to the ODCM:

1. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:

   a) Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s),

   b) A determination that the change(s) will maintain the level of radioactive effluent control required by 10 CFR 20.106, 40 CFR 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations,

2. Shall become effective after review and acceptance by the [review method of Specification 5.5.1] and the approval of the [Plant Superintendent],

3. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Semiannual Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month and year) the change was implemented;

d. Primary Coolant Sources Outside Containment:

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include [the recirculation spray, safety injection, chemical and volume control, gas stripper, and hydrogen recombiners]. The program shall include the following:

1. Preventive maintenance and periodic visual inspection requirements,

2. Integrated leak test requirements for each system at refueling cycle intervals or less;

(continued)

(continued)

e. In-Plant Radiation Monitoring:

This program provides controls to ensure the capability to accurately determine the airborne iodine concentration in vital areas under accident conditions. This program shall include the following:

1. Training of personnel,
2. Procedures for monitoring,
3. Provisions for maintenance of sampling and analysis equipment;

f. Post-Accident Sampling:

This program provides controls to ensure the capability to obtain and analyze reactor coolant, radioactive gases, and particulates in plant gaseous effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

1. Training of personnel,
2. Procedures for sampling and analysis,
3. Provisions for maintenance of sampling and analysis equipment;

g. Radioactive Effluent Controls Program:

This program is to conform with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program shall be contained in the ODCM, shall be implemented by operating procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

1. Limitations on the OPERABILITY of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,

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2. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas conforming to 10 CFR 20, Appendix B, Table II, Column 2,

3. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters in the ODCM,

4. Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released from each unit to unrestricted areas conforming to Appendix I to 10 CFR 50,

5. Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days,

6. Limitations on the OPERABILITY and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2% of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR 50,

7. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary conforming to the dose associated with Appendix B to 10 CFR 20, Table II, Column 1,

8. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary conforming to Appendix I to 10 CFR 50,

9. Limitations on the annual and quarterly doses to a member of the public from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the site boundary conforming to Appendix I to 10 CFR 50,

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10. Limitations on the annual dose or dose commitment to any member of the public due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR 190,

VS-GE 11. Limitations on venting and purging of the Mark II containment through the Standby Gas Treatment System to maintain releases as low as reasonably achievable (BWRs w/Mark II containments);]

h. Radiological Environmental Monitoring Program:

This program is for monitoring the radiation and radionuclides in the environs of the plant. The program shall provide representative measurements of radioactivity in the highest potential exposure pathways and verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall be contained in the ODCM, conform to the guidance of Appendix I to 10 CFR 50, and include the following:

1. Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM,

2. A Land Use Census to ensure that changes in the use of areas at and beyond the site boundary are identified and that modifications to the monitoring program are made if required by the results of this census,

3. Participation in an Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring;

i. Component Cyclic or Transient Limit:

This program provides controls to track the FSAR Section [ ] cyclic and transient occurrences to ensure that components are maintained within the design limits;

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j. Containment Leakage Rate Test Program:

This program provides controls to ensure that the containment leakage rate tests are performed to ensure containment leak tightness, which is a requirement for OPERABILITY. The program shall include the following surveillances required by 10 CFR 50, Appendix J:

1. Type A tests (overall integrated containment leakage rate),
2. Type B tests (local penetration leak rates),
3. Type C tests (containment isolation valve leakage rates),
4. Air lock seal leakage and air lock overall leakage rates,
5. Isolation valve and channel weld pressurization system pressure verifications,
6. [ ]-inch purge supply and exhaust leakage rates;

[k. Pre-stressed Concrete Containment Tendon Surveillance Program:

This program provides controls for monitoring any tendon degradation in pre-stressed concrete containments to ensure containment structural integrity, a requirement for OPERABILITY. The program shall include baseline measurements prior to initial operations. The Tendon Surveillance Program shall include at least the following:

1. Tendon lift-off to check tendon force,
2. The number of tendons inspected for each tendon group,
3. Tendon wire samples taken to check physical condition, tensile strength and elongation,
4. Grease samples taken to check chemical properties, physical appearance, and presence of free water,
5. Measurement of grease voids,
6. Visual inspection of end anchorage and containment exterior surface for cracking and grease leakage,

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7. Procedures for establishing inspection frequencies,

8. Acceptance criteria,

9. The content and frequency of reporting,

10. Remedial actions including the OPERABILITY criteria and reporting requirements when one or more of the acceptance criteria are not met;

The Tendon Surveillance Program and all proposed changes thereto shall be reviewed and approved by the NRC staff prior to implementation.]

1. Inservice Inspection Program:

This program provides controls for inservice inspection and assessment of flaws of American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components. The program shall include the following:

1. Provisions that inservice inspection, repairs, replacements, modifications, and assessment of flaws to ascertain if acceptable assurance exists that the structural integrity of ASME Code Class 1, 2, and 3 components will be maintained, shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and Addenda, as required by 10 CFR 50.55a(g), except where relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i) and (a)(3),

VS-CE, W, B&W

[2. Inspection of each reactor coolant pump flywheel per the recommendations of Regulatory Position C.4.b of Regulatory Guide 1.14 Revision 1, August 1975;]

3. The provisions of SR 3.0.2 as applicable to the frequencies for performing inservice inspection activities,

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VS-GE

[4. An inservice inspection program for piping identified in NRC Generic Letter 88-01 in accordance with the NRC staff positions on schedule, methods, personnel, and sample expansion included in this generic letter or in accordance with alternate measures approved by the NRC staff.]

5. Provisions that nothing in the ASME Boiler and Pressure Vessel code shall be construed to supersede the requirements of any Technical Specifications (TS).

m. Inservice Testing Program:

This program provides controls for inservice testing of ASME code Class 1, 2, and 3 components. The program shall include the following:

1. Provisions that inservice testing of ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i) and (a)(3),

2. Testing frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as follows:

ASME Boiler and Pressure Vessel Code and applicable Addenda terminology for inservice testing activities	Required frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennial or every 2 years	At least once per 731 days

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3. The provisions of SR 3.0.2 as applicable to the above required frequencies for performing inservice testing activities,

4. The provisions of SR 3.0.3 as applicable to inservice testing activities,

5. Provisions that nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any TS.

[n. Steam Generator (SG) Tube Surveillance:

VS-B&W, W, CE

This program provides controls for monitoring steam generator tube degradation. Each SG shall be demonstrated OPERABLE by meeting the requirements of Specification 5.7.4.1 and by performance of an approved augmented inservice inspection program which includes at least the following:

1. SG sample selection and inspection,

2. SG tube sample selection and inspection,

3. The establishment of inspection frequencies,

4. Acceptance criteria,

5. The content and frequency of reports;

The Steam Generator Tube Surveillance Program and all proposed changes thereto shall be reviewed and approved by the NRC staff prior to implementation.]

[o. Secondary Water Chemistry:

VS-W, CE

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. The program shall include:

1. Identification of a sampling schedule for the critical variables and control points for these variables,

2. Identification of the procedures used to measure the values of the critical variables,

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3. Identification of process sampling points which shall include monitoring the discharge of the condensate pumps for evidence of condenser in-leakage,

4. Procedures for the recording and management of data,

5. Procedures defining corrective actions for all off-control point chemistry conditions,

6. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events is required to initiate corrective action.]

p. Ventilation Filter Testing Program:

A program shall be established to implement the following required testing of filters in accordance with [Regulatory Guide 1.52, Revision 2 or ANSI N510-1980]:

1. In-place penetration and bypass dioctyl phthalate (DOP) test,

2. In-place penetration and bypass hydrocarbon refrigerant gas test,

3. Methyl iodide penetration test of a charcoal sample,

4. Flow rate and pressure drop test, and

5. Heater power test;

q. Explosive Gas and Storage Tank Radioactivity Monitoring Program:

This program provides assurance of the following:

1. That the concentration of potentially explosive gas mixtures contained in the [waste gas holdup system] is maintained below the flammability limits of hydrogen and oxygen,

2. That in the event of an uncontrolled release of gaseous waste storage tank contents, the resulting offsite

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radiological consequences will not exceed a small fraction of the dose reference values in 10 CFR 100, and

3. That in the event of an uncontrolled release of outdoor liquid storage tank contents, the resulting concentrations would be less than the limits specified in 10 CFR 20 at the nearest potable or surface water supply in an unrestricted area.

The program shall include:

1. The limits for the concentration of hydrogen and oxygen in the [Waste Gas Holdup System] and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion),

2. The limits for the quantity of radioactive gas contained in each gas storage tank and a surveillance program to ensure the limits are maintained, and

3. The limits for the quantity of radioactive material contained in unprotected outdoor tanks and a surveillance program to ensure the limits are maintained.

The limits specified in this program and any proposed changes thereto shall be reviewed and approved by the NRC staff prior to implementation.

5.0 ADMINISTRATIVE CONTROLS

5.8 OPERABILITY Definition Implementation Principles and Rules

This section presents the rules for implementing the general principles embodied by the definition of OPERABLE-OPERABILITY that were used in the development of the Technical Specifications (TS). Adherence to these principles and implementing rules are required to ensure acceptable TS.

The definition of OPERABLE-OPERABILITY included in the TS is as follows:

> "A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s), and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s)."

The specified function(s) of the system, subsystem, train, component, or device (hereafter referred to as system) is that specified safety function(s) in the licensing basis for the facility.

5.8.1 General Principles of OPERABILITY

GENERAL PRINCIPLE 1: A system is considered OPERABLE as long as there exists assurance that it is capable of performing its specified safety function(s).

GENERAL PRINCIPLE 2: A system can perform its specified safety function(s) only when all of its necessary support systems are capable of performing their related support functions.

GENERAL PRINCIPLE 3: Assuring the capability to perform a safety function is an ongoing and continuous process.

GENERAL PRINCIPLE 4: When all systems designed to perform a certain safety function are not capable of performing that safety function, a loss of function condition exists. Facility operation with such a condition may not continue.

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GENERAL PRINCIPLE 5: When a system is determined to be incapable of performing its intended safety function(s), the declaration of inoperability shall be immediate.

GENERAL PRINCIPLE 6: Any exception to an immediate determination of inoperability must be justified.

5.8.2 Implementation Rules for TS

The definition of OPERABLE-OPERABILITY embodies a principle that a system can perform its function(s) only if all necessary support systems are capable of performing their related support functions. This definition extends the requirements of a Limiting Condition for Operation (LCO) for those systems that directly perform a specified function (supported system) to those that perform a required support function (support systems).

The timeliness of OPERABILITY determinations in response to nonconforming or degraded conditions should be commensurate with the safety significance of the issue. Once a determination of inoperability is made regarding a support or supported system included in the TS or a support system not included in the TS but necessary to support one or more systems included in the TS, then the actions to be taken are governed by the following rules:

IMPLEMENTATION RULE 1: Upon determining that a support or supported system is inoperable, the system is immediately declared inoperable.

IMPLEMENTATION RULE 2: When a support or supported system that is included in the TS is declared inoperable, the corresponding LCO is immediately entered.

IMPLEMENTATION RULE 3: When a support system is declared inoperable, all of its supported systems are immediately declared inoperable and the associated LCOs are entered unless otherwise justified:

a. In the Bases of the support system LCO, or

b. In the Bases of the supported system LCO or FSAR, or both, if the support system is not included in TS.

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IMPLEMENTATION RULE 4: When a support or supported system is declared inoperable in one train, the corresponding independent support or supported systems and all other associated support systems in the opposite train(s) are verified to be OPERABLE to ensure that the complete capability to perform the specified safety function has not been lost (i.e., loss of functional capability).

IMPLEMENTATION RULE 5: Upon determining that a loss of functional capability condition exists, actions specified in the support or supported system LCOs are taken to mitigate the loss of the functional capability.

(Guidance in support of these rules that was used in the development of the new Standard TS is presented in Section 1.5.)

5.8.3 Support and Supported Systems Association

[The licensee shall describe here the approach it established to associate TS and non-TS support systems with TS supported systems.]

5.0 ADMINISTRATIVE CONTROLS

5.9 Reporting Requirements

5.9.1 Routine Reports

The following reports shall be submitted in accordance with 10 CFR 50.4.

5.9.1.1 Startup Report

A summary report of plant startup and power escalation testing shall be submitted following:

a. Receipt of an Operating License,

b. Amendment to the license involving a planned increase in power level,

c. Installation of fuel that has a different design or has been manufactured by a different fuel supplier; and

d. Modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the unit.

The initial Startup Report shall address each of the startup tests identified in Chapter 14 of the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report. Subsequent Startup Reports shall address startup tests that are necessary to demonstrate the acceptability of changes and modifications.

Startup Reports shall be submitted within 90 days following completion of the Startup Test program; 90 days following resumption or commencement of commercial power operation; or 9 months following

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initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of Startup Test Program, and resumption or commencement of commercial operation), supplementary reports shall be submitted at least every 3 months until all three events have been completed.

5.9.1.2 Annual Reports

---------------------NOTE---------------------
A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

Annual Reports covering the activities of the unit as described below for the previous calendar year shall be submitted by March 31 of each year. The initial report shall be submitted by March 31 of the year following initial criticality.

Reports required on an annual basis include:

a. Occupational Radiation Exposure Report

A tabulation on an annual basis of the number of station, utility, and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man-rem exposure according to work and job functions (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance [describe maintenance], waste processing, and refueling). This tabulation supplements the requirements of Section 20.407 of 10 CFR 20. The dose assignments to various duty functions may be estimated based on pocket dosimeter, thermoluminescent dosimeter (TLD), or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole-body dose received from external sources should be assigned to specific major work functions; and

[b. Any other unit unique reports required on an annual basis.]

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5.9.1.3 Annual Radiological Environmental Operating Report

---------------------------NOTE---------------------
A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the Off-site Dose Calculation Manual (ODCM), and Sections IV.B.2, IV.B.3, and IV.C of Appendix I to CFR 50.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. The report shall identify the thermoluminescent dosimeter (TLD) results that represent co-located dosimeters in relation to the NRC TLD program and the exposure period associated with each result. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

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5.9.1.4 Semiannual Radioactive Effluent Release Report

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A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station, however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

The Semiannual Radioactive Effluent Release Report covering the operation of the unit during the previous 6 months of operation shall be submitted within 60 days after January 1 and July 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program (PCP) and in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR 50.

5.9.1.5 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience[, including documentation of all challenges to the power-operated relief valves (PORVs) or safety valves] shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

5.9.1.6 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, for the following:

   1. [The individual specifications that address core operating limits must be referenced here.]

   and shall be documented in the COLR.

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b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. [Identify the Topical Report(s) by number, title, date, and NRC staff approval document, or identify the staff Safety Evaluation Report for a plant-specific methodology by NRC letter and date,]

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal hydraulic limits, Emergency Core Cooling System (ECCS) limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met; and

d. The COLR, including any mid-cycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.9.2 Special Reports

[Special Reports may be required covering inspection, test, and maintenance activities. These special reports are determined on an individual basis for each unit and their preparation and submittal are designated in the Technical Specifications.]

Special Reports shall be submitted to the Regional Administrator of the Regional Office of the NRC within the time period specified for each report.

[The following Special Reports shall be submitted:]

a. In the event an ECCS is actuated and injects water into the RCS, a Special Report shall be prepared and submitted within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70;

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b. If an individual emergency diesel generator (EDG) experiences 4 or more valid failures in the last 25 demands, these failures and any non-valid failures experienced by that EDG in that time period shall be reported within 30 days. Reports on EDG failures shall include the information recommended in Regulatory Position C.5 of Regulatory Guide 1.9, Revision 3;

c. When a pre-planned alternate method of monitoring post-accident instrumentation functions is required by Condition E of LCO 3.3.[X], a report shall be submitted within 14 days from the time the action is required. The report shall outline the action taken, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the function to OPERABLE status; and

d. The NRC shall be informed within 24 hours of discovery of a reactivity anomaly involving a disparity of $\geq$ 1% $\Delta k/k$ in core reactivity in which the cause cannot be determined.

[VS-B&W,CE,W] In addition, the NRC shall be informed within 24 hours of discovery of a [quadrant power tilt ratio (QPTR) $\geq$ 1.09 or quadrant power tilt > maximum limit or Azimuthal Power Tilt (T_q) $\geq$ 0.10].

5.0 ADMINISTRATIVE CONTROLS

5.10 Record Retention

In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, the following records shall be retained for at least the minimum period indicated.

5.10.1 The following records shall be retained for at least 3 years:

a. All License Event Reports required by 10 CFR 50.73;

b. Records of changes made to the procedures required by Specification 5.7.1; and

c. Records of radioactive shipments.

5.10.2 The following records shall be retained for at least 5 years:

a. Records and logs of unit operation covering time interval at each power level;

b. Records and logs of principal maintenance activities, inspections, repair, and replacement of principal items of equipment related to nuclear safety;

c. Records of surveillance activities, inspections, and calibrations required by the Technical Specifications (TS) [and the Fire Protection Program];

d. Records of sealed source and fission d[illegible]r leak tests and results; and

e. Records of annual physical inventory of [illegible]l sealed source material of record.

5.10.3 The following records shall be retained for the duration of the unit Operating License:

a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the FSAR;

b. Records of new and irradiated fuel inventory, fuel transfers, and assembly burnup histories;

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c. Records of radiation exposure for all individuals entering radiation control areas;

d. Records of gaseous and liquid radioactive material released to the environs;

e. Records of transient or operational cycles for those unit components identified in [FSAR, Section X];

f. Records of reactor tests and experiments;

g. Records of training and qualification for current members of the unit staff;

h. Records of inservice inspections performed pursuant to the TS;

i. Records of quality assurance activities required by the Operational Quality Assurance (QA) Manual [not listed in Specification 5.10.1 and which are classified as permanent records by applicable regulations, codes and standards];

j. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59;

k. Records of the reviews and audits required by Specifications 5.5.1 and 5.5.2;

l. Records of the service lives of all hydraulic and mechanical snubbers required by [document where snubber requirements relocated to] including the date at which the service life commences and associated installation and maintenance records;

[m. Records of secondary water sampling and water quality;]

n. Records of analyses required by the Radiological Environmental Monitoring Program that would permit evaluation of the accuracy of the analysis at a later date. This should include procedures effective at specified times and QA records showing that these procedures were followed;

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o. Records of reviews performed for changes made to the Offsite Dose Calculation Manual and the Process Control Program;

[p. Records of pre-stressed concrete containment tendon surveillances;] and

[q. Records of steam generator tube surveillances.]

5.0 ADMINISTRATIVE CONTROLS

5.11 High Radiation Area

5.11.1 Pursuant to paragraph 20.203(c)(5) of 10 CFR 20, in lieu of the requirements of 10 CFR 20.203(c), each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., [Health Physics Technician]) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device which continuously indicates the radiation dose rate in the area, or

b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel have been made knowledgeable of them, or

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the [Radiation Protection Manager] in the RWP.

5.11.2 In addition to the requirements of Specification 5.11.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked doors to prevent unauthorized entry and the keys shall be maintained under the administrative control of the Shift Foreman on duty or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved

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RWP which shall specify the dose rate levels in the immediate work areas and the maximum allowable stay time for individuals in that area. In lieu of the stay time specification of the RWP, direct or remote (such as closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

For individual high radiation areas accessible to personnel with radiation levels of > 1000 mrem/hr that are located within large areas, such as reactor primary containment, where no enclosure exists for purposes of locking, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded, conspicuously posted, and a flashing light shall be activated as a warning device.

APPENDIX A

Acronyms

The following acronyms are used, but not defined, in the Standard Technical Specifications:

AC	alternating current
CFR	Code of Federal Regulations
DC	direct current
FSAR	Final Safety Analysis Report
LCO	Limiting Condition for Operation
SR	Surveillance Requirement
GDC	General Design Criteria or General Design Criterion

The following acronyms are used, with definitions, in the Standard Technical Specifications:

ACOT	ANALOG CHANNEL OPERATIONAL TEST
ADS	Automatic Depressurization System
ADV	atmospheric dump valve
AFD	axial flux difference
AFW	auxiliary feedwater
AIRP	air intake, recirculation, and purification
ALARA	as low as reasonably achievable
ANS	American Nuclear Society
ANSI	American National Standards Institute
AOO	anticipated operational occurrence
AOT	allowed outage time
APD	axial power distribution
APLHGR	AVERAGE PLANAR LINEAR HEAT GENERATION RATE
APRM	average power range monitor
APSR	axial power shaping rod
ARO	all rods out
ARC	auxiliary relay cabinets
ARS	Air Return System
ARTS	Anticipatory Reactor Trip System
ASGT	asymmetric steam generator transient
ASGTPTF	asymmetric steam generator transient protective trip function
ASI	axial shape index
ASME	American Society of Mechanical Engineers

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ASTM	American Society for Testing Materials
ATWS	anticipated transient without scram
ATWS-RPT	anticipated transient without scram recirculation pump trip
AVV	atmospheric vent valve
BAST	boric acid storage tank
BAT	boric acid tank
BDPS	Boron Dilution Protection System
BIST	boron injection surge tank
BIT	boron injection tank
BOC	beginning of cycle
BOP	balance of plant
BPWS	banked position withdrawal sequence
BWST	borated water storage tank
BTP	Branch Technical Position
CAD	containment atmosphere dilution
CAOC	constant axial offset control
CAS	Chemical Addition System
CCAS	containment cooling actuation signal
CCGC	containment combustible gas control
CCW	component cooling water
CEA	control element assembly
CEAC	control element assembly calculator
CEDM	control element drive mechanism
CFT	core flood tank
CIAS	containment isolation actuation signal
COLR	CORE OPERATING LIMITS REPORT
COLSS	Core Operating Limits Supervisory System
CPC	core protection calculator
CPR	critical power ratio
CRA	control rod assembly
CRD	control rod drive
CRDA	control rod drop accident
CRDM	control rod drive mechanism
CREHVAC	Control Room Emergency Air Temperature Control System
CREFS	Control Room Emergency Filtration System
CREVS	Control Room Emergency Ventilation System
CRFAS	Control Room Fresh Air System
CS	core spray
CSAS	containment spray actuation signal

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CST	condensate storage tank
CVCS	Chemical and Volume Control System
DBA	Design Basis Accident
DBE	Design Basis Event
DF	decontamination factor
DG	diesel generator
DIV	drywell isolation valve
DNB	departure from nucleate boiling
DNBR	departure from nucleate boiling ratio
DOP	diocytl phthalate
DPIV	drywell purge isolation valve
DRPI	digital rod position indicator
EAB	exclusion area boundary
ECCS	Emergency Core Cooling System
ECW	essential chilled water
ECP	estimated critical position
EDG	emergency diesel generator
EFAS	Emergency Feedwater Actuation System
EFIC	emergency feedwater initiation and control
EFCV	excess flow check valve
EFPDs	effective full power days
EFPYs	effective full power years
EFW	emergency feedwater
EHC	electro-hydraulic control
EOC	end of cycle
EOC-RPT	end of cycle recirculation pump trip
ESF	engineered safety feature
ESFAS	Engineered Safety Feature Actuation System
ESW	essential service water
EVS	Emergency Ventilation System
FBACS	Fuel Building Air Cleanup System
FCV	flow control valve
FHAVS	Fuel Handling Area Ventilation System
FSPVS	Fuel Storage Pool Ventilation System
FRC	fractional relief capacity
FR	Federal Register
FTC	fuel temperature coefficient
FWLB	feedwater line break

(continued)

APPENDIX A (continued)

HCS	Hydrogen Control System; Hydrazine Control System
HCU	hydraulic control unit
HIS	Hydrogen Ignition System
HELB	high energy line break
HEPA	high efficiency particulate air
HMS	Hydrogen Mixing System
HPCI	high pressure coolant injection
HPCS	high pressure core spray
HPI	high pressure injection
HPSI	high pressure safety injection
HPSP	high power setpoint
HVAC	heating, ventilation, and air conditioning
HZP	hot zero power
ICS	Iodine Cleanup System
IEEE	Institute of Electrical and Electronic Engineers
IGSCC	intergranular stress corrosion cracking
IRM	intermediate range monitor
ISLH	inservice leak and hydrostatic
ITC	isothermal temperature coefficient
K-relay	control relay
LCS	Leakage Control System
LEFM	linear elastic fracture mechanics
LER	Licensee Event Report
LHGR	LINEAR HEAT GENERATION RATE
LHR	linear heat rate
LLS	low-low set
LOCA	loss-of-coolant accident
LOCV	loss of condenser vacuum
LOMFW	loss of main feedwater
LOP	loss of power
LOPS	loss of power start
LOVS	loss of voltage start
LPCI	low pressure coolant injection
LPCS	low pressure core spray
LPD	local power density
LPI	low pressure injection
LPRM	local power range monitor
LPSI	low pressure safety injection
LPSP	low power setpoint

(continued)

LPZ	low population zone
LSSS	limiting safety system settings
LTA	lead test assembly
LTOP	low temperature overpressure protection
MAPLHGR	maximum average planar linear heat generation rate
MAPFAC	MAPLHGR factor
$MAPFAC_f$	MAPLHGR factor, flow-dependent component
$MAPFAC_p$	MAPLHGR factor, power-dependent component
MCPR	MINIMUM CRITICAL POWER RATIO
MCR	main control room
MCREC	main control room environmental control
MFI	minimum flow interlock
MFIV	main feedwater isolation valve
MFLPD	maximum fraction of limiting power density
MFRV	main feedwater regulation valve
MFW	main feedwater
MG	motor-generator
MOC	middle of cycle
MSIS	main steam isolation signal
MSIV	main steam isolation valve
MSLB	main steam line break
MSSV	main steam safety valve
MTC	moderator temperature coefficient
NDT	nil-ductility temperature
NDTT	nil-ductility transition temperature
NI	nuclear instrument
NIS	Nuclear Instrumentation System
NMS	Neutron Monitoring System
NPSH	net positive suction head
NSSS	Nuclear Steam Supply System
ODCM	Offsite Dose Calculation Manual
OPDRV	operation with a potential for draining the reactor vessel
OTSG	once-through steam generator
PAM	post-accident monitoring
PCCGC	primary containment combustible gas control
PCI	primary containment isolation

(continued)

APPENDIX A (continued)

PCIV	primary containment isolation valve
PCHRS	Primary Containment Hydrogen Recombiner System
PCP	Process Control Program
PCPV	primary containment purge valve
PCT	peak cladding temperature
PDIL	power dependent insertion limit
PDL	power distribution limit
PF	position factor
PIP	position indication probe
PIV	pressure isolation valve
PORV	power-operated relief valve
PPS	Plant Protective System
PRA	probabilistic risk assessment
PREACS	Pump Room Exhaust Air Cleanup System; Penetration Room Exhaust Air Cleanup System
PSW	plant service water
P/T	pressure and temperature
PTE	PHYSICS TEST exception
PTLR	PRESSURE AND TEMPERATURE LIMITS REPORT
QA	quality assurance
QPT	quadrant power tilt
QPTR	quadrant power tilt ratio
QS	quench spray
RACS	Rod Action Control System
RAOC	relaxed axial offset control
RAS	recirculation actuation signal
RB	reactor building
RBM	rod block monitor
RCCA	rod cluster control assembly
RCIC	reactor core isolation cooling
RCIS	Rod Control and Information System
RCP	reactor coolant pump
RCPB	reactor coolant pressure boundary
RCS	Reactor Coolant System
REA	rod ejection accident
RHR	residual heat removal
RHRSW	residual heat removal service water
RMCS	Reactor Manual Control System
RPB	reactor pressure boundaries
RPC	rod pattern controller
RPCB	reactor power cutback

(continued)

APPENDIX A (continued)

RPIS	Rod Position Information System
RPS	Reactor Protection System
RPT	recirculation pump trip
RPV	reactor pressure vessel
RS	recirculation spray
RT	reference temperature
RT_{NDT}	nil-ductility reference temperature
RTCB	reactor trip circuit breaker
RTD	resistance temperature detector
RTM	reactor trip module
RTP	RATED THERMAL POWER
RTS	Reactor Trip System
RWCU	reactor water cleanup
RWE	rod withdrawal error
RWL	rod withdrawal limiter
RWM	rod worth minimizer
RWP	Radiation Work Permit
RWST	refueling water storage tank
RWT	refueling water tank
SAFDL	specified acceptable fuel design limits
SBCS	Steam Bypass Control System
SBO	station blackout
SBVS	Shield Building Ventilation System
SCAT	spray chemical addition tank
SCI	secondary containment isolation
SCR	silicon controlled rectifier
SDV	scram discharge volume
SDM	SHUTDOWN MARGIN
SER	Safety Evaluation Report
SFRCS	Steam and Feedwater Rupture Control System
SG	steam generator
SGTR	steam generator tube rupture
SGTS	Standby Gas Treatment System
SI	safety injection
SIAS	safety injection actuation signal
SIS	safety injection signal
SIT	safety injection tank
SJAE	steam jet air ejector
SL	Safety Limit
SLB	steam line break
SLC	standby liquid control
SLCS	Standby Liquid Control System
SPMS	Suppression Pool Makeup System
SRM	source range monitor

(continued)

APPENDIX A (continued)

S/RV	safety/relief valve
S/RVDL	safety/relief valve discharge line
SSPS	Solid State Protection System
SSW	standby service water
SWS	Service Water System
STE	special test exception
STS	Standard Technical Specifications
TADOT	trip actuating device operational test
TCV	turbine control valve
TIP	transversing incore probe
TLD	thermoluminescent dosimeter
TM/LP	thermal margin/low pressure
TS	Technical Specifications
TSV	turbine stop valve
UHS	Ultimate Heat Sink
VCT	volume control tank
VFTP	Ventilation Filter Testing Program
VHPT	variable high power trip
v/o	volume percent
VS	vendor specific
ZPMB	zero power mode bypass

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This draft report documents the results of the NRC staff review of new Standard Technical Specifications (STS) proposed by the BWR Owners Group for the BWR/6 design. The new STS were developed based on the criteria in the interim Commission Policy Statement on Technical Specification Improvements for Nuclear Power Reactors, dated February 6, 1987. The new STS will be used as bases for individual nuclear power plant owners to develop improved plant-specific technical specifications. The NRC staff is issuing this draft new STS for a 30 working-day comment period. Following the comment period, the NRC staff will analyze comments received, finalize the new STS, and issue them for plant-specific implementation. This report contains three volumes. Volume 1 contains the Specifications for all sections of the new STS. Volume 2 contains the Bases for Sections 2.0 - 3.3 of the new STS and Volume 3 contains the Bases for Sections 3.4 - 3.10 of the new STS.

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